10 Landscape & Visual Impact Assessment

10.1 Introduction

10.1.1 This chapter was prepared by Colour and presents an assessment of the likely significant effects of the Proposed Development on landscape character and visual amenity. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any significant adverse effects identified and/or enhance likely beneficial effects. The nature and significance of the likely residual effects are reported.

10.1.2 The chapter considers the temporary landscape and visual effects during construction that will arise from the presence of construction plant, construction compounds, temporary access routes, earthworks and stockpiles in the landscape and views. Effects will also arise from construction activity including dredging, construction and from the removal of localised areas of existing vegetation. Permanent landscape and visual effects during operation will arise from the presence of altered landforms, water bodies, buildings, parking areas, recreational equipment and planting in the landscape and views.

10.1.3 This report should be read in conjunction with the Colour 'Landscape Strategy' that supports this planning application and is also provided as Appendix 5.2. Details of the landscape proposals will be required to come forward in accordance with the Landscape Strategy. Proposed landscape and ecological mitigation masterplans are also available in Chapter 5: Description of Development. Figures which support the assessment are provided in Appendix 10.3.

10.1.4 The chapter is supported by the following appendices:

- Appendix 10.1: Relevant Planning Policy and Guidance;
- Appendix 10.2: Proposed landscape and ecological masterplans;
- Appendix 10.3: Figures;
- Appendix 10.4: Baseline photographs of Site from key viewpoints;
- Appendix 10.5: Accurate Visual Representations (AVRs) of the Proposed Development including baseline and cumulative views; and
- Appendix 10.6: Arboricultural Impact Assessment.

Competence

10.1.5 This chapter was prepared by Peter Owens, a Chartered Member of the Landscape Institute (CMLI) with over 30 years' experience in practice and of Landscape & Visual Impact Assessment. Peter's first degree, a 2:1 BSc. (Hons) Agricultural & Environmental Sciences, University Newcastle Upon Tyne 1984-87 provides a firm foundation in the principle of ecological landscape architecture which is vital for this project. Peter achieved a Master of Landscape Design (MLD) 1991-95 with a dissertation focussed on 'Addressing Global Warming through Holistic Landscape Design'. He successfully became a Chartered Member of the Landscape Institute (CMLI) in 1998, a Member of the Urban Design Group in 1996 and Fellow of the Royal Society of Arts & Manufactures (FRSA) 2010.

10.1.6 Peter became an Expert Panel Member of DesigNE in 2021 and a Design Review Panel (South West) member in 2022. A key focus of these reviews is landscape character, fit and opportunities for ecological enhancement. Key experience includes review of the LVIA for the London 2012 Olympics Whitewater Canoe Slalom in the Lee Valley, recently for the approved Gravesham Leisure Centre, in the Kent Greenbelt and authorship of complex riverside urban regeneration sites at Quayside West and Malmo Quays in Newcastle Upon Tyne, 2019 and 2021 respectively.

10.2 Legislation, Planning Policy and Local Guidance

10.2.1 This section, together with Appendix 10.1, highlights key legislation, planning policy and local guidance of relevance to the LVIA.

Legislation Context

10.2.2 Nationally important landscapes, including National Parks and Areas of Outstanding Natural Beauty, have protection through law. There are no nationally important landscapes within a 3km radius of the Site.

Planning Policy

National

10.2.3 National planning policy in relation to landscape is contained within the National Planning Policy Framework (NPPF)[1]. The following policies are of most relevance to this LVIA:

- Chapter 11 - Conserving and Enhancing the Natural Environment;
- Chapter 12 - Conserving and Enhancing the Historic Environment; and
- Chapter 13 - Protecting Green Belt Land.

Regional

10.2.4 The Proposed Development Site lies within the London Metropolitan Green Belt. The London Plan[2] (March 2021) is relevant to the Site.

Local

10.2.5 Relevant policies from the London Borough of Hillingdon Council Local Plan (2020)[3] are provided in Appendix 10.1.

10.2.6 The Site lies within the Colne Valley Regional Park (CVRP) which was established in 1967 to preserve areas suitable for leisure, recreation and conservation to the west of London, between Rickmansworth and Staines. Further details are provided in Appendix 10.1 and in the Baseline section with respect to landscape character of the CVRP.

10.2.7 The objectives of the CVRP, as stated by the Colne Valley Park Community Interest Company (CVPCIC), are as follows:

"To maintain and enhance the landscape, historic environment and waterscape of the park in terms of their scenic and conservation value and their overall amenity.

To safeguard the countryside of the Park from inappropriate development. Where development is permissible, it will encourage the highest possible standards of design.

To conserve and enhance biodiversity within the Park through the protection and management of its species, habitats and geological features.

To provide opportunities for countryside recreation and ensure that facilities are accessible to all.

To achieve a vibrant and sustainable rural economy, including farming and forestry, underpinning the value of the countryside.

To encourage community participation including volunteering and environmental education. To promote the health and social well-being benefits that access to high quality green space brings."

10.3 Assessment Methodology

Guidance

10.3.1 This assessment has been undertaken in accordance with the following guidance:

- 'Guidelines for Landscape and Visual Impact Assessment Third Edition' (2013) (GLVIA3) published by the Landscape Institute and the Institute of Environmental Management and Assessment[4].
- Landscape Institute Advice Note 01/11 'Photography and photomontage in landscape and visual impact assessment' (2011)[5]. The level of detail provided on the photomontage was agreed with LBH and ranged from AVR 0 (annotation locating the proposal on a base photograph) to AVR 3 (fully rendered model fitted into the view).

Consultation

Pre-Application Consultation

10.3.2 Table 10.1 summarises key comments raised by consultees of relevance to this assessment during pre-application meetings and/or communication exchanges and how the assessment has responded.

Table 10.1: Consultation Response Summary

Consultee and Comment	Response relevant to the LVIA
LB Hillingdon (Planning) September 2022	
An initial masterplan was presented at a pre-application meeting. More ecologically and landscape driven information was requested.	Embedded mitigation within the landscape masterplan was developed (see Section 10.5 of this chapter).
LB Hillingdon (Landscape and Planning) 16th March 2023	
A 'work in progress' ecologically driven landscape masterplan, Zone of Theoretical Visibility (ZTV) study and proposed viewpoints for visual analysis and viewpoints for Accurate Visual Representation (AVR) study was presented by Greengage (project ecologist) and Colour.	A full LVIA has been undertaken as agreed with LBH. Fully rendered AVRs have been produced and are included in Appendix 10.5.

Consultee and Comment	Response relevant to the LVIA
LBH requested that an LVIA was requested as part of the planning application as the Site is located within Metropolitan Greenbelt. The viewpoint location of 3 no. fully rendered AVRs was agreed.	
Natural England Meeting (16 March 2023)	
A 'work in progress' ecologically driven landscape masterplan was jointly presented by Colour with Greengage (project ecologist).	Further information on engagement with Natural England is provided in Chapter 7: Biodiversity.
Natural England Meeting (2h March 2023)	
A meeting was held on Site with Natural England officers to discuss and review the baseline conditions with the ecologically driven landscape masterplan. Opportunities for habitat enhancement and construction mitigation were discussed.	The detailed response is covered within Chapter 7: Biodiversity.
Broadwater Sailing Club (Spring 2023)	
Liaison undertaken between BSC, Mace and LBH.	Requirements of the relocated BSC were confirmed such as agreement on co-location with HOAC, requirements of a 'sailing triangle' on the lake and boat parking numbers.
Hillingdon Outdoor Activity Centre (Spring 2023)	
Liaison undertaken between HOAC, Mace and LBH	Requirements of the relocated HOAC were confirmed. This formed the brief of elements to be included within the landscape masterplan.
Greater London Authority (15 May 2023)	
The latest iteration of the ecologically driven landscape masterplan was jointly presented by Colour with Greengage (project ecologist). The scheme was positively received from ecological and social perspectives whilst the need to retain openness of the Greenbelt was highlighted.	The masterplan has been developed accordingly with minimal intervention of new elements within the landscape visible from key receptor locations and the presence of open water maintained.
Hertfordshire and Middlesex Wildlife Trust (21 June 2023)	
The latest iteration of the ecologically driven landscape masterplan was jointly presented by Colour with Greengage (project ecologist).	The package of ecological enhancement measures incorporated within the masterplan so as to improve the existing condition of the

Consultee and Comment	Response relevant to the LVIA
	Site are described in Section 10.5 of this chapter and Chapter 7: Biodiversity.

EIA Scoping Opinion

10.3.3 A request for a Scoping Opinion was submitted on behalf of the Applicant to LBH by Quod on 23 February 2023. An EIA Scoping Report (the 'Scoping Report') accompanied the request (Appendix 3.2). A Scoping Opinion was issued by the LBH on 19 May 2023 (Appendix 3.3) which included comments from statutory consultees. Table 10.2 summarises key comments raised by consultees of relevance to this assessment by the EIA Scoping Opinion and how the assessment has responded to them.

Table 10.2: EIA Scoping Opinion Response

Consultee and Comment	Response
LBH Urban Design Officer (Landscape and Visual)	
The EIA needs to include a thorough evaluation of the landscape character identifying its inherent attributes. The landscape character assessment will form the preliminary stages of the LVIA with assessment of the sensitivity of the Site and its robustness to change that are derived from the landscape value of the Site. It should be demonstrated that the scale and extent of development within the Site are sensitive to the location and designed to avoid or minimise adverse impacts on the designated areas. Further, an LVIA should form part of the EIA. While it has been demonstrated with photos that there are only two open views of the Site shown on Figure 10.A3.2 with the ZTV. These are View no. 7 PROW south of Denham, View no. 3 from Public Right of Way (PROW) off Merle Avenue southwest of Harefield. The LVIA should also include a viewpoint form the Old Orchard Pub. These three viewpoints should be worked up to show visualisations of the scheme in accordance with Landscape Institutes guidance note TGN 06/19 Visual Representation of development proposals Table 1 Visualisation and produce visualisations of Type 2-4.	This chapter includes assessment of local landscape character and AVRs in accordance with GLIVIA3. In response to the AVRs, the masterplan was amended so as to minimise potential visual impact (further information is set out in Chapter 4: Alternatives).

Consultee and Comment	Response
The Landscape and Visual Impact Assessment (LVIA) should propose measures to reduce visual impact during construction and detail how the Main Building would be 'visually sensitive'.	These measures are included under 'Embedded Mitigation'.
Impacts should be assessed using visualisations produced in accordance with the Landscape Institute Technical Guidance Note 06/19.	AVRs undertaken accordingly.
The HS2 Colne Valley Viaduct would be the greatest change to the landscape and visual baseline and should be considered appropriately in all assessment scenarios and viewpoints.	The Colne Valley Viaduct is incorporated into cumulative AVRs.
Impacts upon sensitive recreational visual receptors of walking routes, cycle networks and residential receptors need to be considered within the visual assessment and effects reported as appropriate in the ES. The list of viewpoints should be reviewed in light of these sensitive visual and townscape receptors.	Sensitive viewpoints were generated with a bias towards recreational routes.
Plans and figures submitted with the planning application, which show the outline and detailed proposals, should be referred to within the assessment.	The Ecological Mitigation Masterplan and Landscape masterplan are both incorporated within Appendix 5.1. Detailed figures are also included within the Landscape Strategy (Appendix 5.2).
Mitigation measures should be incorporated into the Proposed Development, where possible, to prevent, reduce or compensate for any potential adverse effects on the landscape and visual amenity, which may occur during the construction or operational phase. Mitigation measures should be informed by the LVIA. The mitigation section of the LVIA should detail primary measures embedded in the design, construction practices and potential secondary measures to avoid and reduce impacts. Details should be provided on the location and size of areas committed to as part of the over-compensation for trees lost and list the species to be planted. The proposed design and materiality should be justified, and it should be demonstrated that the local character and sensitivities have been considered.	The LVIA incorporates a section on embedded mitigation, secondary mitigation and how proposals have been sensitively designed to minimise visual impact.

Consultee and Comment	Response
Heritage Landscapes The ES should include an assessment of the impacts on any land in the area affected by the development which qualifies for conditional exemption from capital taxes on the grounds of outstanding scenic, scientific, or historic interest. An up-to-date list is available at www.hmrc.gov.uk/heritage/lbsearch.htm.	There are no likely significant effects on heritage assets therefore this has been scoped out of the ES.
Canal and River Trust	
Soft Landscaping Following an initial meeting with the applicant, it is our understanding that revisions for the canal boundary, to include soft landscaping provision/enhancements, such as hedges, are proposed in lieu of the fencing and this would form part of any future submission. The Trust consider this approach would be preferable and are happy to discuss these proposals further with the applicant/developer as the scheme progresses.	From a security perspective the eastern site boundary would be a combination of fences, hedges and site boundary to be designed in detail sensitively with biodiversity, local landform and visual amenity. The details will be controlled by planning condition(s).

Summary of Assessment Scope

10.3.4 As agreed with LBH, the LVIA has assessed the potential significant direct and indirect effects of the Proposed Development on landscape character and visual amenity. This has been assessed at construction as well as operational stages in Winter as to represent a worst-case scenario for visual permeability with minimal vegetation cover.

10.3.5 The LVIA includes a thorough evaluation of the landscape character identifying its inherent attributes. The landscape character assessment forms the preliminary stages of the LVIA with assessment of the sensitivity of the Site and its robustness to change that are derived from the landscape value of the Site.

10.3.6 A 3km radius Zone of Theoretical Visibility (ZTV) study and field study has been undertaken to establish where views or part views of elements of the Proposed Development may be experienced from.

Non-Significant Effects

10.3.7 Temporary effects of less than 3 months and low-level woodland activity infrastructure were scoped out of further assessment within this ES with the largest being caving and pedal karting. The reasons for this are as follows:

i. Set within existing trees, the caving enclosure would comprise of stacked and interconnected plastic pipes and would be approximately 25 x 30m (750m²). Any foundations would be hand dug if within Root Protection Zones (RPZ);

ii. Pedal karting would be a 2.5m wide gravel track located in the gap between wet woodland and north shore tree groups of the peninsula. This facility at the former HOAC facility covered an area of 30 x 50m; and

iii. The short-term presence of construction paraphernalia such of cranes is scoped out.

10.3.8 The effect of views at night are not predicted to be significant for several reasons:

- The facility is a day time and primarily summer operation;
- The primary sensitive visual receptors are users of PRoWs who are unlikely to be active during the hours of darkness;
- The only likely reason for light in the hours of darkness would be from seasonal staff accommodation which could be readily controlled or contained within workshops; and
- The Site lighting strategy is controlled to minimise ecological impact.

