

Thames Tideway Tunnel
Thames Water Utilities Limited



Application for Development Consent

Application Reference Number: WWO10001

Heritage Statement

Doc Ref: **5.3**

Appendix G

APFP Regulations 2009: Regulation **5(2)(m)**

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January 2013

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Thames Tideway Tunnels

Heritage Statement

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Appendix G: Albert Embankment Foreshore

G.1 Site location and context

- G.1.1 The proposed development site lies within the London Borough of Lambeth. It comprises an area of the foreshore of the River Thames parallel to Albert Embankment between Tintagel House and St George Wharf. It also comprises Lack's Dock, a section of the Thames Path, and potentially an area of land between Tintagel House and Camelford House (subject to the decision of the Secretary of State on the construction site access). Above ground, the site is split into two sections: the northern section lies in the foreshore to the north of Lack's Dock and the southern section lies in the foreshore beneath and on either side of the Grade II* listed Vauxhall Bridge. Lack's Dock is frequently used by the amphibious vehicles of London Duck Tours.
- G.1.2 The site falls within the Albert Embankment Conservation Area (CA57). It also forms part of the Vauxhall Nine Elms Battersea Opportunity Area, for which a *Supplementary Planning Document* is being drawn up in order to direct the substantial regeneration and redevelopment envisioned for the area.
- G.1.3 The foreshore of the River Thames is classified as the River Thames and Tidal Tributaries Site of Importance for Nature Conservation. It is also designated as an Archaeological Priority Area in this location.
- G.1.4 The River Thames surrounds the site to the north, south and west. The site is bounded to the east by the Thames Path.
- G.1.5 The residential building Peninsula Heights lies to the northeast of the site. The section of the river wall adjacent to Peninsula Heights is Grade II listed and, along with the nearby Albert Embankment Gardens, was designed by Sir Joseph Bazalgette in 1869.
- G.1.6 Vauxhall Cross and the 1960s office buildings Tintagel House and Camelford House are located along the southeastern boundary of the site. Vauxhall Cross is noted in the Albert Embankment Conservation Area statement for its imposing scale and façade.
- G.1.7 Tintagel House and Camelford House are referenced as Site 64 in the London Borough of Lambeth's Development Plan Document which states:
"Redevelopment encouraged. Widening and improvement of Riverside Walk. Active frontage uses on both flanks as far as viable, should form a transition in scale and design between Albert Embankment and Vauxhall Cross. Preference for both sites to be developed together to open up riverside".
- G.1.8 To the southeast lies St George Wharf – a high-density, modern development of 12 interconnected waterfront buildings up to 22 storeys high and a 185m high residential building known as 'The Tower', which is currently under construction. It is predominantly a residential development that also comprises offices and retail space. The London Underground Victoria Line runs under the River Thames immediately to the south of Vauxhall Bridge.
- G.1.9 In this area, the riverside is dominated by the row of multi-storey buildings comprising Peninsula Heights, Tintagel House, Camelford House, Vauxhall Cross and St George Wharf.

Foreshore area

- G.1.10 The Albert Embankment Foreshore site features one of the most accessible large areas of exposed foreshore in central London. Its proximity to Lack's Dock means that people are able to access the foreshore. The surface of the riverbed is generally composed of mud and shingle and grades gently down towards the water. The Lack's Dock slipway is reinforced on the foreshore to provide access to the river for London Duck Tours' amphibious vehicles.
- G.1.11 To the north of Lack's Dock, the river walls are set back from the line of the Victorian embankment. The walls are generally in poor condition in front of Camelford and Tintagel houses and are composed of a mixture of brick, concrete and timber. The section closest to Lack's Dock is also topped with very high railings that impede views over the river.
- G.1.12 To the south of Lack's Dock, the river walls are designed to complement Vauxhall Cross. They are finished with highly modulated, post-modern precast concrete panels, complete with Lion's Head castings to reference the style of the Victorian embankment. Lamp standards are arranged in pairs along its length. The line of the wall sits further out into the River Thames than to the north of Lack's Dock. It also sits in front of the abutment of Vauxhall Bridge. The ground level of the public realm ramps down adjacent to the north of the bridge abutment to a securely fenced-off area beneath the arch of Vauxhall Bridge.
- G.1.13 The public realm and river wall between Vauxhall Cross and the River Thames are also designed to complement Vauxhall Cross. The space is generally overshadowed and underused except for the Thames Path, which runs across it.
- G.1.14 There is a CSO outfall structure on either side of Vauxhall Bridge. Each outfall features flap valves in the river wall and exposed culverts to lower level flap valves further out into the River Thames. The culverts are protected by lines of timber piles and timber dolphins. There is a plaque above the Brixton Storm Relief CSO that indicates that it was once the 'lost' River Effra.
- G.1.15 To the south of Vauxhall Bridge, the river wall and the Thames Path were designed to complement the St George Wharf development.

G.1.16 Figure G.1 shows the Vauxhall Cross building. Camelford House is to the left.

Figure G.1 View of the Vauxhall Cross building and Camelford House (standard lens)



Historical context

- G.1.17 The site lies at the junction of the River Thames and the River Effra, which is now culverted as the Brixton Storm Relief Sewer and discharges immediately to the north of Vauxhall Bridge. There is evidence of prehistoric occupation along the river banks, including the remains of a possible Mesolithic (10,000 to 4,000 BC) timber structure in the foreshore deposits.
- G.1.18 The site itself comprised marshland and marshy fields until after the medieval period, with some evidence of buildings. The riverside location attracted industry, including the well-known local pottery industry and the nearby 17th century glass works.
- G.1.19 Map evidence from the mid-18th century indicates that the river bank was set back from the current alignment. There were wharfs, warehouses and associated buildings at the water's edge and the Vauxhall river stairs were already in place.
- G.1.20 A horse ferry at Vauxhall was replaced by a bridge from approximately 1809 to 1816. The Millbank Penitentiary, inspired by Jeremy Bentham, was opened on the opposite side of the River Thames just after the bridge was built. It influenced the layout of streets and buildings on the riverbank opposite the site.
- G.1.21 By the early 1860s, Lack's Dock had replaced Vauxhall Stairs. A gin distillery, which had been a vinegar factory, lay to the south. By this time the distinctive line of the river wall, which bends at the southern end of what became Albert Embankment and extends south to Lack's Dock, was already in place.

- G.1.22 Industrial development in the area intensified and diversified in the second half of the 19th century. The 1896 Ordnance Survey map indicates a draw dock at the northern end of the site. It also indicates that the section of river wall to the south of Lack's Dock was brought forward of the line of the river wall on either side.
- G.1.23 The Georgian bridge over the River Thames was replaced by the current Grade II* listed bridge in 1906.
- G.1.24 The area suffered some bomb damage during the Second World War. In the second half of the 20th century, the warehousing was cleared, the draw dock was filled in and Camelford House was built.
- G.1.25 More recently the areas on either side of Vauxhall Bridge were radically altered with the construction of Vauxhall Cross and the St George Wharf development, parts of which are still under construction. At this point, land was reclaimed from the foreshore to create a new promenade.

G.2 Relevant local heritage policy and guidance

- G.2.1 As this application for development consent relates to a Nationally Significant Infrastructure Project, the NPS is the primary basis for decision making on all planning issues raised by the application. When it comes to assessing the acceptability of the application proposals it is the NPS that sets the relevant criteria to be applied. However, the project has been developed in the knowledge of local planning policies and, particularly, local land use planning designations.
- G.2.2 The London Borough of Lambeth's Local Development Framework comprises the *Core Strategy* Development Plan Document (adopted 19 January 2011) and the saved policies of the Unitary Development Plan (UDP) (2007), which is expected to be fully replaced in 2013 by the emerging Development Plan Document.
- G.2.3 In developing the proposals and mitigation measures at Albert Embankment Foreshore, the planning team had regard to the local development plan where relevant to the National Policy Statement for Waste Water (the 'NPS').
- G.2.4 *Core Strategy* Policy S9 (Quality of the Built Environment) states:
"[the council] will improve and maintain the quality of the built environment and its liveability, in order to sustain stable communities, by [...] (b) Safeguarding and promoting improvements to the borough's heritage assets including appropriate uses and improvements to listed buildings, maintaining a local list of heritage assets, carrying out conservation area character appraisals and management plans, and making appropriate provision for assets of archaeological value. (c) Protecting strategic views, including those that affect the outstanding universal value and setting of the Westminster World Heritage Site".
- G.2.5 *Core Strategy* Policy PN2 (Places and Neighbourhoods) states:
"[the council seeks mixed-use development that enables Vauxhall to] develop a distinct heart, recognisable sense of place and definite identity [...] achieved by [...] (e) Promoting development appropriate to the different characteristics and roles of distinct character areas of Vauxhall – Vauxhall Heart; Albert Embankment and the Riverside; South-East Regeneration Arc; and Vauxhall and Spring Gardens; respecting strategic views, local contextual considerations including heritage assets building on and protecting existing character and historic environment taking into account amenity and microclimate, and ensuring high quality design".
- G.2.6 Saved *UDP* Policy 43 (The River Thames Policy Area – Urban Design) states:

“[S]pecial historic and architectural character of the Thames Policy Area (as shown on the Proposals Map) will be protected and enhanced. Development within this area should: (a) Pay particular attention to design quality, appropriate to its context and the character of that stretch of the river; (b) Enhance the character of the river frontage and views along and from the river, from river bridges, and from the opposite bank; (c) Enhance the setting and approaches of riverside buildings and Thames bridges; (d) By the use of scale, massing, height, material and colour the development should frame the river, enhance the sequence and pattern of urban landscapes either side of the river, enhance the riverside silhouette and skyline, and avoid creating an homogeneous riverside environment; (e) Enhance the setting of local landmarks and historic buildings and structures; [...] (i) Create or enhance views or vistas of the river and/or local and strategic views of landmark buildings (including on the opposite bank) in particular the Palace of Westminster/Westminster Abbey World Heritage Site [...]”.

G.2.7 Saved UDP Policy 45 (Listed Buildings) states:

“[D]evelopment which adversely affects the setting of a listed building, or significant views of a listed building, will be refused”.

G.2.8 Saved UDP Policy 47 (Conservation Areas) states:

“[D]evelopment proposals in a conservation area should preserve or enhance the character or appearance of the conservation area”

G.2.9 *Albert Embankment Conservation Area Designation Report (2010)* states that:

“the designation recognises the historic significance of one of London's most ambitious engineering achievements of the Nineteenth Century – the construction of the Albert Embankment itself, planned by the famous Victorian engineer Sir Joseph Bazalgette in 1869 (including the dolphin/sturgeon lamps and benches) and the surviving small docks associated with it. The Conservation Area status will also recognise the architectural significance of the two major landmark buildings on the Embankment -the monumental post-modern MI6 building at Vauxhall Bridge [...] Finally the Conservation Area will further protect the important strategic views from the Albert Embankment and Vauxhall Bridge of the Palace of Westminster and the Tate Gallery”.

G.3 Description of heritage assets and significance summary

G.3.1 The site contains one listed building, Vauxhall Bridge, and falls within a conservation area. There are a number of heritage assets (as defined in para. 4.10.2 of the NPS) near the site. These heritage assets are illustrated in the Historic environment features map and the Conservation areas map. The numbering on the Historic environment features map refers to the gazetteer in which the heritage assets are described in the *Environmental Statement*, which accompanies the application (Vol 13, Appendix E.1). The Gazetteer is included in this Appendix after the drawings.

G.3.2 The heritage assets in and around the site include:

- a. Grade II* listed Vauxhall Bridge
- b. Albert Embankment Conservation Area
- c. Timber dolphins

- d. Albert Embankment river wall (Grade II listed north of Albert Embankment Gardens)
- e. Lack's Dock
- f. Millbank Conservation Area
- g. Lambeth Palace Conservation Area
- h. Pimlico Conservation Area
- i. Smith Square Conservation Area
- j. Palace of Westminster World Heritage Site
- k. Archaeological potential.

Vauxhall Bridge

- G.3.3 Vauxhall Bridge was opened in 1906. It has a steel superstructure and figurative sculptures by A Drury RA and F Pomeroy RA at the top of the stone clad bridge piers. It is the only Thames bridge with such sculpture; it is the most important heritage asset on or near the site and is Grade II* listed.
- G.3.4 Figure G.2 shows the west side of Vauxhall Bridge. The timber dolphins around the Clapham CSO are illustrated in the foreground.

Figure G.2 View of the west side of Vauxhall Bridge (standard lens)



Albert Embankment Conservation Area

- G.3.5 This conservation area (refer to the Conservation areas map) was designated to protect the context of Albert Embankment, which was constructed as part of Sir Joseph Bazalgette's ambitious 1860s sewerage scheme.
- G.3.6 The most significant part of the conservation area is Albert Embankment itself. The southern end of the embankment river wall curves back to meet Lack's Dock; it then steps forward in front of Vauxhall Cross until Vauxhall Bridge and then steps back again to the south of the bridge.
- G.3.7 The listed section of the river wall beyond the northern boundary of the site with its 'sturgeon' lamp standards and 'swan' benches is listed. It is a key element of the conservation area, and offers views across the River Thames to the Tate Britain, and to Vauxhall Bridge and part of the Vauxhall Cross building to the southwest.
- G.3.8 The designation also recognises what survives of the 19th century heritage of the area and the architectural significance of two major landmark buildings on the embankment: the monumental postmodern Vauxhall Cross building at Vauxhall Bridge and the Art Deco London Fire Brigade Headquarters.
- G.3.9 Figure G.3 shows the proposed development site from the southern end of the Albert Embankment Conservation Area. A portion of the river wall is visible in the foreground.

Figure G.3 Albert Embankment Conservation Area (standard lens)



River wall

- G.3.10 The undesignated section of the river wall (refer to the Historic environment features map) within the site is comprised of different materials such as brick, concrete and stone from various phases of construction. This probably is a result of the former use of the river wall as part of the former docks for warehouses, factories, and unloading coal from the river in this area.
- G.3.11 Parts of the wall are likely to date to the 19th century, although there may be earlier elements below or behind it. The upper brick courses are modern. Parts may pre-date Bazalgette's development, but the majority of it is likely to be more recent.

Timber dolphins

- G.3.12 The Brixton and Clapham combined sewer overflows (CSOs) are situated on either side of Vauxhall Bridge (refer to the Historic environment features map). They feature metal doors above concrete and cobblestone aprons. Around each CSO are piled timber 'dolphins', which act as fenders for shipping. They are undesignated and date to the late 20th century, although they may have replaced similar earlier structures.

Lack's Dock

- G.3.13 The undesignated Lack's Dock (refer to the Historic environment features map) retains the shape and outline of the historical dock around the historically significant inlet that dates back to the 18th century known as Vauxhall Stairs (the name dates to the 19th century). Its significance derives from the fact that formed part of a historically continuous access route through the embankment wall to the River Thames.
- G.3.14 Figure G.4 shows the present unattractive character of Lack's Dock, including the Art Deco inspired river wall of the Vauxhall Cross building.

Figure G.4 Lack's Dock



Millbank Conservation Area

- G.3.15 The Millbank Conservation Area (refer to the Conservation areas map) includes the River Thames foreshore and the river wall to the north of Vauxhall Bridge. It includes (from north to south) the Grade II* listed former Royal Army Medical College, the Grade I listed Tate Britain gallery, and the Grade II* listed former Queen Alexandra Military Hospital, amongst others. The style of these buildings is mixed but the general character derives from the large Edwardian institutions that face the wide road and river beyond. The Tate Britain forms the centrepiece.
- G.3.16 The urban form reflects the former layout of the Millbank Penitentiary that formerly stood on the site, which was inspired by Jeremy Bentham. The central axis of this layout is centered on the frontage of the Tate Britain and faces the southern end of Albert Embankment, beyond the northern end of the site.

Lambeth Palace Conservation Area

- G.3.17 The Lambeth Palace Conservation Area borders the northern edge of the Albert Embankment Conservation Area (refer to the Conservation areas map). Its northern border lies several hundred metres to the north of the site. It was originally designated to preserve the medieval complex of Lambeth Palace, and was extended to include significant 19th century buildings in the area, such as St Thomas's Hospital.

Pimlico Conservation Area

- G.3.18 The Pimlico Conservation Area (refer to the Conservation areas map) covers the River Thames foreshore to the southwest of Vauxhall Bridge and safeguards its character from unsympathetic changes to the river bank. It does not include the modern brick and glass buildings on the river bank by the bridgehead.

Smith Square Conservation Area

- G.3.19 The Smith Square Conservation Area (refer to the Conservation areas map) was originally designated in 1969 as part of the Larger Government Precinct Conservation Area. It is centred on the Georgian housing by Smith Square – an 18th century open space that is dominated by a church designed by Thomas Archer. The conservation area also includes a small stretch of the riverside to the south of Lambeth Bridge.

Palace of Westminster World Heritage Site

- G.3.20 The designation of the Palace of Westminster World Heritage Site reflects the outstanding universal value of the Palace of Westminster, Westminster Abbey and St Margaret's Church. It also reflects their symbolic value as the site of the development of parliamentary ideals from the 13th century onwards. Refer to Figure H.2, in Appendix H of this *Heritage Statement*.
- G.3.21 An assessment of the significance of the heritage assets and the potential effects of the proposed works at this site is set out in the *Environmental Statement* (Vol 16). The assessment includes a full statement of significance for built heritage and buried archaeological assets at the site. The significance of the heritage assets is summarised below in Table G.1.

Archaeology

- G.3.22 The North Lambeth and Lambeth Palace Archaeological Priority Area covers the inland part of the site and the wider area to the east and would not be physically affected by the proposed works. The foreshore is not designated as an Archaeological Priority Area; however, it contains partially buried timber remains

that could have formed part of a Mesolithic structure, and a number of nationally significant artefacts, including flints and pottery from that period onwards, have been found nearby. The Mesolithic structure is of international significance and, in accordance with para. 4.10.4 of the NPS “*should be considered subject to the same policy considerations as those that apply to designated heritage assets*”.

Significance summary

G.3.23 An assessment of the significance of the heritage assets and the potential effects of the proposed works at this site is set out in the *Environmental Statement* (Vol 16). The assessment includes a full statement of significance for built heritage and buried archaeological assets at the site. The significance of the heritage assets is summarised below in Table G.1.

Table G.1 Significance of heritage assets at Albert Embankment Foreshore

Heritage asset	Heritage significance	Reason for significance
Vauxhall Bridge	High	The bridge has important architectural, aesthetic and group value with Lambeth Bridge.
Albert Embankment Conservation Area	High	This area was designated to recognise and protect the historic significance of Albert Embankment as part of the Bazalgette scheme.
River wall	Medium	The river wall is of historic interest as it represents different phases of construction, and may contain pre-19th century masonry.
Timber dolphins	Medium	The dolphins form part of the setting of the Grade II* listed Vauxhall Bridge, and are visual evidence of the CSOs.
Lack’s Dock	Medium	Lack’s Dock retains the shape and outline of the historic dock, and marks the location of Vauxhall Stairs.
Millbank Conservation Area	High	This area preserves the layout of the former Millbank Penitentiary in its street pattern and contains a number of significant early 20th century institutional buildings, such as the Tate Britain.
Lambeth Palace Conservation Area	High	Lambeth Palace Conservation area is significant as it protects the Lambeth Palace and library complex and a series of medieval buildings.
Pimlico Conservation Area	High	This area centres on historic Pimlico. Its core is set back from the River Thames.
Smith Square Conservation Area	High	The area forms the wider setting of the church of St John the Evangelist, built to designs by Thomas Archer from 1713 onwards.

Heritage asset	Heritage significance	Reason for significance
Palace of Westminster World Heritage Site	Outstanding	It is a place of outstanding universal value both for its architectural, aesthetic and historical value, and for its symbolic associations.

G.4 Description of proposals and required heritage consents

G.4.1 A summary of the proposed temporary and permanent works at Albert Embankment Foreshore is set out below.

Temporary construction works

G.4.2 The temporary construction works to create the CSO drop shaft in the main site would involve erecting site hoardings, two temporary cofferdams and associated ramps, a campshed, a pilling rig located on a jack-up barge and cranes. These elements would be removed on completion of the works.

Permanent above-ground structures

G.4.3 Post construction, the visible structures on the site would include:

- a. a foreshore structure enclosing the CSO interception chamber to intercept the CSOs located on either side of Vauxhall Bridge, its associated ventilation columns, an electrical and control kiosk, a local control pillar and steel monopole dolphins
- b. a foreshore structure enclosing the CSO drop shaft attached to the river wall to the north of Lack's Dock, the associated electrical and control kiosk, and ventilation columns.

G.4.4 The evolution of the design of the permanent works and the alternatives considered are set out in detail in Section 18 of the *Design and Access Statement*, which accompanies the application. The design proposals are set out in the drawings within the *Book of Plans* and were developed in line with the *Design Principles* and the *Code of Construction Practice*, which also accompany the application, to minimise the impact of the proposed works and structures on their surroundings, in line with relevant national, regional and local policies.

G.4.5 The aspects of the proposed works that would affect the nearby heritage assets are set out below. The proposals that would normally require Listed Building Consent or Conservation Area Consent are also identified.

G.4.6 Refer to the Historic environment features map, the Conservation areas map and the drawings listed in Table G.2 below. This table sets out the drawings of the proposed works that may affect heritage assets, which are provided in A3 format at the end of this appendix. It also provides the status and location of the drawings and plans within the application.

Table G.2 Drawings relating to heritage assets at Albert Embankment Foreshore

Drawing title	Drawing status
Location plan	For information
As existing site features plan	For information

Drawing title	Drawing status
As existing landscape plan: Interception structure	For information
As existing landscape plan: Shaft structure	For information
Demolition and site clearance (1 of 2)	For approval
Demolition and site clearance (2 of 2)	For approval
Site works parameter plan	For approval
Proposed site features plan	Indicative save for the layout of the above-ground structures, which is illustrative
Proposed landscape plan: Interception structure	Indicative save for the layout of the above-ground structures, which is illustrative
Proposed landscape plan: Shaft structure	Indicative save for the layout of the above-ground structures, which is illustrative
Section AA (1 of 2)	Illustrative
Section AA (2 of 2)	Illustrative
Section BB	Illustrative
Section CC	Illustrative
As existing and proposed west (river) elevation	Illustrative
As existing and proposed north elevation	Illustrative
Proposed west river elevation: Interception structure	Illustrative
Proposed south elevation: Interception structure	Illustrative
Proposed north elevation: Shaft structure	Illustrative
Proposed west river elevation: shaft structure	Illustrative
Proposed south elevation: shaft structure	Illustrative
Kiosk design intent	Indicative
Typical river wall design intent	Indicative
As existing listed structure interface: Interception structure	For information
Proposed listed structure interface: Interception structure	Indicative
Construction phase 1: Site set-up	Illustrative
Construction phase 2: Shaft construction and tunnelling	Illustrative
Construction phase 3: Construction of other structures	Illustrative
Construction phase 4: Site demobilisation	Illustrative

The drawings are located in Section 17 of the *Book of Plans*

Vauxhall Bridge

G.4.7 The construction works would be carried out directly adjacent to, and would be visible from, Vauxhall Bridge. The works would detract from views northeast from

the bridge towards the southern part of the Albert Embankment Conservation Area (Refer to the construction phases drawings 1 to 4). For a more detailed description of the construction works see Vol 16, Section 7.5 of the *Environmental Statement*).

- G.4.8 The proposed works include a CSO interception chamber built at low level in the foreshore in front of the southeastern bridge abutment, which would be designed as an independent structure to butt up against the lower part of the abutment without intrusive fixings. The substructure of the foreshore structure would be separated from the listed bridge abutment by a membrane.
- G.4.9 The foreshore structure would not physically be attached into the listed bridge abutment, although it would alter the appearance of the lower parts of the bridge's southwestern abutment. (Refer to the Proposed site features plan, Proposed landscape plan: Interception structure, Proposed south elevation: Interception structure, Proposed listed structure interface: Interception structure drawings). Listed Building Consent would not normally be required.
- G.4.10 The design was developed to minimise the impact of the foreshore structure on its surroundings, particularly the historic environment, and to provide beneficial additions to the public realm, in line with relevant national, regional and local policies. The design principles specific to the site include the relevant project-wide heritage design principles and the following:

ALBEF.03	The design shall respect the character and setting of the Grade II* listed Vauxhall bridge. In order to minimise effects on the setting of the bridge, the top of the interception structure (excluding vent columns) shall be below the springing point of the bridge arch.
ALBEF.08	The main electrical and control kiosk (interception structure) shall be located in the secure area below Vauxhall Bridge and shall not be attached to the listed bridge. A low level light shall be provided to the kiosk doors to allow access for maintenance purposes in the hours of darkness. This light shall be activated by a directional motion control switch, linked to the door opening.

Albert Embankment Conservation Area

- G.4.11 The temporary cofferdams would project forward into the River Thames, altering the visual line of the embankment (refer to construction phases drawings 1 to 4).
- G.4.12 The views across the River Thames would be partly affected by the works as the CSO drop shaft structure would project from the river wall in front of the Vauxhall Cross building. (Refer to the Proposed site features plan, Proposed landscape plan: Interception structure, Proposed south elevation Proposed listed structure interface: Interception structure drawings).
- G.4.13 The design principles specific to the site include the relevant project-wide heritage design principles and the following:

ALBEF.10	At the shaft location the public realm shall be elevated to the existing flood defence level to encourage views across the river to the Palace of Westminster World Heritage Site and Tate Britain.
ALBEF.13	Seating shall be positioned to maximise views of views of the Palace

	of Westminster World Heritage Site.
ALBEF.16	Interpretive materials and information on the views and historic interest of the site shall be incorporated into the permanent works.
ALBEF.17	Existing lighting on the Thames Path shall be reinstated as appropriate in accordance with the overall lighting design.

River wall

- G.4.14 Part of the existing unlisted brick, concrete and stone river wall would be removed to the north of Lack's Dock to provide access to the CSO interception structure. Part of the river wall in front of the Vauxhall Cross building would also be removed to build the interception chamber. (Refer to the Demolition and site clearance drawings).
- G.4.15 The substantial demolition of the river wall would normally require Conservation Area Consent.

Dolphins

- G.4.16 The construction of the new CSO interception structure would require the demolition of the two existing dolphins. (Refer to the Demolition and site clearance drawings).
- G.4.17 This would normally require Conservation Area Consent.

Lack's Dock

- G.4.18 Although Lack's Dock is an historic structure, the majority of its fabric appears to date from the mid to late 20th century and is of little significance. The proposals would safeguard its important historic form by renovating it with sympathetically detailed concrete elements to improve its appearance and utility. Its setting would also be affected by the CSO drop shaft structure, which would extend the corner of the river wall to the north of the dock further into the river in order to match the corner on the southern side. However, the design and the concrete and timber fenders on the foreshore structure would relate to its wider context (refer to the Proposed landscape plan: Shaft structure and Proposed west river elevation shaft structure drawings).

Lambeth Palace Conservation Area

- G.4.19 Within this conservation area only the Grade II* listed Lambeth Bridge and the extreme southwestern portion of the Grade I* listed Lambeth Palace have a visual relationship with the site, and they are a considerable distance away. Views of the site from these structures are not of notable heritage significance, and in any case the site forms only a very small portion of the background in these views. The site plays an insignificant role within the setting of this conservation area.
- G.4.20 No heritage consent would normally be required.

Pimlico Conservation Area

- G.4.21 Aside from the foreshore, the parts of the conservation area nearest to the site have no heritage significance, as they encompass the modern white concrete buildings of Eagle Wharf several hundred metres to the west of the bridge. These buildings and the Thames Path in front of them offer views of the four-lane highway directly opposite, as well as the St George's Wharf development and its

new 50 storey tower. The oblique view of the small part of the interception structure that would be visible south west of Vauxhall Bridge would not be a significant element in these views. The site does not play a noticeable role within the setting of this conservation area.

G.4.22 No heritage consent would normally be required.

Millbank Conservation Area

G.4.23 The foreshore is included within the conservation area in order to protect the northern river bank from any development that would adversely affect the character of the area. The most important view relating to the conservation area (as noted in the *Conservation Area Audit* and the *London Plan*) is the view along the northwestern bank of the river from Vauxhall Bridge, which would not be affected by the proposals. The only other relevant locally important view is from the portico of the Tate Britain out towards the river. The site is approximately 45 degrees off the axis of this view and therefore would not feature notably within it. The temporary cofferdam in the northern part of the site would reach further towards the axis of this view, but would not intrude into it.

G.4.24 While the majority of the site can be seen from the Thames Path, in summer the view is obscured by the low hanging branches of closely-spaced mature trees, which tend to deny views of the site from most viewing places which are not immediately next to the parapet. The site is therefore not a prominent element within the setting of this conservation area.

G.4.25 The low foreshore structures were designed to be unobtrusive in order to minimise the effects on views across the river from the opposite bank even in winter. The modern buildings next to Vauxhall Bridge and the Millbank Tower complex are not within the conservation area.

G.4.26 No heritage consent would normally be required.

Smith Square Conservation Area

G.4.27 The *Conservation Area Audit* identifies a number of significant views, but none of them relate to the site or even to the wider Vauxhall area. As with the Millbank Conservation Area, views of the site from the Smith Square Conservation Area are distant and obscured by the thick and low-hanging tree cover running close to the parapet of the river wall, especially in summer, although at present there are several gaps in the tree line. The site consequently forms an insignificant part of the wider setting of the conservation area.

G.4.28 No heritage consent would normally be required.

