

Thames Tideway Tunnel
Thames Water Utilities Limited



Application for Development Consent

Application Reference Number: WWO10001

Heritage Statement

Doc Ref: **5.3**

Appendix F

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

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Thames Tideway Tunnel

Heritage Statement

Appendix F: Chelsea Embankment Foreshore

List of contents

	Page number
F.1 Site location and context	1
Historical context	2
F.2 Relevant local heritage policy and guidance	3
F.3 Description of heritage assets and significance summary	5
The Royal Hospital Chelsea	6
Royal Hospital Conservation Area	7
Thames Conservation Area	8
Royal Hospital Grounds and Ranelagh Gardens	9
Chelsea Embankment river wall	9
Chelsea Bridge	11
Bull Ring Gate	12
Chillianwala Memorial Obelisk	13
Listed ventilation column	14
Figure F.8 View of the listed ventilation column (wide angle lens).....	14
Battersea Park.....	15
Battersea Park Conservation Area	16
Lister Institute	16
Archaeology.....	17
Significance summary	17
F.4 Description of proposals and required heritage consents	18
Temporary construction works.....	18
Permanent works.....	18
Royal Hospital Chelsea	20
Royal Hospital Conservation Area	20
Thames Conservation Area	22
Works requiring Conservation Area Consent.....	22
RHC south grounds and Ranelagh Gardens	23
Chelsea Embankment river wall	23
Chelsea Bridge	24

Bull Ring Gate	25
Chillianwala Memorial Obelisk.....	25
Listed ventilation column	25
Battersea Park.....	25
Battersea Park Conservation Area	25
Lister Institute	25
Archaeology.....	26
F.5 Heritage design considerations	26
F.6 Mitigation measures	27
F.7 Assessment of effects	29
Royal Hospital Chelsea	29
Royal Hospital Conservation Area, Royal Hospital South Grounds and Ranelagh Gardens.....	29
Bull Ring Gate	30
Thames Conservation Area	30
Chelsea Embankment wall	30
Listed ventilation column	31
Battersea Park Conservation Area and Battersea Park registered park and garden	31
Chelsea Bridge	31
Chillianwala Memorial Obelisk.....	31
Lister Institute	31
Assessment in relation to policy	31
Archaeology.....	33
F.8 Conclusion.....	33

List of figures

	Page number
Figure F.1 View of the RHC from Chelsea Embankment (standard lens).....	6
Figure F.2 View of Ranelagh Gardens (standard lens).....	7
Figure F.3 View along the embankment (standard lens)	8
Figure F.4 View of Chelsea Embankment from the south side of the River Thames (standard lens)	10
Figure F.5 View of Chelsea Bridge from the proposed foreshore site (standard lens)	11
Figure F.6 View of the Bull Ring Gate and the traffic island along the main axis of the RHC (standard lens)	12
Figure F.7 View of the Chillianwala Memorial Obelisk and the RHC (standard lens)	13
Figure F.8 View of the listed ventilation column (wide angle lens).....	14
Figure F.9 View of the foreshore site from the promenade in Battersea Park (standard lens)	15
Figure F.10 Front view of the Lister Institute (standard lens).....	16

List of tables

	Page number
Table F.1 Significance of heritage assets at Chelsea Embankment Foreshore.....	17
Table F.2 Drawings relating to heritage assets at Chelsea Embankment Foreshore	19
Table F.3 Historic environment: Gazetteer of known heritage assets shown on the historic environment features map	35
Table F.4 List of drawings in order	41

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Appendix F: Chelsea Embankment Foreshore

F.1 Site location and context

- F.1.1 The proposed development site comprises an area of the foreshore of the River Thames opposite the Bull Ring Gate of the Royal Hospital Chelsea (the 'RHC') South Grounds, sections of the carriageway and pavement of Chelsea Embankment, and a small section of Ranelagh Gardens.
- F.1.2 The foreshore site (for the CSO drop shaft) falls within the Thames Conservation Area, which covers the foreshore and southern half of the Chelsea Embankment (refer to the Conservation Areas map). It extends along the river frontage of the Royal Borough of Kensington and Chelsea, and was designated to protect the character of the River Thames and its immediate setting.
- F.1.3 The foreshore site is considered a functional flood plain (Flood Zone 3b). It also falls within the designated Crossrail 2 Safeguarded Zone. The River Thames (including Chelsea Creek) is a Site of Nature Conservation Importance (Metropolitan importance).
- F.1.4 The Ranelagh Gardens site (for the CSO interception chamber) and the northern periphery of the Foreshore site falls within the Royal Hospital Conservation Area, which covers the northern half of the Chelsea Embankment, the RHC and the associated gardens beyond. It was designated to protect the character, setting and appearance of the 17th century RHC and other assets such as the 19th century Chelsea Embankment and Ranelagh Gardens.
- F.1.5 Ranelagh Gardens is locally designated as a Site of Nature Conservation Importance (Borough II) and as a Grade II registered park and garden.
- F.1.6 No trees within or surrounding the site are protected by Tree Preservation Orders, although the mature trees along Chelsea Embankment are indirectly protected by virtue of their position in a conservation area.
- F.1.7 The foreshore site is bounded to the north by the RHC South Grounds, and Ranelagh Gardens. The Lister Hospital and Chelsea Bridge Gardens lie to the northeast on the northern side of Chelsea Bridge Road and Chelsea Bridge crosses the River Thames to the east. The River Thames surrounds the site to the east, south and west.
- F.1.8 The RHC South Grounds are locally designated as a Site of Nature Conservation Importance (Borough I value) and the Royal Hospital Old Burial Grounds to the north of the site are locally designated as a Site of Nature Conservation Importance (Borough II value). The RHC South Grounds and Ranelagh Gardens (together a Grade II registered park and garden) are used for major events such as the Royal Horticultural Society's Chelsea Flower Show for several months each year. The grounds are publicly accessible via the Bull Ring Gate or Royal Hospital Road when not occupied by these events. The RHC South Grounds are leased by the Royal Borough of Kensington and Chelsea and offer

managed football pitches, tennis and netball courts, sports changing facilities and the Chelsea Adventure Playground.

- F.1.9 The main RHC building is located approximately 300m to the north of the site and is Grade I listed. Other listed buildings to the north of the site include the Grade II listed Bull Ring Gate on Chelsea Embankment and the Chillianwala War Memorial Obelisk on Monument Walk in the RHC South Grounds.
- F.1.10 The Ranelagh Sewer (Main Line) incorporates the River Westbourne – one of London’s ‘lost rivers’. The Ranelagh Sewer and the Ranelagh and King Scholars Pond Storm Relief Sewer run southwest under Chelsea Bridge Road, through Ranelagh Gardens and the RHC South Grounds, and meet at a chamber just behind the river wall. The Ranelagh CSO discharges through an arched opening in the river wall near the Bull Ring Gate.
- F.1.11 To the northeast, a mixed-use development of approximately 400 residential units has been approved at the former Chelsea Barracks site. The former barracks lie to the east of Chelsea Bridge Road in the City of Westminster within 500m of the site.
- F.1.12 There are a number of Grade II listed structures to the east of the site, including Chelsea Bridge (120m from the site) and a sewer vent in the pavement (35m from the site). Further east across the river in the London Borough of Wandsworth is the Grade II* listed Battersea Power Station, which is due to be re-developed with a mixed-use scheme.
- F.1.13 Battersea Park lies across the river to the south and is a designated conservation area, a Grade II* listed Registered Park and Garden, and Site of Importance for Nature Conservation. The Nature Area within the park is separately designated as a Local Nature Reserve.
- F.1.14 Chelsea Embankment esplanade to the west, from Battersea Bridge to Grosvenor College Stairs (opposite the southwestern corner of the RHC South Grounds) is a Grade II listed structure. Approximately 200m to the west of the site are the residential mansion blocks of Embankment Gardens.

Historical context

- F.1.15 The site was once marshland at the confluence of the rivers Thames and Westbourne. There is evidence of prehistoric activity, including a possible Iron Age ford close to Chelsea Bridge and a battle or deposition of votive offerings in the River Thames. Chelsea hosted a synod in 785 AD and King Alfred the Great held a council there in 899 AD.
- F.1.16 Before the 19th century, the River Thames was the main thoroughfare through London. At the end of the medieval period, the wealthy increasingly built houses with landing stages along the river. Chelsea was particularly fashionable from the 16th century onwards and was known as the ‘Village of Palaces’.
- F.1.17 The RHC was built from 1682 to 1702. Like other fashionable buildings, the main frontage faced the River Thames at an oblique angle and met the river at the confluence of the Rivers Westbourne and Thames at a jetty

and a set of landing stairs flanked by small lodges, or summerhouses, which were constructed in 1691. These stairs were used by royalty when visiting the RHC by river. Ranelagh Gardens was a separate property that featured a rotunda. The southern end of the gardens incorporated the Chelsea Water Works intakes, pumping station and osier (willow) beds alongside the River Westbourne.

- F.1.18 In 1854, Thomas Page designed the first part of the Embankment: the brick-faced section on either side of Chelsea Bridge and in front of the RHC. The River Westbourne was culverted through the new embankment wall, which was built along the current alignment. A road extended along the bank up to the new Bull Ring Gate and new railings were added to the southern boundary of the RHC grounds.
- F.1.19 The first Chelsea suspension bridge was built by Page in 1857. Battersea Park was established opposite by James Pennethorpe and John Gibson for HM Office of Works. Gibson also redesigned the RHC grounds and Ranelagh Gardens.
- F.1.20 Before the embankment was constructed in the 1850s, the RHC's grounds terminated with 'water gates' at the river's edge near the outfall of the Ranelagh CSO, slightly east of the historic axis of the RHC created by Monument Walk (the 'Monument Walk axis'), where the River Westbourne (now incorporated into the Ranelagh Sewer Main Line) flowed into the River Thames. In the original 1680s design, the axis ended with a jetty projecting into the River Thames, which was only removed in the 1850s.
- F.1.21 To the west of the site, the embankment was extended and remodelled from 1871 to 1874 as part of Sir Joseph Bazalgette's sewerage scheme. The granite-faced extension formed a straight alignment to Battersea Bridge. Bazalgette's trademark river wall parapet decoration of Lion's Foot lamp standards and Lion's Head medallions was extended to the parapet of the 1850s embankment.
- F.1.22 Chelsea Bridge was rebuilt between 1934 and 1937. It was the first self-anchored suspension bridge in Britain.
- F.1.23 The opposite bank of the River Thames has seen major redevelopment; however, the area surrounding the site on the northern bank of the river changed little in the 20th century.

F.2 Relevant local heritage policy and guidance

- F.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.
- F.2.2 The Royal Borough of Kensington and Chelsea's Local Development Framework comprises the *Core Strategy* (December 2010) and the saved *Unitary Development Plan (UDP)*, as well as the guidance in the *Thames*

*Conservation Area Proposal Statement and the Royal Hospital
Conservation Area Proposal Statement.*

- F.2.3 *Core Strategy Policy CP2 states: “The Council will protect, promote and enhance the local distinctiveness of the Places of the Borough, and improve their character and quality and the way they function”.*
- F.2.4 *Core Strategy Policy CL4 states: “The Council will require development to preserve or enhance the special architectural or historic interest of listed buildings and scheduled ancient monuments and their settings, and the conservation and protection of sites of archaeological interest. To deliver this the Council will:*
- “a. resist the demolition of listed buildings in whole or in part, or the removal or modification of features of architectural importance (both internal and external);*
 - “b. require the preservation of the special architectural and historic interest of listed buildings, scheduled monuments or other buildings or places of interest. In particular the integrity, plan form and structure of the building including the ground and first floor principal rooms, original staircases and such other areas of the building as may be identified as being of special interest should be preserved;*
 - “c. require the preservation of the original architectural features, and later features of interest, both internal and external;*
 - “d. require internal or external architectural features of listed buildings or scheduled ancient monuments, commensurate with the scale of the development, to be:*
 - “i. reinstated where the missing features are considered important to their special interest;*
 - “ii. removed where the additions to or modifications are considered inappropriate or detract from their special character;*
 - “e. resist the change of use of a listed building which would materially harm its character;*
 - “f. strongly encourage any works to a listed building to be carried out in a correct, scholarly manner by appropriate specialists;*
 - “g. require development to protect the setting of listed buildings, scheduled ancient monuments or sites of archaeological interest;*
 - “h. resist development which would threaten the conservation, protection or setting of archaeological remains;*
 - “i. require desk based assessments and where necessary archaeological field evaluation before development proposals are determined, where development is proposed on sites of archaeological significance or potential”.*
- F.2.5 *Saved UDP Policy CD1 seeks: “[t]o protect and enhance views and vistas along the riverside including: river views of Chelsea Embankment and the setting of Chelsea Old Church and views from the Thames bridges”.*

F.2.6 Saved UDP Policy CD63 seeks: “[t]o consider the effect of proposals on views identified in the Council’s Conservation Area Proposals Statements, and generally within, into, and out of conservation areas, and the effect of development on sites adjacent to such areas.”

F.2.7 The *Thames Conservation Area Proposals Statement* notes that the Royal Hospital and Chelsea Bridge are key landmarks in views from the Conservation Area (p. 19).

F.3 Description of heritage assets and significance summary

F.3.1 The site contains no listed buildings; however, it falls within two conservation areas and there are a number of heritage assets (as defined in the NPS, para. 4.10.2) 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 provided in this Appendix.

F.3.2 The heritage assets include:

- a. the Grade I listed RHC
- b. the Royal Hospital Conservation Area
- c. the Thames Conservation Area
- d. the RHC grounds and the Grade II listed Ranelagh Gardens registered park and garden
- e. Chelsea Embankment river wall (undesigned section within the site and the Grade II listed section to the west of the site)
- f. the Grade II listed Chelsea Bridge
- g. the Grade II listed Bull Ring Gate
- h. the Grade II listed Chillianwala Memorial Obelisk
- i. the Grade II listed ventilation column
- j. the Grade II* registered Battersea Park
- k. Battersea Park Conservation Area
- l. the Grade II Lister Institute
- m. archaeological potential.

The Royal Hospital Chelsea

- F.3.3 The Grade I listed RHC (refer to the Historic environment features map) was designed by Sir Christopher Wren and built from 1682 to 1702. The grounds were designed by London and Wise. The RHC is occupied by retired and invalid soldiers, known as the Chelsea Pensioners.
- F.3.4 The grand scale four-storey building is constructed with three types of brick and set around an open courtyard. The main frontage faces the River Thames at an oblique angle. This frontage is currently largely screened to the south by a row of mature trees parallel to the main elevation.
- F.3.5 The building's central feature is a projecting Doric portico, topped by a cupola. The portico sits on the central axis that extends through Wren's RHC complex, which is emphasised by a gravel path, known as Monument Walk. The path runs southeast down to a lower grassed terrace, around the Chillianwala Memorial Obelisk, which forms a focal point on the axis, to the Bull Ring Gate and Chelsea Embankment. The Bull Ring Gate spans the axis symmetrically.
- F.3.6 The path originally formed a causeway flanked by water bodies to a landing stage projecting out into the river. The symmetry of Wren's composition was further emphasised by two summer houses, set either side of the landing stage. This arrangement was replaced with lawns and railings when the first embankment was built in the 1850s.
- F.3.7 Figure F.1 shows the RHC from Chelsea Embankment along Monument Walk. The Bull Ring Gate sits in the foreground and the Chillianwala Memorial Obelisk in the middle distance.

Figure F.1 View of the RHC from Chelsea Embankment (standard lens)



Royal Hospital Conservation Area

- F.3.8 The Royal Hospital Conservation Area incorporates the RHC and its grounds, Ranelagh Gardens, and a number of residential streets and open spaces to the north and northwest. It is a significant heritage asset that contains one of London's great architectural and landscape set-pieces.
- F.3.9 The setting of the conservation area is characterised by the line of the embankment along the River Thames to the south, and elsewhere by the surrounding urban townscape.
- F.3.10 Views into the conservation area from Chelsea Embankment, Chelsea Bridge to the east, and Battersea Park to the south are obscured by the intervening mature tree planting along the river frontage, which screens the area even during winter months.
- F.3.11 A distinctive element of the setting is the Monument Walk axis, which offers views from the river frontage back towards the RHC. The ground level within the conservation area is predominantly lower than the adjacent embankment. For this reason, views out of much of the southern part of the conservation area are of the river wall, where not screened by trees, which looks like a grey band beyond the railings of the RHC grounds.
- F.3.12 Figure F.2 shows Ranelagh Gardens, its boundary wall and railings, and mature trees.

Figure F.2 View of Ranelagh Gardens (standard lens)



Thames Conservation Area

- F.3.13 The Thames Conservation Area (refer to the Conservation areas map) covers the foreshore and river frontage between Chelsea Creek to the west and Chelsea Bridge to the east, including the proposed foreshore site. The purpose of the designation is to protect significant views to and from Chelsea Embankment along the northern bank of the River Thames.
- F.3.14 The character of the conservation area is largely defined by the linear embankment, the river wall parapet, the tree-lined road, lamp standards, and York stone paving. However, for much of the day it is dominated by fast-moving traffic on Chelsea Embankment. The mature vegetation fronting the RHC grounds and Ranelagh Gardens forms a distinctive backdrop to the historic character and appearance of the embankment.
- F.3.15 The rhythm of the lamp standards and parapet piers also forms part of the character of the conservation area. However, the listed granite river wall in the centre of the conservation area transitions to a variegated unlisted brick section of wall in front of the RHC grounds. The significant features of the brick section are the Bazalgette-era parapet and lamp standards. The RHC and Chelsea Bridge landmarks are visible from within the conservation area.
- F.3.16 Figure F.3 shows the view along the embankment, its leafy character and the mature trees that screen the RHC grounds.

Figure F.3 View along the embankment (standard lens)



Royal Hospital Grounds and Ranelagh Gardens

- F.3.17 The Grade II registered RHC grounds and the adjacent Ranelagh Gardens are a registered park and garden (refer to the Historic environment features map). They were laid out in their current form in the mid-19th century, following the construction of the embankment, which provided sufficient room to significantly enlarge both areas. They form two separate and distinct areas: Ranelagh Gardens is characterised by more informal planting and numerous mature trees, which creates discreet, areas within the gardens; while the RHC grounds are characterised by open lawns, formal planting, monuments and pathways.
- F.3.18 Ranelagh Gardens is largely inward looking and is well-screened from surrounding areas by its vegetation. There are no views from within the gardens towards the River Thames or the foreshore site. It is bounded by railings set on a brick dwarf wall with a Portland stone coping.
- F.3.19 The RHC grounds are similarly screened; however, there are views of the embankment and from the foreshore site to the Bull Ring Gate, the Chillianwala Memorial Obelisk and the central portico of the main building along the Monument Walk axis. At present, the southern boundary of the grounds features a raised bank with trees that maintain a sense of enclosure. The views out of the grounds, where not screened by trees, are of the river wall parapet.

Chelsea Embankment river wall

- F.3.20 Between 1851 and 1854, the Grosvenor Embankment (refer to the Historic environment features map) was constructed from Pimlico as far west as the RHC grounds. The river wall was faced in brick. A CSO outfall was constructed in front of the RHC grounds to discharge the Ranelagh Sewer into the River Thames.
- F.3.21 The embankment made it possible to extend the RHC grounds significantly into what was once the marshy delta of the River Westbourne. At the same time, the first Chelsea Bridge was built to connect to the newly developing suburb around Battersea Park.
- F.3.22 Traffic along the embankment was unable to go any further than the RHC grounds at this time; therefore the Bull Ring was created as a turning circle. It also offered a new formal approach to the RHC to replace the direct approach from the river.
- F.3.23 In the 1870s, Sir Joseph Bazalgette constructed the Chelsea Embankment for the Metropolitan Board of Works. It ran from Battersea Bridge in the west to a point opposite the southwestern corner of the RHC grounds, where it joined up with the Grosvenor Embankment. This work completed the main sewer along the embankment. Although the sewer intercepted the Ranelagh Sewer, the CSO outfall remained in use to discharge excess storm water flows when the sewer reached capacity. The outfall itself was remodelled in 1883.
- F.3.24 Bazalgette modified the river wall parapet of the Grosvenor Embankment to continue the pattern of granite piers and sturgeon lamps of the Chelsea Embankment as far east as Chelsea Bridge. However, this uniformity was

only applied to the parapet and the change in materials from brick to granite is visible when viewed from the River Thames or from Battersea Park.

F.3.25 The 1870s Chelsea Embankment, running as far east as the southwestern corner of the RHC grounds, has a unified design and is Grade II listed. The listing includes the river wall and 64 cast iron ornamental Lion's Foot lamp standards. However, the Grosvenor Embankment is of less heritage value and is specifically excluded from the listing. Nevertheless the granite parapet along the unlisted section forms part of the historic character of the Thames Conservation Area and the setting of the listed Chelsea Embankment wall.

F.3.26 Figure F.4 shows the view of Chelsea Embankment from the south side of the River Thames. It illustrates the linear character of the embankment and the change of materials between the two sections of the river wall.