Study Area

10.3.9 Guidance is provided by GLVIA3 on the area of landscape that needs to be covered in assessing landscape effects, referred to in the Guidance as a "Study Area" (para. 5.2 page 70):

"The study area should include the Site itself and the full extent of the wider landscape around which the Proposed Development may influence in a significant manner. This will usually be based on the extent of Landscape Character Areas likely to be significantly affected either directly or indirectly. However, it may also be based on the extent of the area from which the development is potentially visible, defined as the Zone of Theoretical Visibility, or a combination of the two."

10.3.10 An initial ZTV study was run for the Proposed Development without the screening barriers of intervening vegetation as shown on Figure 10.A3.2 at the end of this section. This initial ZTV study defined those areas where the screening barriers would be required and the ZTV rerun as a Screened Zone of Theoretical Visibility (SZTV) on Figure 10.A3.3.

10.3.11 The extent of Study Area was thus determined, by the following:

i. Potential effects on the landscape resources of the Site within the Site boundary only as proposals are fully contained within the Site.

ii. The visual analysis was limited to a 3km radius of the Main Building. This was defined as a result of the limited scale of the Main Building in association with local topography with the screening and filtering contribution of the dense framework of existing woodland and tree lined field boundaries that would prevent outward views and visual impacts.

Establishing Baseline Conditions

10.3.12 The current landscape and visual current and future baseline were established through a combination of:

- Desk analysis of mapping information and published landscape character assessments;

- LIDAR digital terrain modelling of the wider study area;
- Zone of Theoretical Visibility analysis software;
- Panoramic viewpoint photographs taken at 1.6m above ground level with a fixed lens digital SLR camera with a 50mm lens in accordance with GLVIA guidance during Winter for visualisation;
- Preparation of AVR views through computer modelling of proposals from the three viewpoint locations identified and agreed with LBH;
- An Arboricultural Survey by RSK Biocensus was undertaken 23 February 2023 with further detail provided in a follow up survey in April 2023 subsequent to the clearance of invasive Buddleia from the Site (Appendix 10.6);
- Site surveys of the Site and setting undertaken on foot and by vehicle undertaken on:
  - 13 November 2020
  - 14 June 2021
  - 7 March 2023
  - 24 March 2023

Assessing Likely Significant Effects

10.3.13 From the 2013 GLVIA guidance, the determination of landscape and visual sensitivity warrants consideration of landscape value and the susceptibility of the landscape receptor to the type of change proposed; and the value of views identified and the sensitivity of visual receptors to the type of change proposed. It is advised that there should be a reliance on professional judgement rather than the results of potentially complex, predetermined formulae and matrices. GLVIA3 also stresses that the approach to the assessment needs to be proportionate to the scale of the development being assessed and the nature of the likely effects. This approach has been followed in undertaking this appraisal, with matrices being used to assist initial assessment.

Construction

10.3.14 The construction methodology is set out in Chapter 6: Construction with activities that may have the potential to result in some changes and effects on landscape character, features and their appearance within the landscape. The following principal activities have been assessed:

i. Implementation of ecological mitigation:

- Earthworks to extend the main peninsula of the Site within the lake leading to a potential reduction of open water of 13,956m^2 (net);
- Dredging activity within the lake under specialist method statement from engineers with aquatic advice to prevent dispersal of sediments when dredging or constructing islands;
- Construction of new islands and shallows within the lake using material excavated from shallow areas and concrete caissons filled with growing substrate and planted;
- Erection of temporary acoustic and visual fences around works to minimise disturbance on wildlife;

- Construction a permanent acoustic fence adjacent to wet woodland (approximately 166m long);
- Sensitive and appropriate storage and location of any topsoil if scraped so as to maintain its viability;
- Breaking up, lifting, transportation around site and reuse of some existing concrete surfaces where required;
- Construction of wildlife pond;
- Preparatory tree works and installation of protective fences to BS5837 prior to any construction including removal of invasive species;
- Monitoring of tree condition and stability where concrete has been removed so as to establish whether trees are safe to be retained or must be removed;
- Site wide planting operations including those of dense screening belts buffer;
- Removal of some areas of concrete hard standing for reuse;
- Surcharging of some areas of retained concrete hard standing with materials for new vehicle routes or topsoil and drainage materials for new areas of soft landscape; and
- Erection of temporary hoardings to visually screen construction activities from the lake and sensitive habitats on the peninsula.

ii. Proposed buildings:

- Demolition and dismantling for relocation, existing structures of BSC;
- Excavation for foundations and servicing;
- Construction of walls, windows, ceilings, floors and roof structures;
- Scaffolding; and
- Construction of contractors' site compound for safe storage of construction materials, recycling of waste, site offices etc., to be located in an inconspicuous and the northeast position on the reclaimed land to avoid any conflict with existing habitats.

iii. Roads, infrastructure and parking areas for cars and boats:

- Groundworks to create sub bases;
- Site construction routes; it is proposed to utilise the existing access route and hard surfaces on Site as far as possible and agree safe haul routes;
- Construction of drainage infrastructure – primarily positive drainage to ditches and detention basins; and
- Wheel washing facilities of vehicles arriving on site to prevent bringing in of biological contaminants. Waste water would be sensitively dealt with to avoid any discharges into the lake system.

iv. Infrastructure for activities:

- Removal of two islands in the northeast of the lake;
- Construction of foundations;
- Construction of 1,684m site boundary fence; and

- Cranes (if required) to place large components in place for the high ropes and giant swing.

v. Utilities:

- Excavation of trenches for power, water and foul drainage services; and
- Installation of canopies for photovoltaic power generation over car parking.

vi. Good practice:

- Working hours and timing during the year of specific activities in specific locations would be strictly controlled;
- Construction car parking on site should be limited; and
- Implementation of dust suppression measures.

10.3.15 Temporary hoardings for visual screening of construction activities from the lake and sensitive habitats on the peninsula which would be removed prior to operation but may be left in situ whilst boats are brought onto Site.

Completed Development

10.3.16 The Landscape and visual effects of the following have been assessed:

i. Ecological mitigation – the landscape infrastructure:

- Extension of the main peninsula into the lake;
- New planted islands and shallows;
- New floating islands and strings of modular reedbed units within the lake;
- An acoustic fence (2m high) adjacent to wet woodland; and
- New planting of native screening buffers, hedges, woodland and orchard trees.

ii. Proposed buildings on extended peninsula:

- Main club house;
- Rowing and storage;
- Relocated BSC store; and
- Relocated BSC ‘French Barn’ store.

iii. Proposed buildings on peninsula:

- Replacement substation;
- Workshops;
- Changing and toilet block;
- Activity shelters;
- Anglers’ store; and
- Energy Centre and substation within fenced enclosure.

iv. Sailing associated storage and activity:

- Sailing on the lake reduced from the 36.3 ha approved area to 27.21 ha;
- Relocated jetty from BSC;
- Slipway off extended peninsula;
- Boatyard on extended peninsula;
- Boatyard on existing peninsula;
- Washdown area for boats arriving on-site.

v. Roads and scattered car parking groups.

vi. High ropes, big swing and zip line activity structures.

10.3.17 Likely significant effects are judged in relation to the completed Development.

Cumulative Effects

10.3.18 The principal cumulative impact would be from the construction, completion and operation of the HS2 railway line which is modelled and assessed in combination with the Proposed Development through the use of AVRs based on a digital model of the viaduct.

Determining Effect Significance

10.3.19 The receptor sensitivity, magnitude of impact descriptors and significance criteria used for the assessment are set out below, firstly for the appraisal of landscape and then visual effects.

Susceptibility to Change of Landscape Receptors

10.3.20 The sensitivity of a receptor is first defined by its susceptibility to change. This is defined as the ability of the landscape receptor (whether it be the overall character or quality/condition of a particular landscape type or area, or an individual element and/or feature, or particular aesthetic and perceptual aspects) to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies (see paragraph 5.40 of GLVIA3).

10.3.21 Susceptibility is combined with landscape value to determine the overall sensitivity of a landscape receptor / receptor landscape to the type of change proposed. Table 10.3 explains how criteria are applied.

Table 10.3: Criteria for the Assessment of Susceptibility to Change

Level	Typical Criteria
High	Key characteristics of the landscape are highly vulnerable to change. The nature of the development would result in a significant change in character.
Medium	Some of the key characteristics of the landscape are vulnerable to change. Although the landscape may have some ability to absorb some development, it is likely to cause some change in character.
Low	Few of the key characteristics of the landscape are vulnerable to change. The landscape is likely to be able to accommodate development with only minor change in character.

Level	Typical Criteria
Negligible	Key characteristics of the landscape are robust and would not be adversely affected by development.

Landscape Value

10.3.22 Assessment of value is concerned with the relative value attached to different landscapes by society. A consideration of value at the baseline stage informs judgements on the level of effects. Landscapes can be valued by different people for different reasons connected to a range of factors including landscape quality (condition), scenic quality, rarity, representativeness, conservation interests, recreation value, perceptual aspects and associations (see GLVIA 3 Box 5.1 for definitions).

10.3.23 This consensus can be recognised at a local, regional or national or international scale. Table 10.4 explains how criteria are applied to arrive at an appraisal of landscape value for this project.

Table 10.4: Criteria for the assessment of landscape value

Value	Typical criteria	Typical scale	Typical examples	Typical Capacity for Change
High	High Importance, Quality, Condition and Rarity. Non or limited potential for substitution	International, National	World Heritage Site, National Park, AONB, Registered Parks and Gardens	None or limited
Medium	Medium Importance or Reasonably Good Quality, Condition and Rarity. Some potential for substitution	Regional, Local	Special Landscape Area, Areas of Great Landscape Value, Areas of Landscape Importance, Local Nature Reserve, Local Wildlife Site Or Undesignated but valued e.g., demonstrable of use	Change possible without harm
Low	Low Importance, Quality, Condition and Rarity	Local	Areas identified as having some redeeming feature or features and possibly identified for improvement. Areas identified for recovery	Change could be beneficial

Landscape Sensitivity

10.3.24 As noted above, landscape sensitivity combines judgements on the susceptibility of landscape receptors to change of the type proposed, with the value attached to the landscape. Generally, a higher sensitivity will be ascribed to landscapes which have a high value, and which are highly susceptible to change, and vice versa. However, as GLVIA 3 (para. 5.46) recognises, these relationships are complex, particularly when considering change within or adjacent to designated landscapes.

10.3.25 For the purposes of this appraisal, landscape sensitivity is defined through the application of the typical criteria set out in Table 10.5.

Table 10.5: Criteria for the Assessment of Landscape Sensitivity

Level	Typical Criteria
High	An area of particular distinctive sense of place, in good condition, or highly valued for its scenic quality and/or landscape / townscape with low tolerance to change of the type identified.
Medium	An area with a clearly defined sense of place and / or character in moderate condition; an area valued at a local or regional level. An area that is partially tolerant of change of the type identified.
Low	An area with a weak sense of place, or low-quality landscape character, in poor condition, often not valued for its scenic quality. An area, which is tolerant of substantial change of the type, identified.

Magnitude of Landscape Impacts

10.3.26 Criteria for the assessment of the magnitude of landscape impacts are set out in Table 10.6.

Table 10.6: Criteria for the Assessment of Magnitude of Landscape Impacts

Level	Typical Criteria
High	▪ Total loss/ major change to key features or perceptual aspects of the baseline and/or the addition of new features considered to be totally uncharacteristic of the receiving landscape. ▪ Impacts would be of a large scale influencing several landscape character types/areas. ▪ Impacts would be long term and/or irreversible.
Medium	▪ Partial loss/ change to key features or perceptual aspects of the baseline and/or the addition of new features that may be prominent but not necessarily be considered to be substantially uncharacteristic of the receiving landscape. ▪ Impacts would be at the scale of the landscape character type/area within which the proposal lies. ▪ The impacts would be medium term and/or partially reversible.
Low	▪ Minor loss/ alteration to key features or perceptual aspects of the baseline and/or the addition of new features that may not necessarily be considered to be uncharacteristic of the receiving landscape.

Level	Typical Criteria
	▪ Impacts would be at the level of the immediate setting of the Site. ▪ Impacts would be short term and/or reversible.
Negligible	▪ Very minor loss/ alteration to key features or perceptual aspects of the baseline and/or the addition of new features that are not uncharacteristic with the surrounding landscape - approximating the ' no change' situation. ▪ Impacts would be at the Site level, within the development site itself. ▪ Impacts would be very short term and/or reversible.
None	▪ No loss or alteration to the key characteristics/ features - 'no change'.

Significance of Landscape Effects

10.3.27 The significance of predicted landscape effects are determined by considering the sensitivity of landscape receptors with the magnitude of impact on them from the Proposed Development. This methodology assigns them a level on a scale as set out in Table 10.7.

Table 10.7: Criteria for Determining the Level of Landscape Effects

Level	Typical Criteria
Major	The development, without mitigation measures, will have a substantial impact on the environment in comparison to the baseline.
Moderate	The development, without mitigation measures, will have a noticeable impact on the environment in comparison to the baseline.
Minor	The development, without mitigation measures, will have a small impact on the environment in comparison the baseline.
Negligible / no impact	The development, without mitigation measures, will have little or no impact on the environment in comparison with the baseline.

10.3.28 Informed professional judgement is then used to determine whether the effects are adverse, beneficial or neutral.

10.3.29 The matrix provided in Table 10.8 has been used to initially assess the relationship between sensitivity and magnitude of impact for each receptor to reach the level of effect, however this approach can be too formulaic in some instances (as noted in GLVIA3). This approach has therefore been used alongside a more detailed consideration of each effect with notes/ descriptions provided where required as set out in Table 10.8.

Table 10.8: Assessment of Significance of Effect relative to Sensitivity of Receptor and Magnitude of Impact

Sensitivity of receptor	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible / No Impact
Medium	Major	Moderate	Minor	Negligible / No Impact
Low	Moderate	Minor	Minor	Negligible / No Impact

Sensitivity of Visual Receptors

10.3.30 Visual receptors include the public or community at large, residents, people visiting promoted landscapes or attractions, people passing through on roads or non-vehicle forms of recreation.

10.3.31 The types of viewers, the numbers, and duration of the view and the importance of the view contribute to defining the sensitivity of a visual receptor.