Palace of Westminster World Heritage Site

G.4.29 The Palace of Westminster World Heritage Site is approximately 1km from the site, and only its towers and the upper parts of the southern and eastern elevations are visible from the site – the rest is obscured by intervening trees and buildings, including Lambeth Bridge. The site is not located within a designated strategic view of the World Heritage Site and it does not fall within the background of any such view.

G.4.30 No heritage consent would normally be required.

Archaeology

G.4.31 The North Lambeth and Lambeth Palace Archaeological Priority Area would not be physically affected by the proposed works. The loss of historic upper strata due to past human activity and the scouring action of the river means that the

potential for surviving evidence from the Roman to early modern periods is relatively low. Continued river action is also likely to destroy the Mesolithic structure in the future.

- G.4.32 The archaeology of the foreshore would be adversely affected by the temporary cofferdams and foreshore structures; however a number of mitigation measures would also be implemented.

G.5 Heritage design considerations

- G.5.1 As most of the project works would be below ground, the key design objective for the permanent works was to integrate the functional components of the system into the context of the historic environment. The site-specific design objectives at Albert Embankment Foreshore were to take account of existing below-ground infrastructure and the adjacent heritage assets, comprising archaeology on the foreshore and the heritage assets further afield. An additional design consideration was the necessity to keep Lack's Dock operational throughout and post construction.
- G.5.2 The design team particularly focused on resolving the relationship of the foreshore structures with Vauxhall Bridge and the foreshore itself. Studies were conducted of their style and massing seeking to complement the adjacent buildings and structures. Consideration was also given to linking the two structures underneath Vauxhall Bridge via a pedestrian bridge (similar to the arrangement beneath Chelsea Bridge). However, the studies produced bulky structures on either side of the listed bridge abutment.
- G.5.3 The design was revised in order to reduce the necessary works above the Victoria Line tunnels and to address concerns regarding the impact of the structures on the Grade II* listed Vauxhall Bridge. As a result, the proposed Clapham and Brixton Storm Relief CSO interception chambers were combined into one CSO interception structure positioned on the northern side of the bridge. The Clapham Storm Relief CSO would be connected to the interception chamber via a partially exposed culvert along the foreshore.
- G.5.4 The design team also sought to respect the setting of Vauxhall Bridge by breaking up the mass of the CSO interception structure, in line with para. 4.10.11 of the NPS and reflected in saved *UDP* Policy 45.

G.6 Mitigation measures

- G.6.1 Due to the presence of heritage assets nearby, the National Policy Statement for Waste Water (the 'NPS') requires the proposed development to be based on an understanding of the significance of heritage assets (para. 4.10.11), minimise any impacts on their significance (paras. 4.10.12 - 4.10.14), minimise impacts on their setting (para. 4.10.17), mitigate any negative impacts (para. 4.10.18 to 21), and ensure that the proposals are of a high design quality (Section 3.5). These requirements are reflected in similar policies in the *London Plan 2011*, the *Core Strategy 2010*, the saved *UDP*, and the *Thames Conservation Area Proposals Statement*. These requirements are reflected in similar policies in the *London Plan 2011*, the *Core Strategy 2011*, the *UDP* and the *Albert Embankment Conservation Area Designation Report 2010*.
- G.6.2 The proposed works were designed to directly accord with the approach required by the NPS. Adverse effects were minimised as far as possible and opportunities have been taken to enhance the historic environment wherever possible. The CSO interception chamber and CSO drop shaft were therefore separated in order

to reduce their impact. The interception chamber would sit in front of the southern abutment of Vauxhall Bridge to divert the two sewer outfalls into a connection culvert running to the northeast beneath the foreshore into the CSO drop shaft. (Refer to the Proposed site features plan, Proposed landscape plan: Interception structure, Proposed landscape plan: Shaft structure, Section AA, BB and CC drawings).

- G.6.3 The removal of the existing sewer outfalls and associated dolphins would be mitigated by a programme of recording at English Heritage Level 3, ensuring that their significance can be appreciated by future generations (as required by NPS paras. 4.10.18 to 4.10.20).
- G.6.4 There would be no physical impacts on Vauxhall Bridge as the CSO interception structure would have no physical connection to the listed bridge. The contractors would be required to ensure that their working methods minimise risk of plant accidentally striking the bridge. Protection barriers would be installed as required but not attached to the bridge unless otherwise agreed. The part of the river wall next to the CSO drop shaft would be demolished and replaced by a new river wall of better quality design.
- G.6.5 The visual impact of the two foreshore structures would be mitigated by their low height and high quality design measures, as follows:
- The sinuous low descending steps, planting, boulders and concrete finish of the CSO interception structure would minimise its visual impact around the listed bridge and in front of the Vauxhall Cross building.
 - The CSO interception structure would sit beneath the springing point of the bridge arch so as not to affect the rhythm of the five-arch silhouette when viewed from the conservation areas around the site and other vantage points
 - The CSO drop shaft structure would fit in with and enhance the neighbouring embankment wall and Lack's Dock by virtue of its concrete walls, timber fenders and sculptural ventilation columns.
 - The CSO drop shaft structure would align with the listed Albert Embankment and the river wall by the Vauxhall Cross building; therefore it would not project beyond the general line of the embankment in views from the listed embankment.
- G.6.6 An important benefit of the works that would mitigate the permanent encroachment into the foreshore is the creation of a new area of public open space on top of the CSO drop shaft structure with seating. The space would offer improved views of the nearby heritage assets and conservation areas, and the historic London riverscape. Trees would be planted alongside the open space to further increase the attractiveness and public amenity of the riverbank.
- G.6.7 The CSO interception structure would be surmounted by a flat, paved area that could, in future, be used as a public space. At present it is not intended to be accessible to the public because of security concerns.
- G.6.8 For the duration of the proposed works, all the heritage assets would be safeguarded by the provisions of a site-specific heritage management plan that would be prepared by the contractor prior to commencing works in accordance with Section 12 of the *Code of Construction Practice Part A*.
- G.6.9 A full historical interpretation strategy would be developed, which would have particular relevance to this site. There is considerable scope to include interpretive material to inform passers-by of the history of the site, the River Thames, the River Effra and significant recent archaeological finds in the area.

- G.6.10 The signature ventilation columns on the CSO drop shaft structure have been designed to be inscribed with site-specific information. The paving on the surface of the structure was designed to feature historical references etched into ground-level metal strips arranged near the seating area. The strips would align with the flowing paving bands.
- G.6.11 Signage similar to the existing plaque over the Brixton Storm Relief CSO outfall could be positioned over the new outfall and the paving on the interception structure could reference the River Effra in an attractive and graphic way.
- G.6.12 Excavation of the upper stratum of the foreshore during construction, including under the campshed and barges, would probably cause the loss of any remaining archaeology. Any archaeology that would not be lost would be eroded by scour in the long term. Archaeological impacts would be mitigated by undertaking investigations prior to commencing works and a watching brief during construction. This includes the Mesolithic timber structure, which cannot be preserved *in situ* and would be destroyed by river action and decay on exposure to the air. Any additional archaeology on the foreshore within the site would be subject to a watching brief during the works and periodic foreshore walks for a period of two years following construction in order to record any further artefacts revealed by new river scouring patterns.
- G.6.13 Archaeological works would be carried out in accordance with the *Site-specific Archaeological Written Scheme of Investigation*, which could include protection of archaeological resources. These measures satisfy the requirements of para. 4.10.18 of the NPS, which states that any unavoidable losses should be recorded.
- G.6.14 A further site-specific measure included in the *Code of Construction Practice Part B* is a requirement that the Contractors working methods are to minimise the risk of accidental striking of the listed bridge. Protection barriers will be installed as required but not attached to the structure unless otherwise agreed.

G.7 Assessment of effects

- G.7.1 The *Environmental Statement* assesses the potential significant effects of the proposals on the historic environment. The discussion below summarises the significant and less significant effects, having regard to the criteria in the NPS.

Vauxhall Bridge

- G.7.2 The temporary construction works would intrude on the immediate setting of the southern end of Vauxhall Bridge with moderate negative effects. However the significance of the bridge would not be substantially compromised and the temporary effects would amount to less than substantial harm.
- G.7.3 Avoiding fixing the CSO interception structure against Vauxhall Bridge's abutment would minimise the physical impact of the proposals. The works would also be reversible, which would enable the bridge to be returned to its previous appearance if desired in the future. (Refer to the Proposed landscape plan: Interception structure drawing for details). The fabric of the bridge would remain essentially intact, thereby conserving its significance and avoiding any substantial harm.
- G.7.4 In the context of the wide sweep of the River Thames at this point, the CSO interception structure would have a modest yet noticeable visual effect on the appearance of the foreshore, and the setting of the listed Vauxhall Bridge and the unlisted Vauxhall Cross building. (Refer to the proposed listed structure interface:

Interception structure drawing). The impact of the CSO interception structure would be minimised by its low height and sinuous form, which would allow the springing point of the eastern arch of Vauxhall Bridge to remain visible. This would preserve the primacy of the bridge and its characteristic silhouette. This is the same approach that was adopted for the existing Vauxhall Cross building terrace, which stands forward of and adjacent to the bridge abutment. There would therefore be only a minor negative effect on the bridge's setting.

Albert Embankment Conservation Area

- G.7.5 The temporary cofferdams would have a very low physical impact on the fabric of the unlisted river walls, as they would be attached with minimal fixings at only four narrow locations. (Refer to the Construction phase 3: Construction of other structures drawing). However, they would be visible from Albert Embankment further to the north and be prominent in views of the southern part of the conservation area. The construction works would have a temporary moderate negative effect on the character of the conservation area.
- G.7.6 The narrow construction access route from the Thames Path in front of the Vauxhall Cross building onto the top of the CSO interception structure would necessitate the creation of a small opening in the existing parapet. This would be done to match the existing fabric, the sturgeon lamp standards would be repositioned on either side of the entrance, and a suitable gate would be installed to prevent public access. Therefore the overall effect would be minor negative.
- G.7.7 The curving terraced form of the CSO interception structure would be different from the rest of the riverfront in the conservation area. However, this diffuse visual character would minimise its impact and form an attractive, well-designed addition to the foreshore and river wall. The character of Lambeth's riverside would be maintained. The CSO interception structure would appear relatively small from the southern side of Vauxhall Bridge, and somewhat larger from the northern side. In either case, the structure's terracing, the character of its form, and the proposed planting would reduce its apparent size, blend it into its surroundings, and maintain the primacy of the nearby assets. The planted stepped intertidal terraces would be a welcome addition to this part of the foreshore, increasing both its visual and ecological interest and making a positive, distinctive contribution to the local character.
- G.7.8 The permanent effects of the proposals on the wider Albert Embankment Conservation Area would be negligible. The listed Albert Embankment river wall is a minimum of 110m from the CSO drop shaft structure. In terms of views along the riverbank, the CSO drop shaft structure would encroach into the river only as far as the Vauxhall Cross river wall and the listed Albert Embankment river wall.
- G.7.9 The use of concrete with timber fenders for the CSO drop shaft structure would match the existing materials and the detailed design would be of a higher quality than the adjoining unlisted river wall. This would improve the visual amenity of this stretch of the river. The structure's impact on the setting of Vauxhall Bridge in views from the west and north would be minor, as it would be no higher than the present river wall and some distance to the left of the bridge. The ventilation columns would be visible in front of the eastern span of Vauxhall Bridge when viewed from a small area immediately to the north of the CSO drop shaft structure; however, they would be relatively narrow and would not significantly obscure views of this part of the bridge. Indeed, they would be recognisable as signature features of the project and would signify the presence of the connecting sewers and the lost River Effra.

River wall

- G.7.10 Constructing the CSO drop shaft structure and widening the Thames Path immediately to the northeast would necessitate the replacement of the unlisted river wall at this point (refer to the Proposed landscape plan: Shaft structure drawing). The impact of the replacement would be low due to the unattractiveness of the present river wall. Indeed the proposed concrete-faced replacement with its timber fenders and handrail would be high quality. It would not only complement the old river wall but also enhance the appearance of this part of the conservation area.
- G.7.11 The setting of the listed river wall would experience a very minor alteration as a result of the proposals.

Dolphins

- G.7.12 In respect of views of the site from the north and west, the present CSOs and dolphins have a degree of heritage significance for their visual association with the bridge but do not make a positive contribution to the conservation area. Their loss would have a minor negative effect (less than substantial harm), which would be mitigated by a programme of recording. They would be replaced with the high quality new public realm.

Lack's Dock

- G.7.13 Widening the section of the Thames Path immediately to the north of the CSO drop shaft structure requires replacing the existing river wall parapet (of no heritage significance) with a new parapet and timber handrail of better quality. This would also enhance the character and appearance of this part of the conservation area. There would be a negligible negative effect on the unlisted Lack's Dock from the renovation of its slipway, but this would mainly involve the loss of 20th century fabric of little or no heritage or design interest, while preserving its shape and considerably improving its appearance and future utility.
- G.7.14 In terms of visual effects, the CSO drop shaft structure would sit comfortably with the neighbouring stretch of unlisted wall and form a complementary extension of Lack's Dock (refer to the Proposed shaft structure landscape plan drawing). Overall the permanent effects would be positive.

Pimlico, Millbank, Smith Square and Lambeth Palace Conservation Areas

- G.7.15 The conservation areas that offer views of the site would experience very modest or negligible impacts on their settings from the two foreshore structures. The temporary cofferdams and foreshore structures would rise only as high as the existing river wall parapet, although there would be hoardings around some parts of the site.
- G.7.16 Views of the site from the western side of the river are already obscured by low hanging trees. Significant views of existing buildings would therefore be maintained during construction. There would be minimal permanent effects.

Palace of Westminster World Heritage Site

- G.7.17 The Palace of Westminster World Heritage Site is very distant and would suffer no significant harm. The new area of public space along the river would enable improved views of the World Heritage Site, which would enhance the appreciation of its significance.

Archaeology

- G.7.18 In respect of the foreshore within the site, there would be a localised loss of archaeology, although this would be mitigated by pre-construction investigations and a watching brief, including analysis of excavated spoil. The remains of the Mesolithic timber structure would be lost, but its archaeological value would be fully explored through detailed investigation and recording prior to the works. This would be especially valuable since the structure will in any case be lost to river scour over the coming years. Therefore its removal would constitute less than substantial harm in the long term and without recording there would be no compensatory record.
- G.7.19 The rest of the foreshore within the site is considered to have low to moderate archaeological potential, and the works would cause less than substantial harm. Periodic walking of the foreshore would be carried out for two years following construction in order to monitor the effects of new scouring patterns on archaeology and record any new artefacts uncovered.
- G.7.20 Finally, any information gathered in relation to archaeology would be disseminated via the normal channels would add greatly to public appreciation of the heritage of the site. These mitigation measures are proportionate to the significance of the archaeology.

G.8 Assessment in relation to policy

- G.8.1 The effects of the proposals would be minimised by the decision to split the components across two sites to reduce their bulk. The form and materials of the foreshore structures would mitigate potential adverse effects and minimise any loss of significance of nearby assets. Although there would be some harmful effects, none would amount to substantial harm.
- G.8.2 The listed Vauxhall Bridge would not be physically affected. In terms of the setting of the bridge and the wider conservation area, there would be temporary significant, but less than substantial harm from the construction works. The overall heritage impact on the setting of the bridge would therefore be low.
- G.8.3 The creation of the construction access route would necessitate a new opening in the unlisted river wall parapet in front of the Vauxhall Cross building. The river wall would retain its contribution to the conservation area and its role in the building's setting. Although there would be some harmful effects, none would amount to substantial harm.
- G.8.4 The construction of the CSO drop shaft and the widening of the Thames Path would necessitate the replacement of the unlisted river wall. There would also be an impact on Lack's Dock. However, the proposals satisfy the requirements for high quality design of Section 3.5 of the NPS, which are also reflected in *UDP* Policy 43. They would also minimise potential impacts on significance and enhance the character and appearance of the conservation area and wider townscape.
- G.8.5 The proposals would constitute less than substantial harm to the settings of the listed Vauxhall Bridge and Albert Embankment river wall, and to the settings of the Vauxhall Cross building and Lack's Dock, which satisfies paras. 4.10.14 and 4.10.17 of the NPS. The high quality design would be a public benefit of the proposals, which would meet the requirements of Section 3.5 and para. 4.10.12 of the NPS, and reflect *London Plan* Policies 7.8 and 7.29, *Core Strategy* Policies S9 and PN2, *UDP* Policies 43 and 47, and the *Conservation Area Designation Report*.

G.9 Conclusion

- G.9.1 The main heritage impact of these proposals would be on the Grade II* listed Vauxhall Bridge. This impact would be minimised by the small size and low height of the CSO interception structure. The appearance of the structure would be broken up by the intertidal terraces and its curving shape. The structure would be butted up to the listed abutment with as few physical connections as possible. The important view of the whole eastern arch would be maintained by keeping the CSO interception structure beneath the springing level. This would result in a modest, acceptable impact on the fabric and the setting of the bridge.
- G.9.2 The unavoidable removal of some of the archaeology in the foreshore would be fully mitigated by the programme of investigation and recording. This programme would provide a permanent record of elements for posterity that will eventually be destroyed by the action of the river.
- G.9.3 The other noteworthy impact would be the modest effect on the character and appearance of the Albert Embankment Conservation Area, including the settings of the Vauxhall Cross building, Lack's Dock, and to a lesser degree the listed river wall. The design of the foreshore structures and the range of mitigation measures would preserve and enhance the character and appearance of the conservation area and constitute an acceptable impact. Impacts on other heritage assets such as the surrounding conservation areas and the Palace of Westminster World Heritage Site would be minimal or negligible, amounting to less than substantial harm. The impact of the cofferdams and hoardings would also be low in overall heritage terms as they would be temporary.
- G.9.4 In summary, the high quality design would minimise any negative impacts on the fabric or settings of nearby heritage assets, in line with the requirements of the NPS, and reflecting the *London Plan*, the *Core Strategy*, the *UDP*, and *Conservation Area Designation Report*. The proposals would not cause substantial harm to any of the heritage assets on or around the site.

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Gazetteer of known heritage assets

Details of known heritage assets within the assessment area are provided in Table G.3 below as illustrated on the Historic environment features map.

All known heritage assets within the assessment area are referred to by a historic environment assessment (HEA) number. Assets within the site are referred to and labelled in the Historic environment features map with the prefix 1, eg, HEA 1a, 1b, 1c. References to assets outside the site but within the assessment area are referred to numerically from 2 onwards, eg, HEA 2, 3, 4, and 5). The gazetteer also appears within the *Environmental Statement*, Vol 16, Appendix E.1

Table G.3 Historic Environment Assessment: Gazetteer of known heritage assets shown on the historic environment features map

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
1a	Vauxhall Foreshore: TDP Foreshore survey and on-going monitoring. Part of a possible prehistoric roundwood piled structure only visible at low tide was recorded in the western part of the site in an area from which prehistoric artefacts have been recovered and peat layers exposed. Three timbers have been dated to the Mesolithic period, between 4,000 and 5,000 BC, and are associated with a number of other timbers and a scatter of Mesolithic flint, including a tranchet adze. Other artefacts have been found a few metres downstream including Neolithic pottery with a scatter of burnt flint.	MLO64260 092155; VXF93
1b	TAS survey recorded an aggradation layer and feature, a modern dump containing concrete and other debris, a consolidation layer containing concrete and pottery, a consolidation layer formed of stones and another formed of older concrete, a brick consolidation layer; an erosion line, a gravel aggradation layer, indicating a raised foreshore; and timber fenders in the northern part of the site.	FLM01 A115; A116; A118; A119; A120; A121; A122; A123; A124
1c	TAS survey recorded a raised aggradation layer with the leeboard of a vessel in the central part of the site.	FLM01 A127; A128
1d	TAS survey recorded a piece of timber with a metal foot, possibly driftwood, in the central western part of the site.	FLM01 A150
1e	TAS survey recorded a consolidation layer of orange clay in the northwestern part of the site.	FLM01 A117
1f	TAS survey recorded the concrete apron of a drain, two driftwood timbers with metal feet, a dump of rubble and concrete and two timber mooring blocks. Two timber drains under Vauxhall Bridge in the southern part of the site, with dolphins, outfall structures, storm shutters and the	FLM01 A156

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
	Effra River outfall.	
1g	TAS survey recorded degradation of the foreshore, comprising a drop in level and a change to softer material in northwestern part of the site	FLM01 A129 A149; A151; A152; A153; A156; A157; A159; A160
1h	Lambeth: A number of artefacts were found by chance on the foreshore within the site and reported to the Portable Antiquities Scheme. These included a late Roman pottery vessel, a Neolithic or Bronze Age lithic implement and two post-medieval 18th or 19th century vessels.	MLO100027; MLO100030-2
1i	Thames Foreshore: Foreshore survey undertaken by TAS recorded a possible crane base, comprising five planks surrounded by a mass of concrete and debris, a timber structure comprised of vertical timbers with diagonal timbers across the top, a horizontal plank and chain, three further timbers c. 12m north of the site and another vertical timber.	FLM01 A110; A111; A112; A113; A114; A130; A131.
1j	Location of an outfall pipeline recorded on the northern part of the site by Sea Zone.	PIPSOL 9400
1k	Location of an outfall pipeline recorded in the central part of the site by Sea Zone.	PIPSOL 9400
1l	Lack's Dock slipway and the site of the former Vauxhall Stairs in the central part of the site.	---
1m	The river wall along the eastern part of the site.	---
1n	<p>Vauxhall Bridge (Lambeth side). Grade II* listed, Vauxhall Bridge (Westminster side). Grade II* listed.</p> <p>A five-span steel arch bridge with concrete piers and abutments faced with granite. The superstructure, constructed entirely of steel and iron, consists of five two-pinned arches each formed from thirteen steel ribs bearing on steel skewbacks built into the abutments or resting on the piers. The steel plate decking, where it does not rest directly on the ribs or the framing of the piers, is carried on longitudinal joists supported on stanchions standing on the ribs. The foundations of the abutments and piers consist of solid masses of Portland cement concrete cased in sheet-piling. The bridge is decorated with female bronze figures on either side representing the functions of local government. The bridge is painted in burgundy and orange, with a blue and white trim.</p>	1393012; 1393011

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
2	<p>34-46 Albert Embankment: Excavation in 1980 by SLAEC c. 90m northeast of the site, revealed that natural geological layers were cut by a gully beneath sandy soil, which was itself cut by several features, some of which produced pottery of c. 1480-1620. Above these were the earliest buildings and structures, dated c. 1620-1720 and succeeded by others dated to c. 1720-1900.</p> <p>In 1987 and 1989 DGLA (S&L) undertook a further excavation and revealed the partial remains of at least four kilns, one of them evidently involved in porcelain firing c. 1750, as indicated also by documentary evidence. The area was seen to have been subject to constant reworking and modification during its 200-year industrial phase. There was little evidence of sustained human activity in earlier periods, when the area was recorded as open and fallow. A Bronze Age flake and Neolithic implement were recorded. Large quantities of discarded kiln furniture and wasters were found, delftware in the earlier levels and stoneware in the later ones. Fragments of porcelain indicate its early manufacture on the site.</p>	L54/80; L611/87; LAM611; 38ALB89; 091261; MLO18734; MLO22783-5
3	<p>Vauxhall Bridge Foot (north), Albert Embankment: In 1989 DGLA (S&L) excavations c. 60m east of the site, revealed substantial remains of a 17th-century glasshouse with much of the kiln intact and large quantities of waste products. The stone foundations of a medieval or later structure fronting the Albert Embankment are thought not to be part of the manor house known to have been in the area. A substantial waterfront complex was built in the 17th century, and the remains of three brick boathouses of that date were found, which remained in use until the 19th century. The boathouses were identified as those which were owned by the Worshipful Company of Fishmongers Mercers and Clothiers and have been recorded in documentary records. An inhumation burial of unknown date was found, dug into the natural gravels. A ditch and flood defences were also recorded.</p> <p>In 1977 SLAEC trial excavation at the same site revealed no archaeological features.</p>	VBN89; L40/77; MLO21477; MLO11533; MLO220224; MLO23960; MLO22224-6
4	Lambeth High Street: Site of Lambeth High Street, post-medieval road, c. 130m southeast of the site.	MLO13562 / 090985
5	Albert Embankment: Post-Medieval landing steps marked on maps as 'Faux Hall Staires', 'Vaux Hall' or Vauxhall Stairs, c. 5m east of the site.	MLO11410; 090136
6	Vauxhall Bridgefoot: Excavations at the Vauxhall Bridgefoot, c. 100m east of the site, in 1972 by SLAEC recorded parts of two multiflue stoneware kilns and fragments of three others all datable to the later 18th and 19th centuries. Three large groups of delftware waste material were recorded near a late 17th-century	MLO16858; MLO7790; 090105

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
	delftware factory. Further remains associated with the Vauxhall Pottery were recorded in 1977–81. Kiln wasters from the pottery were found in 1964.	
7	Albert Embankment: The area adjacent to eastern boundary of the site is noted as a pottery manufacturing site, possibly owned by J Ariens Van Hamme in 1677. The original pottery manufactory may have been within part of former Vauxhall or Copt Hall manor house. The GLHER also notes a post-medieval house and brew house at this location known from the early 18th century.	MLO11471 / 090114; MLO4102 / 090075; MLO4140 / 090128
8	River Thames: GLHER records a number of archaeological finds from the river Thames south of Vauxhall Bridge c. 40m west of the site. These included a prehistoric axe, a Neolithic Axe, two Bronze Age swords, an early medieval sword and a later medieval sword.	MLO26840-1; MLO26851; MLO26901; MLO26904; MLO27049
9	Near Vauxhall: An early medieval iron sword with a straight guard and traces of brass inlay was found in the Thames c. 70m west of the site. The pommel is missing and the blade fragmented. The sword has been identified as a Petersen type H.	MLO26817; 112025
10	<p>St George's Wharf and the former Vauxhall Gas Works: PCA watching brief in 2007 at St George's wharf, c. 90m southeast of the site. The demolition of a jetty platform was monitored to ensure that no damage was caused to a nearby Bronze Age timber feature located on the foreshore of the Thames. No archaeological features were observed.</p> <p>An earlier PCA watching brief in 1997 at the former Vauxhall Gas Works revealed a complete absence of pre-19th century deposits due to widespread and massive truncation by the former gasworks.</p> <p>Site of post-medieval Effra Gas Works and Brunswick Dock.</p>	SGZ07; WNR97; MLO75223
11	Albert Embankment: A post-medieval armoury was located c. 50m northeast of the site in the former Copt Hall. It was known as the 'Gun House'.	MLO37008; 090028
12	Vauxhall: The later medieval and post-medieval manor house was also referred to as 'La Salle Fawkes' and was often confused with nearby Copt Hall. The manor house was first documented in the 14th century and originated as part of the manor of South Lambeth. In 1362, the manor was given to the prior of Christchurch Canterbury by Edward, the Black Prince. The original manor house was demolished by 1649, but the site is marked on a map of 1681 c. 90m east of the site.	MLO4068; 090029

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
13	<p>Four public benches on Embankment Footpath immediately north of Alembic House. Grade II listed.</p> <p>C19. Now set in blocks of modern concrete with exposed aggregate. Cast iron centre and end supports with ornamental open-work panels and arms in the shape of swans; these hold long wood slats for seating.</p>	1300626
14	Effra site: The GLHER records post-medieval made ground close to the line of the former Effra river, a tributary of the Thames, c. 100m south of the site.	MLO77342
15	<p>River wall with 28 lamp standards from Lambeth Bridge to the west of Alembic House. Grade II listed</p> <p>Grey granite wall with plinth and square coping heightened by a later granite course. At intervals lamp standards of cast iron, made of interlinked dolphins writhing around a fluted, wreathed column with globular lamp holder and crown finial, on tall granite plinths, holding marine trophies.</p>	1358189
16	Chance find of a post-medieval tile, recorded by the PAS.	SUR-5E97E1
17	Albert Embankment: Site of later medieval wharf built for loading stone for building work at Westminster Abbey, c. 50m east of the site. Documentary evidence from 1476–7 records the accounts for the construction of a timber wharf at Vauxhall Abbey which covered three quarters of an acre. Westminster Abbey leased the wharf from Christchurch Canterbury in 1478. The wharf had gone out of use by 1478 and its precise location is unknown.	MLO7792; 090652
18	Vauxhall Walk: Site of post-medieval glass works probably founded by Edward Zouch in Lambeth in 1615 c. 110m east of the site. Plate glass was made there from 1620. It produced looking-glass plates, flat glass and glass for coaches. It was owned by the Duke of Buckingham from 1663. The site of about nine acres contained 'the great glasshouse' and 'the little glasshouse with a mill & calcer house, three warehouses, two workmen's dwellings & the manager's house'. The factory closed by 1786.	MLO9564; MLO77737; 090008
19	Thames Foreshore (structure): The modern riverfront defence and a vertical timber, possibly an anchor point, were recorded in survey zone FWM04, Alpha no. A105 and A113 respectively c. 180m west of the site.	MLO70226; 083851; MLO70234; 083859
20	Thames Foreshore revetment: A timber and chalk construction, possibly a barge bed, was recorded by the foreshore survey undertaken by LARF under direction of Mike Webber in 1996; survey zone FWM04, Alpha no. A112.	MLO70233; 083858

