

Walthamstow Reservoirs Feasibility Study

Masterplan, Management Plan and Business Plan





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Approved

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FINAL

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1.0 INTRODUCTION

- 1.1.1 Chris Blandford Associates (CBA) have been commissioned to develop a Feasibility Study for Walthamstow Reservoirs. The Client Group for this Study comprises Design for London, the Environment Agency, the Lee Valley Regional Park Authority, Natural England, the North London Strategic Alliance and Thames Water.
- 1.1.2 This document is the Final Final Masterplan, Management Plan and Business Plan for the Walthamstow Reservoirs site. It updates the Final Masterplan, Management Plan and Business Plan report that was issued in March 2010, and takes into account feedback from the Client Group. This document has been developed with contributions from Mallam & Co and from Nevin Associates Ltd.

2.0 MASTERPLAN

2.1 Overview and Vision

2.1.1 Walthamstow Reservoirs is a 3 mile long, 200 hectare visitor and nature conservation destination that extends from Lockwood to West Warwick. The Vision for Walthamstow Reservoirs is set out below, and is based on the vision option selected by the Client Group in the interaction options appraisal workshop held in December 2009:

2.1.2 *“Walthamstow Reservoirs will be a key visitor and nature conservation destination in North London. This is a unique site where multiple stories can be told – where visitors can learn about nature and its conservation, about the history and development of London’s water supply, about the quality of the water that can be found here, and about the challenges related to climate change and water supply. It will also inspire local communities to focus more on water efficiency, through a range of positive experiences and practical advice. At the same time, Walthamstow Reservoirs will also be a resource for leisure and recreation – a destination for a family fun day out. The site will be managed and maintained to the highest standards, but it will also continue to provide safe and secure water to Thames Water customers.*

2.1.3 *Walthamstow Reservoirs will be treasured by local communities, businesses and visitors to the area. It will contribute to locals’ quality of life, to the development of a positive image for Walthamstow, and to the broader regeneration of the area. It supports the London Borough of Waltham Forest’s Core Strategy, and specifically the Area Action Plans focused around Blackhorse Lane and the Northern Olympic Fringe and Lea Bridge.*

2.1.4 *Walthamstow Reservoirs is also a vital regional resource that will contribute to the sub-regional regeneration agenda. It is part of the wider Walthamstow Wetlands vision set out in the Upper Lea Valley Landscape Strategy, and will form part of an extended legacy associated with the Olympic Park. It will contribute to a more positive image of the Upper Lee Valley and North East London more broadly, and to the convergence of East London with the rest of London in terms of quality of life and living standards. It will also realise some of the strategic priorities and linkages identified in the East London Green Grid Strategy and the Lee Valley Regional Park Development Framework.”*

2.2 Design Philosophy

2.2.1 Walthamstow Reservoirs is very much an industrial water supply landscape in an urban setting. Although there are areas of quiet open space and greenery, the site is dominated by the 9

working reservoirs and associated structures (mainly historic), and intersected by major roads and railway lines. This gives the site a very different character from the adjacent green spaces (such as Tottenham Marshes and Walthamstow Marshes), and this difference should be emphasised. The design for Walthamstow Reservoirs should celebrate this industrial history and urban setting, and give emphasis to careful contemporary contextual design that minimises the impact on the site and that celebrates the site's history and focus.

2.2.2 This approach would be consistent with the Upper Lea Valley Landscape Strategy, which emphasises the concept of an inspiring metropolitan landscape where one can escape the city without leaving it. It is also consistent with the Strategy's emphasis on locally distinctive landscapes within a coherent overall landscape that binds together the valley's natural and manmade assets into a single experience.

2.3 Key Components of the Masterplan and Offer

Overview

2.3.1 The Masterplan and offer for Walthamstow Reservoirs contains a number of key components designed to realise the different aspects of the Vision for the site in a way that is financially sustainable on an ongoing basis:

- Improved connections and access;
- Biodiversity enhancement;
- Learning, interpretation and access to nature;
- Waterside café and water efficiency advice centre;
- 'Water and Life' – a ticketed visitor attraction;
- Education and community involvement; and
- Website.

2.3.2 These are described in the paragraphs below, and illustrated on Figures 1-5.

Improved Connections and Access

2.3.3 A key aim of the Masterplan is to provide improved access to Walthamstow Reservoirs, with more entrances and better connections to adjacent green spaces, to help increase open space provision for local communities experiencing deprivation, and to support the vision of a continuous green lung running from London to Hertfordshire.

2.3.4 This will be achieved through improvements to existing gateways and provision of additional secondary gateways, through the provision of bridges to achieve improved strategic links, and through the demarcation of permissive paths through the site. It could also be achieved through increased water use on the River Lee Diversion and River Lee Navigation, and establishment of a water based connection with the Olympic Park. This will be explored further as part of the next stage of design development.

Gateways

2.3.5 The main entrance to the site is currently located at Forest Road. This would be retained as the primary gateway, but would be enhanced to improve its attractiveness and functionality, and to provide a stronger sense of welcome and arrival. This would include removal of the high wall and any buildings that do not have operational use, opening up of the site frontage, and hard and soft landscaping. In addition, improvements would be made to the existing car park, including an allowance for coach parking. The intention is to not increase the size of the current car park – the existing space is felt to be broadly sufficient for anticipated visitor numbers, there are other additional parking facilities available nearby (for example at Tottenham Marshes, Walthamstow Marshes and Tottenham Hale station), and the site is well served by public transport.

2.3.6 This improved primary gateway would also accommodate a new crossing across Forest Road. At present, access to the site off Forest Road is very difficult, with busy traffic conditions and no right turning lanes available. The crossing would cater for both pedestrians and cyclists.

2.3.7 It is anticipated that a number of visitors to the Walthamstow Reservoirs site would arrive by tube or train. The two stations at Tottenham Hale and Black Horse Road are therefore considered to be important gateways where improved directional and interpretive signage would be provided. In addition, it is also recommended that environmental enhancements are carried out along Forest Road, between Tottenham Hale Station in the West and Black Horse Road Station in the East. It is envisaged that these proposals would include street trees, paving and furniture improvements. These proposals are already included in the Upper Lee Valley Landscape Strategy, and in council and Transport for London plans.

2.3.8 In addition to those at Tottenham Hale and Blackhorse Road stations, other secondary perimeter gateways would be located at:

- A pedestrian bridge over Copper Mill Stream, towards Walthamstow Marshes;
- The southwest corner of West Warwick Reservoir, to connect to the Lee Valley Pathway and to both Springfield Park and Walthamstow Marshes;

- A crossing of the River Lea Navigation/River Lee Diversion into Markfield Park;
- The southeast corner of High Maynard Reservoir, to connect to new regeneration proposals in that area;
- The northeast corner of High Maynard Reservoir, taking advantage of an existing bridge over the Flood Relief Channel; and
- The northeast and northwest corners of Lockwood Reservoir, to connect to Tottenham Marshes and Stonebridge Lock.

2.3.9 For site security reasons, each of the above entrances would be gated and closed at night.

Paths

2.3.10 Three types of paths have been demarcated through the site (see Figures 3a and 3b). They are designed to encourage visitors to explore the full breadth of the reservoirs while also managing and limiting the potential for visitors to disturb the operational activities of the site, or the nature conservation values for which the site is designated. They can also be used to deliver health related benefits, to address some of the health issues in the local communities.

2.3.11 Particularly sensitive periods from a biodiversity perspective include the breeding season (conventionally March - August), the moult period during September, and other sensitive periods during the winter. The path layout provides flexibility to manage visitor circulation as circumstances dictate, and helps prevent disturbance from occurring on all sides of the more sensitive reservoirs simultaneously, which would prevent birds from moving away from people to a sheltered bank. Going forward, as part of the detailed design stage it will be important to ensure that the path layout links with Sustrans.

Primary Path/Cycle Routes

2.3.12 The Primary Path would be the main visitor thoroughfare through the site, running from north to south. The Path would be complementary to the existing Cycle Route 1, and in part follows the route proposed in the Upper Lee Valley Landscape Strategy. It would be open to all users, and would be the only route within the site open to cyclists and dog walkers (with dogs on leads). Access for cyclists and dog walkers is an important part of supporting the connectivity between Walthamstow Reservoirs, the Lee Valley Pathway/Walk and other adjacent green spaces. It would be enforced through signs, gates, by-laws and the presence of rangers on-site. Although at this stage the assumption is that dogs on leads would be allowed onto the Primary Path, the challenges associated with having dogs on site would require this to be reviewed again at the detailed design stage, when mitigation measures and screening are explored in more detail and the impact on the site's values is more fully understood.

- 2.3.13 Starting from the south, the Path would enter the site from the south west corner of East Warwick Reservoir, with its connections to the Lee Valley Pathway. It would then follow one of two potential routes. One potential route is to follow the eastern side of East Warwick Reservoir, remaining on the west bank of Coppermill Stream, and to continue to follow Coppermill Stream, always remaining the west bank, along the north end of Reservoirs 1 and 2, until reaching the railway line. This route allows visitors an attractive path through the site, and the opportunity to see some of the key features that make it valuable. At the same time, however, the route also potentially impacts on the nature conservation and operational sensitivities of the site. It brings large numbers of visitors, cycles and dogs close to Reservoirs 1 and 2, where important heron and cormorant colonies are found - although visitor impact could potentially be mitigated by willow screening and by using Coppermill Stream as a natural barrier. This route also brings visitors close to the operational compound and water treatment works which can be found near to the south east corner of East Warwick Reservoir, and coincides with the main access path used by Thames Water operational vehicles.
- 2.3.14 The alternative potential route is to follow the west side of East Warwick Reservoir, and then to cross to the east bank of the River Lee Diversion, and to follow the east bank of the River until reaching the railway line. This route does not have the same sensitivities from an operational and nature conservation perspective, but at the same time it is also less attractive to visitors. Both East and West Warwick Reservoirs are above ground reservoirs, and so the Path running west of East Warwick would essentially be located in a ditch with no views of the site, and would also be adjacent to the railway line. In addition, the section of the Path running along the east bank of the River Lee Diversion is very similar to the existing Lee Valley Pathway and Lee Valley Walk that run along the west bank of the River Lee Navigation and River Lee Diversion, and so does not offer a distinct alternative route.
- 2.3.15 Finalisation of the route for the Primary Path/Cycle Route in the southern part of the Walthamstow Reservoirs site (and in the north of the site as well) will need to take place during detailed design work, once Appropriate Assessment has been completed and the impact on the site's nature conservation values and operational activities is more fully understood. Findings from the Appropriate Assessment may indicate, for example, that there is a need to close or restrict one of the Paths at sensitive times of the year, and therefore one solution may be to alternate between the two routes, depending on the time of year and how sensitive the biodiversity values are at Reservoirs 1 and 2.
- 2.3.16 In terms of the northern part of the Walthamstow Reservoirs site, the Primary Path/Cycle Route would enter the site at the south west corner of Low Maynard Reservoir. It would then run along the south of Low Maynard and High Maynard Reservoirs, and then follow the east side of

High Maynard Reservoir. To minimise disturbance, the Path is likely to need to run along the western side of the Flood Relief Channel or between the fence and the bottom of the bank, rather than along the bank itself of the High Maynard Reservoir. This approach would prevent the visitor from being able to walk along Path with a view across the site, but this could be mitigated by introducing a controlled access viewing platform at the Reservoir. If the Path were to run along the western side of the Flood Relief Channel, liability would need to be taken on by a body other than the Environment Agency, vehicle access would need to be maintained along the entire length of the Channel (with appropriate surfacing and vehicle access gate), and a 1.4m high fence would need to be constructed as close to the top of the bank as possible.

2.3.17 At the northern point of High Maynard Reservoir the Path would connect with the Lee Valley Pathway, over an existing Environment Agency bridge over the Flood Relief Channel. Liability for the bridge would need to be taken on by another body, the suitability of the parapet railings would need to be reviewed, and a suitable security gate access installed. The Path would then continue along the east side of Lockwood Reservoir, and connect with the Lee Valley Pathway at both the north east and north west corners of Lockwood Reservoir. This would provide connectivity with Tottenham Marshes and Stonebridge Lock.

2.3.18 The route for the Primary Path/Cycle Route has been designed to achieve a number of objectives: to optimise the quality of the visitor experience; to provide a distinctive alternative experience to the existing Lee Valley Pathway and Lee Valley Walk; to maximise connectivity to adjacent green spaces; to reduce the impact of visitor numbers on the conservation and operational sensitivities of the site; and to minimise any potential conflict with the 'Water and Life' ticketed visitor attraction (see below for more details).