Figure F.4 View of Chelsea Embankment from the south side of the River Thames (standard lens)



Chelsea Bridge

- F.3.27 Chelsea Bridge is a Grade II listed structure (refer to the Historic environment features map). It was designed by George Topham Forrest for the London County Council and built in 1934/37 to replace the 1850s suspension bridge. It was the first self-stabilising suspension bridge in Britain and is constructed of high tensile steel. It is also notable for the simple design and galleon-topped lamp standards, which form a part of the general Victorian character of the wider area.
- F.3.28 Chelsea Bridge forms a prominent feature in views from the foreshore site to the east along the River Thames. The bridge offers views towards the site, including the river wall, the river frontage of Battersea Park, and Albert Bridge beyond. Ranelagh Gardens and the RHC grounds are screened from the bridge by dense vegetation even in winter.
- F.3.29 The setting of Chelsea Bridge is partly defined by its relationship with the river wall, the north bank of the River Thames, and Battersea Park to the southwest, which are contemporaries of the 1850s bridge. The relative lack of other structures along the river banks to the west of the bridge is a feature of its present setting.
- F.3.30 Figure F.5 shows the view of Chelsea Bridge from the foreshore site. It illustrates the existing CSO outfall apron on the foreshore of the River Thames.

Figure F.5 View of Chelsea Bridge from the proposed foreshore site (standard lens)



Bull Ring Gate

- F.3.31 The Grade II listed Bull Ring Gate was constructed in circa 1850, when the stretch of embankment in front of the RHC was built. It forms the formal southern entrance to the RHC grounds. It comprises double wrought iron gates flanked by single gates, set between stone piers, and was recently widened. The gate is set back from Chelsea Embankment and the boundary railings of the RHC grounds curve back to meet it.
- F.3.32 In front of the gate is a traffic island, which creates a large turning space and provides parking bays. The traffic island is aligned with the Monument Walk axis. The gate's name probably derives from the curve of the railings and the shape of the space in front of them
- F.3.33 The Bull Ring Gate is fully integrated with the overall layout of the RHC grounds, even though it was added much later than the main buildings. Chelsea Embankment, built at the same time, and the associated mature planting along the riverside form part of the setting of the Bull Ring Gate.
- F.3.34 Figure F.6 shows the view of the Bull Ring Gate and the traffic island from the foreshore site.

Figure F.6 View of the Bull Ring Gate and the traffic island along the main axis of the RHC (standard lens)



Chillianwala Memorial Obelisk

- F.3.35 The Grade II listed Chillianwala Memorial Obelisk lies to the southeast of the RHC on Monument Walk (refer to the Historic environment features map). It forms part of the formal layout of the RHC grounds. It partially inhibits views between the central portico of the RHC and the Bull Ring Gate, and provides a focal point in the foreground of these views.
- F.3.36 Figure F.7 shows the view of the Chillianwala Memorial Obelisk with the RHC in the background.

Figure F.7 View of the Chillianwala Memorial Obelisk and the RHC (standard lens)



Listed ventilation column

- F.3.37 The listed ventilation column (refer to the Historic environment features map) is a cast iron shaft that stands 4.6m high and is located near Chelsea Bridge. It sits on a fluted base, features decorated annulets, and is topped with decorative cresting. It was designed by George Vulliamy and constructed in 1874 to vent gases from the embankment sewer, which was nearing completion at the time.
- F.3.38 The column is Grade II listed for its historic interest and appearance. Its significance derives chiefly from that fact that it forms part of the Bazalgette scheme and is a visible indicator of the sewer beneath the roadway.

Figure F.8 View of the listed ventilation column (wide angle lens)



Battersea Park

- F.3.39 Battersea Park is a Grade II* registered park (refer to the Historic environment features map). It was laid out in 1855/57, two decades before the associated embankment and riverside promenade, which was laid out in 1877. The embankment initially led out onto a pier that served passenger steamers. Three similar piers were built for the same purpose for the 1951 Festival of Britain; however, the last remains of these piers were removed in 1998. Various proposals have been put forward to construct a new pier in this location.
- F.3.40 The riverside area of the park is characterised by a wide esplanade and a parallel avenue of mature trees. The central focus is the large Peace Pagoda, erected in 1985.
- F.3.41 Views of the River Thames and Chelsea Embankment from within the park are largely obscured by the mature vegetation along the avenue, even during winter months. However, the views are visible from parts of the riverside path, although from other parts it they are still largely obscured. The RHC is mostly and Ranelagh Gardens entirely screened by trees. The river wall appears distant from Battersea Park but is notable for the regular spacing of the lamp standards and wall piers and for the visible distinction between the brickwork of the river wall and the parapet.
- F.3.42 Figure F.9 shows the view of Chelsea Embankment and the foreshore site from the promenade in Battersea Park. It illustrates the surrounding character of the embankment.

Figure F.9 View of the foreshore site from the promenade in Battersea Park (standard lens)



Battersea Park Conservation Area

- F.3.43 The Battersea Park Conservation Area encompasses Battersea Park and a number of streets to the west and south (refer to the Conservation areas map). Housing was developed around the edge of the park in the later 19th century in order to create a desirable riverside quarter.
- F.3.44 The Royal Borough of Kensington and Chelsea's *Draft Conservation Area Appraisal and Management Strategy* notes the view of Chelsea Bridge from the riverside promenade but not the RHC, which is largely obscured by trees. It notes that the Peace Pagoda forms a focal point along the riverside. It also notes that if any proposals to reinstate the former river pier are approved, the new pier would interrupt the smooth linear nature of this part of the riverside.

Lister Institute

- F.3.45 The Lister Institute is a Grade II listed hospital. (refer to the Historic environment features map) It was designed by Alfred and Paul Waterhouse and built in 1894/98 in a 'Free Flemish' red brick and stone style with a pitched roof. It was subsequently extended in 1909.
- F.3.46 The building's front façade overlooks the approach to Chelsea Bridge and faces southwest to Ranelagh Gardens. The mature trees in Ranelagh Gardens and along the embankment obscure views towards the Ranelagh gardens site during the summer months. The distance between the Ranelagh Gardens site and the listed building means that the site would form only a minor part of the building's setting.
- F.3.47 Figure F.10 shows the front façade of the Lister Institute, facing Ranelagh Gardens.

Figure F.10 Front view of the Lister Institute (standard lens)



Archaeology

- F.3.48 The foreshore site does not fall within an Archaeological Priority Area. There have been a number of finds in the vicinity (refer to the Historic environment features map, and the relevant entries are provided in the gazetteer at the end of this appendix). There is low to medium potential for archaeological remains of low to medium interest on the site and surrounding foreshore. There is high potential for post-medieval remains relating to maritime activity nearby, including a former pier.

Significance summary

- F.3.49 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 13). The assessment includes a full statement of significance for built heritage and buried archaeological assets at the site, which is summarised below in Table F.1.

Table F.1 Significance of heritage assets at Chelsea Embankment Foreshore

Heritage asset	Heritage significance	Reason for significance
The Royal Hospital Chelsea	High	Exceptional national heritage value; significance derives from its architectural and historic interest and associations
Royal Hospital Conservation Area	High	Significance derives from the RHC and its associated landscapes
Thames Conservation Area	High	Significance derives from the leafy character of the 19th century embankment, which defines views along the River Thames
Royal Hospital Grounds and Ranelagh Gardens	High	Significance derives from the national historic associations and the RHC complex
Listed Chelsea Embankment river wall	High	Significance derives from the Bazalgette scheme and its materials and form
Chelsea Bridge	High	Significance derives from its highly innovative design, which respects its earlier Victorian context
Bull Ring Gate	High	Significance derives from the embankment and the RHC
Chillianwala Memorial Obelisk	High	Significance derives from its location, historic associations and architectural role in the RHC grounds
Listed ventilation column	High	Significance derives from the Bazalgette scheme.
Battersea Park	High	National significance as a park

Heritage asset	Heritage significance	Reason for significance
Battersea Park Conservation Area	High	Protects the significance of Battersea Park
Lister Institute	High	National significance derives from its fine façade
Archaeology	Low to medium interest	Potential for archaeology related to the river on the foreshore, although some distance from the pre-1850 river bank.

F.4 Description of proposals and required heritage consents

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

Temporary construction works

F.4.2 The temporary construction works to create the CSO drop shaft at the foreshore site would involve erecting hoardings, a cofferdam, a site compound, and potentially a campshed for barges. The works would require the use of cranes. These elements would be removed on completion of the works.

F.4.3 The temporary construction works in Ranelagh Gardens would comprise constructing a below-ground CSO interception chamber on the southern edge of the gardens. A stretch of the boundary railings and several trees would be temporarily removed and a hoarded worksite would be set up.

Permanent works

F.4.4 The semi-circular foreshore structure would project into the River Thames from the river wall opposite the Bull Ring Gate. It would enclose the CSO drop shaft and associated equipment. The top of the structure would form a new public space. The structure would be surrounded by a new section of river wall in brick topped with a stone parapet.

F.4.5 Two ventilation columns would be positioned to one side of the Monument Walk axis. They would stand 4m to 8m high.

F.4.6 The two electrical and control kiosks would sit on either side of the foreshore structure, which would reference the Wren summerhouses.

F.4.7 The Ranelagh Gardens site would be reinstated as existing. The trees and railings removed during construction would be reinstated.

F.4.8 The evolution of the design of the permanent works and the alternatives considered are set out in the *Design and Access Statement*, which accompanies the application. The design proposals are illustrated 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.

F.4.9 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.

F.4.10 Refer to the Historic environment features map, the Conservation areas map and the drawings listed in Table F.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 within the application.

Table F.2 Drawings relating to heritage assets at Chelsea Embankment Foreshore

Drawing title	Drawing status
Location plan	For information
As existing site features plan	For information
Demolition and site clearance plan (1 of 2)	For approval
Demolition and site clearance plan (2 of 2)	For approval
Site works parameter plan	For approval
Permanent works layout (1 of 2)	Illustrative
Permanent works layout (2 of 2)	Illustrative
Proposed landscape plan (1 of 2)	Illustrative save for the scale of above ground structures which is indicative
Proposed landscape plan (2 of 2)	Illustrative save for the scale of above ground structures which is indicative
Section A-A	Illustrative
As existing and proposed south (river) elevation	Illustrative
As existing and proposed west elevation	Illustrative
Proposed east elevation	Illustrative
Proposed north elevation	Illustrative
Kiosk design intent	Illustrative save for the scale of the kiosk which is indicative
Typical river wall design intent	Illustrative
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 14 of the *Book of Plans*

- F.4.11 The works fall within two conservation areas: the Royal Hospital Conservation Area and Thames Conservation Area. Conservation Area Consent would normally be required for substantial demolition works in conservation areas. The relevant proposals are set out section below.

Royal Hospital Chelsea

- F.4.12 The proposals of relevance to the RHC include the temporary construction works in the foreshore, which would temporarily affect its setting. The cranes and other construction activities would visually intrude on the southern views in and out of the RHC, especially the Monument Walk axis (refer to the following drawings: Construction phase 2: Shaft construction and tunnelling, Construction phase 3: Construction of other structures and Construction phase 4: Site demobilisation. For more detailed descriptions of the construction works see Vol 13, Section 7.2 of the *Environmental Statement*).
- F.4.13 The permanent foreshore structure would be curved on plan and orientated on the main axis of the RHC (refer to the following drawings: Location plan, Site works parameter plan, Permanent works layout (1 of 2), Proposed landscape plan (1 of 2) and As existing and proposed river elevation).
- F.4.14 No heritage consent would normally be required for works in the setting of a listed building.

Royal Hospital Conservation Area

- F.4.15 The construction works would have a temporary effect on the setting of the conservation area.
- F.4.16 The trees on the southern edge of Ranelagh Gardens and an approximately 39m long stretch of railings and the supporting dwarf wall would be removed during construction. They would be reinstated, except in a localised area, where the wall would be altered to include a gate to provide maintenance access. The boundary wall and railings would largely be reinstated like for like. The gate would stylistically match the retained fabric. Trees removed in Ranelagh Gardens would be mostly replaced, except where they would impede access (for proposed temporary and permanent removal of structures refer to the Demolition and site clearance plans, for proposals refer to the following drawings: Permanent works layouts, Proposed landscape plans and Construction phase 4: Site demobilisation).
- F.4.17 The temporary construction works in the Ranelagh Gardens site and the works to the roadway in front of the Bull Ring Gate would have a significant but temporary impact on the character and appearance of the conservation area. Works to trees in the Conservation Area would normally require notification.
- F.4.18 The works to the railings on the southern edge of Ranelagh Gardens would constitute alteration rather than demolition of an unlisted structure. They would also affect a small proportion of the boundary wall and therefore would not normally require Conservation Area Consent.

- F.4.19 The construction works on the embankment and foreshore would fall within the setting of the conservation area and have a temporary significant effect.
- F.4.20 The foreshore structure would lie in the setting of the conservation area on the axis of Monument Walk and the RHC, which is one of the key aspects of the conservation area's character and significance. It would emphasise the primacy of the axis.
- F.4.21 The design principles for the final design of this site include the generic (project-wide) heritage design principles and the site-specific principles set out in Section 4.10 of the *Design Principles*. The site-specific principles that relate to the significance of the Royal Hospital Conservation Area include the following:

Reference	Site-specific design principle
CHEEF.03	The landscape design shall replace the trees removed along the Embankment with the same number of semi-mature London Planes along the Embankment or in the Bull Ring. A gap in the line of the existing London Plane trees shall be retained as part of the landscape scheme to facilitate views between the river and Royal Hospital Chelsea.
CHEEF.04	The design shall discourage use of the foreshore structure as a bus/coach drop off.
CHEEF.05	The proposed signature design ventilation columns, electrical and control kiosks, and trees shall be located away from the axis of Monument Walk to enable views along Monument Walk to and from the river, as well as to and from the Royal Hospital.
CHEEF.06	The carriageway and 'roundabout' between the Bull Ring gates and the Chelsea Embankment (A3212) shall be repaved to match the new foreshore structure in natural stone without compromising the safe operation of the red route and bus turning. To the north of the Bull Ring, the existing bollards shall be retained in position and new paving to the footway shall match the existing.
CHEEF.07	The existing pedestrian crossing (refuge) to the east of the Bull Ring gates shall be relocated further east as part of the overall landscaping scheme and shall provide the same facilities as existing.
CHEEF.08	The landscape design shall minimise the amount of visual clutter and street furniture.
CHEEF.11	No railings shall be provided on top of the new river wall parapet around the axis from the Royal Hospital, in order to ensure views between the river and the Royal Hospital are uninterrupted.
CHEEF.14	The boundary treatment of Ranelagh Gardens shall include a gate for utility company maintenance access. The new wall, railings and gate shall be designed to match the existing walls and railings.

Thames Conservation Area

- F.4.22 The construction works would temporarily detract from the character of the Thames Conservation Area and would require demolition of part of the river wall and embankment pavement, and the removal of a tree and a tree stump (refer to the Demolition and site clearance plan (1 of 2)). Permanent effects would include the introduction of the foreshore structure extending south of the current line of the embankment wall (refer to the Location plan, Site works parameter plan, Permanent works layout (1 of 2), Proposed landscape plan (1 of 2) and the As existing and proposed river elevation drawing). This would represent a significant, but localised change to a large conservation area (refer to the Conservation areas map for the extent of the conservation area).

Works requiring Conservation Area Consent

- F.4.23 The works requiring Conservation Area Consent would include:
- a. demolishing the stretch of unlisted river wall and replacing it with the foreshore structure
 - b. demolishing and altering the pavement and roadway.
- F.4.24 It should be noted that this section of the wall is excluded from the Grade II listing for Chelsea Embankment.
- F.4.25 The site-specific principles that relate to the significance of the Thames Conservation Area include the following:

Reference	Site-specific design principle
CHEEF.01	The new river wall and parapet materials shall match the stone and brick of the existing wall.
CHEEF.10	The existing parish boundary marker shall be reinstated on the new river wall.
CHEEF.12	Interpretive historical material and information that references the lost river (Westbourne) shall be carefully designed and integrated into the site, and agreed with the local authority.

- F.4.26 The foreshore structure would lie within the conservation area (refer to the Proposed landscape plan (1 of 2)).
- F.4.27 The structure would be curved in order to minimise its potential impact on views of the River Thames. The radius of the curve would complement that of the opposite Bull Ring. For this reason, it would not be possible to incorporate the existing straight river wall parapet, except for making good adjacent to the proposed structure.
- F.4.28 The structure would be surrounded by a new section of river wall in brick topped with a granite parapet.
- F.4.29 Elements to be removed include:
- a. a short section of the existing parapet
 - b. three lamp standards

- c. an area of brickwork to connect the new foreshore structure
- d. two slots would be cut in the brickwork and two sections of granite parapet would be removed to accommodate the cofferdam.

F.4.30 Some of this material would be reused in making good the wall around the structure. Except for a proportion of the brickwork, these elements would be offered for re-use elsewhere, in accordance with the procedure set out in Section 2.6 of the main section of this document. Further details in relation to the insertion of the cofferdam and the reuse of material are set out in para. F.4.38.

F.4.31 Some of the proposed works would need to be accommodated outside the semi-circular footprint of the foreshore structure. Therefore the riverward side of the structure would be flanked by lower terraces set between the parapet and the brick river wall.

F.4.32 One tree within the conservation area would be removed during construction and another was recently removed by a third party. These two trees would be replaced with semi-mature trees to match the existing species following construction.

F.4.33 Two ventilation columns would be positioned to one side of the Monument Walk axis (refer to the Demolition and site clearance plan (1 of 2)).

RHC south grounds and Ranelagh Gardens

F.4.34 The construction works in Ranelagh Gardens would have a significant but temporary effect on the character and appearance of the gardens. During the construction phase, the remaining area of the gardens outside the site would be protected by a combination of barriers and working practices (refer to the *Code of Construction Practice* for details, including the requirement for a site-specific heritage management plan). On completion of the works and the removal of hoardings the character of this part of Ranelagh Gardens would be altered. The enclosed character of the southern part of the gardens would be opened up to an extent while the vegetation grows back.

F.4.35 No specific heritage consent would normally be required for works to a registered park and garden.

Chelsea Embankment river wall

F.4.36 The construction works would alter the setting of the Grade II listed Chelsea Embankment river wall.

F.4.37 The cofferdam would be set into the river wall (refer to the Construction phase 1: Site set-up drawing) in the following steps:

- a. The temporary cofferdam would be jointed into the unlisted river wall via two slots cut into the river wall at either end of the cofferdam.
- b. The slots would be one brick deep. The ends of the cofferdam sheeting would be sealed within the slots for the duration of foreshore construction.
- c. To prevent damage to the granite parapet stones, the two parapet stones at the ends of the cofferdam would be temporarily removed and

replaced with concrete. There would be a membrane between the adjacent stones and brick and the concrete to prevent damage to the historic fabric on reinstatement. The slots would therefore be cut through the concrete.

- d. The wall would be made good by reinstating the original bricks, or using those removed during the localised demolition of the river wall to construct the foreshore structure. The granite blocks would be stored in a secure, dry environment and reinstated following construction.

F.4.38 To construct the foreshore structure:

- a. The brickwork of the embankment wall and the granite parapet blocks and lamp standards would be removed locally.
- b. A proportion of the brick and the granite parapet blocks would be retained for re-use in making good following construction.
- c. One tree along the embankment would need to be removed and another tree has already been removed by a third party.
- d. Two new semi-mature trees of matching species would be planted following construction to replace these trees (see Section 4.10 of the *Design Principles* and para. F.4.25).

F.4.39 No consent other than Conservation Area Consent for works within the Thames Conservation Area would normally be required.

F.4.40 A short section of the existing parapet would be removed, along with three lamp standards, and would be offered for re-use elsewhere in accordance with the site-specific design principles.

F.4.41 The design team sought to respect the character and appearance of the existing river wall by introducing a curved stone parapet on top of the new section of brick river wall in order to maintain the difference in materials. Sections of the parapet on either side of the foreshore structure would also need to be removed to protect them. They would be stored indoors in secure, dry conditions during construction and reinstated on completion of the works. The detailed approach to these works would be subject to a DCO requirement.

F.4.42 The riverward side of the structure would be flanked by small terraces set between the parapet and the brick river wall. The terraces would add a degree of visual interest to the structure and form intertidal terraces, in reference to the lost river delta in this area.

Chelsea Bridge

F.4.43 The construction works in the foreshore would alter the riverscape setting of Chelsea Bridge. The area to the west of the bridge is characterised by a lack of jetties or other features. The foreshore structure would alter this.

F.4.44 The clear, linear nature of the river to the west of Chelsea Bridge is, however, a recent characteristic, which postdates the removal of the last Battersea Park piers in 1998.

F.4.45 The foreshore structure would be located over 270m from the bridge, and would be designed to fit in with the prevailing character of the existing river

wall; it would be a similar brick structure topped with a stone parapet in matching materials.

- F.4.46 Alterations to the setting of the bridge would not normally require heritage consent.

Bull Ring Gate

- F.4.47 The construction works in the foreshore would temporarily affect the setting of the Bull Ring Gate.

- F.4.48 The ground finishes in the turning circle in front of the gates would be improved and the traffic island replaced, which would create temporary disruption. The works would comprise granite paving and a raised island in the centre of the space, which would be carried out to a high standard to highlight the Monument Walk axis and provide a reference to the historic presence of a traffic island, an early feature of the area in front of the gate. No heritage consent would normally be required for works in the setting of the gate.

