

MCFC North Stand

Preliminary Ecological Appraisal

Helen Hamilton Ecology

Client	Manchester City Football Club
Site	North Stand
NGR	SJ 86774 98682
Report Title	Preliminary Ecological Appraisal
Surveyor and author	Helen Hamilton MCIEEM
Date of issue	14 th April 2023
Status	Final

Disclaimer

This report is issued to the client for their sole use and for the intended purpose as set out in agreement between the client and Helen Hamilton Ecology. Third parties may not rely on this report unless there is explicit written agreement with the author. The use of this report by unauthorised third parties is at their own risk; no responsibility or duty of care is accepted to unauthorised third parties.

Helen Hamilton Ecology has exercised due care in preparing this report. It has not, unless specifically stated, independently verified information provided by others. Any recommendation, opinion or finding stated in this report is based on circumstances and facts as they existed at the time that the survey work was carried out and the report was written. Helen Hamilton Ecology accepts no liability for any loss resulting from errors, omissions or misrepresentation made by others.

The content of this report does not constitute legal opinion.

Table of Contents

	Page
Introduction	2
Proposals	2
Potential Impacts	2
Limitations and Assumptions	3
Legislative and Policy Context	3
Methodologies	6
Desk Study	6
Extended Habitat Survey	6
Table 1 Bat Roost Assessment Criteria	7
Appraisal	7
Baseline Conditions	8
Desk Study	8
Extended Habitat Survey	10
Table 2 Habitat Descriptions	10
Table 3 Botanical Species List	11
Figure 1 Phase 1 Habitat Map	13
Ashton Canal SBI	14
Table 4 Shading of Ashton Canal By Month	15
Photo 1 Ashton Canal SBI, Looking West	16
Photo 2 Ashton Canal SBI, Looking East	16
Figure 2 LED Screen Locations	17
Figure 3 Screen Visibility	18
Protected Species	18
Table 5 Building Descriptions and Bat Roost Potential Categories	19
Summary	20
Recommendations	21
BREEAM	21
Figure 4 Soft Landscaping Plan	21
Reference List	24
Appendix 1 Desk study	
Appendix 2 Shading Studies	
Appendix 3 Swift and Bat Boxes	

1. Introduction

- 1.2. This report provides a preliminary ecological appraisal (PEA) of the impacts of the proposals upon the site and surrounding area, including a desk study of existing ecological records for the site and surrounding area, the findings of a site visit and a preliminary bat roost assessment of buildings. In addition, the report also includes a review of the potential impacts of shading upon the Ashton Canal SBI and a summary of potential BREEAM opportunities within the proposals.
- 1.3. The report describes the methods used, the existing baseline conditions, and makes recommendations for the development in relation to ecology.
- 1.4. Three appendices accompany this report: Desk Study Appendix (Appendix 1); Shadow Studies (Appendix 2); and Swift and Bat Boxes.
- 1.5. The report author is Helen Hamilton MSc, BSc, MCIEEM, CEnv, Principal Ecologist and Director of Helen Hamilton Ecology.

Proposals

- 1.6. The red line boundary for the site is presented in Figure 1.
- 1.7. This Report accompanies an application for Full Planning Permission for the 'North Stand Project' at the Etihad Campus comprising several interrelated components ("the Proposed Development") including:
 - Expansion of the Etihad Stadium North Stand to provide an additional capacity of circa 7,910 and increase the overall capacity of the Etihad Stadium to circa 61,958, including the provision of a roof Sky-Walk
 - Creation of City Square, a covered outdoor fan zone area, with year-round Ground and First Floor F&B provision
 - A nine-storey hotel of circa 391 beds, with ancillary hotel dining
 - A Club Shop at Ground and First Floor
 - A museum
 - A circa 4,000 sq.m. workspace at Levels 4, 5, 6 and 7
 - A creation of a new site vehicular access route and drop-off point via an existing junction with Alan Turing Way
 - Landscaping and other associated works
 - 3 LED screens on north and east facing gable ends of commercial (screen A size 19.4x18m) and hotel buildings.
- 1.8. Further information about the Proposed Development can be found within the Design and Access Statement prepared by Populous, the Planning Statement, and the Application Form prepared by Deloitte and submitted in support of the application. The formal description of development can be found in these reports.