10.3.32 For the purposes of this appraisal, visual sensitivity is defined through the application of the typical criteria set out in Table 10.9.

Table 10.9: Criteria for the Assessment of Visual Sensitivity

Level	Typical Criteria
High	Viewers with proprietary interest and/or prolonged viewing opportunities and / or who have a particular interest in their visual environment, for example residents, visitors to protected landscapes, users of outdoor recreational facilities/ routes whose interest would be focussed on the landscape.
Medium	Viewers with a moderate interest in their visual environment for example those travelling through/ past on transport routes, users of outdoor recreational facilities/ routes whose interest is not primarily focussed on the landscape.
Low	Viewers with passing or momentary interest in their everyday surroundings, for example motorists or people at their places of work whose attention is focussed on other activities and are therefore less susceptible to change.

Magnitude of Visual Impacts

10.3.33 Criteria for the assessment of the magnitude of visual impacts is derived from Table 10.10.

Table 10.10: Criteria for the Assessment of Magnitude of Visual Impacts

Level	Typical Criteria
High	Total loss/ major change to views and/or the addition of new features that would be incongruous, very prominent, and/or would greatly contrast with the existing view. Full, open views, experienced at a location or for the majority of a journey. The views would be close, direct and/or totally occupied by the development.
Medium	Partial loss/ change to views and/or the addition of new features that would be prominent, and/or would contrast with the existing view. Partial views, experienced for part of a journey or activity. The views would be middle distance, partially oblique and/or partially occupied by the development.
Low	Minor loss of/ change to views and/or the addition of new features that would not be prominent, and/or would not contrast with the existing view. Glimpsed views, experienced for a small part of a journey or activity. The views would be distant, oblique and/or only a small part of the view would be occupied by the development.
Negligible	Very minor loss of/ change to views and/or the addition of new features that are unlikely to be readily perceived. Very brief glimpsed views. The views would be very distant, very oblique and/or only a tiny part of the view would be occupied by the development.
None	Barely discernible alteration to views and/or the addition of new features that would be almost imperceptible - ' no change' situation. Views are not possible.

10.3.34 Magnitude can vary greatly due to differing seasonal or weather conditions, changes in light at different times of the day, and whether a development is seen against the background of the sky or the landscape. The appraisal takes into account a worst-case scenario.

10.3.35 The following terminology is used when describing the duration of effects:

- Short term: 6 months - 1 year
- Medium term: 1 - 2 years
- Long term: 2 - 10 years

10.3.36 Reversibility is an evaluation of the ability and practicality of an effect being reversed in for example a lifetime. As an example, housing is considered permanent however elements of the construction procedures and compound of the contractors can eventually be reduced, removed and land restated.

10.3.37 The following terminology is used when describing approximate distance between the viewer and the proposals.

- Local: up to 1 km from the centre of development.
- Medium: 1 - 3.5 km from the centre of development.

- Long distance: over 3.5 - 7.5 km from the centre of development.

10.3.38 The number of viewers or users who experience the view are factors in making a judgement of significance. The terminology used are:

- Low - very few people experience the view, or the view is rarely experienced.
- Medium - a moderate number of people experience the view, often.
- High – many people experience the view, frequently.

Significance of Visual Effects

10.3.39 Predicted effect is determined by considering the sensitivity of visual receptors with the magnitude of impact on them from the Proposed Development as shown in Table 10.11.

Table 10.11: Criteria for Determining the Significance of Visual Effects

Level	Typical Criteria
Major	The development, without mitigation measures, will have a substantial impact on the environment in comparison to the baseline.
Moderate	The development, without mitigation measures, will have a noticeable impact on the environment in comparison to the baseline
Minor	The development, without mitigation measures, will have a small impact on the environment in comparison the baseline.
Negligible / no impact	The development, without mitigation measures, will have little or no impact on the environment in comparison with the baseline.

10.3.40 Informed professional judgement is then used to determine whether the effects are beneficial, adverse or neutral.

10.3.41 The matrix in Table 10.12 has been used to initially assess the relationship between sensitivity and magnitude of impact for each receptor to reach the level of effect, however this approach can be too formulaic in some instances (as noted in GLVIA3), therefore this has been used alongside a more detailed consideration of the significance of each effect with notes or descriptions provided. Effects may be adverse or beneficial.

Table 10.12: Assessment of Significance of Effect relative to Sensitivity of Receptor and Magnitude of Impact (change)

Sensitivity of receptor	Magnitude of Impact (change)			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Negligible / No Impact
Medium	Major	Moderate	Minor	Negligible / No Impact
Low	Moderate	Minor	Minor	Negligible / No Impact

Assumptions and Limitations

10.3.42 Assumptions and limitations relevant to the assessment are set out below:

- The Denham Valley Floor LCA is the most recent and considered to appropriately represent all the key aspects of the many other LCAs. The summary and strategies proposed are therefore assessed against the Proposed Development;
- The ZTV study of the proposed building and thus visual impact assessment was limited to a 3km (approximately 2 miles) radius as it was observed on-site that buildings of a similar order of scale to the proposed Main Building were barely discernible;
- Photography for AVRs and visual appraisal was undertaken prior to the principal screening effects of leaves on trees so as to provide a Winter view 'worst-case' scenario of the landscape in terms of potential impacts;
- When the weather is fine, clearer views would be experienced;
- Existing sailing activities associated with the Broadwater Sailing Club, which could populate the lake with a maximum of 50 no. craft at any single event were not present during field assessment. This provides a worst-case scenario of the baseline in terms of natural landscape receptors but does not take into account the baseline scenario of sailing activities which is of highly effect on the landscape character experienced throughout the year albeit with more intense activity in better weather when wind conditions are suitable;
- Photographs were not taken from the following predicted potential viewpoints for the following reasons:
  - VP08 Colne Valley Trail. The shard of potential visibility was very slim and threaded through approximately 1.5km of existing vegetation. It is therefore highly unlikely that there would be any views of proposals;
  - VP 11 Old Shire Lane Circular Walk. This was not accessible due to the PRoWs being either closed as a result of the construction of HS2. The location is not however deemed significant as the location would be to the west of HS2 and any potential views into the Site either screened or dominated by the railway infrastructure.
- It should be noted that AVRs represent a worst-case scenario in that:
  - At the time of production, the finished flood level (FFL) for the Main Building was 38.5m AOD, which is 0.25m higher than the finalised 38.25m AOD. The result is that proposals would sit even lower and therefore more comfortably in the landscape than actually shown;
  - Continued development of ecological mitigation has proposed infilling of the gap of water with new land and dense woodland between the two existing linear north-south aligned islands existing at the northeast of the existing peninsula. The effect would be to both screen the eastern lagoons from visible activity, but also reduce the predicted glimpsed view of the proposed Boat Shed and outdoor working space from VP15;
  - The landscape and ecological mitigation of islands and reedbeds that would further help absorb proposals into the landscape are not shown;
  - Photographs all demonstrate Winter views and therefore greater potential visibility of proposals than in the summer months when vegetation is in leaf;

- Cumulative AVRs with the HS2 viaduct included do not include proposed HS2 landscape mitigation;
- Over time vegetation on the Site and in the surrounding landscape will grow and therefore further reduce the impact of any potential views.

- Photovoltaic panels are proposed on the south facing roof planes of the main building which would not be visible from the north where potential views would be experienced from. They have therefore not been scoped into the visual impact assessment.
- Water activities such as rafting, kayaking and rowing have not been included within the visual impact assessment as their scale is deemed to small and durations of operation too brief to be significant at a Site or study area scale.

10.4 Baseline Conditions

Landscape

Landscape Character Areas

10.4.1 The Colne Valley is the first significant area of semi-natural landscape experience west of London. Its value as a landscape was recognised in the formation of the Colne Valley Regional Park (CVRP) within which the Site lies.

10.4.2 There are many Landscape Character Assessments LCAs in the local area, produced by different organisations but with common themes as summarised at the end of this section.

10.4.3 At a national level the Colne Valley lies in the wider Natural England 'National Character Area Profile 115: Thames Valley' (2015)[7] and describes the landscape as follows:

'…includes the Colne Valley'.

The River Thames provides a unifying feature through a very diverse landscape of urban and suburban settlements, infrastructure networks, fragmented agricultural land, historic parks, commons, woodland, reservoirs and extensive minerals workings.

Although there is virtually no undisturbed land in the NCA, parts are valued for their relative tranquillity. The area's natural beauty and royal history have created a haven on the doorstep of central London, a place to escape, relax, exercise, explore and have fun. Its 1,000 km of rights of way, waterbodies and green space, all provide recreation opportunities and access to nature for a population of around 1.4 million, as well as to visitors from inner London and beyond.

10.4.4 This National Character Area's (NCA) Statements of Environmental Opportunities are highly aligned for the Proposed Development:

- SEO 2: Plan for the landscape-scale enhancement of the area's extensive gravel workings and other open waterbodies …for their important habitats and recreation facilities, and for their geological interest.
- SEO 3: … promote the incorporation of best practice environmental measures into any new development.
- SEO 5: Develop the recreational, educational and commercial tourism opportunities offered by public access to – and engagement with – the historic buildings and

landscapes in the area, such as Hampton Court Palace, Windsor Castle and the Royal Botanic Gardens at Kew, for their contribution to a sense of place and to people's enjoyment and understanding of the area.

10.4.5 As a result of its highly varied character, established juxtaposition of urban development, transport infrastructure, green and blue infrastructure it is considered that there is a low susceptibility to change and overall, the NCA is judged of low sensitivity.

10.4.6 At a local level, the South Bucks District Landscape Character Assessment[8] includes the two LCAs, with LCA 26.3 The Colne Valley Floodplain bounding the River Colne to the western boundary and LCA 22.2 Chalfont St Peter Mixed Use Terrace within 100m of the western site boundary.

10.4.7 Key characteristics of the varied landscape of LCA 26.3 The Colne Valley Floodplain within the study area include:

- Flat, wide lowland floodplain, with very little topographic variation, on alluvium and loamy/clayey floodplain soils, with naturally high groundwater levels.
- Dominated by rough grazing and pasture, interspersed with arable fields and paddocks. Predominantly geometric field patterns, enclosed by low hedgerows.
- Tree cover is sparse, and largely confined to field boundaries. Small ancient woodlands are occasionally found in the north, close to settlement.
- Three small settlements… Elsewhere settlement density is low, comprising isolated farmsteads and occasional small, nucleated hamlets.
- Gravel extraction has shaped the landscape, with former gravel pits restored into a string of water bodies. A network of meandering rivers and streams, occupy the floodplain, and the River Colne runs largely along the east boundary. These provide a valuable wildlife resource and recreational opportunity.
- Fields are a mix of pre 18th century irregular and 20th century regular enclosures.
- Grade II listed historic parkland located at Denham Place, north of Denham, a late 17th century country house surrounded by an 18th century landscaped park.
- Transport corridors cut the landscape including the M25, M40, which have a strong visual and audible influence. Screening earthworks are associated with these in places. Two railway lines also cross the area.
- The area lies within the Colne Valley Regional Park and a well-established network of public rights of way exists.
- Intermittent long views are afforded across open fields and across the Colne Valley; however, views are often interrupted by roads. Extensive views towards this landscape from the adjacent Hillingdon District.
- Roads and pylons fragment an otherwise simple landscape and generate a discordant and busy character. Away from these areas, pockets of tranquillity remain associated with water and woodland.

10.4.8 As a result of its low tranquillity, often poor condition and low susceptibility to change, overall, this LCA is judged of medium sensitivity.

10.4.9 Key characteristics of the also varied LCA 22.2 Chalfont St Peter Mixed Use Terrace within the study area include:

- An elevated and large-scale landscape, …contrasted with areas of undulating landform. Along with a mosaic of land cover and land uses this creates a highly varied landscape.
- …with medium to large scale, geometric arable fields., interspersed with smaller scale rough grazing, often more evident on slightly undulating landform.
- Dense, mature woodland blocks dominate the area in the south,
- - …varying degrees of openness and enclosure. Broadleaved woodland predominates, much of which is ancient semi natural woodland.
- Cut by a major transport corridor, the M25 which generates local visual and audible impacts. Smaller rural roads link settlement.
- Smooth open arable fields are often emphasised by gappy field boundaries. Panoramic vistas across these fields and to the Colne Valley, contrast with enclosed views along hedged lanes and within woodland.
- A highly varied and diverse landscape, which has been influenced strongly by development, and fragmented by electricity pylons and the M25, which transect the landscape. Away from these areas, pockets of rural tranquillity and naturalness have been maintained.

10.4.10 As a result of its varied condition, varied tranquillity and varied low to high susceptibility to change depending on location, overall, this LCA is judged of medium sensitivity.

10.4.11 The Colne Valley Landscape Partnership (CVLP) ran from 2019 to September 2022 with the purpose of preserving and enhancing the landscape for people and wildlife within the CVP as captured in CVLP's four key aims that emphasise:

Biodiversity value

i. To restore and strengthen the landscape character and its visibility, focusing on key habitats intrinsic to the landscape, providing resilience and the ability to sustain the landscape in the long term.

Community access and heritage

ii. To reconnect local communities with the landscape's heritage, raising awareness of the Colne Valley to a wider range of people through learning activities, information and interpretation resources, cultural events and volunteering.

Stewardship

iii. To invest in skills to enable the stewardship, at grass roots level, of the landscape based on a specialised and locally specific Volunteer and Training Plan.

Safeguarding long term management

iv. To create a robust, active and effective partnership for managing the landscape beyond the life of the Landscape Partnership scheme.

10.4.12 The Colne Valley Landscape Partnership prepared 'Colne Valley – Landscape on the Edge - Landscape Conservation Action Plan' [9] in March 2018 which contains the Colne Valley Landscape Character Assessment and describes the Colne Valley Regional Park with the typical classification of Regional Parks as:

'areas of land preserved on account of their natural beauty, historic interest or recreational use, covering a region which crosses several administrative boundaries. They are identified jointly by local authorities and do not have the status or legislative backing afforded to National Parks and Areas of Outstanding Natural Beauty.