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
21	Vauxhall Cross: A post-medieval delftware and stoneware pottery kiln was found here in 1970, c. 170m east of the site.	MLO7791; 090650
22	TAS survey recorded an area of hard consolidation comprising chalk with some brick and broken glass in the southern part of the site.	FLM01; A148
23	Albert Embankment: Albert Embankment post-medieval river stairs are recorded at this location c. 60m north of the site. Thames Foreshore: TAS survey recorded a dump of concrete boulders, a consolidation deposit of old concrete, an aggradation layer of mud, a dump of concrete debris, a vertical plank, a small vertical timber; and a row of three vertical timbers parallel to the shore.	MLO3867; 090115;FLM01 A103; A104; A105; A106; A107; A108; A109
24	Albert Embankment: Site of the Soap Boiler's House, known before 1724; Snaith's post-medieval distillery, founded before 1814; the Fountain post-medieval public house; and the 'Hoggs Shyse' recorded on post-medieval maps c. 50m east of the site.	MLO24427; MLO4141; MLO4143; MLO4144
25	Thames Foreshore (structure): A brick structure, 3m in front of modern river wall and possibly a river defence or a foundation, was recorded during the foreshore survey c. 200m east of the site, undertaken by LARF under direction of Mike Webber in 1996; survey zone FWM04, Alpha no. A115.	MLO70236; 083861
26	Thames Foreshore: A post-medieval timber and chalk barge bed was recorded during the foreshore survey, c. 170m west of the site undertaken by LARF under direction of Mike Webber in 1996; survey zone FWM04, Alpha no. A114.	MLO70235; 083860
27	Vauxhall Bridgefoot: The site of the post-medieval Cumberland Tavern and tea garden is recorded here, c. 20m southeast of the site.	MLO7784; 090644
28	Albert Embankment: In 1972 road works along the Albert Embankment, revealed a small deposit of kiln wasters associated with the Vauxhall Pottery, c. 70m north-east of the site.	MLO7780; 090638
29	Thames Foreshore: Foreshore survey undertaken by TAS recorded a timber structure, either a barge bed or a possible riverfront defence c. 200m west of the site.	FWM04 A111
30	Thames Foreshore: Foreshore survey undertaken by LARF under direction of Mike Webber in 1996 revealed a timber structure, possibly a bank revetment or a barge bed, in survey zone FWM04, Alpha no. A111, c. 200m west of the site.	MLO70232; 083857

HEA Ref	Description	Site code/ GLHER ref/ List Entry Number
31	Thames Foreshore: Foreshore survey undertaken by LARF under direction of Mike Webber in 1996 revealed a timber revetted chalk construction, identified as a barge bed, mud deposits extending out from river wall and a small modern pot in survey zone FWM04, Alpha no. A109, A110 and A108 respectively, c. 180m west of the site.	MLO70229; MLO70230; MLO70231
32	Thames Foreshore: TAS foreshore survey recorded an aggradation layer c. 10m south of the site.	FLM01 A126
33	Thames Foreshore: Foreshore survey undertaken by LARF under direction of Mike Webber in 1996 revealed a two timber structures, possibly barge beds (Alpha no A103 and A104); a fragment of quern (Alpha no. A106); and another timber revetted chalk construction or possible barge bed (Alpha no. A107) all in survey zone FWM04, c. 170m west of the site.	MLO70224; MLO70227-8; MLO70225
34	Vauxhall Bridgefoot: Site of stone working site as owned by Gerrard Weymans in the late 17th-century, who built mills for cutting marble and a brick house c. 60m east of the site, according to the Survey of London.	MLO4667; 090175
35	Albert Embankment: A copper alloy tanged Bronze Age chisel was retrieved from the Thames near the Albert Embankment c. 60m north of the site. It was collected by Reverend William Greenwell and later bought by John Pierpont Morgan who donated them to the British Museum in 1908.	MLO19531; 114030
36	Vauxhall Bridgefoot: Site of the Royal Oak Inn, destroyed during the construction of Vauxhall Bridge, c. 40m east of the site.	MLO7785; 090645
37	Thames Foreshore: TAS survey recorded a dump deposit of concrete boulders c. 120m north of the site.	FLM01 A102
38	The chance find of a Mesolithic tranchet axe and post-medieval kiln furniture, recorded by the PAS.	LON-1C6B83; LON-E93653
39	Vauxhall Cross building: Designed by Terry Farrell, in use since 1994.	---

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Table G.4 List of drawings in order

Drawing title
Historic environment features map
Conservation areas map
Location plan
As existing site features plan
As existing landscape plan: Interception structure
As existing landscape plan: Shaft structure
Demolition and site clearance (1 of 2)
Demolition and site clearance (2 of 2)
Site works parameter plan
Proposed site features plan
Proposed landscape plan: Interception structure
Proposed landscape plan: Shaft structure
Section AA (1 of 2)
Section AA (2 of 2)
Section BB
Section CC
As existing and proposed west (river) elevation
As existing and proposed north elevation
Proposed west river elevation: Interception structure
Proposed south elevation: Interception structure
Proposed north elevation: Shaft structure
Proposed west river elevation: shaft structure
Proposed south elevation: shaft structure
Kiosk design intent
Typical river wall design intent
As existing listed structure interface: Interception structure
Proposed listed structure interface: Interception structure
Construction phase 1: Site set-up
Construction phase 2: Shaft construction and tunnelling
Construction phase 3: Construction of other structures
Construction phase 4: Site demobilisation

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Key

- Limits of Land to be Acquired or Used
- Local Authority Boundary
- Heritage Feature/Findspot
- Statutorily Listed Building
- Statutorily Listed Building
- Past Investigation
- Wreck/Obstruction

The reference number for historic environment features correspond to the descriptions in the 'Gazetteer of known heritage assets' in Environmental Statement Vol. 16 Appendix E.1



Scale 1 : 2,000 at A3

FOR INFORMATION

Location

Albert Embankment Foreshore
London Borough of Lambeth

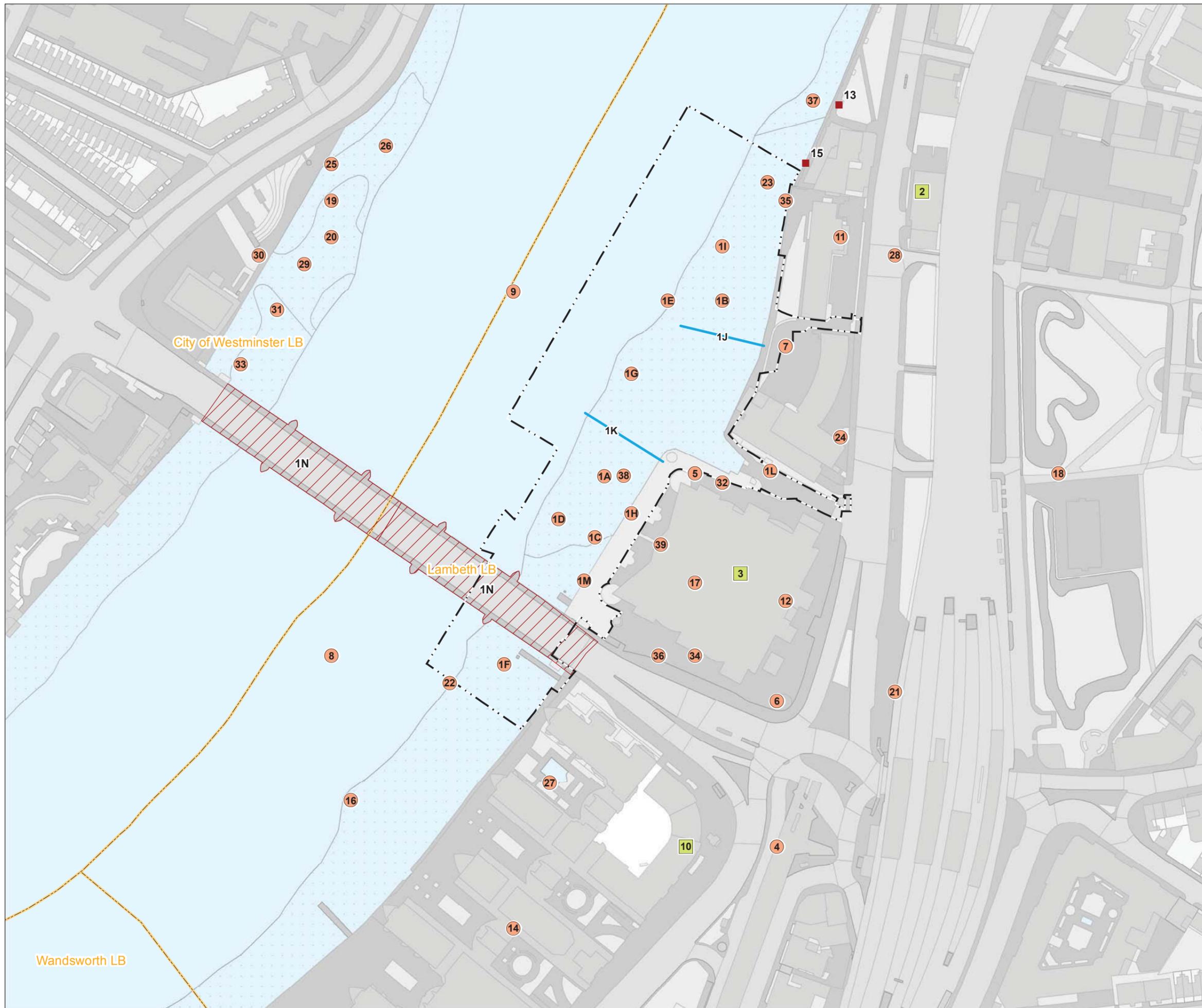
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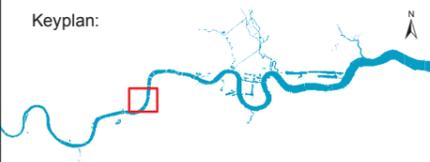
Heritage Statement

Historic environment features map

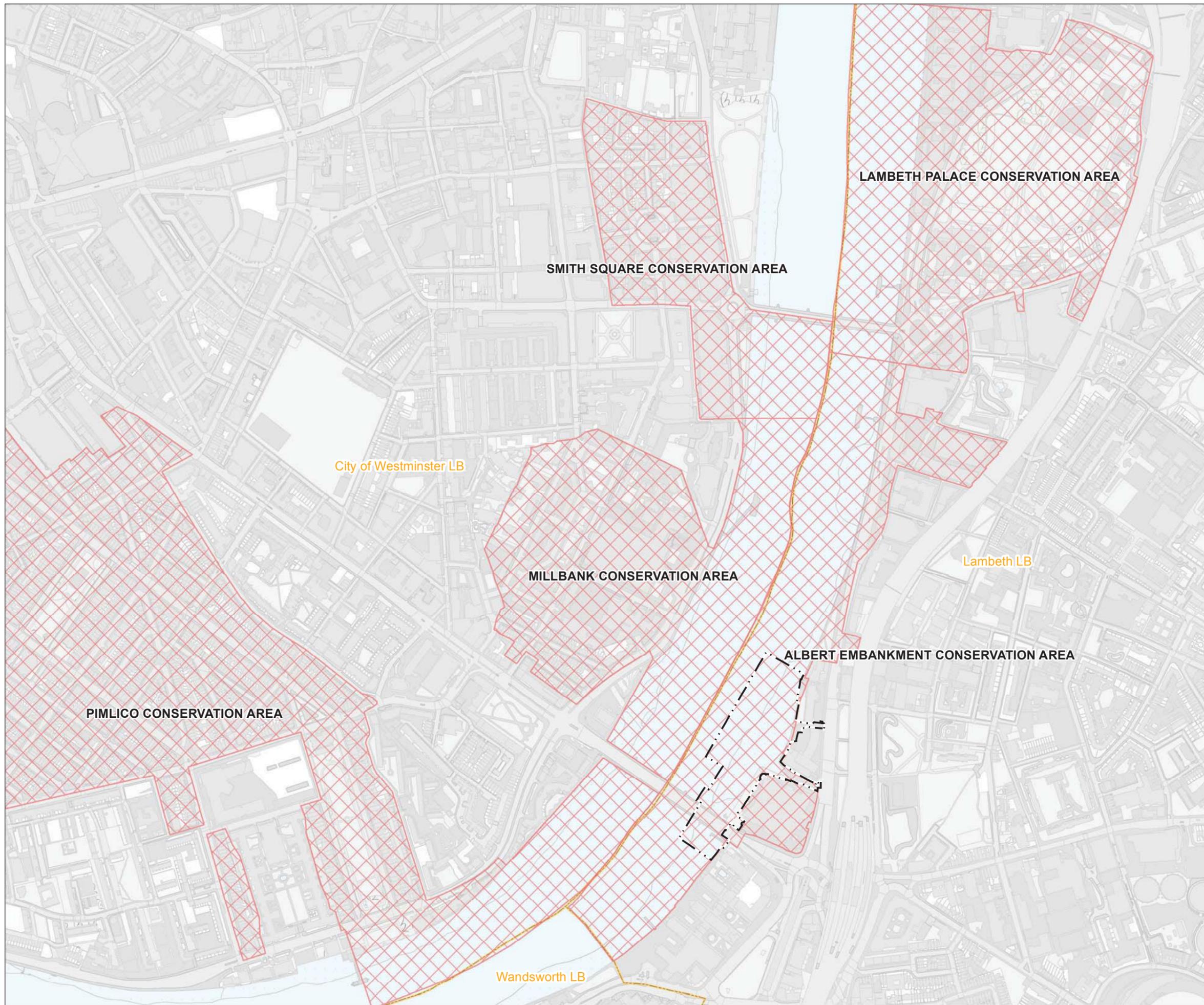
1PL03-HE-65225
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames





- Key
- Limits of Land to be Acquired or Used
 - Local Authority Boundary
 - ⊠ Conservation Area



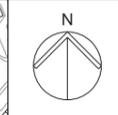
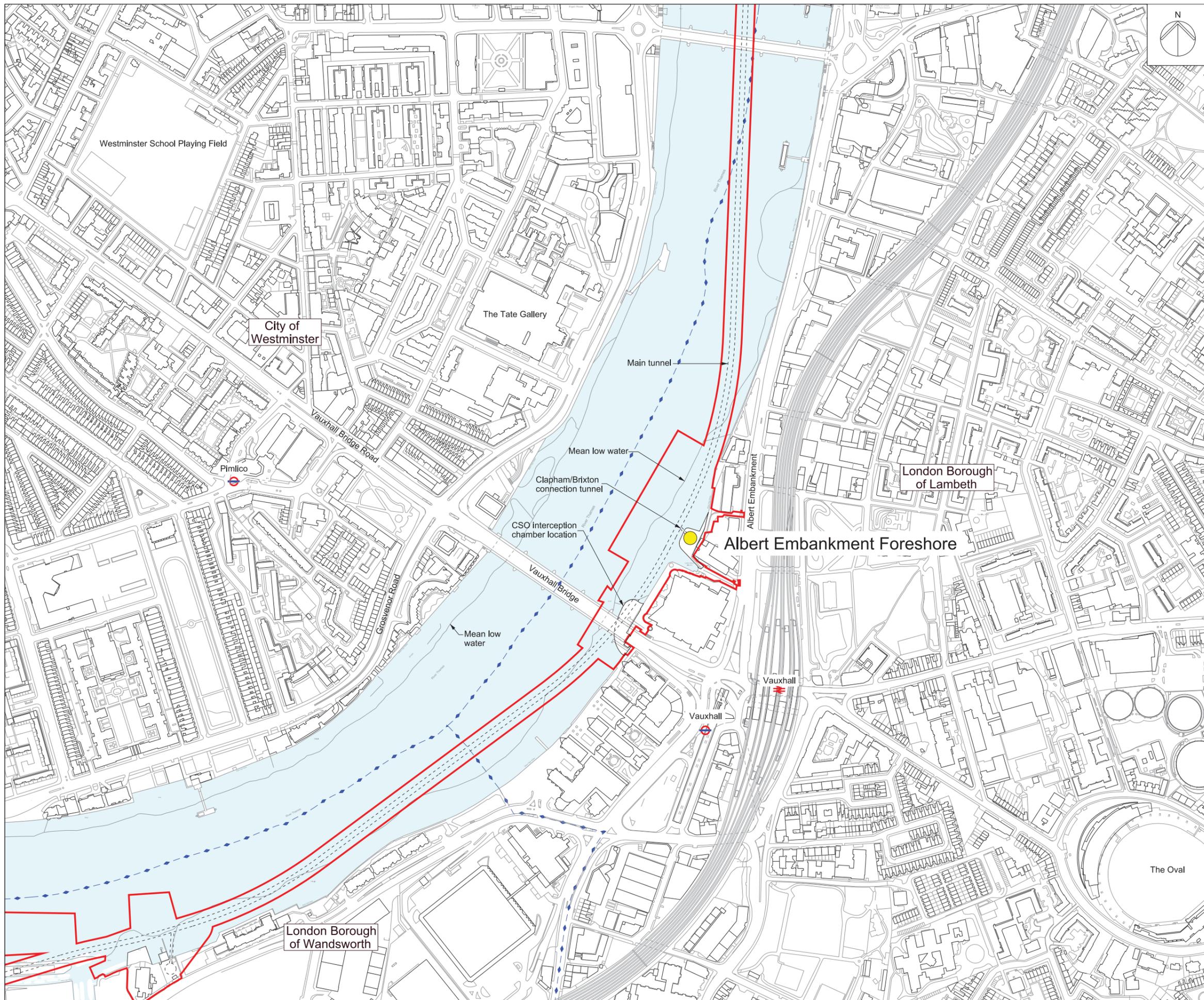
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London Borough of Lambeth

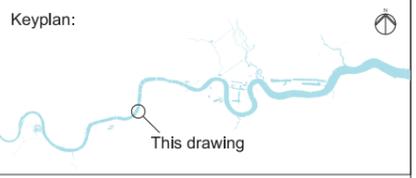
Document Information
Heritage Statement
Conservation areas map

PL03-HE-65239
January 2013





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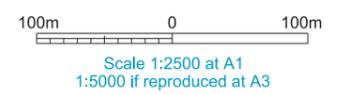


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:
- Local authority boundary
 - Order limits
 - Tunnel
 - Shaft

Notes:

1. The alignment of the tunnels are illustrative within limits of deviation.



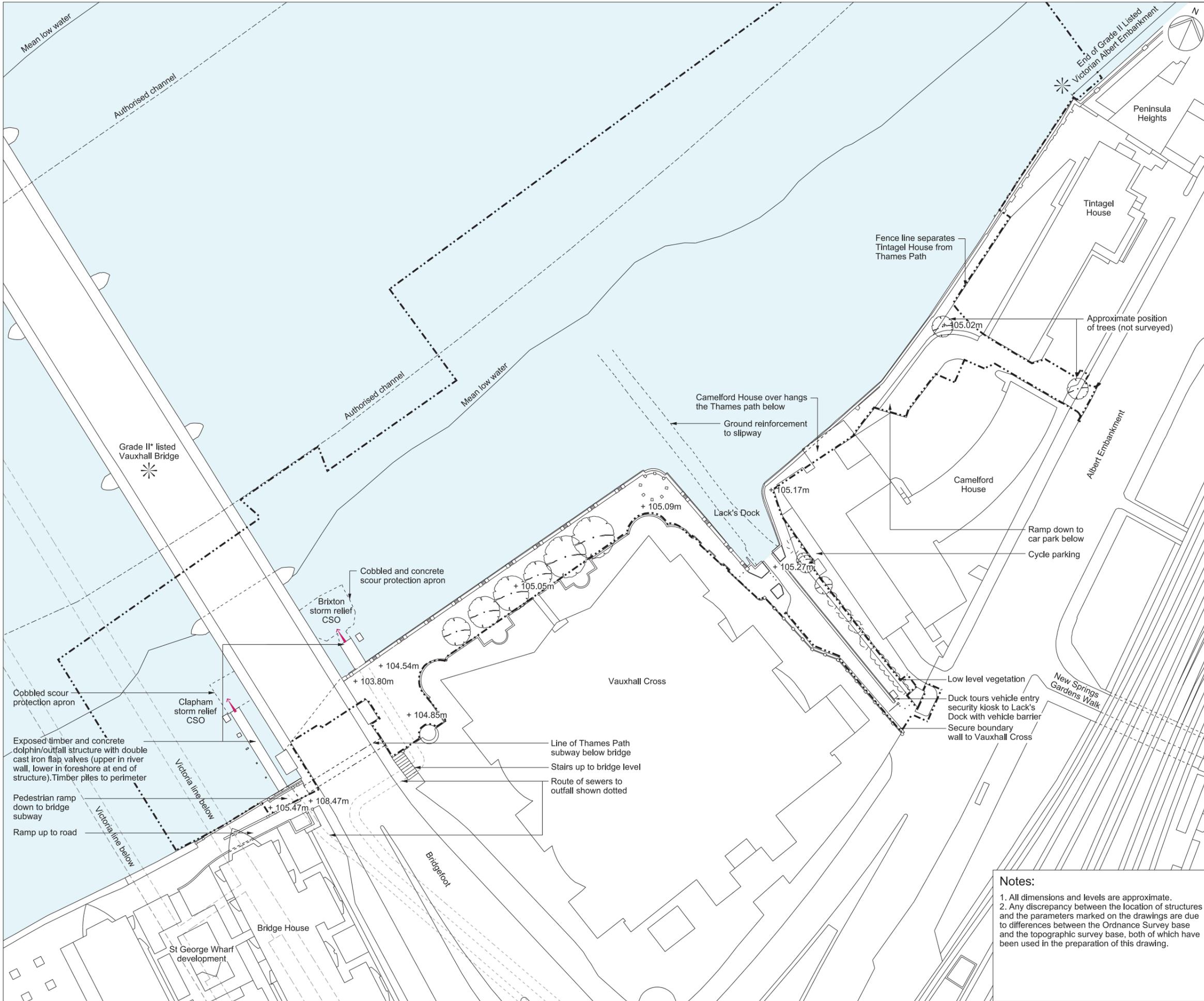
FOR INFORMATION

Location
Albert Embankment Foreshore
 London Borough of Lambeth

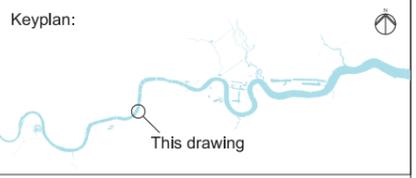
Document Information
Application for Development Consent
 Location plan

Book of plans - section 17
 DCO-PP-15X-ALBEF-170001
 January 2013





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- Key:**
- Limits of land to be acquired or used (LLAU)
 - - - - - Authorised channel
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - ✱ Listed buildings/structures
 - Approximate position of CSO outlet
 - ⊙ Existing trees within surveyed area (trunk sizes vary)



FOR INFORMATION

Location
Albert Embankment Foreshore
 London Borough of Lambeth

Document Information
Application for Development Consent

As existing
 Site features plan
 Book of plans - section 17
 DCO-PP-15X-ALBEF-170002
 January 2013



Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.



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Keyplan:

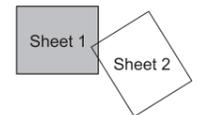


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Key:

- Limits of land to be acquired or used (LLAU)
- + 105.40m Existing levels (shown in metres above tunnel datum)
- ✳ Listed buildings/structures
- Approximate position of CSO outlet
- ⊙ Existing trees within surveyed area (trunk sizes vary)

Sheet Layout:



10m 0 10m

Scale 1:200 at A1
1:400 if reproduced at A3

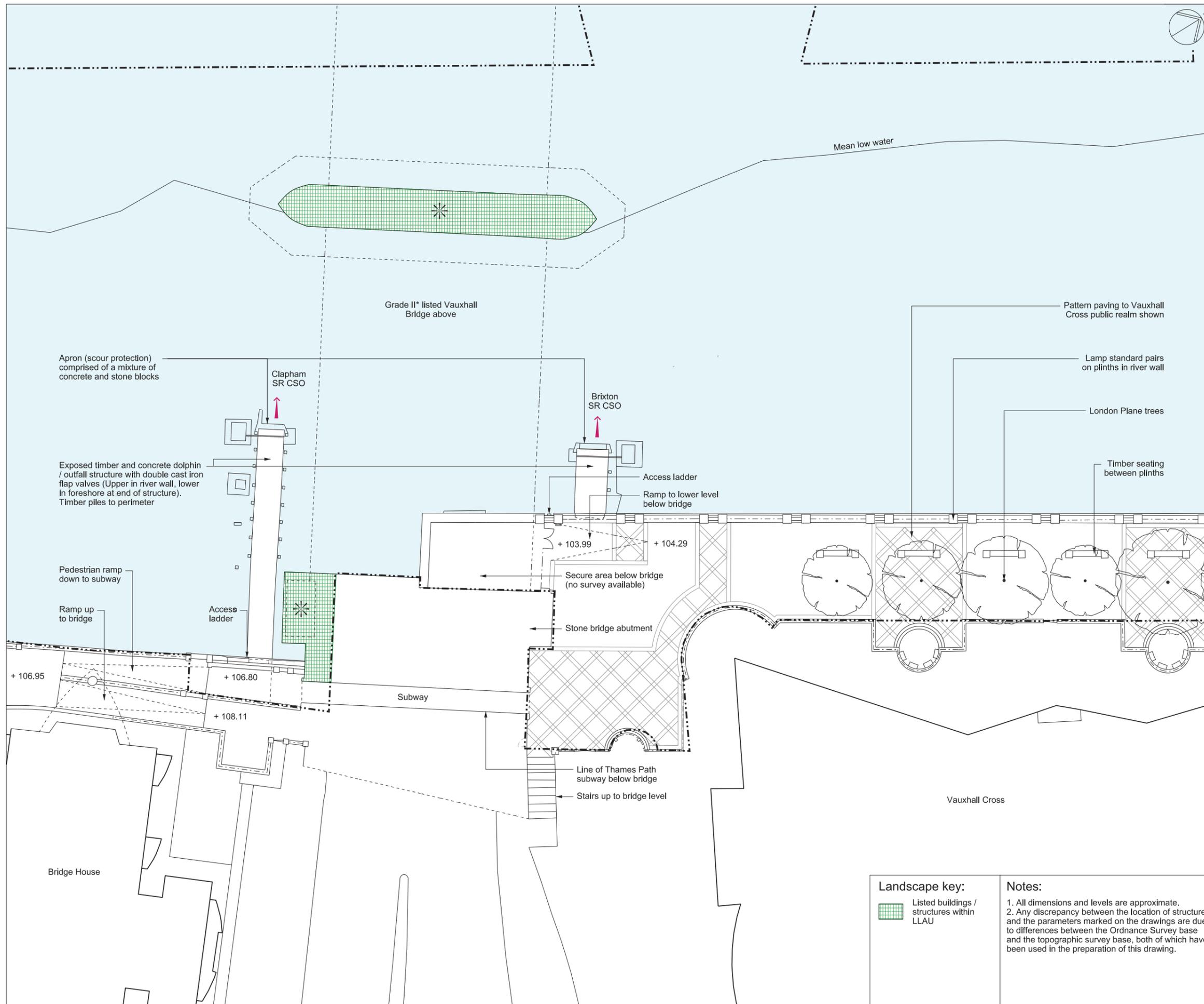
FOR INFORMATION

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent

As existing
Landscape plan - interception structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170003
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

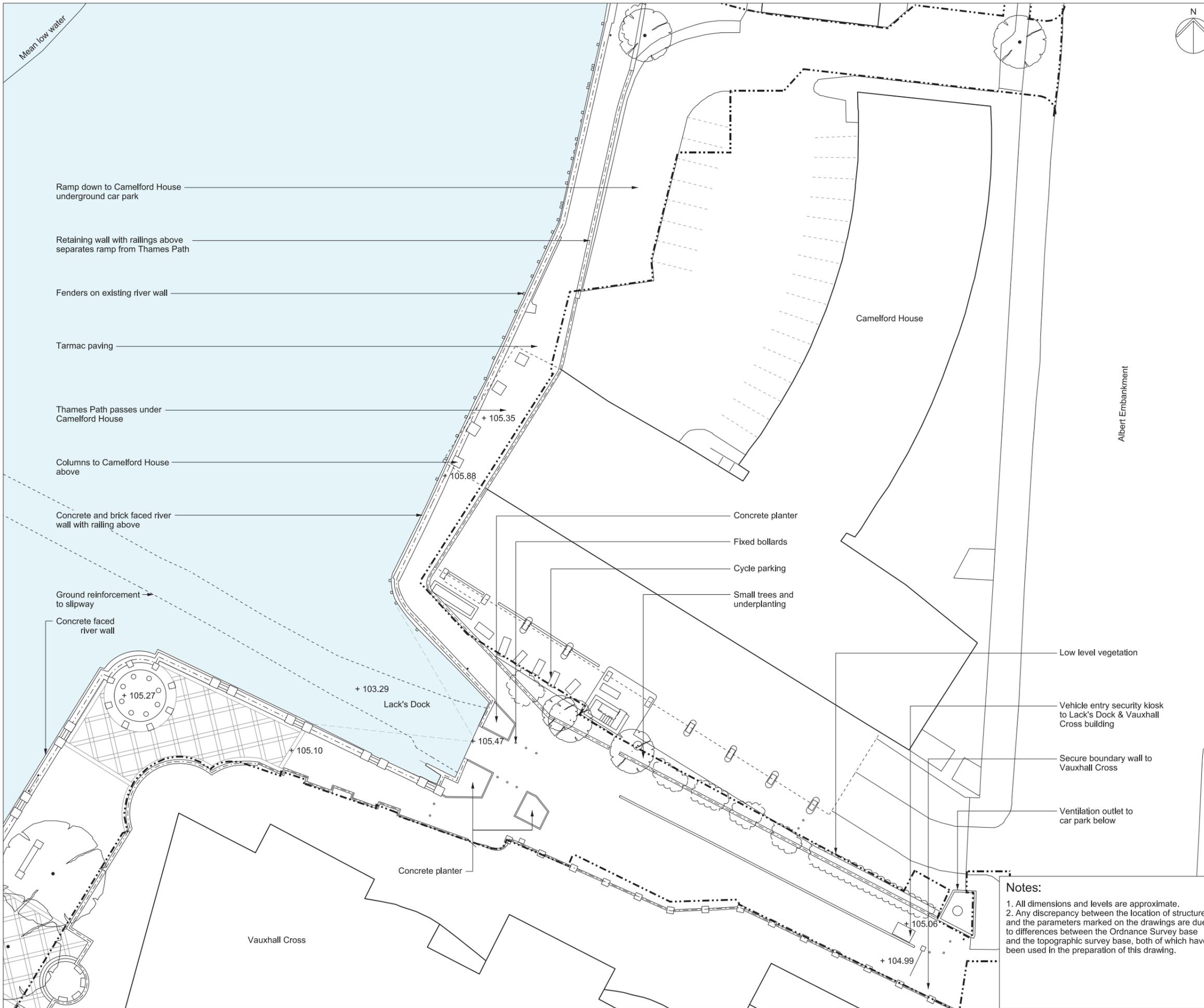


Landscape key:

- Listed buildings / structures within LLAU

Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.

