

Planning Statement

**Building W3 and Habitat Area
Development Zone W
(Triangle Site)**

King's Cross Central
General Partner Ltd

December 2018

**KINGS
CROSS**

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Introduction

- 1.1 This Planning Statement describes and assesses proposals for the development of part of Development Zone W (also known as the 'Triangle Site') of the King's Cross Central ('KXC') development. The site is separated from the larger part of the KXC Development (the 'Main Site') by York Way and straddles the boundaries of both the London Borough of Camden ('LBC') and the London Borough of Islington ('LBI').
- 1.2 The Triangle Site is subject to an outline planning permission granted on 22 July 2008 by the Secretary of State with references APP/VS570/A/07/2051902 and APP/X5210/A/07/2051898¹ (the 'Triangle Outline Planning Permission'). Although the permission is independent of the outline planning permission for the Main Site, granted on 22 December 2006 with reference 2004/2307/P, the applications were submitted at the same time and are closely related with a number of common documents setting out the shared design objectives and principles for the wider KXC development. In particular, the proposals for the Triangle Site were subject to an Environmental Impact Assessment which considered the KXC development as a whole, and described in a Development Specification document (Revised August 2005) with accompanying Parameter Plans.
- 1.3 The Triangle Outline Planning Permission was amended by approvals for non-material amendments pursuant to S96A of the Town and Country Planning Act 1990 dated 7 and 8 March 2016 (LBI and LBC references P2015/5354/NMA and 2015/7100/P respectively). The changes effected by those approvals, which are collectively referred to in this submission as the '2016 NMA Approval', included:
 - adjustments to the shoulder heights and internal layout of Buildings W1 and W2, as shown on substitute Parameter Plans TS006 and TS007 (Rev L);
 - a variation to the wording of Condition 17 of the Triangle Outline Planning Permission to allow for the approval of further revisions to layouts and sections through the submission of plans at the Reserved Matters stage; and
 - amendments to the wording of Condition 21 removing the restriction on access to the central Podium Garden so that it can be enjoyed by the public.
- 1.4 There are two Section 106 Agreements relating specifically to the Triangle Site, both dated 4 April 2008. The first, referred to in this submission as the 'Camden S106 Agreement' was made between the Mayor and Burgesses of the London Borough of Camden, the Secretary of State for Transport, London & Continental Railways Ltd and Argent (King's Cross) Limited and relates only to the provision of affordable housing on the site. The second agreement considers a wider range of matters and is made between the same parties plus the Mayor and Burgesses of the London Borough of Islington (the 'Joint S106 Agreement').
- 1.5 The Triangle Outline Planning Permission (as amended) permits three buildings within Development Zone W, referred to originally as Blocks A, B and C but now

¹ The Triangle Outline Planning Permission was granted by the Secretary of State on appeal. The original planning application references allocated by the London Borough of Islington and Camden were P041261 and 2004/2311/P, respectively.

known as W1, W2 and W3, respectively. The buildings are set around a new central amenity space (the 'Podium Garden') and serviced by a new access road to the north of W1 (the 'Northern Gateway').

- 1.6 The approved Revised Development Specification gives the following description of development for the Triangle Site as a whole, as follows:

“Mixed use development of part of the former railways lands within the Camden King’s Cross Opportunity Area and an Islington Area of Opportunity, as set out in this Revised Development Specification. The development comprises residential; shopping, food and drink and financial and professional services within the A1, A2, A3 and A4 use classes; a health and fitness centre (use class D2) with the potential to incorporate a crèche and community facilities (use class D1); amenity and open space; habitat areas; recycling, cycle storage and other ancillary uses; parking; highways works to provide access; and other supporting infrastructure works and facilities.”

- 1.7 Reserved Matters details for Buildings W1 and W2, both residential buildings, were submitted to LBI and LBC in March 2016 (references P2016/1030/RMS and 2016/1530/P, respectively). Reserved Matters approval was granted for these buildings by LBC in June 2016. However, a decision on the same proposals was deferred by Members at the June LBI Planning Committee. Amended details were then submitted to both authorities and approved by LBI and LBC in October 2016 (references P2016/1030/RMS and 2016/4934/P, respectively).
- 1.8 The approved details for Building W1 comprise a 12 storey (W1W) and 17 storey (W1E) building providing 140 open-market residential apartments in total, along with a single retail unit at street level fronting onto York Way. Building W2 comprises 8 storeys of mixed tenure residential accommodation providing 36 social rented apartments, 23 intermediate apartments and 19 open-market apartments. Three retail units will provide active frontage and animation along York Way. The buildings share a single level, part basement, part lower ground floor which provides ancillary space and cycle/car-parking from a new access road from York Way. Applications seeking minor amendments to the approved details for W1 and W2 were submitted to both Boroughs in November 2018 (LBI ref. P2018/3844/RMS and LBC ref. 2018/5651/P). The amendments relate primarily to enhanced residential facilities, and do not alter the concept or principles of the approved scheme.
- 1.9 Landscape details for the Podium Garden, Northern and Southern Gateways and York Way were approved by LBC and LBI in December 2016 (ref. 2016/5195/P) and January 2017 (ref. P2016/3637/RMS), respectively (the 'Zone W landscaping'). Applications for minor amendments to the approved landscaping details were submitted to both Boroughs in December 2018. The proposed amendments respond to detailed design coordination and comprise improvements such as an increase in visitors' cycle parking and an additional loading bay in the Northern Gateway to serve the Triangle Site buildings.
- 1.10 This Planning Statement supports two applications which provide details for the remaining areas within the Triangle Site; namely, a Reserved Matters submission in relation to Building W3 and a Full Planning Application in relation to the Habitat Area.
- 1.11 The Habitat Area application falls wholly within LBI, so details are submitted to LBI for approval, and to LBC for information. There is a strong physical and functional link between the proposals for Building W3 and the Habitat Area, and the rest of the

Triangle Site. For example, the Habitat Area is surrounded by rail infrastructure to its north and east, so access is via:

- (a) the Podium Garden off York Way and the Building W3 communal lift core (level access); or
- (b) the Southern Gateway and 'eastern pathway' behind Building W3 (steps); or
- (c) the Northern Gateway (vehicular/servicing access).

- 1.12 Part 1 of this Planning Statement comprises the Compliance Report which provides a comprehensive overview of how the relevant pre-commencement planning conditions and Section 106 obligations associated with the Triangle Outline Planning Permission are being addressed in respect of Building W3 and, where applicable, the Habitat Area. While the Habitat Area application will sit outside of the Triangle Outline Planning Permission (for reasons discussed below), it has been designed to respond to the relevant principles and parameters set out in the Triangle Outline Planning Permission where possible. The report acts as a 'navigation' document for the two submissions and their relationship to the various conditions and obligations. The submissions include the Reserved Matters details required by and referred to in the conditions and specified in the Definitions attached to the Triangle Outline Planning Permission. These include: layout, scale, appearance, access and landscaping, except as already established by the relevant Parameter Plans.
- 1.13 Part 2 of the Planning Statement comprises a review of and assessment against current planning policy relevant to the Habitat Area proposals.
- 1.14 The location of Building W3 and the Habitat Area in the context of Development Zone W are shown in submitted drawings KXC-W3-001-HAP-PL-20-001 (see Building W3 Drawing Package) and 102.001 (see Habitat Area Drawing Package).

Building W3

- 1.15 Building W3, designed by Haptic Architects, is a predominantly leisure and fitness building which comprises a gym, a nursery/crèche and a café/retail unit in a three storey building (including ground/podium level). In accordance with the Triangle Outline Planning Permission, which permits up to 3,000 m² GEA of health and fitness and related uses within W3, with the potential to incorporate crèche/day nursery facilities (Use Classes D1/D2), the proposals bring forward a total of 1,507m² GEA of floorspace, including 725m² of gym facilities (Class D2) and 451m² of nursery/crèche space (Class D1). At first floor, a covered terrace of 79m² is proposed for the use of the nursery/crèche.
- 1.16 At the southern end of the ground floor of Building W3, a 174m² café/retail unit (Classes A1-A4) is proposed. Appendix B of the Triangle Outline Planning Permission permits up to 2,500m² of retail (Classes A1-A4) within the Triangle Site, and the total brought forward to date in Buildings W1 and W2 is 671m². While the outline permission did not envisage retail uses within W3, the proposed location is considered appropriate now that the Podium Garden is publicly accessible (following the 2016 NMA Approval). The proposed active ground floor use, together with the southernmost retail unit in W2, would help animate Randell's Road and frame the

Southern Gateway, inviting pedestrians to enter the Triangle Site and make use of its amenities.

- 1.17 Therefore, an application for non-material amendments to the Triangle Outline Planning Permission, pursuant to S96A of the Town and Country Planning Act 1990, will follow this submission to enable the provision of retail/café space (Use Classes A1-A4) in this location. Specifically, the application will seek to amend the wording in Appendix B (Floorspace Schedule) to allow retail floorspace to be located within W3. Currently Appendix B describes all retail units as being located in W2 and beneath the amenity space, and having frontage onto York Way.
- 1.18 In addition, Building W3 will provide a fully accessible route to the Habitat Area, linking the ground floor/Podium Garden to the lower ground level/Habitat Area through the communal lift core in the building. A small area of basement beneath Building W3, comprising circulation space and plant, is included within this submission. This connects to the lower ground/basement level beneath Buildings W1 and W2 and the Podium Garden, for which details were approved under the Reserved Matters submissions for Buildings W1 and W2.

Habitat Area

- 1.19 The Triangle Outline Planning Permission envisaged a 'habitat area' in the northernmost corner of the site, where the railway lines converge. It does not provide substantial guidance as to the nature or design of this habitat area. However, the Triangle Site Revised Development Specification (August 2005) contains the following provisions in relation to the habitat area:

Paragraph 3.25

The far corner of the site, up to the point where the rail lines converge, would be retained as a habitat area. The detailed design of this area would seek to provide habitat considered complementary to the adjoining railside habitat.

Paragraph 4.15 (in relation to Parameter Plan TS004)

At the far corner of the site, the proposed habitat area shown would be a fenced off area with no public access. The detailed design of this area would seek to provide habitat considered complementary to the adjoining railside habitat. A limit of deviation is incorporated as the exact line of the future fence cannot yet be determined.

- 1.20 In developing the proposals for the Habitat Area, it became clear that a space which provides a more actively managed garden and some public access could provide much greater ecological and community benefits than a planted area with no public access. In addition, Global Generation, an eco-educational charity with strong links to the local area, are in need of a permanent base to replace the temporary Skip Garden at King's Cross Central. They would require some indoor space to support their educational operations.
- 1.21 Global Generation's community outreach and development projects bring together local school children and businesses, vulnerable families living in the area and local volunteers. Activities such as supporting bees, carpentry, urban food growing, cooking, and eating together are combined with dialogue, storytelling, and creative

writing. The Triangle Site provides a unique opportunity to create a permanent educational base for Global Generation in this area. The geographic location of the Triangle Site, astride the borough boundary, will allow Global Generation to expand its work in the Bingfield Park area and other parts of Islington.

- 1.22 The ecological benefits of a managed compared to an unmanaged Habitat Area on the site were evaluated by the RPS ecology team and their recommendations have informed the strategy for the site. With a low existing ecological value (see the submitted Ecology Report) and no trees or recorded presence of protected species, a managed approach is likely to establish a Habitat Area with greater ecological value in the short term and maintain greater species diversity and habitat provision over the medium and long terms. In accordance with Section D of the Joint S106 Agreement, the London Wildlife Trust have been consulted during design development regarding the planting and management specification of the Habitat Area, and are supportive of the proposed planting, use and management strategy for the Habitat Area.
- 1.23 Designed by Jan Kattein Architects, the Habitat Area proposals include four small, single-storey buildings (28m² classroom, 36m² administration space, 39m² teaching kitchen and 42m² growing tunnel), providing a total of 145m² (GEA) educational (Class D1) floorspace (if the growing tunnel is included). The proposed built footprint, including the four buildings and a 24m² covered deck adjacent to the classroom, occupies approximately 15% of the Habitat Area site. To minimise this footprint, the circulation spine is externalised and takes the form of a raised timber boardwalk, touching the ground lightly, allowing for natural rainwater absorption below and providing a habitat for insects and small mammals.
- 1.24 The remainder of the 1097m² Habitat Area site comprises ecology gardens, which will enhance biodiversity, complement the adjacent railway habitat, and support environmental education programmes. The site layout and massing provides a permeable and open appearance dominated by soft landscaping. A small area in the northernmost corner of the site, where the railways converge, is left as an inaccessible 'wilderness' area.
- 1.25 The proposals for the Habitat Area are therefore considered in keeping with the intention for this space. Indeed, they are considered to provide much greater ecological and community benefits than the envisaged 'fenced off area with no public access'. However, since buildings were not envisaged in this location within the Triangle Outline Planning Permission, a full planning application is considered the most appropriate approach for these details. This approach was agreed with LBC and LBI officers during pre-application consultation.

Content of the Submission

- 1.26 The appropriate completed LBC and LBI application forms are submitted in observance of Condition 3 of the Triangle Outline Planning Permission. The other conditions addressed by this submission are listed numerically on the application forms and set out with brief summary description below. Please note that the Planning Compliance Report only addresses planning conditions relevant to this submission and therefore some conditions are not included.

Condition	Description
2	Commencement (Timing of First Reserved Matters Submission)
4	Approval of Reserved Matters General (Deadline for Approval of all Reserved Matters Submissions)
6	Landscaping and Trees (Details of Landscaping)
9	Landscaping and Trees (Steps in Landscaping)
10	Environmental Sustainability Plan
11	Earthworks and Remediation Plan
12	Access Statement
13	Servicing Strategy
14	Details Required by Condition (Structures)
15	Details Required by Condition (Floorplans etc.)
16	Details Required by Condition (Refuse Storage and Collection)
17	Development to be Carried Out in Accordance with Permission (Parameter Plans and Development Specification)
18	Floorspace Permitted
19	Uses Permitted (Maximum Floorspace Figures)
23	Drainage Infrastructure
24	Green and Brown Roofs
25	Car Parking Standards
26	Cycle Parking
28	Noise (Noise Impact of Plant and Equipment)

1.27 In the remainder of the Compliance Report, each of the relevant conditions are addressed in turn, by providing an account of how the submission satisfies that condition. In some cases, for example drainage infrastructure, the relevant information is provided in this report by means of text and plans. In others, compliance is demonstrated by cross-reference to the following documents submitted with the application:

- Drawing Packages (separate packages for Building W3 and the Habitat Area) - compilation of scheme layout plans, elevations, sections and images (a full list of the submitted drawings is provided at the end of this section);
- Urban Design Report (combined for Building W3 and the Habitat Area) - including an explanation of the design concepts and detailed scheme descriptions, including the servicing and refuse strategies;
- Access and Inclusivity Statement (combined for Building W3 and the Habitat Area);
- Environmental Sustainability Plan (Building W3);
- Ecology Report (Habitat Area);
- Earthworks and Remediation Plan Addendum (for the Triangle Site as a whole, appended to this statement at Appendix A); and
- Acoustics Report (Building W3, appended to this statement at Appendix B).

1.28 The proposals for Building W3 and the Habitat Area have been developed through a progressive process of pre-submission consultations between the King's Cross Central General Partner Limited ('KCCGPL') design team, Planning Officers at LBI and LBC, London Wildlife Trust, and other relevant stakeholders and local bodies, over several months. The proposals represent high quality developments that will make a significant positive contribution to the on-going regeneration of King's Cross.

W3 Drawing Schedule

Drawing Title	Scale at A3	Drawing No.	Rev.
For Approval			
Context Plans			
Location Plan	1:2500	KXC-W3-001-HAP-PL-20-001	-
Site Plan	1:1000	KXC-W3-001-HAP-PL-20-002	-
Plans			
W3 Basement Plan	1:200	KXC-W3-001-HAP-PL-20-1B1	-
W3 Ground Floor Plan	1:200	KXC-W3-001-HAP-PL-20-1GF1	-
W3 First Floor Plan	1:200	KXC-W3-001-HAP-PL-20-101	-
W3 Second Floor Plan	1:200	KXC-W3-001-HAP-PL-20-102	-
W3 Roof Floor Plan	1:200	KXC-W3-001-HAP-PL-20-103	-
Elevations			
W3 North Elevation	1:200	KXC-W3-001-HAP-PL-20-310	-
W3 East Elevation	1:200	KXC-W3-001-HAP-PL-20-320	-
W3 South Elevation	1:200	KXC-W3-001-HAP-PL-20-330	-
W3 West Elevation	1:200	KXC-W3-001-HAP-PL-20-340	-
Sections			
W3 Short Section AA	1:200	KXC-W3-001-HAP-PL-20-203	-
Details			
W3 Bay Study West Typical	1:100	KXC-W3-001-HAP-PL-21-430	-
W3 Bay Study West Entrance	1:100	KXC-W3-001-HAP-PL-21-431	-
W3 Bay Study South Typical	1:100	KXC-W3-001-HAP-PL-21-432	-
W3 Bay Study East Entrance	1:100	KXC-W3-001-HAP-PL-21-433	-
W3 Bay Study East Typical	1:100	KXC-W3-001-HAP-PL-21-434	-
W3 Window Typical	1:50	KXC-W3-001-HAP-PL-21-500	-
W3 Window Large	1:50	KXC-W3-001-HAP-PL-21-501	-
W3 Metal Panel Typical	1:50	KXC-W3-001-HAP-PL-21-502	-
W3 Metal Panel Filagree	1:50	KXC-W3-001-HAP-PL-21-503	-

Habitat Area Drawing Schedule

Drawing Title	Scale at A3	Drawing No.	Rev No.
For Approval			
Plans and Sections			
Location Plan	1: 2500	102.001	E
Site Plan	1: 1250	102.002	D
Block Plan	1: 200	102.003	D
GA Ground Floor Plan	1: 200	102.100	F
GA Landscape sections	1: 200	102.101	D
Classroom – Proposed Plan, Sections & Elevations	1:50 & 1:100	102.200	D
Administration – Proposed Plan, Sections & Elevations	1:50 & 1:100	102.201	D
Kitchen – Proposed Plan, Sections & Elevations	1:50 & 1:100	102.202	E
Growing Tunnel – Proposed Plan, Sections & Elevations	1:50 & 1:100	102.203	D
Planting			
Planting Schedule	N/A	N/A	N/A
For Information			
Plans			
Colour Masterplan	1: 200	N/A	N/A
Materials			
Materials Palette	N/A	N/A	N/A
Planting			
Ecology Zones	N/A	N/A	N/A
Planting Palette	N/A	N/A	N/A

Part 1: Compliance Report

Condition 2 (Commencement)

2.1 The condition states:

“The permission shall lapse unless the first Reserved Matters Application is made within eight years of the date of this permission.”

Response to Condition 2

2.2 As noted in Section 1, an application for approval of Reserved Matters in respect of Buildings W1 and W2 was submitted to LBI and LBC in March 2016 with references P2016/1030/RMS and 2016/1530/P, respectively. That application (the first Reserved Matters Application) was made within 8 years of the date of the Triangle Outline Planning Permission (22 July 2008), and therefore satisfies the requirements of Condition 2.

Condition 4 (Approval of Reserved Matters – General)

3.1 The condition states:

“No later than 12 years following the date of this permission an application or applications shall have been submitted to the Local Planning Authority for the approval of all Reserved Matters.”

Response to Condition 4

- 3.2 As noted in Section 2, applications for approval of Reserved Matters for Buildings W1 and W2 were submitted in March 2016. Applications seeking minor amendments to the approved details for W1 and W2 were submitted to both Boroughs in November 2018 (LBI ref. P2018/3844/RMS and LBC ref. 2018/5651/P). The amendments relate primarily to enhanced residential facilities, and do not alter the concept or principles of the approved scheme.
- 3.3 Landscape details for the Podium Garden, Northern and Southern Gateways and York Way were submitted to both Boroughs in September 2016 (LBI ref. P2016/3637/RMS and LBC ref. 2016/5195/P). Applications for minor amendments to the approved landscaping details were submitted to both Boroughs in December 2018.
- 3.4 The current submissions (December 2018) for Buildings W3 and the Habitat Area provide Reserved Matters details for the remaining areas within the Triangle Site.
- 3.5 These applications for approval of Reserved Matters have been made within 12 years from the date of the Triangle Outline Planning Permission (22 July 2008), satisfying the requirements of Condition 4.

Condition 6 (Landscaping and Trees – Details of Landscaping)

4.1 The condition states:

“The details of the landscaping to be submitted as part of the applications for Reserved Matters shall include;

- a) The design of building foundations and the layout, with the dimensions and levels, of service trenches and other excavations on site in so far as these items will affect any trees adjoining that part of the site*
- b) New tree and other planting, earth works, ground finishes, top soiling, levels, drainage, including falls and drain types;*
- c) The treatment of land within the Habitat Area shown on plan TS004 Rev K.*
- d) The central amenity space with planting shown on TS006.*

And all works shall only be carried out in accordance with the details so approved.”