The Colne Valley Regional Park covers an area of countryside to the west of London amounting to 112km2 or 43 square miles. It was established in 1965. It is estimated that it attracts at least 2 million visitors each year. The vision for the Regional Park is: "The Colne Valley Park will be a sustainable network of high-quality countryside, villages, green spaces and other amenities that provide a regionally significant destination for recreational and cultural pursuits. The Colne Valley Park will be a pleasant environment in which people live, work and play that also supports thriving farming & forestry and a rich range of wildlife. The Green Infrastructure of the Colne Valley Park and the built landscape of West London will blend in an integrated manner." Defra's Natural Environment White Paper recognises places such as the Colne Valley as being capable of fulfilling valued economic and social as well as environmental objectives. Defra's catchment-based approach provides greater prominence for the Colne Valley as a spatial concept which transcends local government boundaries. The All-London Green Grid, recognises the Colne Valley as an integral part of the capital's strategic open space network.'

10.4.13 With an emphasis on landscaped quality, recreation and the integration of the Green Infrastructure of the Colne Valley Park with the built environment leads to an overall medium susceptibility to change and medium sensitivity of the CVRP.

10.4.14 The CVLP LCA of the CVRP breaks the area down into a series of LCAs and physical landscape types as shown on figures in Appendix 10.1.

10.4.15 Of the above landscape character types from the CVLCA (described in Appendix 10.1), the Site in located on the 'valley floor' whilst the study area includes:

- Valley sides.
- Undulating farmlands.
- Tributary valley.
- River terrace.

10.4.16 The Site is located within the Colne Valley: Rickmansworth to Uxbridge LCA and is described as:

'This character area comprises the valley floor and the sloping valley sides of the Colne Valley which stretches between Rickmansworth and Uxbridge with a north -south orientation. Open water lakes surrounded by often dense regenerated tree cover fill much of the valley floor and the sloping valley sides offer elevated views along and across the valley. The combination of open water, tree cover, open farmed and wooded valley sides and variations in topography give rise to high scenic quality in places.'

10.4.17 Due to the value placed on the landscape and recognition of high scenic value 'in places' the LCA is judged of medium susceptibility to change and of medium sensitivity.

10.4.18 To conclude, the Colne Valley: Rickmansworth to Uxbridge LCA is the most recent and considered most relevant. In summary, the landscape character of the Site and immediate setting can be defined as a function of:

- Artificial water bodies created from previous gravel excavation some of which include islands;
- Public recreation including sailing activity and adjacent Grand Union Canal towpath with trails and footpaths further afield;
- Remnant areas of derelict hard standing and structures such as the weighbridge on Site from previous industrial uses;
- Waterside edges of naturally regenerated woodland of variable condition around the waterbodies;
- Visible biodiversity, predominantly birdlife;
- A surrounding tight matrix of woodland blocks, strips hedgerows and generally small fields around the Site on the valley floor, opening out to a larger arable and woodland pattern on valley sides and farmland above;
- Heavy infrastructure, generally screened by vegetation but most present in sound; including the M25, A412, M40 and HS2 which is currently under construction;
- The occasional building associated with the river and canal, scattered houses and ongoing minerals extraction operations; and
- The River Colne is generally hidden.

10.4.19 Detailed description of the physical components of the Site and setting follows.

Topography, waterbodies and watercourses

10.4.20 The landscape of the study area is dominated by the broadly north to south running shallow valley of the River Colne which meanders through a series of waterbodies in the valley, to the west of the Grand Union Canal. The tributary valley of the River Misbourne connects in the southwest. Raised undulating land bounds both sides of the Colne Valley. Topography is shown on Figure 10.A3.4.

10.4.21 Waterbodies are predominantly artificial, the remnants of past quarrying activities, semi-geometric in form, many separated by narrow strips of land yet few exhibiting islands as present at Broadwater Lake.

10.4.22 Bedrock geology is dominated by sedimentary London Clay mudstone, layered with alluvium, loamy and clayey soils, with naturally high groundwater. Sand and gravel deposits on top of the floodplain have been the focus of extensive mineral extraction pits across the Valley Park.

10.4.23 As shown on Figure 10.A3.6, the Site (Broadwater Lake) is one of a series of lakes on the valley floor that was formed by the infill of ground water into these extraction works, with a part of Broadwater Lake most recently working in the 1970's and 1980's to provide material for concrete for the M25. The pattern of water and land closely relates to the geological resource, methods and phases of working with a resultant cellular landscape comprised of a complex and seemingly irregular pattern of islands, peninsulas and isthmuses of which the Site is typical.

10.4.24 The Site displays much evidence of its former industrial use as a gravel extraction works with extensive hard surfaces, significant visible disturbance of the original landform and concrete structures still present (as shown on Figure 10.A3.5). Land and water have also been shaped by the location of remnant concrete working surfaces and deposition of quarry waste material in addition to excavation. This has led to many crude edges to land and water that are suboptimal to terrestrial, aquatic and emergent vegetation.

10.4.25 The Site lies between the 'natural' River Colne to the west and north and the Grand Union Canal along the eastern boundary. This juxtaposition of natural and manmade is typical of the physical structure of this landscape and combine to create a rich variety of water conditions.

Vegetation

10.4.26 The lake is almost entirely covered and surrounded by mature vegetation, generally broadleaved and semi-natural woodland. An arboricultural survey supported by Arboricultural Impact Assessment (ArbIA) has been undertaken for the Site (Appendix 10.6). The survey and reports were carried out by RSK Biocensus in accordance with criteria outlined in the British Standard BS5837:20121. The aim was to:

- Identify the location species, quality and value of the trees;
- Categorise them in respect of their suitability for retention;
- Identify the impacts of the Proposed Development on the arboricultural features present.

10.4.27 Tree categories follow with ArbIA definitions:

- A - Trees of high quality and value able to make a substantial contribution to the Site. Every effort should be made to retain trees, and amendments to a proposed scheme should be identified in preference to tree removal;
- B - Trees of moderate quality and value able to make a significant contribution to the Site. Where possible, amendments to a proposed scheme should be considered in preference to tree removal;
- C – Trees of low quality and value in an adequate condition until new planting can be established; trees with impairments downgrading them from A or B category; OR young trees with a stem diameter of less than 150 mm. The retention of trees may be advantageous in the short term, but they should not be seen as a constraint to development.
- U - Trees that have limited condition that will fail or die within 10 years and/or should be removed for reasons of arboricultural best practice

10.4.28 A total of 79 individual trees, 47 groups of trees, 6 hedges and 7 shrub groups were recorded on the peninsula. The most prominent tree features are the large, wooded areas located to the west and south of the internal former quarry site with prominent individuals on the southern and eastern boundary of the lake: this includes groups G5, G9, G14, G18, G19, G36-37, G45 and trees T1-T4 and T18.

- Of the 79 individual trees recorded: 1 was Category A; 19 were Category B, 46 were Category C and 13 were category U.

- Of the 34 groups recorded: 1 was Category A; 14 were category B; 29 were category C and 3 were category U.

10.4.29 As shown on Figure 10.A3.7 the quality of trees on the peninsula is predominantly category B with notable groups including:

- G5 wet woodland in the old settling tank on the main peninsula – predominantly Willow spp. And Alnus glutinosa;
- G1 on the linear island to the north – predominantly Willow spp. But also includes Tilia x europaea, Betula spp. and Alnus glutinosa;
- G2 on the existing northern shore – predominantly Willow spp., Betula pendula and pubescens; and
- G9 along the inlet to the south.

10.4.30 Elsewhere, trees are predominantly in poor condition having struggled to establish on the remnant concrete surfaces with limited growing substrate left by the former gravel extraction and processing works on-site. Many of these pioneer trees have grown on this hard surface with a resultant shallow root system and latent instability of trees. In addition, there are large areas of invasive Buddleia which is in the process of clearance as is Japanese Knotweed.

10.4.31 Between the peninsula and the existing BSC site, there are tree groups which will not be impacted upon by the Proposed Development, including a group of category A trees.

10.4.32 Most significantly, the ArbIA concludes that there would be net uplift in tree quality as a result of the Proposed Development:

- Retention of the main woodland features within the site will continue to provide positive environmental, ecological, and landscape benefits.
- The proposed planting of native woodland, specimen trees, orchard trees and thorn buffers in combination with future management, ecological enhancements and retaining the significant woodlands and large coppice stools mitigates significantly against tree loss and therefore the Proposed Development is deemed beneficial from an arboricultural perspective.

10.4.33 Further afield, the wider mosaic pattern of fields, woodland and water of the valley bottom as described above has a predominantly wooded character. This combines with the adjacent valley sides, tributary valley, undulating farmlands to the east and west possess many broadleaved woodland blocks and belts which are generally connected with hedgerows so as create a broader landscape pattern rich with trees and often enclosed as a result. This pattern includes woodland and tree planting associated with a number of golf courses in the area and is shown on Figure 10.A3.8.

10.4.34 The compounded filtering effects of the many layers of vegetation (without or with leaves) within this mosaic landscape (of field boundaries, riparian, incidental and woodland blocks) limits visibility and thus provides full screening within most of the landscape.

Settlement pattern

10.4.35 There is little settlement other than the occasional dwelling often related to canal or river on the valley floor. To the southeast of the Site on the east side of the Grand Union Canal lies South Harefield which is connected by Church Hill to the larger village of Harefield with very

little separation and 1.5km from the Site. Ickenham and West Ruislip at the western extent of the London conurbation are just beyond 3km from the Site to the southeast. The settlement is shown on Figure 10.A3.9.

10.4.36 Denham is situated less than 1.5km to the southwest of the Site with the smaller settlement of Higher Denham 0.5km beyond.

10.4.37 A caravan park is located 0.5km to the west of the Site within dense woodland and famous former film studios, now Denham Grove just to the north of this on the A412 North Orbital Road.

10.4.38 The southern extent of the residential Maple Cross is 3km from the Site to the north-northwest with West Hyde to the south of here, mainly on valley side but also extending on the valley floor.

Movement routes

10.4.39 The study area and its wider setting are strongly influenced by many movement routes of many modes. This characteristic has evolved over time and includes the historic lanes, canals, A roads, motorways, railways and an airstrip. The proximity of these equips the Site with valuable transport links to London and beyond:

- The Grand Union Canal linking London to Birmingham with its associated pedestrian tow path runs north south along the eastern Site boundary;
- A dense network of public footpaths, trails and bridleways in the study area (as shown on Figure 10.A3.10) including:
  - The London Loop which shares a section with the Colne Valley Trail;
  - The Hillingdon Trail.
  - Old Shire Lane Circular Walk.
  - South Bucks Way.
- Overland rail infrastructure runs east-west through the southern portion of the study area with a station at Denham that includes an elevated footbridge;
- An elevated section of the HS2 rail link between London and Birmingham is currently under construction, running from the southeast to the northwest of the study area;
- A notable hierarchy of road infrastructure within the area including:
  - The M25 London Orbital Motorway skirting the Site 3km to the west.
  - The A412 North Orbital Road just beyond the Site's western boundary.
  - The dual carriageway A40 Oxford Road 3km to the south and connecting the A412 with the M40 just out with the study area.
  - A number of B roads connecting settlements.
  - Older local country lanes.
- Denham Aerodrome lies adjacent to the northwest of Denham.

Recreation

10.4.40 As would be expected of a natural resource so close to large populations, rural recreation has a major presence in the study area and is indeed one of the purposes of the Colne

Valley Regional Park, which stretches for approximately 25km from Batchworth and Bury Lakes near Rickmansworth in the north to King George VI and Staines Reservoirs in the south. This is evidenced by land uses that include the following:

- The rights of way network including named promoted routes as above.
- Golf courses including two in Denham and the Uxbridge Golf Club off the Harvil Road to the southeast.
- Watersports including the existing Broadwater Sailing Club on site, the Rickmansworth Sailing Club on the lake to the north and Denham Water Ski Club to the west; all on the valley floor.
- Numerous stables and informal equestrian activity.

Industrial legacy

10.4.41 Much of the current physical character of the Colne Valley Regional Park was formed by its industrial past with the Grand Union Canal an arterial legacy of the Industrial Revolution, mills associated with the Colne River and more recently the sand and gravel extraction. Whilst most pits are no longer operational, their mark has been left on the landscape through the creation of the lakes and dry depressions which are so typical of the area.

Visual Baseline

10.4.42 The visual baseline appraisal has defined the nature of the existing visual amenity of the area, seeking to establish the approximate extent of visibility from surrounding locations and receptors.

10.4.43 An initial ZTV splay was generated for a radius of 3km from the Site (as per Assumptions described previously in the chapter), based on the worst-case scenario of the proposed Main Building proposed on the Site (finished floor level of 38.25m AOD and 11m maximum ridge height).

10.4.44 Given that the Site sits within a valley, with higher ground to the east and west, the ZTV radius was chosen to ensure that potential receptors located along and above valley sides would be included.

10.4.45 Due to the screening potential of extensive woodland and hedgerows within the study area, the Digital Terrain Model (DTM) was augmented by the addition of significant woodland screening belts so as to generate a SZTV which provides a closer guide to where potential views of the building may be seen from.

10.4.46 The SZTV and desk study as per shown on Figure 10.A3.3 suggested that the built elements of the Proposed Development could be visible in short range views from:

- Within the Site itself; and
- Pockets of open land between woodland blocks along the eastern valley side west of Harefield and around South Harefield.

10.4.47 Medium range views were identified as potentially visible from:

- Pockets of open land between woodland blocks west of Harefield and from the Uxbridge Golf Club along the eastern valley side;

- Raised land associated with Denham railway station in the southwest; and
- Open farmland along the western valley side above Denham Grove.

10.4.48 Long range views were identified as potentially visible from:

- Open farmland between woodland blocks along the eastern valley side towards West Ruislip and Ickenham; and
- Open farmland on the valley side in the vicinity of West Hyde and Maple Cross.

10.4.49 Identifying PRoWs, highways, residential properties, heritage assets (as summarised in the Heritage Assessment that accompanies the planning application) and any other receptors from which the Proposed Development could potentially be visible from was then overlaid onto the SZTV to identify an initial long list of potential visual receptors for site survey.

10.4.50 Site visits were then undertaken in March 2023 to each of these viewpoints to check their validity and to identify alternative visual receptors where necessary. From this visit a representative series of photographic viewpoints was chosen and AVR panoramas taken to illustrate views towards the Proposed Development. Photographic sheets are shown in Appendix 10.5 to illustrate views from these receptors.

10.4.51 Viewpoints (VPs) were discussed and agreed with LBH Council at a pre-application meeting on 15th March 2023. At this meeting it was requested and agreed to include an additional location (VP15) as a potentially open view of the Site could be experienced albeit from a commercial operation; and omit VP02 from the towpath of the Grand Union Canal adjacent to the Site as any potential views would be heavily filtered by intervening vegetation.