Potential Impacts

- 1.9. The main potential impacts associated with the development on ecology are:

- Permanent habitat losses of small area of scrub and ephemeral habitat
- Permanent off site shade impacts on Ashton Canal from new buildings
- Permanent off-site light pollution on Ashton Canal from LED screens
- Temporary disturbance to breeding birds during habitat clearance.

Limitations and Assumptions

- 1.10. No access was gained to the interior of the North Stand to search for evidence of protected species. Nor was the interior of the shop searched. Access into the active construction site for the COOP Arena was also not possible, some of which area is included within the red line.
- 1.11. Desk study results provide an indication of the species and habitats present in and around the site, and do not confirm current presence or absence of any features.
- 1.12. The redline boundary changed several times after the field survey was completed. Because of the low-biodiversity urban nature of the site, it has not been considered necessary to revisit, but some areas have been mapped from aerial photography and photos taken during the survey. Where photos were not available the areas have been marked blank or 'not surveyed'. These areas are not thought to significantly alter the ecological value of the site nor to contain protected habitats or species.
- 1.13. Shading studies were based upon an older design scheme in which the proposed buildings were 8-storeys high. The impact of the change to nine-storeys was considered in relation to the shade effects on the canal. The models showed that the pattern and extent of shadow on the canal is mainly related to the bulk of the buildings not the distance the shadow is cast, so the effects of the change in height were not thought to be important, and the studies were not revised.

Legislative and policy context

- 1.14. This text provides an overview of relevant legislation, and the actual wording of the statutes should be referred to for more detail where needed.

Important Sites and Species

- 1.15. A range of international and national legislation has been established in the UK to protect important nature conservation sites and priority species. At the international level, European Union (EU) Directives require individual member states to implement their conservation provisions nationally for the benefit of Europe as a whole. These Directives have been transposed into UK law by the Conservation of Habitats and Species Regulations 2017 (amended); further details can be obtained from the Joint Nature Conservation Committee (JNCC) web site at www.jncc.defra.gov.uk.
- 1.16. Other international conventions include: the Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979), which requires the maintenance of populations of wild flora and fauna, giving protection to endangered and vulnerable species; and the Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979), which requires the protection of migratory species throughout their entire range. The above conventions are implemented in England and Wales via the Wildlife and Countryside Act (WCA), 1981 (as amended) and Countryside and Rights of Way (CROW) Act 2000. This legislation also protects important habitats and sites such as Sites of Special Scientific Interest (SSSI).
- 1.17. At the national level, the UK Post-2010 Biodiversity Framework published in 2012 is the Government's response to the Convention on Biological Diversity (2010). It describes the UK's biological resources, commits a detailed plan for the protection of these resources within the

UK's devolved framework across England, Wales, Scotland, and Northern Ireland. The document identifies future priorities for nature conservation and adopts a more strategic approach, including ecosystem services and sustainability alongside biodiversity. Despite administrative changes following devolution, there is still an underlying objective of protecting and enhancing a range of priority species and habitats, often still based on the objectives and classifications of the original UK Biodiversity Action Plan.

- 1.18. Biodiversity 2020 is England's national biodiversity strategy. Building on the Natural Environment White Paper published in 2011, this provides a means of delivering the international and EU commitments to biodiversity. Under Biodiversity 2020, Priority Species and Habitats referred to are those of 'Principal Importance' for the conservation of biodiversity in England listed on Section 41 (England) of the Natural Environment and Rural Communities (NERC) Act 2006.
- 1.19. Finally, the National Planning Policy Framework (NPPF 2021) provides guidance for local authorities on the content of the Local Plans and is a material consideration in determining planning applications. Briefly, with an overall focus on sustainable development, the NPPF states that developments should aim to engender positive outcomes for habitats and biodiversity, with a particular focus on the maintenance and creation of ecological networks. The NPPF identifies the following principals that should be applied by local planning authorities when determining planning applications:
 - If significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused.
 - Development on land within or outside a SSSI, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of SSSI.
 - Development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists.
 - Development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.
- 1.20. The NPPF states that the planning system should contribute to and enhance the natural environment through a range of actions, including:
 - Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils.
 - Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services.
 - Minimising impacts on biodiversity and providing net gains for biodiversity including establishing coherent ecological networks that are more resilient to current and future pressures.
- 1.21. To protect and enhance biodiversity and geodiversity, plans should:
 - Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and steppingstones that connect them; and

areas identified by national and local partnerships for habitat management, enhancement, restoration or creation.

- Promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.

Invasive Species

- 1.22. Certain non-native species that have been introduced into the UK are regarded as being a threat to native biodiversity. Legislative measures have, therefore, been put in place to prevent the spread of these invasive species in the wild.
- 1.23. Under section 14 of the WCA, 1981 (as amended), it is illegal to introduce plants listed under Part II of Schedule 9 of the WCA into the wild or sell these species. Offences include causing the spread of viable plant material or neglecting to contain or appropriately manage non-native species.
- 1.24. Commonly introduced Schedule 9 plant species include non-native cotoneaster species, specifically, small-leaved cotoneaster (*Cotoneaster microphyllus*) and wall cotoneaster (*C. horizontalis*), Himalayan balsam (*Impatiens glandulifera*) and Japanese knotweed (*Reynoutria japonica*).

2. Methodologies

Desk Study

- 2.1. A request for details of protected and notable species and locally designated sites up to 1km from the site (NGR SJ 86774 98682) was made to Greater Manchester Local Records Centre (GMLRC) on 27th October 2022, with data returned on 3/11/22.
- 2.2. Additionally, the Multi-Agency Geographic Information for the Countryside (<https://magic.defra.gov.uk/magicmap.aspx>) website was consulted (11/11/22) for presence of statutory designated sites as well as for details of mitigation licences for European Protected Species and Priority Habitats.
- 2.3. It is important to note that the desk study results provide an indication of the species and habitats present in and around the site, and do not confirm current presence or absence of any features. Protected species are often under-recorded in county wildlife databases.

Extended Habitat Survey

- 2.4. An extended Phase 1 habitat survey was undertaken by Helen Hamilton on 27th October 2022, in fine weather during the daytime, at the latter end of the acceptable Phase 1 Habitat Survey field season for mild season in lowland England (JNCC 2010).
- 2.5. The survey was carried out in accordance with the methodology in the Handbook for Phase 1 Habitat Survey (JNCC 2010). This entailed mapping and describing the habitats within the site boundary and collating plant species lists for each of these. Broad habitat types were mapped according to the standard JNCC Phase 1 habitat codes. Summary notes on habitat condition and quality were also made. Habitats are linked to their respective UK Habitat Classification Codes (Butcher *et al.* 2020).
- 2.6. Each plant species was assigned a relative abundance code within its habitat using the 'DAFOR' scale (where: d = dominant; a = abundant; f = frequent; o = occasional; r = rare).
- 2.7. Common names and scientific names according to Stace (2019) are provided in the species list but common names only are referred to in the text.
- 2.8. The survey was 'extended' (Institute of Environmental Assessment 1995) to include notes on fauna and habitats which could potentially support protected or notable species. The presence of, or potential for, protected or notable species was noted on the field map and in the written target notes (TN) during the survey. In particular a preliminary bat roost assessment of buildings on site was made.
- 2.9. The building inspection for bats aims to determine the actual or potential presence of bats and other protected species, and the need for further survey and/or mitigation. In the case of bats, it is often not possible to inspect all locations that they may use and therefore absence of bat evidence does not mean bats are not present. The method involved a detailed systematic inspection of the exterior of the structure to look for features that bats could use for entry/exit and roosting and search for evidence of bats themselves. A powerful torch was used to inspect cracks and gaps. The interiors of the structures were not accessed in this case.
- 2.10. Evidence of other protected species is also searched for and recorded at the same time, as is information on invasive plants and animals. The wider suitability of surrounding habitats for

protected species was also considered. Table 1 presents the bat roost assessment criteria used in this study.

Table 1 Bat Roost Assessment Criteria (after Collins 2016)

Suitability	Description of Roosting Habitats
Negligible	No features likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically, but does not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats. A tree of sufficient size to contain potential roost features but none seen from the ground or only those with very limited suitability. (i.e., suitable for occasional day roosting but unlikely to see frequent use and wholly unsuitable for maternity or hibernation roost.)
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost type of high conservation significance (i.e., suitable for day roosting but unsuitable for maternity or hibernation roost.)
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. (i.e., suitable for maternity and/or hibernation roost.)
Confirmed Roost	A structure or tree with evidence of bat presence, i.e., droppings, feeding remains, audible bat calls heard during daytime survey or sightings of the animals themselves, existing (reliable) record of bats roosting at the location.