Response to Condition 6

- 4.2 Only part (a) is relevant to the submission for Building W3 in so far as it brings forward details of part of the lower ground/basement structure. The extent of this structure is shown on submitted drawing KXC-W3-001-HAP-PL-20-1B1. There are no existing trees on or adjacent to the area falling within the proposed lower ground/basement structure or Building W3.
- 4.3 As explained in Section 3, details of the Podium Garden (referred to in the condition as the ‘central amenity space’), Northern and Southern Gateways and York Way were submitted to both Boroughs in September 2016 (LBI ref. P2016/3637/RMS and LBC ref. 2016/5195/P), and amendments were submitted in December 2018.
- 4.4 Parts (a), (b) and (c) are relevant to the submission for the Habitat Area. The information required by Condition 6 is provided in the appropriate parts of the Urban Design Report and shown on the relevant plans and sections within the submitted Drawing Package for the Habitat Area. A planting schedule and palette listing the proposed species is included within the submitted Drawing Package. Further details are also provided as part of the Scheme Description (Section 5) of the submitted Urban Design Report. There are no existing trees on or adjacent to the site.
- 4.5 Details of drainage infrastructure across the Triangle Site is provided in Section 16 of this report in response to Condition 23.

Condition 9 (Landscaping and Trees – Steps in Landscaping)

- 5.1 The condition states:

“Where steps are to be constructed within the landscaping to change level, gentle inclines and ramps (at a gradient of 1:20 or less) and/or lifts shall also be incorporated, to provide an equally commodious alternative for all members of the public.”

Response to Condition 9

- 5.2 In the Habitat Area, the proposed buildings are connected by a central boardwalk. The boardwalk will be constructed of closely spaced planks, which will be fitted with gaps of no more than 5mm so as to provide a free-draining surface with undulations not more than 3mm under a 1 metre straight edge. The boardwalk is raised above the ground to allow for the bases of the buildings, and this is accessed from the ends and intermediate areas using slopes that are no more than 1:21 in gradient.
- 5.3 The Access and Inclusivity Statement submitted separately in response to Condition 12 (see Section 8) addresses the design of Building W3 and the buildings and landscaping within the Habitat Area, and how the proposals respond to the access needs of all members of the public.

Condition 10 (Environmental Sustainability Plan)

6.1 The condition states:

“Relevant applications (or groups of related applications) for Reserved Matters approval in respect of buildings shall be accompanied by an Environmental Sustainability Plan. The Environmental Sustainability Plan shall explain:

- a) How the proposed building design(s) realise(s) opportunities to include design and technology energy efficiency measures;*
- b) The reduction in carbon emissions achieved through these building design and technology energy efficiency measures, compared with the emissions permitted under the national Building Regulations prevailing at the time of the application(s) for approval of reserved matters are submitted;*
- c) The specification for green and/or brown roofs on buildings within Blocks A, B and C;*
- d) How energy shall be supplied to the building(s), highlighting:

 - i. How the building(s) relate(s) to the strategy for district heating and combined heat and power across the King’s Cross Central development.*
 - ii. The assessment of the cost-effectiveness and the reliability of the supply chain for bio fuels (referred to in paragraph 12 of page 35 of the “All Parties” S106 Agreement)*
 - iii. Any other measures to incorporate renewables**
- e) How the proposed building(s) have been designed to achieve a BREEAM and/or Eco Homes rating of “very good” (or an equivalent assessment method and rating) or better;*
- f) The incorporation of bird boxes, bat roofs and other wildlife features on buildings.”*

Response to Condition 10

6.2 The submission for Building W3 includes a separate Environmental Sustainability Plan (ESP) which addresses each of the factors listed in the condition and demonstrates that the proposed development achieves high levels of sustainability.

6.3 The report also provides information to:

- Satisfy conditions 23 and 24 concerned with drainage infrastructure and green/brown roofs, respectively;
- Show how Buildings W3 responds to the obligations set out in Sections J, K, L and M of the Joint Section 106 Agreement. These sections deal, in general, with environmental sustainability and observance of the site-wide KXC Sustainability Strategy and Energy Assessment and, specifically with the environmental performance of buildings, energy reduction, construction materials and waste, operational waste, water efficiency and sustainable drainage; and
- Address current national, regional and local planning policy/guidance in relation to sustainability issues and, notwithstanding that this is a Reserved Matters

submission, details how Building W3 performs against policies that have been adopted since the Triangle Outline Planning Permission was granted.

- 6.4 The ESP is submitted to meet the requirements of Condition 17.
- 6.5 Although not a Reserved Matters application, details of the environmental sustainability features proposed for the Habitat Area, including those addressed within Condition 10, are provided in Sections 2.5 and 5 of the submitted Urban Design Report and in the submitted Ecology Report for the Habitat Area.

Condition 11 (Earthworks and Remediation Plan)

7.1 The condition states:

“Relevant applications (or groups of related applications) for approval of the Reserved Matters shall be accompanied by an Earthworks and Remediation Plan to deliver appropriate site levels and ground conditions for that part of the development. All work shall be carried out in accordance with the Earthworks and Remediation Plan as approved.”

Response to Condition 11

- 1.2 The information to satisfy Condition 11 is included in a separate Earthworks and Remediation Plan (ERP), which was previously submitted as part of the application for Reserved Matters approval for Buildings W1 and W2 and the lower ground/basement area. However, the report considers the earthworks and remediation requirements for Development Zone W in the round, to provide context for a number of individual submissions and demonstrate a consistent joined up approach across the Triangle Site.
- 1.3 Following this, an ERP Addendum (the ‘2016 ERP Addendum’) was prepared in relation to the landscaping at the site, specifically the Podium Garden, Northern and Southern Gateways and improvements to a section of the eastern footpath of York Way. Both of these documents contained information on the emerging proposals for Building W3 and the Habitat Area that were available at that time.
- 1.4 A second Addendum Report (the ‘2018 ERP Addendum’), which is attached to this statement at Appendix A, confirms that the current proposals do not give rise to any material changes to the assumptions made in the ERP or 2016 ERP Addendum about Building W3 or the Habitat Area, and that the remediation strategy set out in the ERP remains correct.
- 1.5 The ERP provides information on the existing ground conditions and prevailing geo-environmental setting on Development Zone W. In addition, the document highlights the potential contamination risks present at the site and provides a strategy for addressing the identified risks as part of the earthworks and construction phases of the development.
- 1.6 The majority of the earthworks associated with the development of Zone W will arise from the construction of the lower ground floor/basement and pile excavations for the buildings above. The proposed lower ground/basement area extends across much of the site, encompassing the footprints of Buildings W1 and W2 and the majority of W3, as well as the area below the Podium Garden.
- 1.7 Based on the current proposals for Buildings W3 and the Habitat Area, and the previously submitted proposals for Buildings W1 and W2 and the landscaping (submitted in November 2018 and December 2018, respectively), it is anticipated that there will be approximately 15,280 m³ of cut and approximately 6,800m³ of fill, resulting in a total figure of 22,080 m³ of exported and imported materials. This represents an increase of 60m³ of exported material and a decrease of 255m³ of imported material compared to the previously submitted ERP. This equates to an estimated 2,598 lorry movements carrying all excavated and imported material from

and to the Triangle Site, based on 8.5m³ of unbulked (as dug) material per lorry movement, and based on a worst case scenario whereby there is no re-use of materials on-site.

- 7.2 In terms of site conditions and remediation, the ERP concludes that clean capping would be required in areas of soft landscaping due to the data revealing some presence of asbestos containing materials within the site soils. A detailed description of the clean capping requirements is discussed in the ERP.
- 1.8 The ERP and two related Addendum Reports are provided to meet the requirements of Condition 11 and are submitted for approval.

Condition 12 (Access Statement)

8.1 The condition states:

“Relevant applications for approval of Reserved Matters pursuant to this permission shall be accompanied by an Access Statement. Each Access Statement shall:

- a) Address the relevant design principles set out in the Access and Inclusivity Strategy dated September 2005 and update the Access Audit included at Annex C of that strategy;*
- b) Highlight any areas where technical or other constraints have prevented or constrained the application of these design principles;*
- c) Include a project programme for that building or phase, to identify the key stages which important decisions affecting inclusivity and accessibility will be made.”*

Response to Condition 12

- 8.2 A separate Access and Inclusivity Statement forms part of this submission, covering both Building W3 and the Habitat Area. The statement demonstrates compliance with the criteria contained in the condition, including how the principles set out in the site-wide Access and Inclusivity Strategy (2005) have been applied in the design of the buildings and Habitat Area landscape. It also updates the Access Audit included in Annex C of that strategy.
- 8.3 In accordance with Section H of the Joint Section 106 Agreement, the evolution of the current proposals and the preparation of the Access and Inclusivity Statement have been guided by the applicant’s designated Inclusive Design Champion, James Holmes-Siedle at All Clear Designs Ltd.
- 8.4 The Access Statement is submitted to meet the requirements of Condition 12.

Condition 13 (Servicing Strategy)

9.1 The condition states:

“Servicing shall take place in accordance with plans TS003, TS004 and TS005 unless otherwise agreed in writing with the Local Planning Authority”

Response to Condition 13

9.2 The servicing strategies (i.e. deliveries and plant maintenance) for Building W3 and the Habitat Area buildings are described in Section 3.2 of the submitted Urban Design Report. The refuse strategy is also set out in the same section and summarised in Section 12 of this Compliance Report.

9.3 The servicing and refuse strategies for Building W3 and the Habitat Area have been designed to plug into the overall Triangle Site servicing strategy, which aligns with the parameters set by the Triangle Outline Planning Permission, including parameter plans TS003, TS004 and TS005.

9.4 In summary the servicing arrangements for Building W3 and the Habitat Area are based on the following principles:

- Deliveries will primarily be undertaken via the service yard and loading area to the north of W1 as envisaged by parameter plans TS003, TS004 and TS005. The loading area/service yard will be actively managed to ensure the safe co-ordination of vehicle movement and parking within this area. Access to the parking/ service area will be controlled by a 24-hour manned security within the development.
- There is direct access into the lift core of Building W3 from the service yard via the shared basement, and direct access between the service yard and Habitat Area via a gate at ground level.
- In addition to the main servicing area in the Northern Gateway, an existing loading bay provides a delivery point for smaller vehicles off Randell's Road in the Southern Gateway.
- In Building W3, landlord plant will be located on the lower ground areas, with access from the communal circulation routes or external areas where required.
- In the Habitat Area, the plant elements consist of (a) electrical intake (b) PV's and inverter, (d) sump and pump, (e) rainwater tank and pump, (f) kitchen extract system. The electrical intake and PV inverter, pump control gear will be located inside the electrical intake cabinet in the kitchen building providing easy maintenance access. The drainage sump and pump (required to overcome depth restrictions due to CTRL tunnel levels) will be located below the floor of the accessible WC with easy maintenance access from within the cubicle. A 2000l rainwater tank with associated pump will be housed below the decking of the central circulation spine. Maintenance access is provided via a flush access hatch in the decking.

9.5 The details above and within the UDR demonstrate compliance with Condition 13.

Condition 14 (Details Required by Condition - Structures)**10.1 The condition states:**

“Details of the siting of buildings as shown on plans TS004 revision K to TS007 revision K inclusive shall be submitted to the Local Planning Authority and approved in writing prior any works taking place in relation to such buildings. All works should be carried out in accordance with the details as approved.”

Response to Condition 14

- 10.2** The precise siting of Building W3 and the lower ground/basement area, within the limits of deviations shown on Parameter Plans TS004 Rev K to TS007 (as amended by the NMA Approval) Rev K, is shown on the plans submitted for approval and listed after Section 1 of this Compliance Report. In particular, drawings KXC-W3-001-HAP-PL-20-1B1 and 1GF1 show the proposed Building W3 and basement at Lower Ground (LB1) and Ground Floor (L00) levels.
- 10.3** The details provided in the accompanying Drawing Package meet the requirements of Condition 14 and are submitted for approval.

Condition 15 (Details Required by Condition - Floorplans etc.)

11.1 The condition states:

“Details and particulars (including floorspace figures, floor plans and layouts of the uses), and the vehicle and other serving and access arrangements, including provision of parking to be accommodated in built accommodation, shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the details as approved.”

Response to Condition 15

- 11.2 The plans included within the submitted drawing packages provide the floorplan, layout and access details required by the condition. Tables 11.1 and 11.2 that follow this section summarise the floorspace figures for each building floor by floor.
- 11.3 Overall, Building W3 will provide a total floorspace of 1,507m² GEA, excluding plant, infrastructure and utility elements as per Appendix B of the Triangle Outline Planning Permission². Those exclusions total 88m² GEA.
- 11.4 The Habitat Area proposals include a 28m² classroom, 36m² administration space, and 39m² teaching kitchen, providing a total of 103m² (GEA). In addition, a 42m² growing tunnel is proposed, bringing the overall total to 145m² (GEA). All of these buildings will support the operations of educational charity, Global Generation, and are therefore considered to fall within Use Class D1.
- 11.5 These details are submitted to meet the requirements of Condition 15 and are for approval.

Table 11.1: Building W3 proposed floorspace figures

Floor Level	Gym (D2)	Crèche/Nursery (D1)	Retail (A1-A4)	Shared	Excluded
Basement	0	23	0	52	22
Ground/Podium	0	231	174	80	22
Level 01	214	197	0	25	22
Level 02	511	0	0	0	22
Totals	725	451	174	157	88

Table 11.2: Habitat Area proposed floorspace figures

Floor Level	Classroom (D1)	Administration (D1)	Teaching Kitchen (D1)	Total (excluding polytunnel)	Growing Tunnel (D1)	Total (D1)
Ground	28	36	39	103	42	145

² Appendix B to the Triangle Outline Planning Permission confirms in Note 2 that the total floorspace applied for excludes plant, infrastructure and utility elements which would form part of the development and for which planning permission is sought, for example substations, transformers, waste storage and recycling facilities, service access and a covered loading bay.

Condition 16 (Details Required by Condition - Refuse Storage and Collection)

12.1 The condition states:

“Details and arrangements for storage and collection of refuse, including location, design, screening, operation and inclusion of facilities for the storage of recyclable materials, shall be submitted to and approved in writing by the Local Planning Authority. The development shall be carried out in accordance with the details as approved.”

Response to Condition 16

12.2 The servicing and refuse strategies for Building W3 and the Habitat Area are described in Section 3.2 of the submitted UDR.

12.3 In summary, the refuse strategy is based on the following principles:

- The proposed buildings will seek to minimise their refuse generation by recycling and providing facilities that allow the collection of certain waste types separately.
- Investigating and demonstrating ecological cycles are at the heart of Global Generation’s educational agenda for gardening programmes at the Habitat Area. Beyond waste reduction, re-use of materials and recycling, proposals for the Habitat Area include a high-capacity compost drum which accepts plant waste and garden waste and a wormery which accepts paper and cardboard (torn into hand-sized pieces) and waste from (vegetarian) food preparation. Compost turned into humus and worm cast from the wormery are essential fertilisers for organic food growing on site.
- It has been assumed that a single commercial waste contractor will be contracted to collect all non-residential waste generated within the Triangle Site buildings. Commercial waste is expected to be collected on a daily basis, although best practice is to provide two days’ waste storage to allow for potential interruption to this service.
- As such, the commercial refuse store has been designed to accommodate 10no x 1100 litre bins, which allows for two days of waste generation from all non-residential uses in Buildings W1, W2 and W3, consolidated into a single store.
- In line with the expectations of the Triangle Outline Planning Permission, no commercial refuse will be collected from York Way. It will primarily be collected from the service yard via the Northern Gateway. At the Northern Gateway, a loading bay that is integrated at lower ground level on the north-east corner of W1 creates a covered space for loading/unloading. This loading bay is directly linked to the Triangle Site lower ground facilities, including the adjacent dedicated commercial refuse store as well as an internal corridor that provides a protected service circulation route directly to Building W3.
- The proposed refuse, storage and collection arrangements, including the segregation of recyclables, are shown on the LB1 (lower ground/basement) and L00 drawings KXC-W0-001-DMA569-PL-20-1B1 and 100 (which were submitted

as part of the Buildings W1 and W2 Reserved Matters) and drawing 102.100 (submitted as part of the Habitat Area drawing package which accompanies this report).

- 12.4 The details provided above and in the UDR meet the requirements of Condition 16 and are submitted for approval.

Condition 17 (Development to be Carried out in Accordance with Permission Parameter Plans and Development Specification)

13.1 The condition (as amended by the NMA Approval) states:

“The development shall be carried out in accordance with the Development Parameters shown on the Revised Parameters Plans (as revised by subsequent reserved matters approvals) and as described in the specified paragraphs of the Revised Development Specification dated August 2005 comprising:

- a. The access arrangements shown on drawings TS003 revision K together with paragraph 4.10;*
- b. The lower ground level arrangements shown on drawing TS004 revision K together with paragraphs 4.11-4.15;*
- c. The upper ground level arrangements shown on drawing TS005 revision K together with paragraphs 4.16-4.18;*
- d. The garden level arrangements shown on drawing TS006 revision K including the maximum building heights shown together with paragraphs 4.19-4.22;*
- e. The upper level arrangements shown on drawing TS007 revision K including the maximum building heights shown together with paragraphs 4.23-4.25*
- f. The section shown on drawings TS008 revision E and TS009 revision E to the extent that they show indicative proposals only for the works and land uses, together with paragraphs 4.26 and 4.27.”*

Response to Condition 17

13.2 The following paragraphs test compliance with the Revised Parameter Plans (including substitute plans TS006 and TS007 which were amended by the 2016 NMA Approval) and specified paragraphs of the Triangle Site Revised Development Specification.

(a) Access Arrangements (Parameter Plan TS003 Rev K)

13.3 Parameter Plan TS003 shows a new joint access off York Way to serve both the Triangle Site and the CTRL London West Portal Muster Area, located to the north of W1. This is referred to in the submission documents as the ‘Northern Gateway’.

13.4 Paragraph 3.16 of the Revised Development Specification confirms that the access road would lead into the lower ground parking level and a covered service access/loading bay at the rear of the site. Details of these areas were brought forward for Reserved Matters approval alongside Buildings W1 and W2, with access from the Northern Gateway in accordance with TS003. However, the proposals for Building W1 and the desire to bring the four visitor parking spaces closer to York Way rather than within the service yard, have necessitated changes to the position of the access road, which has moved slightly northwards compared to the layout indicated on TS003. Although this sits outside the limits of deviation for the access road shown on TS003, the principle of access from this location and the broad positioning of routes into the basement/lower ground floor car park and service area,

and to the CTRL facility (which is already built), meets the intent of that plan and the Revised Development Specification set out above.

13.5 Consequently, these limited and beneficial variations were approved as part of the Reserved Matters submission for the Zone W landscaping, pursuant to the revised wording of Condition 17.

13.6 The approved arrangements demonstrate compliance with the relevant Parameter Plan.

(b)/(c) Lower Ground Level Arrangements (Parameter Plan TS004 Rev K) and Upper Ground Level Arrangements (Parameter Plan TS005 Rev K)

13.7 As noted in relation to part (a) of the condition above, vehicular access is provided to the site off York Way, in accordance with paragraphs 4.13 and 4.18 of the Revised Development Specification. This will serve the CTRL facility and the car parking below Buildings W1 and W2, as well as the visitor parking proposed at the western end of Building W1, and the service area to the rear of the site which serves all buildings on the Triangle Site, including W3 and the Habitat Area.

13.8 Details of the 'Proposed Habitat Area' in the north-eastern part of the site identified on Parameter Plan TS004 are brought forward under a separate full planning application and are therefore not required to demonstrate compliance with TS004. Nevertheless, the location, extent and primarily soft landscaped nature of the proposed Habitat Area are largely consistent with the intention indicated on TS004.

13.9 Parameter Plans TS004 and TS005 envisaged two 'ground floor' levels which addressed the increasing site level along York Way and sought to accommodate both retail and ancillary/service uses below a private podium garden for residents of the Triangle apartments at 'garden level' (Parameter Plan TS006). During early discussions with officers, it was agreed that the scheme would benefit from the garden being open to the public and level with the Southern Gateway at Randell's Road. At the same time, it became apparent to the design team that the areas designated for cycle parking, refuse and plant within the lower ground level were insufficient to meet the desired levels of provision and were located in areas which were either mismatched with the position of cores or created significant blank facades of ancillary uses, particularly on the northern façade of W1. In contrast, the extent of retail envisaged by Parameter Plan TS005 was extremely generous and was unlikely to be fulfilled by demand. As a result, the 2016 NMA Approval shows the site level of the podium garden lowered to between +27 and +27.5m, creating level access onto Randell's Road and sets out the consequential amendments to the reorganisation of uses at lower ground floor level.