2.3.19 The Primary Path would be 3m in width to allow for pedestrian and cyclists to pass in safety. It would be fully DDA compliant with a macadam surface dressed with chippings. It is envisaged that the path would be a shared surface, rather than being segregated – both to avoid highway clutter and because studies have indicated that shared surfaces often encourage more responsible and considerate use. Bench seating and bins would be provided along its length at regular intervals, and to improve its attractiveness tree planting or other environmental enhancements would also be implemented. As the site is locked at night, no provision would be needed for lighting along the path.

Secondary Routes

2.3.20 In addition to the Primary Path, the scheme also offers the opportunity to provide a Secondary Footpath system, primarily around East and West Warwick Reservoirs to the south of Forest Road and around the perimeter of Lockwood Reservoir to the north. It is envisaged that these

would be pedestrian only routes, with access managed by gates (such as kissing gates) with clear signage. The paths themselves could be a sealed gravel construction, or make use of more natural materials in keeping with the site. They would be approximately 1.5 – 2m in width, and would be DDA compliant. Given the emphasis on nature conservation and operational activities across the site, dogs and cycles would be prevented from using these paths.

- 2.3.21 The secondary path network would link into the primary route and necessitate the refurbishment of the existing railway underpass to enable better access to West Warwick. These works would include improved drainage, lighting and redecoration. Bench seating and bins would be provided at regular intervals around the secondary path network.

Tertiary Foothpaths

- 2.3.22 In response to particular ecological and operational sensitivities, visitor access to Reservoirs Numbers 1-5 would be strictly controlled by a series of gates, fencing and signage, and through the rangers on-site. These restrictions would also be in place around the Low and High Maynard Reservoirs in the north. It is proposed that there is no enhancement of the existing surfacing around these water bodies, and visitor use be restricted to fishermen, birdwatchers with permits, and accompanied tours (such as accompanied school groups or guided tours) – although visitor access could potentially be increased during less sensitive times of the year and day (ie outside breeding and moult times, and sensitive times during the winter).

Strategic Links and Bridges

- 2.3.23 Both the Primary Path/Cycle Route and the Secondary Footpath enables a number of links to be either utilised or created with adjacent green spaces. At the south of the site, a new bridge over Coppermill Stream would improve access to and from Walthamstow Marshes and the Lee Valley Pathway, and an existing link would be utilised into Springfield Park. In addition, a further pedestrian bridge would be provided over the River Lee Navigation, to connect Walthamstow Reservoirs with Markfield Park. The connections to Springfield Park and Markfield Park are in line with proposals in the Upper Lee Valley Landscape Strategy. These connections would link into the Secondary Footpath at the site, while the new bridge over Coppermill Stream would connect into the Primary Path/Cycle Route at the site. Access to Secondary Footpaths will be managed by gates (such as kissing gates) with clear signage. In the northern part of the site, existing bridges would be used to provide connections to Tottenham Marshes and the Lee Valley Walk and Lee Valley Pathway. These connections would link into the Primary Path/Cycle Route at the site. Signage and waymarking will encourage visitors to explore these wider connections, and common landscaping or branding treatments would help reinforce the concept of Walthamstow Reservoirs as one component of a broader landscape.

Biodiversity Enhancement

- 2.3.24 A number of opportunities have been identified to further enhance the overall biodiversity values and offer of the reservoirs without interfering with their current value as open waterbodies used by waterfowl, or their structural integrity.
- 2.3.25 The opportunities identified in this report are in line with, and contribute towards the delivery of the objectives of both the London Biodiversity Action Plan (BAP) and the Lea Valley Regional Park BAP. These are summarised in the table below and described further in the following paragraphs.

BAP	Habitat / Species	Target Action Code ¹	Target / Objective	Item (see paras below)
London BAP	Reedbeds	RB03	Increase reedbed habitat by 12.5ha by 2015	Item 2
		R1.2	Establish 10 small reedbeds	Item 2
		R3.2	Minimum 4 fully accessible large (>20ha) reedbeds across London	Item 2
	Rivers & Streams	T.2	To increase and enhance quality of riparian habitats through the prevention of any further loss of existing riparian habitats	Item 3
	Standing open water	SW02	Restore standing water habitats	All items
		1.1	Create & restore standing water habitats and engage public in site management	All Items
		C2.2	Install 15m of floating redraft	Items 1 and 2
	Black poplar	T.4	Double number of sites containing black poplar in London (by 2010)	Item 9
		Blackp4.1	Establish a nursery within the Lea Valley Park (LVP) for London sourced black poplars	Item 9
		Blackp4.4	Plant new black poplar trees from local stock cultivated in LVP nursery in new locations	Item 9
	Grey heron	GH2.2	Establish new grey heron platforms in line with research findings set out in report for GH2.2	Item 4
		GH3.2	Hold a "heron day" at several accessible sites ...	Item 4
	Bats	B3	Create/restore 15 artificial roosting sites	Item 4
		B4	Increase public awareness and involvement in bat conservation	Item 12
	House sparrow	T3	To halt decline in house sparrow populations in London	Item 11
		T3.2	Install 75 house sparrow nest boxes ...	Item 11
	Reptiles & Amphibians	R1	Establish a baseline dataset showing presence / absence	
Sandmartin	SMSAP3	Create 15 sand martin banks in London	Item 11	
	SMSAP3.2	Survey and research to identify sites for artificial nest creation	Item 11	
	SMSAP3.3	Create 3 sand martin artificial breeding sites ...	Item 11	
	SMSAP4.1	Investigate & promote community involvement, in sand martin conservation	Item 11	
LVRPA BAP ²	Open waters	-	400ha in 5 locations – winter refuges; 50ha in 10 locations – breeding refuges; 300ha in 3 locations – moulting refuges	Items 1, 2, 4
	Wet woodland	-	Increase wet woodland by 30ha in 10 years	Item 8, 9
	Otter	-	Rolling programme of river enhancement schemes.	Requires further survey
	Kingfisher	-	Rolling programme of river enhancement schemes	Item 11

¹ References taken from: <http://www.ukbap-reporting.org.uk/plans/>

² http://www.leevalleypark.org.uk/en/content/cms/about_us/environment/biodiversity_plan/biodiversity_plan.aspx

- 2.3.26 The opportunities presented in the above table represent only a selection of habitats and species included in both BAPs, and have been selected as the most relevant BAP priorities for Walthamstow Reservoirs. Opportunities for enhancing the site for certain species, e.g. peregrine falcon, have been avoided due to the potential for this species to adversely affect the status of the bird species for which the reservoirs are designated. Similarly, opportunities for water voles have also been avoided due to the sensitivity of the embanked reservoirs and the need to avoid damage to their structural integrity.
- 2.3.27 In order to maximise the potential for biodiversity enhancement, a programme of detailed and systematic surveys will need to be undertaken to fully inform future habitat creation and management opportunities. In particular, very little is currently known about the site's terrestrial habitats and species assemblages – it is conceivable that there are areas within the site that support interesting botanical and associated invertebrate assemblages. Furthermore, little is known about either the site's non-reservoir dependent bird populations or the manner in which the site is used by bats.
- 2.3.28 At this stage, it is considered that the reservoirs probably support a limited aquatic invertebrate fauna due to both the morphology of the reservoirs, the general lack of riparian vegetation (with the exceptions of Reservoirs 1, 2 and 3) and the resident fish populations. The delivery of riparian habitat enhancements (described below) would, however, provide the necessary shelter and vegetation structure to allow a more diverse assemblage to develop over time. In order to monitor this change, it is recommended that aquatic invertebrate surveys (in addition to surveys for dragonflies and damselflies) be undertaken both prior to, and following, habitat creation work.
- 2.3.29 Opportunities for delivering habitat enhancements throughout the site, and their contribution to delivering BAP targets are set out below. Overall, the greatest opportunity lies with the creation of riparian vegetated fringes to the reservoirs. Currently, the water's edge of each of the reservoirs (excluding all or parts of Reservoirs 1, 2, 3, East Warwick and Low Maynard) is bordered by either regularly managed grassland or concrete, neither of which provide good quality semi-natural habitat. Excluding the existing riparian vegetation, there remains approximately 14,500m of unvegetated reservoir fringe. Assuming an average 2.5m fringe of riparian vegetation could be created around the reservoirs, this would amount to approximately 36,250m², or about 36.25ha of new riparian habitat creation. If one third of the newly created habitat is reedbed, this would meet the current target for reedbed creation in the London BAP. In addition, if 20 floating islands were constructed and distributed across the reservoirs, this would constitute 500m² of further habitat creation. This is subject to findings from the

systematic surveys of habitats and species at the site, and restrictions under the Reservoirs Act, and will need to be reviewed in more detail at the next stage of design development.

2.3.30 A brief description of the opportunities for habitat creation through the enhancement of waterbodies are set out below. These focus on increasing the marginal and island vegetation of the reservoirs. This would provide greater habitat diversity, greater opportunities for sheltering, feeding, roosting and breeding for the birds that use the site (including herons), greater aquatic invertebrate diversity, and enhanced visual and aesthetic quality of the site.

- **(Item 1)** The provision of floating islands, particularly on West Warwick Reservoir. Islands would vary in their size and substrate, and would include both gravel beds and vegetated islands. These would provide roosting and potentially nesting opportunities for a range of wildfowl and, potentially, terns.
- **(Item 2)** The creation of marginal vegetated fringes/reedbeds, particularly around West and East Warwick Reservoirs, and Reservoirs 4 and 5. These margins would be a mix of both reedbed stands and more floristically diverse vegetation typical of lowland waterbody fringes. This would provide both additional nesting opportunities and more varied and irregular contours to the banks.
- **(Item 3)** The creation of riparian habitats along the cannellised channel of the Coppermill stream using, for example, reedrolls or similar to create a vegetated berm along the existing masonry retaining walls (particularly for the section adjacent to the Marine Engine House).
- **(Item 4)** Roosting poles/nesting platforms. Roosting poles, mounted on a submerged framework to avoid the need for driving the poles into the base of the reservoirs, would be constructed to provide additional roosting opportunities within the safety of the reservoirs. Similarly, nesting platforms to provide additional nesting opportunities for herons would be constructed using telegraph poles and secured to the base of the reservoirs using frames.
- **(Item 5)** Management of existing habitats, specifically for the island on East Warwick Reservoir which is currently vegetated. In its current condition, the island provides limited opportunity for supporting roosting or breeding birds, and should therefore be cleared of vegetation. This island is not currently used by herons, and therefore habitat management here would not conflict with the heronries.

2.3.31 In addition to the enhancement of waterbodies, the Masterplan also envisages the enhancement of terrestrial habitats at the site. This would have many benefits. It would: enhance the botanical and invertebrate biodiversity value of the site; maintain and protect

reservoir banks, particularly during the bird breeding season; provide roosting, feeding and breeding opportunities for bird species other than waterfowl; protect and shelter the boundaries of the site; provide clear, distinctive elements for visitors; and provide a resource for educational activities. This would be achieved through:

- **(Item 6)** Management of existing scrub – there are scattered stands of scrub throughout the site that appear to be of similar age and structure. Selective coppicing and thinning of individual bushes and small trees would help to improve the overall structural diversity and provide opportunities for creating thickets.
- **(Item 7)** Grassland management – in combination with the scrub management work, there are some opportunities for allowing light into certain areas of the site (for example at the top of Reservoirs 2 and 4) to improve the grassland scrub mosaic. This would create a ride that could be beneficial for terrestrial invertebrate diversity.
- **(Item 8)** New scrub/grassland creation – the area of land between the Marine Engine House and the top of East Warwick provides one of the most substantial areas where habitat creation could be undertaken. A mosaic of scrub / grassland habitat would be created along the corridor, providing opportunities for establishing a varied flora and visual interest for visitors accessing the site to the south of the Marine Engine House.
- **(Item 9)** New tree planting – where opportunities exist (for example along the Primary Path), new tree planting will be undertaken on the site. As part of this, the cultivation of black poplars, in alignment with the black poplars already in existence along the corridor of the River Lea, will be explored. This is subject to restrictions under the Reservoirs Act and findings from the systematic surveys of habitats and species at the site, and will need to be reviewed in more detail at the next stage of design development.
- **(Item 10)** Bare earth areas – the potential for secluded but sunny spots will be explored, to create areas of bare earth to encourage species such as solitary wasps and bees.
- **(Item 11)** Bird boxes and feeding stations – bird feeding stations will be created throughout the site, and will be screened using simple willow woven screens with apertures to allow viewing by visitors. Bird boxes will also be erected, particularly in the more secluded parts of the site (such as, for example, on the eastern boundary of Reservoirs 4 and 5). The feasibility of kingfisher banks and/or sand martin walls would also be considered. House sparrow terraces would be installed and incorporated into the Marine Engine House and any other buildings managed or built on site, where appropriate.