Appraisal

- 2.11. The appraisal of the ecological features on and near to the site was based upon the following factors: statutory protection (protected sites and species), conservation value (important sites and species), current site value and connectivity, and potential site value. In addition, shading studies were carried out to investigate the potential impact of the proposals upon the Ashton Canal SBI which is outside the red line but located 50m to the north of the site. The shading models were prepared by Populous and have been included in Appendix 2.
- 2.12. Potential impacts have been identified and are discussed.

3. Baseline Conditions

Desk study

- 3.1. The full desk study data is presented in Appendix 1 (minus confidential species records and full site data).
- 3.2. The desk study sought information on European protected sites up to 10 km from the site. Information on SSSI, local wildlife sites and protected or notable species was sought within a 1 km radius of the site. The MAGIC interactive map (<https://magic.defra.gov.uk/>) was also used to obtain additional data on granted European Protected Species (EPS) licences, as well as designated and non-designated sites.

European Protected sites

- 3.3. The search area for European protected sites is 10 km.
- 3.4. The nearest European protected site is the Rochdale Canal SAC (and SSSI), at 3.2 km distance, to the northeast of the site. The site is notified for its inland waterbody habitats supporting the European Protected Species floating water-plantain (*Luronium natans*) within a botanically diverse water plant community of mesotrophic water.
- 3.5. There are no other European protected sites within the search area.

Sites of Special Scientific Interest

- 3.6. The search area for Sites of Special Scientific Interest (SSSI) and the remaining features is 1 km.
- 3.7. There are no SSSI within 1 km of the site, the nearest being the Rochdale Canal SSSI, described above.

National and Local Nature Reserves

- 3.8. There are no National Nature Reserves within the search area.
- 3.9. Clayton Vale Local Nature Reserve is situated 734 m to the east of the development site.

Non-statutory Local Wildlife Sites and Priority Habitats

- 3.10. Ashton Canal Site of Biological Importance (SBI) is located approximately 50m north of the site. The canal is rated a 'Grade B' SBI, and is 8.6 ha in area, or 4.9 km in length. The canal is an important wildlife corridor linking Ashton with Manchester via Openshaw and provides an important accessible natural greenspace in an otherwise urban landscape. The canal supports a range of aquatic and marginal vegetation, especially the European Protected Species floating water-plantain (*Luronium natans*) and the 'endangered'¹ grass-wrack pondweed (*Potamogeton compressus*). Both plants are Priority Species for biodiversity on Section 41 of England's NERC Act 2006. Canals are a Greater Manchester Biodiversity Habitat.
- 3.11. Two other SBIs are situated over 500 m away within the search area (see Appendix 1):

¹ A plant is categorised as 'endangered' by the IUCN because it is facing a high risk of extinction in the wild in the near future.

- Bank Bridge Meadow, located to the northeast;
 - Rochdale Canal Stott's Lane to Dulcie Street Basin, to the northwest.
- 3.12. Two areas of Priority Habitat Deciduous Woodland are located within the search area:
- 285 m to the northeast across Alan Turing Way;
 - 731 m to the SW near to Holt Town.
- 3.13. An area of Priority Habitat Wood Pasture and Parkland is situated 285m to the northeast, also across Alan Turing Way.