10.4.52 The primary receptors identified as likely to be subject to visual effects is thus very limited and comprises:

- Viewpoint 03 - Hillingdon Trail off Merle Avenue, Harefield;
- Viewpoint 07 - Pedestrian footbridge at Denham railway station;
- Viewpoint 15 - Old Orchard Inn car park, Harefield.

10.4.53 These three AVRs provide the focus for the Visual Impact Assessment (VIA) to identify any potential harm on visual receptors. It should be noted that AVRs represent a worst-case scenario as set out in ‘Assumptions and Limitations’ section.

Viewpoint 03 - Hillingdon Trail off Merle Avenue, Harefield

10.4.54 This is an open long view from the northeast of Broadwater Lake and its islands from the Hillingdon Trail. The foreground is open semi-natural scrub and grassland with occasional tree which become denser in coverage around the shore of the lake. The ecologically managed low vegetation of islands closest to the viewer are clearly visible as is the emerging scrub and dense tree cover of other islands, in particular those extending north from the core area of the Site and beyond which where land is to be reclaimed with the proposed Main Building and waterside boat yard.

10.4.55 The skyline is formed of the west side of the wooded Colne Valley, framing of the Misbourne River tributary valley with wooded horizon beyond and the wooded east side of the Colne Valley.

10.4.56 Woodland generally appears to be semi-natural and broadleaved with numerous vertical Lombardy Poplars and conifers dispersed throughout that demonstrate extensive human intervention.

10.4.57 Cranes built concrete piers and infrastructure associated with construction of HS2 is clearly visible albeit not dominant amongst the trees beyond the lake comfortable below the skyline.

10.4.58 During sailing days, the moving sails of sailing craft would be a predominant feature within this view.

Summary Description:

- Local view less than 1km from the Site.
- Medium number of viewers experiencing the view often.
- High sensitivity with viewers who have a particular interest in their visual environment, users of routes whose interest would be focussed on the landscape.

Viewpoint 07 - Pedestrian footbridge at Denham railway station

10.4.59 This is an elevated view northeast towards the Site. The foreground is dominated by the railway bridge with its transport infrastructure and a screen of variable condition mature trees adjacent to the station car park through which heavily filtered views of buildings in Denham village and the roof of large-scale industrial sheds can be discerned. The water of Broadwater Lake and associated trees are barely discernible.

10.4.60 It should be noted that these are Winter views without leaves on trees. During the Summer it is most likely that there would be complete screening.

10.4.61 On sailing days during the Winter, it is likely that there would be heavily filtered glimpsed views of moving sails through the vegetation.

Summary Description:

- Medium distance.
- High number of viewers.
- Medium sensitivity with viewers with a moderate interest in their visual environment travelling through on this transport route with interest not primarily focussed on the landscape.

Viewpoint 15 - Old Orchard Inn car park, Harefield

10.4.62 This view is complex albeit not dissimilar from Viewpoint 03 in that there is an open long view from the northeast of Broadwater Lake from the car park of the Old Orchard Inn. Beyond the foreground of car park, verge and hedge the near distance includes a field currently under pasture, broadleaved woodland, Grand Union Canal with barges and towpath and the strip of woodland between canal and lake.

10.4.63 Stored boats of the existing BSC can be seen at the northern extent of the lake. Beyond the wooded western shore of the lake can very clearly be seen a completed elevated rising viaduct of HS2 beneath the skyline. Cranes and infrastructure associated with ongoing construction is also visible.

10.4.64 Again, the currently periodic ecologically managed low vegetation of islands closest to the viewer are clearly visible as is the emerging scrub and dense tree cover of other islands, in particular those extending north from the core area of the Site beyond which land is to be reclaimed with the proposed Main Building and waterside boat storage.

10.4.65 The skyline is formed of the west side of the wooded Colne Valley, framing of the Misbourne River tributary valley with wooded horizon beyond and the wooded east side of the Colne Valley.

10.4.66 During sailing days, the moving sails of yachts would be a predominant feature within this view.

10.4.67 On close inspection, the occasional building can be seen amongst the trees within this landscape.

Non AVR views

10.4.68 The majority of the study area would experience no views of the Site. The rationale for discounting those views not used for AVR study is presented in Table 10.13.

Table 10.13: Criteria for the Assessment of Susceptibility to Change

Viewpoint	Typical Criteria
VP01 – Grand Union Canal towpath east of Site X (Easting) 504329, Y (Northing) 190313	The Site would be heavily filtered or fully screened by intervening vegetation between the towpath and Broadwater Lake. A local view.
VP02 – Grand Union Canal towpath east of Site X (Easting) 504656, Y (Northing) 189802	The Main Building is likely to be heavily filtered or part screened by intervening vegetation and islands between the towpath and Broadwater Lake. A local view.
VP04 & 05 - PROW north of Park Lodge Farm Centre X (Easting) 505705, Y (Northing) 189608	Local-medium distance view screened by intervening vegetation of local woodlands.
VP06 - PROW south of Park Lodge Farm Centre X (Easting) 505705, Y (Northing) 188673	Local-medium distance view screened by intervening dense vegetation.
VP08 – Colne Valley Trail	Medium distance view screened by intervening vegetation.
VP09 – PROW within Uxbridge Golf Club, Holcot Road X (Easting) 506079, Y (Northing) 186942	Medium distance view screened by intervening vegetation.
VP11 - Old Shire Lane Circular Walk	Closed due to HS2 construction to the east of the line and therefore dominated in the cumulative scenario by HS2.

Viewpoint	Typical Criteria
VP12a - Old Shire Lane Circular Walk on east side of M25 northwest of site (bridge) X (Easting) 502166, Y (Northing) 192328	Near long distance view dominated by M25 in the foreground, HS2 plant in the middle distance and Site barely discernible.
VP12b - Old Shire Lane Circular Walk on east side of M25 northwest of site (footpath) X (Easting) 502272, Y (Northing) 192308	Near long distance view with HS2 plant in the middle distance and Site barely discernible.
VP13 - PRoW to southwest of Maple Cross X (Easting) 502558, Y (Northing) 192113	Long distance rural view with Site barely discernible.
VP14 - Old Shire Lane Circular Walk south of Lynster's Farm X (Easting) 503197, Y (Northing) 191991	Near long distance view with Site screened by intervening vegetation.

Other Visual Receptors

10.4.69 Potential effects on the following other receptors are assessed:

- Existing users of the lake;
- Users of the Grand Union Canal towpath;
- Users of other recreational routes;
- Residential properties;
- Existing property adjacent to site entrance;
- Road users; and
- Railway users.

Summary

10.4.70 As demonstrated by only two VPs where potentially significant views may be experienced, it is remarkable how limited visibility of the existing Site is within the wider landscape.

Future Baseline

10.4.71 In line with the EIA Regulations, the future baseline conditions without the Proposed Development have been set out below. These have been judged as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the available environmental information, scientific knowledge and assuming no changes to ownership or maintenance operations:

i. Completion of the HS2 rail line with the continuous Colne Valley Viaduct visible within the landscape as modelled within AVRs with regular movement of trains;

ii. Completion of HS2 ecological and landscape mitigation methods which as yet are to be determined but have been identified within a zone that could include a floating island to the west of the peninsula and woodland associated with earthworks on the western Colne valleyside;

iii. Continued operation of BSC on the Site with sailing activities on the water and routine management of the northernmost island;

iv. Continued regeneration of vegetation on the gravel works including:

a. No control of invasive Buddleia on and beyond the hard standing to the more valuable wet woodland.

b. Continued failing of trees to mature with root systems stymied by the concrete hard surface.

10.4.72 The most significant of these influences on the future baseline is the incorporation of the HS2 viaduct and moving trains into the landscape. This is assessed in terms of cumulative visual effects through the use of AVRs and from a landscape perspective places a greater importance on the role of landscape receptors as 'natural' elements within the landscape.

Summary of Receptors and Sensitivity

10.4.73 The assessment of sensitivity of the component landscape receptors within the Site and in relation to the wider landscape setting is the function of susceptibility to change and their landscape value. This is assessed within Table 10.14 and although closely related, should not be confused with the sensitivity of ecological receptors.

Table 10.14: Landscape Receptors

Landscape receptor	Landscape value	Susceptibility to change	Landscape sensitivity
Thames Valley NCA	**Medium** The river valleys including the Colne provide a unifying feature through a very diverse landscape with virtually no undisturbed land with parts valued for their relative tranquillity.	**Low** Due to the scale and variation of character, it is considered that there is a low susceptibility to change.	**Low** Due to the highly varied character overall.
Colne Valley Park	**Medium** The CVP is designated within the Metropolitan Greenbelt and of importance both as a green entity and through its usage and experiential qualities.	**Medium** If working within the framework of the landscape structure, the landscape will be able to accommodate sensitive development without detriment to character.	**Medium** Landscape character can be described as moderate condition; it is valued at a local / regional level and tolerant of change of the type identified.
Colne Valley: Rickmansworth to Uxbridge LCA	**Medium** The LCA is designated within the Metropolitan Greenbelt and of importance both as a green entity and through	**Medium** If working within the framework of the landscape structure, the landscape will be able to accommodate sensitive	**Medium** Landscape character can be described as moderate condition; it is valued at a local level and tolerant of

Landscape receptor	Landscape value	Susceptibility to change	Landscape sensitivity
	its usage and experiential qualities.	development without detriment to character.	change of the type identified.
Broadwater Lake	**Low - medium** The Site is designated as a SSSI therefore inherently valuable. Much is however in poor condition due to its incidental formation through past excavation and remnant workings. Improvements and enhancements could be implemented.	**Low** The dominant feature of the application site however there are many bodies of open water within the Colne Valley and due to condition, there are significant opportunities for change through enhancement.	**Medium** Landscape character can be described as moderate condition; it is valued at a local / regional level and tolerant of change of the type identified.
Islands within Broadwater Lake	**High - medium** The Site is designated as a SSSI therefore inherently valuable. Condition is however variable due to the formation process, yet islands are a valued entity within waterbodies of the CVP.	**Medium** There are numerous islands within the lake. It is noted that islands are absent from many bodies of open water within the Colne Valley. Islands provide important habitat; however, opportunities exist for reprovision and enhancement.	**High - medium:** Distinctive quality and valuable yet opportunities for enhancement.
Shoreline of lake including peninsula	**Low – medium** The Site is designated as a SSSI therefore inherently valuable. Much is however in poor condition due to the formation process. Improvements and enhancements could be implemented.	**Low - medium** Value is in the shaping of the lake, yet shorelines are rectilinear and lacking scenic quality with crudely formed edges resulting from minerals extraction activities and shaped by remnant concrete. Highly significant opportunities for enhancement.	**Medium** The shoreline would be tolerant of change.
Wet woodland within the peninsula	**High – medium** The rarest habitat on the peninsula albeit with a	**High** A woodland with little opportunity for	**High** Low tolerance for change.

Landscape receptor	Landscape value	Susceptibility to change	Landscape sensitivity
	lack of high-quality trees as identified in the ArbIA and grown out of the former gravel works slurry tank.	development yet potential for enhancement through management.	
Incidental woodland and vegetation on site	**Medium** There is limited vegetation of this type of woodland which has developed on the periphery of the former gravel works site features such as hard standing and slurry tanks. The ArbIA identifies a lack of high-quality trees.	**Medium** Opportunities for enhancement through management or Reprovision if required.	**Medium** Tolerant of change.
Remnant hard surface with pioneer vegetation	**Low** Extensive areas of concrete surface from the gravel works with low quality vegetation including large areas of invasive Buddleia and Japanese Knotweed, both in the process of clearance. The surface has supressed root growth and leads to latent instability of trees. Vegetation does however play an important role in terms of screening waterbodies which has an important ecological role. Significant opportunities for enhancement.	**Low** With a sensitive removal method and replanting, the landscape is likely to be able to accommodate change with minor changes in character.	**Low** Significant opportunities for enhancement through creation of new soft surfaces, planting associations, repurposing as new hard surfaces, reuse for reclamation and tree management.

Visual Receptors

10.4.74 Through the scoping exercise with LBH, the most sensitive visual receptors to be assessed have been identified as represented by the users of the three viewpoints in Table 10.15. It

is most likely that these would also remain the most sensitive receptors once HS2 is completed.

Table 10.15: Summary of Receptor Sensitivity – Visual

Visual receptor	Visual Sensitivity
Existing	
Users of Hillingdon Trail and associated footpaths elevated on the valley side to the northeast of the lake in the location of **VP03.**	**High** as viewers, being walkers, have a particular interest in their visual environment.
Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by **VP15.**	**Medium - high** as the landscape is not the overriding subject of interest for viewers but the view is one of the prime reasons for visiting the public house albeit enjoyed either from or over a car park.
Pedestrian users of the bridge over the railway at Denham station **VP07.**	**Low** sensitivity as views of the landscape are both momentary and incidental to the purpose of viewers' use of this infrastructure.
Future	
Users of HS2 travelling at speed through the landscape and viewing the landscape through transparent screens and maturing vegetation.	**Medium** sensitivity as views of the landscape are both momentary and incidental to the purpose of viewers' use of this infrastructure but enjoyment could be gained from the view.

10.5 Embedded Mitigation

10.5.1 As described earlier, development of the masterplan is ecologically, landscape and visually led with embedded mitigation at every step on the way during a highly complex and iterative multidisciplinary process. Evolution of the Landscape Masterplan has involved a development process of many revisions with a number of distinct iterations, including the following steps:

i. All proposals located on the peninsula;

ii. Avoidance of loss of wet woodland by providing facilities and new habitat creation on reclaimed land to the west of the peninsula;

iii. Further development of ecological mitigation measures that relocated proposed made ground from the west of the peninsula to the north;

iv. Response to availability of the Arboricultural Impact Assessment with a more tree responsive masterplan;

v. Response to AVR views to maintain the openness of the greenbelt through redesigning the extended peninsular to minimise the visual loss of open water; and

vi. Response to initial BNG metric assessments with a reduction in the area of made ground so to reduce the potential loss of open water.