Chillianwala Memorial Obelisk

- F.4.49 The construction works would have a temporary effect on the setting of the Chillianwala Memorial Obelisk. No heritage consent would normally be required.

Listed ventilation column

- F.4.50 The construction works beneath the wall of Ranelagh Gardens would temporarily affect the column's setting. There would be no effect during the operational phase. No heritage consent would normally be required.

Battersea Park

- F.4.51 The construction works in Ranelagh Gardens and in the foreshore would alter the riverside views from Battersea Park, interrupting the visual relationships with the heritage assets across the River Thames. The foreshore structure would affect views across the river from the parts of the park's riverside promenade, which are not screened by trees. The foreshore structure would be visible, but its detailing would harmonise with the adjacent embankment river wall. No heritage consent would normally be required.

Battersea Park Conservation Area

- F.4.52 The effect of the proposed works on the Battersea Park Conservation Area would be the same as the effect on Battersea Park. No heritage consent would normally be required.

Lister Institute

- F.4.53 The construction works in Ranelagh Gardens would be barely visible in the setting of the Lister Institute and. No heritage consent would normally be required.

Archaeology

- F.4.54 The construction works in the foreshore would require the partial or complete removal of the upper parts of the foreshore and the mid-19th century outfall apron.
- F.4.55 The construction works in Ranelagh Gardens would also require the removal of any archaeology in an area of land reclaimed in the mid-19th century. The works would remove any archaeology in the foreshore within the site.
- F.4.56 Any potential harm to the significance of heritage assets during construction would be mitigated by a programme of investigation and recording. The details of this programme are set out in the *Overarching Archaeological Written Scheme of Investigation*, which accompanies the application.

F.5 Heritage design considerations

- F.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 historic townscape. At Chelsea Embankment Foreshore this meant taking account of the existing below-ground infrastructure and the historic environment. This includes the adjacent heritage assets, especially the Grade I listed RHC, and the less significant designated heritage assets including the Bull Ring Gate, the Chillianwala Memorial Obelisk, Ranelagh Gardens, the Royal Hospital and Thames Conservation Areas, as well as the settings of other heritage assets nearby.
- F.5.2 As the design evolved, several changes were made in response to consultations with the Royal Borough of Kensington and Chelsea and English Heritage. The drop shaft structure was initially located on the foreshore, to the east of its proposed location, away from the interception structure in Ranelagh Gardens. The two elements were separated in order to lessen the impact on the historic environment. The option of moving the drop shaft into Ranelagh Gardens was explored, but as a result of further design development it returned to the foreshore, for operational and safety reasons.
- F.5.3 It was acknowledged that positioning the foreshore structure on the main axis of the RHC would emphasise the historic axis and enhance its setting and the relationship with the River Thames, as intended in Wren's original design. The connection with the river was diminished when Chelsea Embankment was built in the 1850s to 1870s.
- F.5.4 The foreshore structure was designed to extend and mirror and emphasise the curve of the Bull Ring Gate and the Bull Ring. The design of the new public realm was also important to enable the Monument walk axis to be appreciated, to better reveal its significance in accordance with the NPS.
- F.5.5 The appearance of the foreshore structure and the need to harmonise it with the river wall on either side were also important to minimise the

impact on river views, the character and appearance of the Thames Conservation Area and the setting of Chelsea Embankment, Chelsea Bridge, Battersea Park Conservation Area and Battersea Park. This was addressed through the development of the form and the choice of materials.

- F.5.6 The ventilation column was reduced in size, and the electrical and control kiosks were positioned to frame the vista to the RHC.

F.6 Mitigation measures

- F.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*.
- F.6.2 Firstly, the CSO drop shaft works and CSO interception works would be split over two sites, which would reduce the size of the foreshore structure and minimise intrusion into the fabric of nearby heritage assets.
- F.6.3 The impacts of the construction works, including the cofferdam, hoardings, potential campshed and cranes, would be partially mitigated, but residual effects would remain. However, they would be temporary and have no lasting effect on the character and appearance and setting of the surrounding heritage assets.
- F.6.4 The physical effects of the construction works on the unlisted section of the river wall and the removal of the late 19th century CSO outfall apron would be partially mitigated by an English Heritage Level 2 record survey and photographic record before any elements (including the lamp standards and trees) are removed or truncated. This process would ensure that the significance of the affected elements can be appreciated by future generations, which is consistent with the requirements of para. 4.10.20 of the NPS, and is reflected in *London Plan* Policy 7.8.
- F.6.5 Mitigation through the design of the foreshore structure would also help to minimise the negative effects and provide enhancement where practicable.
- F.6.6 Two new trees would be reinstated following construction to mitigate the loss of the single tree that would be removed and another that has already been removed by a third party.
- F.6.7 The CSO interception structure would be below ground in order to minimise permanent visual harm to Ranelagh Gardens. The temporary harm caused by the removal of the southern brick boundary wall and railings would be mitigated by an English Heritage Level 1 standing structure survey and recording to form a brief visual record. The railings

would be sensitively removed, stored securely in a controlled environment. Although the reinstatement would include an additional gate, the gate and railings would be designed to match the existing wall and railings in materials and appearance. Detail of their design would be submitted for approval by the local planning authority as a DCO requirement.

- F.6.8 Ranelagh Gardens would be reinstated to its existing condition, except for the addition of the new gate, and the trees removed would be replaced. This would maintain the significance of the gardens in accordance with para. 4.10.12 of the NPS. This consideration is also reflected in *London Plan* Policy 7.8.
- F.6.9 No highly significant archaeology is anticipated that would merit preservation *in situ*, therefore a watching brief during site preparation and construction should be sufficient mitigation. Targeted investigations could be carried out as the works proceed if necessary, in accordance with the *Overarching Archaeological Written Scheme of Investigation*. A suitable programme of investigation would ensure 'preservation by record'. It would advance understanding of the significance of any finds which would be appropriately disseminated. This would satisfy the requirement in the NPS (para. 4.10.18) to record any unavoidable losses.
- F.6.10 The programme of archaeological mitigation would be tailored to respond to evolving conditions on-site. It would also continue after the completion of the works in the event that river scour patterns change and affect potential archaeology.
- F.6.11 For the duration of the construction phase, all heritage assets would be safeguarded by the provisions of a site-specific heritage management plan. This plan would be prepared by the contractor prior to commencing construction in accordance with Section 12 of the *Code of Construction Practice* Part A.
- F.6.12 Further site-specific measures set out in the *Code of Construction Practice* Part B include requirements that: a proportion of the brickwork of the river wall as well as all of the granite parapet stones will be retained for reinstatement and reuse; the railings that form the boundary of the Grade II Registered Ranelagh Gardens will be carefully removed, stored and reinstated; protective measures to mitigate against potential strike damage to the Grade II listed Chelsea Royal Hospital Gardens park gates, the boundary of the Grade II Registered Ranelagh Gardens, and the Chelsea Embankment river wall.
- a. Archaeological works shall be undertaken in accordance with a site-specific scheme of investigation, which could include protection of archaeological resources.
 - b. Original materials shall be retained and re-used where possible.
 - c. The railings in Ranelagh Gardens shall be removed, stored and replaced.

F.7 Assessment of effects

- F.7.1 The *Environmental Statement* assesses the significant effects of the proposals on the historic environment. The below discussion sets out the significant and less significant effects having regard to the criteria in the NPS.
- F.7.2 The potential negative effects caused by the works would be minimised by splitting the below-ground works between two sites in order to reduce the size of the foreshore structure as far as possible. The design, form and materials of the above-ground structures were developed with a thorough understanding of the significance of the heritage assets and with the intent of minimising negative effects on them, in accordance with para. 4.10.11 of the NPS. This consideration is also reflected in *Core Strategy Policy CL4*, saved *UDP Policies CD1 and CD63*, *London Plan Policy 7.29*, and the views noted in the *Thames Conservation Area Proposals Statement* (p. 19). Although there would be some negative effects as a result of the proposed works, they works would also have positive effects on a number of heritage assets.
- F.7.3 A summary of the assessment of effects on the heritage assets, based on the significance of the heritage assets identified in Section F.3, the impacts identified in Section F.4, and the mitigation measures described in Section F.6, is set out below.

Royal Hospital Chelsea

- F.7.4 The construction works would have temporary moderate negative effects on the RHC, as the construction site and its cranes would be visible in its setting along its principal Monument Walk axis. Views towards the RHC from the south would also be affected. These would, however, amount to less than substantial harm, as the significance of the RHC would not be substantially diminished or lost.
- F.7.5 The proposed foreshore structure was designed to complement and enhance the setting of the RHC and restore the historic connection to the River Thames.
- F.7.6 The foreshore structure would also offer a new viewpoint from which to appreciate the views of the RHC and the landscaped grounds, although the RHC is partly obscured by an avenue of mature trees running across the centre of the grounds, and by other trees along the southern boundary.
- F.7.7 The foreshore structure would therefore have a significant positive effect on the setting of the RHC.

Royal Hospital Conservation Area, Royal Hospital South Grounds and Ranelagh Gardens

- F.7.8 During construction, the alterations to the ground surfaces in front of the Bull Ring Gate and to the southern boundary of Ranelagh Gardens, together with the works in the setting of the conservation area and the registered park and garden would have a significant temporary negative effect on the conservation area as a whole and on the park and garden. One of the main elements of the significance and character of both assets

(the RHC and its principal axis) would be affected. This would amount to less than substantial harm to both assets.

- F.7.9 The permanent effects would be, on balance, slightly beneficial as the beneficial effects on the setting of the conservation area from the foreshore structure and associated landscaping would outweigh the minor harm from replacing a stretch of railings with a gate, and thinning the tree screen on the southern boundary of Ranelagh Gardens.
- F.7.10 Refer to the Historic environment features map and the Conservation areas map and the following drawings: Demolition and site clearance plans, Permanent works layouts, Construction phase 1: Site set-up, Construction phase 2: Shaft construction and tunnelling, and Construction phase 3: Construction of other structures.

Bull Ring Gate

- F.7.11 The construction works would have a significant negative effect on the setting of the gate, although this would amount to less than substantial harm, as the gate's significance would be preserved. Its role as a transitional element between the RHC and Chelsea Embankment would also be preserved along with its distinctive shape and relationship with the other heritage assets on the Monument Walk axis.
- F.7.12 The foreshore structure would have a slightly beneficial effect on the setting of the gate. The structure would echo the gate's distinctive shape and better reveal its significance.

Thames Conservation Area

- F.7.13 The construction works would have a significant negative effect on the eastern end of the conservation area, although this would amount to less than substantial harm as the area extends along the whole river frontage in the Royal Borough of Kensington and Chelsea.
- F.7.14 The foreshore structure would have a very slight negative effect on the conservation area as a whole, as the river wall at its eastern extremity would be altered.
- F.7.15 Refer to the following drawings: Conservation areas map Demolition and site clearance plans, Site works parameter plan, As existing and proposed river elevation, Construction phase 1: Site set-up, Construction phase 2: Shaft construction and tunnelling, and Construction phase 3: Construction of other structures.

Chelsea Embankment wall

- F.7.16 The construction works would have a significant negative effect on the unlisted section of the wall and a significant negative effect on the setting of the listed wall. In both cases this would constitute less than substantial harm, as the works would only affect a small proportion of the unlisted wall and the setting beyond the western end of the listed wall. The wall would be recorded archaeologically.
- F.7.17 The permanent works would have a moderate negative effect on the unlisted river wall and a minor negative effect on the setting of the listed river wall. In both cases the effect would represent less than substantial

harm, as the significance of the assets would not be substantially diminished.

Listed ventilation column

- F.7.18 The ventilation column is a fairly robust asset. There would be temporary minor negative effects on its setting, amounting to less than substantial harm.
- F.7.19 The permanent effects would be neutral.

Battersea Park Conservation Area and Battersea Park registered park and garden

- F.7.20 The changes to the setting of the park from both the temporary construction works and from the foreshore structure would have a minor negative effect on the conservation area and park as a whole. The restricted views across the river would be affected. The design would partially mitigate this effect.

Chelsea Bridge

- F.7.21 The construction works and the foreshore structure would fall within the setting of Chelsea Bridge and would alter the linear character of the views from the bridge along Chelsea Embankment, which form part of its setting. This would have a moderately negative temporary effect. This would amount to less than substantial harm, as the setting and the significance of the bridge would largely be preserved. The foreshore structure would be approximately 270m from the bridge and would not dominate its setting.

Chillianwala Memorial Obelisk

- F.7.22 As the Chillianwala Memorial Obelisk forms a focal point within the views in both directions between the RHC and the Bull Ring Gate, the construction and permanent works would have only minor effects on its setting. During construction these effects would be negative, as the construction plant and activities would disrupt the background of views towards it from the RHC. The permanent effects would be positive, as the improvement of the Monument Walk axis and the new public space on the foreshore structure would better reveal the significance of the obelisk and its role in the axis.

Lister Institute

- F.7.23 The effects on the setting of the Lister Institute would be negligible, as views towards the site are largely obscured.

Assessment in relation to policy

- F.7.24 The significance of Ranelagh Gardens would be preserved and the proposals would cause less than substantial harm. This satisfies paras. 4.10.13, 4.10.14 and 4.10.17 of the NPS, and reflects similar guidance in *London Plan Policy 7.8*, *Core Strategy Policy CL4*, and saved *UDP Policies CD1 and CD63*.

- F.7.25 Most of the proposed alterations would fall within the Thames Conservation Area. The permanent moderate negative effects would arise from the loss of the linear character of the river wall and the loss of historic fabric and lamp standards from a short section of the wall. Overall, given the extent of the conservation area, its character and appearance would experience less than substantial temporary harm, and minor permanent harm. This is below the threshold established in para. 4.10.14 of the NPS, above which consent should be refused unless substantial public benefit can be demonstrated.
- F.7.26 The sensitive design and modest scale of the above-ground structures would constitute a benefit. The materials would be of high quality and appropriate to the location, and would improve the turning circle in front of the Bull Ring Gate and the riverside walkway. The new river wall would reflect the form of the existing brick wall topped by a stone parapet. The curved foreshore structure would mirror the shape of the Bull Ring and the intertidal terraces would accommodate any additional equipment. The new public space and landscaping would benefit pedestrians and provide a place in which to pause on Chelsea Embankment. The space would offer panoramic views of Chelsea Bridge, Battersea Park, the embankment, and the RHC and better reveal their significance, in accordance with para. 4.10.17 of the NPS. The sensitivity and responsiveness of the design to the historic environment also complies with the criteria set out in para. 4.10.11 of the NPS.
- F.7.27 The projecting structure would accentuate the Monument Walk axis and enhance its original design and significance. Integrating the Bull Ring Gate with the foreshore structure would re-establish the connection between the RHC grounds and the River Thames.
- F.7.28 With regard to the permanent works, the effects of the foreshore structure on the setting of nearby heritage assets would amount to less than substantial harm. There would be positive effects on the settings of the RHC, the most significant heritage asset, and on the Royal Hospital Conservation Area; the Royal Hospital South Grounds and Ranelagh Gardens registered park and garden; the Bull Ring Gate and the Chillianwala Memorial Obelisk. These benefits would outweigh the less than substantial harm to the Thames Conservation Area, and the settings of Battersea Park Conservation Area, Battersea Park registered park and garden, Chelsea Embankment and Chelsea Bridge.
- F.7.29 The foreshore structure and the new public space would be a positive addition to the heritage of the local area. Overall, the works would satisfy the requirements of Section 3.5 and paras. 4.10.11, 4.10.14 and 4.10.17 of the NPS, which is reflected in similar regional and local policies including *London Plan* Policies 7.8 and 7.29, *Core Strategy* Policy CL4, saved *UDP* Policies CD1 and CD63, and the views noted in the *Thames Conservation Area Proposals Statement* (p. 19).

Archaeology

- F.7.30 In respect of archaeology, the works would remove the upper stratum of the foreshore and the 19th century CSO outfall apron, and disturb the 19th century made ground in Ranelagh Gardens. It is unlikely that there would be any archaeological finds of sufficient significance to require preservation *in situ*. The works would be mitigated by the programme of investigation and recording, which satisfies the requirements of para. 4.10.18 to 4.10.20 of the NPS, and is reflected in *London Plan Policy 7.8*. Although the ability to record archaeology that would be removed should not be a factor in any decision to grant development consent (NPS para. 4.10.19), English Heritage has agreed that archaeological recording and dissemination of findings would constitute partial mitigation for any archaeological impacts (Vol 2, Appendix E.1 of the *Environmental Statement*).
- F.7.31 The programme of investigation and recording would be compensatory enabling advanced understanding of the significance of any lost archaeological resources. The information gathered would be disseminated to increase public appreciation of the heritage of the site. These mitigation measures are proportionate to the likely significance of the archaeology. Therefore, the potential impact of the works would be acceptable, in line with para. 4.10.18 of the NPS, which is also reflected in *London Plan Policy 7.8*, and *Core Strategy Policy CL4*.

F.8 Conclusion

- F.8.1 The main potential heritage impact at this site would be the effect on the fabric of the southern boundary wall of Ranelagh Gardens and the effect of the foreshore structure on the setting of the heritage assets in the vicinity. Every effort has been made to minimise any adverse impacts by careful positioning, massing, scale, and detailed design of the above-ground structures.
- F.8.2 The main design challenge at this site was the position of the existing CSO outfall in front of the RHC. However, it also provided the opportunity to reconnect the RHC to the River Thames along the Monument Walk axis.
- F.8.3 The works would improve existing and create additional public space and preserve views. They would also enhance the Monument Walk axis and significantly benefit the setting of the RHC.
- F.8.4 The unavoidable potential impacts on archaeology would be fully mitigated by a programme of investigation and recording, which would create a permanent record of all elements of interest for posterity.
- F.8.5 Due to good design and the range of mitigation measures, the works would not cause substantial harm to the fabric or setting of any of the surrounding heritage assets. The impact of the cofferdam, worksites and hoardings during construction would be low overall in heritage terms as they would be temporary.

F.8.6 The proposed works and permanent above-ground structures would therefore be in line with the requirements of the NPS, which also reflect similar policies in the *London Plan*, the *Core Strategy*, the saved *UDP*, and the *Thames Conservation Area Proposals Statement*.

Gazetteer of known heritage assets

Details of known heritage assets within the assessment area are provided in Table F.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 13 Appendix E.1.