Protected Species

- 3.14. Two species of bat have been recorded within 1 km of the site, namely common pipistrelle (*Pipistrellus pipistrellus*) and brown long-eared (*Plecotus auritus*). There are also non-specific records for pipistrelle species (*Pipistrellus* sp.).
- 3.15. The nearest bat roost to the site is of common pipistrelle, approximately 250 m to the west along the canal near the railway – swarming behaviour was detected in 2006 at the railway bridge. Another roost, of a pipistrelle species, is located a similar distance away also to the west – here, a transitional roost was found in 2016. Records were supplied for three additional roosts of common pipistrelle bats and two of pipistrelle species situated within the search area, but further away from the site.
- 3.16. A map showing these bat records is presented in Appendix 1.
- 3.17. In addition to the above records for bats, two granted European Protected Species Licences (EPSL) for bats were found within the search area using the MAGIC interactive map, both for common pipistrelle, as follows:
- 702 m northwest, licence for destruction of a resting place for common pipistrelle in 2019-2020 (EPSL 2019-43484-EPS-MIT)
 - 890 m to the west, licence for destruction of breeding and resting sites for common pipistrelle in 2020 (EPSL 2019-41924-EPS-MIT-1).
- 3.18. Records for the following protected species are confidential and are not presented in this report.
- 3.19. Badgers (*Meles meles*) are present within the search area, but all records are at least 300m from the site boundary.
- 3.20. Records for birds listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) within the search area include barn owl (*Tyto alba*), black redstart (*Phoenicurus ochruros*), kingfisher (*Alcedo atthis*), little ringed plover (*Charadrius dubius*) and peregrine (*Falco peregrinus*). None of the records are for the site itself although peregrine have been recorded as recently as 2019 immediately adjacent. Records for little ringed plover also exist for very near to the site, dating between 2010 and 2013.
- 3.21. The European protected species floating water-plantain also occurs within the search area, on the Ashton Canal approximately 144m away to the northwest. The record dates from 17/04/2001, in Lock 4.

Priority Species

- 3.22. Hedgehog (*Erinaceus europaeus*) have been recorded within the search area, to the northwest, but not adjacent to the site.

- 3.23. Birds recorded from within the search area are bullfinch (*Pyrrhula pyrrhula*), dunnoek (*Prunella modularis*), house sparrow (*Passer domesticus*), lapwing (*Vanellus vanellus*), lesser redpoll (*Acanthis cabaret*), linnet (*Linaria cannabina*), song thrush (*Turdus philomelos*), spotted flycatcher (*Muscicapa striata*) and starling (*Sturnus vulgaris*). None are from the site itself, but linnet and lapwing records occur close by to the north and south of the site.
- 3.24. Invertebrates found within the search area are cinnabar moth (*Tyria jacobaeae*) and white-letter hairstreak (*Satyrrium w-album*), neither records are from the site nor immediately adjacent.

Extended Habitat Survey

- 3.25. The Manchester City Football Club stadium is a modern structure situated within an urban location, but close to suburban areas and wildlife corridors such as the Ashton Canal and Clayton Vale. The existing stadium was built around 1999-2000 but has had refits and expansions since then. The shop was last refitted in 2013.
- 3.26. The red line boundary (Figure 1) encompasses just the North Stand part of the stadium and the forecourt areas around this, including the shop. The site is completely comprised of previously developed land, all of which is in current use. Most of the site is occupied by the stadium forecourt and hardstanding around the north stand entrance and the shop, part is used for carparking, and a small area is enclosed within an adjacent construction site (for the COOP Arena) and was not surveyed. Habitats on site are buildings, hardstanding, and some localised scrub and ephemeral short perennial vegetation. The un-surveyed area within the COOP site was a construction site so had minimal habitat value.
- 3.27. Table 2 provides a description of each habitat. Figure 1 presents the habitat map. Botanical species lists are presented in Table 3. All species recorded are common and widespread and are typical of post-development sites such as this in Manchester. No evidence of protected species such as badger was noted, and the site was considered unsuitable for most protected and Priority terrestrial species. No invasive species were noted.

Table 2 Habitat Descriptions

Phase 1 Habitat Type	Description	UK Habitat Classification Code	UK Habitat Classification Name
Hardstanding / Urban	Hardstanding is devoid of vegetation apart from some moveable planters in the cafe and bar areas.	u	Urban
Scrub	A very small area of part planted part self-colonised immature scrub is present between the east edge of the forecourt area and the adjacent unpaved carparking. Associated with this is patchy ephemeral short perennial ground vegetation growing through the compacted MOT. The scrub is relatively newly established, looking less than 10 years old and the range of species suggests it was partly planted, while butterfly bush and goat willow have probably arrived or spread naturally.	h3h	Mixed Scrub