13.10 The proposed levels for the Podium Garden are below the maximum height of +33.2m AOD for the amenity space set out on Parameter Plan TS006 and within the +/-2.5m limit of deviation for the proposed finished level of the retail space indicated on TS005. As demonstrated in the submissions for Buildings W1 and W2, it does not have an appreciable impact on the appearance of the ground floor levels from the public realm or height of the buildings overall. Retail is retained along and accessed from the York Way frontage as envisaged by TS004 and TS005 and paragraphs 4.11 and 4.16 of the Revised Development Specification, maintaining a positive pedestrian experience along the street.

- 13.11 While Parameter Plan TS005 does not envisage ground floor retail beneath the leisure uses in Building W3, the approved amendments to the levels and public access of the Podium Garden have resulted in a desire to include an active ground floor use in this location. The proposal is considered to offer an improved pedestrian experience along Randell's Road and a more welcoming public entrance to the Triangle Site at the Southern Gateway compared to the Parameter Plans and the Revised Development Specification. In addition, the overall quantum of retail proposed remains well within the limits set by the Triangle Outline Planning Permission.
- 13.12 It is considered that the proposed approach to the upper ground floor arrangements outlined above does not materially impact on or alter the principles established by the Triangle Outline Planning Permission, that is to create a mixed use development comprising three principal buildings with a shared lower ground level and central amenity space to provide a mix of market and affordable homes, retail and leisure uses. The proposals are considered to be consistent with the underlying reasoning behind Condition 17 and would not lead to any effects that were not assessed in the Environmental Impact Assessment which supported the outline planning application in 2005.
- 13.13 An application for non-material amendments to the Triangle Outline Planning Permission, pursuant to S96A of the Town and Country Planning Act 1990, will follow this submission to enable the provision of retail/café space (Use Classes A1-A4) in this location. Specifically, the application will seek to amend the wording in Appendix B (Floorspace Schedule) to allow retail floorspace to be located within W3. Currently Appendix B describes all retail units as being located in W2 and beneath the amenity space, and having frontage onto York Way.
- 13.14 Given the revised wording of Condition 17 approved under the 2016 NMA Approval, which allows for the approval of revisions to the parameter plans through the submission of plans at the Reserved Matters stage, it is considered that it will not be necessary to amend Parameter Plan TS005 to reflect the proposed distribution of retail space in W3.
- 13.15 The Applicant therefore requests that the Local Planning Authorities enable this limited and beneficial variation to the location of retail space through the approval of the submitted drawings which form the Drawing Package for Building W3 (together with the amended wording of Appendix B (Floorspace Schedule), pursuant to the above-mentioned application for non-material amendments).

(d) Garden Level Arrangements (Parameter Plan TS006 Rev L)

- 13.16 As noted in paragraph 13.2, Parameter Plan TS006 was amended by the 2016 NMA Approval. Parameter Plan TS006 shows development at garden level (Level 00 on the submitted drawings), including the development zone area boundaries for each building. In some cases, these boundaries are subject to limits of deviation.
- 13.17 In relation to Building W3, the proposed development does not extend beyond the maximum permitted boundaries as defined on the Parameter Plan. It does, however, propose a reduced footprint at its northern end in excess of the lower limit of deviation. This is to align the northern façade of Building W3 with the approved siting and mass of Building W1. The principle of enclosing the central Podium Garden and creating a barrier to the railway line to the east is maintained.

- 13.18 As discussed above in relation to the proposed retail use at ground floor, given the revised wording of Condition 17 approved under the 2016 NMA Approval, it is considered that it will not be necessary to amend Parameter Plan TS006.
- 13.19 The Applicant therefore requests that the Local Planning Authorities enable this variation, which is necessary due to the siting and massing of adjacent Building W1 having been approved, through the approval of the submitted drawings which form the Drawing Package for Building W3.
- 13.20 Building W3 will have a maximum height of +41m, within the maximum permitted heights shown on Parameter Plan TS006.

(e) Upper Level Arrangements (Parameter Plan TS007 Rev L)

- 13.21 Parameter Plan TS007 relates to upper levels of the development and is therefore not relevant to Building W3 which is proposed to be only three storeys in height (including ground/podium level).

(f) Sections (Parameter Plans TS008 and TS009, both Rev E)

- 13.22 The Development Specification includes two sections, Parameter Plans TS008 and TS009 (the latter is not relevant to Building W3).
- 13.23 TS008 shows the arrangement of W3 as three storeys of 'Indoor Sports/Health and Fitness and related facilities (D1 and D2 use classes)'. The proposed massing and uses of Building W3 are considered to be consistent with the parameters set by TS008. Further details regarding the proposed massing and uses are provided in the submitted Urban Design Report and the Drawing Package.
- 13.24 The details provided in paragraphs 13.2 to 13.23 above, and in the submitted documents, demonstrate compliance within Condition 17.

Condition 18 (Floorspace Permitted)

14.1 The condition states:

“The total floorspace constructed and used pursuant to this outline planning permission shall not exceed 26,600 sq. m (gross external area). This total floorspace excludes:

- a. Plant, infrastructure and utilities forming part of supporting the development including substations, transformers, waste storage and ancillary recycling facilities*
- b. Services access including a covered loading bay*
- c. Residential balconies*
- d. Car and bicycle parking provided (with lifts and stairs) at lower ground level.”*

Response to Condition 18

- 14.2 The proposed floorspace in Building W3 (subject to the exclusions set out in the condition and notes to Appendix B of the Triangle Outline Planning Permission) is set out in detail in Section 11, presented in connection with Condition 15.
- 14.3 The latest floorspace figures for Buildings W1 and W2 (submitted in November 2018) brought forward 21,992m² GEA of floorspace. The proposed floorspace within Building W3, which totals 1,507m², brings the overall total to 23,499m² GEA of floorspace within Development Zone W. The zonal maximum of 26,600m² GEA would therefore not be exceeded.
- 14.4 While the Habitat Area application sits outside of the Triangle Outline Planning Permission, if the 145m² GEA proposed floorspace were included, the overall floorspace across the Triangle Site would total 23,644m² which remains within the maximum floorspace permitted under the Triangle Outline Planning Permission.
- 14.5 The details submitted enable the Local Planning Authorities to monitor the position with regard to floorspace build-up and do not require approval.

Condition 19 (Uses Permitted – Maximum Floorspace Figures)

15.1 The condition states:

“Notwithstanding the provisions of the Use Classes Order, permission is hereby granted only for the following uses;

- a. Residential use within Class C3*
- b. Shopping, food and drink uses within Classes A1, A2, A3 and A4*
- c. Crèche, day, nursery, day centre and public hall uses within Class D1*
- d. Health and fitness, indoor sport and leisure uses within Class D2*
- e. Other miscellaneous uses, including car and bicycle parking, plant, sub-stations, transformers, waste storage and recycling facilities and a covered loaded bay.*

*The floorspace constructed and used pursuant to the planning permission shall not, unless otherwise agreed in writing by the Local Planning Authority, exceed in the case of any use or group of uses, the individual maximum floorspace figures as set out in **Appendix B** (floorspace schedule) attached, that table being read together with the notes 1-3 inclusive.”*

Response to Condition 19

- 15.2 The table following this section shows that the proposed floorspace for the uses within Buildings W1, W2 and W3 (subject to the exclusions set out in the notes to Appendix B of the Triangle Outline Planning Permission) would not exceed the maximum figures for the relevant land uses applying to Development Zone W, as set out in the floorspace schedule attached as Appendix B to the permission.
- 15.3 While the Habitat Area application sits outside of the Triangle Outline Planning Permission, if the proposed floorspace of 145m² (Class D1) were included, the overall D1/D2 floorspace across the Triangle Site would total 1,321m² which remains well within the maximum figure set out in Appendix B to the permission.
- 15.4 These details enable the Local Planning Authorities to monitor the position with regard to the proposed floorspace and do not require approval.

Table 15.1: Buildings W1, W2 and W3 proposed floorspace figures

	Residential	Retail (Use Classes A1-A4)	D1/D2 Uses
Buildings W1 and W2	20,849	671	0
Building W3	0	174	1,176
Total GEA	20,849	845	1,176
Maximum Permitted Floorspace as set out in Appendix B of the Triangle Outline Planning Permission (m ² GEA)	21,100	2,500	3,000

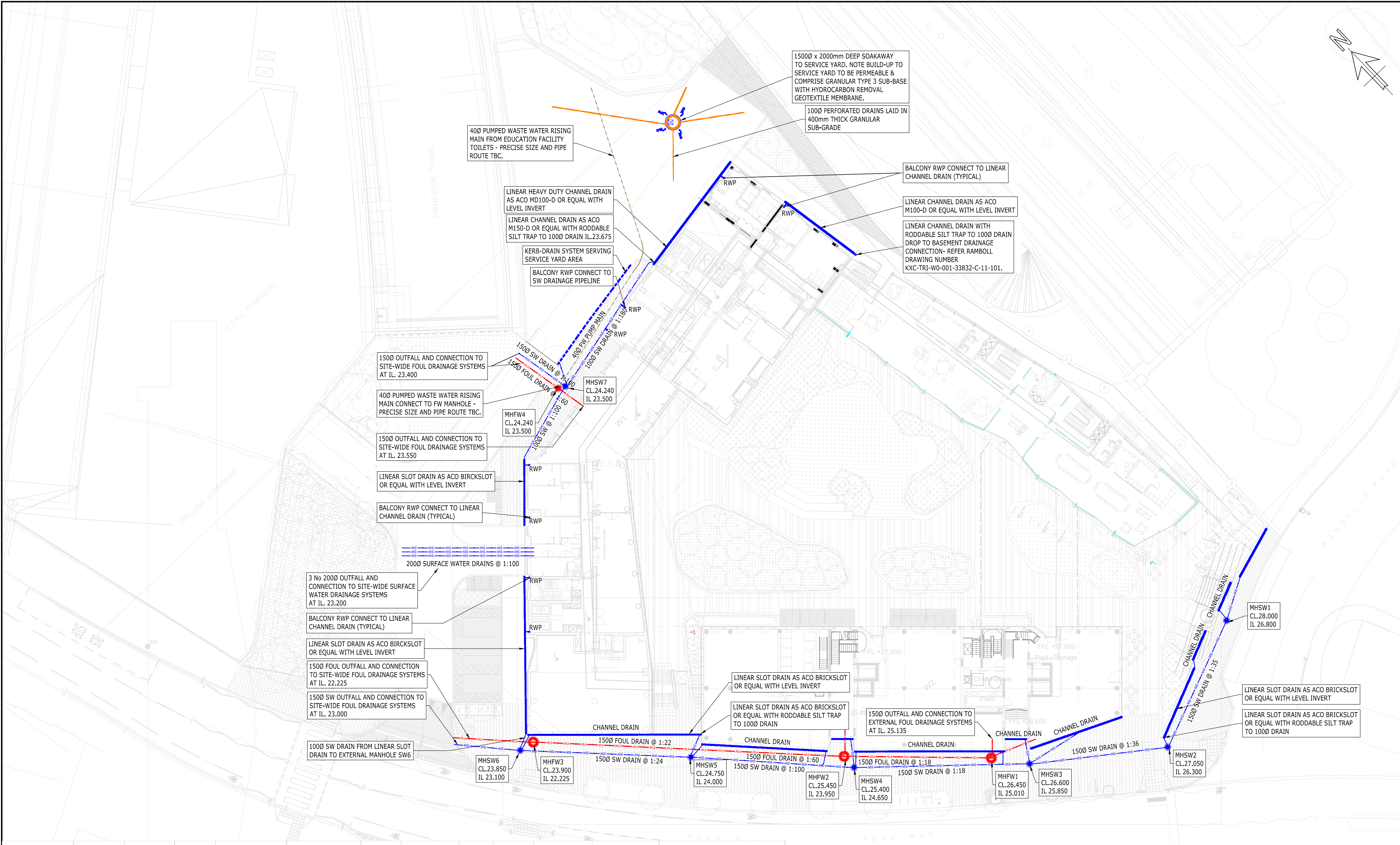
Condition 23 (Drainage Infrastructure)

16.1 The condition states:

“The new drainage infrastructure within the site shall be designed such that the peak stormwater discharge to the existing combined sewers shall not be more than 67 litres per second.”

Response to Condition 23

- 16.2 The drainage strategy for the Triangle Site, regarding storm water management and attenuation, is to utilise building roofs as ‘Blue Roof’ systems which will hold water in heavy rainfall and storm events. The roof attenuation arrangements are supplemented by an attenuation layer located within the ground floor podium build-up to provide a green/blue roof system.
- 16.3 These arrangements have been designed to ensure that the developments catchment can manage and hold storms of a 1:100 year return, inclusive of a 30% climate change allowance to ensure that the maximum permissible site discharge of 67 l/s is achieved and maintained.
- 16.4 The proposed Habitat Area will have no direct surface water connection into the site wide or utility surface water sewerage systems. The surface water requirements are to be managed via on-site SuDS, permeable surfaces and similar soakaway arrangements. A foul water connection is provided into the site-wide gravity drainage systems to enable a pumped connection from the sanitary facility provisions serving the Habitat Area.
- 16.5 Foul water and drainage layouts follow this section for information, demonstrating the holistic approach to drainage for the Triangle Site.



- Notes
1. THIS DRAWING IS NOT TO BE SCALED.
 2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND M&E DRAWINGS.
 3. THIS IS NOT AN INSTALLATION DRAWING NOR A CO-ORDINATION DRAWING.
 4. ALL LEVELS ARE IN METERS ABOVE ORDNANCE DATUM.
 6. REFER TO DRAWING KXC-TRI-W0-001-33832-C-11-500 & KXC-TRI-W0-001-33832-C-11-501 FOR TYPICAL DRAINAGE DETAILS.

- KEY:
- PROPOSED SURFACE WATER INSPECTION CHAMBER
 - PROPOSED FOUL EFFLUENT WATER PIPE
 - PROPOSED FOUL WATER INSPECTION CHAMBER
 - PROPOSED FOUL WATER PIPE

P01	STAGE 3 EMPLOYERS REQUIREMENTS	18.05 2018	MES PC	PC
P01	ISSUED FOR STAGE 3 INFORMATION	04.05 2018	MES PC	PC
Rev	Description	Date	By	App

STAGE 3

KING'S CROSS
CENTRAL ZONE W



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EXTERNAL FOUL & SURFACE
WATER DRAINAGE LAYOUT

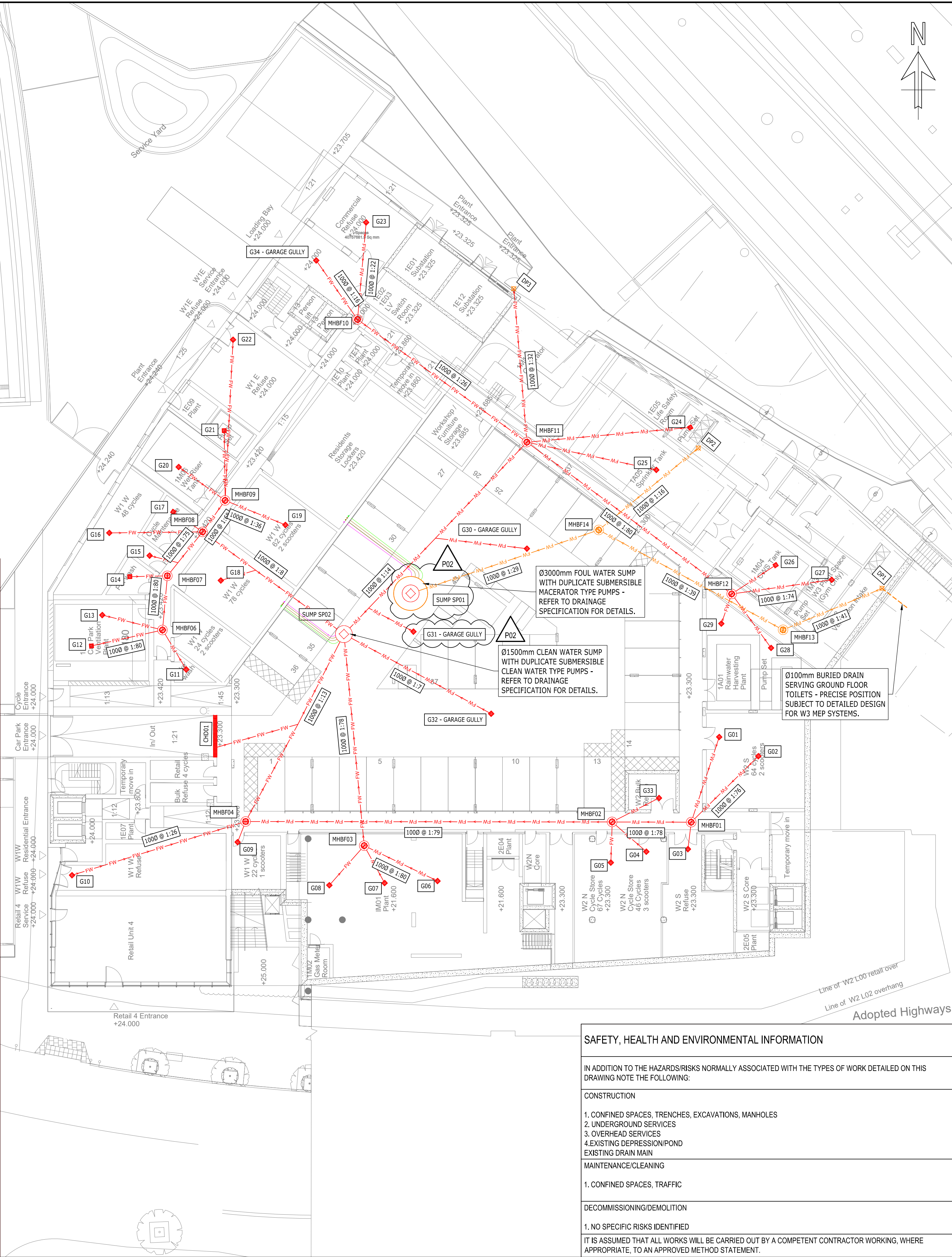
Scale:	Date:	Drawn:	Checked:
1:250 @ A1	APR 2018	MES	PC
Drawing No.:	Rev:		
KXC-TRI-W0-001-33832-C-11-100	P02		

EXTERNAL MANHOLE SCHEDULE

MANHOLE No.	COVER LEVEL	INVERT LEVEL	DEPTH	INCOMING PIPE DIAMETER	OUTGOING PIPE DIAMETER	SIZE	COVER					COMMENTS
							COVER SIZE	LOAD CLASS	SEAL TYPE	COVER TYPE	MANUFACTURER LIST No.	
FW1	26.450	25.010	1.440	100	150	1200 DIA	600mm x 600mm	B125	DOUBLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332C	-----
FW2	25.450	23.950	1.500	150	150	1200 DIA	600mm x 600mm	B125	DOUBLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332C	-----
FW3	23.900	22.225	1.675	150	150	1200 DIA	600mm x 600mm	B125	DOUBLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332C	-----
FW4	24.250	23.500	0.750	150	150	450øPPIC	450mm x 450mm	B125	DOUBLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW1	28.000	26.800	1.200	100	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW2	27.050	26.300	0.750	150	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW3	26.600	25.850	0.750	150	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW4	25.400	24.650	0.750	150	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW5	24.750	24.000	0.750	150	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW6	23.850	23.100	0.750	150	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----
SW7	24.240	23.500	0.740	100	150	450øPPIC	450mm x 450mm	B125	SINGLE SEAL & LOCKING	GMS INRILL COVER	STEELWAY REF: X6332A	-----

Emergency Storage	
Clean Foul Water	Flows from gullies intermittent/mostly dry, therefore no emergency storage proposed.
Effluent Foul Water	Reduced volume of emergency storage proposed - 8 hours constant average flow. Based on provision of : Back-up power supply, High level alarm linked to BUS, Dual pump system. To be agreed with Building Control

FOUL WATER MANHOLE SCHEDULE										
MANHOLE NO.	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO INVERT (m)	PIPE RUNS (Ømm)	MANHOLE TYPE	CHAMBER SIZE (mm)	OPENING SIZE (mm)	COVER SIZE (mm)	COVER LOAD CLASS	COMMENT
MHBF01	23.300	22.690	0.610	OUT 100 @ IL 22.690 IN 100 @ IL 22.690 IN 100 @ IL 22.690	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF02	23.300	22.600	0.700	IN 100 @ IL 22.600 IN 100 @ IL 22.600 IN 100 @ IL 22.600 OUT 100 @ IL 22.600	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF03	21.600	21.010	0.590	OUT 100 @ IL 21.010 IN 100 @ IL 21.010 IN 100 @ IL 21.010 IN 100 @ IL 21.010	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF04	23.300	22.190	1.110	IN 100 @ IL 22.190 IN 100 @ IL 22.190 OUT 100 @ IL 22.190 IN 100 @ IL 22.190	PPIC	450	450x450	450x450	B125	PPIC Manhole
SUMP SP02	23.300	20.070	3.230	IN 100 @ IL 20.770 IN 100 @ IL 20.770 IN 100 @ IL 20.770 IN 100 @ IL 20.770	PCC	1500	1050x750	1050x750	C250	GRP Sump - Pump Station
MHBF06	23.420	22.840	0.580	OUT 100 @ IL 22.840 IN 100 @ IL 22.840 IN 100 @ IL 22.840 IN 100 @ IL 22.840	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF07	23.420	22.780	0.640	IN 100 @ IL 22.780 OUT 100 @ IL 22.780 IN 100 @ IL 22.780	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF08	23.420	22.710	0.710	IN 100 @ IL 22.710 OUT 100 @ IL 22.710 IN 100 @ IL 22.710 IN 100 @ IL 22.710	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF09	23.420	22.760	0.660	OUT 100 @ IL 22.760 IN 100 @ IL 22.760 IN 100 @ IL 22.760 IN 100 @ IL 22.760	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF10	24.000	23.100	0.900	OUT 100 @ IL 23.100 IN 100 @ IL 23.100	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF11	23.500	22.430	1.070	IN 100 @ IL 22.400 OUT 100 @ IL 22.400 IN 100 @ IL 22.400 IN 100 @ IL 22.400	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF12	23.300	22.680	0.620	OUT 100 @ IL 22.680 IN 100 @ IL 22.680 IN 100 @ IL 22.680 IN 100 @ IL 22.680	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF13	23.300	22.570	0.730	OUT 100 @ IL 22.570 IN 100 @ IL 22.570	PPIC	450	450x450	450x450	B125	PPIC Manhole
MHBF14	23.300	22.100	1.200	IN 100 @ IL 22.100 OUT 100 @ IL 22.100 IN 100 @ IL 22.100	PPIC	450	450x450	450x450	C250	PPIC Manhole - Restricted Access
SUMP SP01	23.300	20.300	3.000	IN 100 @ IL 21.500	PCC	3000	1050x750	1050x750	C250	GRP Sump - Pump Station



Notes

- THIS DRAWING IS NOT TO BE SCALED.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT STRUCTURAL AND M&E DRAWINGS.
- THIS IS NOT AN INSTALLATION DRAWING NOR A CO-ORDINATION DRAWING.
- ALL LEVELS ARE IN METERS ABOVE ORDNANCE DATUM.
- THIS DRAWING IS BASED ON,
• KXC-TRI-W0-001-DMA569-A-20-181 DATED 20.04.2018 FROM DAVID MORLEY ARCHITECTS.
- REFER TO DRAWING KXC-TRI-W0-001-33832-C-11-500 & KXC-TRI-W0-001-33832-C-11-501 FOR TYPICAL DRAINAGE DETAILS.