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

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
1A	Deposit of peat/organic clay recorded by the 1990s Thames Archaeological Survey (TAS) at Chelsea Embankment foreshore. The Museum of London Archaeology (MOLA)/Thames Discovery Programme (TDP) site visit as part of the Thames Tideway Tunnel project in Spring 2011 noted that this was still visible.	FKN04 A102
1B	Unclassified structure comprising a line of timber posts at right angles to river, possibly representing a drain of post-medieval date, recorded by the TAS in the 1990s. The MOLA/TDP site visit as part of the project in Spring 2011 noted that this was still visible.	FKN04 A103
1C	Sewer outfall and apron across the foreshore, dating to 1883. Originally the outfall of the Ranelagh Sewer and incorporated into the Bazalgette scheme for the Embankment, but enlarged in 1883 to incorporate the outfall of the King's Scholars' Pond Outfall Sewer. Noted by the TAS in the 1990s and also on the MOLA/TDP site visit as part of the Thames Tideway Tunnel project in Spring 2011.	FKN04 A104
1D	Chance find of a post-medieval padlock and a post-medieval mount, recorded by the PAS.	LON-CF02B1 LON-7323A0
1E	Possible post-medieval mooring post represented by a timber recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore. The MOLA/TDP site visit as part of the Thames Tideway Tunnel project in Spring 2011 noted that this was still no longer present or visible.	FKN04 A106
1F	Royal Hospital Chelsea and Ranelagh Gardens Grade II registered park and garden: The site of 17th century formal gardens laid out around Sir Christopher Wren's Royal Hospital, Chelsea by George London and Henry Wise. Ranelagh Gardens, to the east, were developed as public pleasure gardens in the mid-18th century but reverted to the Royal Hospital in the early	DLO32886

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
	19th century. Both areas underwent major remodelling in the mid-19th century and retain this form in the 20th century.	
1G	Line of the Bazalgette Lower Level Sewer.	---
1H	Chance find of a post-medieval coin recorded by the Portable Antiquities Scheme (PAS).	LON-454BB4
1I	Line of Chelsea Embankment. Unlisted section of the river embankment, dating to the mid to late 19th century.	---
2	Grosvenor Waterside Phase II, Grosvenor Road, Chelsea. 2004 Pre-Construct Archaeology (PCA) watching brief revealed modern backfill of the Grosvenor canal and dock were observed. Natural strata were not reached.	GVW04
3	<p>93 Ebury Bridge Road. 1995 Museum of London Archaeology (MoLAS; now MOLA) evaluation.</p> <p>A complex alluvial sequence was recorded in the estuary formed by the confluence of the former Rivers Westbourne and Tyburn, at the point where they entered the Thames. This included a sandbank from which prehistoric flintwork and pottery had been eroded into an adjacent channel system, which had in turn been influenced by what was probably the main Thames channel. The sequence of erosion and deposition covers an extensive period from the later Mesolithic to the Iron Age and later. In its final stages the channel system became a marsh. Substantial 18th- and 19th-century reclamation deposits overlay the alluvium.</p>	EBR95 083654
4	Western Pumping Station, Grosvenor Road. 200: Standing building recording. The pumping station was opened in 1875 for lifting the western sewerage into the northern low-level sewer. It comprised brick structures, including an engine and a boiler house, coal vaults, chimney shaft, reservoirs, dwelling houses and sewers etc. A Mess Shed was added against the western boundary wall in the 1880s. In 1967-1970 the former workshops were altered to accommodate offices and in 1987-1990 the Western Deep Sewer was constructed, with the associated demolition of the workers' houses and erection of new buildings, including transformer, penstock valves and a control room. Landscaping, with a new roadway, lamp standards and ornamental railing to the central bridge across the cooling pond, was also carried out as part of the 1987-1990 works.	GSV03
5	Battersea Wharf: Bronze Age Peat recorded on the Greater London Historic environment Record (GLHER).	MLO22487 / 0211151
6	Chelsea Bridge (area of): The GLHER records the possible site of an early Iron Age / Roman ford and battlefield at this location as well as the chance find of a Neolithic Axe and a Palaeolithic axe.	MLO18386 / 081615 112053 112058

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
7	The chance find of a post-medieval pot shard, recorded by the PAS.	LON-80E617
8	The GLHER notes an undated garden soil and post-medieval cobbled road associated with Ranelagh House. Presumably recorded by an unknown archaeological observation.	MLO77056 MLO77058
9	Chelsea Bridge (near). A number of finds are recorded on the GLHER and were presumably dredged from the river: Roman Anchor, two spearheads, a shoe and a sheath ; Bronze Age to Iron Age sword, spear, dagger; Neolithic to Bronze Age vessel and Roman vessel; Iron Age to Roman human remains; Prehistoric lithic implement, Mesolithic lithic implement and Neolithic lithic implement.	MLO18005112 068 112066 112067 112069 112071 112062 112063 112064 112072 112065 112073
10	Battersea Park (Grade II* registered): One of the earliest mid-19th century public parks, much developed in the mid-20th century.	DLO32826
11	A pair of gate piers to the south east of the main buildings at the Royal Hospital. Grade II listed.	1226385
12	Entrance gates (the Bull Ring Gates) on main axis from Chelsea Embankment Royal Hospital (Grade II listed): Circa 1850? Wrought iron gates with stone piers.	1265846
13	Lister Institute of Preventative Medicine (Grade II listed):	1066261
14	Sewer vent at western end of Chelsea Bridge (Grade II listed): 1874 for the Metropolitan Board of Works, George Vulliamy supervising architect to the northern outfall sewer extension engineered by Sir Joseph Bazalgette and opened that year. Cast iron columns of great height to draw off vapours from the sewer and distribute their foul odours high above the embankment.	1265101
15	Memorial obelisk, Royal Hospital (Grade II listed): 1849 granite obelisk and WI gates with stone piers.	1226474
16	Entrance Gates at northeast entrance to Battersea Park (Grade II listed):	1225990
17	Chimney to western pumping station behind number 124 Grosvenor Road (Grade II listed):	1357059
18	Chelsea Bridge (Grade II listed): Dates from 1934-7 and was designed by London County Council Engineers under the leadership of Sir T Peirson Frank. Chelsea Bridge is a suspension bridge with a central span of 107.3m, side spans of 52.4m, giving a total length of 212.7m, and is 25m wide. The bridge replaced an earlier suspension bridge, built in the 1850s.	MLO99270List entry Number: 1393009 1393010

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
19	124 Grosvenor Road: The site of the Western Pumping Station, constructed between 1873-5 in order to lift sewage from the Pimlico, Fulham and Hammersmith areas into the northern Low Level Sewer. It was originally run with a steam powered beam engine.	MLO99521
20	Chelsea Bridge – Grosvenor Bridge. Location of a pontoon recorded by Seazone.	486000006148 874
21	The chance find of a medieval horse mount, recorded by the PAS.	LON-0935B5
22	Deposit of peat/organic clay recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FKN04 A107
23	Deposit of peat/organic clay recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FKN04 A108
24	Possible post-medieval mooring and unclassified timber noted by the TAS in the 1990s.	FKN04 A109 A110
25	Drain of post-medieval date comprising an outfall with apron recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FKN04 A117
26	Drain of post-medieval date comprising an outfall with apron recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FKN04 A118
27	Post-medieval mooring block represented by possible mooring posts recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FKN04 A119
28	Post-medieval mooring block represented by two pairs of close set vertical timbers approximately 1.5m apart recorded by the 1990s Thames Archaeological Survey on the foreshore beneath Chelsea Bridge.	FWM01 A101
29	An undated Peat/organic clay, recorded by TAS in the 1990s.	FKN04 A111
30	Post-medieval timber barge bed at the foot of river wall now covered with concrete. Recorded by the 1990s Thames Archaeological Survey on the foreshore by Chelsea Bridge.	FWM01 A102
31	Possible barge bed, recorded by TAS in the 1990s.	FHN04 A112
32	Post-medieval mooring block represented by a line of posts in front of riverfront defence noted by the 1990s Thames Archaeological Survey on the foreshore by Chelsea Bridge.	FWM01 A103
33	Post-medieval mooring block represented by mooring posts or dolphin predating A106 and recorded by the 1990s Thames Archaeological Survey on the foreshore by Chelsea Bridge.	FWM01 A104
34	Post-medieval dock representing the brick and stone entrance to Grosvenor Dock, recorded by the 1990s Thames Archaeological Survey on the foreshore by Chelsea Bridge.	FWM01 A105

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
35	Post-medieval mooring block represented by one dolphin either side of the dock entrance. Noted by the 1990s Thames Archaeological Survey on the foreshore by Chelsea Bridge.	FWM01 A106
36	Drain of 19th-century date comprising an outfall built into the brick river wall with timber and concrete apron. Recorded by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FWM01 A107
37	Drain of 19th-century date comprising four outfalls built into the brick river wall. Noted by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FWM01 A108
38	Grosvenor Pumping Station 19th century outfall drain built into the brick river wall with a timber and concrete apron. Noted by the 1990s Thames Archaeological Survey at Chelsea Embankment foreshore.	FWM01 A109
39	Post-medieval riverfront landing steps comprising a gated closed stair. Noted by the 1990s Thames Archaeological Survey at the north/eastern corner of Battersea Park.	FWW14 A101
40	Post-medieval barge bed with revetted timber, noted by the 1990s Thames Archaeological Survey at the foreshore of Battersea Park.	FWW14 A102
41	Possible post-medieval barge bed noted by the 1990s Thames Archaeological Survey at the foreshore of Battersea Park.	FWW14 A103
42	The chance find of a Bronze Age sword, two Roman coins, a post-medieval token and a post-medieval seal cloth recorded by the PAS.	LON-39AAC1 LON-BC2AD0 LON-45C7D1 LON-87C033 LON-D9EA16
43	Post-medieval mooring feature represented by four vertical timbers, noted by the 1990s Thames Archaeological Survey at the foreshore of Battersea Park.	FWW14 A105
44	Post-medieval outfall with timber revetments, noted by the 1990s Thames Archaeological Survey at the foreshore of Battersea Park.	FWW14 A106
45	Chance find of a post-medieval mount, recorded by the PAS.	LON-ED2A56
46	The Embankment from Battersea Bridge to a point opposite the southwestern corner of the Royal Hospital ground. Grade II listed. Circa 1874. Esplanade retaining wall built of granite with 64 cast iron lamp posts.	1294183
47	The site of Chelsea Barracks. A MOLA geoarchaeological watching brief of geotechnical investigations in 2009 revealed a waterlogged area of peat and river and flood deposits, an extinct watercourse and an area that may have been an osier bed.	MLO98889

HEA Ref.	Description	Site code/ GLHER ref/ List Entry Number
48	<p>Chelsea Royal Hospital (Grade I Listed Building) – List entry 1226301: The Royal Hospital: Main Hospital Buildings Seven three-storey connected blocks - Founded by Charles II for old and disabled soldiers and built 1682-1702 to the designs of Sir Christopher Wren. Later additions by Sir John Soane and others. The buildings have sustained some war damage. The former burial ground to north-east contains a number of Renaissance tombs. (R.C.H.M. and Survey of London, Vol XI). Main hospital building of dark brick, with red brick dressings, stone quoins at angles, moulded cornices, and slate roofs with dormers. Blocks disposed to form 3 courtyards open to south-east, south-west and north-east respectively. Centre block with stone Roman Doric pedimented portico front and back to vestibule between hall and chapel, surmounted by cupola and one storey colonnade either side of portico on side facing courtyard. North-east and south-west blocks also with stone pedimented central features. Pavilion blocks with pedimented centres.</p>	Listing Number 1226301

Table F.4 List of drawings in order

Drawing title
Historic environment features map
Conservation areas map
Location plan
As existing site features plan
Demolition and site clearance plan (1 of 2)
Demolition and site clearance plan (2 of 2)
Site works parameter plan
Permanent works layout (1 of 2)
Permanent works layout (2 of 2)
Proposed landscape plan (1 of 2)
Proposed landscape plan (2 of 2)
Section A-A
As existing and proposed south (river) elevation
As existing and proposed west elevation
Proposed east elevation
Proposed north elevation
Kiosk design intent
Typical river wall design intent
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
 - Heritage Feature
 - Statutorily Listed Building
 - Statutorily Listed Building
 - Past Investigation
 - Bazalgette sewer
 - Registered Park/Garden

The reference number for historic environment features correspond to the descriptions in the 'Gazetteer of known heritage assets' in Environmental Statement Vol. 13 Appendix E.1

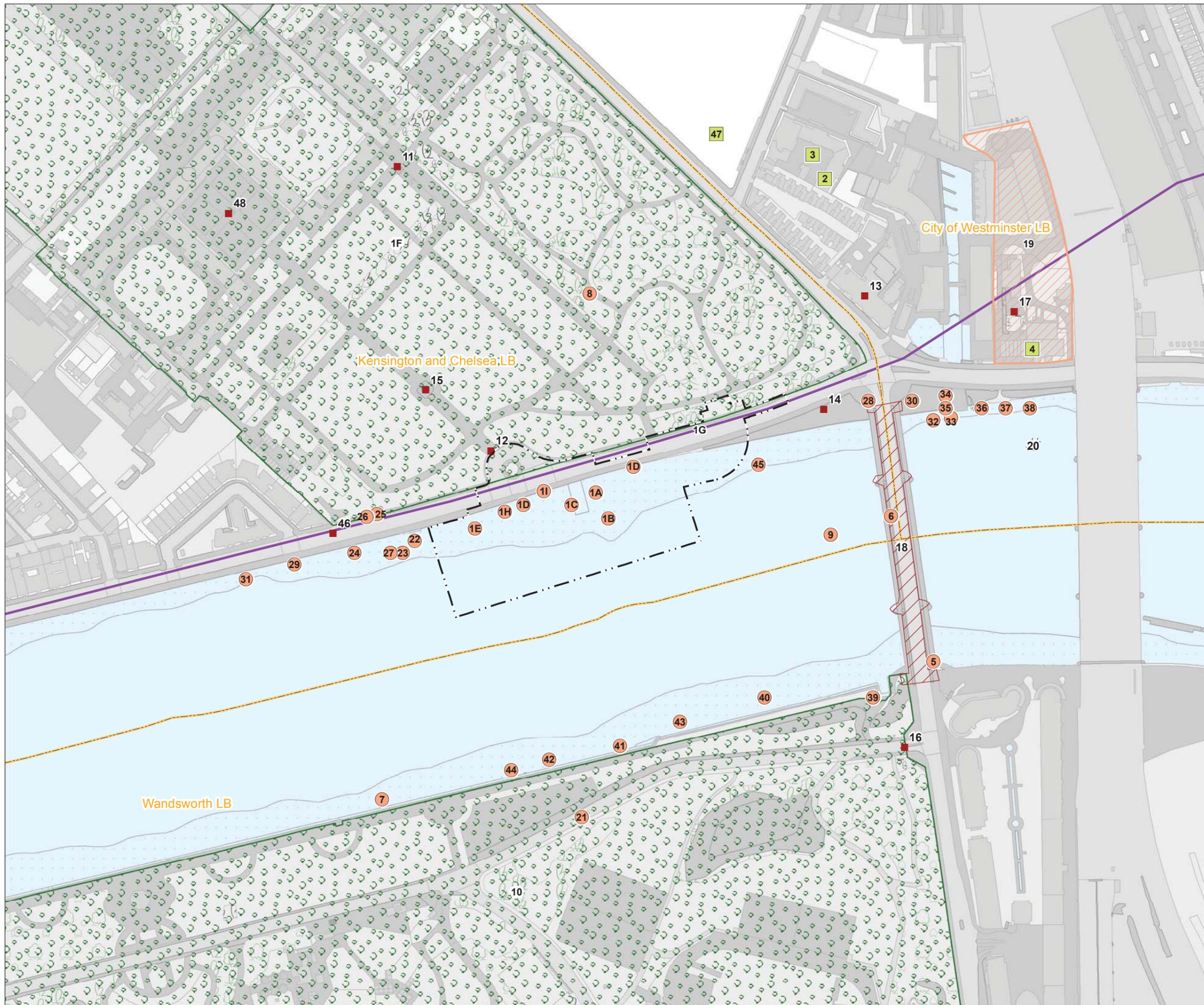


FOR INFORMATION

Location
Chelsea Embankment Foreshore
 Royal Borough of Kensington and Chelsea

Document Information
Heritage Statement
 Historic environment features map

1PL03-HE-65221
 January 2013

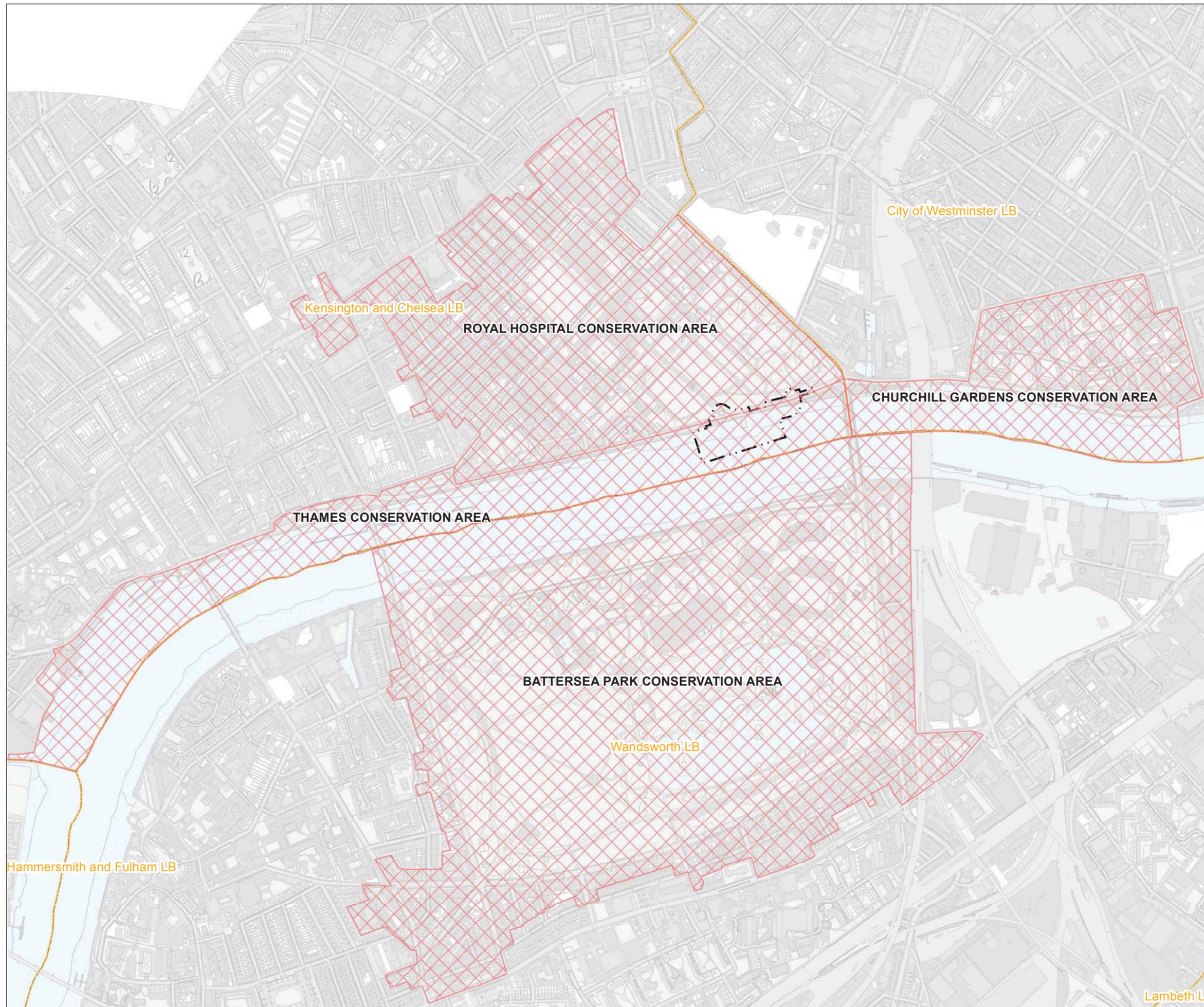


Keyplan:



Key

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



125 62.5 0 125 m

Scale 1 : 9,000 at A3

FOR INFORMATION

Location

Chelsea Embankment Foreshore
Royal Borough of Kensington and Chelsea

Document Information

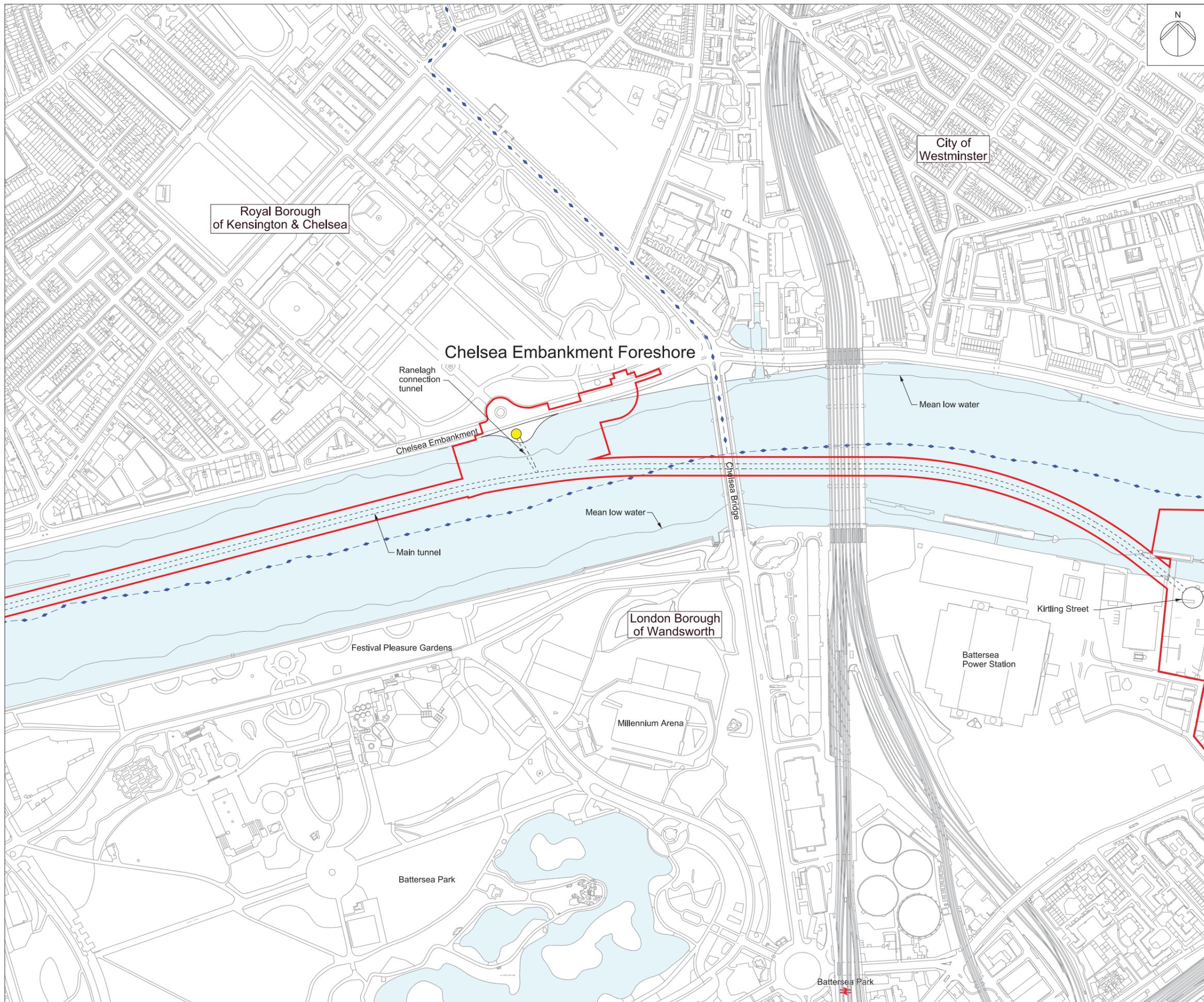
Heritage Statement
Conservation areas map