- **(Item 12)** Bat boxes / houses - the potential to erect bat boxes across the site will also be considered. There is room to create a bat house similar to the one recently constructed at Barn Elms. Alternatively, false internal roofs could be incorporated into the design to create bat roosts within the roof of new buildings on the site. Ideally, this roost will be temperature controlled using low energy heating systems.
- **(Item 13)** Control of invasive species – the systematic removal of invasive species throughout the site is a major task that needs to be undertaken. It will begin during the development phase, but it is anticipated that this work would take a number of years to complete. Without a serious attempt to control invasives it is possible that some of the opportunities for habitat creation and enhancement would fail.

2.3.32 It is anticipated that the delivery of substantial areas of new and sympathetically managed existing habitats, and the provision of additional roosting/nesting sites would significantly strengthen the robustness of the reservoirs to support a range of species and species assemblages. By increasing and strengthening the overall habitat resource of the site, particularly through the provision of riparian shelter, it is expected that its wildlife value can be protected and maintained. This would be due to greater areas of the site being available and suitable to support birds (and other species), particularly through the provision of secluded areas away from visitor disturbance.

Learning, Interpretation and Access to Nature

2.3.33 In addition to opening up access and enhancing the biodiversity values at the site, there will also be opportunities for visitors to benefit from learning and interpretation opportunities at Walthamstow Reservoirs, and from improved access to nature.

2.3.34 Learning and interpretation will focus on the themes of nature conservation, the history of the development of the site, how the water system works and the quality of the water that is provided here. These themes will be delivered through a number of tools and media. Along the primary and secondary footpaths around the site, well appointed outdoor interpretation boards and directional signage would provide information about the site, and at each of the gateways to the site there would be an orientation map of the site showing key features and interpretation. A rolling programme of art inspired by the site and its values would add a further dimension to the interpretation and interest of the site. Leaflets will also be available with walking trails mapped out. At West Warwick, screened board walks and viewing platforms would help provide visitors with close encounters with the water body and reedbed habitats, and hides for birdwatchers would also be constructed.

Waterside Café and Water Efficiency Advice Centre

- 2.3.35 A new Waterside Café would be developed with intimate views over Reservoir No. 1, which would provide visitors with an attractive venue for lunch or snacks that would be unique in this part of London. This Waterside Café would be set back from the Reservoir's edge to protect its biodiversity values, but it could incorporate a viewing tower or roof terrace to afford more expansive views across the site, as well as terracing for outdoor seating in the summer. Additional habitat could also be created between the café and the Reservoir edge, to bring wildlife closer to the café. Visitor access to any outside space at the Café building would be strictly controlled in order to minimise disturbance to the bird population with, for example, closure during specific periods of the day (such as early morning and late evening when birds are most actively feeding or settling to roost) or during seasons that are particularly sensitive for breeding or wintering birds. Visitors would also not be allowed to access the water in Reservoir No. 1.
- 2.3.36 The café would contain free access to toilets for use by the visitors to Walthamstow Reservoirs. These would be supplemented by existing toilet facilities at Markfield Park and Tottenham Marshes that would serve visitors in the southern and northern parts of the site. The Café would also contain the water efficiency advice centre. The advice centre would focus on providing practical advice to residents and businesses about how to reduce their water usage and bills.

'Water and Life' – a Ticketed Visitor Attraction

- 2.3.37 'Water and Life' would be a ticketed visitor attraction located on a compact site within the Walthamstow Reservoirs site. This attraction would help consolidate visitor impact to the site in a contained area, thereby reducing the overall impact on the site's conservation and operational sensitivities – and will be particularly helpful in reducing conflict between peak visitor usage times and the sensitive breeding or wintering seasons. It would also play a key role in ensuring that the site was financially sustainable on an ongoing basis.
- 2.3.38 The 'Water and Life' attraction would provide visitors with an introduction to the broader Walthamstow Reservoirs vision and offer. It would also provide additional resources to enable visitors to build a deeper understanding of this unique site and the multiple stories that can be told here, and also a further range of leisure and recreation services and amenities to support a family fun day out. The 'Water and Life' concept is the unifying theme that brings together the site's myriad values, assets and stories - nature and its conservation, the history and development of the site, how the water system works and the quality of the water provided here, and climate change and water supply. It also emphasises the multifaceted nature of the

site that makes it so unique in London, and ensures its relevance to the diverse range of local and regional communities that would visit the site.

- 2.3.39 The 'Water and Life' attraction would extend from the arches of the London Overground line near Forest Road to the underpass between East and West Warwick, and would include the Marine Engine House. This provides good access to public transport facilities near Forest Road, and makes use of interesting and attractive historic features at the site. It also helps encourage visitors to explore more of the site than the area immediately surrounding the Marine Engine House. This would be supported by a number of gates enabling visitors to move in and out of the ticketed area and to explore the broader site – at the underpass between West and East Warwick, at the north east corner of East Warwick, at the north point of Reservoir No. 1, and at the intersection with the path to the Cafe.
- 2.3.40 The boundary of the attraction would be delineated, wherever possible, by existing natural or industrial features – for example the London Overground railway viaduct, the River Lee Navigation, the National Express East Anglia rail line and Coppermill Stream. Where this was not possible, boundaries could potentially be delineated through new water filled ditches. This would help to reduce the presence of any additional fencing intrusions on the site, and also reduce potential perceptions of exclusivity associated with the attraction.
- 2.3.41 There are a number of components associated with the offer at the 'Water and Life' attraction. A key part of the offer is the establishment of a Visitor and Interpretation Centre within the refurbished Marine Engine House. This will be a very high quality, fun and engaging permanent exhibition targeted at both children/families and adults. It will explore the key themes of nature conservation, the history and development of the site, how the water system works and the quality of the water provided here, but in more depth than can be found elsewhere on the site. It will also cover issues around climate change and future challenges associated with water supply, both in the UK and more broadly, and changes to attitudes and behaviours that can help mitigate the challenges and support greater water efficiency. This will help give the offer a local cultural reference.
- 2.3.42 A wide variety of interpretative tools and media will be used in the exhibition, with a strong emphasis on interactivity. This could include a/v or multi-media presentations, art exhibits, immersive environments and 'fly through' experiences, virtual models that can be manipulated, monitors providing CCTV coverage of specific nesting sites, computer and other games, and water-based interactives of the type that have proved so popular and such a driver of repeat visitation for so many years in the Launchpad Gallery at the Science Museum (see Figure 5 for examples). Maps and leaflets with suggested walking trails, and audio guides will also be available at the Visitor and Interpretation Centre.

- 2.3.43 The offer will be further supplemented by a changing programme of daily and seasonal events and exhibitions designed to keep the visitor attraction lively and animated, to maintain the 'freshness' and relevance of the offer, and to encourage repeat visitation. As well as being fun and engaging, these events and exhibitions would also provide learning opportunities at the site. They could include, for example, guided tours around the broader site, including the tertiary footpath areas, access to nature sessions in a dedicated, larger scale and more sophisticated bird hide on West Warwick, or temporary exhibitions focused on particular seasonal topics. More children/family focused activities could include 'how to' sessions (eg how to build bird boxes, how to make a mini nature reserve for your home), workshops (such as art workshops), demonstrations and shows, story-telling and pantomimes, and pond dipping activities. The recreational offer could be further supplemented by fairs/markets, or small scale themed festivals.
- 2.3.44 These activities would take place both in the Visitor and Interpretation Centre and also in the external space surrounding it. The centre's outside perimeter will also include a number of outdoor resources and demonstration areas: an outdoor classroom, an area made up of various habitats including grass, trees, scrub and ponds where groups can engage in environmental education activities; an exhibition/drought garden; a 1m² nature reserve to demonstrate the number of species that can occur in such a small plot; a trail to provide visitors with close encounters with mini beasts and bugs; raised ponds to allow interaction with water and water-based life; and larger-scale water based interactives of a type similar to those found within the centre. All water-based features would be located in close proximity to the centre, to ensure easy supervision and reduce risk of injuries.
- 2.3.45 In addition, there will also be a central square, designed to be predominantly hard surfaced to accommodate the expected number of visitors and to flexibly accommodate the range of activities. The square would also accommodate a striking central water feature that could be an interactive sculpture or fountain, and also seating and picnic tables, directional and interpretative signage, and cycle hire and cycle parking facilities that would be linked into other cycle hire facilities further up and down the Lee Valley Regional Park.
- 2.3.46 Retail facilities, focusing on both general interest and specialist items, would also be provided at the site. A dedicated Walthamstow Reservoirs shop would be located either in an extension to the Marine Engine House or in an adjacent free standing building. In addition, a cluster of craft shops and workshops would also add to the visitor experience. These would be housed in specially designed 'pods' which would sit between the railway viaducts.

2.3.47 The final component of the attraction offer would be a children's play and nature trail. This would start to the south of the new square and would run towards the northern side of East Warwick Reservoir, to encourage visitors to progress further into the site towards the biodiversity enhancements and access to nature focused on West Warwick Reservoir. The play facilities themselves would combine natural themes with play sculptures – involving for example logs, boulders, landforms and planting such as willow tunnels. The trail would be designed to have learning benefits for children as well as recreational play benefits, and would be a visitor attraction in itself (see Figure 5).

Education and Community Involvement

2.3.48 Walthamstow Reservoirs has much potential to be a valuable resource for teachers and pupils, and the aim will be to begin realising this potential. Building on the work already being undertaken by the London Wildlife Trust, relationships will be developed with local schools and colleges, and teachers will be actively encouraged to use the site for educational purposes. Collaboration and partnerships will also be established with other education facilities nearby – for example the Beam Engine Museum at Markfield Park and the new Deephams Sewage Treatment Works. Specific activities and resources will be designed to link into the National Curriculum, and schools will be able to make use of an education room inside the 'Water and Life' attraction's Visitor and Interpretation Centre for teaching and lunch breaks. In addition to being able to use the free access parts of the site, schools will also have access to a variety of outdoor resources associated with the 'Water and Life' attraction, including an outdoor classroom, exhibition gardens, trails, raised ponds and water-based interactives, the larger-scale, more sophisticated bird hide on West Warwick, and the more controlled parts of the broader site (the tertiary paths).

2.3.49 As well as being a destination for locals and visitors to the area, Walthamstow Reservoirs will also seek to be a site in which local communities are actively engaged and fully participating – studies have shown that the most effective way to connect local communities to local greenspace is through activity. This involvement will be particularly encouraged through the establishment of both a Friends group and also volunteer group for the site (with potentially overlapping membership), building on the work already undertaken by the London Wildlife Trust in this area.

2.3.50 Volunteers would be encouraged to be active contributors to a number of activities on site: to the conservation and enhancement of the site's biodiversity, for example by undertaking wildlife surveys or helping to create or maintain habitats; and to the learning and interpretation activities at the site, for example by acting as volunteer guides, assisting in educational workshops, or by contributing to the programme of events/activities. Schools could be

encouraged to take ownership of creating some of the outdoor educational resources, such as the outdoor classroom for example, youth clubs could be invited to become involved in designing art-based interpretation at the site, and local community groups could be given nursery plots to cultivate, with an emphasis on plants that showcase the cultural diversity of the area's residents.

Website

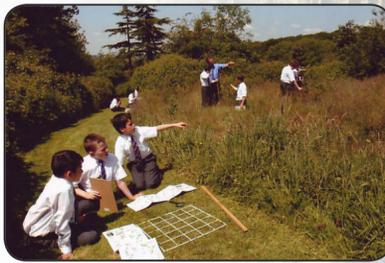
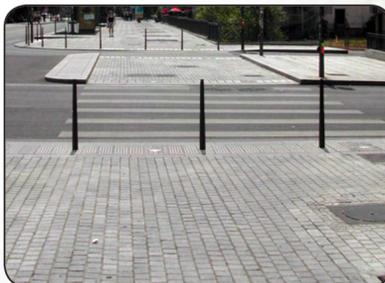
- 2.3.51 In addition to the services and amenities available on the site itself, visitors and non visitors will also have the potential to access information about the site through a dedicated website. In addition to general information about location and orientation, access, opening times and events/activities, the website will also contain a wealth of information about the nature conservation, history and development, and water system values of the site, together with a discussion of water shortage, climate change and water efficiency. This information will take the form of text, photos, remote cameras with live footage, wildlife updates and sightings, games and links to other informative sites. The website will also provide information on the educational programmes and activities available at the site, with downloadable educational resources that can be used by pupils and teachers before, during and after visits to the site.