KEY:

- PROPOSED FOUL EFFLUENT WATER INSPECTION CHAMBER
- PROPOSED FOUL EFFLUENT WATER PIPE
- PROPOSED DOWN PIPE
- PROPOSED FOUL WATER INSPECTION CHAMBER
- PROPOSED FOUL WATER PIPE
- PROPOSED FLOOR & GARAGE GULLY
- PROPOSED LINEAR CHANNEL DRAIN
- PROPOSED FOUL WATER PUMP
- PROPOSED FOUL EFFLUENT WATER PUMP
- Ø100 mm VENT PIPE
- Ø50 mm RISING MAIN
- Ø100 mm POWER DUCT

P02	STAGE 3 EMPLOYERS REQUIREMENTS	18.05 2018	BA PC	PC
P01	ISSUED FOR STAGE 3 INFORMATION	04.05 2018	BA OD	PC
Rev	Description	Date	By Chk	App

STAGE 3

KING'S CROSS
CENTRAL ZONE W

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BASEMENT
DRAINAGE LAYOUT

Scale:	Date:	Drawn:	Checked:
1:200 @ A1	MAY 2018	BA	PC

Drawing No.: KXC-TRI-W0-001-33832-C-11-101

Rev: P02

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING NOTE THE FOLLOWING:

CONSTRUCTION

1. CONFINED SPACES, TRENCHES, EXCAVATIONS, MANHOLES
2. UNDERGROUND SERVICES
3. OVERHEAD SERVICES
4. EXISTING DEPRESSION/POND
EXISTING DRAIN MAIN

MAINTENANCE/CLEANING

1. CONFINED SPACES, TRAFFIC

DECOMMISSIONING/DEMOLITION

1. NO SPECIFIC RISKS IDENTIFIED

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

1. UNDER ROADS AND FOOTPATHS USE TYPE 1 GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO THE UNDERSIDE OF SURFACING CONSTRUCTION.

CONCRETE BED AND SURROUND SHALL BE INTERRUPTED AT EACH PIPE JOINT USING 25mm THICK FIBRE BOARD TO THE FULL AREA OF THE CONCRETE - SEE DETAIL BELOW

25mm FIBREBOARD OR SIMILAR COMPRESSIBLE MATERIAL

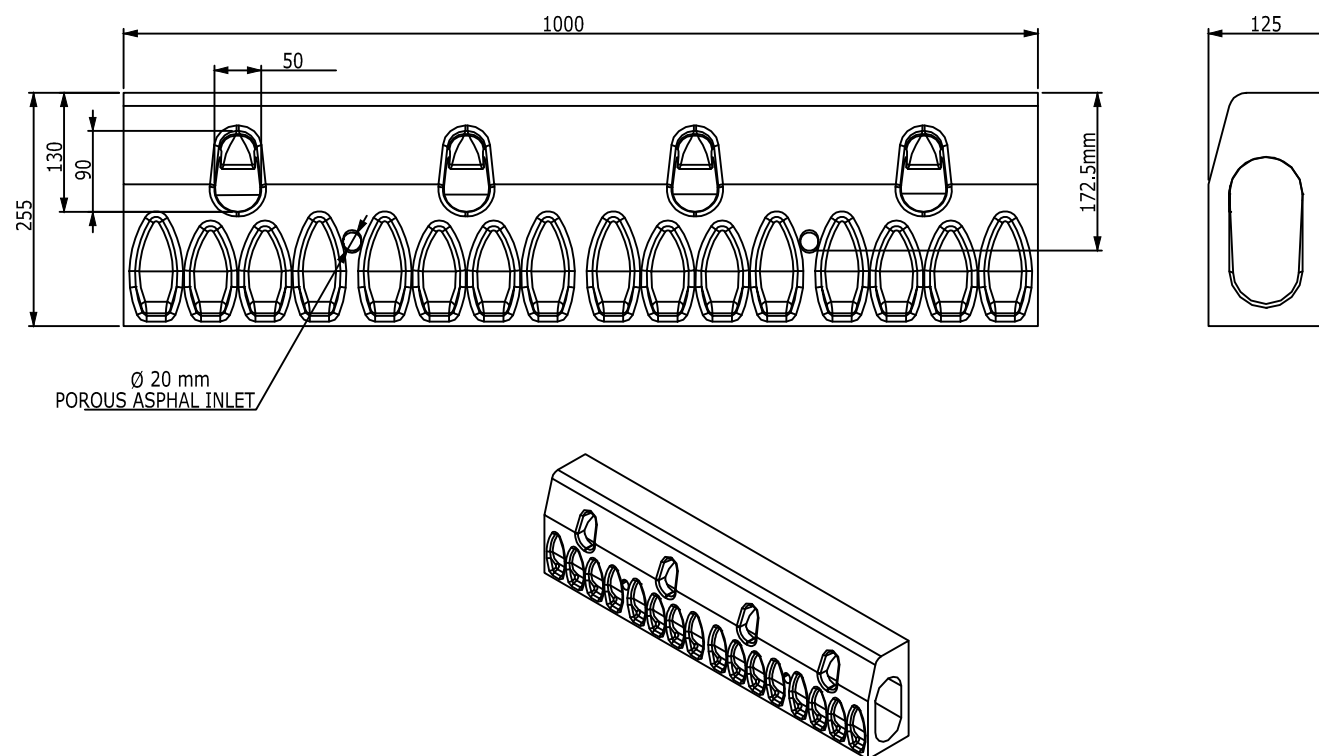
MINIMUM 150mm C20P CONCRETE SURROUND

DIRECTION OF FLOW

DETAIL A

ACO MUTLIDRAIN M100D NO 0.0 OR
SIMILAR APPROVED

C25/30 CONCRETE AND HAUNCH
— MINIMUM COMPRESSIVE
STRENGTH 25N/mm²



1. UNDER ROADS AND FOOTPATHS USE TYPE 1 GRANULAR MATERIAL COMPACTED IN 150mm LAYERS TO THE UNDERSIDE OF SURFACING CONSTRUCTION.

MINIMUM 150mm BED AND SURROUND _____
AS DETAILED IN TABLE BELOW

USE CLASS S BED AND SURROUND WHERE
IS BETWEEN 0.75m AND 1.2m IN VEHICULAR
AND LESS THAN 0.45m UNDER FOOTPATHS

PIPE DIAMETER:	BEDDING MATERIAL:
100Ø	10mm SINGLE SIZE AGGREGATE
101Ø -150Ø	10mm OR 14mm SINGLE SIZE AGGREGATE
151Ø - 500Ø	10mm, 14mm OR 20mm SINGLE SIZE AGGREGATE

NOTE:
THE ABOVE MATERIALS ARE FOR GUIDANCE OTHER BEDDING MATERIALS CAN BE
USED IN ACCORDANCE WITH THE PIPE MANUFACTURES RECOMMENDATIONS I.E.
SINTERED PULVERISED FUEL ASH AND AIR COOLED BLAST FURNACE SLAGS

250x250x100 DEEP BOX OUT IN SLAB FOR TERMINATION OF DRAIN POINT

FLOOR FINISHES TO ARCHITECTS DETAIL

DRAIN POINT IN BOX OUT TO BE TEMPORARILY SEALED DURING CONSTRUCTION WORKS TO PREVENT INGRESS OF BUILDERS MATERIALS AND MIS-USE

REFER TO STRUCTURAL ENGINEERS DESIGN FOR SLAB DETAILS

94

HYDROPHILIC TYPE WATER STOP AS HYDROTITE CJ OR PUDDLE FLANGE ON ALL PENETRATIONS THROUGH SLAB

CLASS Z CONCRETE BED AND SURROUND TO PIPE WHEN UNDER BUILDING UNLESS NOTED OTHERWISE WITHIN THE CONTRACT DOCUMENTS

450mm MIN AND 750mm MIN FOR 3 STORES AND ABOVE

FLEXIBLE JOINT

600 ROCKER PIPE

DN100 VITRIFIED CLAY PIPEWORK

GRATE & FRAME TO BE BEDDED & HAUNCHED WITH NON-SHRINK EPOXY MORTAR

CAST IRON GARAGE GULLY AS ST GOBAIN REF: TD554 WITH 100Ø RODDABLE TRAPPED DRAIN CONNECTION.

DUCTILE IRON 436x436 HEAVY DUTY GULLY GRATE & FRAME AS ST GOBAIN WATERWAY 100 GRADE C250 OR EQUAL.

HYDROPHILIC TYPE WATER STOP AS HYDROTITE C/J OR EQUAL.

CONCRETE SURROUND TO BE CLEAR OF FLEXIBLE JOINT

600

600mm LONG ROCKER PIPE

BENDS AND SET AS REQUIRED TO SUIT DRAINAGE LEVELS AND DETAILS

150mm MIN THICK CONCRETE BED & SURROUND TO SUIT STRUCTURAL ENGINEERS REQUIREMENTS/DETAILS.

GARAGE GULLY

The image contains two technical drawings illustrating the construction of a drain in a floor slab.

Top Drawing (Side Elevation):

- FFL / SSL:** Finished Floor Level / Sill Level, indicated by a horizontal line.
- ROCKER PIPE:** The pipe section passing through the slab.
- PILE CAP / SLAB:** The concrete structure supporting the pipe.
- DRAIN TO BE SURROUNDED WITH CONCRETE AND INTEGRAL WITH THE FLOOR SLAB:** A note pointing to the concrete around the pipe.

Bottom Drawing (Plan View):

- FFL / SSL:** Finished Floor Level / Sill Level, indicated by a horizontal line.
- LAP ONTO MAIN SLAB REINFORCEMENT:** Indicated at the top and bottom edges of the slab.
- PIPE SURROUND TO BE POURED WITH STRUCTURAL SLAB:** A note pointing to the concrete around the pipe.
- H10 SIDE BARS:** Reinforcement bars on the sides of the pipe.
- NOMINAL LONGITUDINAL REINFORCEMENT TO CONTRACTOR'S DESIGN:** Reinforcement bars along the length of the slab.
- MAIN SLAB REINFORCEMENT:** Reinforcement bars in the main slab.
- H10 BARS AT 300mm C/C:** Reinforcement bars spaced at 300mm center-to-center.
- H10 SIDE BARS:** Reinforcement bars on the sides of the pipe.
- 2No. H10 LONGITUDINAL BARS:** Two No. 10 reinforcement bars along the length of the pipe.
- 188:** Dimension indicating the width of the concrete surround on either side of the pipe.
- 150 MIN.:** Minimum dimension indicating the height of the concrete surround above the pipe.

1000 CAST IRON 'S' TRAP GULLY
BODY AS WADE CODE G604

DUCTILE IRON OR STAINLESS
STEEL GRATING - REFER TO
DRAINAGE DRAWINGS &
SPECIFICATION FOR DETAILS
COUPLING TO CAST IRON PIPE

STRUCTURAL SLAB

1000 CAST IRON BENDS @ 45°

150mm MIN CONCRETE SURROUND TO BE
MONOLITHIC WITH THE STRUCTURE

600 ROCKER

Diagram illustrating the components and installation details of a drainage system:

- HEAVY DUTY CAST/DUCTILE IRON GRADE C250 SLOTTED GRATE
- AC0 M1650 DRAINAGE CHANNEL WITH RODDABLE SUMP UNIT ...
- CANNEL LINED WITH PERMAFILTER NON-WOVEL GEOTEXTILE
- LEVEL TO SUIT FLOOR SLAB & FINISH TO ARCHITECTS AND ENGINEERS REQUIREMENTS
- PVC TO CAST IRON PIPE COUPLING
- BENDS & DRAIN SET TO SUIT LEVELS AS REQUIRED TO DRAINAGE SYSTEMS
- MINIMUM 150mm CONCRETE BED AND SURROUND TO CHANNELS AND SUMP UNIT

Notes

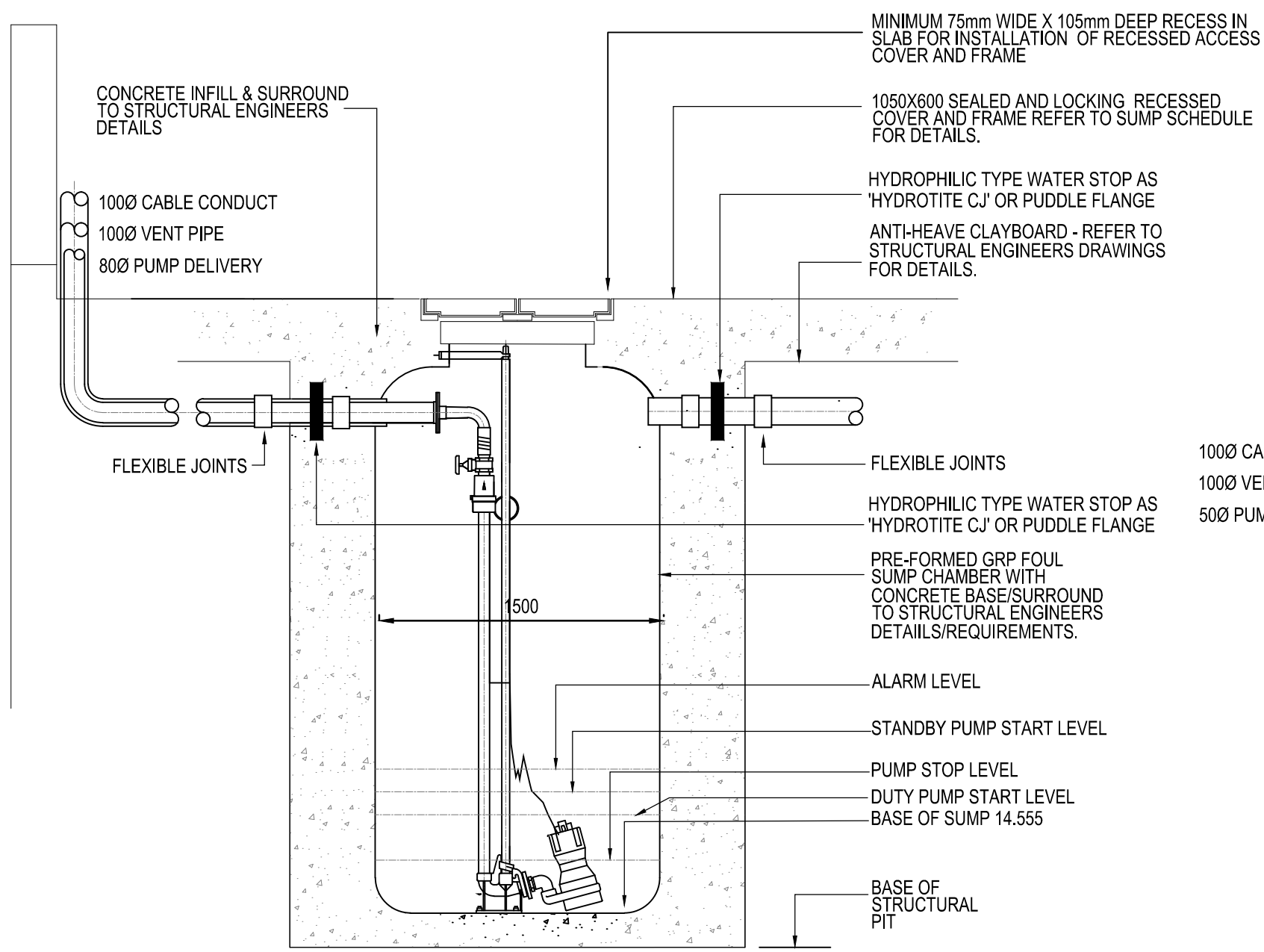
1. DO NOT SCALE FROM THIS DRAWING.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS DRAWINGS AND SPECIFICATIONS.
3. THIS IS NOT AN INSTALLATION DRAWING NOR A CO-ORDINATION DRAWING.
4. REFER TO DRAINAGE LAYOUT
KXC-TRI-W0-001-33832-C-11-100 &
KXC-TRI-W0-001-33832-C-11-101.
5. DRAINAGE DETAILS IN ACCORDANCE WITH :
 - SEWERS FOR ADOPTION 7TH EDITION
 - THE BUILDING REGULATIONS 2012, APPROVED DOCUMENT H.