PL03-HE-65236
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



Lambeth LB



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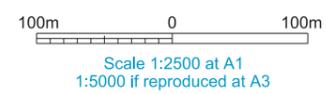


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

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

Notes:

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



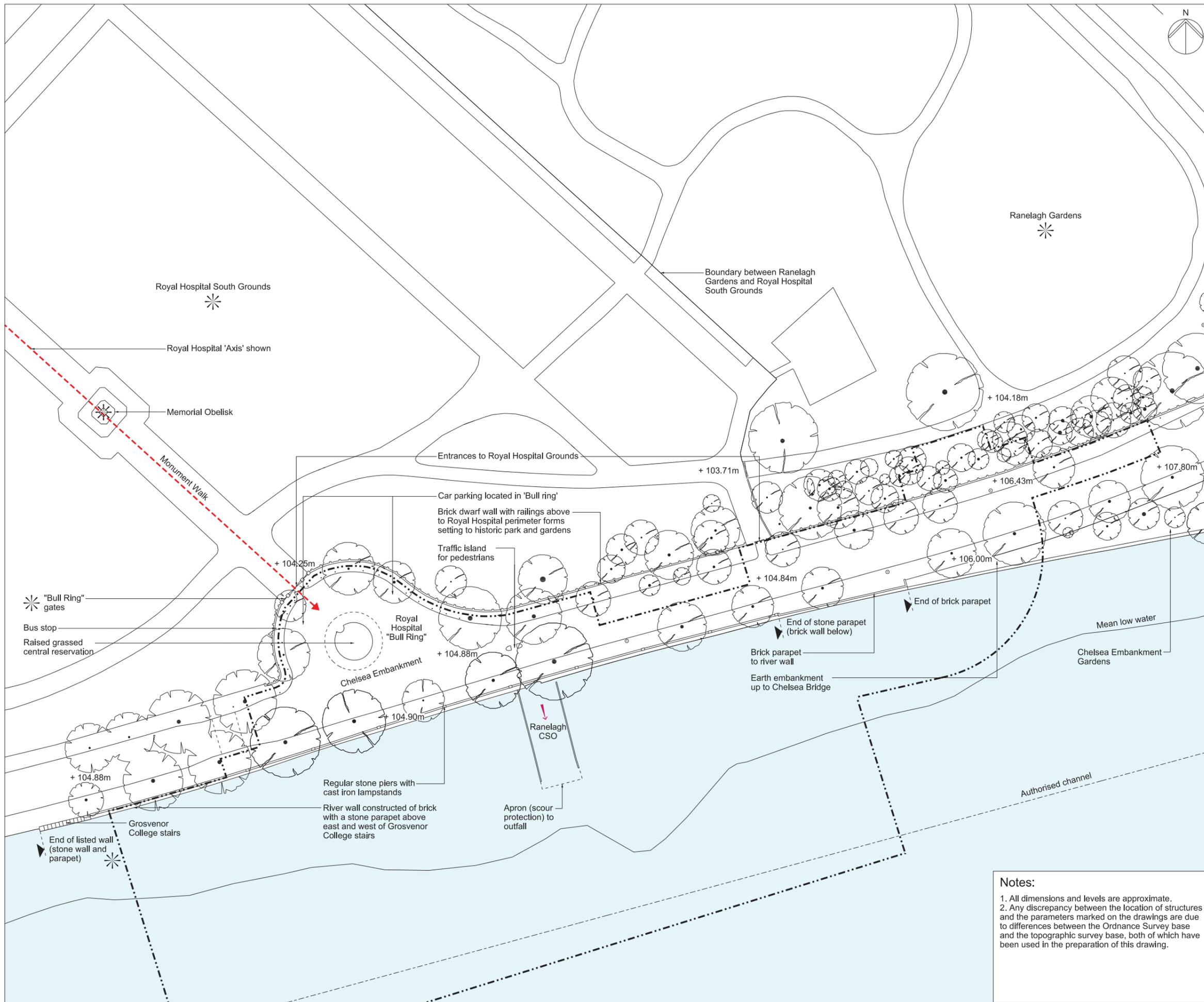
FOR INFORMATION

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Location plan

Book of plans - section 14
DCO-PP-12X-CHEEF-140001
January 2013



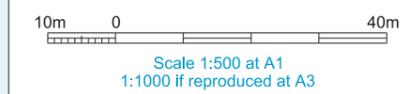


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- Key:**
- Limits of land to be acquired or used (LLAU)
 - - - - - Authorised channel
 - + 105.40m Existing levels (shown in metres above tunnel datum)
 - * Listed buildings/structures
 - Approximate position of CSO outlet
 - ⊙ Existing trees within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



FOR INFORMATION

Location
Chelsea Embankment Foreshore
 Royal Borough of Kensington & Chelsea

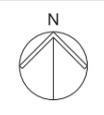
Document Information
Application for Development Consent

As existing
 Site features plan
 Book of plans - section 14
 DCO-PP-12X-CHEEF-140002
 January 2013

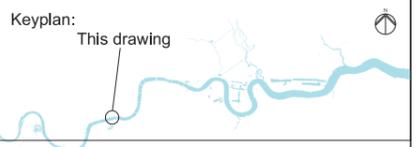


Notes:

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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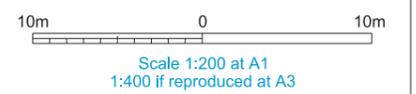
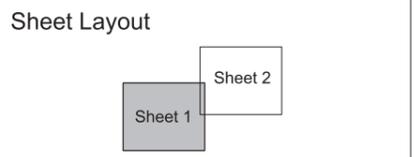


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Key:

	Limits of land to be acquired or used (LLAU)
	Trees to be removed
	Trees to be pruned
	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.

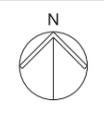


FOR APPROVAL

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Demolition and site clearance
Sheet 1 of 2
Book of plans - section 14
DCO-PP-12X-CHEEF-140004
January 2013





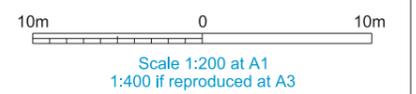
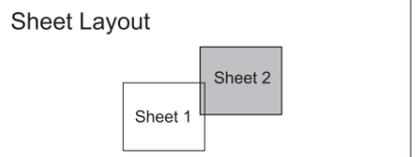
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - 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.



FOR APPROVAL

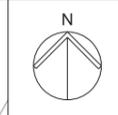
Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Demolition and site clearance
Sheet 2 of 2
Book of plans - section 14
DCO-PP-12X-CHEEF-140005
January 2013



Table 1

Above ground permanent structure	Maximum height above finished ground level (Minimum heights are in brackets where applicable)
Ventilation column(s) serving the shaft	8.0m (4.0m)
Ventilation column(s) serving interception and overflow weir chambers	6.0m
Electrical and control kiosk(s)	1.5m



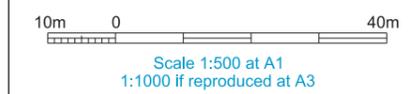
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Zone within which 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
 - Maximum extent of intertidal terracing
 - Maximum extent of temporary works platform

- Notes:**
- All dimensions and levels are approximate.
 - The Site Works Parameter Key Plan identifies each zone independently.
 - 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.

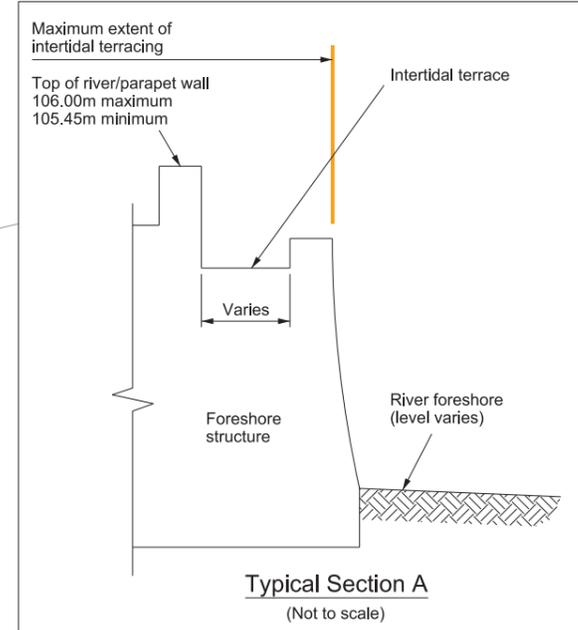
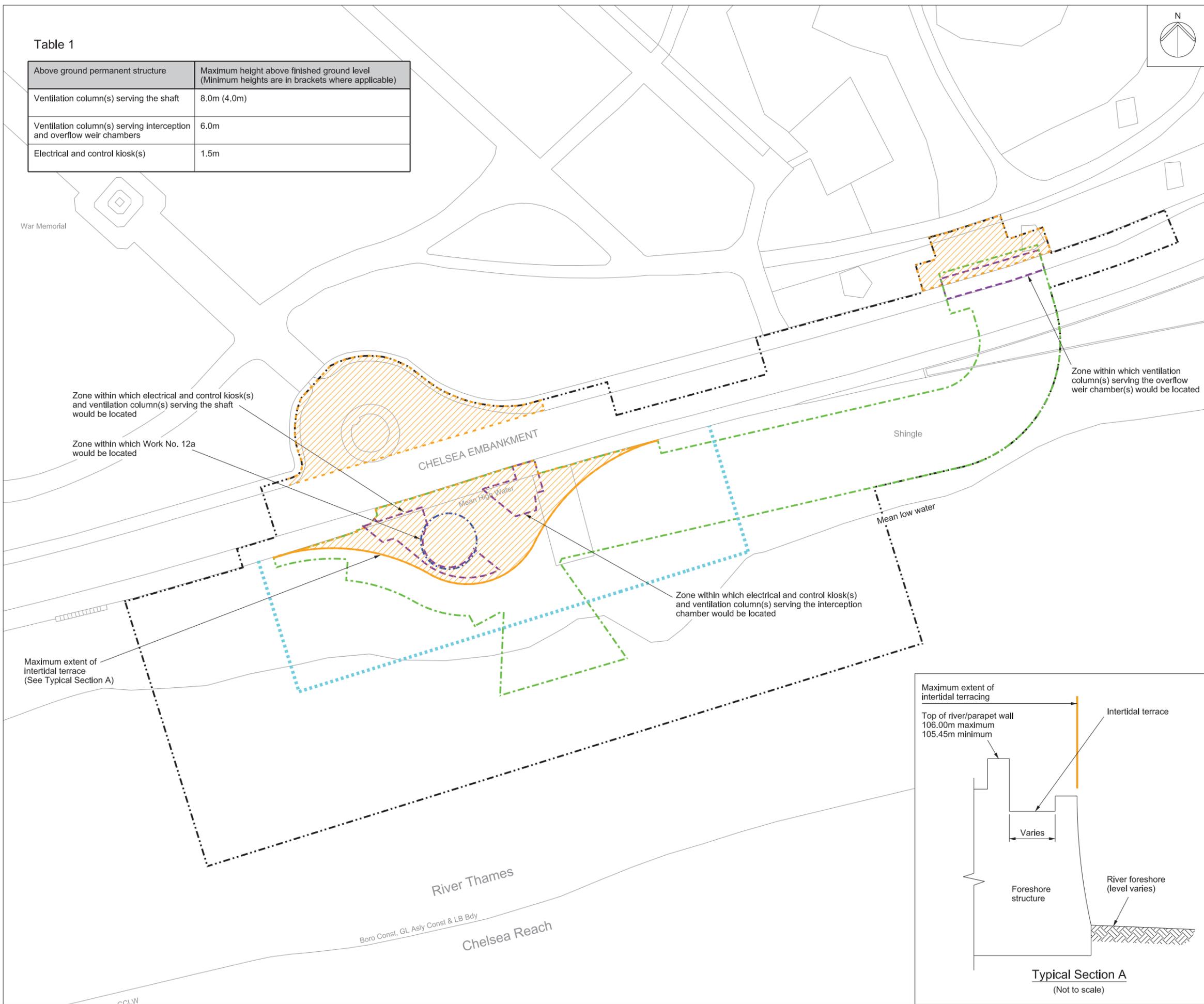


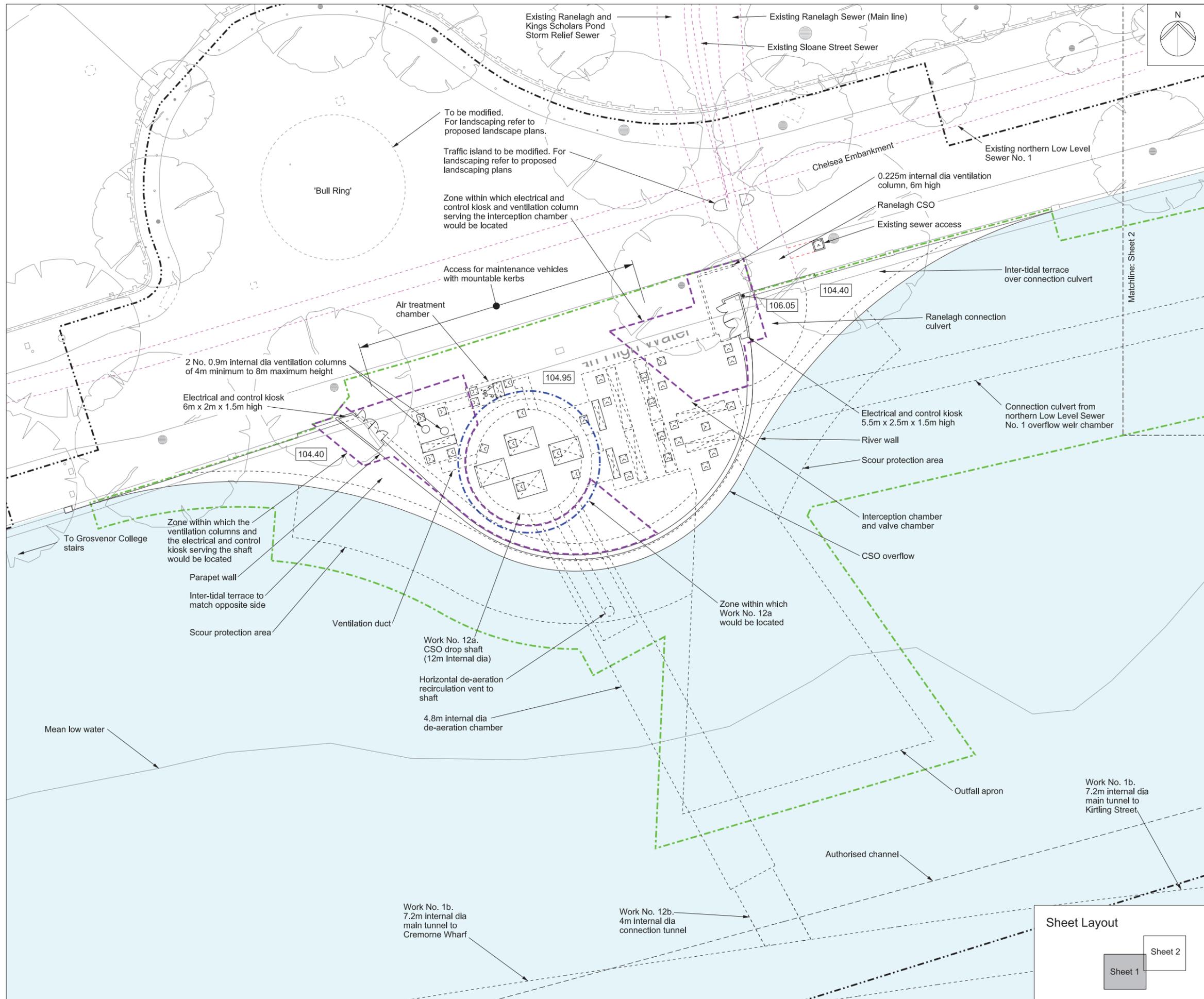
FOR APPROVAL

Location
 Chelsea Embankment Foreshore
 Royal Borough of Kensington & Chelsea

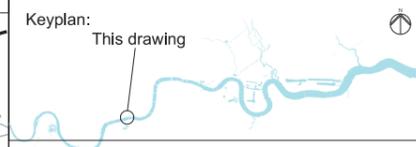
Document Information
 Application for Development Consent
 Site works parameter plan

Book of plans - section 14
 DCO-PP-12X-CHEEF-140006
 January 2013





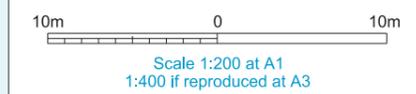
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing sewers
 - Proposed access cover
 - Proposed level (shown in metres above tunnel datum)
 - 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

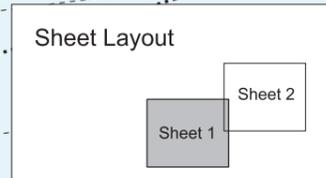
- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.

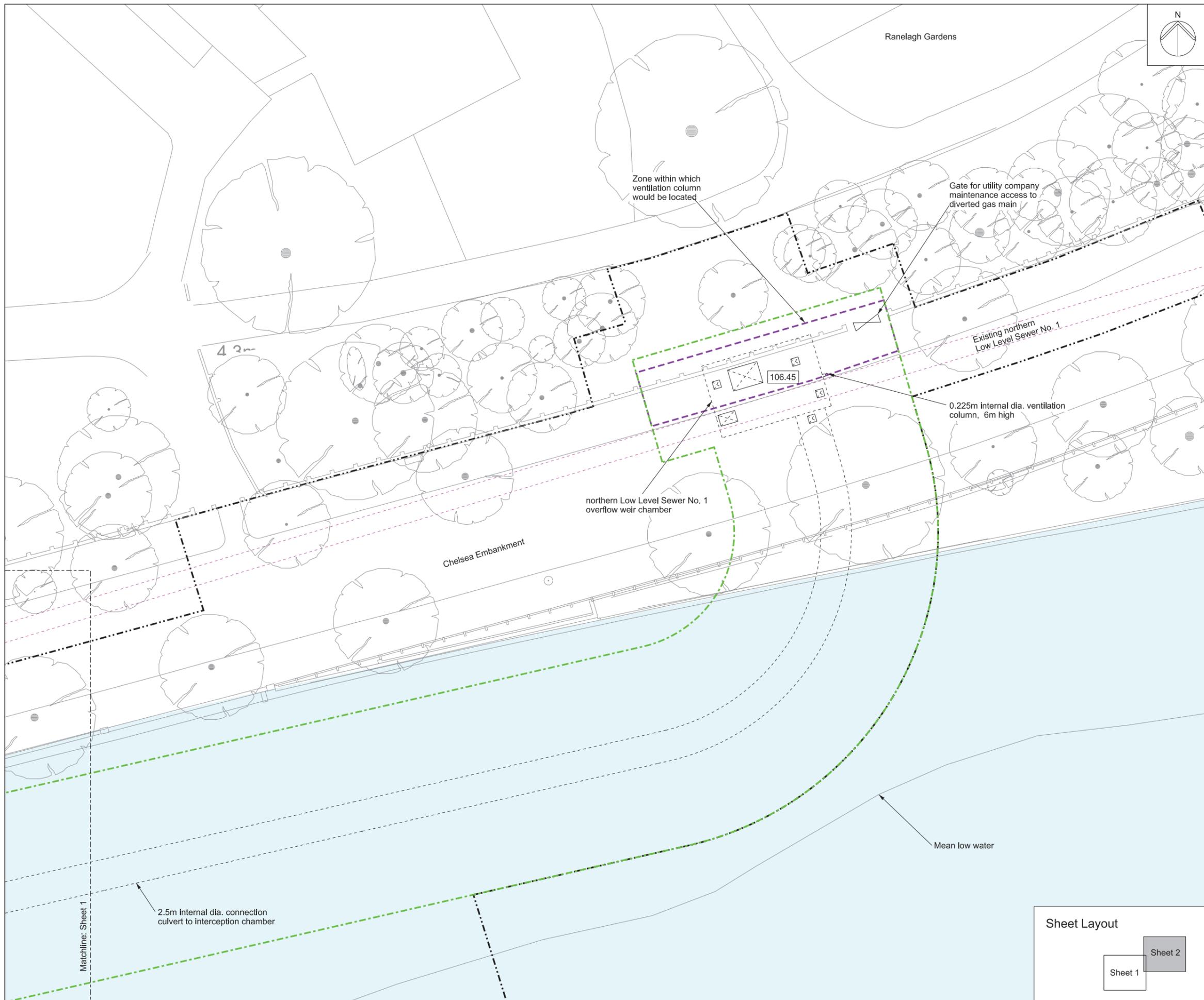


ILLUSTRATIVE

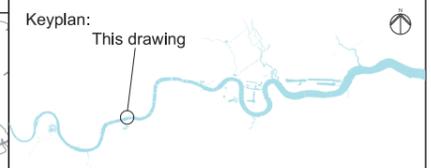
Location
 Chelsea Embankment Foreshore
 Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
 Permanent works layout
 Sheet 1 of 2
 Book of plans - section 14
 DCO-PP-12X-CHEEF-140008
 January 2013





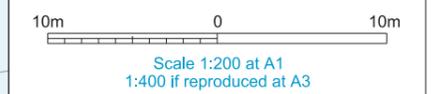
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- Key:**
- Limits of land to be acquired or used (LLAU)
 - Existing sewers
 - Proposed access cover
 - Proposed level (shown in metres above tunnel datum)
 - Zone within which all permanent site structures would be located
 - Zone within which permanent above ground structures would be located

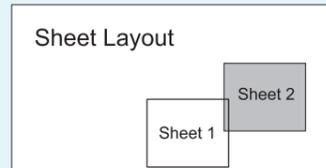
- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and topographical survey base, both of which have been used in the preparation of this drawing.
 3. This drawing shows permanent site structures only. Landscaping hard works and soft works are shown on the Proposed landscape plan and/or Proposed site features plan.



ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
 Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
 Permanent works layout
 Sheet 2 of 2
 Book of plans - section 14
 DCO-PP-12X-CHEEF-140009
 January 2013





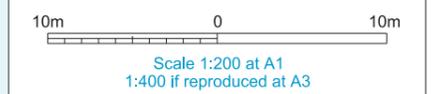
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- 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)
 - ⊕ Proposed trees

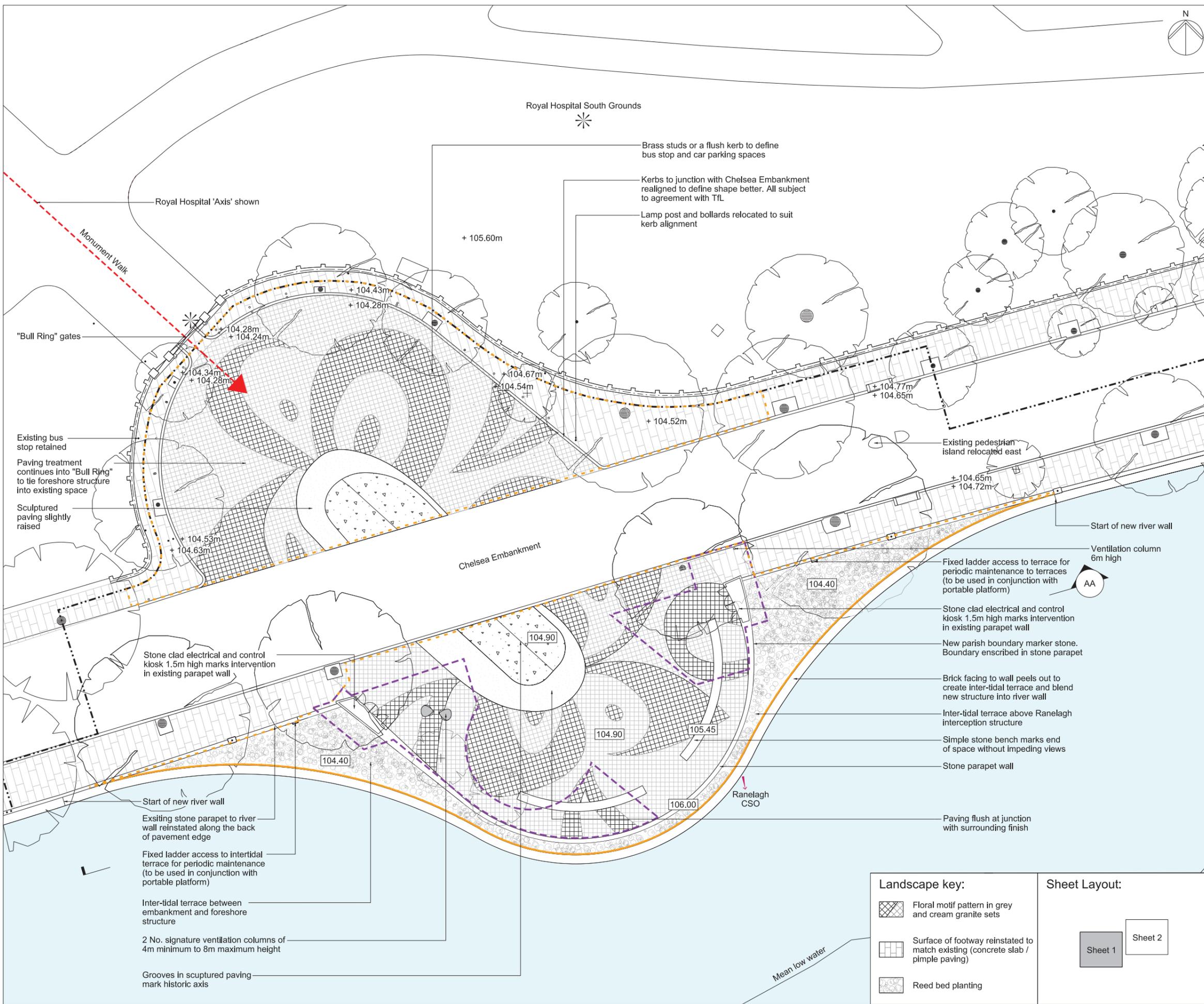
- Notes:**
1. All dimensions and levels are approximate.
 2. Any discrepancy between the location of structures and the parameters marked on the drawings are due to differences between the Ordnance Survey base and the topographic survey base, both of which have been used in the preparation of this drawing.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



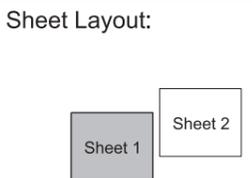
ILLUSTRATIVE
Save for the scale of above ground structures which is indicative

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Proposed
Landscape plan sheet 1 of 2
Book of plans - section 14
DCO-PP-12X-CHEEF-140010
January 2013



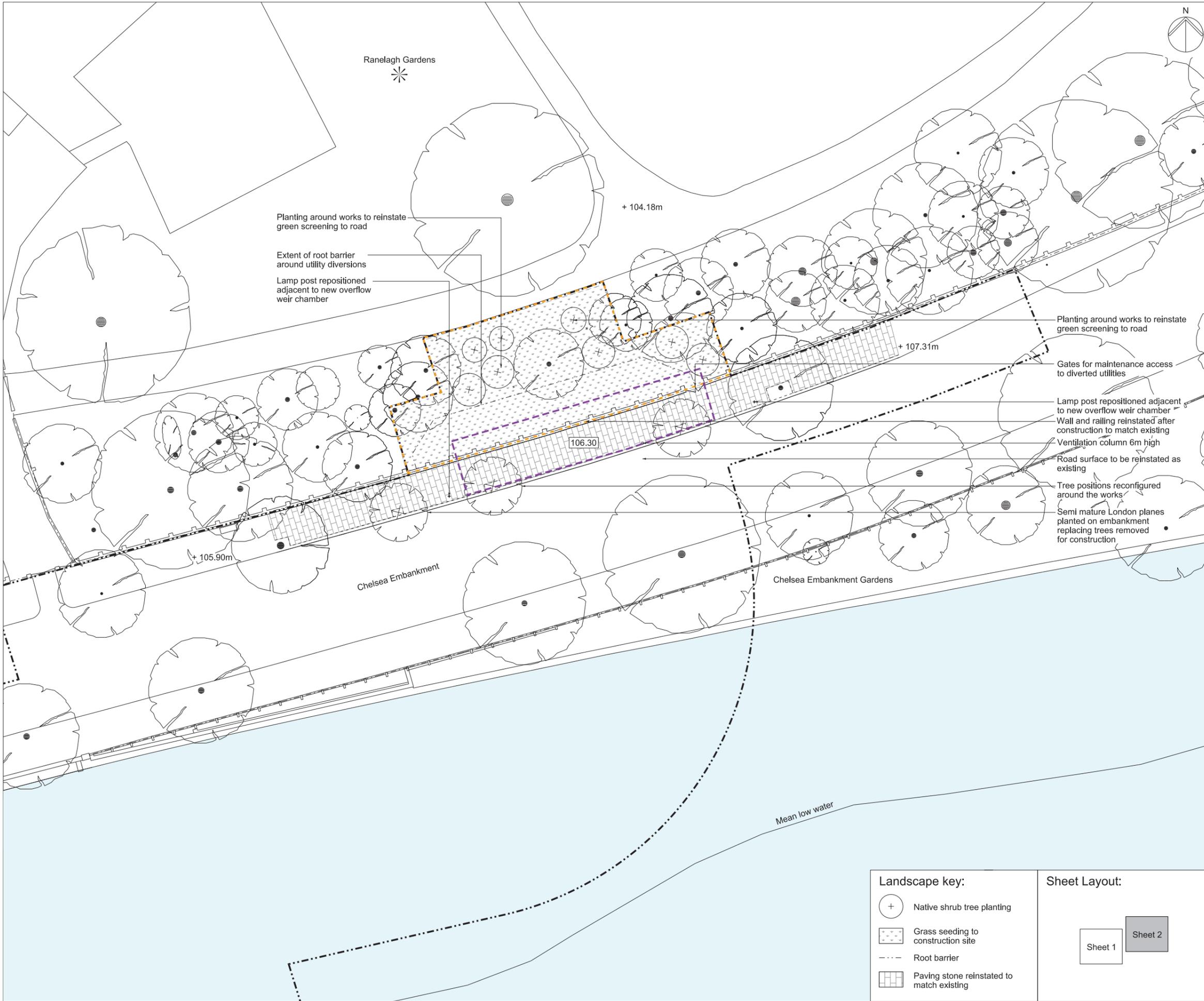
- Landscape key:**
- Floral motif pattern in grey and cream granite sets
 - Surface of footway reinstated to match existing (concrete slab / pimple paving)
 - Reed bed planting



2 No. signature ventilation columns of 4m minimum to 8m maximum height

Grooves in sculptured paving mark historic axis

Mean low water



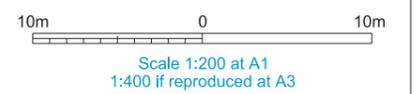
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- 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
 - +105.40m Existing levels (shown in metres above tunnel datum)
 - 105.40 Proposed levels (shown in metres above tunnel datum)
 - ☼ Listed buildings/structures
 - ⊙ 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. The above ground structures in the "Save for the scale of above ground structures which is indicative" statement are those listed in table 1 on the Site works parameter plan.
 4. Access covers not shown on this drawing. Refer to the Permanent works layout for an indication of the extent of access covers required.



ILLUSTRATIVE
Save for the scale of above ground structures which is indicative

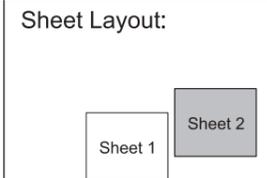
Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent

Proposed
Landscape plan sheet 2 of 2
Book of plans - section 14
DCO-PP-12X-CHEEF-140011
January 2013



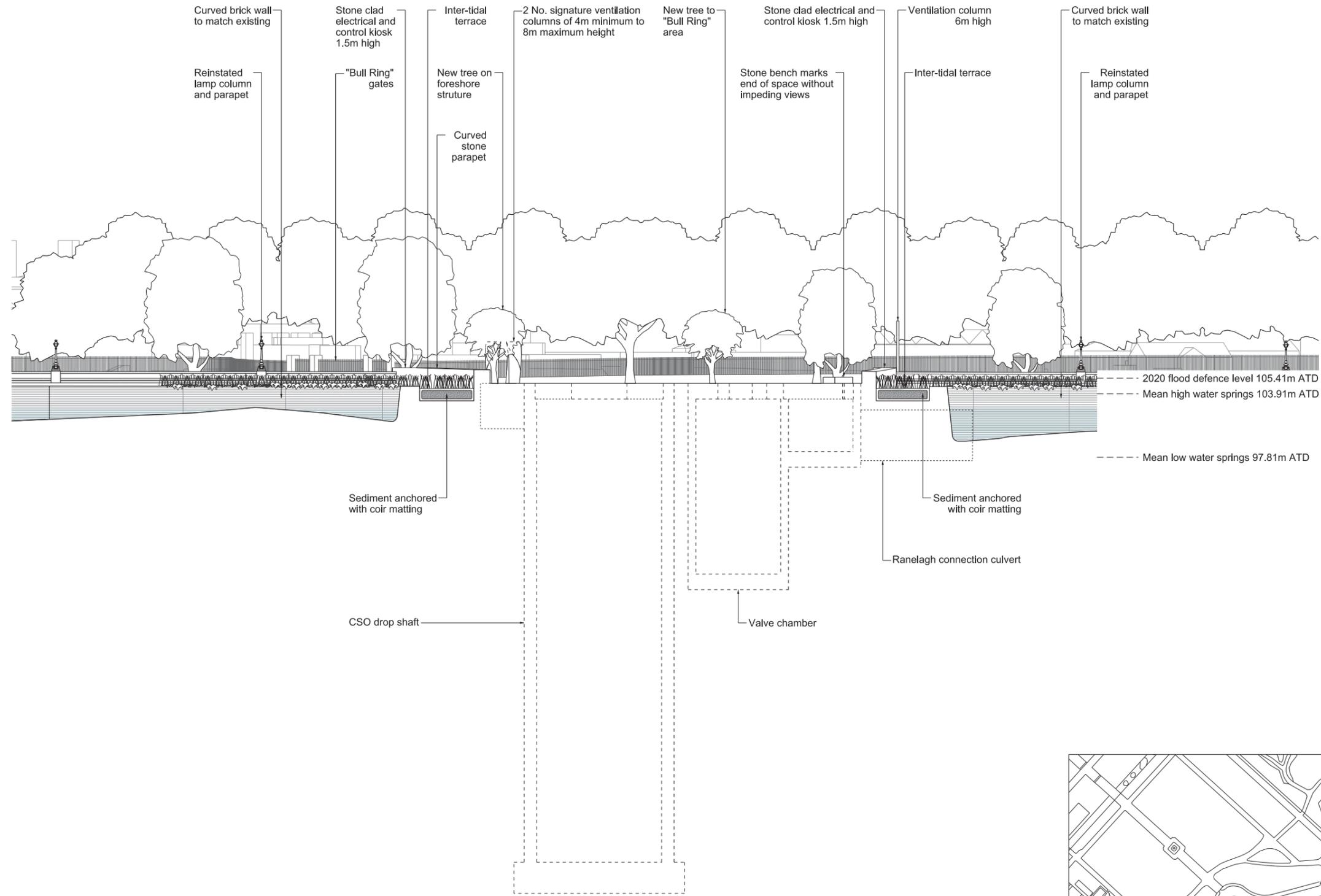
- Landscape key:**
- ⊕ Native shrub tree planting
 - ⊙ Grass seeding to construction site
 - Root barrier
 - ⊕ Paving stone reinstated to match existing



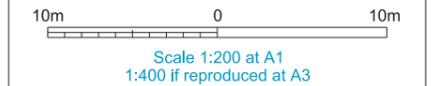


Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

- 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 AA



ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Section AA

Book of plans - section 14
DCO-PP-12X-CHEEF-140012
January 2013

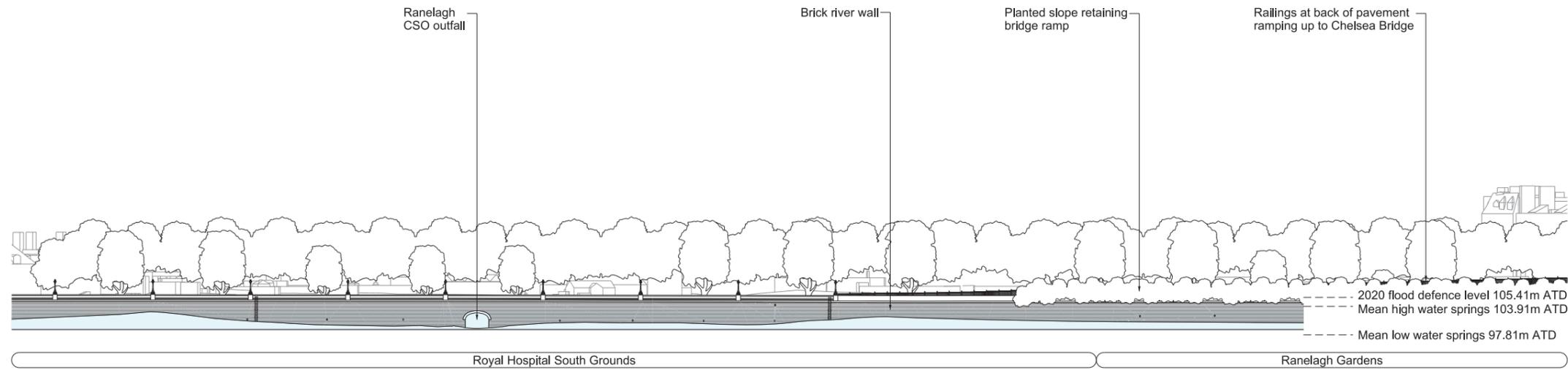




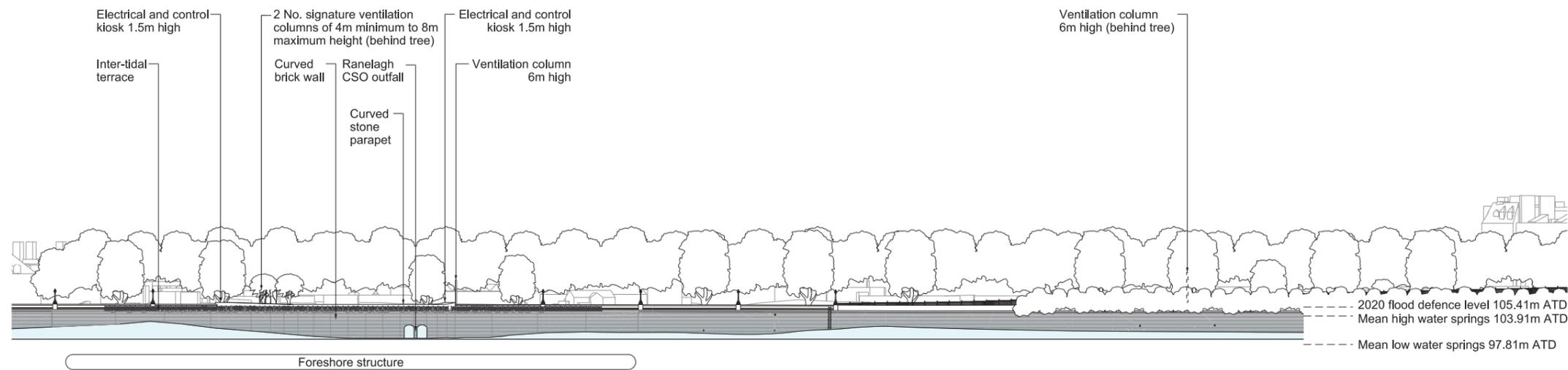
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

1. All dimensions and levels are approximate.



As existing South (river) elevation



Proposed South (river) elevation



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

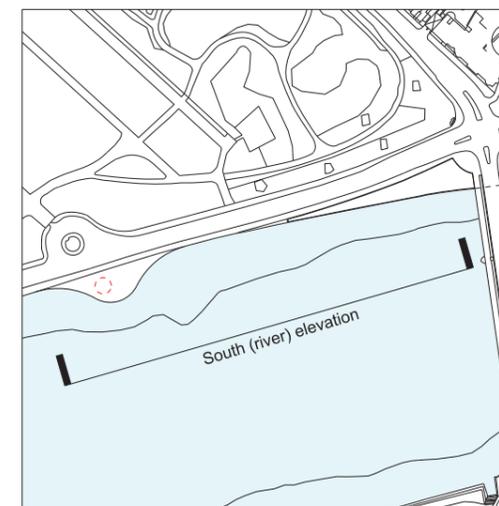
ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent

As existing and proposed
South (river) elevation
Book of plans - section 14
DCO-PP-12X-CHEEF-140013
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