Strategic Site – Possible Urban Studies/Adventure Centre

- 2.3.52 The masterplan has also identified a strategic site at Walthamstow Reservoirs that has frontage onto Forest Road, and that could potentially be used for an Urban Studies/Adventure Centre. An Urban Studies/Adventure Centre would provide a residential facility for local school children, youth groups and college students – a valuable opportunity for young people to get away from home, together and under suitable supervision, to a unique site for intensive short term stay experiences (for example overnight or over a weekend). The location of such a facility in an urban setting would not undermine the value of this experience – it would merely provide additional infrastructure and support.
- 2.3.53 The Urban Studies/Adventure Centre would offer unique short programmes and courses of a learning and/or adventure and outdoor pursuit character. These could include, for example, maths or engineering study days, science or biology weekends, leadership and sports coaching. Activities would be focused around Walthamstow Reservoirs (although activities wouldn't take place on the water bodies themselves), the River Lee Navigation, the River Lee Diversion, Tottenham Marshes and Walthamstow Marshes, and would also leverage the various facilities associated with those spaces (such as the Lee Valley Canoe and Cycle Centre). The Centre could also be used by adults for various corporate functions, particularly during school

holidays. This could include meetings and conferences, management training, team away days, and management team games or leadership training events.

- 2.3.54 To support these activities, the Centre would have accommodation facilities, classroom/meeting space, and communal recreation space. It would have direct access off Forest Road, enabling easy servicing and public access, and would also be located well away from the reservoirs themselves, thereby not interfering with the night time security of the site.
- 2.3.55 This approach has been used successfully elsewhere in the UK, for example at 'The Anderton Centre – Outdoor Activities, Education, Conferencing' located on the Rivington Reservoir north of Manchester. Within Walthamstow, initial conversations with the Lee Valley Canoe and Cycle Centre have indicated strong latent demand for this facility, and also interest in partnership for delivery.
- 2.3.56 A separate study will need to be undertaken to finalise the usage of the strategic site – to determine whether this would be the best sub-regional location for an Urban Studies/Adventure Centre, and to determine whether an Urban Studies/Adventure Centre would be the best use of this site.

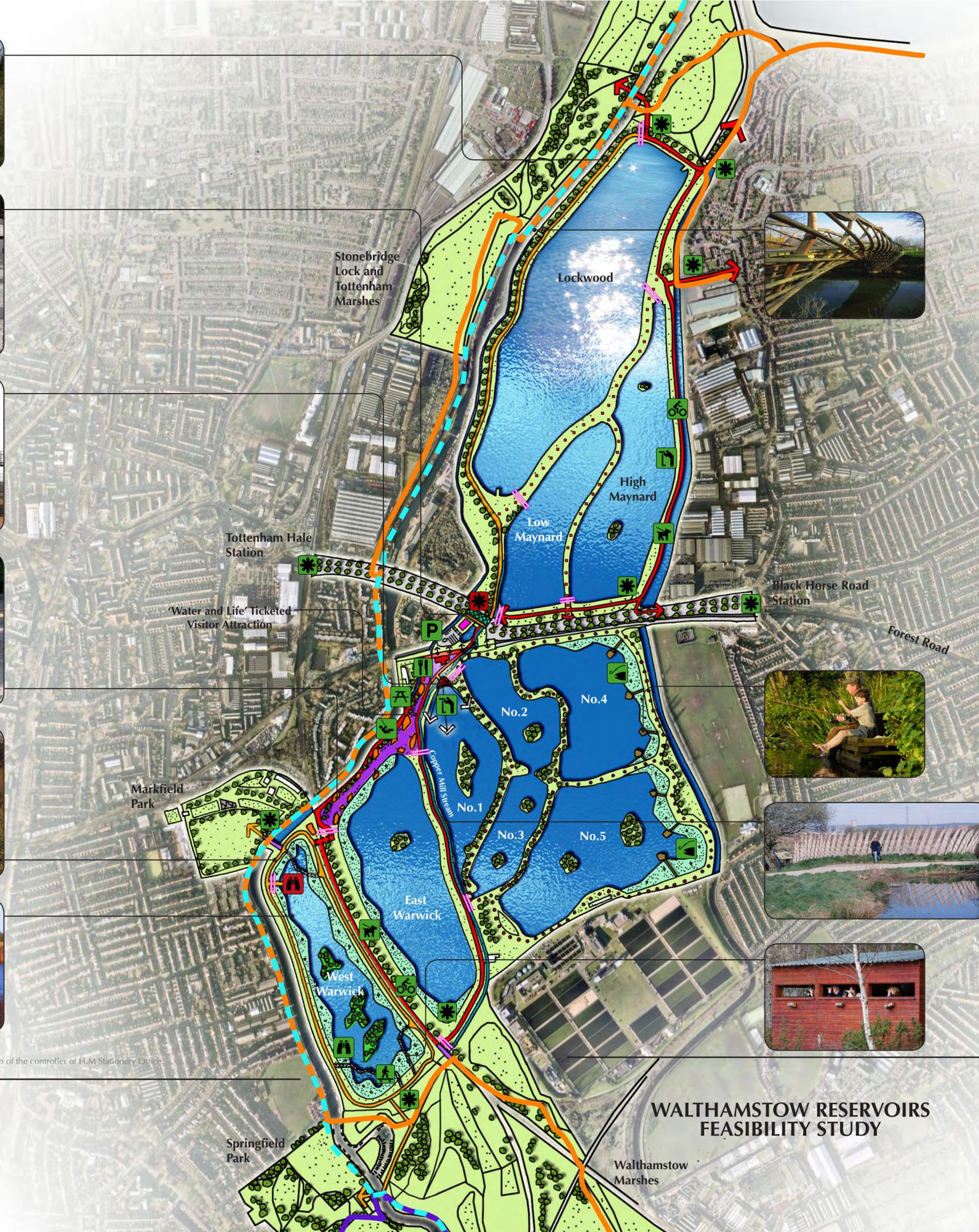


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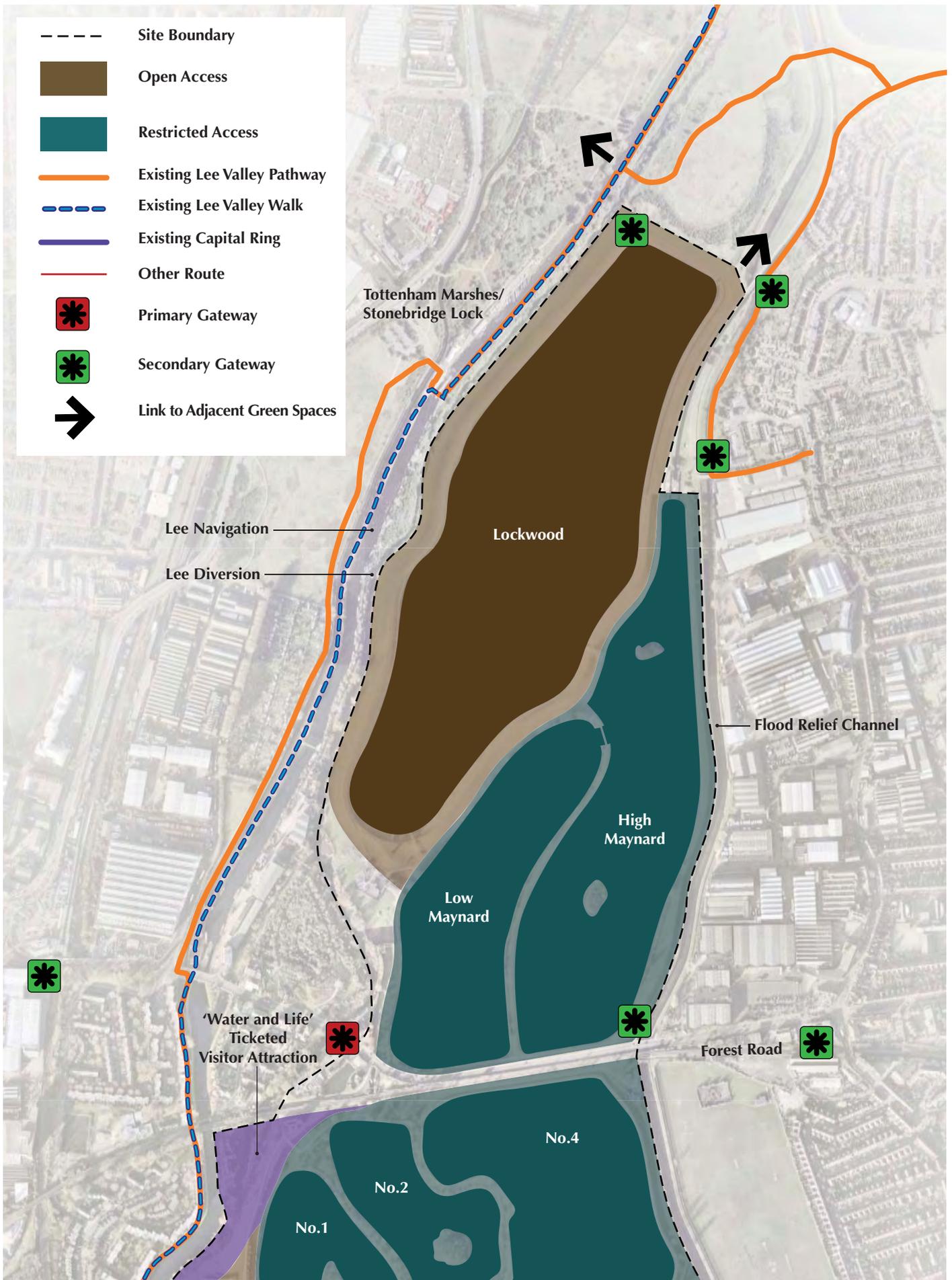
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- FREE TO ACCESS**
- Waterside Café, Energy Advice Centre and Public Toilets
- Biodiversity Enhancement/Reed Beds
- New Islands
- Boardwalks/Hides for Bird Watchers
- Fish Swims
- Viewing Platform
- Existing Lee Valley Pathway
- Existing Lee Valley Walk
- Existing Capital Ring
- Potential Primary Footpath/Cycle Paths
- Secondary Footpath
- Tertiary Footpath (Permit Holders - Fishing, Bird Watching and Guided Tours)
- Primary Gateway
- Secondary Gateway
- New Bridge
- Gated Access
- Underpass Improvement
- Enhanced Road Corridor between Stations
- Improved Pedestrian Crossing
- Tree Planting
- Visitor and Coach Car Park
- Strategic Site - Possibly Urban Studies/Adventure Centre
- 'WATER AND LIFE' TICKETED VISITOR ATTRACTION
Marine Engine House Visitor and Interpretation Centre and other facilities - Interpretation/Exhibitions/Education/WC's/Shop/Craft Shops and Workshops/Outdoor Classroom/Exhibition Garden/Water-based Interactive Play
- Bird Hide with Educational Facilities
- Picnic Area
- Children's Play and Nature Trail

**WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY**

**FIGURE 1
Masterplan**



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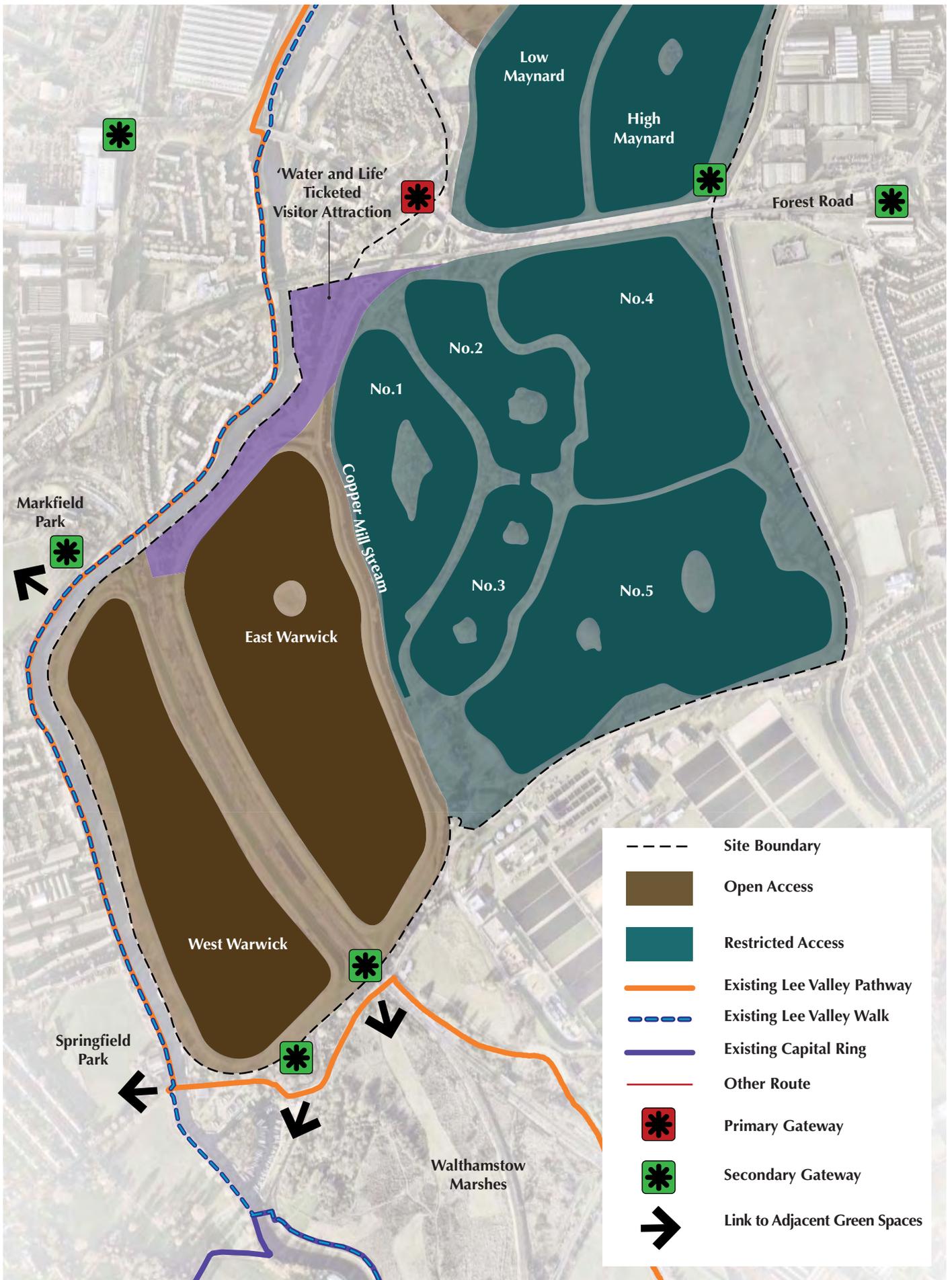


**WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY**

FIGURE 2a
Access and Connectivity
North of Forest Road

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**WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY**

FIGURE 2b
Access and Connectivity
South of Forest Road

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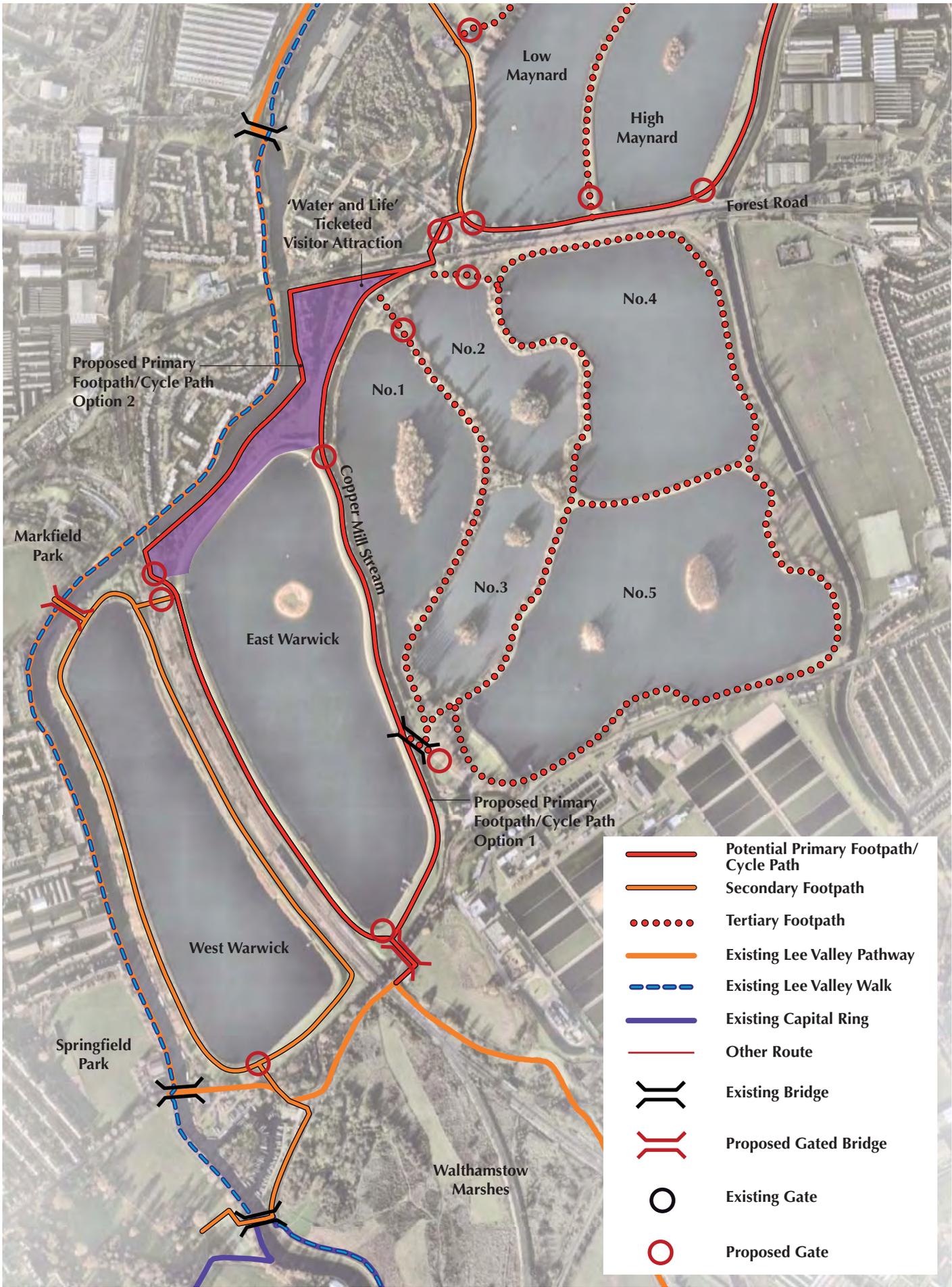


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**WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY**

**FIGURE 3a
Proposed Path Layout
North of Forest Road**



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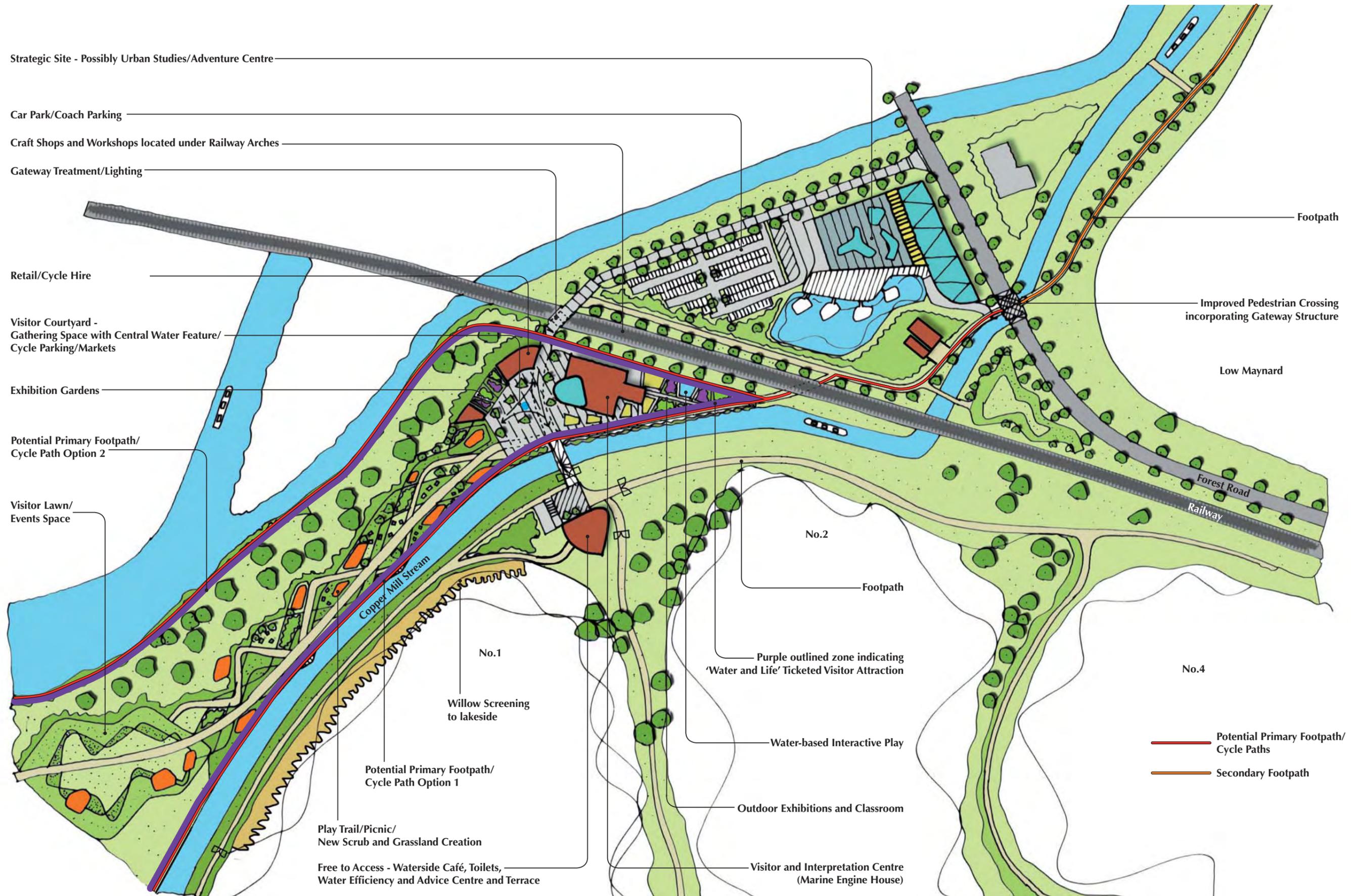


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**WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY**

**FIGURE 3b
Proposed Path Layout
South of Forest Road**



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WALTHAMSTOW RESERVOIRS FEASIBILITY STUDY

FIGURE 4
Site Entrance and
'Water and Life'
Ticketed Visitor Attraction



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**WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY**

**FIGURE 5
'Water and Life'
Interactive Learning
and Play**

2.4 Capital Development Budget

2.4.1 The overall capital development budget for Walthamstow Reservoirs is estimated at **£9.3m**, excluding VAT. The estimate is based on the Masterplan, and has been calculated based on industry standards and costs per square/linear metre at comparable developments. It is not a detailed measure of the costs required to implement the site – these detailed costs can only be determined once more detailed design has taken place. The estimate is instead a useful tool to guide funding discussions.

2.4.2 The £9.3m estimate breaks down into the following key areas (see table below). The more detailed estimate can be seen on the following page.