P02	ISTAGE 3 EMPLOYERS REQUIREMENTS	18.05 2018	BA PC	PC
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Rev	Description	Date	By Chk	App

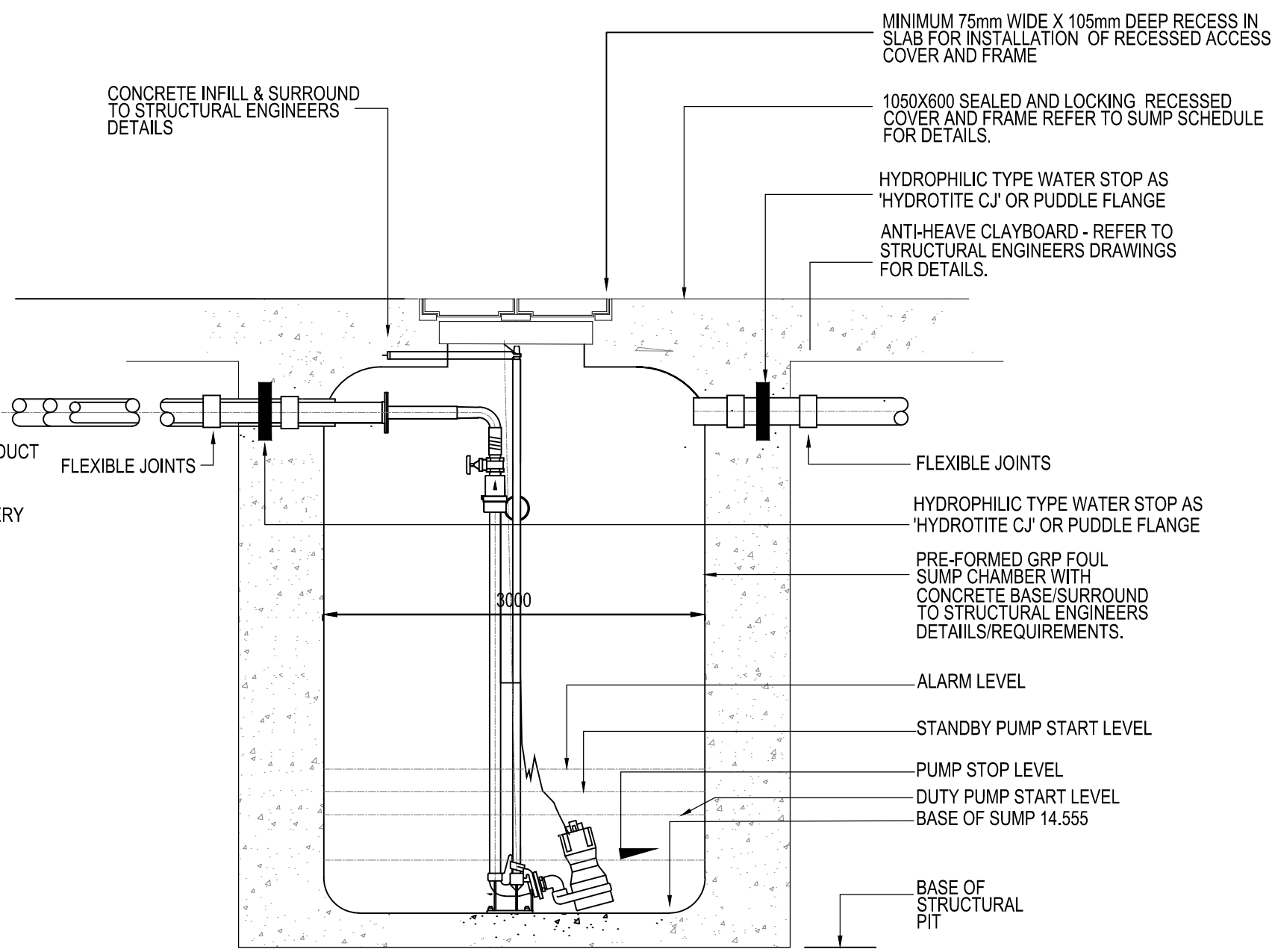


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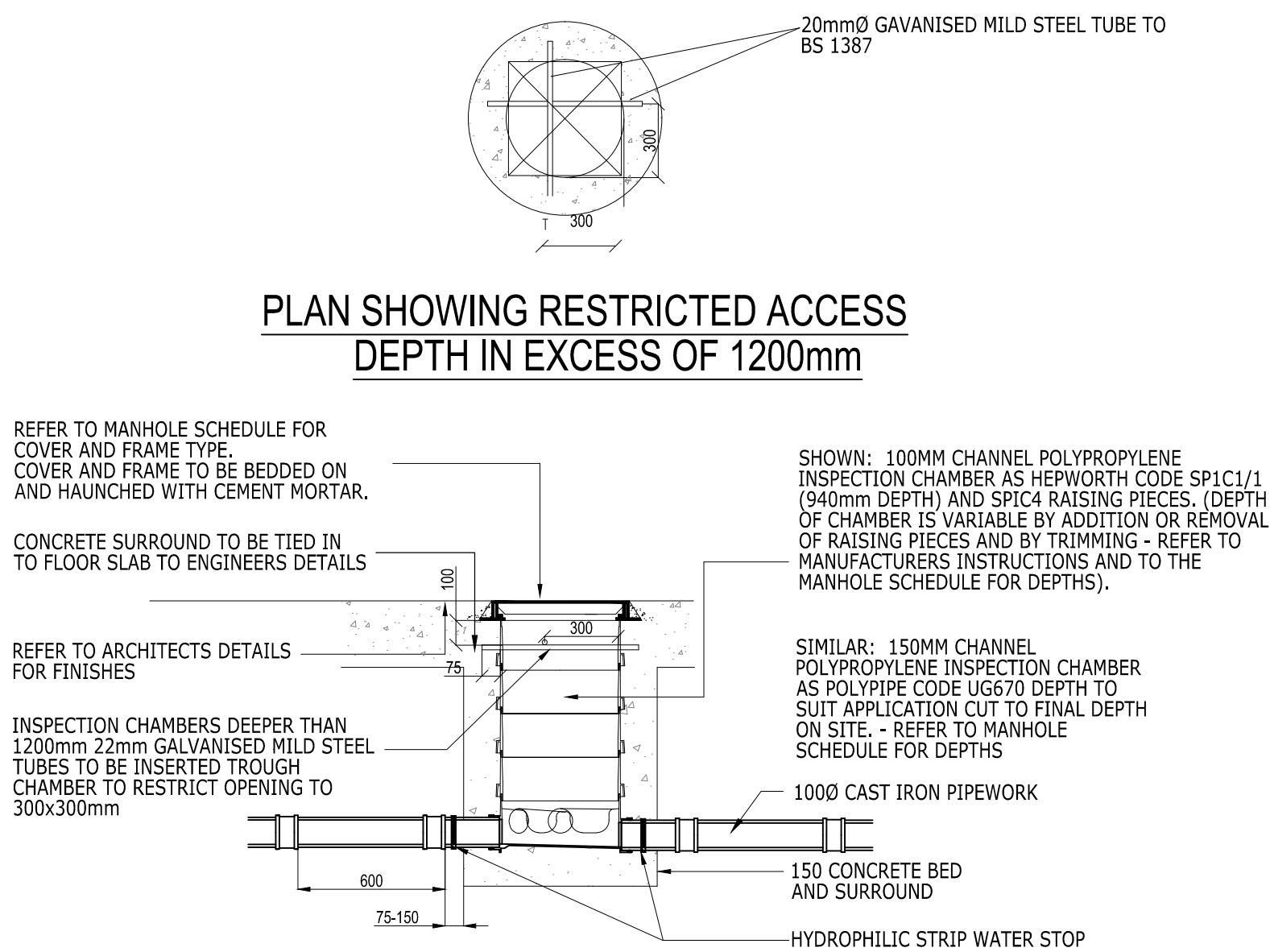
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Drawing No.: KXC-TRI-W0-001-33832-C-11-500			Rev: P02



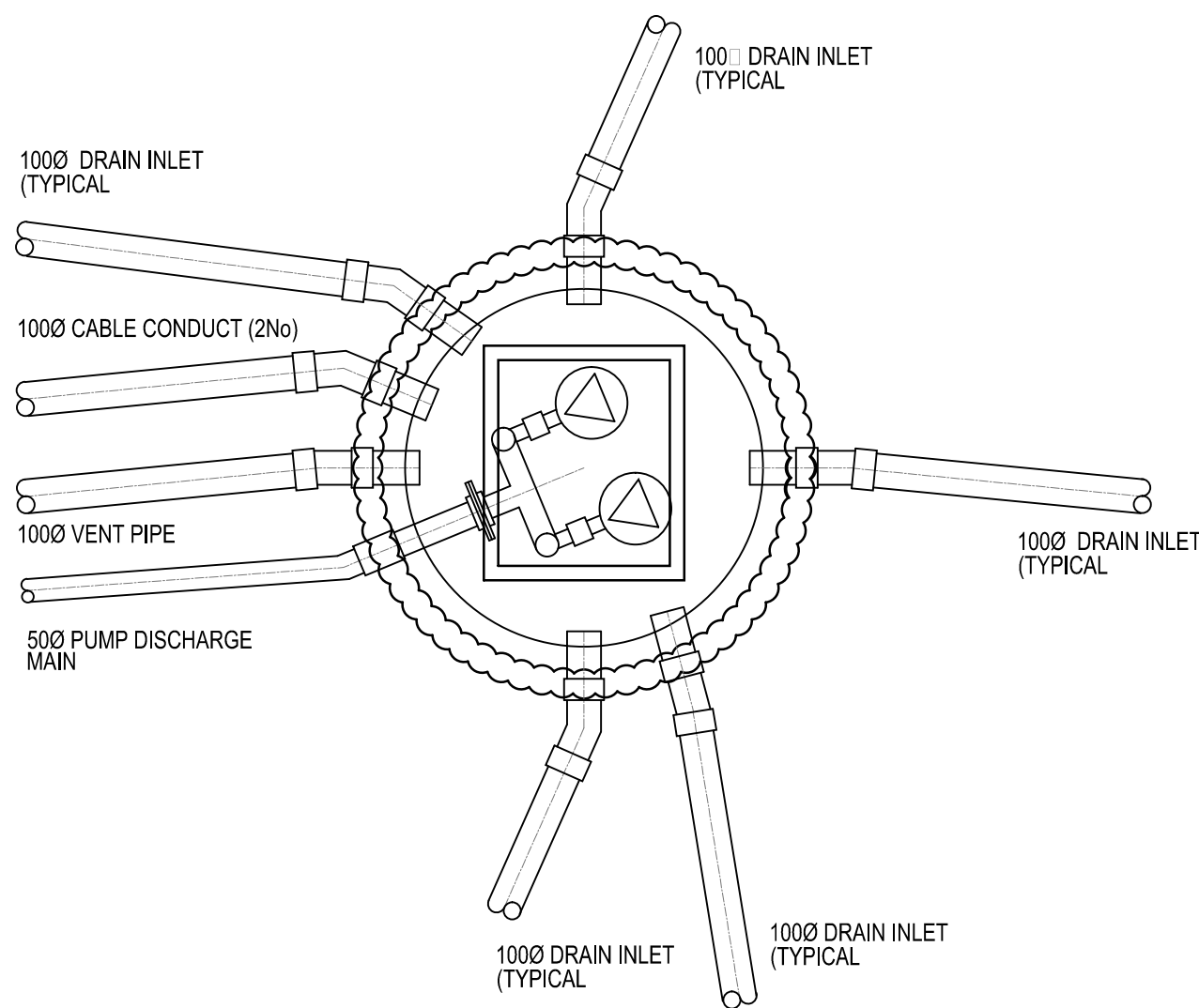
1500Ø FOUL WATER PUMP CHAMBER



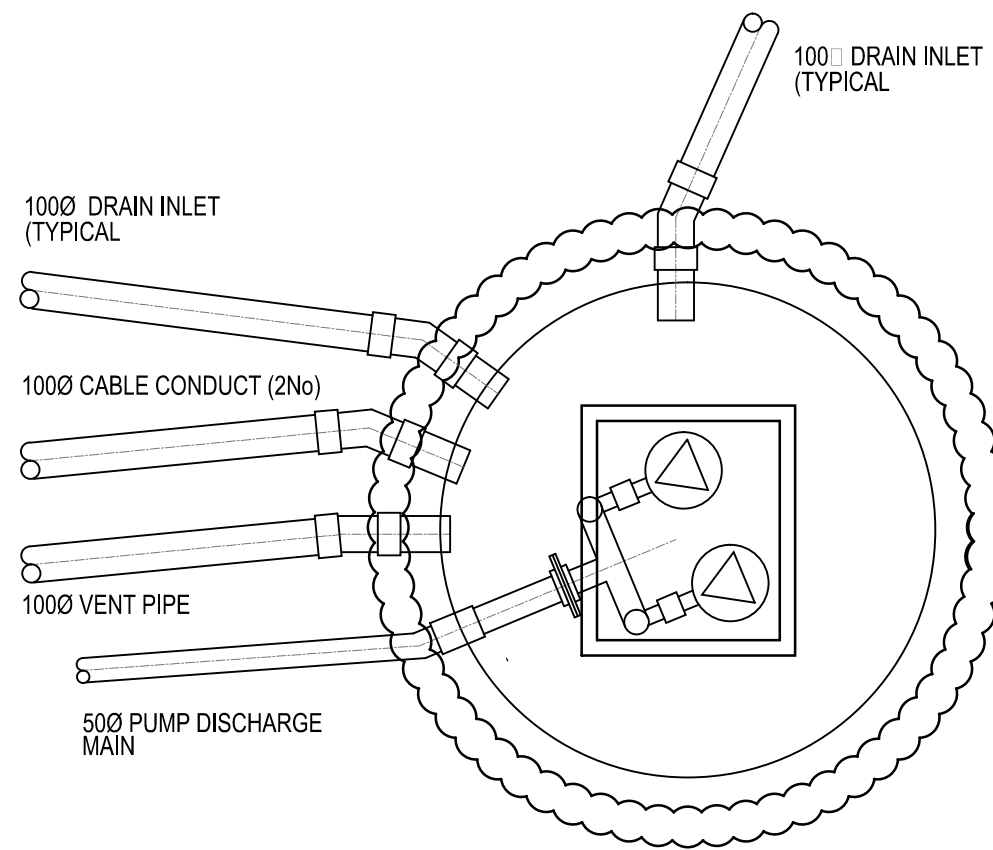
3000Ø FOUL WATER PUMP CHAMBER



4500Ø POLYPROPYLENE INSPECTION CHAMBERS



PUMP CHAMBER PLAN



PUMP CHAMBER PLAN

- Notes
- DO NOT SCALE FROM THIS DRAWING.
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 - THIS IS NOT AN INSTALLATION DRAWING NOR A CO-ORDINATION DRAWING.
 - REFER TO DRAINAGE LAYOUT KXC-TRI-W0-001-33832-C-11-100 & KXC-TRI-W0-001-33832-C-11-101.
 - DRAINAGE DETAILS IN ACCORDANCE WITH :
 - SEWERS FOR ADOPTION 7th EDITION
 - THE BUILDING REGULATIONS 2012, APPROVED DOCUMENT H.

P02	STAGE 3 EMPLOYERS REQUIREMENTS	18.05 2018	BA	PC
P01	ISSUED FOR STAGE 3 INFORMATION	04.05 2018	BA	PC
Rev	Description	Date	By	App
			CHK	

STAGE 3

KING'S CROSS
CENTRAL ZONE W

RAMBOLL

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DRAINAGE
TYPICAL DETAILS
SHEET 2 OF 2

Scale:	Date:	Drawn:	Checked:
NTS @ A1	MAY 2018	BA	PC
Drawing No.:	Rev:		
KXC-TRI-W0-001-33832-C-11-501	P02		

Condition 24 (Green and Brown Roofs)

17.1 The condition states:

“New building constructed pursuant to the planning permission within Blocks A, B and C shall incorporate Green and/or Brown Roofs as specified in Paras 3.31 and 3.32 of the Revised Development Specification dated August 2005.”

Response to Condition 24

- 17.2 Condition 24 refers to Paragraph 3.31 of the Revised Development Specification which envisages a green (sedum) roof on Building W3.
- 17.3 The main roof on Building W3 provides 353m² of green roof in the form of informal meadow style planting. In addition, the proposals include a blue roof attenuation system, designed to retain water above the waterproofing membrane to manage the rainwater run-off and provide water to the green roof above.
- 17.4 The first floor crèche/nursery roof will provide a further 17m² of brown roof that will include climbers running on the north elevation of Building W3 to soften the outlook for the Building W1E residents.
- 17.5 In order to add richness to the roofs and link to the ecology values of the Habitat Area, bird and/or bat boxes will be integrated on the Building W3 roof and informal mounds and troughs with piles of logs and different sized stones will provide micro habitats for insects.
- 17.6 In addition, the Habitat Area will include a brown roof on the classroom and intensive green roof on the administration building.
- 17.7 Further details of the proposed roofs are provided in the submitted UDR and ESP and shown on the roof plans, KXC-W3-001-HAP-PL-20-103 (for W3) and 102.003 (for the Habitat Area). This information is provided to meet the requirements of Condition 24.

Condition 25 (Car Parking Standards)

18.1 The condition states:

“Unless otherwise agreed in writing by the Local Planning Authority, the development shall be constructed in accordance with the following:

- a) Maximum car parking/storage standards;*
 - i. Residential: an average of 0.40 spaces per unit across all unit types and tenures, to be provided within the lower ground level shown on drawing TS004 Rev K;*
 - ii. Class D1/D2 uses: 1 space per 1:1000 sq. m gross floor area;*
 - iii. Classes A1-A4 inclusive uses; No provision other than for people with disabilities (to be agreed in writing by the Local Planning Authority at the Reserved Matters stage)*
- b) 4 visitor parking spaces to be provided to the north block A as shown in drawing TS003 revision K*
- c) Any additional parking required by the Local Planning Authority by people with disabilities may be provided in addition to the above standards*
- d) The standards exclude provision for city car club spaces (such spaces may be provided in addition to the above) and the provision of service bays to be approved as part of the Reserved Matters for the development.”*

Response to Condition 25

- 18.2 No car parking is proposed for Building W3 or the Habitat Area. It should be noted that the ratio specified in part (a) (ii) of the condition is a maximum. There is no minimum car parking ratio specified for any of the uses on the Triangle Site.
- 18.3 It is not intended that users of Building W3 or the Habitat Area will have access to the car parking at basement level, details of which were brought forward under the Reserved Matters submission for Buildings W1 and W2.
- 18.4 In accordance with part (b) of the condition, two visitor spaces and two wheelchair parking spaces (operated on a blue badge basis) will be provided at ground floor level off the new access route to the north of Building W1. These spaces were brought forward as part of the Reserved Matters submission for the Zone W landscaping.
- 18.5 These details are provided to demonstrate compliance with the condition and do not require approval.

Condition 26 (Cycle Parking)

19.1 The condition states:

“Unless otherwise agreed in writing by the Local Planning Authority, the development shall provide for the use of occupiers of the development cycle parking/storage for 246 bicycles at Lower Ground Level”

Response to Condition 26

- 19.2 Details of the cycle parking for the Triangle Site are provided in Section 3.1 of the submitted UDR.
- 19.3 As per the details previously submitted in relation to Buildings W1 and W2, a total of 363 bicycle spaces are proposed for residents of Buildings W1 and W2 within the lower ground/basement area. This number is based on a ratio of approximately 1 cycle space per bedroom, and exceeds the requirement for 246 spaces in Condition 26 of the Triangle Outline Planning Permission.
- 19.4 Ratios for visitors are not prescribed by Condition 26 or the related Section 106 Agreements and so we have considered the current standards in the LBI and LBC Local Plans instead to ensure that adequate provision is made.
- 19.5 The Camden Local Plan 2017 requires cycle parking facilities to meet the London Plan 2016. This requires a minimum of 1 space per 40m² (GEA) for visitors to A1-A5 (over a threshold of 100m²) and 1 space per 100 m² for visitors to D2 uses. The requirement for nurseries (D1 use) is stated per student, and since this isn't yet known for Building W3, the more stringent requirement of 1 space per 100m² is used here. A visitor space should also be provided for every 40 residential units.
- 19.6 Appendix 6 of LBIs Development Management Policies Document does not distinguish between visitor and employee/resident spaces in its standards, although it does acknowledge that visitor spaces may be provided within the public realm. These standards require 1 space for every 60m² of A1-A5 floorspace, 1 per bedroom for residential use and 1 space for every 275m² of D1/D2 uses.
- 19.7 Based on the total retail floorspace (including Buildings W1, W2 and W3) of 845m², 218 residential units (in W1 and W2) and total D1/D2 floorspace proposed in Building W3 and the Habitat Area of 1,321m², this would equate to 40 visitor spaces under the standards in LBC's Local Plan 2017 and the London Plan 2016. LBIs standards, which consider visitors and residents/staff together, would require a total of 19 cycle spaces for the retail and D1/D2 users/ employees.
- 19.8 The approved scheme for the Zone W landscaping demonstrates that 104 spaces for visitors to all uses within the Triangle Site can be accommodated. The application seeking minor amendments to the landscaping, submitted in December 2018, revises this figure to 108 spaces.
- 19.9 The provision of 108 spaces in the Podium Garden and surrounding public realm more than meets the requirements of both LBI and LBC policies, particularly when considered in the context of the significant residential provision at lower ground/basement level. The number of spaces would also accommodate any staff

parking requirement for the retail and D1/D2 uses if necessary, notwithstanding that we would expect these to be provided by the tenant within their own demise as part of the fit-out.

Condition 28 (Noise)

20.1 The condition states:

“Before development commences, details shall be submitted to, and approved by, the Local Planning Authority to demonstrate that the noise impact of any plant or equipment to be installed on the site will meet the following standards:

- a. Noise levels at a point 1 metre external to sensitive facades to be at least 5dB(A) less than the existing measurement (LA90), expressed in dB(A) when all plant/equipment are in operation*
- b. Where it is anticipated that any plant/equipment will have a noise that has a distinguishable, discreet continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps) special attention to be given to reducing the noise level from that piece of plant/equipment at any sensitive façade at least 10dB(A) below the LA90, expressed in dB(A).*

The development shall be carried out in accordance with the details, as approved unless otherwise agreed in writing by the Local Planning Authority.”