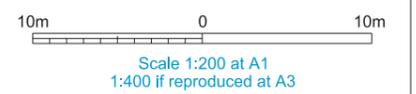
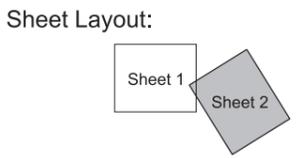


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- Key:**
- Limits of land to be acquired or used (LLAU)
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - Existing trees within surveyed area (trunk sizes vary)



FOR INFORMATION

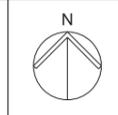
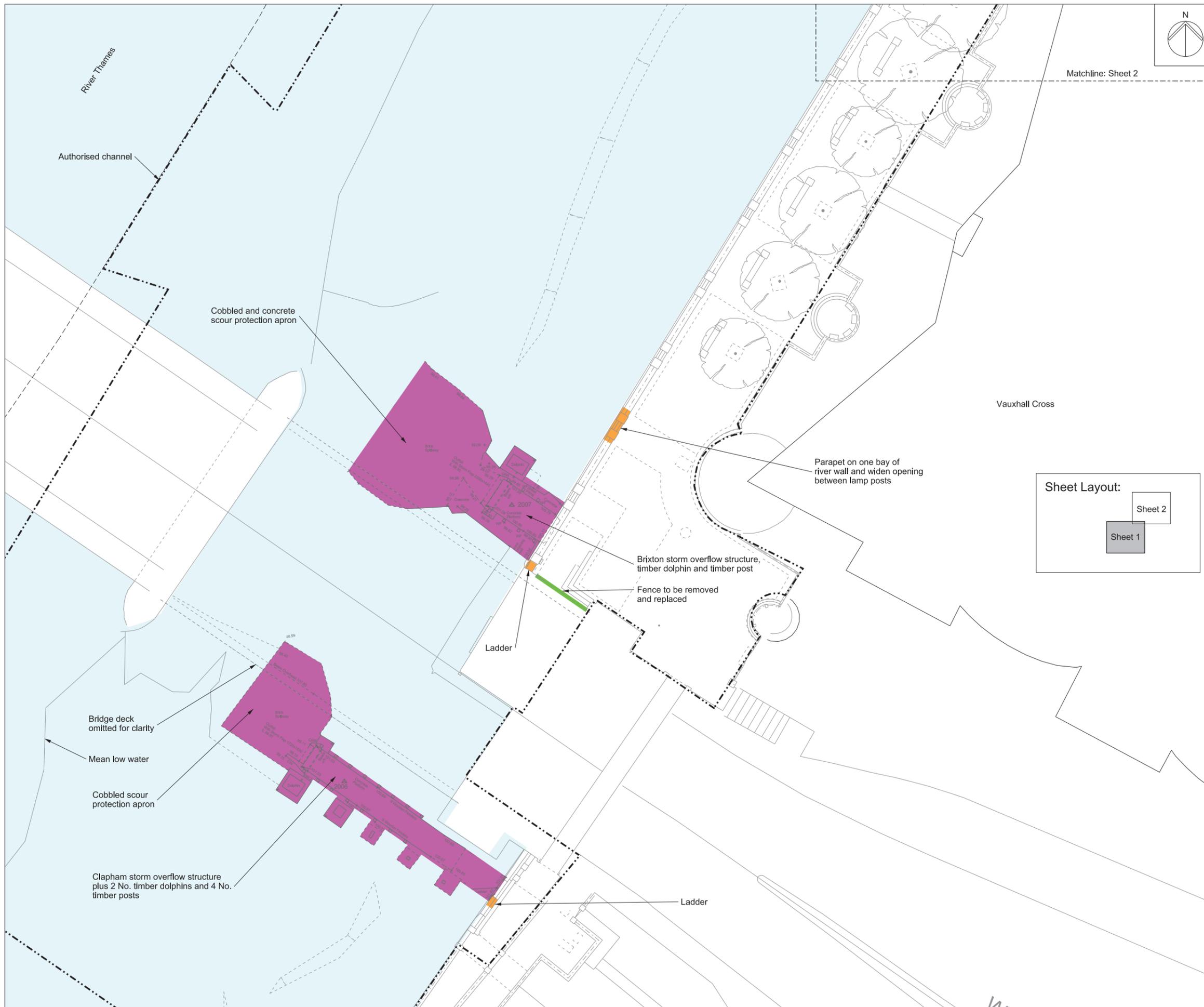
Location
Albert Embankment Foreshore
 London Borough of Lambeth

Document Information
Application for Development Consent
 As existing
 Landscape plan - shaft structure
 Book of plans - section 17
 DCO-PP-15X-ALBEF-170004
 January 2013



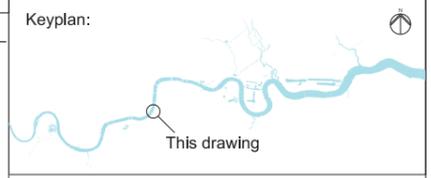
Notes:

1. All dimensions and levels are approximate.
2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.



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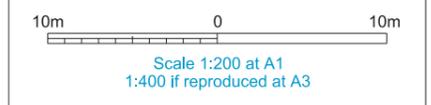
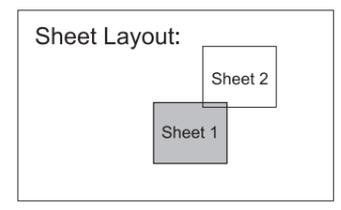
Matchline: Sheet 2



Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Above ground structures to be removed
 - Below ground structures to be removed or infilled
 - Structure to be removed and relocated or reinstated

- Notes:**
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.

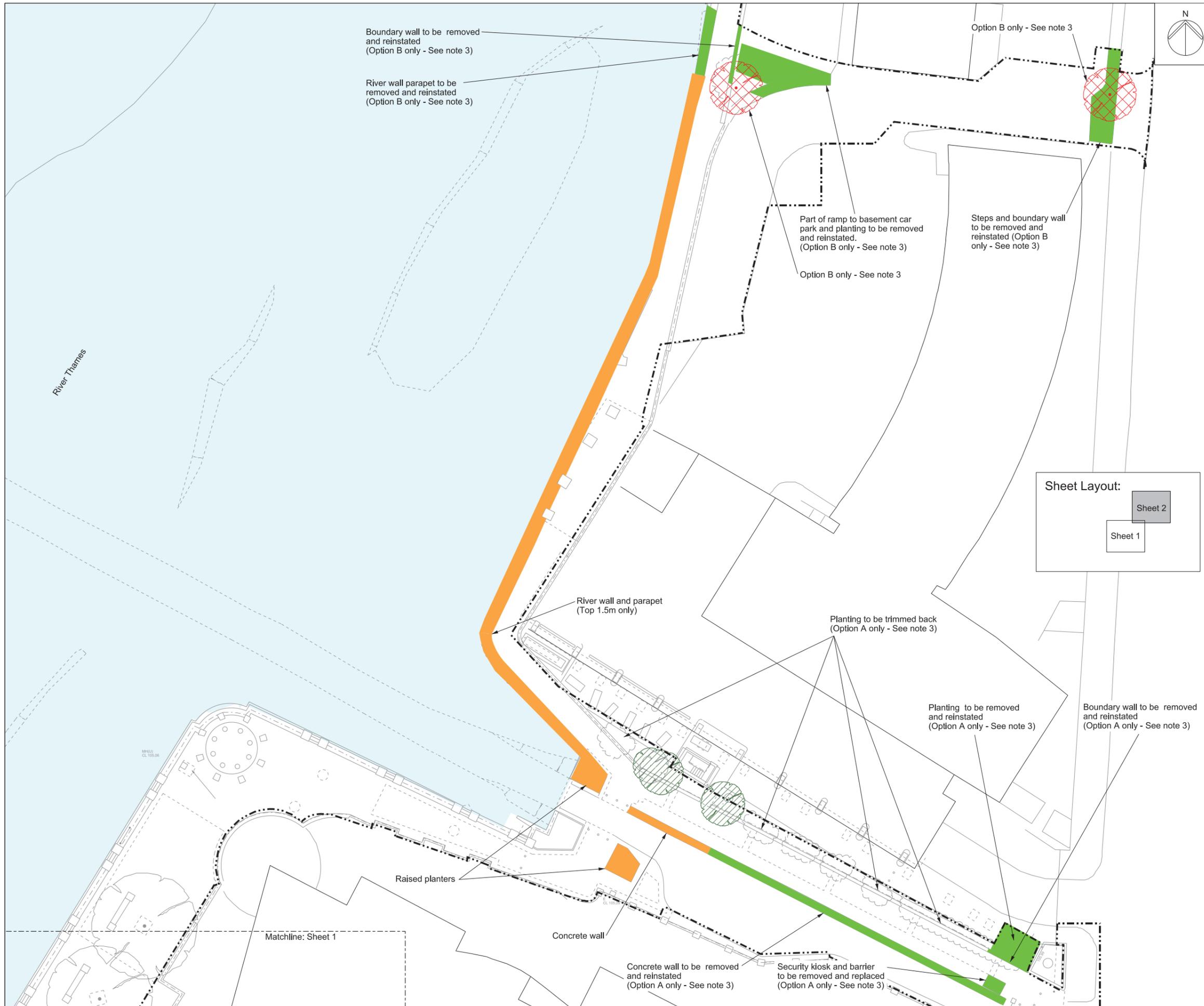


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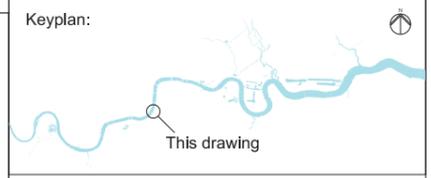
Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Demolition and site clearance
Sheet 1 of 2
Book of plans - section 17
DCO-PP-15X-ALBEF-170006
January 2013





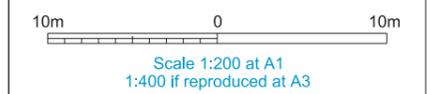
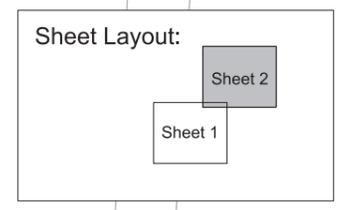
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Trees to be removed
 - Trees to be pruned
 - Above ground structures to be removed
 - Structure to be removed and relocated or reinstated

- Notes:**
1. Minor items to be removed (e.g. barriers, bollards etc.) are not shown.
 2. General activities of site clearance such as removal of hardstanding and foundations, stripping of topsoil and clearance of minor vegetation not shown.
 3. Option A refers to construction access from Lack's Dock. Elements that are applicable to Option A only, and not to Option B are annotated accordingly. Option B refers to construction access between Camelford House and Tintagel House. Elements that are applicable to Option B only, and not to Option A are annotated accordingly. All other elements apply, regardless of which Option is selected.



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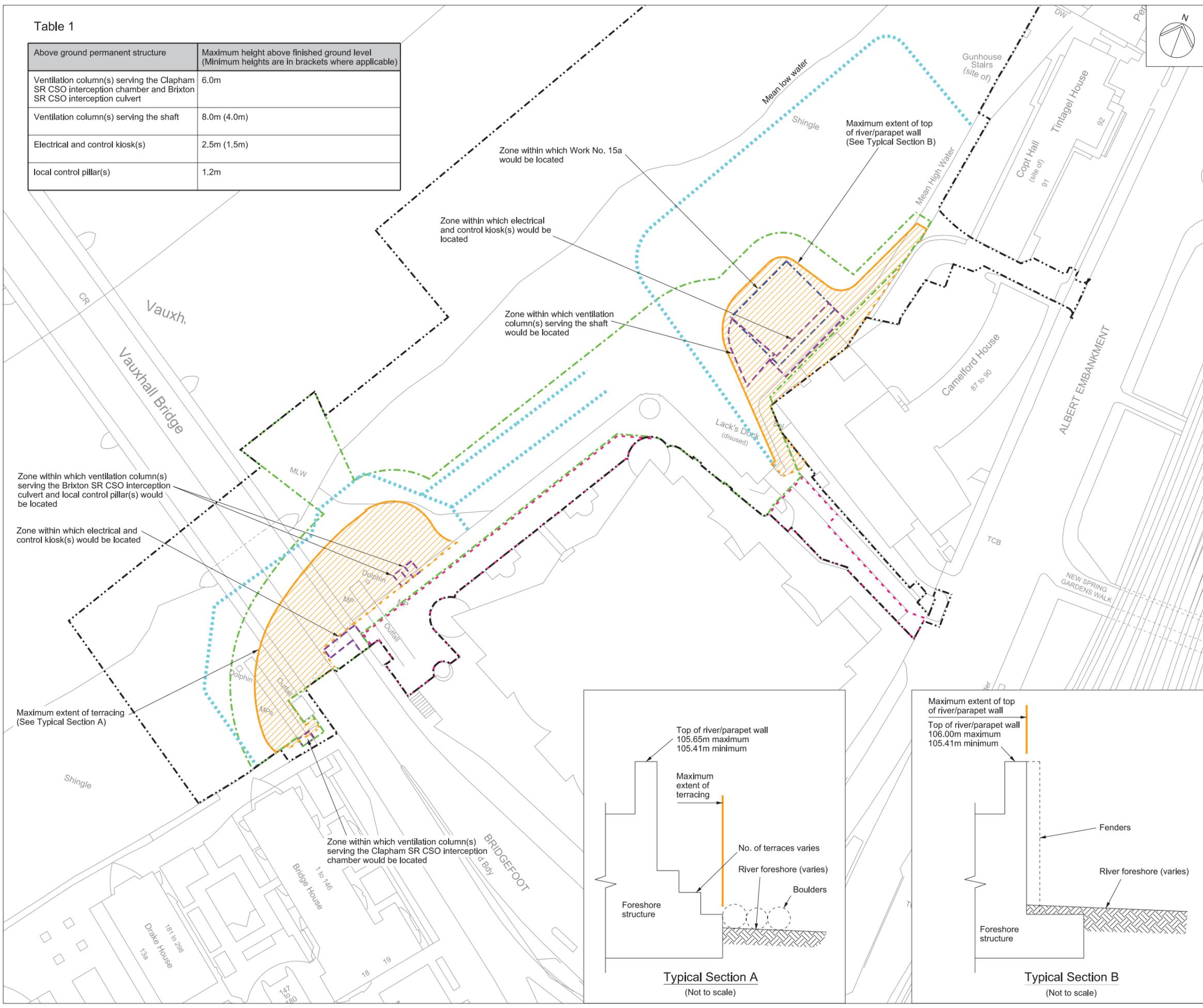
Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Demolition and site clearance
Sheet 2 of 2
Book of plans - section 17
DCO-PP-15X-ALBEF-170007
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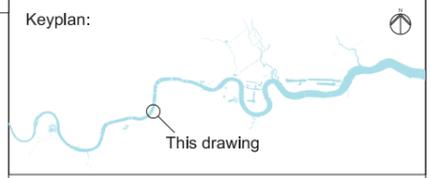


Table 1

Above ground permanent structure	Maximum height above finished ground level (Minimum heights are in brackets where applicable)
Ventilation column(s) serving the Clapham SR CSO interception chamber and Brixton SR CSO interception culvert	6.0m
Ventilation column(s) serving the shaft	8.0m (4.0m)
Electrical and control kiosk(s)	2.5m (1.5m)
local control pillar(s)	1.2m



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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which all permanent site structures would be located
 - Zone within which the shaft would be located
 - Zone within which permanent above ground structures would be located (those listed in Table 1)
 - Zone within which required landscaping would be located
 - Limits of permanent access
 - Maximum extent of top of river/parapet wall or terracing
 - Maximum extent of temporary works platform

- Notes:**
1. All dimensions and levels are approximate.
 2. The Site Works Parameter Key Plan identifies each zone independently.
 3. The zone within which the shaft would be located would include all permanent works including shaft walls (including appropriate allowances for construction tolerances) and if applicable under-reaming. Shaft construction temporary works may be located within or outside this zone provided they are located within the Limits of land to be acquired or used.

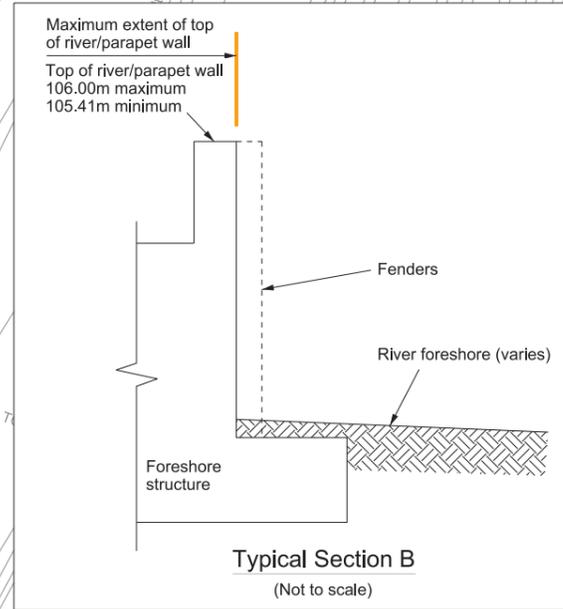
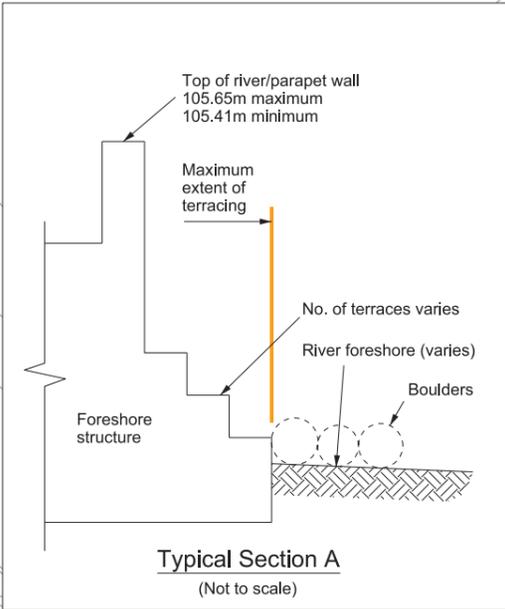


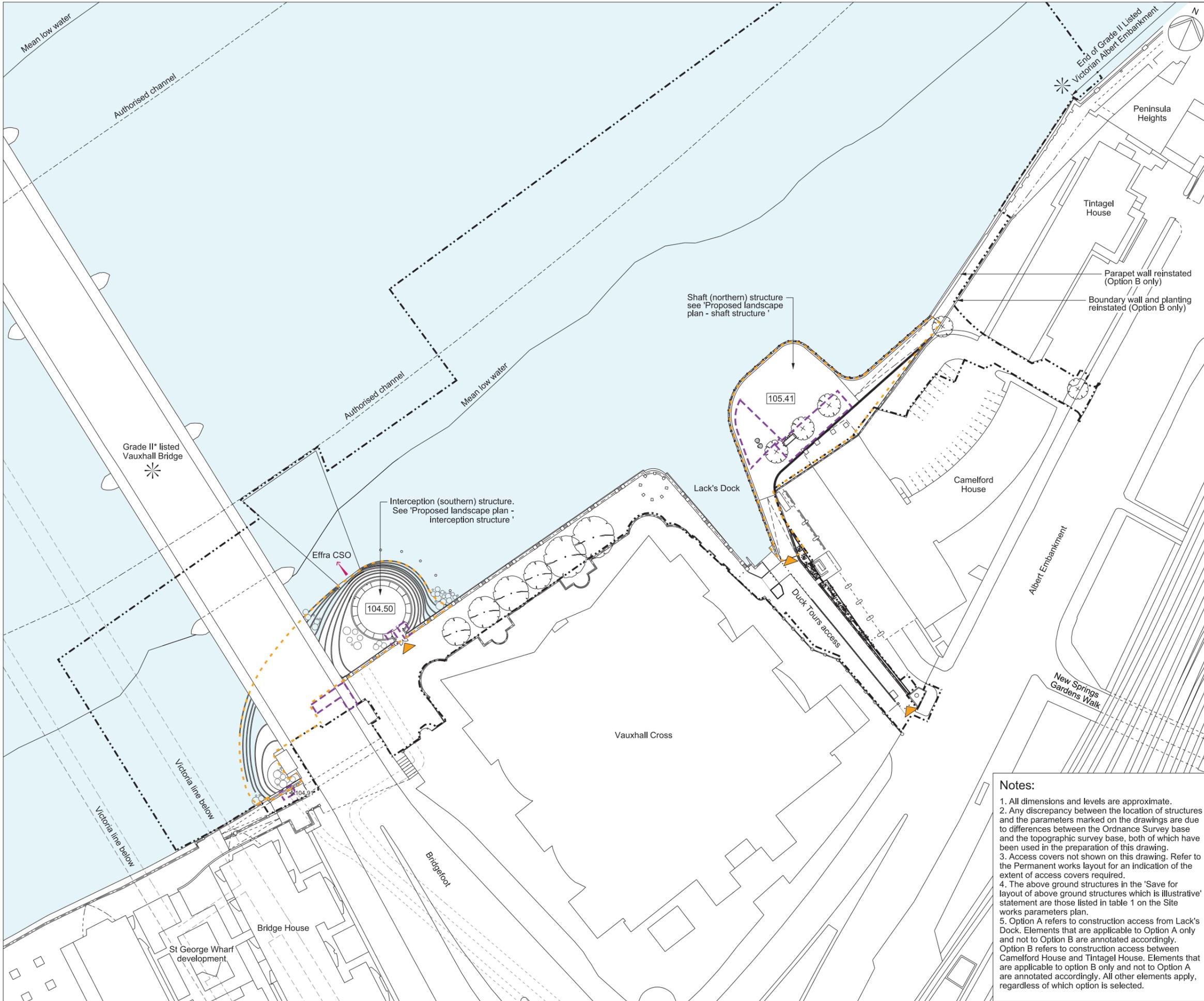
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Location
Albert Embankment Foreshore
London Borough of Lambeth

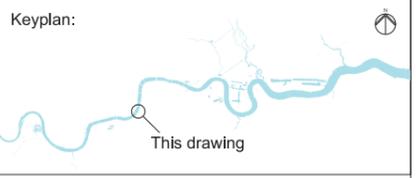
Document Information
Application for Development Consent
Site works parameter plan

Book of plans - section 17
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- Key:**
- Limits of land to be acquired or used (LLAU)
 - - - - - Authorised channel
 - - - - - Zone within which permanent above ground structures would be located
 - - - - - Zone within which required landscaping would be located
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - * Listed buildings/structures
 - Approximate position of CSO outlet
 - ⊙ Existing trees within surveyed area (trunk sizes vary)
 - ⊕ Proposed trees
 - ▶ Thames Water access



INDICATIVE
Save for layout of above ground structures which is illustrative

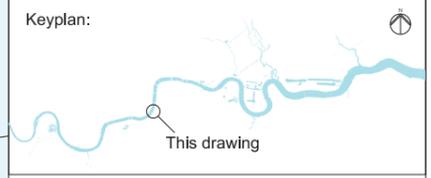
- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
 3. Access covers not shown on this drawing. Refer to the Permanent works layout for an indication of the extent of access covers required.
 4. The above ground structures in the 'Save for layout of above ground structures which is illustrative' statement are those listed in table 1 on the Site works parameters plan.
 5. Option A refers to construction access from Lack's Dock. Elements that are applicable to Option A only and not to Option B are annotated accordingly. Option B refers to construction access between Camelford House and Tintagel House. Elements that are applicable to option B only and not to Option A are annotated accordingly. All other elements apply, regardless of which option is selected.

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
Site features plan
Book of plans - section 17
DCO-PP-15X-ALBEF-170012
January 2013



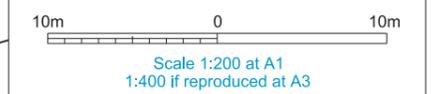
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - - - Zone within which permanent above ground structures would be located
 - . - . Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - * Listed buildings/structures
 - Approximate position of CSO outlet
 - ⊙ Existing trees within surveyed area (trunk sizes vary)

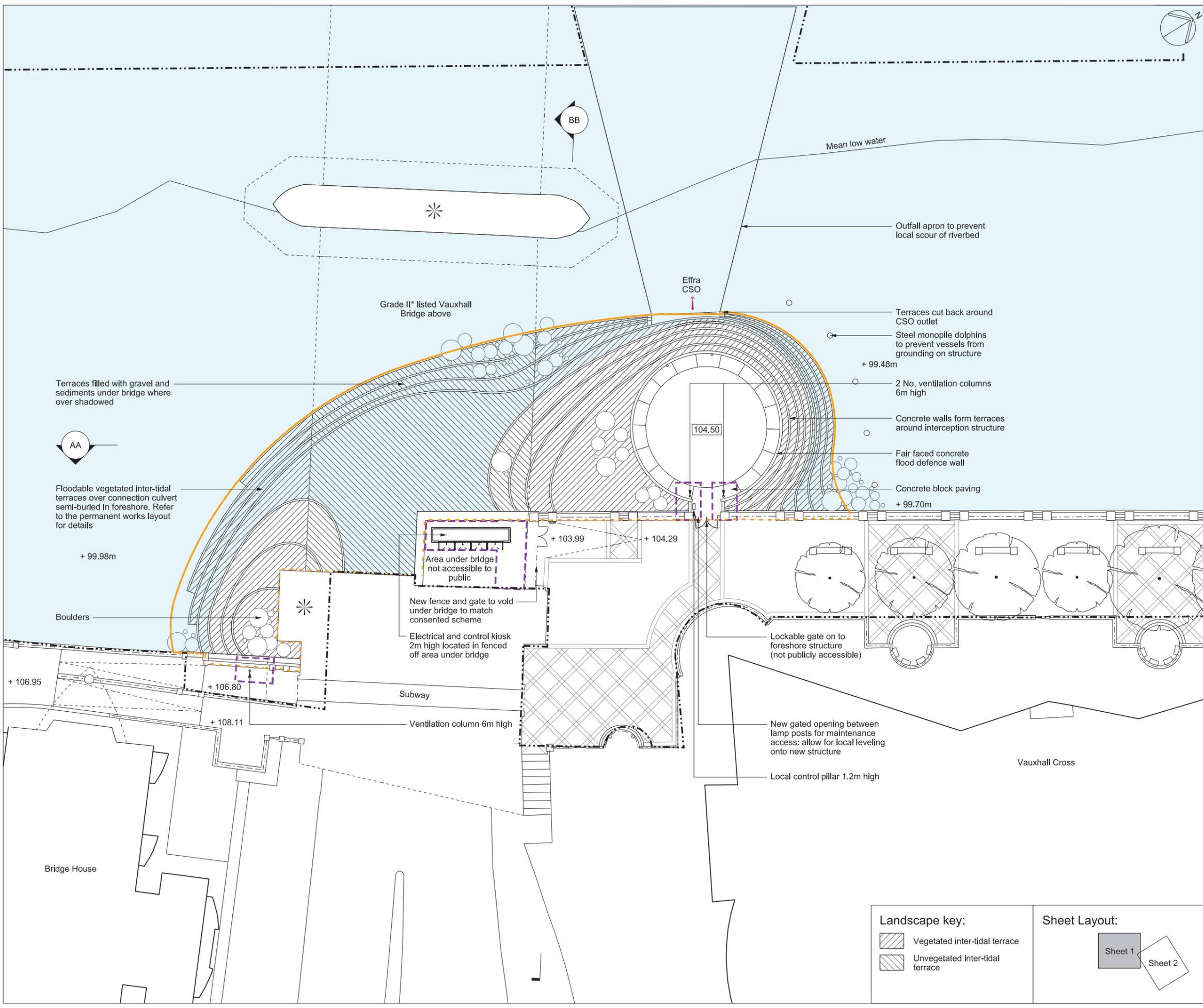
- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
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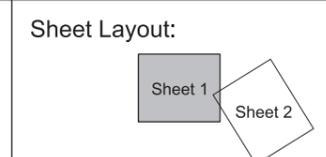
INDICATIVE
Save for layout of above ground structures which is illustrative