10.5.2 These iterations have been based on and responded to the following:

- Site surveying and initial appraisal of landscape quality;
- Ecological surveys with a suite of resultant mitigation requirements that would form a major plank of the landscape masterplan. This includes responses running the BNG metric;
- Arboricultural surveys with decision making based on condition, size, species, response to management and the extent of root protection zones;

Operational and safety requirements of watersports and land-based activities;

- Engineering requirements for sensitive the reclamation of land, shaping and creation of islands;
- Highways engineering for road widths, auto-tracking and junction design;
- Visual surveys and analysis with test modelling of the proposed landscape and Main Building so as to minimise potential visibility of the Site and land operations in particular from VP15 which is the location of greatest potential visibility of the Proposed Development:
  - The testing process with the development of AVRs, with guiding construction lines was used to locate 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;
  - Work reducing the finished floor level of the Main Building to lower the ridge line, thus sit more comfortably in the landscape and lower the ground level made land thus the reduced level change between water and made ground further helps to reduce the presence of proposals with the landscape increase the screening efficacy of intervening vegetation; and
  - Using a green appearing grass and wildflower sown surface to the boat yards and rigging area would further help to absorb the proposal into the vista.

Construction

10.5.3 The effects of the construction stage in landscape and visual terms would be temporary, short term and in controlled locations on the Site.

10.5.4 Effects resulting from construction works typically relate to reduced tranquillity with increased noise levels, increased traffic movements and visual effects associated with the enclosure of the Site with hoarding and views of construction plant; refer to Chapter 6: Construction for further details.

10.5.5 During the construction phase, contractors will be required to apply good practice site measures in compliance with a Construction Environmental Management Plan (CEMP) (see Appendix 6.1). The Outline CEMP includes standard construction methods, and that housekeeping will be maintained to keep a tidy site and minimise visual clutter during construction works and that the tree protection measures specified in the ArbIA will be

implemented in line with BS 5837, 2012 Trees in Relation to Design, Demolition and Construction.

10.5.6 Tree management operations such as coppicing, pollarding and removal of unwanted vegetation would commence during the construction period. The timing of construction operations and works to existing trees will be developed in liaison with the ecologist so as avoid potential harm to wildlife.

10.5.7 From a visual perspective, any external scaffolding, protective sheets and temporary lights (if required and permissible ecologically) around buildings under construction would be designed with context in mind. Visually, hoarding on the north facing elevations of the Main Building and around working areas of the Site should be a recessive green or camouflage so as not to draw attention from visual receptors on raised ground to the northeast of the Site.

10.5.8 Designed temporary lighting would avoid visual intrusion for adjacent residential properties and recreational users, with input from ecologist.

10.5.9 Management and maintenance of new planting during the construction period would be incorporated and defined by planning condition.

Completed Development

10.5.10 Primary mitigation measures that are relevant to landscape and visual matters, responding to the initial appraisals of the existing trees on the boundaries and potentially sensitive landscape and visual receptors which have been incorporated into the Proposed Development are set out within Chapter 5: Description of Development, the supporting plans and the Design and Access Statement.

10.5.11 Reference should be made to the Draft MEMP (Appendices 7.4 and 7.5) in terms of long-term management of the landscape so as to achieve strategic ecological objectives.

10.5.12 Specifically, the following avoidance and enhancement features of the Proposed Development, which require the implementation of the landscape strategy, respond to the particular sensitivities and constraints of the Site:

Avoidance

- The masterplan has been shaped with ecological survey information so as to avoid development within the most valuable habitats on site such as wet woodland, Heron Island, Cormorant Island, Oak Island and other woodland on site;
- Align the location of new land with the shallowest water wherever possible so as to minimise the amount of fill material required and the associated disturbance;
- Reduce the extent of reclaimed land required through reduction in the number of stored boats required to the bare minimum of the brief;
- Avoid the loss of habitat and landscape features within the peninsula through the use of reclaimed land for key interventions such as the Main Building, Boat Shed, Workshop, boatyards and coach turning circle;
- Avoid removal of the best condition, Category B trees on-site as far as possible. The single Category A tree would not be affected;

- Create new islands for ecological mitigation and to mitigate those lost for operational sailing reasons;
- Narrow islands located in the shallowest water (wherever possible) offer the most effective ecological mitigation in that they would provide their ecological role yet be of minimal duration (and thus potential disturbance) to construct and visually offer the least loss of open water from VP03 and VP15;
- Where possible ecological mitigation to utilise floating islands (with undersides that fulfil an ecological role) rather than solid island so as to reduce the loss of open water;
- The route of the existing site track has been retained and reused as far as possible so as to minimise impact on existing vegetation;
- To reduce visual impact the Main Building has been located to be relatively inconspicuous within the landscape. In addition, and so as to tie in with the local vernacular, it is proposed to be low key and sensitive with a number of measures including the use of local brick colours, pitched roofs, a veranda to break up the elevation and visually link with the boatyard;
- Following BNG analysis the capacity of the boatyards was reduced to 400 no., the boatyard on the extended peninsula, thus reducing the area required for land reclamation and loss of open water (thereby increasing the area of open water that would be visible);
- Most of the vegetation on islands absorbed within the extended peninsula has been retained thus reducing potential views of the Main Building;
- The Boat Shed and Workshop buildings are both proposed to be low key and functional with very dark coloured elevations typical of waterside buildings; and
- Existing hard surfaces have been reused wherever possible.

Enhancement

- Clearance of invasive Buddleia encroachment on and potentially from the Site;
- Continued monitoring and treatment of other notifiable species such as Japanese Knotweed;
- Management of existing woodland to improve its structural and species condition so as to improve for longevity and biodiversity. These operations include removal of unsafe and poor condition specimens, coppicing and pollarding;
- Creation of a new biodiverse species-rich landscape structure of trees, hedges and shrubs across the Site that takes a number of roles such as shaping activity areas, movement routes, car parking areas, screening sensitive ecological resources, offering shade and providing opportunities for education as indicated on the landscape masterplan;
- Use of existing vegetation to screen waterbodies and offering new/enhanced habitat as set out in the Draft MEMP;
- Creation of new low fertility grassland habitats under boatyards and in parking areas; and
- Improvement of the vegetation and graded profile of the lake shoreline.

10.6 Assessment of Effects

10.6.1 The significance of landscape and visual effects of the Proposed Development are assessed against the respective baselines within this section.

Construction – Landscape Effects

10.6.2 Predicted effects of construction of proposed buildings, earthworks, ecological mitigation or infrastructure on the landscape receptors of the Site are temporary and short term.

10.6.3 The most significant effects are judged to be moderate adverse with the works associated with the removal of:

- Two islands for sailing and formation of six new islands for ecological mitigation; and
- Remnant hard surface with pioneer vegetation.

10.6.4 Minor adverse effects are predicted from the construction of:

- Shoreline of lake including peninsula;
- Land reclamation; and
- Incidental woodland and vegetation on-site.

10.6.5 It judged that there would be negligible to no impacts of:

- Management operations on the wet woodland; and
- Construction at the scale of the Colne Valley Regional Park.

10.6.6 Table 10.16 applies sensitivity of landscape receptors with the description and magnitude of impacts of construction activities so as to predict the significance of landscape effects at the construction stage.

10.6.7 Taking into account embedded mitigation and the CEMP measures, changes in the landscape resulting from construction operations activities would include:

- Loss of existing trees due to management;
- The process of creating new land to extend the peninsula and create new islands;
- Limited earthworks for cut and fill on the peninsula to achieve an accessible and safe landform for movement, boatyards and car parking;
- Limited groundworks to remove some of the concrete covering to the peninsula and replace with a clean cover layer;
- The presence of construction vehicles, plant, contractors yard and site offices; and
- Hoardings and screening barriers for mitigation.

Table 10.16: Landscape Effects – Construction

Landscape receptor	Landscape sensitivity	Magnitude and Description of Impact	Significance of Landscape Effect
Thames Valley NCA	Low	Negligible:	Negligible

Landscape receptor	Landscape sensitivity	Magnitude and Description of Impact	Significance of Landscape Effect
		Temporary impacts of construction on the Site over the short to medium term within a very controlled environment given the scale of the NCA.	
Colne Valley Regional Park	Medium	Negligible: Temporary impacts of construction within the Site over the short to medium term within a very controlled environment given the scale of the CVP.	Negligible
Colne Valley: Rickmansworth to Uxbridge LCA	Medium	Negligible: Temporary impacts of construction within the Site over the short to medium term within a very controlled environment given the scale of the LCA.	Negligible
Islands within Broadwater Lake	High - medium	Medium: Temporary and short-term operations to remove two islands for sailing and create six for ecological mitigation.	Moderate adverse
Shoreline of lake including peninsula	Medium	Low: Temporary and short-term earthworks leading to the loss of a section of shoreline for the reclaimed land and reprofiling in other location with a more sensitive profile and plan form in places.	Minor adverse
Wet woodland within the peninsula	High	Low: No construction within this area. Tree management to enhance condition of woodland.	Negligible-No Effect
Incidental woodland and vegetation on site	Medium	Low: Temporary and short-term management operations such as thinning, coppicing and felling of existing trees and replanting of suitable species.	Minor adverse

Landscape receptor	Landscape sensitivity	Magnitude and Description of Impact	Significance of Landscape Effect
Remnant hard surface with pioneer vegetation	Low	Medium: Temporary short term construction operations to remove some of the concrete surfaces would be intrusive but implemented under the guidance of a very controlled method statement. Impacts would be the loss of unstable semi-mature vegetation which would be mitigated by the planting of new native trees of long-term benefit and stability.	Moderate adverse

Visual Effects - Construction

10.6.8 The predicted effects of construction of proposed buildings, earthworks, ecological mitigation or infrastructure on visual receptors of the study area would all be temporary and short term.

10.6.9 The most significant visual effects are judged to be major adverse from the individual existing property adjacent to the Site entrance but limited to the temporary peak in nearby construction and construction vehicles.

10.6.10 Moderate adverse effects are predicted to be experienced from:

- Users of the Hillingdon Trail and associated footpaths elevated on the valley side to the northeast of the lake in the location of VP03; and
- Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by VP15.

10.6.11 Minor adverse effects are predicted from construction works experienced by:

- Existing users of the lake; and
- Users of the Grand Union Canal towpath.

10.6.12 It judged that there would be negligible adverse or no visual effects of construction on:

- Residential properties, in particular at the southwest edge of South Harefield;
- Road users;
- Railway users;
- Pedestrian users of the bridge over the railway at Denham station VP07; and
- Users of other recreational routes.

10.6.13 Predicted effects of construction of proposed buildings, earthworks, ecological mitigation or infrastructure on the landscape receptors of the Site are temporary and short term and focus

for assessment was defined through a scoping process with a series of actions that have led to the assessment of the effects of proposals against the existing visual baseline by means of the AVRs from representative VPs. The steps that led to the identification of AVR locations are set out in Table 10.17.

Table 10.17: Summary of Visual Effects – Construction

Landscape receptor	Landscape sensitivity	Magnitude and Description of Impact	Significance of Visual Effect
Users of Hillingdon Trail and associated footpaths elevated on the valley side to the northeast of the lake in the location of VP03.	High	Low: Short term and temporary. Highly limited in extent within the vista. Visibility of construction of the uppermost parts of the Main Building, dredging activities and island formation in the southwest of the lake.	Moderate adverse
Pedestrian users of the bridge over the railway at Denham station VP07.	Low	None No predicted significant views.	No effect
Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by VP15.	Medium – high	Low: Short term and temporary. Limited in extent within the vista. Visibility of construction of part of the Boat Shed, the upper level of the Main Building, some of the land reclamation of the peninsula extension, dredging activities and island formation in the southwest of the lake.	Moderate adverse
Existing users of the lake	Medium	Medium: Short term and temporary views of construction operations within the lake.	Minor adverse
Users of the Grand Union Canal towpath	High	Low: Very limited extent predicted of highly screened and filtered views through existing vegetation and proposed eastern boundary treatment.	Minor adverse

Landscape receptor	Landscape sensitivity	Magnitude and Description of Impact	Significance of Visual Effect
Users of other recreational routes	High	None: No predicted significant views.	No effect
Residential properties	High	Low: Very limited extent predicted of highly screened views through existing vegetation from some upper storey windows.	Negligible adverse
Existing property adjacent to site entrance	High	Medium: Short term and temporary views of construction operations close to the house, around the lagoon, erection of boundary fence and construction traffic entering the Site.	Major adverse
Road users	Low	Low: Very limited extent of possible views through the pattern of existing vegetation.	Negligible adverse
Railway users	Low	Low: Very limited extent of possible views through the pattern of existing vegetation.	Negligible adverse

Landscape Effects – Completed Development

10.6.14 The predicted effects of the Proposed Development once complete and operating would reduce from year 1 to year 15 as the implemented landscape and ecological mitigation works mature are primarily of benefit to the landscape. These effects are set out below.

10.6.15 Initial minor adverse effects are predicted by:

- Less than 4.9% reduction in area of the Broadwater Lake;
- Shoreline of lake including peninsula; and
- Net gain of four islands.

10.6.16 With maturation of the lake enriched by islands, floating reedbeds and enhanced shoreline it is envisaged that this adverse effect would turn into a minor beneficial effect by Year 15. It is judged that the impact on islands over this period would lead to a minor-moderate beneficial effect.

10.6.17 Minor beneficial effects would be anticipated from:

- Management of incidental woodland and vegetation on-site with new planting;
- New planting in areas of removed remnant hard surface with pioneer vegetation; and
- Management of the wet woodland.

10.6.18 By Year 15 these would develop into moderate beneficial effects.

10.6.19 At Year 1 it is judged that there would be negligible beneficial effects of:

- The landscape and ecological enhancements in addition to the operation of HOAC on Site in addition to the existing BSC on the landscape fabric of the Colne Valley Regional Park, Colne Valley: Rickmansworth to Uxbridge LCA and Thames Valley NCA.

10.6.20 By Year 15 these would develop locally into minor beneficial effects albeit at a regional scale of the Thames Valley NCA remain of negligible beneficial effect.

10.6.21 Table 10.18 describes the magnitude of impact on the landscape sensitivity of each receptor to judge the significance of potential landscape effect. Effects are set out at Year 1 on completion and after Year 15 once the proposed landscape scheme has started to mature.