Response to Condition 28

- 20.2 Condition 28 relates to the control of noise emissions from plant and processes to the nearest noise sensitive premises. Limits are derived with reference to the existing background sound level.
- 20.3 A baseline noise monitoring survey was undertaken by The English Cogger LLP (dated June 2007) and approved in relation to the Main Site by the LBC pursuant to Condition 59 of the KXC Outline Planning Permission³. A further survey was carried out between December 2007 and March 2008 which included the Triangle Site and this led to a revised report dated April 2008 (the ‘2008 Noise Survey’).
- 20.4 Given the time that has elapsed since the 2008 Noise Survey and the contextual changes that have taken place, additional measurements were taken on the Triangle Site by Hoare Lea in 2014. These are set out in the Acoustic Report which forms Appendix B to the Building W1 and W2 Reserved Matters submission in 2016. This document captures the pre-existing ambient noise levels for the Triangle Site prior to commencement of construction works for the purposes of Condition 27 of the Triangle Outline Planning Permission.
- 20.5 A further Acoustic Report relating to Building W3 is now submitted, appended to this report at Appendix B, to address the requirements of Condition 28. It confirms that Condition 28 can be met without significant requirements for attenuation of building services noise, as the majority of the equipment will be located internally. Limits which have been adopted by the design team regarding building services emissions to the development itself, and other plots within Zone W, will also ensure appropriate control to the nearest noise sensitive premises.

³ Discharge of Condition 59 by the London Borough of Camden was confirmed by letter dated 12 June 2007.

- 20.6 It has been recognised from a very early stage in the design process that noise emissions from building services engineering equipment will need to be controlled to avoid nuisance to future occupants and any surrounding neighbours. Allowances have subsequently been made for attenuators to supply and exhausts, acoustic louvres and acoustically rated doors. Furthermore, equipment will, where practicable, be selected to avoid any tonal or impulsive characteristics. Where selected plant does have such characteristics, a penalty shall be applied to ensure additional attenuation is provided.
- 20.7 The Acoustic Report is provided to meet the requirements of Condition 28 and is submitted for approval.

Part 2: Habitat Area Planning Policy Review

Habitat Area Planning Policy Review

This section comprises a review of and assessment against current planning policy relevant to the proposals for the Habitat Area, within the Triangle Site at King's Cross Central. The Habitat Area application falls wholly within the London Borough of Islington ('LBI').

Designed by Jan Kattein Architects, the Habitat Area proposals include four small, single-storey buildings (28m² classroom, 36m² administration space, 39m² teaching kitchen and 42m² growing tunnel), providing a total of 145m² (GEA) educational (Class D1) floorspace (if the growing tunnel is included). The proposed built footprint, including the four buildings and a 24m² covered deck adjacent to the classroom, occupies approximately 15% of the Habitat Area site. To minimise this footprint, the circulation spine is externalised and takes the form of a raised timber boardwalk, touching the ground lightly, allowing for natural rainwater absorption below and providing a habitat for insects and small mammals.

The remainder of the 1097m² Habitat Area site comprises ecology gardens, which will enhance biodiversity, complement the adjacent railway habitat, and support environmental education programmes. The site layout and massing provides a permeable and open appearance dominated by soft landscaping. A small area in the northernmost corner of the site, where the railways converge, is left as an inaccessible 'wilderness' area.

Further details of the proposals are provided within the submitted Drawing Package, Urban Design Report and Ecology Report.

National Planning Policy Framework (NPPF) 2018

The NPPF provides strategic support for sustainable land use and development that promotes biodiversity and net environmental gains. As set out in the submitted Ecology Report, the Habitat Area is currently of low ecological value and the proposals are considered to meet these objectives by creating significantly enhanced habitats for urban wildlife and through the proposed eco-educational activities.

Specific policy support for such developments include:

Para 118: Planning policies and decisions should:

"encourage multiple benefits from both urban and rural land, including through mixed use schemes and taking opportunities achieve net environmental gains - such as developments that would enable new habitat creation or improve public access to the countryside."

Para 175: When determining planning applications, local planning authorities should apply the following principles:

"development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measureable net gains for biodiversity."

The ecological benefits of a managed compared to an unmanaged Habitat Area on the site were evaluated by the RPS ecology team and their recommendations have informed the strategy for the site. With a low existing ecological value (see the submitted Ecology Report) and no trees or recorded presence of protected species, a managed approach is likely to establish a Habitat Area with greater ecological value in the short term and maintain greater species diversity and habitat provision over the medium and long terms.

The London Wildlife Trust have been consulted during design development regarding the planting and management specification of the Habitat Area, and are supportive of the proposed planting, use and management strategy for the Habitat Area.

London Plan 2016

The current London Plan (2016) (and the draft new London Plan) provides further policy support for the type of development proposed in the Habitat Area, particularly in relation to providing valuable green infrastructure and habitats within an urban context.

In developing the proposals for the Habitat Area, it became clear that a space which provides a more actively managed garden and some public access could provide much greater ecological and community benefits than a planted area with no public access. The submitted Ecology Report confirms that the design and management proposals for the site will significantly enhance biodiversity on the site.

The proposal to allow managed public access to the Habitat Area is supported by Policy 7.19 (para. 7.61) which specifically encourages better access to nature to enhance people's health and wellbeing.

Policy 2.18 Green Infrastructure: The multi-functional network of green and open spaces

"E Development proposals should: incorporate appropriate elements of green infrastructure that integrate into the wider network..."

Policy 7.19 Biodiversity and Access to Nature

"C Development Proposals should: wherever possible, make a positive contribution to the protection, enhancement, creation and management of biodiversity"

Para 7.61 "New development should improve existing or create new habitats or use design to enhance biodiversity and provide for its on-going management.... access to nature can be an important contributor to people's health and the Mayor wants to see better access to both existing and new wildlife habitats."

The London Plan (2016) also provides strong support for education facilities, particularly those that enable multiple use for community and recreational purposes.

Policy 3.18 Education Facilities

C "Development proposals which enhance education and skills provision will be supported, including new build, expansion of existing or change of use to educational purposes".

E "Development proposals which maximise the extended or multiple use of educational facilities for community or recreational use should be encouraged".

The Habitat Area will be operated and managed by educational charity, Global Generation, an eco-educational charity with strong links to the local area. Global Generation's community outreach and development projects bring together local school children and businesses, vulnerable families living in the area and local volunteers. Activities such as supporting bees, carpentry, urban food growing, cooking, and eating together are combined with dialogue, storytelling, and creative writing.

LB Islington (LBI) Core Strategy 2011 and Development Management Policies 2013

The Triangle Site provides a unique opportunity to create a permanent educational base for Global Generation in this area. The geographic location of the Triangle Site will allow Global Generation to expand its work in the Bingfield Park and Caledonian Road area, and other parts of Islington.

LBI's policies echo the London Plan in that they strongly encourage the protection and enhancement of biodiversity, and the provision of access to nature in order to promote mental health and wellbeing, as well as education.

Policy CS15- Open Space and Green Infrastructure

"C. creating new open spaces on underused land"

"D. protecting and enhancing biodiversity across the Borough and addressing deficiencies in access to nature"

Para 3.6.6- "Habitat improvement and creation are crucial to the aims of protecting and enhancing biodiversity. Habitat improvement and creation targets set out in the London Plan will be supported and implemented locally, where feasible, using opportunity maps to help with decision making."

DM6.1 Healthy Development

"A. Developments are required to provide healthy environments, reduce environmental stresses, facilitate physical activity and promote mental health and well-being"

DM6.2 New and Improved Public Open Spaces

"C. Public open space provision must maximise biodiversity benefits. New or improved public open space shall incorporate areas of biodiversity habitat complementing surrounding habitats and supporting the council's Biodiversity Action Plan. Species chosen for planting across the space must maximise biodiversity benefit. Public open spaces within the functional vicinity of a Site of Importance for Nature Conservation (SINC) shall be planted with native species and local provenance species and complement the species composition in the SINC"

DM6.3 Protecting Open Space

“D. ii) The council will encourage greater public use of suitable semi-private amenity spaces, including use as a publicly accessible open space, play space, wildlife habitat and for local food growing, provided the space remains substantially undeveloped and open, and provided that accessibility to the general public is improved.”

Paragraph 6.28- “The protection and enhancement of biodiversity habitats is important given pressure from development, climate change and deficiencies in access to nature within the borough.”

DM6.5 Landscaping, trees and biodiversity

“A. Developments must protect, contribute to and enhance the landscape, biodiversity value and growing conditions of the development site and surrounding area, including protecting connectivity between habitats. Developments are required to maximise the provision of soft landscaping, including trees, shrubs and other vegetation, and maximise biodiversity benefits, including through the incorporation of wildlife habitats that complement surrounding habitats and support the council’s Biodiversity Action Plan.

Para 6.37- The Council’s Biodiversity Action Plan (BAP)...identifies wildlife habitats and species important to Islington and London as a whole.

Para 4.62- “Social and strategic infrastructure incorporates numerous community and social facilities...”

Para 4.63- “social infrastructure contributes to sustainable communities by providing venues for a wide range of activities and services, including accommodation for Islington’s active voluntary and community sector, meetings and events, which add to its diversity and interest. As such, they make a significant contribution to people’s mental and physical wellbeing, sense of place and community, learning and education.”

Para 4.71- “Where a new educational facility is proposed (including standalone new facilities, facilities provided as part of a mixed-use development and facilities which have converted an existing building/use into educational use), they should maximise use by local communities, including through their accessible location and design, consistent with the requirements of other relevant Development Management Policies.”

As already discussed above, the proposals will significantly enhance the biodiversity and habitat provision on this currently underutilised site, which primarily consists of hard-standing. The submitted Ecology Report and Urban Design Report provide further detail of the existing site conditions and the ecological and community benefits of the proposals. The planting schedule and palette included within the submitted Drawing Package provide details of the proposed soft landscaping, hard landscaping and other features which will provide habitats, such as bird and bat boxes and insect hotels. A range of native and non-native species have been carefully selected, with the specific intention of enhancing biodiversity, providing habitat and food year-round, and complementing the adjoining rail side habitat.

The Habitat Area proposals are considered to offer a significant positive contribution to the ongoing regeneration and stewardship of the local area.

Appendix A

Triangle Site Earthworks and Remediation Plan Addendum

ADDENDUM REPORT 2

Job	King's Cross - The Triangle Site (Zone W)
Client	King's Cross Central General Partner Ltd
Description	Earthworks and Remediation Plan – Addendum Report 2
Reference	KXC-W0-001-033832-R-11-913-R01
Date	06 December 2018
Made by	Tom Smith
Reviewed by	Simon Corness
Approved by	Simon Corness
Copy to	Wai-Kay Chan

1. Introduction

1.1 Brief

At the request of King's Cross Central General Partner Ltd. ('KCCGP'), Ramboll UK Limited (Ramboll) have been instructed to provide an Earthworks and Remediation Plan (ERP) – Addendum Report to support the planning submissions for Building W3 and the Habitat Area at the Triangle Site, King's Cross, also known as 'Development Zone W'.

The King's Cross Triangle site (Zone W) was granted outline planning permission following appeal in 2008 (ref. App/V5570/A/07/2051902 and App/X5210/A/07/20518). Land contamination matters are dealt with by Condition 11 of that permission which states that *"relevant applications for approval of the reserved matters shall be accompanied by an Earthworks and Remediation Plan to deliver appropriate site levels and ground conditions for that part of the development"*.

The ERP (ref. KXC-W0-001-033832-R-11-903-04) produced by Ramboll in January 2016 was prepared to provide information on the ground conditions and geoenvironmental setting, to highlight the potential contamination risks that could arise as part of the development and to outline the earthworks and remediation requirements for the Triangle Site. The ERP (Ramboll, 2016) was submitted to the London Borough of Islington ('LBI') and the London Borough of Camden ('LBC') for a Reserved Matters submission for Buildings W1 and W2. Following this an ERP Addendum (KXC-TRI-W0-001-33832-R-11-902-01A) was prepared in relation to the landscaping at the site, specifically the Podium Garden, Northern and Southern Gateways and improvements to a section of the eastern footpath of York Way. Both of these documents contained information on the emerging proposals for Building W3 and the Habitat Area that were available at that time.

This Addendum Report has been produced to provide a refined earthworks strategy based on current design information for Building W3 and the Habitat Area which is contained in Appendix 1. The updates do not constitute significant deviations from the proposals on which the original ground contamination assessment and remediation strategies were based on and therefore these sections of the ERP (Ramboll, January 2016) remain valid across the site.

1.2 Pertinent Reports

This Addendum Report should be read in the context of the following overarching documents which were submitted in support of the original King's Cross Central ('KXC') and Triangle site outline planning applications.

- King's Cross Central Environmental Statement (ES) Volume 4: Part 16 Soils and Contamination Specialist Report, Arup, May 2004;
- King's Cross Central ES Volume 5: Supplement, Arup, September 2005; and,
- King's Cross Revised Code of Construction Practice (CoCP), RPS, September 2005.

In 2014, Ramboll completed a combined Geoenvironmental and Geotechnical Desk Study (DBA) for the Triangle Site. Following the recommendation for site-specific exploratory works, an intrusive Phase II site investigation of the Triangle Site was undertaken by BAM Ritchies between April and May 2015, under the technical supervision of Ramboll.

The reports contained within Table 1.1 were used in preparation of the original ERP (Ramboll, 2016) which forms the basis of this Addendum report.

Table 1.1: List of Salient Reports

Report Title	Author	Date
Factual Report on Ground Investigation, Project Area 100	Soil Mechanics	October 1997
Contract 2 for Phase 4 Ground Investigations in Project Area 100	Soil Mechanics	October 1997
Phase 2 Contaminated Land Risk Assessment Report, King's Cross Training Centre	TPS	April 2008
Factual Report on Ground Investigation, King's Cross Training Centre	Soil Mechanics	May 2008
King's Cross Central W Plot Geoenvironmental and Geotechnical Desk Study	Ramboll UK	September 2014
King's Cross Plot W Factual Geotechnical Report on Ground Investigation	BAM Ritchies	September 2015
King's Cross Zone W Ground Contamination Interpretative Report	Ramboll	September 2015
King's Cross the Triangle Site (Zone W) Earthworks and Remediation Plan	Ramboll	January 2016
King's Cross the Triangle Site (Zone W) Earthworks and Remediation Plan Addendum Report	Ramboll	September 2016

1.3 Proposed Development

The Triangle Outline Planning Permission permits three new buildings (W1, W2 and W3) varying from 3 to 17 storeys which will provide residential, commercial and leisure uses. A single level of lower ground, part basement underlying the proposed buildings and extending below the 'Podium Garden' will provide space for plant, storage and 50 car parking spaces. As noted above, Reserved Matters details for residential buildings W1 and W2, the shared basement/lower ground service and the Podium Garden and Northern and Southern Gateways have already been submitted under two separate Reserved Matters Submissions.

Applications seeking minor amendments to Buildings W1 and W2 and the landscaping were submitted in November and December 2018, respectively. Neither proposal had a material

impact on the existing ERP, as confirmed in those submissions. This report considers the most up to date information for all buildings and landscaping across the Triangle Site

The current submissions provide design details for Building W3 and the Habitat Area. Design drawings for both areas are contained in Appendix 1.

2. Site Characterisation and Ground Conditions

2.1 Site Setting

The 'Triangle site' lies on the border of two London Boroughs, with the northern section of the site located in the LBI and the southern section in the LBC. The site is roughly triangular in shape and is bound by York Way to the south west, the new Thames Link Line to the north and the East Coast Main Line Railway Line to the east.

The majority of the site has recently been used for the storage of materials from the wider KXC site and by Network Rail for works on the Thames Link. The southern section of the site is occupied by the King's Cross Construction Skills Centre.

2.2 Site History

From 1869 to 1925, several railway lines and sidings associated with King's Cross Station dissected the site and occupied the majority of the local area. Brecknock Road crossed the south west portion of the site positioned on a viaduct. The Great Northern Cemetery Station was located 50m to the east. From 1926 to 1975, the site remained relatively unchanged. Historical maps highlight the impacts from Luftwaffe raiding with several buildings in the area being demarcated as 'ruins'. From 1976 to 2002 the number of railway sidings present on site reduced. An electricity sub-station is located off-site on the western boundary. Prior to 2010 the alignment of York Way was shifted to its present position beyond the south-western border of the site. By 2010 the Channel Tunnel Rail Link is shown running from west to north east of the site.

2.3 Geology

The geology has been identified to be comprised by between 1.4 to 3.0m of Made Ground which overlies 27.9 to 34.8m of London Clay. Underlying the London Clay is the Lambeth Group which was proven to a depth of 40.0mbgl.

2.4 Hydrology and Hydrogeology

The Grand Union Canal lies approximately 500m south of the site.

The Made Ground is unclassified whilst the London Clay is classified as Unproductive Strata. At depth, the granular Lambeth Group is classified as a Secondary A Aquifer whilst the Thanet Sands and Upper Chalk form the Principal Aquifer.

2.5 Contamination Findings

As part of the ground investigation limited evidence of soil contamination was encountered in relation to a public open space (close to housing where tracking back of soils is possible) end use. The majority of the determinands analysed were shown to be below the adopted

assessment criteria. However, asbestos containing materials in the form of chrysotile loose fibres and bitumen were identified to a maximum concentration of 0.022%w/w.

Soil leachate analysis identified leachable lead in excess of its adopted water quality standard. In addition, concentrations of selenium and sulphate were elevated within the single perched water sample. However, due to the lack of sensitive receptors in the vicinity of the site these are not considered significant.

2.6 Ground Gas

The site has been classified as being of Characteristic Situation of 1 (very low risk). Consequently gas protection measures are not deemed necessary as part of the development.

2.7 Preliminary Waste Classification

The preliminary waste assessment undertaken as part of this study indicates that Made Ground is likely to be suitable for disposal as a combination of inert, stable non-reactive hazardous waste in a non-hazardous landfill and hazardous waste. The London Clay is likely to be suitable as stable non-reactive hazardous waste in a non-hazardous landfill. This should be confirmed by any receiving facility prior to disposal, under Duty of Care, following discussions with the producer of the waste.

Due to the detection of ACM contractor vigilance and specialist advice is advised to determine the appropriate waste stream for materials requiring disposal.

3. Earthworks Strategy

3.1 Estimated Volumes

A detailed earthworks strategy for the Triangle Site is contained within the ERP (Ramboll, January 2016) and was updated as part of the ERP Addendum Report (Ramboll, September 2016). This section outlines the refined estimated volumes of exported and imported spoil associated with development groundworks in light of the current Building W3 and Habitat Area proposals contained within Appendix 1. In addition, there have been minor changes to the W0 basement space which have been captured within this Addendum. Estimated volumes of export and import are contained below. Note that volumes highlighted in bold below are those which have been revised following the Building W3 and Habitat Area proposals and minor changes to the shared basement (details of which formed part of the November 2018 submission for Buildings W1 and W2).

Table 3.1: Estimated Volume of Export

Excavation Type	Approximate Made Ground Volume (m ³)	Approximate London Clay Volume (m ³)
Basement / Lower Ground Floor	2,550	175
Slab (including heave matt)	1,225	25
Piles	95	4,250
Pile Caps	725	850

Excavation Type	Approximate Made Ground Volume (m ³)	Approximate London Clay Volume (m ³)
Ground Beams	200	200
Retaining Wall	50	-
Pile Matt	4,350	-
Infrastructure	65	-
Access Roads	-	-
Site re-profiling (including soft landscaping)	520	-
Sub-Totals	9,780	5,500
Total Excavation = 15,280m³		

Excavation Assumptions:

- For a detailed breakdown of the excavation assumptions for Buildings W1 and W2, the podium and the northern and southern gateways, reference should be made to the ERP (Ramboll, 2016) and ERP Addendum (Ramboll, 2018).
- The contents of Table 3.1 shown in bold contain information which has been refined since the submission of the ERP (Ramboll, 2016) and ERP Addendum (Ramboll, 2018).
- The changes incorporated into this addendum include:
 - o The W3 Stage 3 design drawings have provided the basis for the updated calculations for that building. This includes revisions to the number of piles (100No) and pile caps. These are shown on Drawings KXC-W0-33832-S-20-1FN04 (Foundation General Arrangement) and KXC-W0-33832-S-20-1PG04 (Piling General Arrangement).
 - o The current design of the habitat area no longer includes the ponds (530 m³) with area now comprising a predominantly landscaped area with teaching facilities, a growing tunnel, classrooms, kitchen, orchards and meadow etc with an area of 437m² of soft landscaping with the requirement of 0.6m of clean cover. Current ground levels are 23.5m AOD with the minimum proposed formation level of 23.2m AOD. The current Habitat Area design is shown on Jan Kattein Drawing 102.003 (Appendix 1).
 - o During this exercise recent updates to the W0 basement floor plan have also been captured which includes the addition of a 250m² basement plant space and the removal of a 45m² basement area in Building W2.
- Volumes quoted are only estimates based on the existing information.
- Volumes quoted exclude bulking which depending on material type could be between x1.05 and x1.8.