Key Area	Budget Estimate	Comments/Key Assumptions
Improved connections and access	£1.9m	To include: main gateway entrance, existing car park and pedestrian crossing (£0.3m); highway improvement works (£0.2m); footpaths (£0.8m); gates, bridges and connections (£0.4m); furniture, signage and interpretation (£0.2m)
Biodiversity enhancement	£0.6m	To include ecological and access to nature works
Waterside café and water efficiency centre	£1.6m	New build development
'Water and Life' – a ticketed visitor attraction	£2.1m	Refurbishment of the Marine Engine House into a Visitor and Interpretation Centre, education room and office space (£1m); new build retail development and establishment of craft workshops and shops under railway arches (£0.6m); external works and outdoor facilities (£0.5m)
Site clearance	£0.05m	
Professional fees and contractor prelims	£1.9m	Calculated at 18% and 10% respectively
Contingencies/optimism bias	£1.2m	Calculated at 15%
Total	£9.3m	

2.4.3 The cost per square metre assumptions for all buildings has been generous, to allow for a high quality of facilities, and to also allow for high environmental sustainability standards of construction and operation.

WALTHAMSTOW RESERVOIRS CAPITAL DEVELOPMENT BUDGET	
Entrance Works	
Gateway and landscaping	£20,000
Pedestrian crossing across Forest Road	£50,000
Capital Cost of Entrance Works Provision	£70,000
Car Parking	
Total surface area (sqm)	2,000
Tarmac cost/sqm	£75
Total tarmac surfacing capital costs	£150,000
Planting	£25,000
Lighting	£30,000
Drainage	£15,000
Capital Cost of Car Parking Provision	£220,000
Highway Corridor Improvements - Forest Road	
Tree planting	£100,000
Paving	£100,000
Furniture	£25,000
Capital Cost of Highway Corridor Improvements Provision	£225,000
Primary Strategic Footpath	
Length of path (linear metres)	3,000
Width of path (metres)	3
Total area (sqm)	£9,000
Cost/linear metre	£35
Timber edging	£48,000
Tree planting and environmental enhancement	£30,000
Capital Cost of Primary Strategic Footpath Provision	£393,000
Secondary Footpath	
Length of path (linear metres)	4,500
Width of path (metres)	2
Total area (sqm)	£9,000
Cost/linear metre	£30
Timber edging	£144,000
Capital Cost of Secondary Footpath Provision	£414,000
Gates, Bridges and Connections	
Secondary gateways (x9)	£35,000
Internal pedestrian gates between paths (x8) - including fencing	£12,000
Gates into 'Water and Life' ticketed visitor attraction (x3)	£30,000
Pedestrian bridges over Coppermill Stream (x2)	£60,000
Pedestrian bridge into Markfield Park	£200,000
Works to railway underpass (drainage, lighting, decoration)	£40,000
Capital Cost of Gates, Bridges and Connections Provision	£377,000
Furniture, Signage and Interpretation	
Benches (x100)	£50,000
Bins (x30)	£9,000
Information and directional signage offsite (x2)	£20,000
Main entrance signs (x2)	£20,000
Water and Life' ticketed visitor attraction signs (x3)	£30,000
Secondary entrance signs (x7)	£35,000
On-site directional signage (x10)	£5,000
On-site interpretation (x10)	£20,000
Rolling art programme	£50,000
Capital Cost of Furniture, Signage and Interpretation Provision	£239,000
Ecological and Access to Nature Works	
Total board walks/hides/screens area (sqm)	2,400
Cost/sqm	£20
Total boardwalks/hides/screens	£48,000
Viewing platform on High Maynard	£5,000
Water and Life' ticketed visitor attraction bird hide	£30,000
Riparian habitats	£280,000
Floating islands	£80,000
Floating reedbeds	£40,000
Existing vegetation management	£20,000
Planting	£10,000
Fish swims	£20,000

Kingfisher/sand martin banks	£10,000
Invasive species treatment	£15,000
Capital Cost of Ecological and Access to Nature Works Provision	£558,000
Waterside Café Provision	
Total waterside café area (sqm)	580
Cost /sqm (new build)	£2,500
Roof top viewing platform and deck	£100,000
Capital Cost of Waterside Café Provision	£1,550,000
Water Efficiency Advice Centre Provision	
Total Water Efficiency Advice Centre area (sqm)	5
Cost /sqm (new build)	£2,500
Capital Cost of Water Efficiency Advice Centre Provision	£12,500
Water and Life' - Visitor and Interpretation Centre	
Total visitor and interpretation centre area (sqm)	300
Cost/sqm (refurbishment of Marine Engine House)	£1,500
Refurbishment Cost of Visitor and Interpretation Centre Provision	£450,000
Area of exhibition within Centre	50%
Exhibition Cost /sqm	£3,000
Exhibition Cost of Provision	£450,000
Capital Cost of Visitor and Interpretation Centre Provision	£900,000
Water and Life' - External Works	
Total hardscape area (sqm)	1,500
Hardscape cost /sqm	£100
Total hardscape capital costs	£150,000
Total planting area (sqm)	500
Planting cost /sqm	£25
Total planting capital costs	£12,500
Total exhibition gardens area (sqm)	100
Exhibition gardens cost /sqm	£75
Total exhibition gardens capital costs	£7,500
Outdoor classroom, raised ponds, nature reserve and nursery plots	£10,000
Seating and picnic tables	£5,000
Lighting	£30,000
Drainage	£15,000
Children's play and nature trail	£200,000
Central water feature	£50,000
Capital Cost of Visitor Centre External Works Provision	£480,000
Water and Life' - Retail Provision	
Total retail area (sqm)	110
Cost /sqm (new build)	£2,500
Capital Cost of Retail Provision	£275,000
Water and Life' - Craft Workshops and Shops Provision	
Total craft workshops and shops area (sqm)	200
Cost /sqm (light new build structures)	£1,500
Capital Cost of Craft Workshops and Shops Provision	£300,000
Water and Life' - Education Room Provision	
Total education room area (sqm)	50
Cost /sqm (refurbishment of Marine Engine House)	£1,500
Capital Cost of Education Room Provision	£75,000
Water and Life' - Office Space for Staff	
Total Office Space for Staff area (sqm)	50
Cost /sqm (refurbishment of Marine Engine House)	£1,500
Capital Cost of Energy Advice Centre Provision	£75,000
Site clearance	£50,000
TOTAL CAPITAL DEVELOPMENT BUDGET	£6,213,500
Professional fees @ 18%	£1,118,430
Contractors prelims at 10%	£733,193
Contingencies & Optimism Bias @ 15%	£1,209,768
TOTAL OUTTURN BUDGET IN 2009/2010 PRICES	£9,274,891

3.0 MANAGEMENT PLAN

3.1 Operational Plan

3.1.1 There are a number of operational objectives associated with the Walthamstow Reservoirs Vision:

- Enable Thames Water to continue to be able to provide suitable water to its customers;
- Maximise the nature conservation and biodiversity value of the site;
- Enable regular, safe and secure public access to the site, especially through appropriate linkages with the Lee Valley Regional Park and other adjacent green spaces;
- Maximise the value of the on-site visitor experience, especially for the family fun day-out market;
- Maximise the educational value of the site;
- Maximise visitation levels to the site commensurate with all other operational objectives; and
- Generate sufficient income from such visitation to make a significant contribution to the costs of site management.

3.1.2 These operational objectives can be grouped into four areas of operational responsibility:

- Water Management;
- Site Management;
- Visitor Management; and
- Marketing.

3.1.3 Water management includes the following responsibilities:

- Water flows around the site and water quality in the reservoirs;
- The structural integrity and ongoing maintenance of the reservoirs themselves and their associated engineering elements; and
- The operational health & safety and security issues associated directly with the above.

3.1.4 Site management includes the following responsibilities:

- The security of the site in general, in particular from the threat of terrorism, vandalism and public nuisance;
- Public access to the site (from transport connections and adjacent green spaces), and health & safety issues associated with public access;

- Maintenance of the site's hard and soft landscape;
- Managing, protecting and enhancing the nature conservation values at the site; and
- Operating the site to a high standard to allow full public access and meet the potential expectations of visitors.

3.1.5 Visitor management includes the following responsibilities:

- Encouraging and monitoring visitor connectivity with the Lee Valley Regional Park and other adjacent green spaces;
- Maximising average visitor 'dwell time' and spend on site, and encouraging return visits;
- Ensuring visitors understand and respect the safety, security and conservation issues of the site;
- Providing and maintaining suitable visitor services and facilities (including car parking, toilets, information/interpretation and events, learning and education, catering and retail); and
- Providing suitable facilities management services.

3.1.6 Marketing includes the following responsibilities:

- Attracting the maximum number of visitors to the site (including schools and other groups), commensurate with the constraints of site security, safety and conservation;
- Attracting as many visitors to the site as possible during the 'shoulder' and off seasons;
- Attracting as many return visits as possible;
- Maximising visitor dwell time and on-site spend; and
- Developing and delivering an annual programme of events to attract people to visit the site on a regular basis.

3.2 Management Structure

3.2.1 Based on the operational objectives, responsibilities and requirements associated with the Walthamstow Reservoirs Vision, the following staffing requirements have been identified to deliver suitable operational services (see the table below). The management structure is set out in Figure 6.

3.2.2 Staff requirements are based on the following key assumptions:

- Thames Water continues to retain accountability for the water management of the site;
- A new grounds maintenance contract would be let for the overall continuing maintenance of the site – potentially as an extension to the existing grounds maintenance contracts in use

at other nearby green spaces by the Lee Valley Regional Park Authority. This would include site habitat management as well as site maintenance;

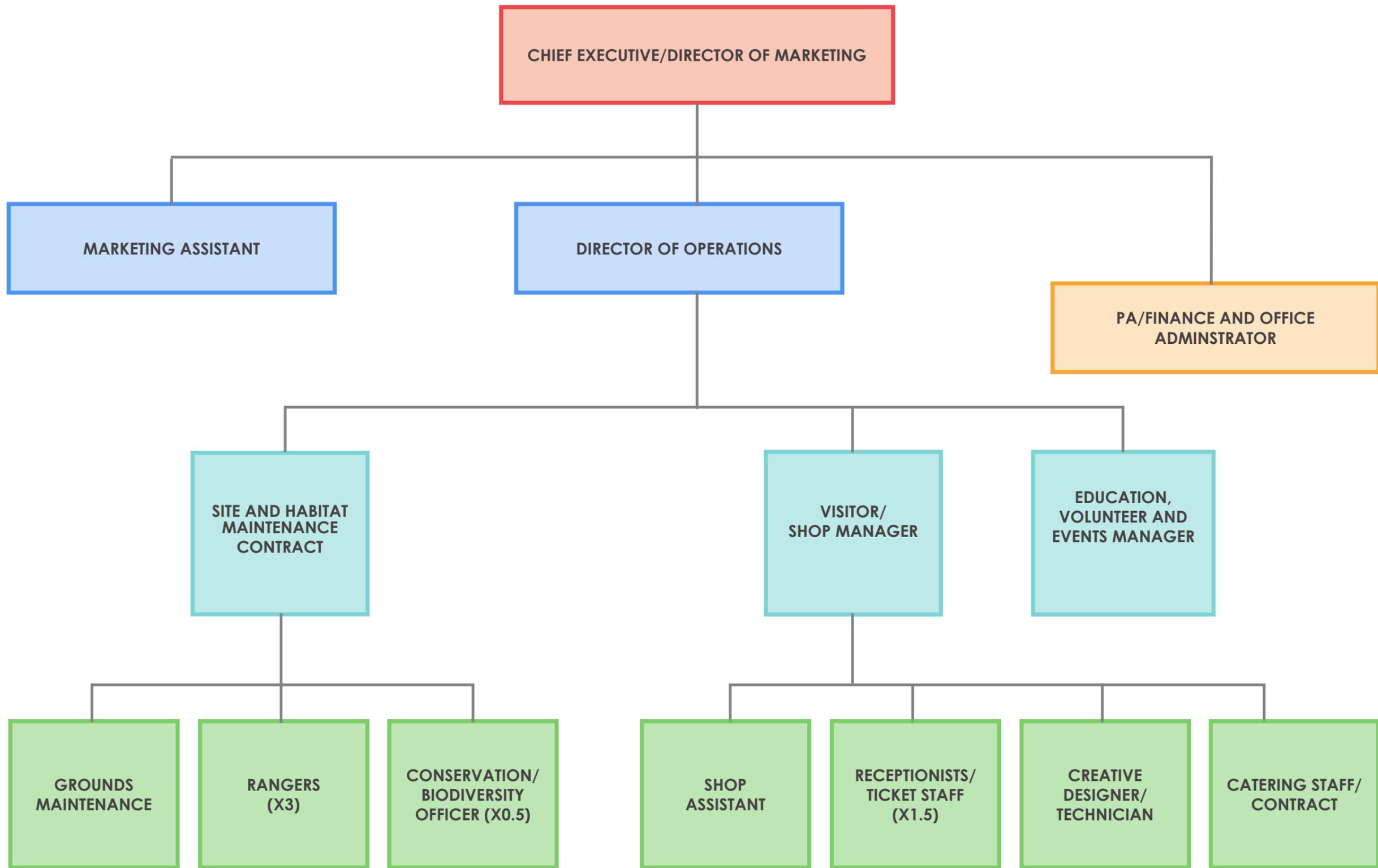
- Staff costs associated with grounds maintenance, cleaning, catering and facilities management are accounted for in their respective budgets; and
- Core staffing needs are delivered through permanent staff rather than volunteers, to guarantee uninterrupted provision of a high quality visitor experience, and in the absence of information about the availability of suitable volunteer skills and experiences in the area. However, core staffing needs would be supplemented by volunteers, to allow an increase in the scale of activities offered as part of the visitor experience.