Table 10.18: Assessment of Landscape Effects – Completed Development

Landscape receptor	Landscape sensitivity	Magnitude and description of Impact		Significance of Landscape Effect – Year 1	Significance of Landscape Effect – Year 15
Thames Valley NCA	Low	Low: Given the scale of the NCA, any impacts would be negligible however the proposed enhancements of the ecological condition and woodland management of the former extraction site with an emphasis on recreation and educational opportunities align with SEO2, SEO3 and SEO5.	Negligible	Negligible	Negligible
Colne Valley Regional Park	Medium	Low: Incorporation of upgraded sailing facilities, some intensification of sailing activities with HOAC in addition to the BSC baseline, reprovision and introduction of a limited number of sensitively	Negligible	Minor beneficial	Minor beneficial

		located new recreational buildings, land activities and associated servicing, boat and car parking. All are characteristic of the receiving landscape and within the aims of the CVRP and physical framework of the existing landscape structure. There would be enhancement of the baseline ecology and landscape with long term management secured. These would be of permanent but low impact given the relative scale of the CVRP.			
Colne Valley: Rickmansworth to Uxbridge LCA	Medium	Low: There would be no impact on the quiet country lanes with access from the south; scenic views across the valley would be protected through the embedded mitigation; there would be enhancement of the baseline valley floor	Negligible	Minor beneficial	Minor beneficial

		ecology and landscape with long term management secured as aligned with the strategy for this LCA; new waterside grassland would be created; the gravel pit would be managed for recreation with sensitive planning for the increased informal recreational use of the area, ensuring sufficient provision of low key parking and facilities, which reflect local vernacular and character.			
Broadwater Lake	Medium	Low-medium: Minor reshaping of the lake leading to a reduction of less than 4.9% area of open water in the lake area so as to provide embedded mitigation of land reclamation, enhance lake edges for biodiversity, remove two islands for sailing and create six islands for ecological mitigation.		Minor adverse	Minor beneficial
Islands within Broadwater Lake	High - medium	Medium: Removal of two islands for sailing and formation of six additional islands for ecological mitigation. Lakes with the complex features that are islands are		Minor adverse	Minor to moderate beneficial

		few within the Colne Valley and therefore this would result in an increased presence as a valuable entity.		
Shoreline of lake including peninsula	Medium	Low: Despite the loss of a section of shoreline for the reclaimed land there are proposals to enhance the lake's shoreline with a more sensitive vertical profile and horizontal shape in some locations.	Minor adverse	Minor beneficial
Wet woodland within the peninsula	High	Medium: Benefits of tree management to enhance the condition of woodland as both a landscape feature and contributor to landscape character which would enhance with maturation of the proposed landscape over time.	Minor beneficial	Moderate beneficial
Incidental woodland and vegetation on site	Medium	Medium: Benefits of management on existing trees and replanting of new suitable species of native trees, shrubs, understorey and meadows. The scheme will enhance with maturation over time.	Minor adverse	Moderate Beneficial
Remnant hard surface with pioneer vegetation	Low	Medium: Significant opportunities for enhancement through removal of some concrete surface, creation of new soft surfaces and planting associations with longevity, repurposing as new hard surfaces and reuse for reclamation.	Minor adverse	Moderate Beneficial

Visual Effects – Completed Development

10.6.22 The predicted visual effects of the Proposed Development once complete are limited in extent and adversity and would reduce from the opening day in Year 1 to Year 15 as the landscape matures.

10.6.23 The AVRs are presented with associated metadata in Appendix 10.5 and as per GLVIA3 guidance, this assessment should be read in association with the A1 prints of AVRs with baseline and the cumulative effects.

Viewpoint 03 – Hillingdon Trail off Merle Avenue, Harefield

10.6.24 The Hillingdon Trail is a highly sensitive receptor. The Main Building is at medium distance in this open long view over Broadwater Lake and its islands and beyond down the wooded Colne Valley and Misbourne River tributary valley.

10.6.25 The slate roof and recessive coloured brick of the Main Building with associated Boat Shed forms a very small part of this view, lies between the wooded backdrop of the northern shore of peninsula. The buildings are heavily screened by the compounded effects of intervening vegetation on islands within the lake, eastern shore of the lake and either side of the Grand Union Canal even in Winter.

10.6.26 There would be negligible loss of visible open water from this location.

10.6.27 Although not visible from this location, the presence of the boat yard is not incongruous given the existence of BSC on the northern shore for many years.

10.6.28 Over time with the likely growth of scrub and trees, and in Summer when vegetation is in leaf, any views of the building and boatyard would be further screened and in the medium term of up to 15 years likely to be completely lost. Effects are judged at Year 1 and Year 15 accordingly.

10.6.29 As with the current situation, during sailing days, the moving sails of craft would be a predominant feature within this view due to the colour of sails contrasting with the setting and their movement. It is not deemed that the increased water-based activity arising from HOAC activities would significantly alter this perception.

10.6.30 As only a very small part of the Hillingdon Trail would experience very minor changes to views that are unlikely to be readily and are likely to be mostly screened in the medium term, the visual impact is judged as negligible.

10.6.31 The predicted visual effect at VP03 is a function of the high sensitivity receptor with negligible visual impact and thus deemed of negligible adverse effect.

Viewpoint 07 – Pedestrian footbridge at Denham railway station

10.6.32 This low sensitivity receptor would experience many users as it is a railway bridge at Denham the busy railway station for commuters to London. Not only would the view of the Main Building would be heavily filtered by the screen of variable condition mature trees adjacent to the station car park, but the local views of buildings in Denham village and the

large white expanse of the Bosch factory dominate the local to medium distance in relation to any potential visibility of the proposed.

10.6.33 The potential view of the west elevation of the Main Building would be heavily filtered and screened by existing intervening woodland to the south and west of Broadwater Lake and the proposed screening woodland belt along the western shore of the extended peninsula on made ground and on the ecological mitigation islands.

10.6.34 It should however be noted that these are Winter views without leaves on trees. During the Summer it is most likely that there would be complete screening of the proposed building.

10.6.35 On sailing days before full leaf set, some heavily filtered glimpsed views of moving sails through the vegetation may be seen to the north (left side) of the building. Any elevated intensity in sailing numbers and days due to HOAC is unlikely to be discernible due to the combination of distance and filtering effects of intervening vegetation.

10.6.36 Due to the barely discernible change to the view over only the Winter months with features that would be almost imperceptible, the visual impact at VP07 is judged as no impact.

10.6.37 The predicted visual effect is a function of the medium sensitivity receptor with negligible visual impact and thus deemed of no impact.

Viewpoint 15 – Old Orchard Inn car park, Harefield

10.6.38 This medium-high sensitivity view is complex as the landscape is not the overriding subject of interest for viewers, but the long and panoramic view provides one of the reasons for visiting the public house, albeit the view is enjoyed either from, through or over the car park.

10.6.39 The open water of Broadwater Lake is the most dominant feature of this landscape and draws the eye as a highly attractive feature on a sunny day when reflecting the blue sky. Through the incorporated mitigation of the design process, the Main Building and boatyard would only negligibly extend into open water, maintaining a maximum depth of view of water towards the southern lake shore.

10.6.40 The Proposed Development on the extended peninsula is of medium distance (1-3km) and there would be no discernible changes in the landscape between the viewer and this point, which represents the majority of the view. The Main Building, Boat Shed and boatyard are located with a backdrop of the wooded northern shore of the peninsula and existing wooded islands to the fore which partially screen proposals from this elevated position.

10.6.41 The Main Building does not look out of place with other occasional buildings which can be seen amongst the trees within this landscape.

10.6.42 Beyond the wooded southwestern and western shore of the lake there would be no change to the clear wooded backdrop of the Colne Valley. There would also be no change to the large-scale character of this view beyond with its incorporation of the wooded Misbourne River tributary valley with wooded horizon beyond and emerging HS2 viaduct.

10.6.43 Just out of view at the northern extent of the lake are stored boats of the existing BSC. These would be removed, relocated to the visible boatyard on the extended peninsula and restored to a habitat mosaic of native grasslands, scrub and low vegetated landforms.

10.6.44 During the summer months when HOAC is in operation, there are likely to be more sailing days with more moving sails of yachts drawing the eye in comparison to the current activities of the BSC.

10.6.45 It is considered that the incorporation of buildings, boatyard and made land into this medium-high sensitivity landscape would lead to a low-medium visual impact at VP15 as there would only be a minimal change to the existing view. This encompasses negligible loss of open water and an increase in the vegetation visible with the incorporated features of the Proposed Development in the middle distance that would not be prominent or contrast significantly with the baseline.

10.6.46 The predicted visual effect as a function of the medium-high sensitivity receptor with low-medium visual impact is judged to be of minor-moderate adverse significance at Year 1 reducing to minor adverse at Year 15. In the absence of additional mitigation, the Proposed Development would have a noticeable to small impact on the viewpoint in comparison with baseline.

Other receptors

10.6.47 The most significant predicted visual effects are reviewed through the above viewpoint analysis. Potential effects on other receptors are not judged to be significant:

- Existing users of the lake – the limited numbers of anglers and users of BSC would notice increased activity on the water at some times and an upgrading of BSC built facilities within the new building and demolition with reinstatement of habitat of existing buildings;
- Users of the Grand Union Canal towpath – any views into the Site would be heavily filtered and screened by intervening vegetation. The introduction of a boundary fence for safeguarding would be the most significant intervention albeit sensitively located within existing vegetation and associated with native hedge and scrub planting;
- Users of other recreational routes – it is predicted that most views would be entirely screened or heavily filtered by intervening vegetation such that those views assessed with AVRs would be the most significant;
- Residential properties – as predicted by a narrow shard of potential visibility by the SZTV, there may be very limited part screened and filtered view from some upper storey windows on Merle Avenue at the southwestern extent of Harefield adjacent to VP03 on the Hillingdon Trail. Assessment of this viewpoint is judged a reasonable representation of the effects of any such views;
- Existing property adjacent to site entrance – there would be increased activity entering the Site, filtered and ultimately screened views of the adjacent proposed carpark and site boundary fence. Views north towards the lagoon would be enhanced with increased wildlife activity as a result of ecological mitigation;
- Road users – the SZTV and subsequent site survey predicted no significant impacts primarily due to roadside and intervening vegetation in those limited areas of potential visibility; and
- Railway users – located over 1.5km to the south of the Site would be filtered and screened by intervening vegetation particularly as the Main Building is on the north side of the mature woodland block on the existing peninsula.

10.6.48 Table 10.19 sets out how visual effects are predicted to reduce in significance over time due to the screening effects of vegetation growth on the Site and in the wider landscape.

Table 10.19: Summary of Visual Effects – Completed Development

Visual receptor	Visual sensitivity	Magnitude of impact	Level of Visual effect – Year 1	Level of Visual effect – Year 15
Users of Hillingdon Trail and associated footpaths elevated on the valley side to the northeast of the lake in the location of VP03.	High	Negligible	Negligible adverse	Negligible adverse
Pedestrian users of the bridge over the railway at Denham station VP07.	Low	None	No effect	No effect
Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by VP15.	Medium-high	Low-medium	Minor-moderate adverse	Minor adverse
Existing users of the lake	Medium	Low	Minor adverse	Minor beneficial
Users of the Grand Union Canal towpath	High	Low	Minor adverse	Negligible adverse
Users of other recreational routes	High	None	None	None
Residential properties	High	Low	Negligible adverse	Negligible adverse
Existing property adjacent to site entrance	High	Low	Moderate adverse	Minor adverse
Road users	Low	Low	None	None
Railway users	Low	Low	Negligible adverse	None

Additional Mitigation, Monitoring and Residual Effects

10.6.49 No further mitigation measures are considered to be required beyond those identified and described in Section 10.5, and as described in Chapter 5: Description of Development and Landscape Strategy.

10.6.50 Visual effects have been judged to be of a low adverse level within the wider environment in the first year of operation and diminishing thereafter. The detail of planting methods and planting plans so as to deliver ecological mitigation would be governed by planning condition in accordance with the Landscape Strategy and Draft MEMP.

10.6.51 Monitoring of the proposed planting so as to ensure successful establishment would be undertaken through Landscape Architects' inspections and defects reporting through the first five years of planting.

Cumulative Effects

10.6.52 The ongoing construction and completion of the HS2 viaduct is considered to be the only project which could give rise to cumulative effects in combination with the Proposed Development.

10.6.53 The HS2 viaduct has been included in cumulative AVRs so as to allow appraisal of cumulative visual effects of this future scenario. Baseline views, AVRs and cumulative AVRs are included within Appendix 10.5 and presented as full-size A1 prints with the planning application. The assessment considers three cumulative AVR views as described below.

Viewpoint 03 – Hillingdon Trail off Merle Avenue, Harefield

10.6.54 The dominant feature of this view that would continue to draw the eye is the lake within the shallow predominantly wooded Colne Valley and Misbourne River tributary valley. It is an open elevated view with a visual baseline of gentle and natural forms with woodland that absorbs built forms within the medium and long distance.

10.6.55 The slate roof and recessive brick of the Main Building with associated boat storage forms a very small part of this view, lies between the wooded backdrop of the northern shore of main peninsula and is heavily screened by the compounded effects of intervening vegetation on islands within the lake, eastern shore of the lake and either side of the Grand Union Canal even in Winter.

10.6.56 The impact of the HS2 elevated viaduct is the addition of a clearly visible linear element that contrasts with the surrounding landscape in terms of colour, form and its clearly engineered quality within a semi-natural setting. Helpfully in terms of absorption into the landscape, the viaduct is partly screened by existing trees and does not break the skyline in this location. Screening of the viaduct is likely to be reduced through maturation of the existing woodlands.

10.6.57 Despite the value of the existing landscape being diminished by the presence of this viaduct, it is reasonable to grant heightened importance of the natural landscape given this engineered intervention. This is judged to maintain the high landscape sensitivity.

10.6.58 The visual impact of the proposed Main Building within this semi-altered landscape is still judged as negligible in that only a very small part of the Hillingdon Trail would experience very minor changes to views that are unlikely to be readily noticed and are likely heavily screened in the medium term. In addition, it is judged that the insertion of the viaduct significantly diminishes the perception of presence of the proposed Main Building within the landscape.

10.6.59 The predicted cumulative visual effect at VP03 as a function of the high sensitivity receptor with negligible visual impact is thus deemed of negligible adverse effect both at Year 1 and Year 15 with maturation of the landscape.

Viewpoint 07 – Pedestrian footbridge at Denham railway station

10.6.60 The viaduct would be closer to the viewer than the Site and therefore would screen any potential views of proposals which would be already heavily filtered.

10.6.61 There is there therefore no visual impact or cumulative visual effects of proposals anticipated from this VP.

Viewpoint 15 - Old Orchard Inn car park, Harefield

10.6.62 The medium-high sensitivity of view is judged to remain for the reasons set out with VP03 but the dynamic of this landscape composition and potential change is more complex.