Table 3.2: Estimated Volume of Import

Importation Type	Imported Volume (m ³)	Imported Material
Infrastructure	65	Engineered fill
Access Roads	600	Aggregate (6F2)
Pile Matt	4,700	Aggregate (6F2)
Geotextile membrane	150	Geotextile membrane
Topsoil / Subsoil	1,285	Topsoil / Subsoil
Total Importation = 6,800m³		

Importation Assumptions:

- For a detailed breakdown of the excavation assumptions for Buildings W1 and W2, the podium and the northern and southern gateways, reference should be made to the ERP (Ramboll, 2016) and ERP Addendum (Ramboll, 2018).
- The contents of Table 3.2 shown in bold contain information which has been refined since the submission of the ERP (Ramboll, 2016).
- Soft landscaped areas and levels obtained for the Habitat Area are from Jan Kattein Drawing 102.003. This includes a requirement for 0.6m of clean imported fill.

As part of the construction works for the Triangle Site, it is anticipated that there will be approximately **15,280m³** of cut and approximately **6,800m³** of fill, resulting in a total figure of **22,080m³** of exported and imported materials.

3.2 Estimated Lorry Movements

The total number of lorry movements carrying excavated soils and imported fill/aggregate has been estimated based on 8.5m³ of unbulked (as dug) material per lorry movement (King's Cross Central Environmental Statement, Appendix 16A, Arup May 2004). The estimated number of lorry movements carrying excavated material from site is **1,798**, whilst the number of lorries carrying imported materials to site has been estimated to be **800**.

This results in an estimated total number of lorry movements of **2,598** which is based on a worst case scenario whereby there is no re-use of materials on-site.

3.3 Suitability of Materials and Material Handling

No changes are necessary to strategies outlined in the ERP (Ramboll, January 2016) regarding the suitability of materials and material handling.

4. Remediation Strategy

It is considered that remedial measures are required as part of the proposed development to provide clean capping within areas of soft landscaping due to the presence of asbestos containing materials within the site soils. These inclusions also render the site Made Ground soils unsuitable for re-use in soft landscaping in the wider KXC development, although they could be re-used on site or on part of the wider KXC development providing they are placed under hardstanding. A detailed description of the clean capping requirements is discussed in the ERP (Ramboll, January 2016).

It is understood that a number of stockpiles of material generated by National Rail were stored on the site following the ground investigation which have since been removed. As the chemical composition of the stockpiles is unknown consideration of the potential for residual contamination in the location of these should be made during the groundworks stage of the development.

In addition to clean capping and consideration of area around the National Rail stockpiles, a number of best practice measures are recommended to be incorporated as part of the construction phase which should include:

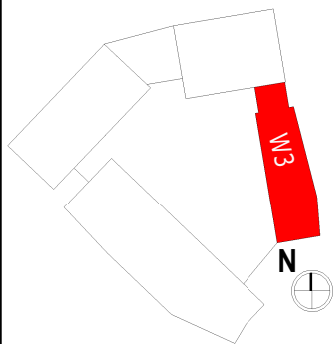
- The preparation of an asbestos management protocol for the site; and
- An unforeseen contamination protocol should be established and an environmental watching brief undertaken by Ramboll throughout groundworks to provide guidance in the event that unexpected or gross contamination is encountered.

Following development works a verification report should be prepared documenting the successful completion of work in accordance with the requirements of this Earthworks and Remediation Plan.

5. Conclusion

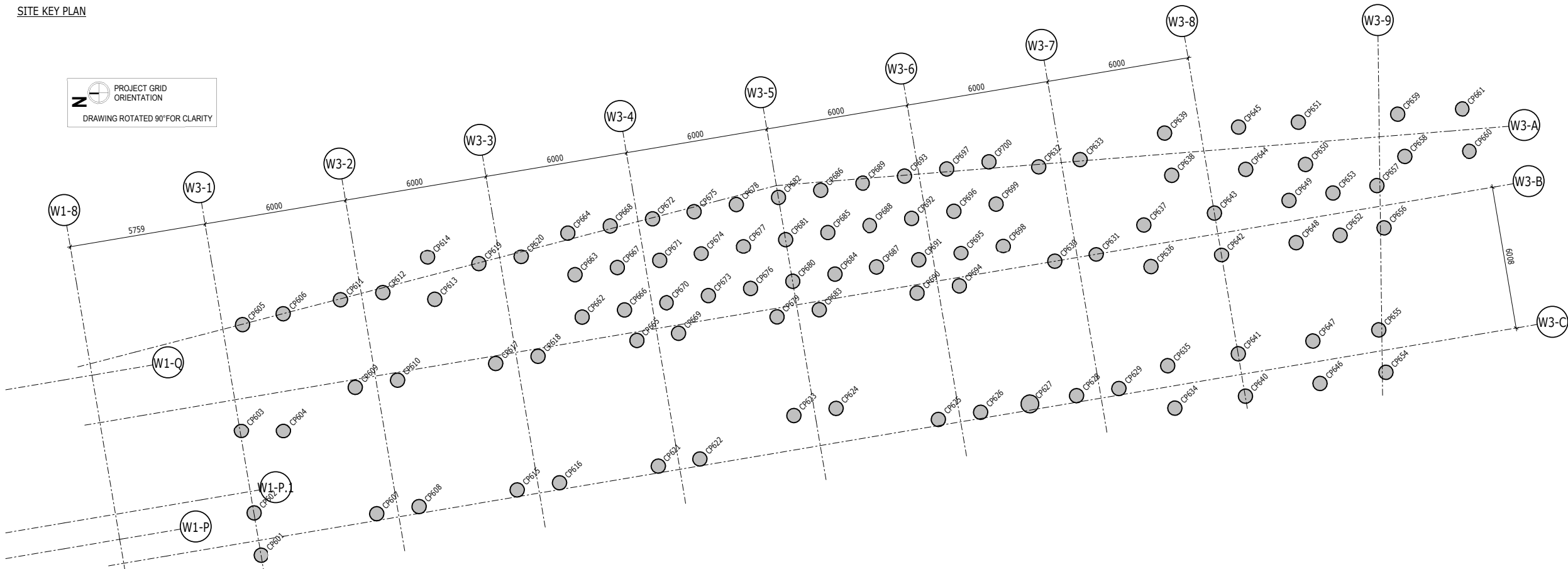
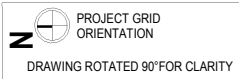
This report has been prepared to provide a refined earthworks strategy in line with the current design of Building W3 and the Habitat Area at the Triangle Site. No significant changes have occurred since the submission of the ERP (Ramboll, January 2016) and therefore many of the conclusions remain valid, in particular the ground contamination assessment and remediation strategy. The changes discussed within Section 3 have resulted in an increase of **60m³** of exported material and a decrease of **255m³** of imported material.

Appendix 1 – Building W3 and Habitat Area Proposals



SITE KEY PLAN

REFER TO DRAWING KXC-TRI-W1-001-61033832-S-S20-1PG01
FOR BUILDING PILING LEVEL GENERAL ARRANGEMENT



REFER TO DRAWING KXC-TRI-W0-001-33832-S-S20-1PG05 FOR
BUILDING W0 PILING GENERAL ARRANGEMENT

GENERAL HAZARDS	
TYPE OF RISK	DESCRIPTION
	GROUND MOVEMENTS DUE TO CONSTRUCTION WORKS. IMPACT ON PROTECTED ASSETS.
	WORKS IMPACTING ASSETS TO FOLLOW AGREED PRINCIPLES, E.G. AIP, FORM A.
	UNDISCOVERED EXISTING SERVICES.
	UNEXPLODED ORDNANCE.
	CONTAMINATED MADE GROUND.
	POSSIBLE ASBESTOS.
	GROUND GAS - HIGH LEVELS OF CARBON DIOXIDE.
	WASTE MANAGEMENT TO FOLLOW REGULATORY REQUIREMENTS.
	HIGH PERCHED GROUND WATER LEVEL, PORE-WATER PRESSURE NOT YET VERIFIED.
	STRUCTURE SUBJECT TO DESIGN DEVELOPMENT AT RIBA STAGE 4.
	WATER PROOFING STRATEGY INCLUDES ADMIXTURES TO CONCRETE TO GRADE 3 AREAS.
	MANUFACTURERS WARRANTIES DO NOT EXTEND TO 120 YEAR DESIGN LIFE.
	LIFT, STAIR AND RAMP DETAILS TO BE CONFIRMED BY ARCHITECTS / SPECIALISTS.
	COMPLEX STRUCTURE - FAÇADE CANTILEVERS, CANTILEVER FOUNDATIONS, RETAINING WALLS, TRANSFERS.
	THERMAL BREAK DETAILS BETWEEN EXTERNAL AND INTERNAL AREAS.
	PILES - GROUND OBSTRUCTIONS.
	TRANSFERS - TEMPORARY PROPPING AND FOUNDATIONS.
	LEVEL 1 FLOOR STRUCTURE CONSTRUCTED FROM C50/60.
	CONTIGUOUS AND RC RETAINING WALLS ARE PROPPED BY THE GROUND FLOOR IN THE PERMANENT CONDITION. TEMPORARY RESTRAINT OR CANTILEVERING TO CONTRACTOR DESIGN

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORKS DETAILED ON THIS DRAWING, NOTE THE FOLLOWING GENERAL RISKS AND INFORMATION AS WELL AS THOSE ON THE ADJACENT GA. REFER TO THE GENERAL NOTES PAGE FOR FURTHER CLARIFICATION OF RISKS AND REQUIRED ACTIONS.

REFER TO THE RUK REGISTER FOR FURTHER DETAIL ON HAZARDS

IN ABEYANCE/TO BE CONFIRMED DURING RIBA STAGE 4 WITH SUBCONTRACTOR INPUT:

- BUILDERS WORK HOLES
- UPSTANDS TO ARCHITECTS REQUIREMENTS
- SERVICE HOLES THROUGH RC CORE WALLS
- SUMP PITS IN LIFT PITS
- INTERFACE DETAILS FOR INCOMING UTILITIES THROUGH RETAINING WALLS, ALLOW FOR REINFORCEMENT UPLIFTS AT PENETRATIONS

REFER TO BELOW GROUND DRAINAGE DRAWINGS FOR GULLY LOCATIONS AND CAST-IN DRAINAGE REQUIREMENTS

FOR LIGHTNING PROTECTION AND EARTHING REQUIREMENTS THROUGH STRUCTURE REFER TO MEP ENGINEER'S DRAWINGS

ALLOW FOR TIE DOWN REINFORCEMENT CONNECTION SLAB TO PILE CAPS TO RESIST UPWARDS HYDROSTATIC PRESSURE.

- Notes
- DO NOT SCALE FROM THIS DRAWING.
 - ALL DIMENSIONS ARE MILLIMETRES U.N.O.
 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM U.N.O.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - FOR GENERAL NOTES PLEASE REFER TO DRAWING KXC-TRI-W0-001-33832-S-20-8XX01.
 - FOR MEMBER REFERENCE SCHEDULES PLEASE REFER TO DRAWING KXC-TRI-W0-001-33832-S-20-7XX01 & S-20-7XX02 & S-20-7XX03
 - FOR LOADING PLANS PLEASE REFER TO DRAWINGS KXC-TRI-W0-001-33832-S-20-18151/5 AND S-20-10051/5
 - FOR TYPICAL DETAIL DRAWINGS PLEASE REFER TO DRAWING KXC-TRI-W1-001-33832-S-20-5XX01
 - FOR SUBSTRUCTURE REFERENCE KEY AND CONSTRAINTS REFER TO DRAWING KXC-TRI-001-XX-61033832-S-20-1B100
 - SUMPS HUNG FROM SLAB, ALLOW ADDITIONAL REBAR
 - FOR FURTHER DETAILS OF PILE CAPS, REFER TO DRAWING KXC-TRI-001-XX-61033832-S-20-5FN1
 - ALL PILES 35m LONG MAX DRY-BORED TO SPECIALIST SUB-CONTRACTOR DESIGN AT RIBA STAGE 4/5
 - FOR B1 LEVEL GENERAL ARRANGEMENTS REFER TO 1B1 SERIES DRAWINGS
 - FOR B1 LEVEL FOUNDATIONS PLANS REFER TO 1FN SERIES DRAWINGS

004	ISSUED FOR STAGE 3 EMPLOYERS REQUIREMENTS	12/09 2018	PS JC	WKC
003	ISSUED FOR STAGE 3 EMPLOYERS REQUIREMENTS - PILE REFERENCES UPDATED	18/06 2018	PS GG	WKC
002	ISSUED FOR STAGE 3 EMPLOYERS REQUIREMENTS	18/05 2018	PS GG	WKC
001	ISSUED FOR STAGE 3 INFORMATION	04/05 2018	PS GG	WKC
Rev	Description	Date	By Chk	App

STAGE 3

KINGS CROSS CENTRAL
BUILDING W0

RAMBOLL

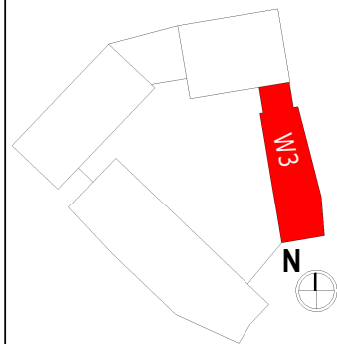
tel 020 7631 5291 fax 020 7323 4645 london@ramboll.co.uk
www.ramboll.co.uk

BUILDING W3
PILING
GENERAL ARRANGEMENT

Scale @ A1:	Date:	Drawn:	Checked:
1:100	MAY 2018	PS	GG
Drawing No.:	rev:		
KXC-TRI-001-W0-33832-S-20-1PG04	004		

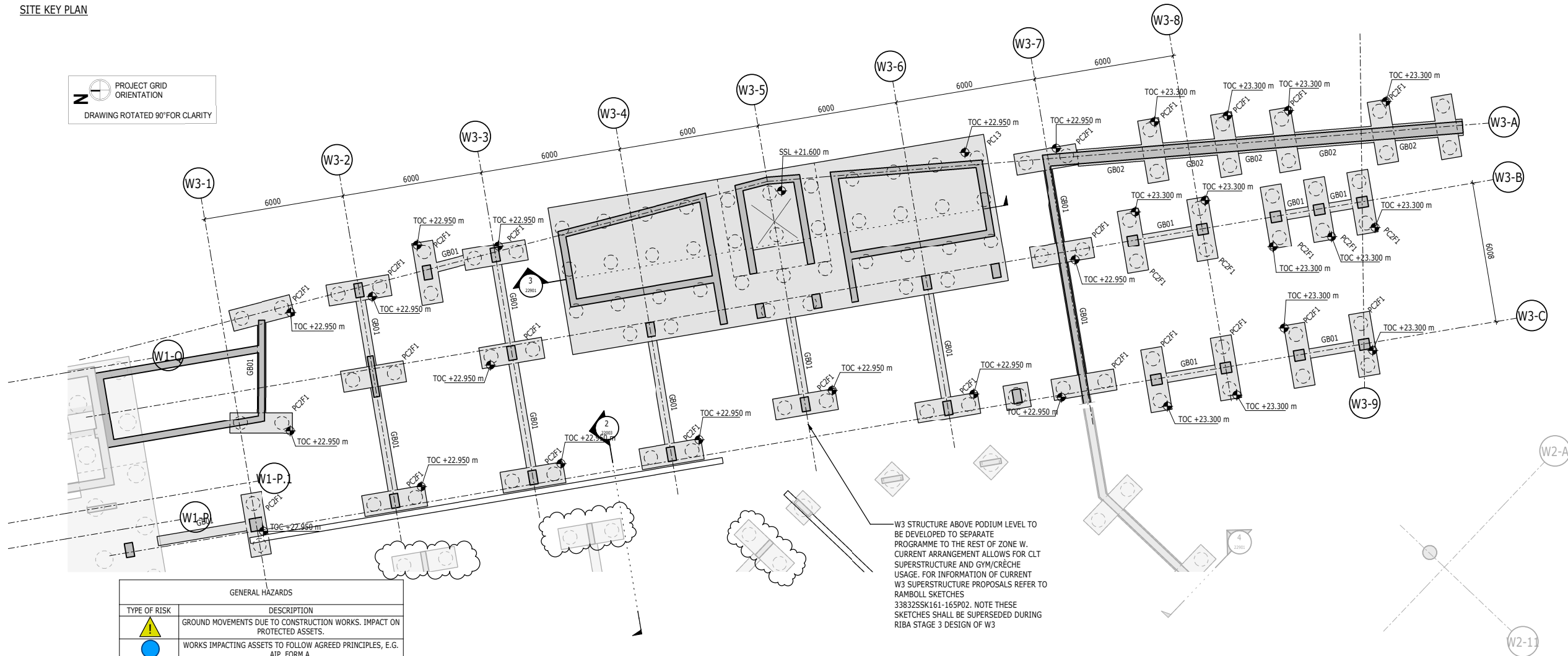
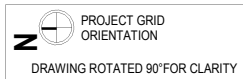
KEY TO HEALTH & SAFETY SYMBOLS

- WARNING RISK**
INDICATES A RESIDUAL RISK AS A WARNING.
- COMPULSORY RISK**
INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
- PROHIBITIVE RISK**
INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
- INFORMATION RISK**
INDICATES A RESIDUAL RISK FOR INFORMATION.



SITE KEY PLAN

REFER TO DRAWING KXC-TRI-W1-001-61033832-S-S20-1FN01 FOR BUILDING W1E FOUNDATIONS GENERAL ARRANGEMENT



REFER TO DRAWING KXC-TRI-W0-001-33832-S-S20-1FN05 FOR BUILDING W0 FOUNDATIONS GENERAL ARRANGEMENT

GENERAL HAZARDS	
TYPE OF RISK	DESCRIPTION
	GROUND MOVEMENTS DUE TO CONSTRUCTION WORKS. IMPACT ON PROTECTED ASSETS.
	WORKS IMPACTING ASSETS TO FOLLOW AGREED PRINCIPLES, E.G. AIP, FORM A.
	UNDISCOVERED EXISTING SERVICES.
	UNEXPLODED ORDNANCE.
	CONTAMINATED MADE GROUND.
	POSSIBLE ASBESTOS.
	GROUND GAS - HIGH LEVELS OF CARBON DIOXIDE.
	WASTE MANAGEMENT TO FOLLOW REGULATORY REQUIREMENTS.
	HIGH PERCHED GROUND WATER LEVEL, PORE-WATER PRESSURE NOT YET VERIFIED.
	STRUCTURE SUBJECT TO DESIGN DEVELOPMENT AT RIBA STAGE 4.
	WATER PROOFING STRATEGY INCLUDES ADMIXTURES TO CONCRETE TO GRADE 3 AREAS.
	MANUFACTURERS WARRANTIES DO NOT EXTEND TO 120 YEAR DESIGN LIFE.
	LIFT, STAIR AND RAMP DETAILS TO BE CONFIRMED BY ARCHITECTS / SPECIALISTS.
	COMPLEX STRUCTURE - FAÇADE CANTILEVERS, CANTILEVER FOUNDATIONS, RETAINING WALLS, TRANSFERS.
	THERMAL BREAK DETAILS BETWEEN EXTERNAL AND INTERNAL AREAS.
	PILES - GROUND OBSTRUCTIONS.
	TRANSFERS - TEMPORARY PROPPING AND FOUNDATIONS.
	LEVEL 1 FLOOR STRUCTURE CONSTRUCTED FROM C50/60.
	CONTIGUOUS AND RC RETAINING WALLS ARE PROPPED BY THE GROUND FLOOR IN THE PERMANENT CONDITION. TEMPORARY RESTRAINT OR CANTILEVERING TO CONTRACTOR DESIGN

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORKS DETAILED ON THIS DRAWING, NOTE THE FOLLOWING GENERAL RISKS AND INFORMATION AS WELL AS THOSE ON THE ADJACENT GA. REFER TO THE GENERAL NOTES PAGE FOR FURTHER CLARIFICATION OF RISKS AND REQUIRED ACTIONS.

REFER TO THE RUK REGISTER FOR FURTHER DETAIL ON HAZARDS

IN ABEYANCE/TO BE CONFIRMED DURING RIBA STAGE 4 WITH SUBCONTRACTOR INPUT:

- BUILDERS WORK HOLES
- UPSTANDS TO ARCHITECTS REQUIREMENTS
- SERVICE HOLES THROUGH RC CORE WALLS
- SUMP PITS IN LIFT PITS
- INTERFACE DETAILS FOR INCOMING UTILITIES THROUGH RETAINING WALLS, ALLOW FOR REINFORCEMENT UPLIFTS AT PENETRATIONS

REFER TO BELOW GROUND DRAINAGE DRAWINGS FOR GULLY LOCATIONS AND CAST-IN DRAINAGE REQUIREMENTS

FOR LIGHTNING PROTECTION AND EARTHING REQUIREMENTS THROUGH STRUCTURE REFER TO MEP ENGINEER'S DRAWINGS

ALLOW FOR TIE DOWN REINFORCEMENT CONNECTION SLAB TO PILE CAPS TO RESIST UPWARDS HYDROSTATIC PRESSURE.