3.2.3 The core staff complement outlined below is 13 FTEs, with salary costs of £340,000/year and total costs (including 20% on costs) of £410,000/year. This represents a minimal staffing complement for the site. It may need to be revised if visitor numbers increase (overall or at peak times), or if visitor behaviour on site is more problematic than envisaged. It should be noted that whilst there is only c. 20 hectares of land on the reservoirs site, the significant extent of the site (approximately 3km in length and 1.5km in width), the presence of numerous water bodies with associated health and safety risks, and the significant operational and biodiversity sensitivities of the site will require a meaningful ranger presence.

Staff	Comments	Salary	Salary + On Costs
Chief Executive/ Director of Marketing	Overall accountability for Walthamstow Reservoirs as a visitor destination; overall responsibility for marketing the site, and for maximising its profit potential, with a particular focus on 'Water and Life' attraction; ongoing exploration of potential funding and partnership opportunities; key liaison with any governance structure.	£40,000	£48,000
Marketing Assistant	Remit to also include development and updating of the website, and ongoing PR.	£25,000	£30,000
Director of Operations	Focus on site and visitor management.	£35,000	£42,000
PA/Finance and Office Administrator	To provide administrative support for the team, with a particular focus on admin related to finance, volunteer management and the Friends group	£25,000	£30,000
Rangers (x3)	Remit to also include public health and	£71,500	£85,800

Staff	Comments	Salary	Salary + On Costs
	safety, learning/interpretation activities, and working with volunteers; 3 rangers allows the north and south parts of the site to be fully covered during opening hours and peaks; could be provided as part of an LVRPA service contract.		
Conservation and Biodiversity Officer (x0.5)	To develop, enhance and monitor the biodiversity on the site. Could be provided as part of an LVRPA contract.	£12,500	£15,000
Visitor/Shop Manager	To manage the shop, receptionist/ticket staff, creative designer/technician, catering staff/contract and craft workshops	£30,000	£36,000
Shop Assistant		£18,000	£21,600
Receptionists/Ticketing Staff (x 1.5)	Accountable for welcoming visitors to the 'Water and Life' attraction and managing the admissions/ticketing service, including other temporary exhibitions/events as appropriate.	£30,000	£36,000
Creative Designer/ Technician	To support development and ongoing maintenance of interpretation and temporary exhibitions, with a particular focus on 'Water and Life' attraction.	£25,000	£30,000
Education, Volunteer and Events Manager	Responsible for development and management of education and events offer (including temporary exhibitions), and of the volunteer team.	£30,000	£36,000
TOTAL		£342,000	£410,400

3.2.4 The permanent core staff base outlined above would be further supplemented by volunteers, as described in Section 2.3. As seen in numerous other organisations (including for example Rainham Marshes and Kempton Nature Reserve), volunteers can and do have an important role to play in the delivery of a site's offer and visitor experience. Here at Walthamstow Reservoirs, volunteers would help increase the number and scale of activities offered at the site. Their efforts, therefore, are likely to be predominantly focused around supporting the Education, Volunteer and Events Manager, the Rangers, and the Conservation and Biodiversity Officer through the following type of activities:



WALTHAMSTOW RESERVOIRS
FEASIBILITY STUDY

FIGURE 6
Management Structure

- Helping to facilitate educational workshops and activities with schools;
- Helping to facilitate informal learning workshops and activities with general visitors (adults and families);
- Leading guided tours for general visitors and also special interest groups;
- Supporting the development and management of fun/recreational activities at the site (for example through marketing, stewarding, working in the shop);
- Supporting nature conservation activities at the site, for example through wildlife surveys or habitat management and creation.

3.2.5 In addition, Walthamstow Reservoirs also falls under the remit of local council education teams, and under the remit of the LVRPA Youth and Education team based at Waterworks. Furthermore, funding could also be sought for two further initiatives at the site – a fixed term Community Artist in Residence, to focus on promoting and co-ordinating all artistic work within the site, including art-based interpretation and rolling programmes of community developed artwork, and a green team employment initiative.

3.3 Governance

3.3.1 Following discussion with the Client Group, Waltham Forest and Haringey, it is recommended that a Walthamstow Reservoirs Charitable Trust be established for the sole purpose of developing and operating the site as a visitor destination, including securing the funding to finance the development programme. The Trust would be a not-for-profit company limited by guarantee and registered as a charity with the Charities Commission, which would enable it to draw on a range of grant funding from both public and private sources, and would make it exempt from corporation tax. The Trust would also be responsible for the supervision of the site's operation once developed, either through its own wholly-owned private, subsidiary 'enterprise' company, or by way of some form of partnership with a suitable existing operator/s (such as the Wildfowl and Wetlands Trust, for example), if suitable candidates can be identified and an acceptable contract negotiated. Any profits generated by a subsidiary 'enterprise' company would be covenanted to the Charitable Trust as a charitable donation under Gift Aid procedures, and would be invested in the site.

3.3.2 The new Trust company would need to have Objects in its Memorandum of Association that are acceptable to the Charities Commission and, given the nature of the project, these would thus likely to be of an environmental, educational and community development character related to the special attributes of this unique site. The strategic Board of the Trust could be constituted from the Client Group for this study – though not all partners may want or need permanent representation on such a body. At a minimum, however, Thames Water and the

LVRPA would need to be represented on the Board, given their potential respective roles in site ownership and delivery. In addition, it is also strongly recommended that the Board contains Directors with particular experience of successfully developing and operating suitable visitor attractions in the London market, as well as the usual complement of legal and financial/funding expertise.

3.3.3 The Trust's initial key task will be to manage and fund the suitable development of the whole site to enable public access and realise its proper potential. Its charitable status will significantly increase the potential for this, enabling grant aid from a wide selection of bodies such as Lottery Funds, European Funds, national and local government bodies as well as other charitable funding sources. There is no other body – in either the public or private sector – within the existing partnership that could command such wide funding potential. However, to achieve this, the Trust would need to have a long lease of the site from Thames Water – potentially for a 99 year term. This lease potentially only need to cover the land area of the site (approximately 20ha.), with Thames Water still retaining full ownership of the water area (approximately 158 ha.) of the reservoirs. The lease would however still need to be carefully drawn up to satisfy Thames Water's operational, security, and health and safety requirements.

3.3.4 In terms of the site's operation, the Trust would form a new, private, wholly-owned trading or enterprise company to operate the site on its behalf, since charitable law restricts charities themselves from carrying on any trading activities. This trading company would then automatically have to abide by the terms of the lease from Thames Water, since it only acts on behalf of the Trust as an operator, and neither owns nor retains any assets for itself. It would also covenant any profits made through its trading activities back to the Trust at the end of the financial year, thus also avoiding the need to pay corporation tax. This approach would enable the Trust to retain tight control of the operation of the site in almost every detail, since the operator is owned by it. At the same time, however, the operational experience of the Trust and the trading company is limited to the individual experience of the staff members employed.

3.3.5 Much of the emphasis of the trading company would be on the 'Water and Life' ticketed visitor attraction. The overall landscape maintenance for the site (including the site habitat management) would be managed by way of a service contract between the trading company (or even the Trust itself) and an external organisation, potentially the Lee Valley Regional Park Authority (LVRPA). The site maintenance could be provided as an extension to the LVRPA's existing grounds maintenance contracts for Tottenham and Walthamstow Marshes, to the south and north of the reservoirs. In addition, this service contract could also cover conservation and biodiversity and the rangers for the site - the LVRPA has an existing conservation and biodiversity function which could be suitably enhanced to cover the needs of the reservoir site,

and they could also provide the necessary ranger service through an extension of their existing regional park ranger service.

- 3.3.6 The terms and conditions of the contract between the LVRPA and the new charitable Trust/its trading company would determine the level of compensation the LVRPA would receive from the Trust for providing such services, and include the necessary work schedules and quality control requirements for the site. The establishment of a formal operational relationship between the LVRPA and the Trust/trading company would allow Walthamstow Reservoirs to benefit from the considerable experience that the LVRPA has in managing and maintaining such sites, and in managing visitor access, experience and impact. This approach would also allow the reservoirs to benefit from the additional resources that the LVRPA has at its disposal – for example through close collaboration between the Education, Volunteer and Events Manager and the LVRPA’s education and youth services team, and through leverage of the LVRPA’s marketing and PR activities.
- 3.3.7 In addition to the service contract for site maintenance, the Trust/trading company could also involve other operators at the site. The Waterside Cafe, for example, could be operated by a specialist catering company/commercial operator (as it is at many museums in London), instead of being operated by the trading company – this approach could also potentially see the catering company co-invest in the development of the cafe.
- 3.3.8 An alternative approach would be for the Trust to not form its own trading company, but to instead contract out the operation of the site (with a particular focus on the ‘Water and Life’ attraction) to a suitable existing not-for-profit operator – such as the Wildfowl and Wetland Trust, the RSPB or the London Wildlife Trust. Such a structure could bring valuable experience to the project from other similar attractions and also economies of scale in terms of management, but in the process would also bring a new and somewhat unknown partner with a significant separate identity into what is already a complicated partnership. Furthermore, it would limit the day to day control of the operation of the site to that contained in any legal operating agreement between the Trust and the new operator – a much more arms length approach to achieving the proper supervision of the site, which would therefore impose significant importance on the nature and quality of the contract itself between the parties. This contract could be a relatively short one, at least initially (for example with a term of usually 3 to 5 years in return for an agreed fee), although the brevity of the contract could also be a barrier for some potential operators.

4.0 BUSINESS PLAN

4.1 Income and Expenditure

4.1.1 The Business Plan suggests that Walthamstow Reservoirs could have a total annual operating surplus of **£70,000**/year before lifecycle maintenance costs, once steady state is achieved. This is equivalent to 7% of total revenues. It is considered prudent financial management to have an operating surplus at 5-7% of total revenues, to provide some form of contingency and help protect ongoing financial sustainability. Lifecycle maintenance costs (the costs of major periodic investment to maintain and upgrade the estate) could be covered through an endowment fund of £2 million.

4.1.2 The Business Plan has considered a variety of commercial opportunities to generate income at the site and therefore support its ongoing financial sustainability, while also remaining aligned with the selected vision option for the site and taking into consideration the various nature conservation and operational constraints that are in place there. Key components are:

- Ticketed entry to unique 'Water and Life' visitor attraction (see Section 4.2 for assumptions around ticket price, concessions and free entrance, and initiatives to prevent low income local communities from being excluded from this area);
- Within the 'Water and Life' attraction, there are further visitor-driven income stream opportunities around retail sales from the gift shop, audio headset hire, special events (both those organised for general visitors and also private/corporate events), and a Friends scheme.
- In addition, the 'Water and Life' attraction will also see the provision of rental income streams from craft shops and workshops located under the railway arches. These will complement the increasing emphasis on retail in the local area, but will differentiate themselves through their unique location and offer; and
- Outside the 'Water and Life' attraction, income streams focus on: the Waterside Café, which will complement the catering provision in adjacent green spaces but offer a unique location; fishing licenses, building on the existing demand at the site; and charges for use of the site's car park (which also act as a further incentive for visitors to use public transport or other forms of transport to arrive at the site).

4.1.3 In addition, the Business Plan has also explored opportunities to minimise the costs to manage the site. This would be predominantly delivered through the establishment of a grounds maintenance contract (potentially with LVRPA) to deliver site maintenance (including habitat management), and through the use of volunteers to supplement the core staffing structure. The potential impact of Thames Water contributing to the management of the site in line with current expenditure is explored in Section 4.3.