10.6.63 Although the foreground linear elements of the car park with associated structures, hedge and geometric field beyond contrive to reduce the anomaly of the viaduct, the impact is of the structure is still significant.

10.6.64 As with VP03, the open water of Broadwater Lake remains the most dominant feature of this landscape and draws the eye. However, the viaduct would be very prominent and will significantly diminish the semi-natural quality of this landscape, in particular the wooded backdrop of the western side of the Colne Valley with its receding views down the Colne Valley and the junction with the Misbourne Tributary.

10.6.65 The viaduct appears to 'partly enclose' Broadwater Lake and separate it from the wider valley. It is an engineered form within a semi-natural landscape, albeit of elegant form.

10.6.66 The completed viaduct will be significantly more visually prominent than the proposed association of Main Building, Boat Shed and extended peninsula within the landscape, particularly as the HWSFAC proposals would only negligibly extend into open water, maintaining a maximum depth of view of water towards the southern lake shore.

10.6.67 Visual effects are likely to be reduced over time through the combination of maturing existing woodland throughout the landscape and the emerging screening effects of HS2 woodland mitigation to the north of this view. These would help absorb the structure into the landscape and reduce the disconnect between lake and wider valley and thus cumulative effects.

10.6.68 On sailing days, the predominant feature of the landscape would remain the moving sails of water craft, a slight increase and frequency from the baseline but not significant in cumulative terms from a HWSFAC perspective, more that as a result of the viaduct, the view is 'less rural.'

10.6.69 Overall, it is judged that despite the dissociation of lake from wider valley, the sensitive scale and siting of proposals within the vista are no more noticeable within the landscape than without the viaduct. Visual impacts therefore remain low-medium with only be a negligible loss of open water within the existing view, the incorporated features would not be prominent or contrast significantly with the baseline.

10.6.70 The significance of cumulative visual effect is judged to remain of minor-moderate adverse in that the Proposed Development without further mitigation would have a noticeable but small impact on the environment in comparison with baseline.

10.7 Summary

10.7.1 Table 10.20 summarises the landscape and visual effects at Year 1 and Year 15 with the steps of the process that led to judgements. Those that are moderate or major are considered to be significant.

Table 10.20: Summary of Landscape Effects

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
Construction							
Islands within Broadwater Lake (High-Medium)	Operations to remove two islands for sailing and formation of six for ecological mitigation.	Temporary and short term.	Medium	Moderate adverse	N/A	None required	Moderate adverse
Remnant hard surface with pioneer vegetation (Low)	Construction operations to remove concrete surfaces would be intrusive but implemented under the guidance of a very controlled method statement. Impacts would be the loss of unstable semi-mature vegetation which would be mitigated by the planting of new native trees of long-term benefit and stability.	Temporary, short term	Major	Moderate adverse	N/A	None required	Moderate adverse
Shoreline of lake including peninsula (Medium)	Earthworks leading to the loss of a section of shoreline for the reclaimed land and reprofiling in other location with a more sensitive profile and plan form in places.	Temporary and short term	Low	Minor adverse	N/A	None required	Minor adverse
Broadwater Lake (Medium)	Operations within open water to remove two islands for	Temporary and short term	Low-medium	Moderate adverse	N/A	None required	Moderate adverse

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
	sailing and formation of six for ecological mitigation.						
Incidental woodland and vegetation on site (Medium)	Management operations such as thinning, coppicing and felling of existing trees and replanting of suitable species.	Temporary and short term.	Low	Minor adverse	N/A	None required	Minor adverse
Thames Valley NCA (Low)	Construction operations on the Site.	Temporary impacts over the short to medium term within a very controlled environment on Site and in relation to the scale of the NCA.	Minor	Negligible	N/A	None required	Negligible
Colne Valley Regional Park (Medium)	Construction operations on the Site.	Temporary impacts over the short to medium term within a very controlled environment on Site and in relation to the scale of the CVP.	Minor	Negligible	N/A	None required	Negligible
Colne Valley: Rickmansworth	Construction operations on the Site.	Temporary impacts over the	Minor	Negligible	N/A	None required	Negligible

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
to Uxbridge LCA (Medium)		short to medium term within a very controlled environment on Site and in relation to the scale of the LCA.					
Wet woodland within the peninsula (High)	Tree management operation to enhance condition of woodland.	Temporary and short term.	Low	Negligible-no impact	N/A	None required	Negligible-no impact
Completed Development							
Broadwater Lake (Medium)	Minor reshaping of the lake.	Permanent. Loss of less 4.9% area of open water.	Low-medium	Minor adverse	Minor beneficial	None required	Minor beneficial
Islands within Broadwater Lake (High-Medium)	Net increase in the number of islands in the lake.	Permanent. Loss of two but gain of six ecologically rich islands.	Low-medium	Minor adverse	Minor-moderate beneficial	Periodic landscape management operations	Minor-moderate beneficial
Shoreline of lake including peninsula (Medium)	Earthworks leading to the loss of a section of shoreline for the reclaimed land and reprofiling in other location with a more	Small section of shoreline. Permanent and	Low	Minor adverse	Minor beneficial	Periodic landscape management operations	Minor beneficial

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
	sensitive profile and plan form in places.	enhancing with maturation of proposed landscape over time.					
Thames Valley NCA (Low)	Alignment with SEO2, SEO3 and SEO5 with ecological enhancements and woodland management of a former extraction site with an emphasis on recreation and educational opportunities	Given the scale of the NCA, any impacts on the Site would be negligible.	Low	Negligible adverse	Negligible beneficial	None required	Negligible beneficial
Colne Valley Regional Park (Medium)	HOAC operating in addition to BWSC on the Site with ecological and landscape enhancements supported by long term management. Increased opportunity for recreation and education. All is characteristic of the receiving landscape and within the aims of the CVRP.	Permanent and fully contained within the Site and minor given the scale of the CVRP.	Low	Negligible beneficial	Minor beneficial	None required	Minor beneficial
Colne Valley: Rickmansworth to Uxbridge LCA (Medium)	Sensitive increase in recreation and improvement of ecology aligns with key strategies as does securing of long-term management.	Permanent and fully contained within the Site and minor given the scale of the LCA.	Low	Negligible beneficial	Minor beneficial	None required	Minor beneficial

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
Wet woodland within the peninsula (High)	Benefits of tree management to enhance the condition of woodland.	Permanent and enhancing with maturation of proposed landscape over time.	Medium	Negligible beneficial	Moderate beneficial	Periodic landscape management operations	Moderate beneficial
Incidental woodland and vegetation on site (Medium)	Benefits of management on existing trees and replanting of new suitable species of native trees, shrubs, understorey and meadows.	Permanent and enhancing with maturation of proposed landscape over time.	Medium	Minor adverse	Moderate beneficial	Periodic landscape management operations	Moderate beneficial
Remnant hard surface with pioneer vegetation (Low)	Benefits of tree management on existing trees and replanting of new suitable species of native trees, shrubs, understorey, native grassland and meadows on topsoil rather than concrete surface.	Permanent and enhancing with maturation of proposed landscape over time.	Major	Minor adverse	Moderate beneficial	Periodic landscape management operations	Major beneficial

Table 10.21: Summary of Visual Effects

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
Construction							
Users of Hillingdon Trail and associated footpaths elevated on the valley side to the northeast of the lake in the location of VP03. (High)	Visibility of construction of the uppermost parts of the Main Building, dredging activities and island formation in the southwest of the lake.	Short term and temporary. Highly limited in extent within the vista.	Low	Moderate adverse	N/A	N/A	Moderate adverse
Pedestrian users of the bridge over the railway at Denham station VP07. (Low)	Not visible	Not visible	None	None	N/A	None required	N/A
Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by VP15. (Medium – high)	Visibility of construction of part of the Boat Shed, the upper level of the Main Building, some of the land reclamation of the peninsula extension, dredging activities and island formation in the southwest of the lake.	Short term and temporary. Limited in extent within the vista.	Low	Moderate adverse	N/A	N/A	Moderate adverse

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
Existing users of the lake (Medium)	Views of construction operations within the lake.	Short term and temporary	Medium	Minor adverse	N/A	N/A	Minor adverse
Users of the Grand Union Canal towpath (High)	Highly screened and filtered views through existing vegetation and proposed eastern boundary treatment	Very limited extent predicted.	Low	Minor adverse	N/A	N/A	Minor adverse
Users of other recreational routes (High)	No predicted significant views.	Occasional filtered glimpse possible	None	No effect	N/A	None required	N/A
Residential properties (High)	Highly screened views through existing vegetation from some upper storey windows.	Very limited extent predicted.	Low	Negligible adverse	N/A	N/A	Negligible adverse
Existing property adjacent to site entrance (High)	Views of construction operations close to the house, around the lagoon, erection of boundary fence and construction traffic entering the Site.	Short term and temporary	Medium	Major adverse	N/A	N/A	Major adverse
Road users (Low)	Possible views through the pattern of existing vegetation.	Very limited extent	Low	Negligible adverse	N/A	N/A	Negligible adverse

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
Railway users (Low)		Very limited extent of possible views through the pattern of existing vegetation.	Low:	Negligible adverse	N/A	N/A	Negligible adverse
Completed Development							
Existing property adjacent to site entrance (High)	Increased activity entering the Site, filtered and of the adjacent proposed carpark and site boundary fence. Views north towards the lagoon would be enhanced.	Low: Very limited extent of possible views through the pattern of existing vegetation.	Negligible adverse effect	Moderate adverse	Minor adverse	N/A	Minor adverse
Visitors to the Old Orchard Inn elevated on the valley side to the northeast of the lake as illustrated by VP15. (Medium – high)	Sensitive incorporation of ecological mitigation and the Main Building between a wooded island and promontories of land with minimal incursion into open water.	Permanent and limited in extent within the vista.	Low-medium	Minor-moderate	Minor adverse	N/A	Minor adverse
Existing users of the lake (Medium)	Increased activity on the water at some times and an upgrading of BSC built facilities within the new		Low	Minor adverse	Minor beneficial	None required	Minor beneficial

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
	building and demolition with reinstatement of habitat of existing buildings						
Users of the Grand Union Canal towpath (High)	Heavily screened views into the Site and new boundary fence with planting.	Permanent and from linear extent of towpath, any effects reducing over time with maturing of landscape	Low	Minor adverse	Negligible adverse	N/A	Negligible adverse
Residential properties (High)	Possible very limited part screened and filtered views of new landscape,	Some upper storey windows on Merle Avenue at the southwestern extent of Harefield. Permanent with effects reducing over time with maturing of intervening vegetation.	Low	Negligible adverse	Negligible adverse	N/A	Negligible adverse
Railway users (Low)	Heavily filtered views of site operation.	Occasional potential glimpse from over 1.5km - permanent with effects reducing over time with maturing of intervening vegetation.	Low	Negligible adverse	None	N/A	Negligible adverse to no impac5t
Pedestrian users of the bridge over the	Barely perceptible intervention.	Permanent and middle distance.	None	None	None	None required	N/A

Receptor (Sensitivity)	Impact	Geographic & Temporal Scale	Magnitude of Impact	Significance of Effect – Year 1	Significance of Effect – Year 15	Additional Mitigation and Monitoring	Significance of Residual Effect
railway at Denham station VP07. (Low)							
Users of other recreational routes (High)	Most potential views would be entirely screened or heavily filtered by intervening vegetation	Permanent with effects reducing over time with maturing of intervening vegetation/	None	None	None	None required	N/A
Road users (Low)	None predicted.	Occasional potential glimpse - permanent with effects reducing over time with maturing of intervening vegetation.	Low	None	None	None required	N/A

Conclusion

10.7.2 It is judged that the predicted temporary short-term negligible, minor and moderate adverse landscape effects during construction and limited minor adverse effects at Year 1 of 4.9% area reduction of the open water of Broadwater Lake would be wholly outweighed by the minor, minor-moderate and moderate beneficial landscape effects at Year 15 with the suite of permanent and enhancements to the landscape receptors of the Site that would enrich the overall ecological status (as defined in Chapter 7: Biodiversity).

10.7.3 In addition, at a wider scale, these improvements align with the character, aims and objectives of the Colne Valley Regional Park, Colne Valley: Rickmansworth to Uxbridge LCA and Thames Valley NCA. Through improving the landscape of a former gravel pit and processing site, promoting biodiversity, recreation and education whilst also securing the long-term management this would lead to a negligible beneficial landscape effect given the hierarchy of scale between Site and NCA, CVRP and LCA.

10.7.4 Overall, it is judged that proposals would lead to a moderate beneficial landscape effect in that there would be a noticeable positive impact on the landscape in comparison with the baseline.

10.7.5 The conclusion for visual effects notes is that the pattern of visibility is remarkably limited within and restricted to a medium distance 3km radius study area, with only two locations to found warrant full AVR studies and experience potentially significant views of the proposed relocation of HOAC to Broadwater Lakes by the public. Once completed the effects of any views generally diminish with maturing mitigating planting that form part of the scheme and the woodland structure of the surrounding landscape.

10.7.6 Of these two views, visual effects during construction would be temporary, short term and judged to be moderately adverse. From VP15, the Old Orchard Inn car park minor to moderate adverse at Year 1 would reduce to minor adverse visual effects by Year 15. From VP03 and users of Hillingdon Trail elevated on the valley side to the northeast of the lake, there are predicted negligible adverse visual effects from Year 1 to Year 15.

10.7.7 When reflecting upon the landscape of the study are as a whole, it is reasonably considered that there is negligible adverse visual effect in that the Proposed Development, without mitigation measures will have little impact on the environment in comparison with the baseline. This would remain the case with the cumulative scenario that includes the HS2 viaduct within the landscape.

10.7.8 Bringing together the conclusions of the assessment of landscape and visual effects in considering the potential impact on the Metropolitan Green Belt both spatially and visually, it is judged that there would no significant spatial impact of the Proposed Development. This conclusion is drawn based on the existing use of the Broadwater Lake for recreation, its isolation would not contribute to coalescence of urban areas, the landscape receptors would be enhanced overall, and the negligible adverse visual effect would be of no harm to openness.

10.7.9 It is therefore concluded that the Proposed Development would be acceptable in landscape and visual terms but would also lead to an enhancement of the existing landscape.

References

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[7] Natural England (2015): 'National Character Area Profile 115: Thames Valley'.

[8] South Bucks District (2011) Landscape Character Assessment.

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