- Notes
- DO NOT SCALE FROM THIS DRAWING.
 - ALL DIMENSIONS ARE MILLIMETRES U.N.O.
 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM U.N.O.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - FOR GENERAL NOTES PLEASE REFER TO DRAWING KXC-TRI-W0-001-33832-S-20-8XX01.
 - FOR MEMBER REFERENCE SCHEDULES PLEASE REFER TO DRAWING KXC-TRI-W0-001-33832-S-20-7XX01 & S-20-7XX02 & S-20-7XX03
 - FOR LOADING PLANS PLEASE REFER TO DRAWINGS KXC-TRI-W0-001-33832-S-20-18151/5 AND S-20-10051/5
 - FOR TYPICAL DETAIL DRAWINGS PLEASE REFER TO DRAWING KXC-TRI-W1-001-33832-S-20-5XX01
 - FOR SUBSTRUCTURE REFERENCE KEY AND CONSTRAINTS REFER TO DRAWING KXC-TRI-001-XX-61033832-S-20-1B100
 - SUMPS HUNG FROM SLAB, ALLOW ADDITIONAL REBAR
 - FOR FURTHER DETAILS OF PILE CAPS, REFER TO DRAWING KXC-TRI-001-XX-61033832-S-20-5FN1
 - FOR B1 LEVEL GENERAL ARRANGEMENTS REFER TO 1B1 SERIES DRAWINGS
 - FOR B1 LEVEL PILING PLANS REFER TO 1PG SERIES DRAWINGS

003	ISSUED FOR STAGE 3 EMPLOYERS REQUIREMENTS	12/09 2018	PS JC	WKC
002	ISSUED FOR STAGE 3 EMPLOYERS REQUIREMENTS	18/05 2018	PS GG	WKC
001	ISSUED FOR STAGE 3 INFORMATION	04/05 2018	PS GG	WKC
Rev	Description	Date	By Chk	App

STAGE 3

KINGS CROSS CENTRAL BUILDING W0



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BUILDING W3 FOUNDATIONS GENERAL ARRANGEMENT

Scale @ A1:	Date:	Drawn:	Checked:
1:100	MAY 2018	PS	GG
Drawing No.:			rev:
KXC-TRI-001-W0-33832-S-20-1FN04			003

KEY TO HEALTH & SAFETY SYMBOLS

- WARNING RISK**
INDICATES A RESIDUAL RISK AS A WARNING.
- COMPULSORY RISK**
INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
- PROHIBITIVE RISK**
INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
- INFORMATION RISK**
INDICATES A RESIDUAL RISK FOR INFORMATION.



Hard landscape

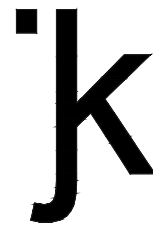
- Proposed timber boardwalk
- Proposed timber planters
- Proposed timber soft fruit structure
- Proposed timber structure for beehives

Soft landscape

- Proposed large specimen shrubs
- Proposed small specimen shrubs
- Proposed tree
- Proposed hedge
- Proposed acid grassland on the Network Rail easements
- Proposed wildlife meadow

For more details of the species refer to planting palette

Habitat Area Full planning application



Client
King's Cross Central General Partner Ltd

Project name
Habitat Area

Project number
102

Drawing name
Block Plan/ GA Hard and soft landscape

Drawing number 102.003	Scale 1:100 1:200 @ A3	Revision D
Drawing status For Approval	Page size A1	Date 01 11 2018

Drawn by
FB

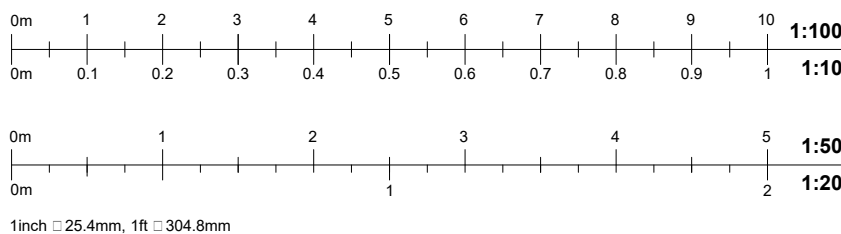
Checked by
K

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Rev A	26 11 2018	design amendments
Rev B	06 12 2018	design amendments
Rev C	12 12 2018	path amendments
Rev D	12 12 2018	path amendments

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Block Plan/ GA Hard and soft landscape 1:100

Appendix B

Building W3 Acoustic Report

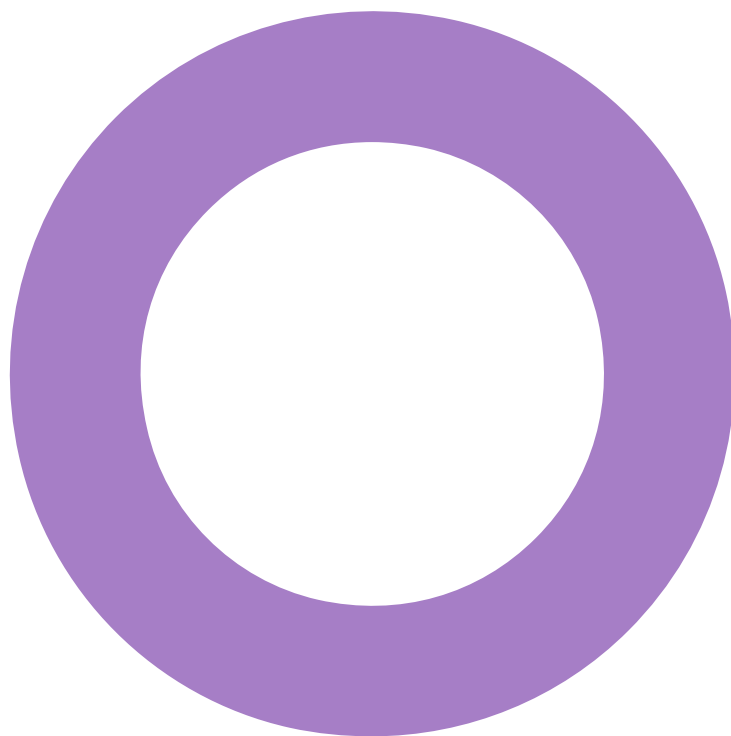
Kings Cross Zone W. London.

Kings Cross Central General Partner Limited.

ACOUSTICS

PLOT W3, RESERVED MATTERS

REVISION 01 – 13 DECEMBER 2018



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	30/11/2018	First issue	VdH	BJ	BJ
01	13/12/2018	Incorporating Client comments	MB	BJ	BJ

This document has been prepared for King's Cross Central General Partner Limited only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This report has been based solely on the specific design assumptions and criteria stated herein.

Project number: 10/10154
Document reference: REP-1010154-5A-VdH-20181130-Plot W3 reserved matters-Rev01

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Executive summary

This report has been prepared on behalf of King's Cross Central General Partner Limited in order to discharge Condition 28 of the Triangle Site Outline Planning Permission (granted on 22 July 2008 by the Secretary of State with references APP/V5570/A/07/2051902 and APP/X5210/A/07/2051898) in relation to Building W3.

Building W3 is a primarily leisure and educational building, located within Development Zone W (the 'Triangle Site') of the King's Cross Central regeneration scheme.

Condition 28 relates to the control of noise emissions from plant and processes to the nearest noise sensitive premises. Limits are derived with reference to the existing background sound level.

The site is exposed to moderate levels of noise due to the neighbouring railway lines and local roads. This has resulted in a fully mechanical ventilation strategy, which also allows for comfort cooling or boosted ventilation as necessary.

Condition 28 can be met without significant requirements for attenuation of building services noise, as the majority of the equipment will be located internally. Limits which have been adopted by the design team regarding building services emissions to the development itself, and other plots within Zone W, will also ensure appropriate control to the nearest noise sensitive premises.

It has been recognised from a very early stage in the design process that noise emissions from building services engineering equipment will need to be controlled to avoid nuisance to future occupants and any surrounding neighbours. Allowances have subsequently been made for attenuators to supply and exhausts, acoustic louvres and acoustically rated doors. Furthermore, equipment will, where practicable, be selected to avoid any tonal or impulsive characteristics. Where selected plant does have such characteristics, a penalty shall be applied to ensure additional attenuation is provided.

1. Introduction

This report has been prepared on behalf of King's Cross Central General Partner Limited in order to discharge Condition 28 of the Triangle Site Outline Planning Permission (granted on 22 July 2008 by the Secretary of State with references APP/V5570/A/07/2051902 and APP/X5210/A/07/2051898) in relation to Building W3.

The wording of Condition 28 of the Triangle Site Outline Planning Permission is reproduced below. A glossary of acoustic terminology is provided in Appendix A.

2. Condition 28

"Before development commences, details shall be submitted to, and approved by, the Local Planning Authority to demonstrate that the noise impact of any plant or equipment to be installed on the site will meet the following standards:

- a. Noise levels at 1 metre external to sensitive facades to be at least 5 dB(A) less than the existing measurement (L_{A90}), expressed in dB(A) when all plant/equipment are in operation*
- b. Where it is anticipated that any plant/equipment will have a noise that has distinguishable, discrete continuous note (whine, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps) specially attention is to be given to reducing the noise level from that piece of plant/equipment at any sensitive façade at least 10 dB(A) below the L_{A90} , expressed in dB(A).*

The development shall be carried out in accordance with the details, as approved, unless otherwise agreed in writing by the Local Planning Authority.

2.1 Environmental sound conditions.

2.1.1 Survey history

Details of environmental sound surveys relating to the site were provided in the Acoustic Report (which was appended to the Compliance Report) supporting the Reserved Matters submission for Buildings W1 and W2 in 2016. A summary of the work to date is provided below. The report is available on request.

A baseline environmental sound monitoring survey by others (dated June 2007) for the King's Cross Central site was previously submitted to in order to discharge the requirements of planning conditions. Further survey work was undertaken between December 2007 and March 2008 to include the Zone W, to the north of York Way, resulting in a revised report dated April 2008. Those reports are referred to collectively as the 'Baseline Noise Survey', were undertaken to determine the pre-existing sound levels across the King's Cross Central site, prior to the commencement of any construction works.

Additional survey work was undertaken for the Buildings W1 and W2 Stage 3a acoustic design report in 2014. This included long-term monitoring to the rear of the site overlooking the railway lines, and attended short-term measurements covering multiple locations. Full details of the survey were reported in Hoare Lea's report REP_1005607_5A_JC_20151030_RIBA Stage 3 Acoustic Report_Rev2.

For King's Cross Zone W, additional survey work was undertaken in June 2017 as part of acoustic mapping validation work for the site. This comprised multiple short-term attended measurements which were undertaken to confirm the variability in the environmental sound conditions in proximity to York Way.

The additional survey work confirmed that there was negligible change from the previously measured environmental sound levels. Results from the survey work was used to calibrate a 3D acoustic model of the site which has informed the design. A summary of the survey results, and the 3D model, are provided in the next section.

2.1.2 Summary of survey results

The local environmental sound climate is dominated by road traffic activity on York Way and rail traffic on the neighbouring lines. There are additionally, contributions from the cement plant and a substation located on the opposite side of the north railway lines.

The neighbouring sections of railway lines feed into St. Pancras and Kings Cross stations, and trains use these to wait for available platforms. This invariably means large engines idling in proximity to the site.

The noise map presented in Figure 1 indicates that average daytime sound levels are expected to be typically 60-65 dB LAeq to the north and east, 70 dB LAeq to the west, and approximately 65-70 dB LAeq to the south. Maximum events generate by trains occur in the region of 80 dB(A) to the east of the development.

This is considered moderate (in the courtyard) to high overlooking the main road and railway lines.

The lowest background sound levels measured were 50 dB LA90,15min during the day time and 42 dB LA90,15min during the night time.

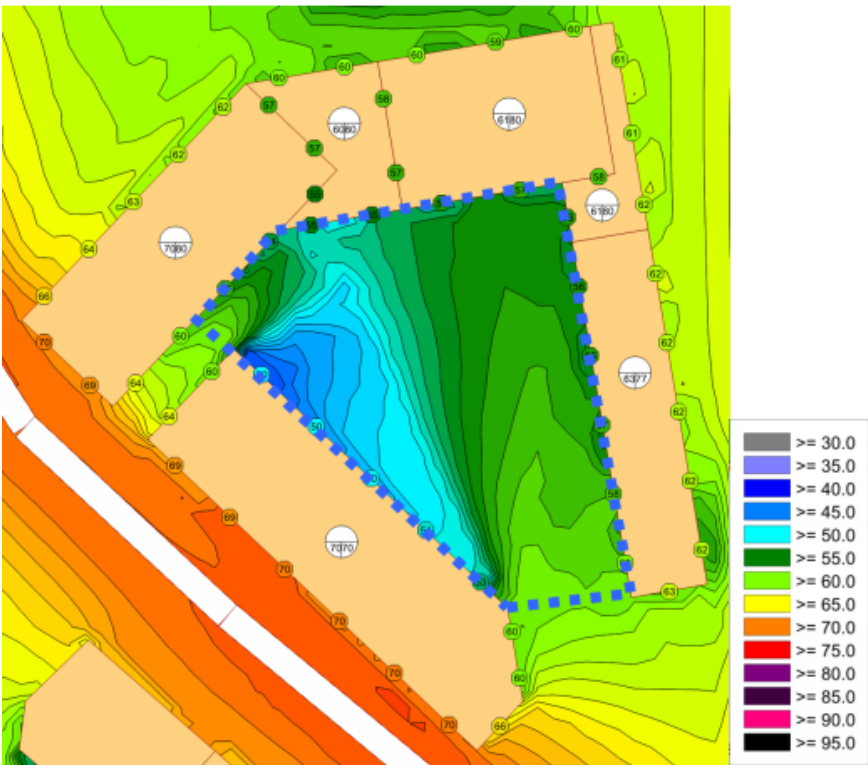


Figure 1 - Daytime average sound levels, dB LAeq,16h

2.2 External noise emissions.

2.2.1 Proposed plant strategy.

The plant equipment proposed for Building W3 comprises the following:

Basement: pumps, generator room, life safety, gym plant.

Levels 00-02: 2 x plant rooms per wing, each housing 1 x AHU and 2 x pumps.

Roof: kitchen extract fan.

2.2.2 Neighbouring developments.

All noise generating building services plant and equipment (excluding emergency plant) will need to be specified and installed to achieve a noise level at neighbouring noise sensitive facades of at least 5 dB(A) below the prevailing background sound level, as defined by the baseline acoustic survey.

Furthermore, plant equipment will, where practicable, be selected to avoid any tonal or impulsive characteristics. Where selected plant does have such characteristics, the noise from the plant will need to be designed to have a limit 10 dB(A) below the prevailing background sound level.

2.2.2.1 Representative background noise levels.

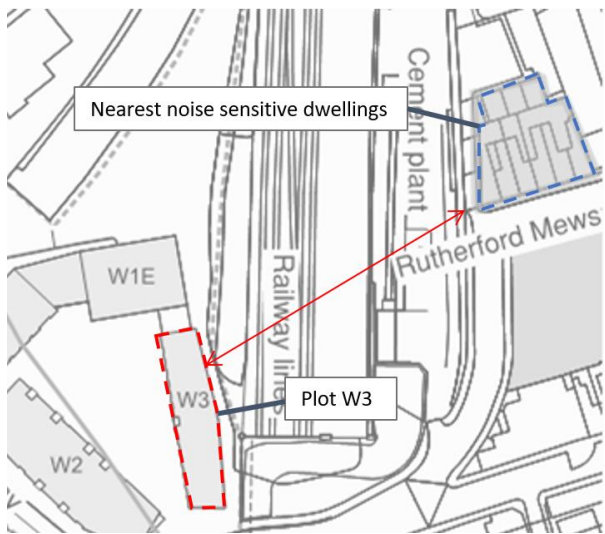
A summary of the lowest background sound levels measured during Hoare Lea's acoustic survey is provided in Table 1. These levels are consistent with the results of the baseline survey. Further details are available on request.

2.2.2.2 Kings Cross Zone W – noise limits

On the basis that building services equipment associated with the development do not exhibit tonal or impulsive characteristics, the following limits are deemed appropriate:

Table 1 – Noise emission limits

Period	Lowest background, dB LA90,15min	Noise limit, dB(A)
Day (07:00-23:00)	50	45
Night (23:00-07:00)	42	37



The limits relate to all plant operating at design duty.

Potential noise sensitive facades in proximity to the site which will be taken into consideration when assessing the plant noise emissions include dwelling north of Rutherford Mews, east of the site.

In addition, the criterion has been adopted that plant noise emissions do not exceed 55 dB(A) to access routes such as foot or cycle paths.

Emissions to amenity spaces will aim not to exceed 50 dB(A).

Allowance has been made for acoustically rated doors and louvres to any openings.

2.2.3 Emergency plant.

Criteria for emergency plant, such as smoke extract, are proposed to be 10 dB(A) above the daytime environmental criteria at residential facades. This is set on the basis that such noise events would only arise during operation tests, which would be short in duration and infrequent.

2.2.4 Kings Cross Zone W.

In addition to neighbouring properties, plant noise emissions to Buildings W1 and W2 will need to be controlled to acceptable levels. Based on the RIBA Stage 3b design, it is advised that plant noise emissions are limited to a maximum of 45 dB LAeq at one metre from the building facades.

Limits of emissions to Building W3 can be less stringent, as the use is considered less sensitive than Buildings W1 and W2, which are of primarily residential use. It is advised that plant noise emissions are limited to 55 dB LAeq,T (where this does not adversely impact amenity spaces as discussed above).

Appendix A – Glossary of acoustical terms.

Sound

Sound is physically a regular and order oscillation of air molecules that travels away from a source of vibration and creates fluctuating positive and negative acoustic pressure. When acoustic pressure acts on any solid object it causes microscopic deflections in the surface so that it can manifest in both air and structure.

Noise

Noise is subjectively sound that evokes a feeling of displeasure in the environment in which it is heard, and is therefore unwelcome to the receiver.

Sound pressure level

Sound pressure level is stated on many of the charts herein. It is the amplitude of the acoustic pressure fluctuations in a sound wave, fundamentally measured in Pascals (Pa), typically from 20 micro-Pascals to 100 Pascals, but commonly simplified onto the decibel scale.

Decibel (dB)

The decibel is the unit used to quantify sound pressure levels. The human ear has an approximately logarithmic response to acoustic pressure over a very large dynamic range (typically 20 micro-Pascals to 100 Pascals). Therefore, a logarithmic scale is used to describe sound pressure levels and also sound intensity and power levels. The logarithms are taken to base 10. Hence an increase of 10 dB in sound pressure level is equivalent to an increase by a factor of 10 in the sound pressure level (measured in Pascals). Subjectively, this increase would correspond to a doubling of the perceived loudness of sound.

Octave and Third Octave Bands

The human ear is sensitive to sound over a range of frequencies between approximately 20 Hz to 20 kHz and is generally more sensitive to medium and high frequencies than to low frequencies within the range. There are many methods of describing the frequency content of a noise. The most common methods split the frequency range into defined bands, in which the mid-frequency is used as the band descriptor and in the case of octave bands is double that of the band lower. For example two adjacent octave bands are 250 Hz and 500 Hz. Third octave bands provide a fine resolution by dividing each octave band into three bands. For example third octave bands would be 160 Hz, 250 Hz, 315 Hz for the same 250 Hz octave band.

A-Weighting

The 'A' weighting is a correction term applied to the frequency range in order to mimic the sensitivity of the human ear to noise. It is generally used to obtain an overall noise level from octave or third octave band frequencies. An 'A' weighted value would be written as dB(A).

Equivalent continuous sound pressure level

The equivalent continuous sound pressure level (L_{eq}) is a parameter defined as the equivalent continuous sound pressure level. Over a defined time period 'T', it is the sound pressure level equivalent to the acoustic energy of the fluctuating sound signal. The $L_{eq,T}$ can be seen to be an "average" sound pressure level over a given time period (although it is not an arithmetic average). Typically the $L_{eq,T}$ will be an 'A' weighted noise level in dB(A). It is commonly used to describe all types of environmental noise sources.

Frequency

Frequency is a term that is regularly used. It is the number of acoustic pressure fluctuations per second (also known as the 'pitch' of a sound). Hertz (Hz) is the unit normally employed to measure the frequency of sound, equal to cycles per second of acoustic pressure fluctuations. The frequency limits of audibility of a healthy human ear are generally accepted as being from 20 Hz to 20,000 Hz.

Background Noise Level L_{90}

The $L_{90,T}$ is a parameter defined as the sound pressure level exceeded for 90% of the measurement period 'T'. It is a statistical parameter and cannot be directly combined to other acoustic parameters. It is generally used to describe the prevailing background noise level or underlying noise level.

Rating Level

The specific noise level of the source plus any adjustment for characteristic features of the noise.

Airborne Single Number Quantity Weighting

This is a weighting procedure defined in BS EN ISO 717, Part 1 for converting third octave band R , R , D and D_{nT} values to a single number quantity denoted as R_w , R_w , D_w or $D_{nT,w}$. It is a decibel value.

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