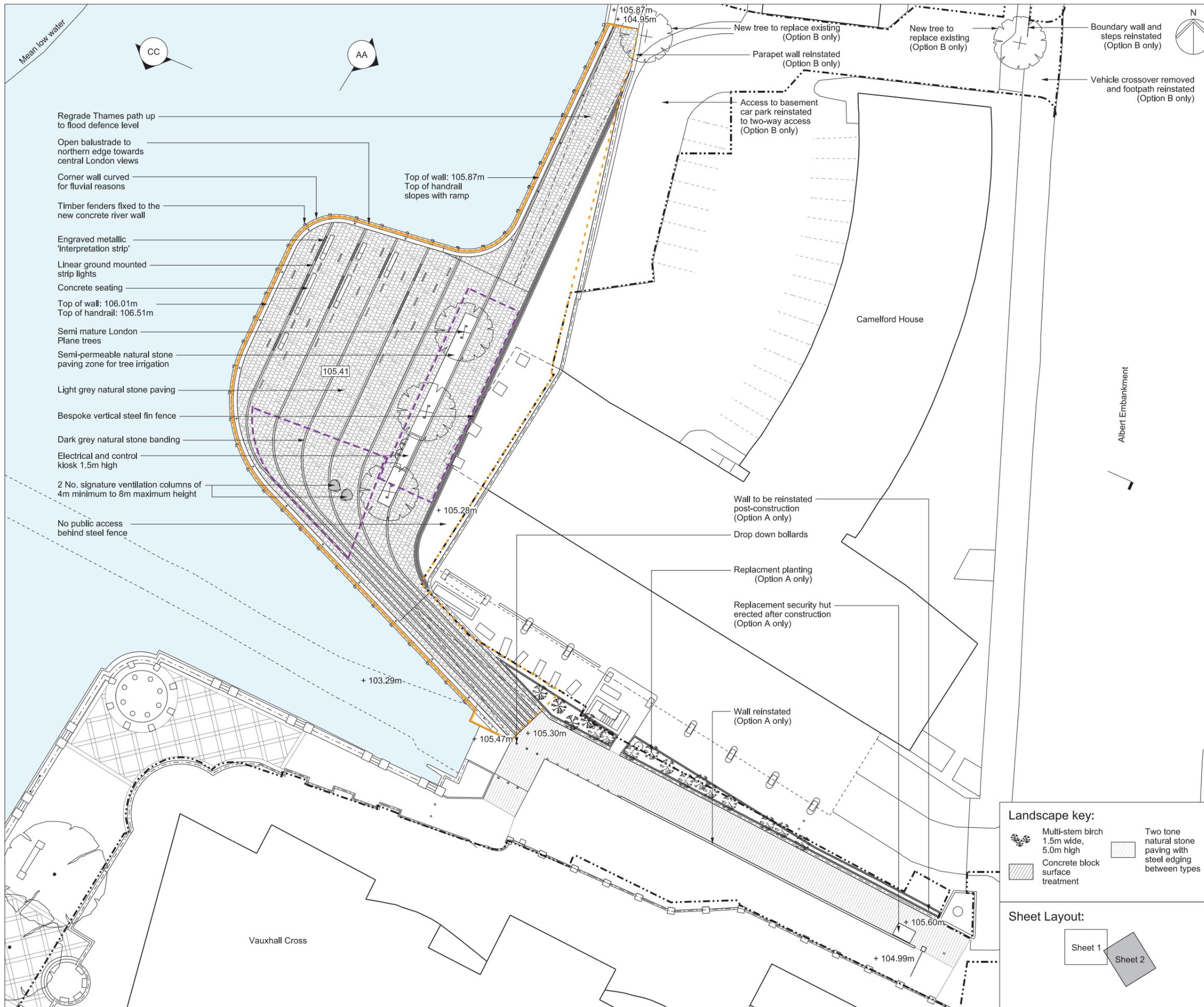
Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
Landscape plan - interception structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170013
January 2013



- Landscape key:**
- ▨ Vegetated inter-tidal terrace
 - ▨ Unvegetated inter-tidal terrace





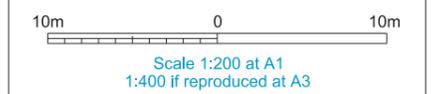
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

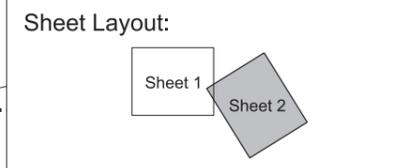
- Key:**
- Limits of land to be acquired or used (LLAU)
 - - - Zone within which permanent above ground structures would be located
 - . - . Zone within which required landscaping would be located
 - Maximum extent of foreshore structure
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - ⊙ Existing trees within surveyed area (trunk sizes vary)
 - ⊕ Proposed trees

- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.
 3. Access covers not shown on this drawing. Refer to the Permanent works layout for an indication of the extent of access covers required.
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INDICATIVE
Save for layout of above ground structures which is illustrative

- Landscape key:**
- Multi-stem birch 1.5m wide, 5.0m high
 - Concrete block surface treatment
 - Two tone natural stone paving with steel edging between types



Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
Landscape plan - shaft structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170014
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames

Thames Water

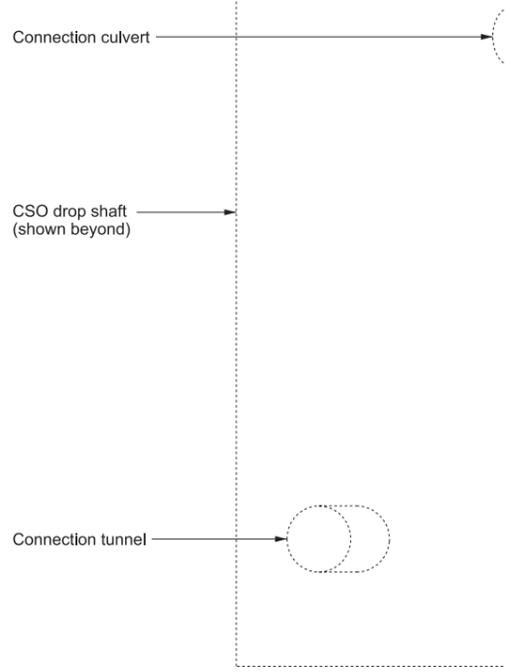
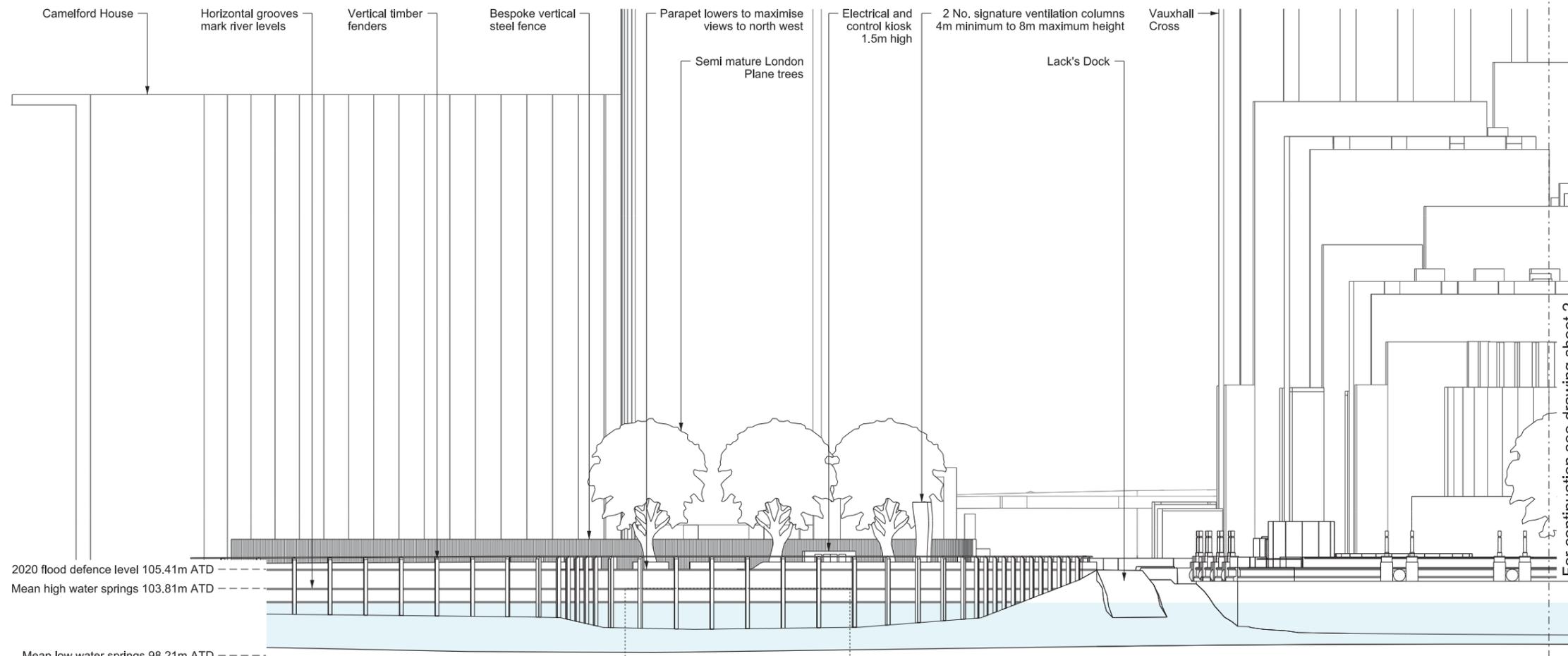
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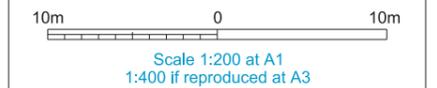
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

1. All dimensions and levels are approximate.
2. The purpose of this section is to show the scale of the below ground infrastructure to be provided.



Sheet Layout:



ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Section AA
Sheet 1 of 2
Book of plans - section 17
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January 2013



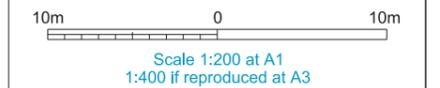
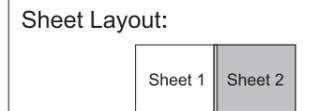
Section AA sheet 1 of 2

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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

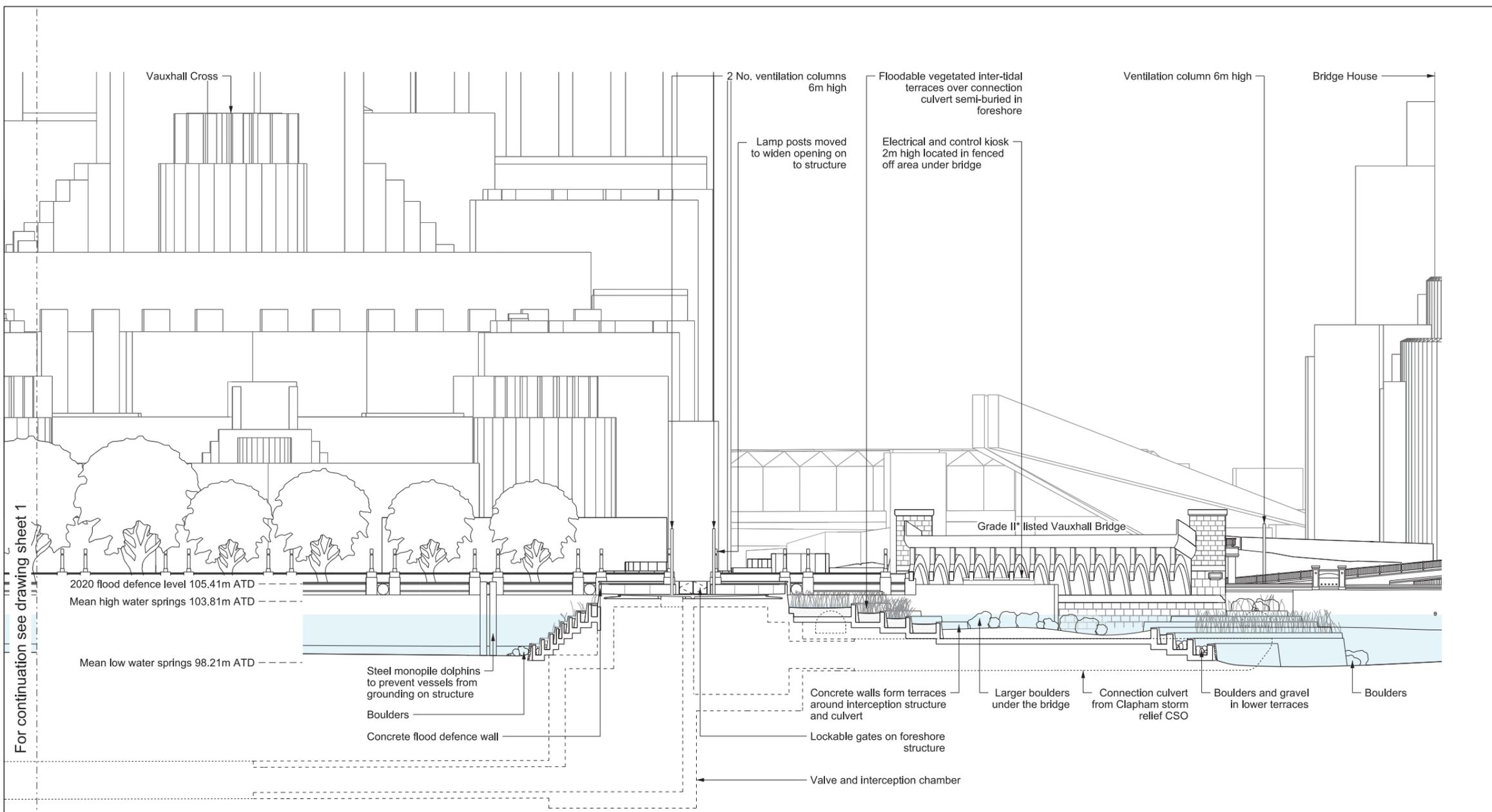
- Notes:
1. All dimensions and levels are approximate.
 2. The purpose of this section is to show the scale of the below ground infrastructure to be provided.



ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Section AA
Sheet 2 of 2
Book of plans - section 17
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January 2013



For continuation see drawing sheet 1

Section AA sheet 2 of 2

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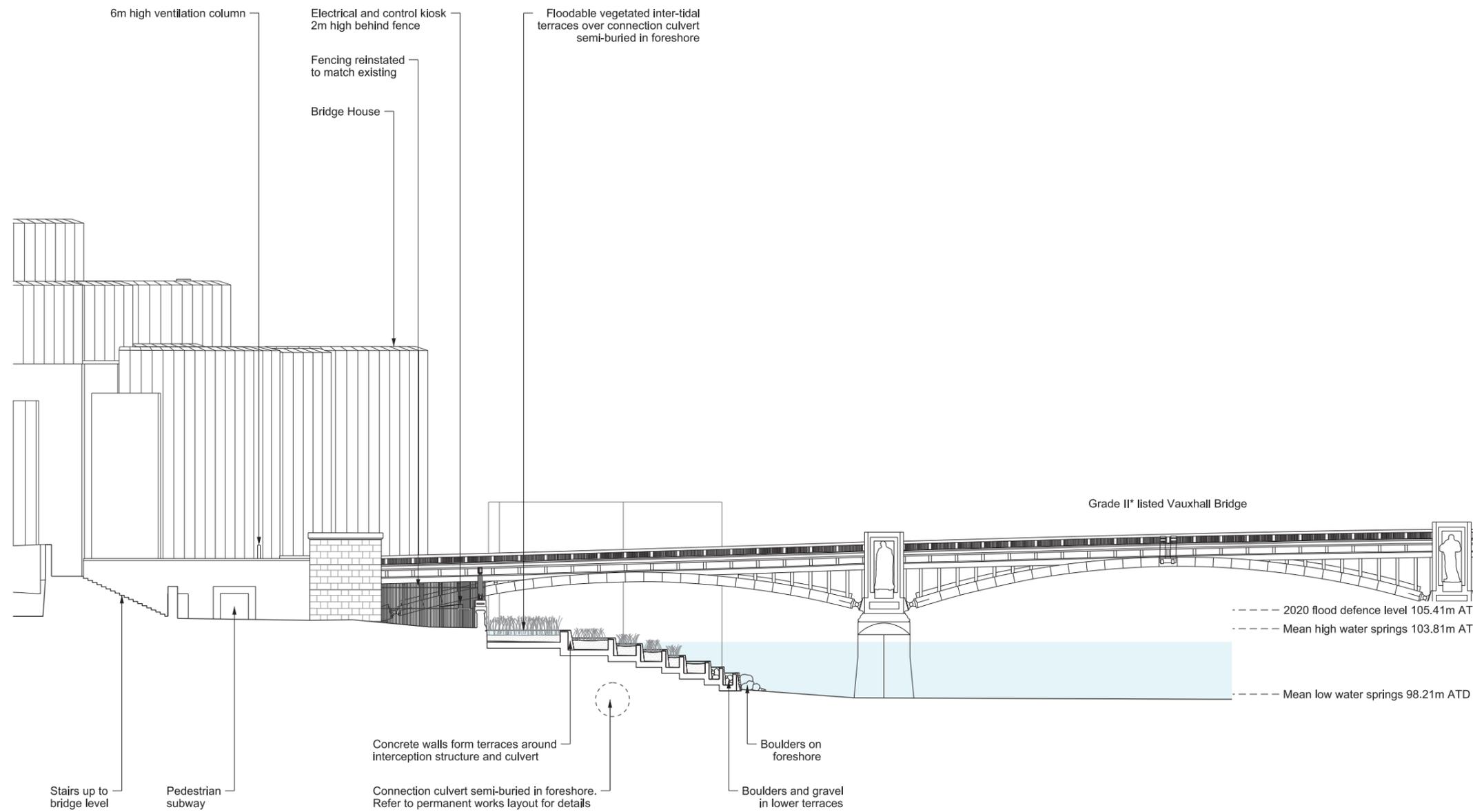
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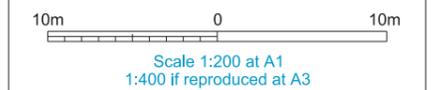
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

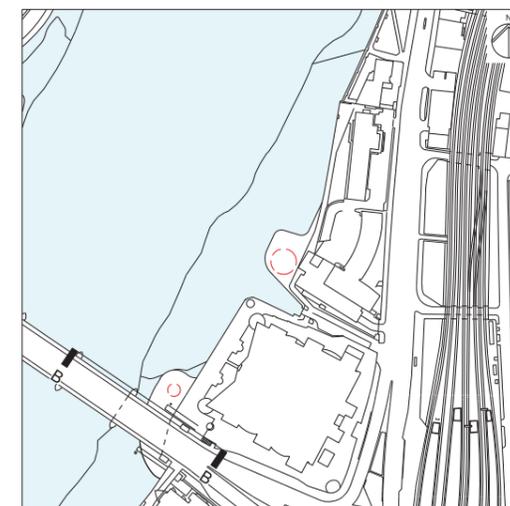
1. All dimensions and levels are approximate.
2. The purpose of this section is to show the scale of the below ground infrastructure to be provided.



Section BB



ILLUSTRATIVE



Location
Albert Embankment Foreshore
 London Borough of Lambeth

Document Information
Application for Development Consent
 Section BB

Book of plans - section 17
 DCO-PP-15X-ALBEF-170017
 January 2013

Thames Tideway Tunnel
 Creating a cleaner, healthier River Thames

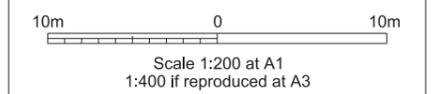
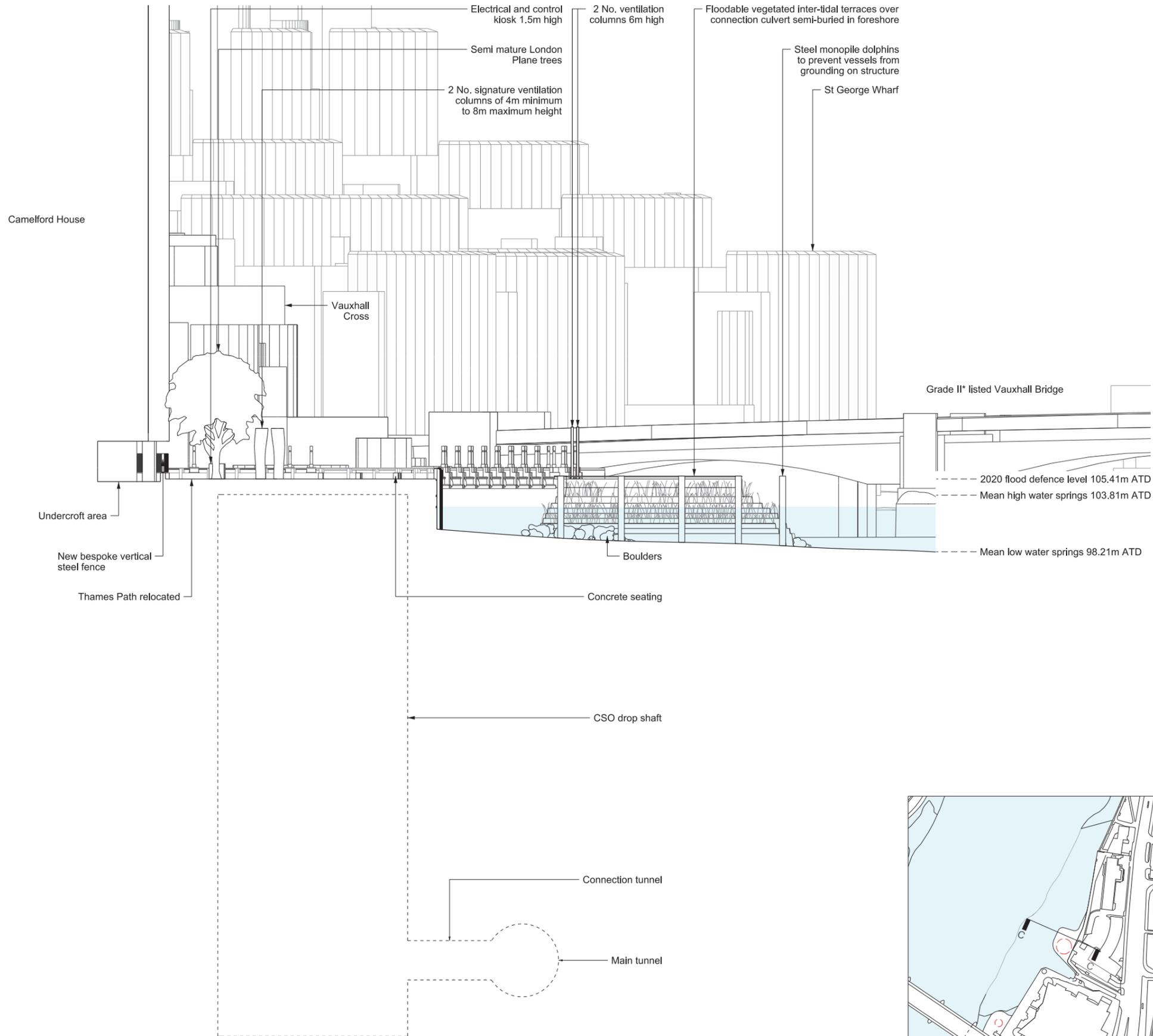


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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Notes:**
1. All dimensions and levels are approximate.
 2. The purpose of this section is to show the scale of the below ground infrastructure to be provided.

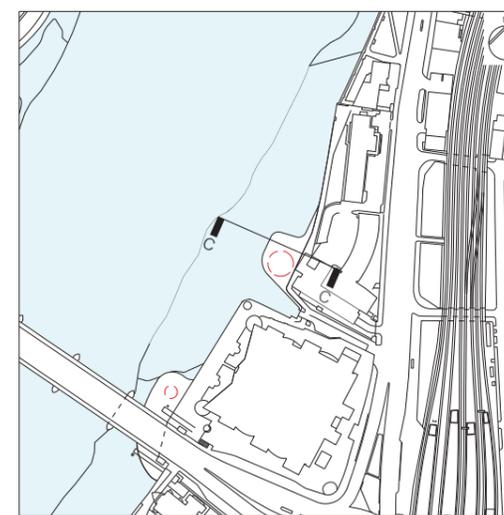


ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Section CC

Book of plans - section 17
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January 2013



Section CC

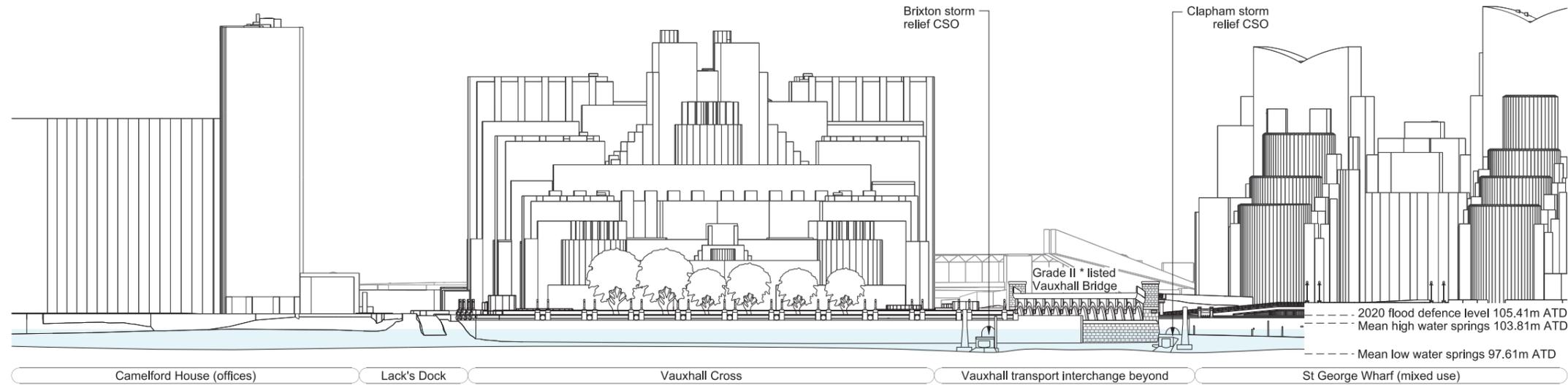
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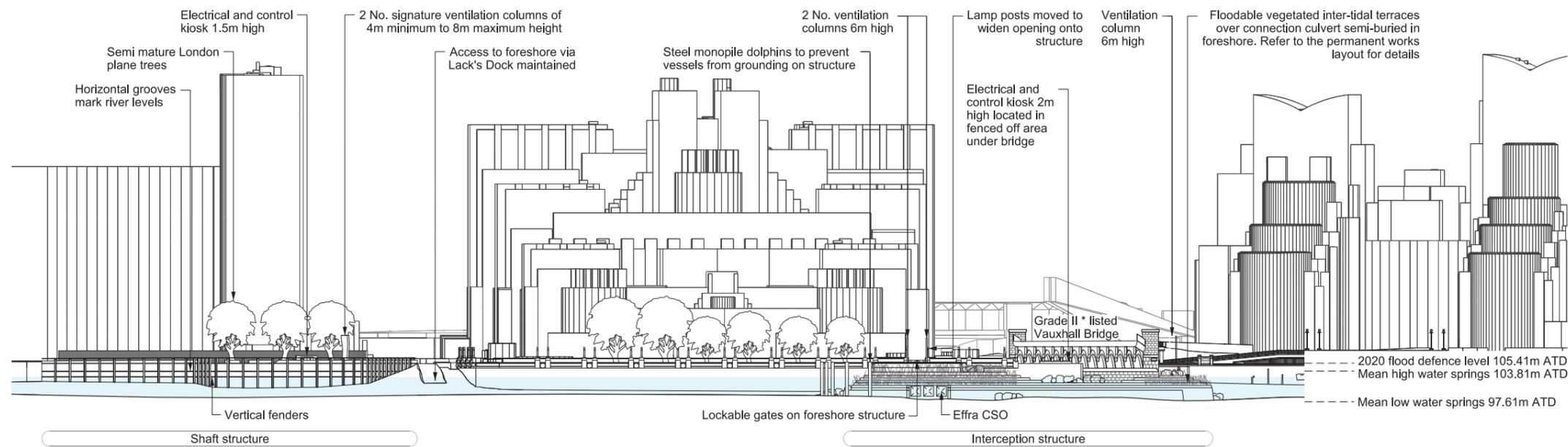
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

1. All dimensions and levels are approximate.



As existing West (river) elevation



Proposed West (river) elevation



Scale 1:500 at A1
1:1000 if reproduced at A3

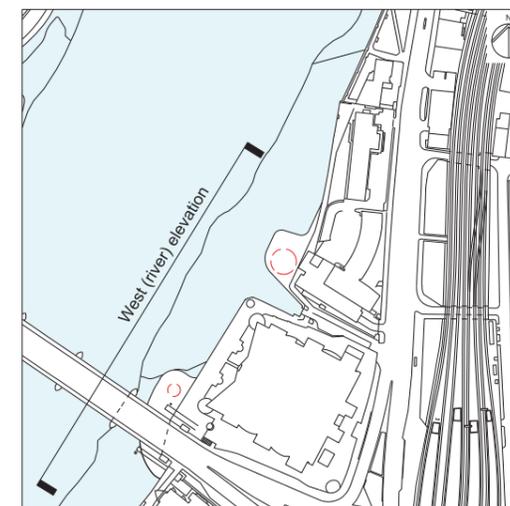
ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent

As existing and proposed
West (river) elevation
Book of plans - section 17
DCO-PP-15X-ALBEF-170019
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



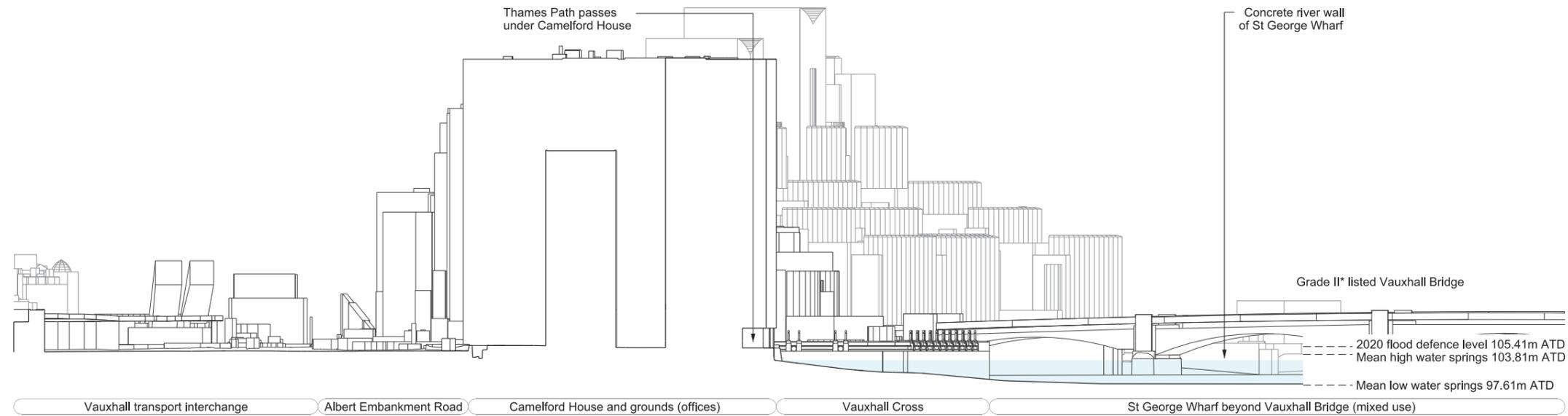
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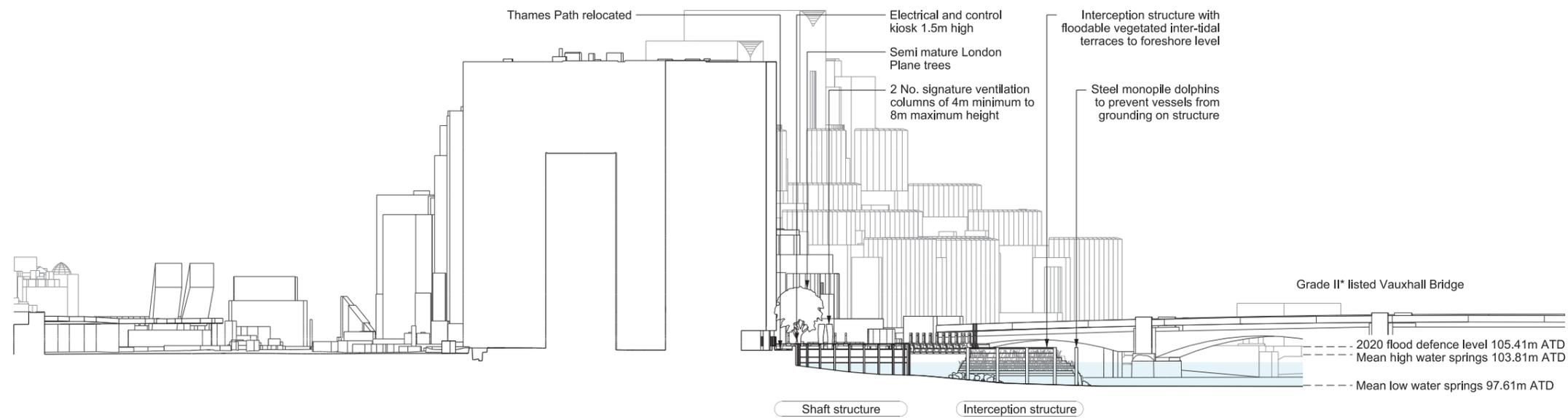
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

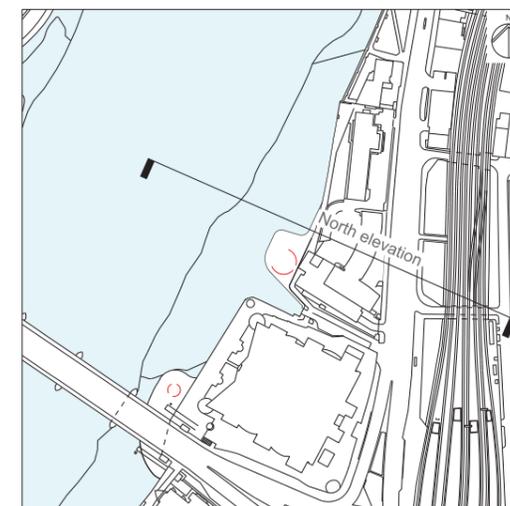
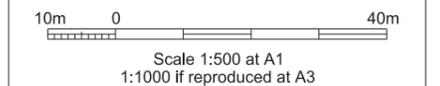
1. All dimensions and levels are approximate.



As existing North elevation



Proposed North elevation



ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
As existing and proposed
North elevation
Book of plans - section 17
DCO-PP-15X-ALBEF-170020
January 2013

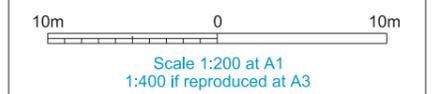
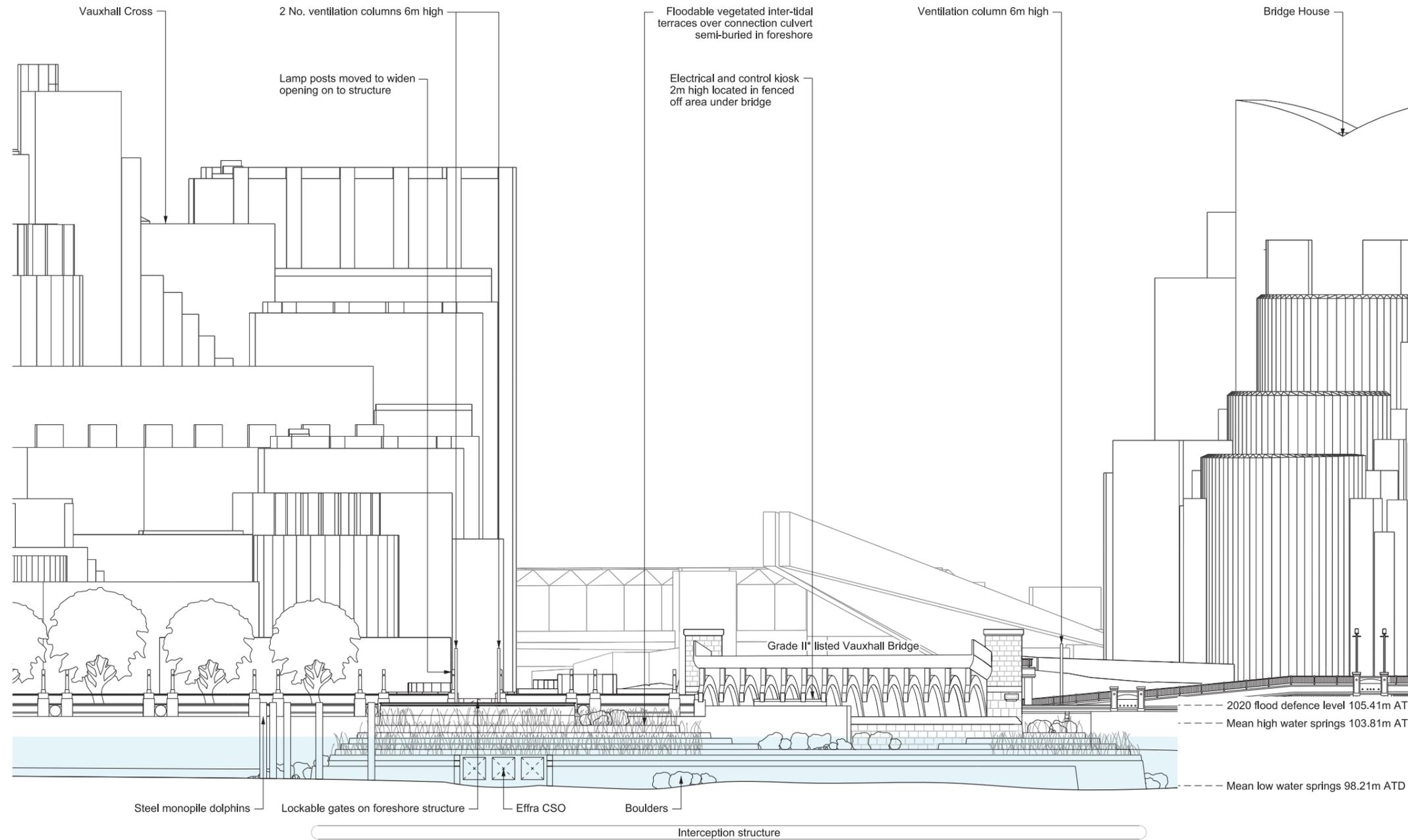


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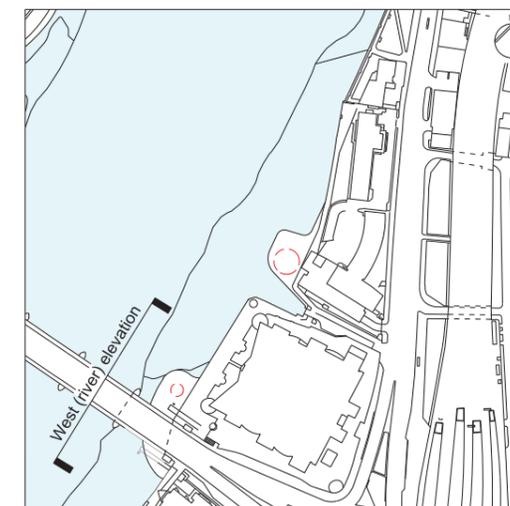


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
1. All dimensions and levels are approximate.



Proposed interception structure West (river) elevation



ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
West (river) elevation - interception structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170021
January 2013

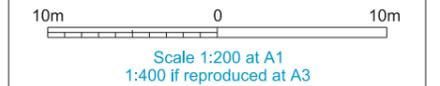
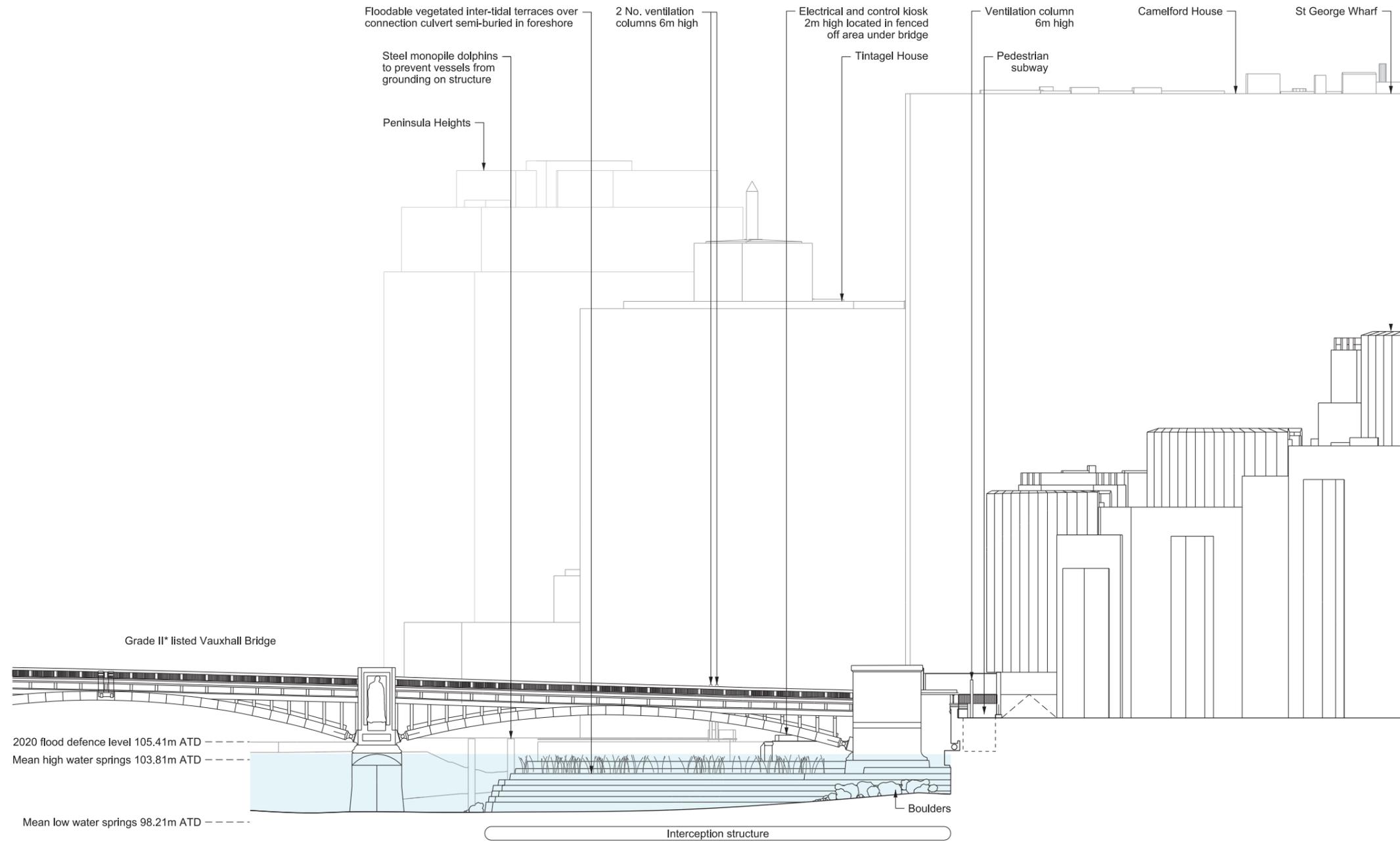


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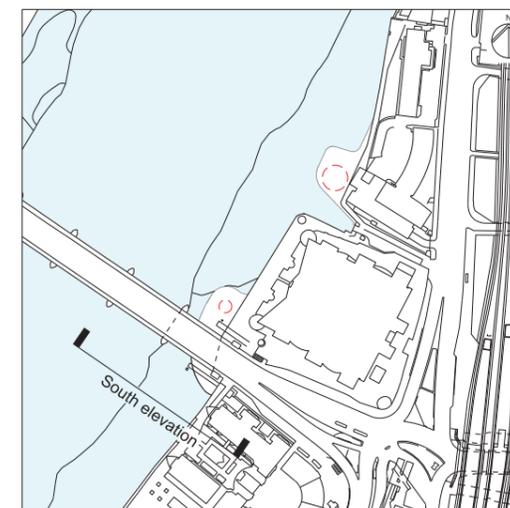


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
1. All dimensions and levels are approximate.



Proposed interception structure South elevation



ILLUSTRATIVE

Location
 Albert Embankment Foreshore
 London Borough of Lambeth

Document Information
 Application for Development Consent
 Proposed
 South elevation - interception structure
 Book of plans - section 17
 DCO-PP-15X-ALBEF-170022
 January 2013



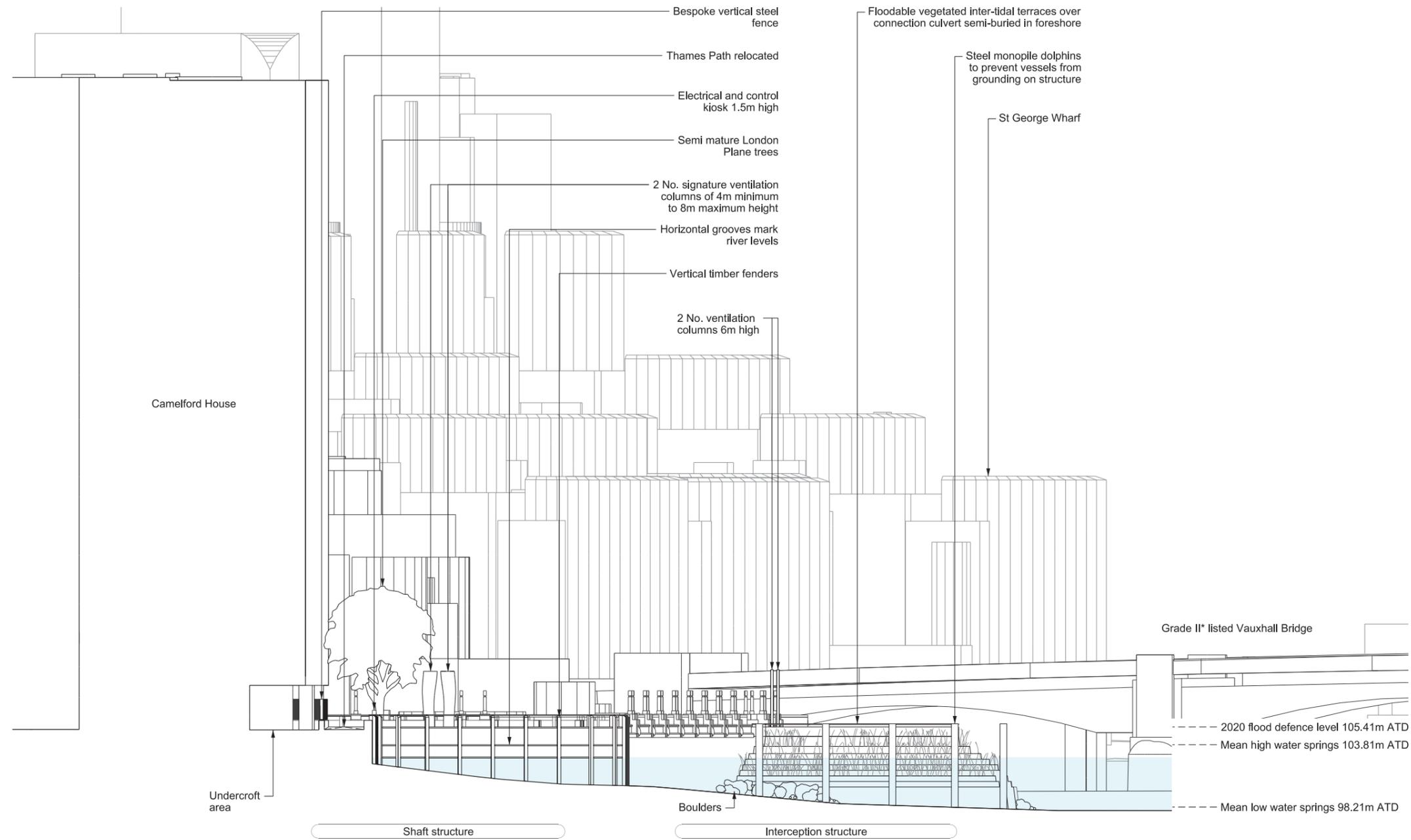
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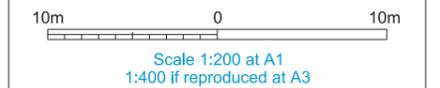
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Notes:

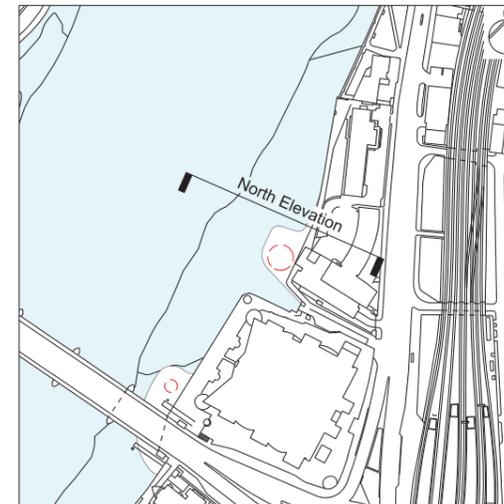
1. All dimensions and levels are approximate.



Proposed shaft structure North elevation



ILLUSTRATIVE



Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
North elevation - shaft structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170023
January 2013

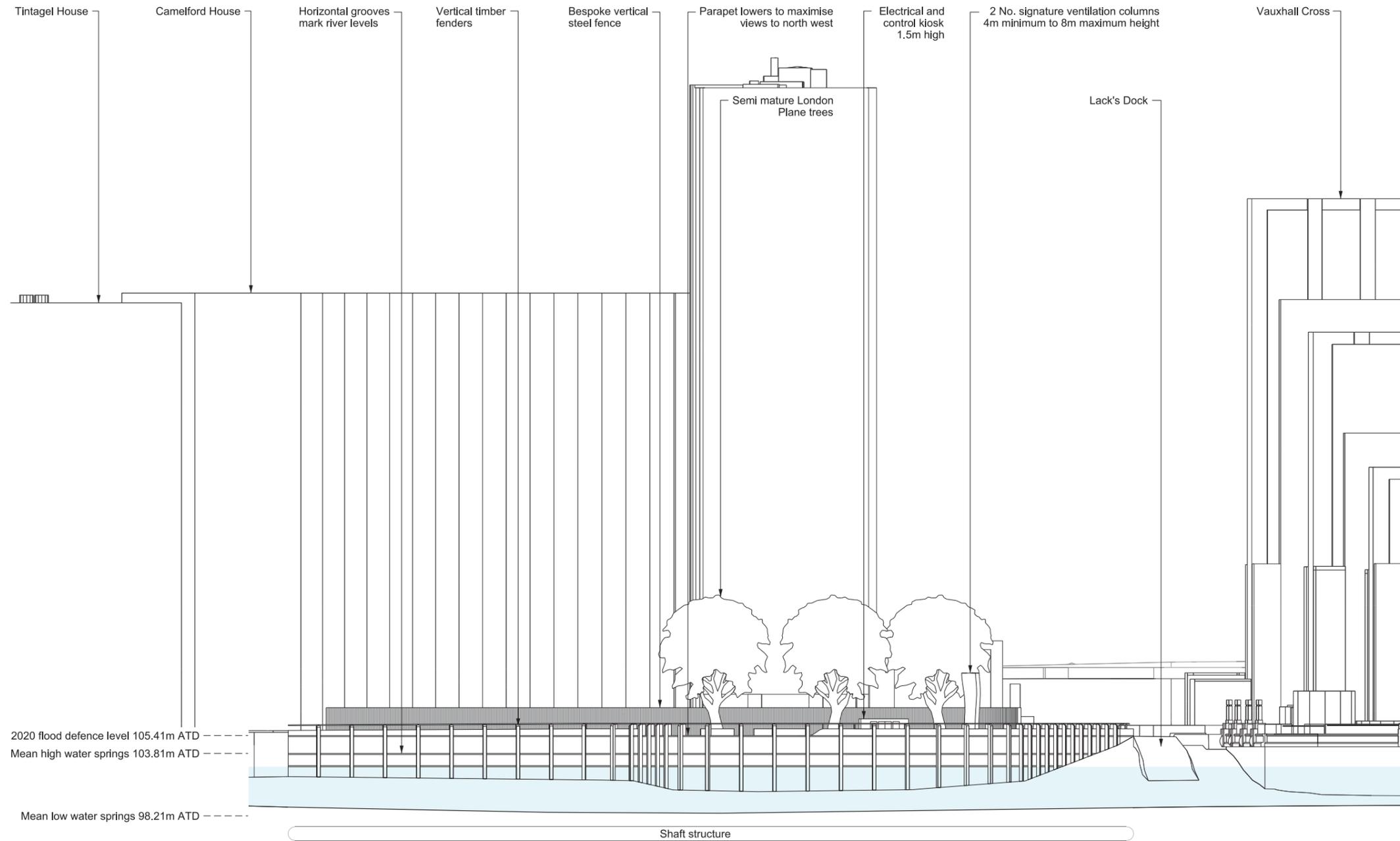


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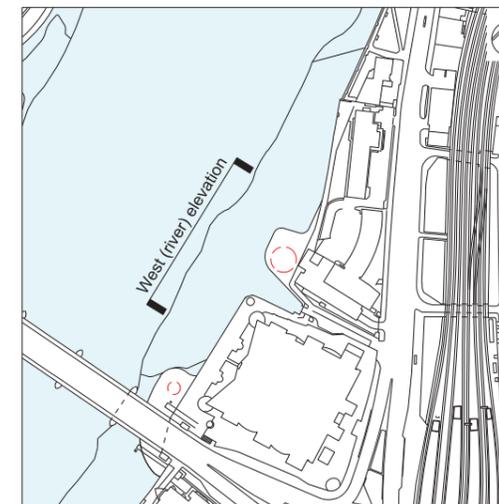
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
1. All dimensions and levels are approximate.



Proposed shaft structure West (river) elevation

ILLUSTRATIVE



Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
West (river) elevation - shaft structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170024
January 2013



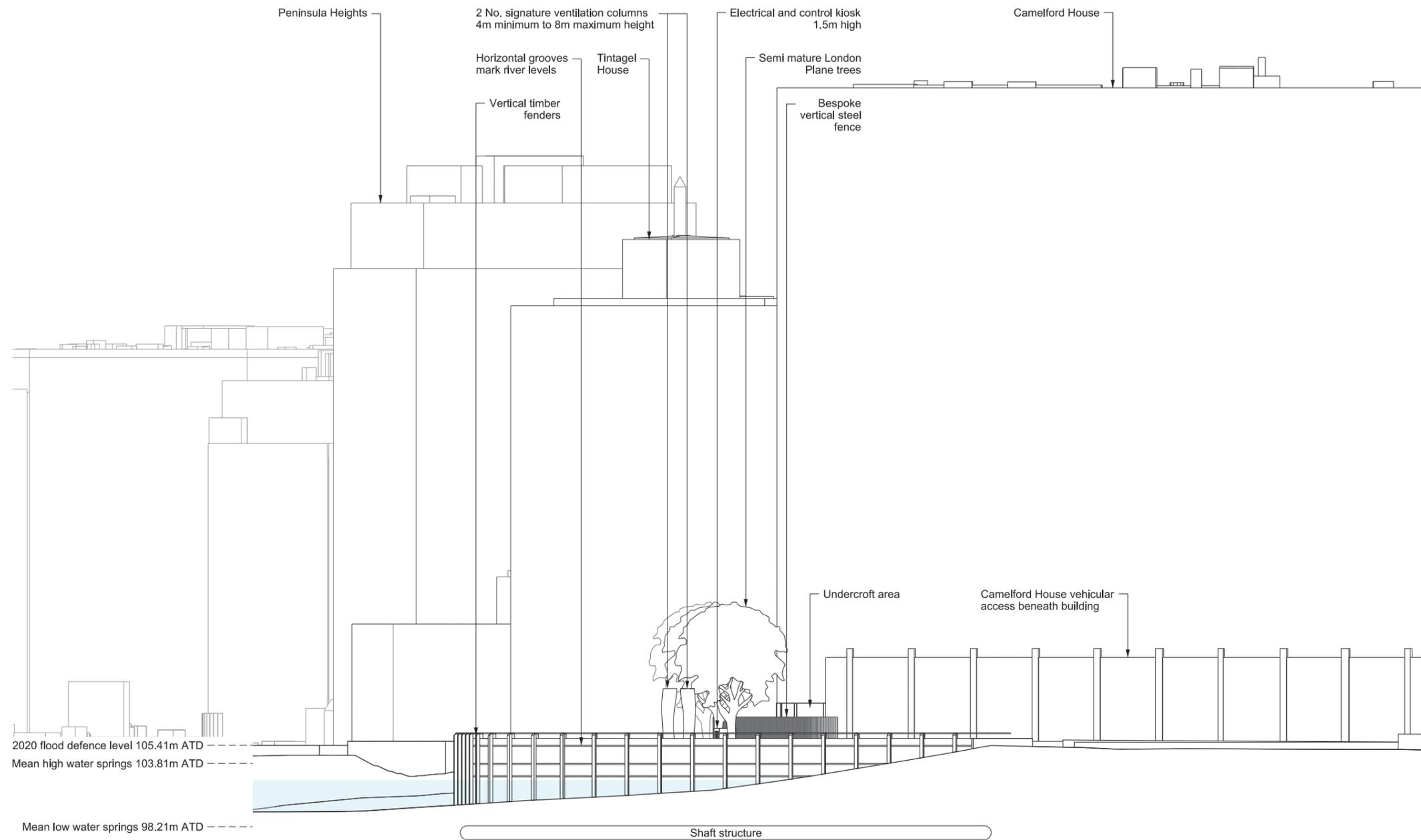
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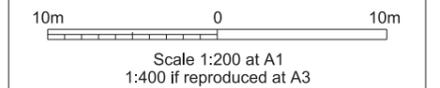
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Notes:

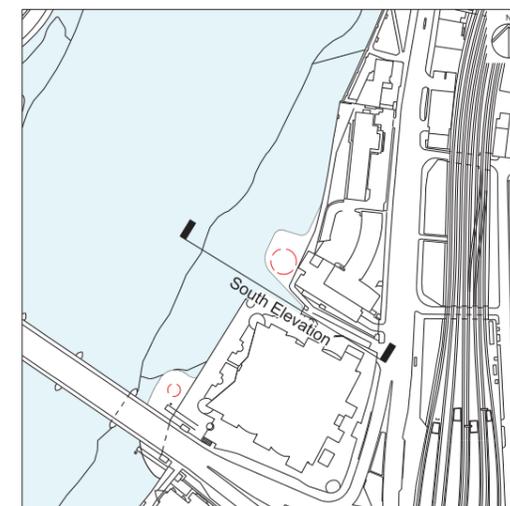
1. All dimensions and levels are approximate.