4.1.4 The Business Plan is based on desktop research and industry benchmarks, and will need to be revised and further developed during the next stage of more detailed design development for the site. Key elements of the Business Plan are set out in the table below, with more detail included in Section 4.4.

Key Business Plan Elements	Value
Net revenues from 'Water and Life' visitor attraction	£540,000
Net revenues from parking and Waterside Cafe	£465,000
Net revenues from fishing licenses	£80,000
Other net revenues	£5,000
Total net revenues	£1,090,000
Cost of sales	-£200,000
Buildings, facilities and site maintenance	-£205,000
Core staff costs (including catering staff)	-£540,000
Marketing costs	-£50,000
Other costs (including Trust administration)	-£20,000
Total costs	-£1,015,000
Operating surplus	£70,000

4.2 Key Assumptions

4.2.1 The following baseline assumptions were used in calculating the Business Plan:

- Overall access to the site will be free, as a key part of delivering stakeholder priorities around increased community access to green space and increased connectivity with adjacent green spaces;
- The 'Water and Life' visitor attraction will be ticketed, as a way of generating income to support the ongoing financial sustainability of the site and as a way of consolidating visitor impact in a concentrated area. The Business Plan indicates that a £5.50 adult ticket would generate an operating surplus of £70,000 on a steady state basis (before lifecycle maintenance costs). The ticket price is in line with other nearby attractions. Opportunities for cross promotion and combined tickets with the Olympic Park would be explored at a later stage;
- To prevent locally deprived communities from being excluded from the 'Water and Life' attraction, a number of further assumptions have been made around pricing and entrance: visitors on benefits have the right to free entrance; concessions will be available on the adult ticket price, including potentially concessions for residents, young children, retired

persons; a Friends scheme will be established with unlimited entrance for a yearly membership fee;

- Overall, the Business Plan assumes there will be 100,000 visits/year to the 'Water and Life' attraction, and 250,000 visits/year to Walthamstow Reservoirs overall. This takes into consideration existing visit numbers to adjacent green spaces (particularly Tottenham Marshes and Walthamstow Marshes) and to comparators, location and transport connections, existing local population numbers and socio-economic profile, and planned regeneration initiatives in the area;
- On a peak day (typically defined as school holidays/half terms and weekends/bank holidays, particularly during the summer), there could be 2,500 visits to the site as a whole, including 1,000 visits within the 'Water and Life' visitor attraction;
- There will be a car parking charge for all visitors, but entry to the waterside cafe and water efficiency advice centre is free;
- Net revenues from fishing licenses will be slightly lower than current levels, to reflect disturbance caused by increased numbers of visitors;
- High quality staff and provision for high quality management and maintenance of the site is necessary to ensure the ongoing quality of the offer and visitor experience, and therefore its ongoing financial viability;
- Permanent staffing at the site will be further supported by volunteers;
- The site will be managed and operated by a newly formed trading company, which will be owned by a newly established Walthamstow Reservoirs Charitable Trust. The site maintenance will be delivered through a grounds maintenance contract, potentially with LVRPA;
- The necessary lease agreement will be secured to provide a suitable asset base for the management of Walthamstow Reservoirs, and this lease agreement will not incur significant financial costs; and
- Ongoing management and maintenance of Walthamstow Reservoirs will not be encumbered by any debt arising from the capital development of the site.

4.3 Key Sensitivities

- 4.3.1 The number of visits to Walthamstow Reservoirs and the average yield/visit are key drivers of the Business Plan, and variances can have a significant impact on the site's ongoing financial performance. The fixed costs, in this case the staffing costs in particular, also have a significant impact. The implications of a change in some of the variables is set out below:

Sensitivities	Operating Surplus (before life cycle costs)
Current assumptions for 'Water and Life' visitor attraction <ul style="list-style-type: none"> • 100,000 visits/year • £5.50 adult ticket price, with free entrance and concessions 	£70,000
Change to visit numbers for 'Water and Life' visitor attraction <ul style="list-style-type: none"> • Increase in visit numbers to 110,000 visits/year • Decrease in visit numbers to 90,000 visits/year 	£110,000 £35,000
Change to ticket price for 'Water and Life' visitor attraction <ul style="list-style-type: none"> • Increase in adult ticket price to £6.00 • Decrease in adult ticket price to £5.00 	£95,000 £50,000

4.3.2 The sensitivity analysis indicates that development of a high quality, attractive offer for the site, and development of an effective marketing and events strategy to continue to attract as many visitors as possible will be a key factor in its financial performance.

4.3.3 The business plan currently assumes no ongoing spend at the site from any of the Client Group. At present, Thames Water spend approximately £125,500/year at Walthamstow Reservoirs on site maintenance and visitor operations - £35,500/year on site maintenance, and approximately £90,000/year on 3 fishing wardens/rangers. If Thames Water were to continue to invest 50% of this on a yearly basis, potentially covenanted to the Charitable Trust as an ongoing subsidy or service charge (to contribute to site maintenance and the rangers), this would generate an operating surplus of £60,000 at a ticket price of £4.

4.4 Summary Financial Forecast

4.4.1 The summary financial forecast is set out in the table on the following page. Detailed assumptions can be found in Appendix A.

APPENDIX A
DETAILED BUSINESS PLAN ASSUMPTIONS

Parameter	Value	Sources / Comments
Visit Numbers		
Average annual visit numbers to the 'Water and Life' ticketed attraction	100,000	To comprise local and regional visitors, special interest visitors (nature conservation and fishing), school and educational groups, and visitors drawn by temporary exhibitions and special events. 250,000 visits to Walthamstow Reservoirs site includes the 100,000 visits to 'Water and Life' ticketed visitor attraction. By way of comparison, 485,000 residents live within 2 miles of the Reservoirs and most of Greater London, with a population of 7.5 million, lives within 1.5 hours by public transport; Tottenham Marshes receives 190,000 visits/year; Walthamstow Marshes receives 490,000 visits/year; the London Wetland Centre receives 200,000 visits/year; the Lee Valley Leisure centre receives 95,000 visits/year, the Lee Valley Athletics Centre 140,000 visits/year and the Lee Valley Ice Centre 275,000 visits/year
Average annual visit numbers to the Walthamstow Reservoirs site as a whole	250,000	
<u>Novelty factors - post-development percentages</u>		
Year 1 as a % of "steady state" visit numbers	10.0%	Industry benchmarks
Year 2 as a % of "steady state" visit numbers	-6.0%	Industry benchmarks
Year 3 as a % of "steady state" visit numbers	-2.0%	Industry benchmarks
Year 4 as a % of "steady state" visit numbers	0.0%	Industry benchmarks
Year 5 et seq - annual growth rate of "steady state" visit nos	0.0%	
Sensitivity factor for visit numbers	100%	Visit numbers as a % of base case estimate
Yield factors		
Yields from Visitor Entry Tariffs		
Percent of all visits paying to enter the attraction	80.0%	Based on visitors on benefits having the right to free entry; in Waltham Forest and Haringey, c. 20% of adults of working age are on benefits
Average net yield per paying visit	£3.67	Based on a standard adult tariff of £5.50 & a yield net of VAT and concessions of 66% (industry benchmark) - concessions could be given for example to residents, young children and retired persons; adult ticket prices at other local venues are: rye house gatehouse £1.95; middleton house and gardens £3.30; lee valley athletics centre £5; lee valley ice centre £6.90, hayes hill farm £7; waterworks golf centre £7.10
Income from Friends of the Walthamstow Reservoirs	£50,000	Based on 5,000 local visitors joining as Friends for £10 a year each, giving unlimited access to the hub and other incentives; equivalent to 5% of all visits to the 'Water and Life' attraction (comparable to royal gunpowder mills and hayes hill farm)
Yields from licences, rentals etc		
Average yield per visitor from Audio Hire	£0.20	Assumes 10% of all visitors pay £2 each for an audio headset guiding them around the site;
Income from fishing licences	£80,000	Assumes a small reduction in current income from fishing licenses (approximately £100,000), to reflect increased disturbance on site caused by increase in visitor numbers
Yields from Car Parking		
Percent of 'Water and Life' visits travelling by car & using the car park	60.0%	Industry standards
Percent of general site visits travelling by car & using the car park	25.0%	Most free visits assumed to be local & therefore with a much lower propensity to use the car park

Parameter	Value	Sources / Comments
Average occupancy, passengers per car	2.80	Based on leisure traffic norms
Number of cars ('Water and Life' visits) using the car park in an average year	21,429	Computed as paying visitor numbers x % travelling by car / number of passengers per car
Number of cars (general site visits) using the car park in an average year	13,393	Computed as free visitor numbers x % travelling by car / number of passengers per car
Net yield per car	£2.55	Based on a standard car parking tariff of £3, net of VAT @ 17.5%
Secondary Yields		
Net retail sales per visit to the hub	£1.25	Industry norms
Net catering sales per visit to the site	£1.50	Industry norms
Cost of sales as a % of sales - shop	55.0%	Industry norms
Cost of sales as a % of sales - café	35.0%	Industry norms
Staff costs as a % of sales - café	35.0%	Industry norms
Annual net revenues from special events, functions, conferences etc	£20,000	Net of costs
Rental income from craft workshops/shops	£32,000	Based on letting space of 200 m2 to small retail units, craft shops and workshops @ £200 per m2, at 80% occupancy
Other revenues	£5,000	Including, for example, binocular / telescope viewing platforms, bicycle hire
Yield on Endowment Fund	5.5%	Estimated achieved yield on a balanced portfolio of gilt-edged stocks and investment grade corporate bonds, with income used to fund estate maintenance and improvement
Yield on cash reserves	3.5%	Estimated to be 2% less than yield on Endowment Fund as these reserves are held on short-term deposit
Operating and Maintenance Costs		
Hard maintenance costs, £ per square metre	£40	includes staff costs for handyman and technician
Facilities management costs, £ per square metre	£25	Costs of cleaning, security, heating, lighting, water and waste treatment etc - c £8/m2 for cleaning, £10/m2 for heating & lighting, £7/m2 for other FM costs
External site maintenance costs, £'000 per annum	£120	Based on costs in grounds maintenance contract for LVRPA
Core Staffing Costs, £'000s		
Chief Executive/Director of Marketing	£48.0	Covers salary, pension and NI costs - salary of £40K plus 20% on costs (NI and pension contribution)
Director of Operations	£42.0	Covers salary, pension and NI costs - salary of £35K plus 20% on costs (NI and pension contribution)
PA/Finance and Office Administrator	£30.0	Covers salary, pension and NI costs - salary of £25K plus 20% on costs (NI and pension contribution)
Marketing Assistant	£30.0	Covers salary, pension and NI costs - salary of £25K plus 20% on costs (NI and pension contribution)
Creative Designer / Technician	£30.0	Covers salary, pension and NI costs - salary of £25K plus 20% on costs (NI and pension contribution)
Visitor / Shop Manager	£36.0	Covers salary, pension and NI costs - salary of £30K plus 20% on costs (NI and pension contribution)
Conservation/biodiversity officer	£15.0	Covers salary, pension and NI costs - salary of £25K plus 20% on costs (NI and pension contribution) for 0.5 FTEs
Rangers	£85.8	Based on 3 FTE Rangers - 1 @ £28.5K & 2 @ £21.5K each + 20% on-costs (NI and pension contribution)

Parameter	Value	Sources / Comments
Education, Volunteer and Events Manager	£36.0	Covers salary, pension and NI costs - salary of £30K plus 20% on costs (NI and pension contribution)
Shop Assistant	£21.6	Covers salary, pension and NI costs - salary of £18K plus 20% on costs (NI and pension contribution)
Receptionists / Ticketing staff	£36.0	Covers salary, pension and NI costs - salary of £20K per FTE plus 20% on costs (NI and pension contribution) for 1.5 FTEs
<i>Total core staff costs</i>	£410	
Sensitivity factor for core staff costs	100%	Core staff costs as a % of base case estimate
Provision for Sinking Fund - contribution per annum, £'000s	£100	Provision for Life Cycle Maintenance of site assets and periodic refreshment of the Exhibition
Sinking Fund on / off?	1	1 = on, 0= off (LCM done on an as-and-when required basis, funding raised on an ad hoc basis)
Other costs - £'000s		
Marketing & communications - Year 2 onwards - % of revenue	10.0%	Industry benchmark - including the costs of the Marketing Director and Marketing Assistant
Provision for Trust administration costs	£20.0	Provision for Trustee meetings, audit, legal advice, annual filings etc



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