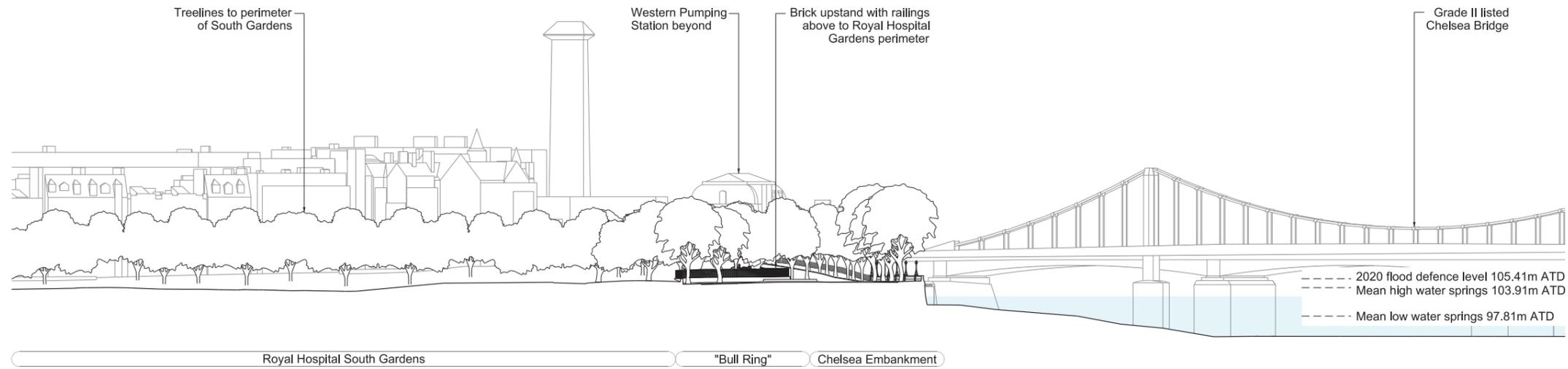
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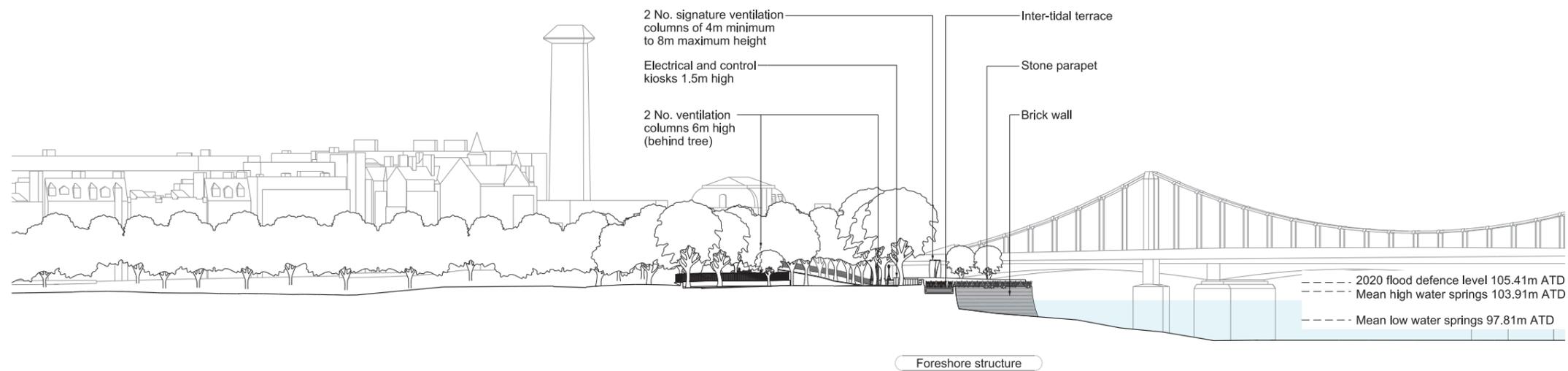
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

1. All dimensions and levels are approximate.



As existing West elevation



Proposed West elevation



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

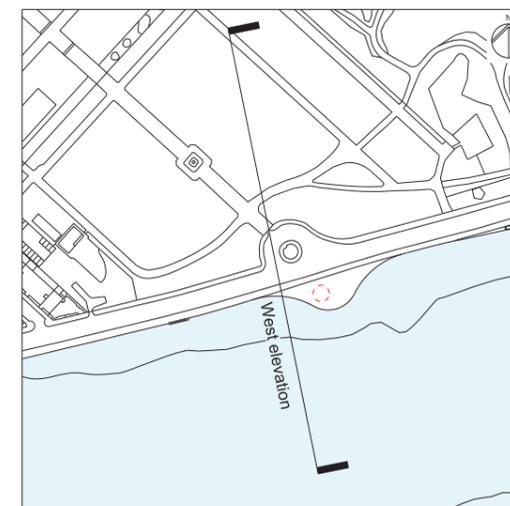
ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent

As existing and proposed
West elevation
Book of plans - section 14
DCO-PP-12X-CHEEF-140014
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



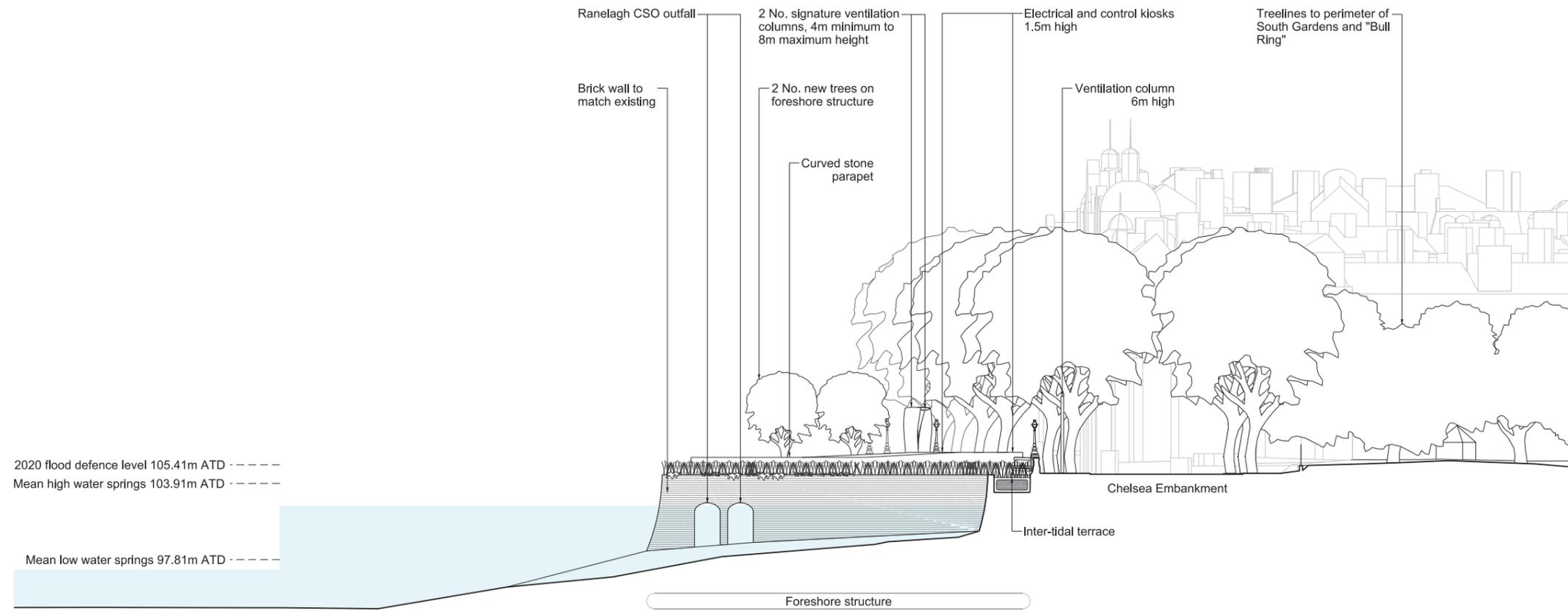
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Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

1. All dimensions and levels are approximate.



East elevation

10m 0 10m
Scale 1:200 at A1
1:400 if reproduced at A3

ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent

Proposed
East elevation
Book of plans - section 14
DCO-PP-12X-CHEEF-140015
January 2013

Thames Tideway Tunnel
Creating a cleaner, healthier River Thames



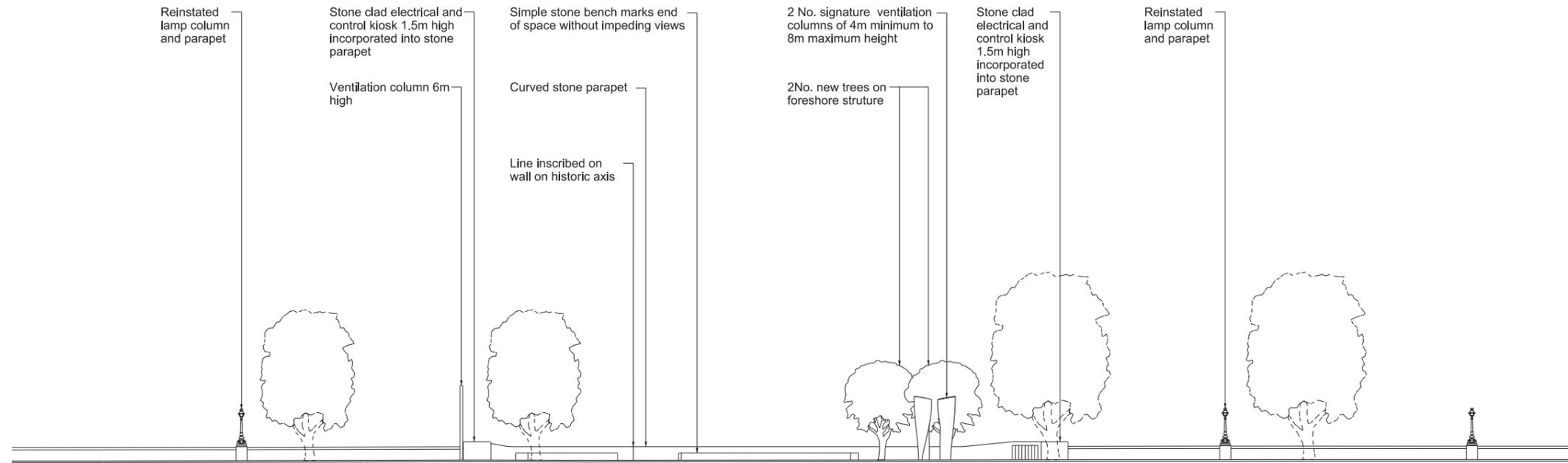
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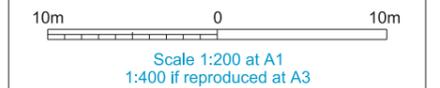
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:

- 1. All dimensions and levels are approximate.



North elevation



ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent

Proposed
North elevation
Book of plans - section 14
DCO-PP-12X-CHEEF-140016
January 2013

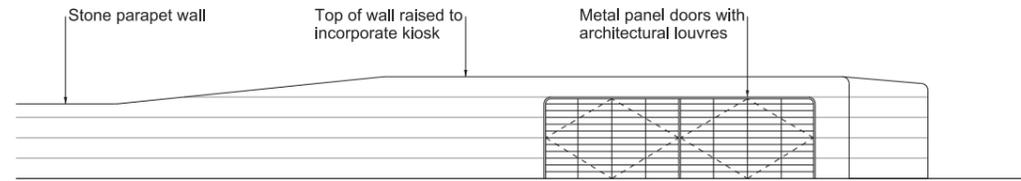
Thames Tideway Tunnel
Creating a cleaner, healthier River Thames





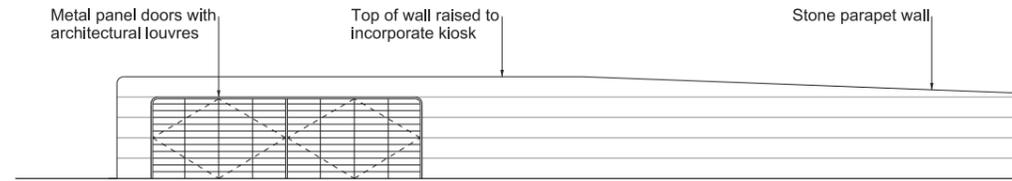
Coordinates are to be Ordnance Survey Datum OSGB36. All levels are in metres and relate to the Tunnel Datum which is 100 metres below Ordnance Datum Newlyn.

Notes:
1. All dimensions and levels are approximate.



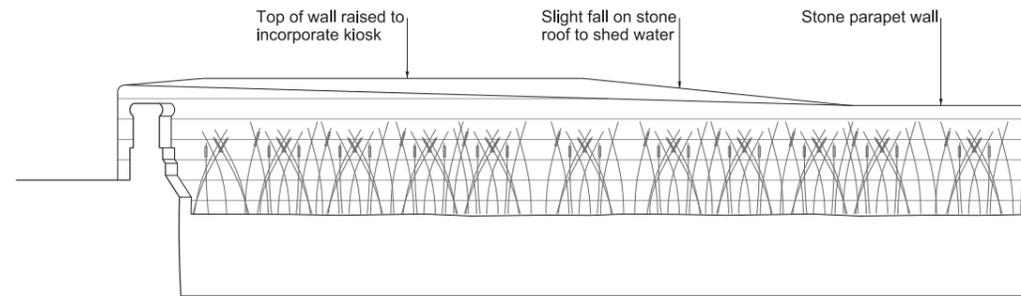
West kiosk East elevation

Scale 1:50



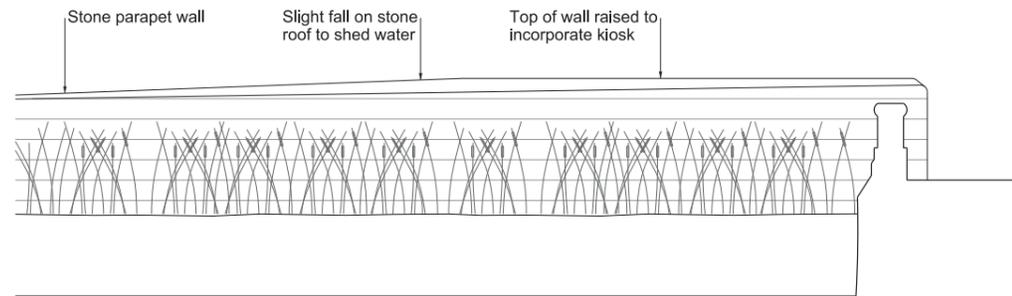
East kiosk West elevation

Scale 1:50



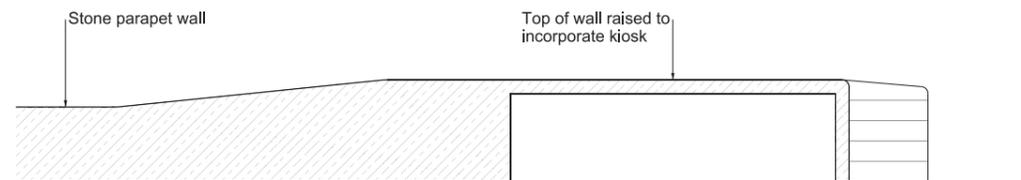
West kiosk West elevation

Scale 1:50



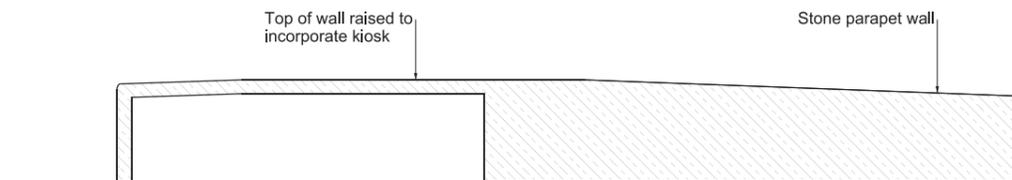
East kiosk East elevation

Scale 1:50



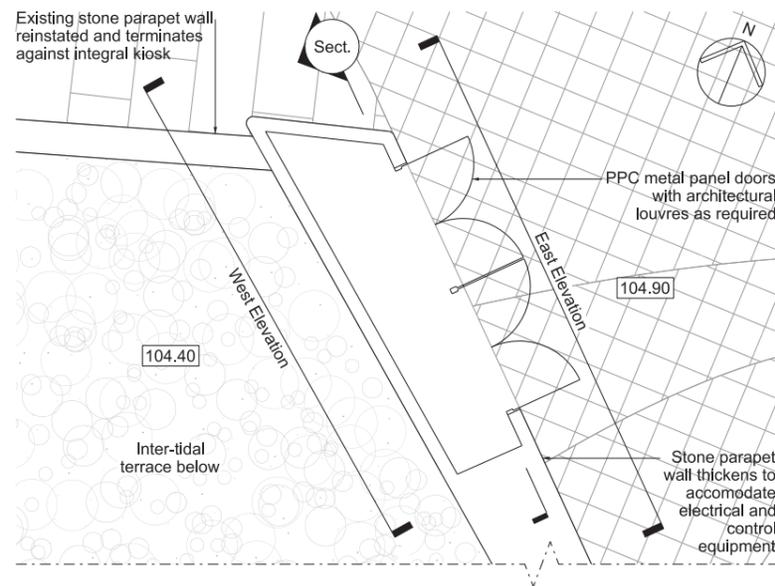
West kiosk section

Scale 1:50



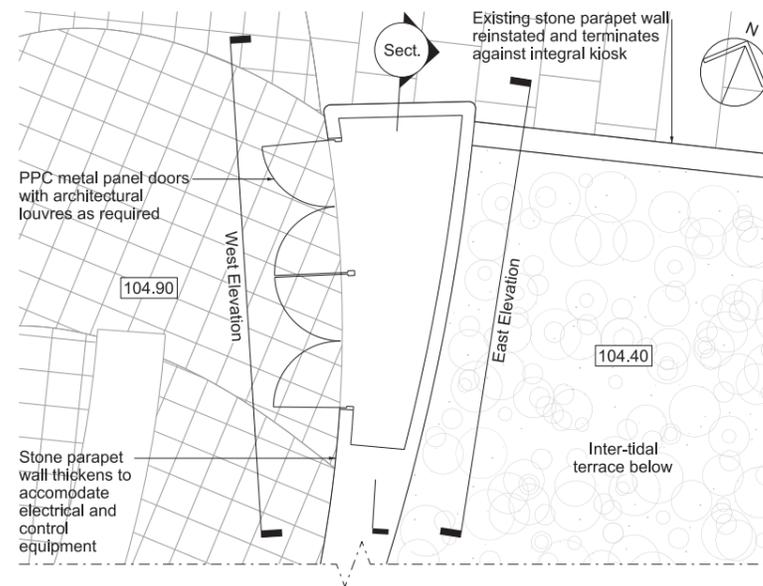
East kiosk section

Scale 1:50



West kiosk plan

Scale 1:50



East kiosk plan

Scale 1:50



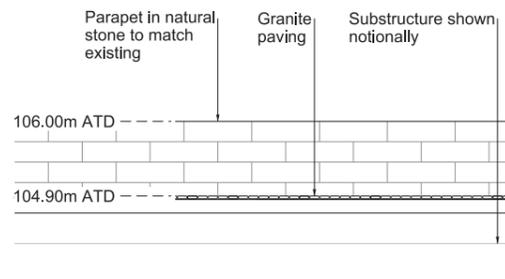
ILLUSTRATIVE
Save for the scale of the kiosk which is indicative

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Kiosk design intent

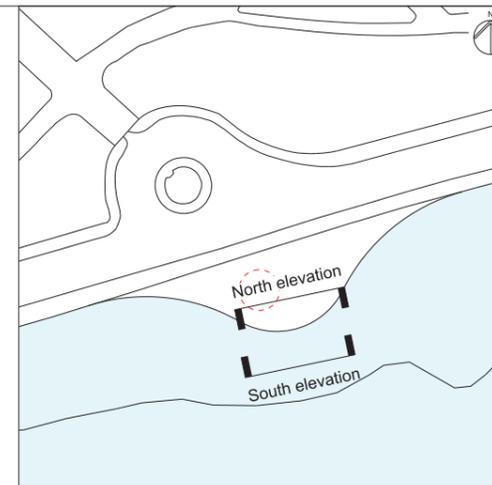
Book of plans - section 14
DCO-PP-12X-CHEEF-140017
January 2013





North elevation

Scale 1:50



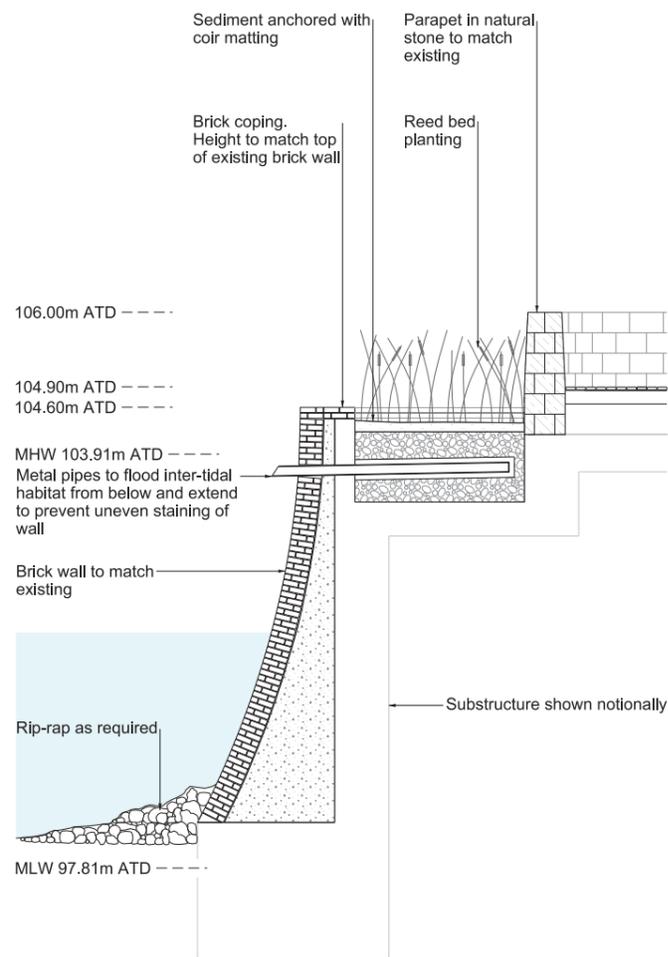
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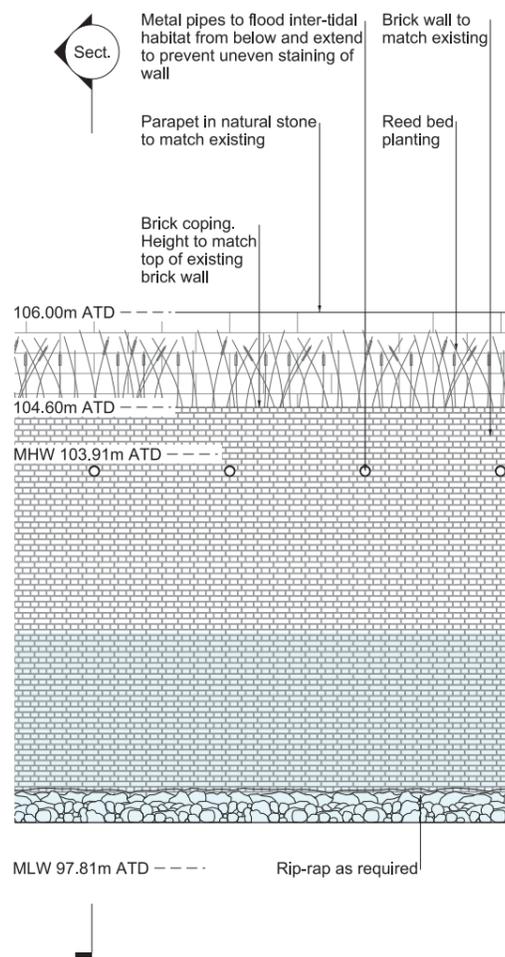
Notes:

- 1. All dimensions and levels are approximate.