Proposed shaft structure South elevation



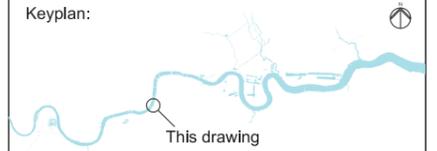
ILLUSTRATIVE



Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed
South elevation - shaft structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170025
January 2013

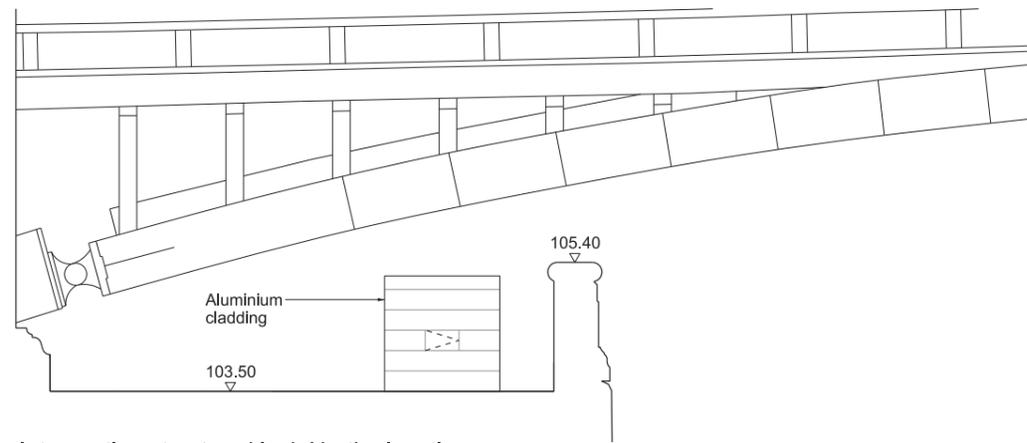




Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

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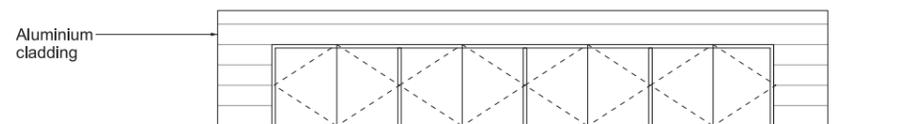
Interception structure kiosk North elevation

Scale 1:50



Interception structure kiosk West elevation

Scale 1:50



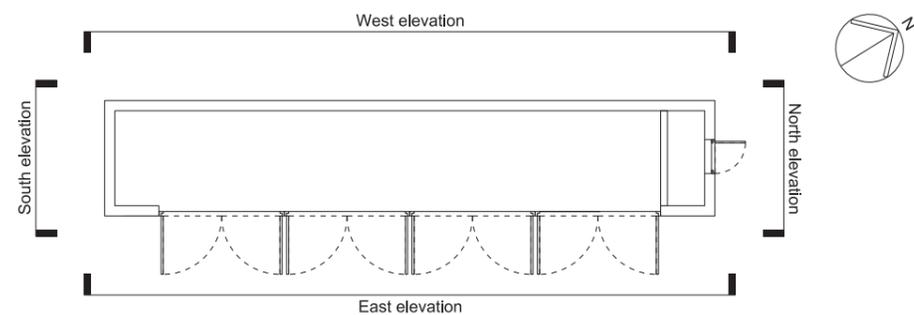
Interception structure kiosk East elevation

Scale 1:50



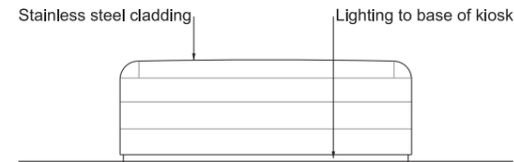
Interception structure kiosk roof plan

Scale 1:50



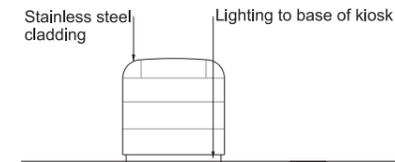
Interception structure kiosk plan

Scale 1:50



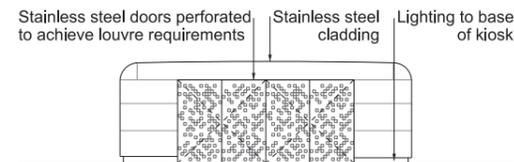
Shaft structure kiosk East elevation

Scale 1:50



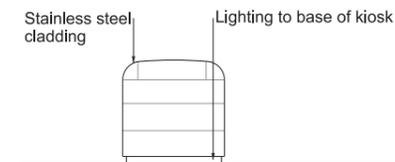
Shaft structure kiosk South elevation

Scale 1:50



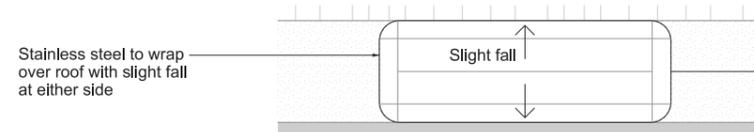
Shaft structure kiosk West elevation

Scale 1:50



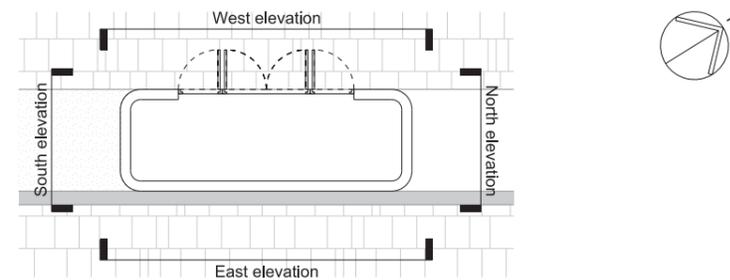
Shaft structure kiosk North elevation

Scale 1:50



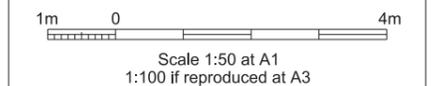
Shaft structure kiosk roof plan

Scale 1:50



Shaft structure kiosk plan

Scale 1:50

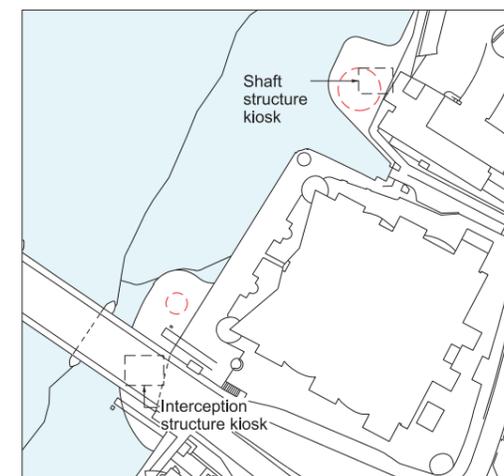


INDICATIVE

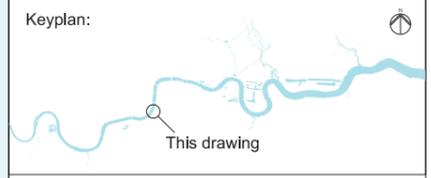
Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Kiosk design intent

Book of plans - section 17
DCO-PP-15X-ALBEF-170026
January 2013

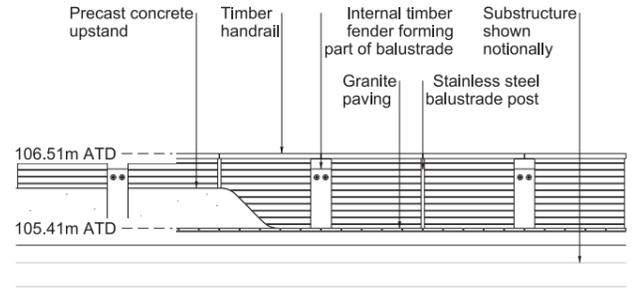


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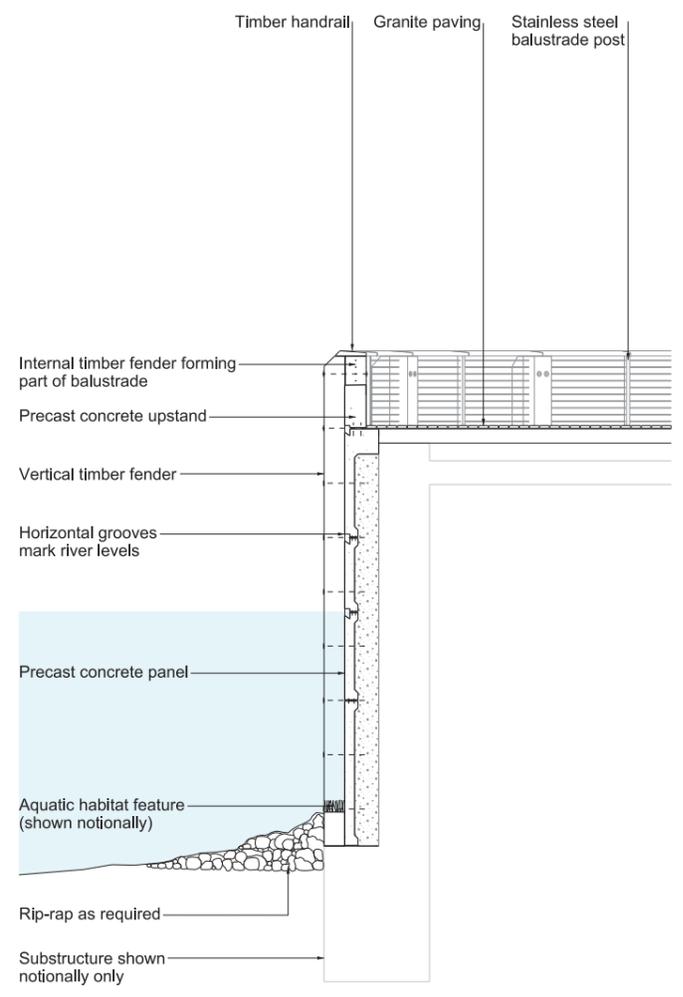
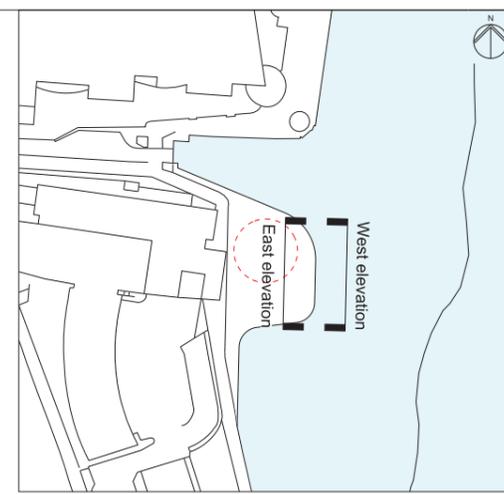


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

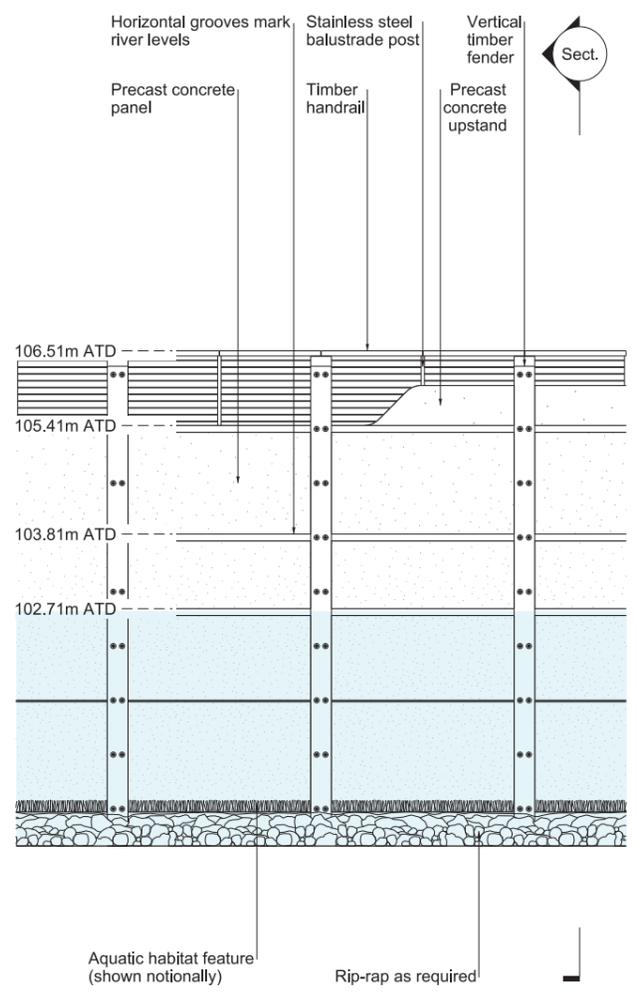
Notes:
1. All dimensions and levels are approximate.



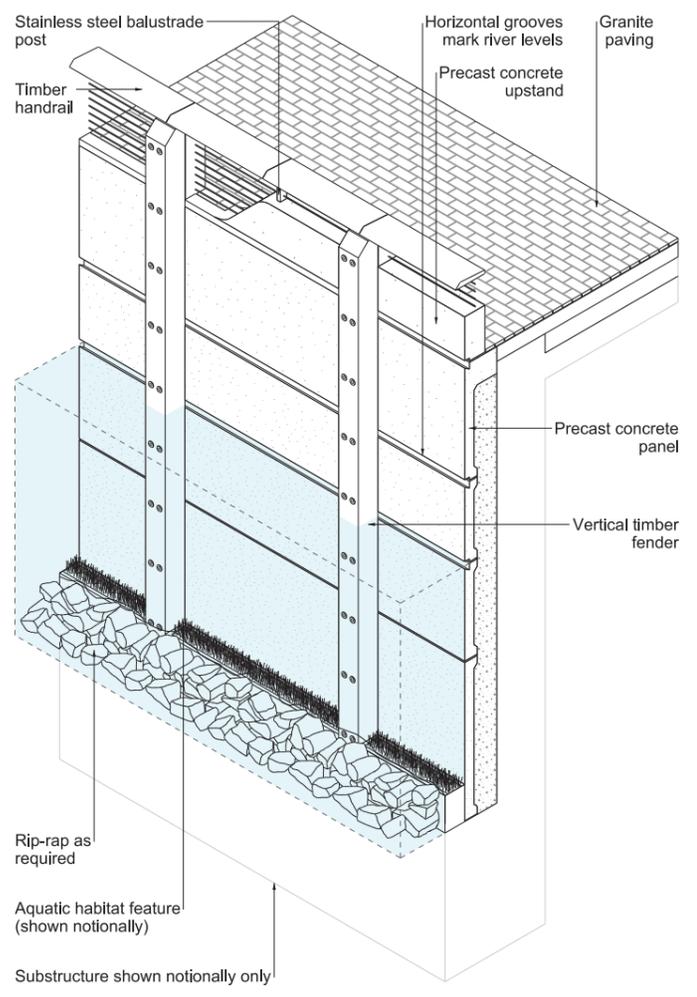
East elevation
Scale 1:50



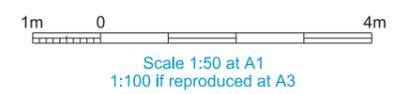
Detail section
Scale 1:50



West elevation
Scale 1:50



Isometric
NTS



INDICATIVE

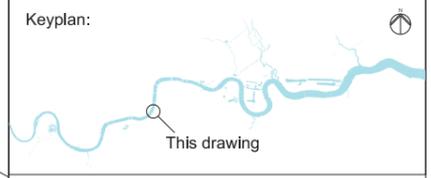
Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Typical river wall design intent

Book of plans - section 17
DCO-PP-15X-ALBEF-170027
January 2013

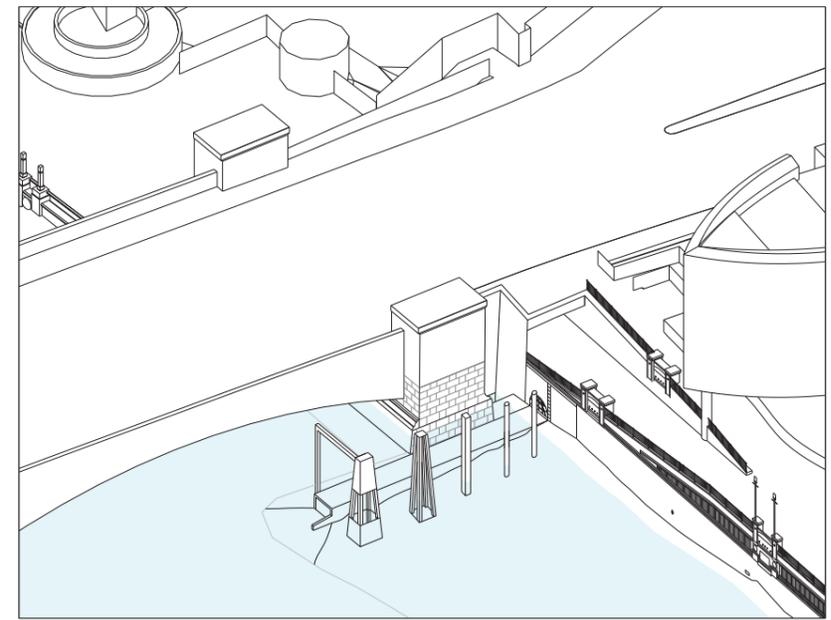
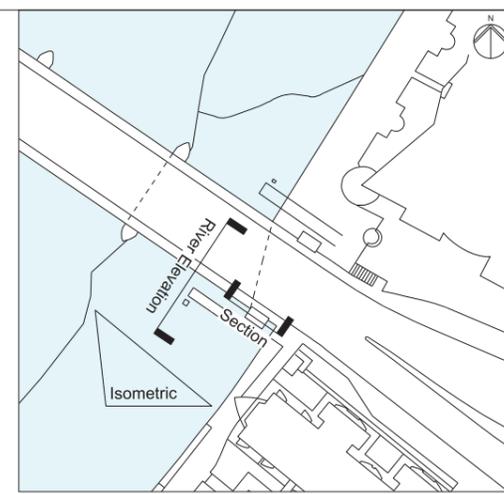


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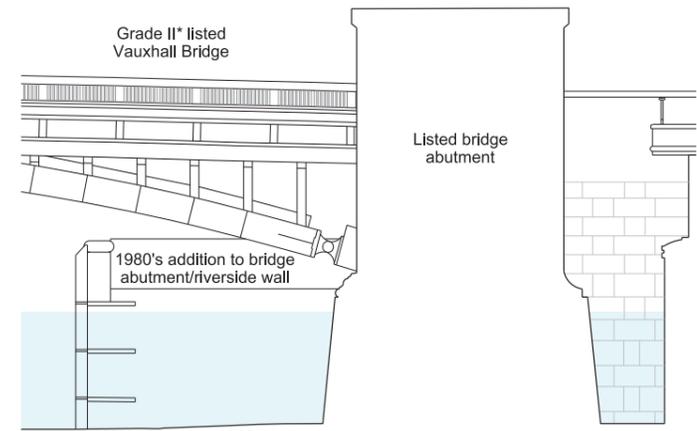


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

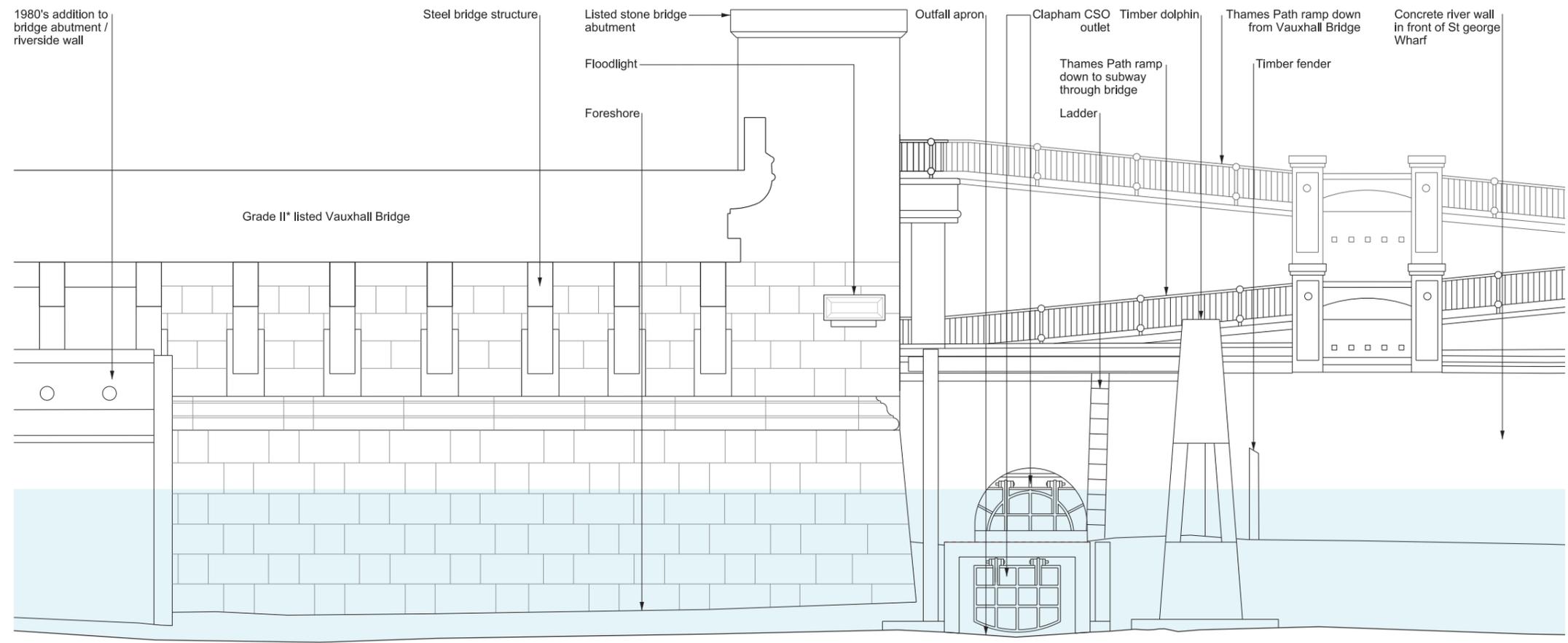
- Notes:
1. All dimensions and levels are approximate.
 2. Drawing is based on as-constructed drawings and topographical survey and not on heritage survey.



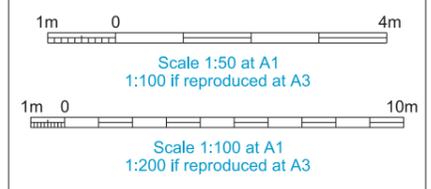
Isometric
Scale NTS



Bridge abutment section
Scale 1:100



River elevation
Scale 1:50

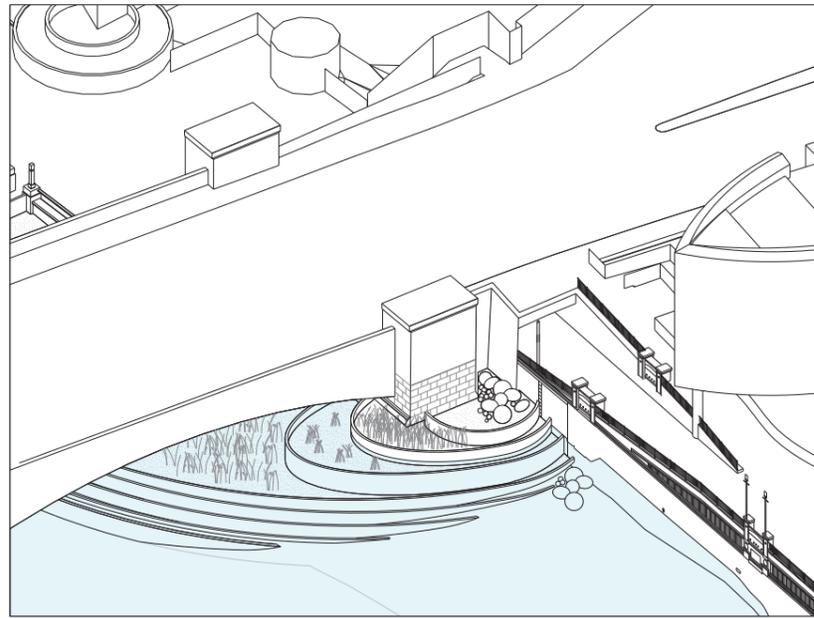


FOR INFORMATION

Location
Albert Embankment Foreshore
London Borough of Lambeth

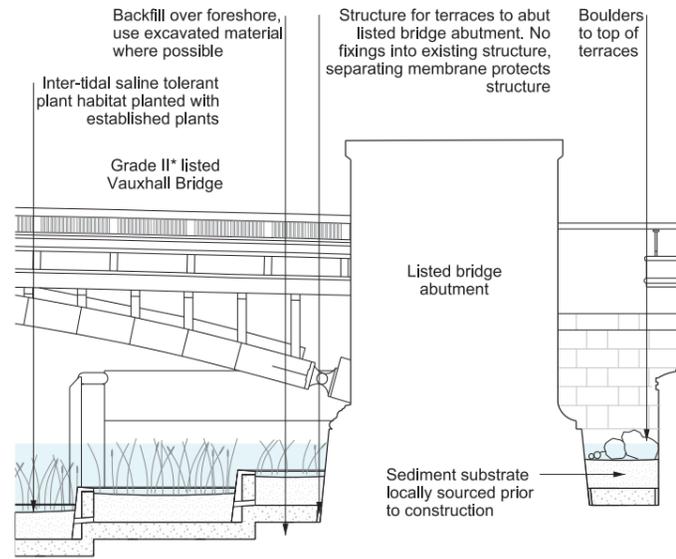
Document Information
Application for Development Consent
As existing listed structure interface -
Interception structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170028
January 2013





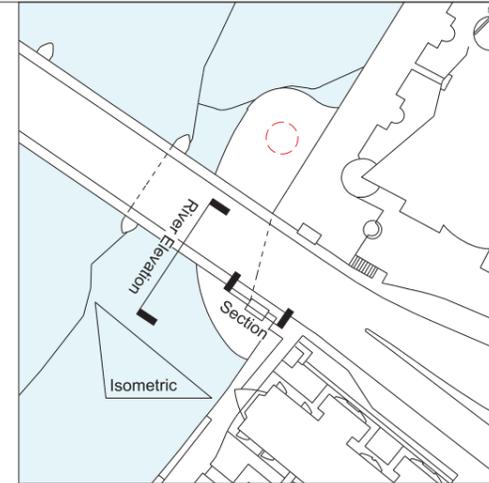
Isometric

Scale NTS



Bridge abutment section

Scale 1:100



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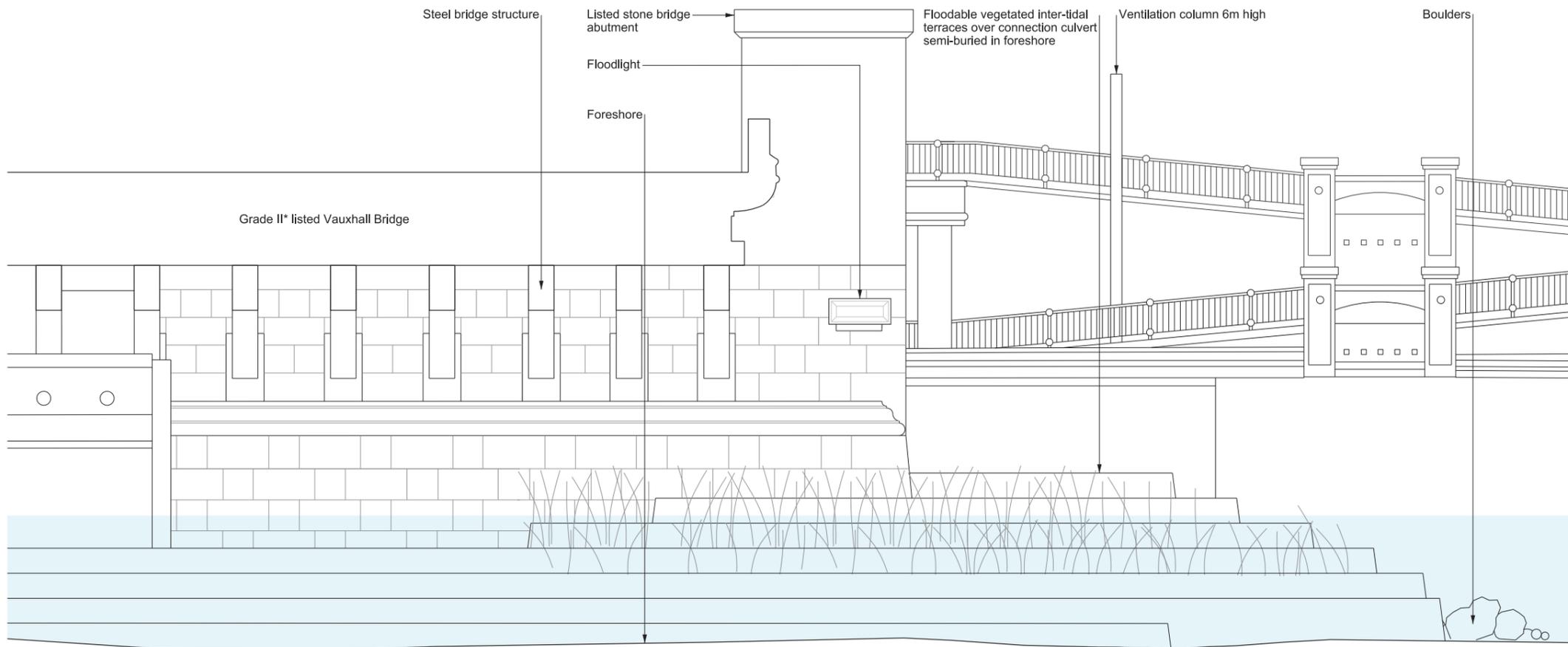
Keyplan:



Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

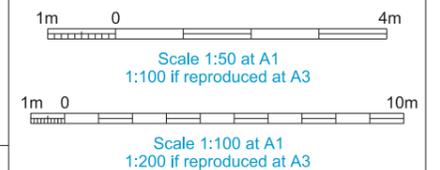
Notes:

1. All dimensions and levels are approximate.
2. Drawing is based on as-constructed drawings and topographical survey and not on heritage survey.
3. Navigational signs to be fixed to bridge in accordance with PLA requirements.



River elevation

Scale 1:50

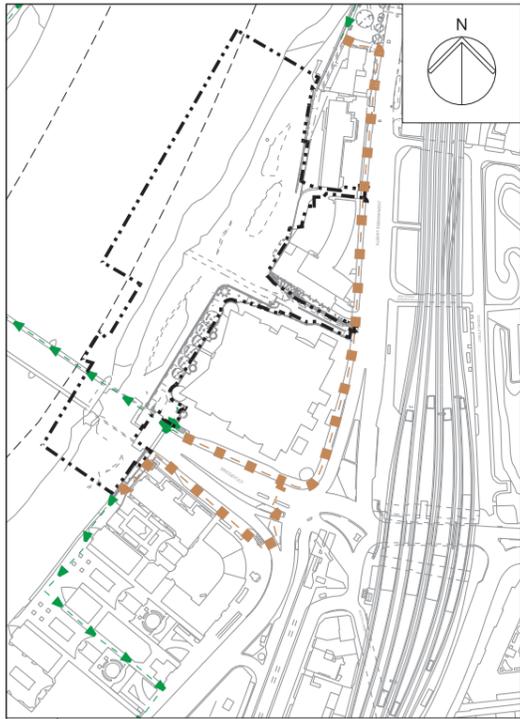


INDICATIVE

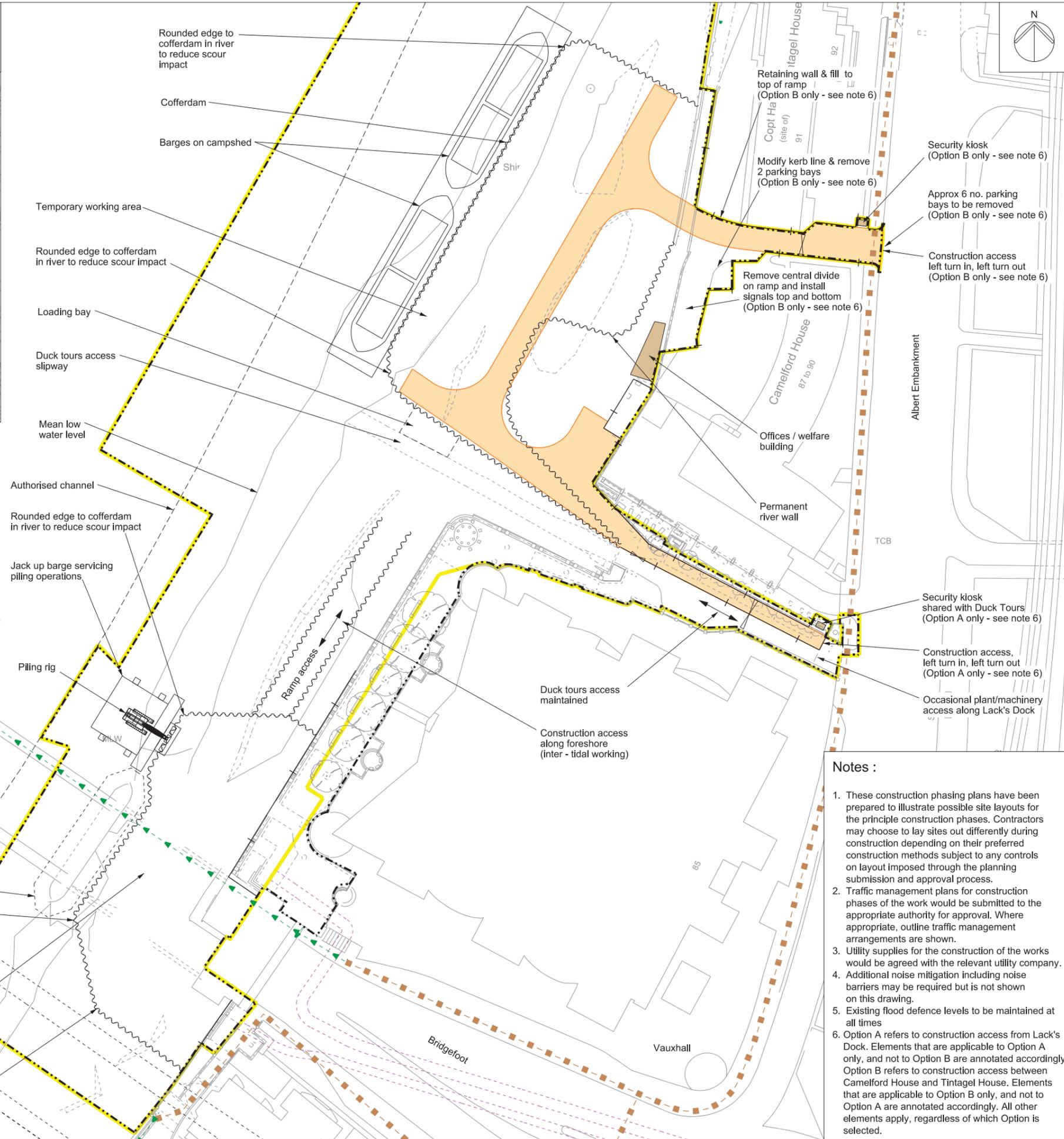
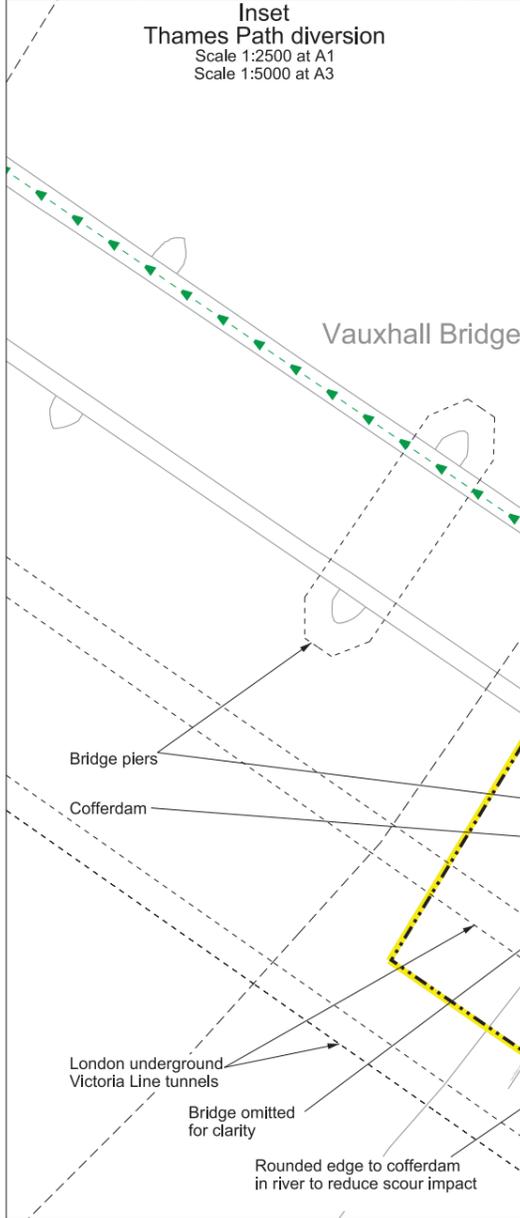
Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent
Proposed listed structure interface -
Interception structure
Book of plans - section 17
DCO-PP-15X-ALBEF-170029
January 2013

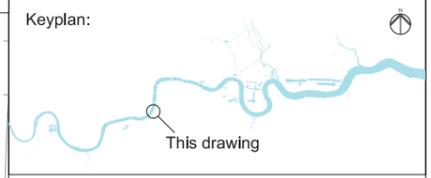




Inset Thames Path diversion
 Scale 1:2500 at A1
 Scale 1:5000 at A3

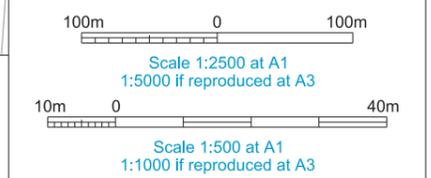


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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Site access
 - Access / haul route
 - Existing sewers
 - Sheet piles



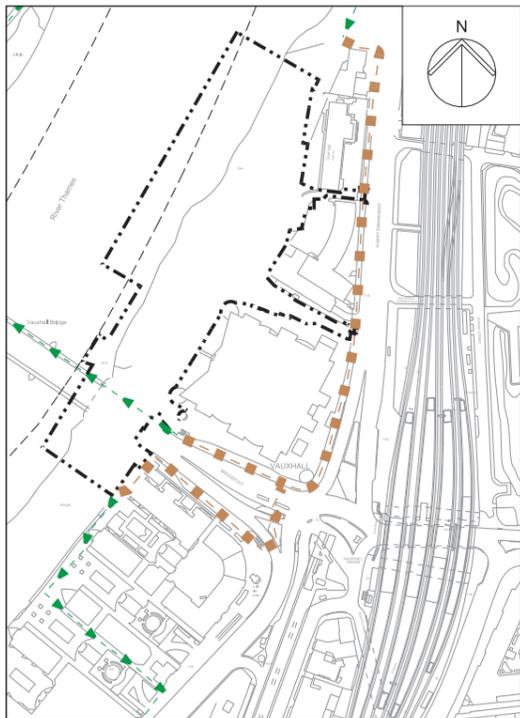
- Notes :**
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principle construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Existing flood defence levels to be maintained at all times
 6. Option A refers to construction access from Lack's Dock. Elements that are applicable to Option A only, and not to Option B are annotated accordingly. Option B refers to construction access between Camelford House and Tintel House. Elements that are applicable to Option B only, and not to Option A are annotated accordingly. All other elements apply, regardless of which Option is selected.

ILLUSTRATIVE

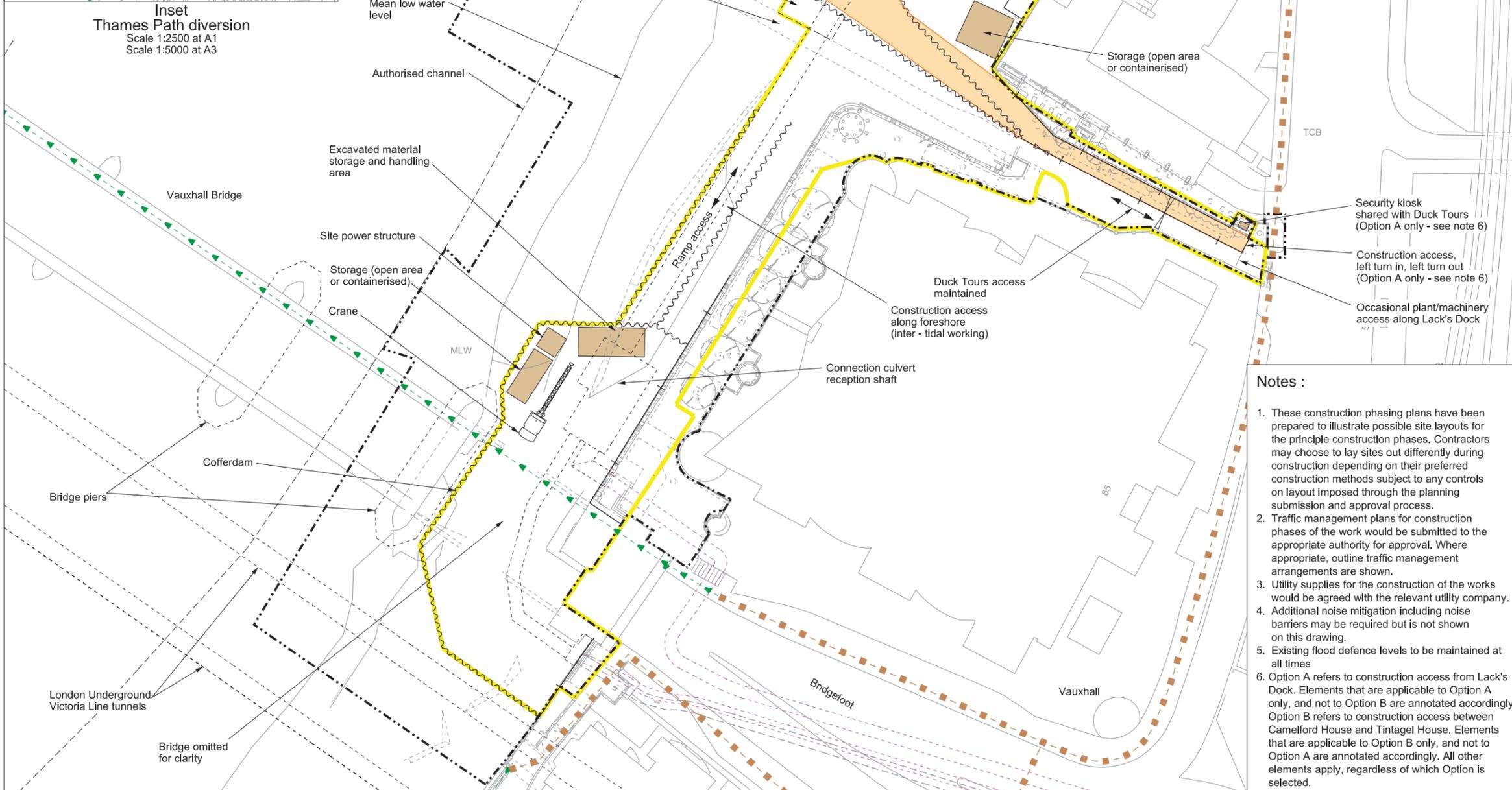
Location
 Albert Embankment Foreshore
 London Borough of Lambeth

Document Information
 Application for Development Consent
 Construction phases - phase 1
 Site set-up
 Book of plans - section 17
 DCO-PP-15X-ALBEF-170030
 January 2013





Inset Thames Path diversion
Scale 1:2500 at A1
Scale 1:5000 at A3

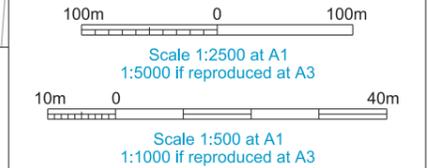


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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - - - Route of temporary diversion of right of way
 - Site access
 - Access / haul route
 - - - Existing sewers
 - ~ Sheet piles



- Notes :**
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principle construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 2. Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 3. Utility supplies for the construction of the works would be agreed with the relevant utility company.
 4. Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 5. Existing flood defence levels to be maintained at all times
 6. Option A refers to construction access from Lack's Dock. Elements that are applicable to Option A only, and not to Option B are annotated accordingly. Option B refers to construction access between Camelford House and Tintagel House. Elements that are applicable to Option B only, and not to Option A are annotated accordingly. All other elements apply, regardless of which Option is selected.

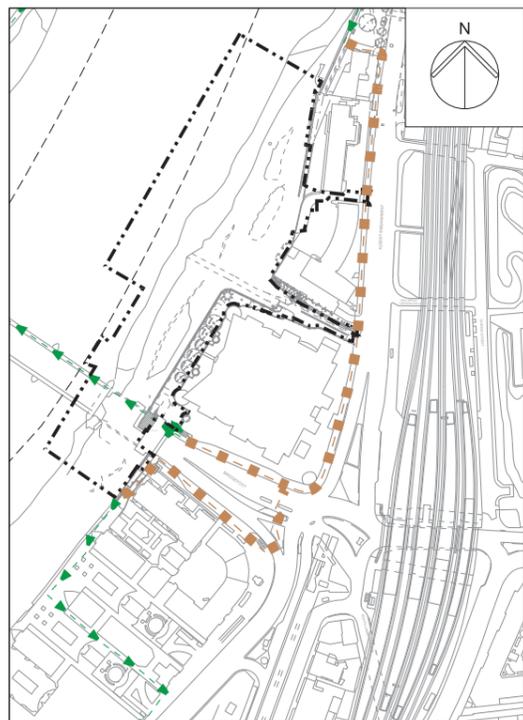
ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

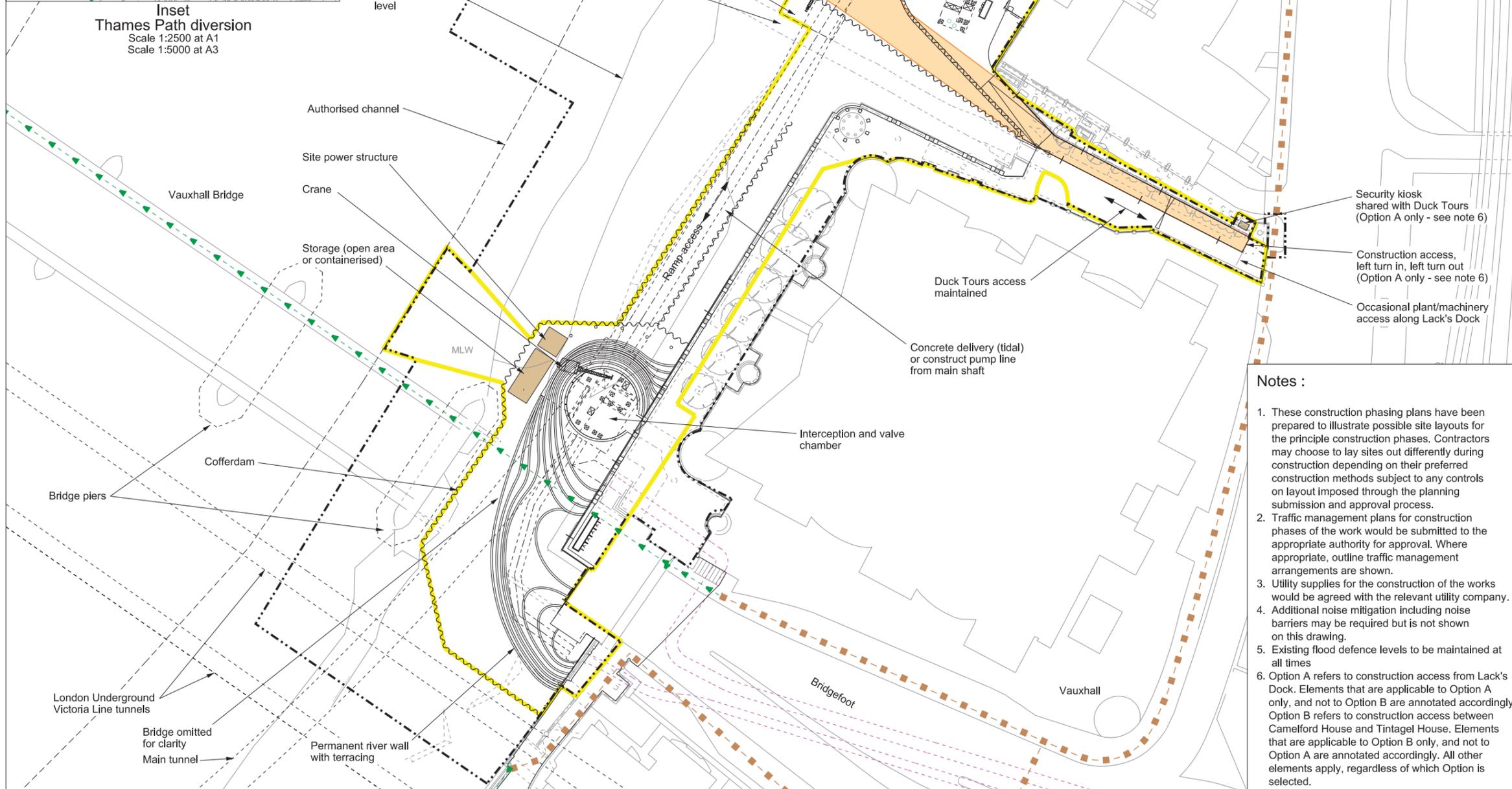
Document Information
Application for Development Consent

Construction phases - phase 2
Shaft construction and tunnelling
Book of plans - section 17
DCO-PP-15X-ALBEF-170031
January 2013





Inset Thames Path diversion
 Scale 1:2500 at A1
 Scale 1:5000 at A3

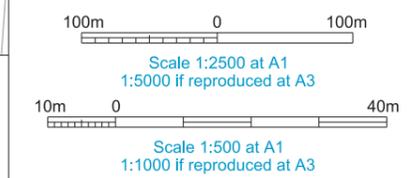


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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - Route of temporary diversion of right of way
 - Site access
 - Access / haul route
 - Existing sewers
 - Sheet piles



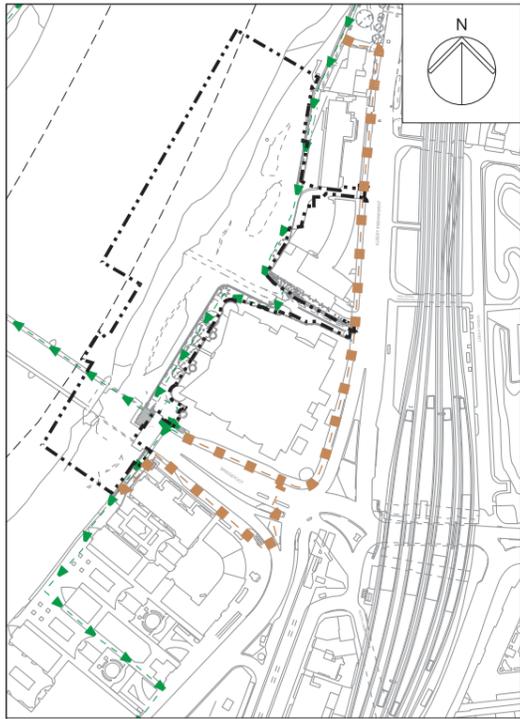
- Notes :**
- These construction phasing plans have been prepared to illustrate possible site layouts for the principle construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through the planning submission and approval process.
 - Traffic management plans for construction phases of the work would be submitted to the appropriate authority for approval. Where appropriate, outline traffic management arrangements are shown.
 - Utility supplies for the construction of the works would be agreed with the relevant utility company.
 - Additional noise mitigation including noise barriers may be required but is not shown on this drawing.
 - Existing flood defence levels to be maintained at all times
 - Option A refers to construction access from Lack's Dock. Elements that are applicable to Option A only, and not to Option B are annotated accordingly. Option B refers to construction access between Camelford House and Tintagel House. Elements that are applicable to Option B only, and not to Option A are annotated accordingly. All other elements apply, regardless of which Option is selected.

ILLUSTRATIVE

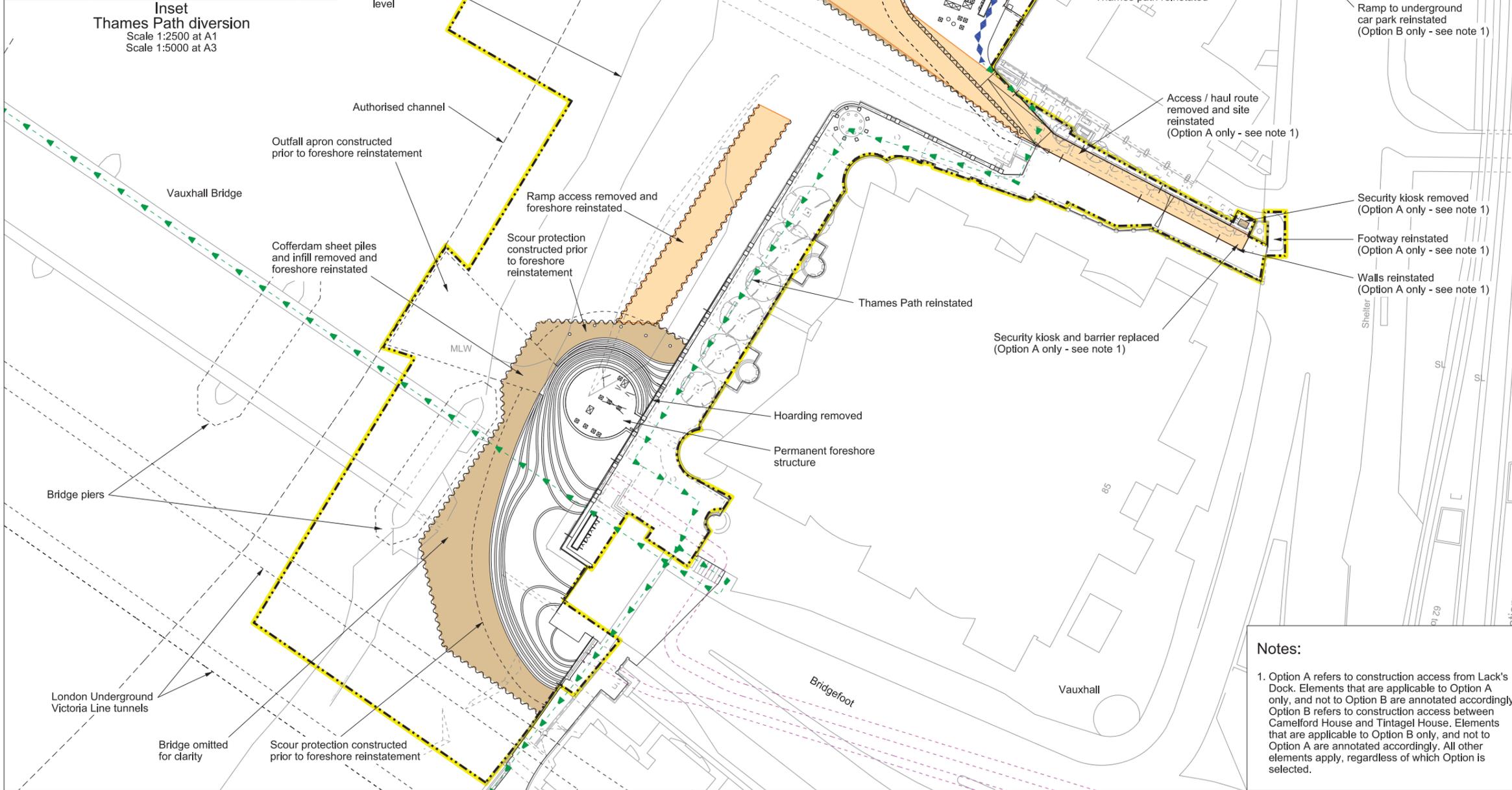
Location
 Albert Embankment Foreshore
 London Borough of Lambeth

Document Information
 Application for Development Consent
 Construction phases - phase 3
 Construction of other structures
 Book of plans - section 17
 DCO-PP-15X-ALBEF-170032
 January 2013

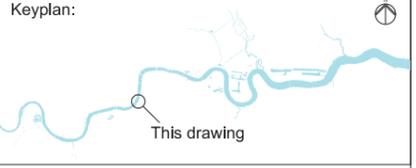




**Inset
Thames Path diversion**
Scale 1:2500 at A1
Scale 1:5000 at A3

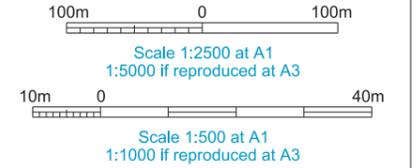


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- Key:**
- Limits of land to be acquired or used (LLAU)
 - Hoarding
 - Maximum extent of working area
 - Existing public right of way
 - - - Route of temporary diversion of right of way
 - Provision of permanent permissive right of way
 - Site access
 - Access / haul route
 - - - Existing sewers
 - Sheet piles



ILLUSTRATIVE

Location
Albert Embankment Foreshore
London Borough of Lambeth

Document Information
Application for Development Consent

Construction phases - phase 4
Site demobilisation
Book of plans - section 17
DCO-PP-15X-ALBEF-170033
January 2013



Notes:
1. Option A refers to construction access from Lack's Dock. Elements that are applicable to Option A only, and not to Option B are annotated accordingly. Option B refers to construction access between Camelford House and Tintagel House. Elements that are applicable to Option B only, and not to Option A are annotated accordingly. All other elements apply, regardless of which Option is selected.

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Thames Water Utilities Limited

Clearwater Court, Vastern Road, Reading RG1 8DB

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DCO-DT-000-ZZZZ-050300