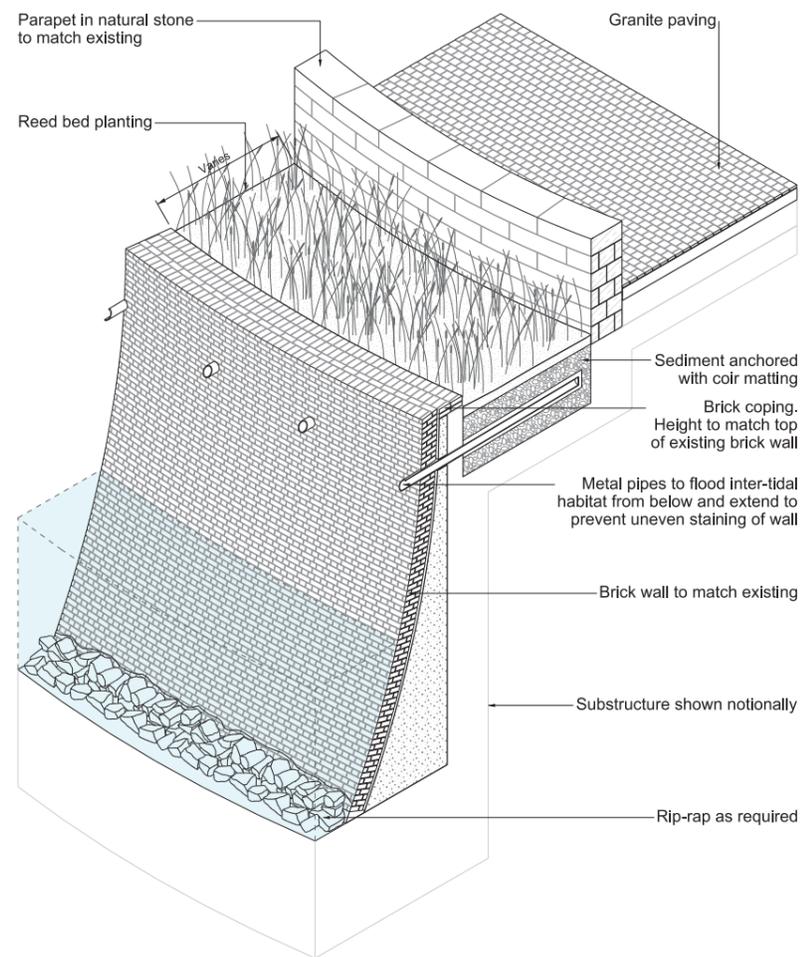
Detail section

Scale 1:50



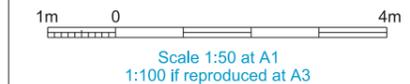
South elevation

Scale 1:50



Isometric

NTS



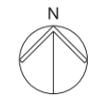
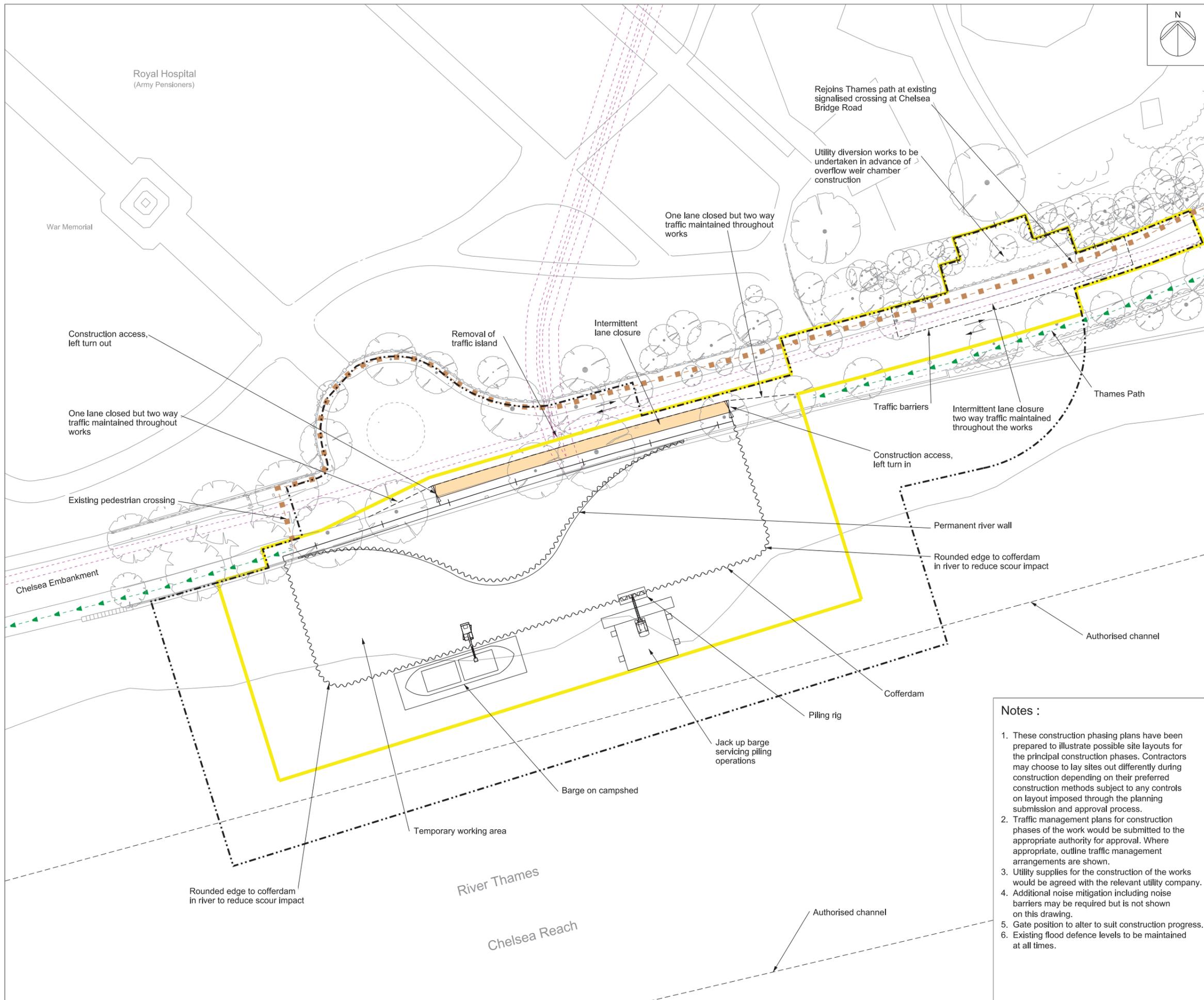
ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

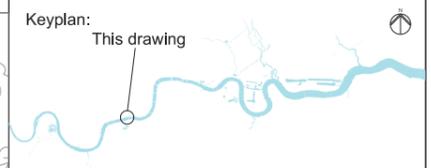
Document Information
Application for Development Consent
Typical river wall design intent

Book of plans - section 14
DCO-PP-12X-CHEEF-140018
January 2013





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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



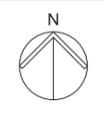
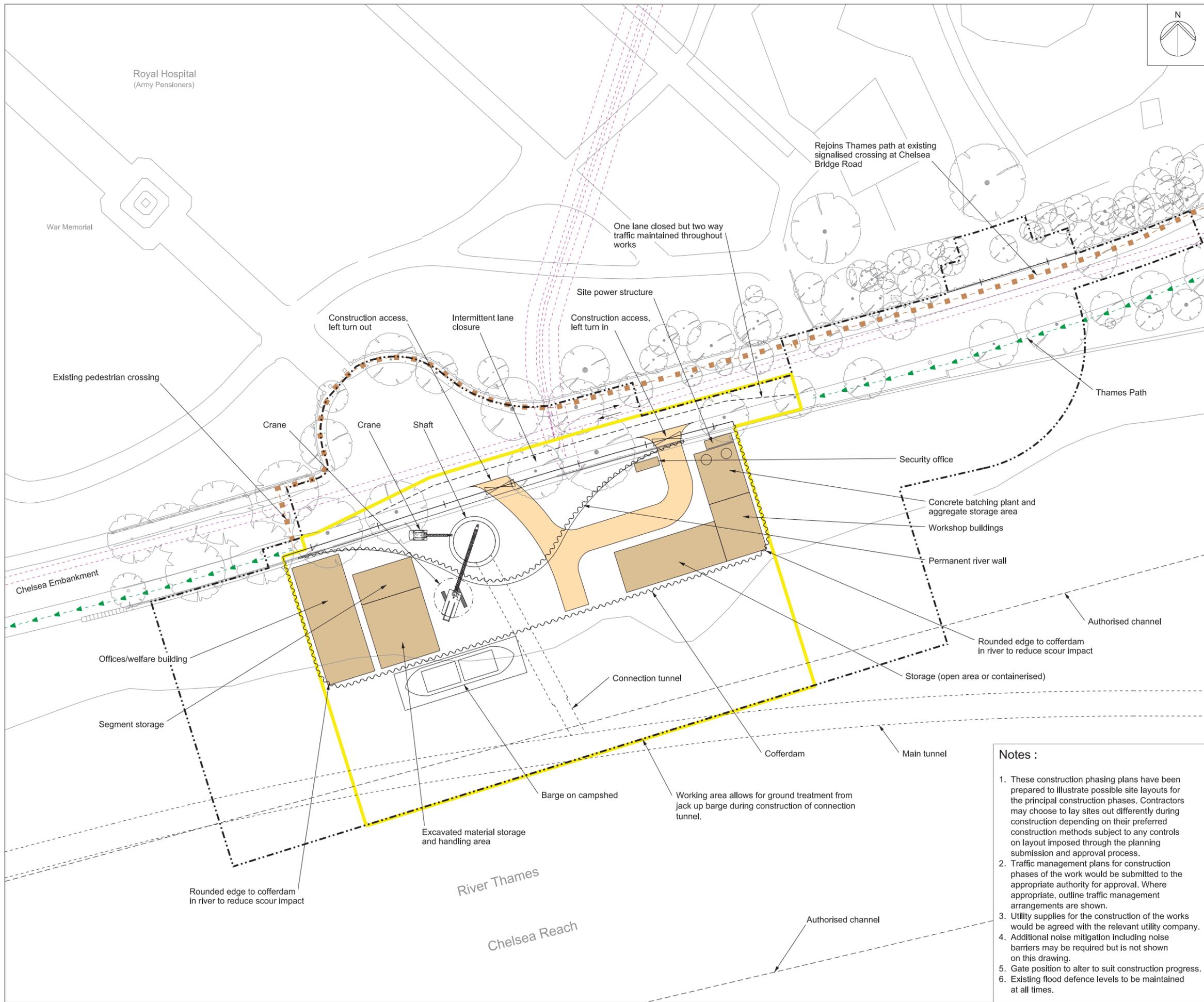
- Notes :**
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed 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. Gate position to alter to suit construction progress.
 6. Existing flood defence levels to be maintained at all times.

ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Construction phases - phase 1
Site setup
Book of plans - section 14
DCO-PP-12X-CHEEF-140019
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)
 - 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



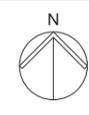
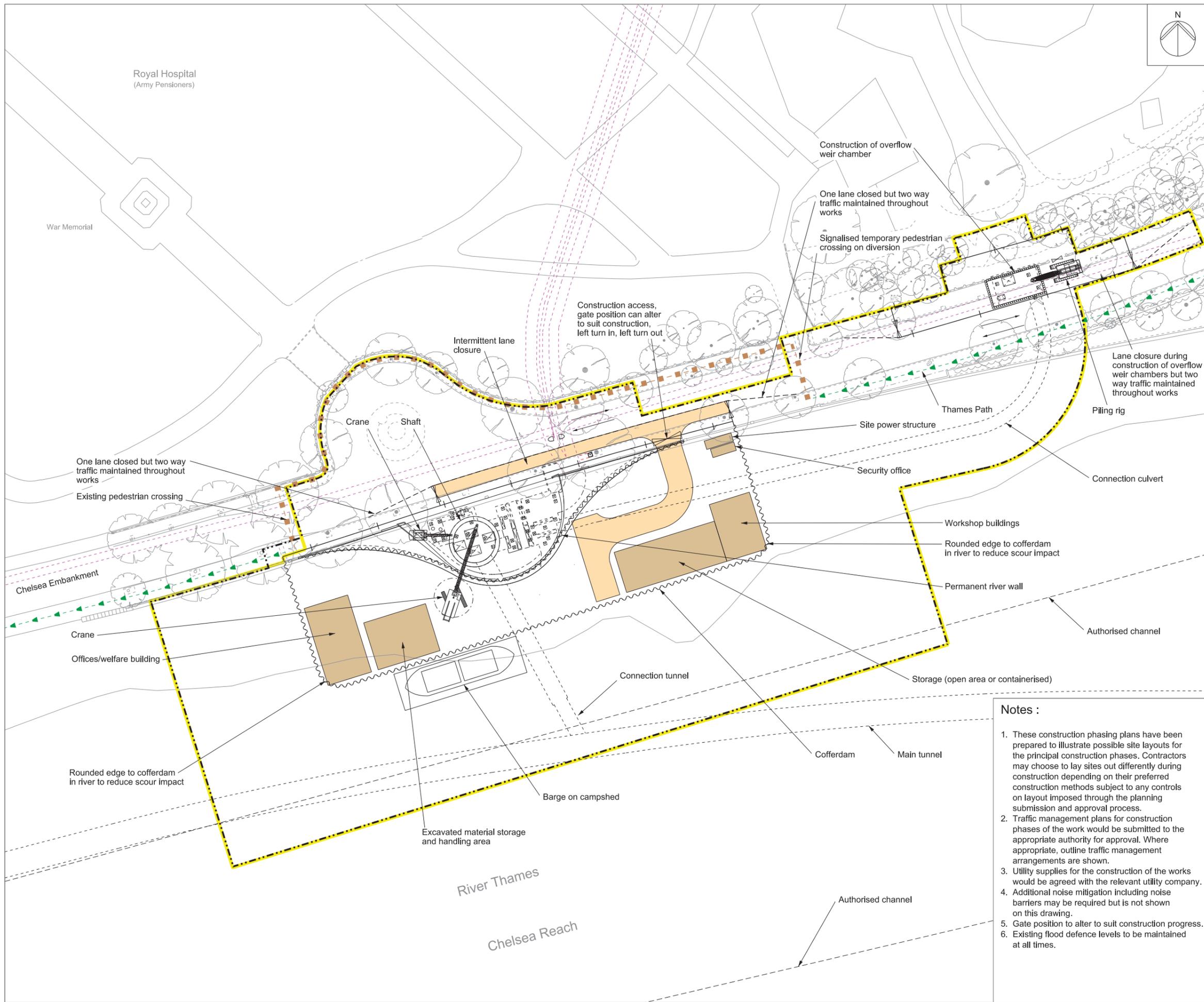
- Notes :
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed 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. Gate position to alter to suit construction progress.
 6. Existing flood defence levels to be maintained at all times.

ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Construction phases - phase 2
Shaft construction & tunnelling
Book of plans - section 14
DCO-PP-12X-CHEEF-140020
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)
	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 :

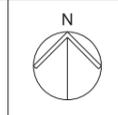
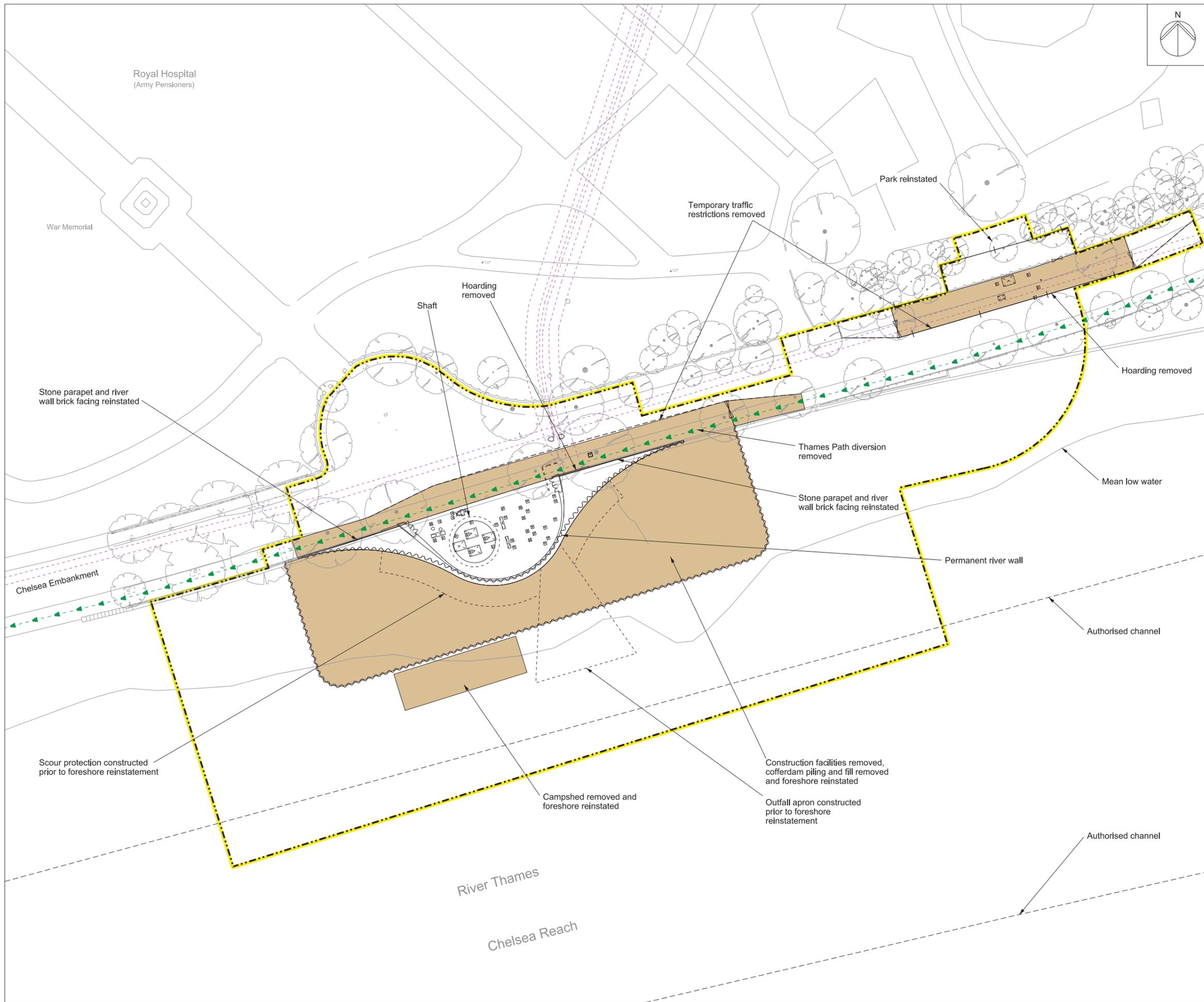
1. These construction phasing plans have been prepared to illustrate possible site layouts for the principal construction phases. Contractors may choose to lay sites out differently during construction depending on their preferred construction methods subject to any controls on layout imposed through 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. Gate position to alter to suit construction progress.
6. Existing flood defence levels to be maintained at all times.

ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
Construction phases - phase 3
Construction of other structures
Book of plans - section 14
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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
 - Site access
 - Existing sewers
 - Sheet piles



ILLUSTRATIVE

Location
Chelsea Embankment Foreshore
 Royal Borough of Kensington & Chelsea

Document Information
Application for Development Consent
 Construction phases - phase 4
 Site demobilisation
 Book of plans - section 14
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