Ephemeral Short Perennial	Naturally colonised varied vegetation typical of post-developed sites in Manchester, comprised of common plants which are quick to spread into urban locations when they become neglected or less disturbed.	17	Ruderal / Ephemeral
Buildings	Several modern buildings are present on-site including part of the stadium itself, some canopy shelters and the shop.	90	Commercial Building

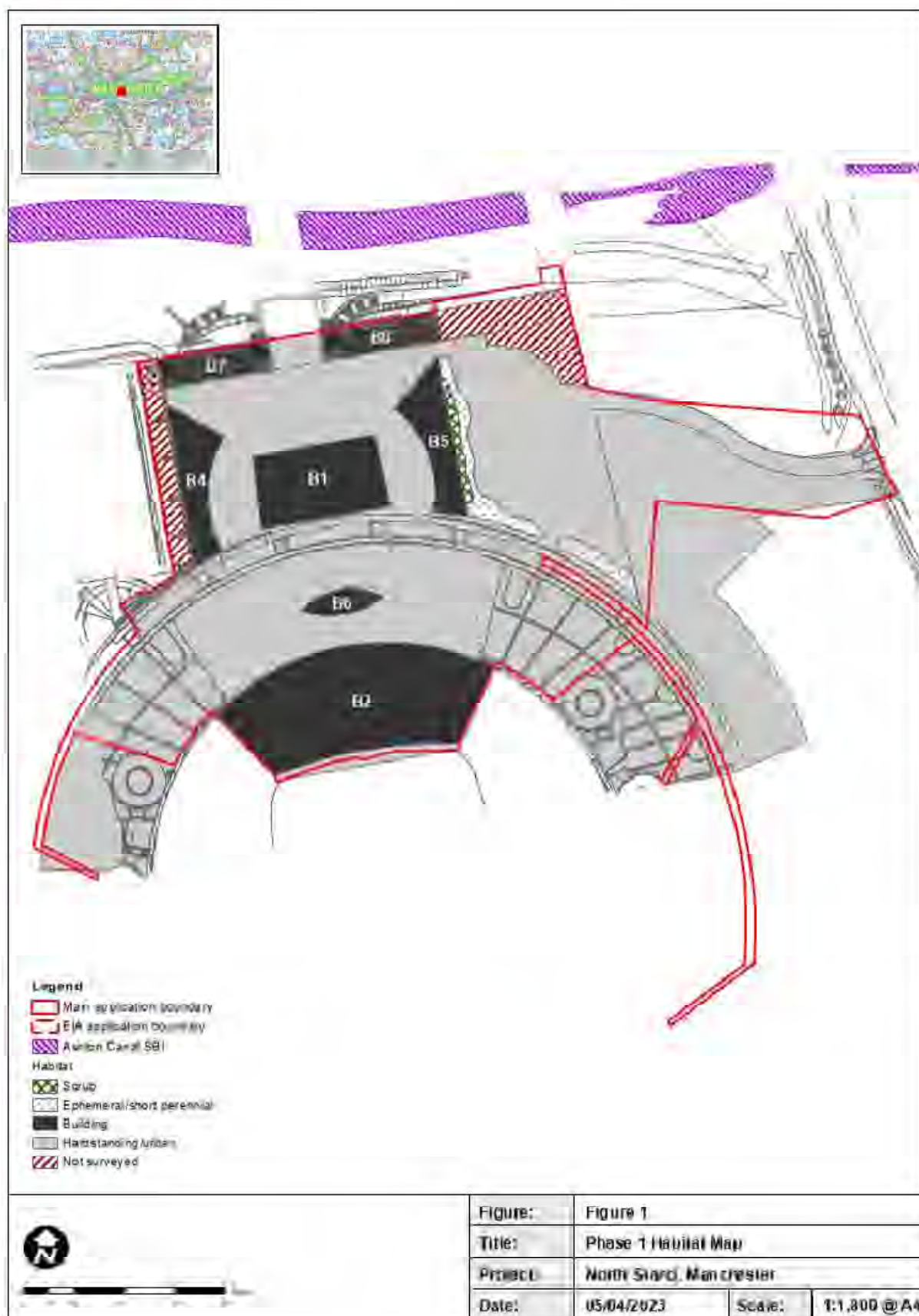
Table 3 Botanical Species List

Botanical Species		Habitat - DAFOR²	
Common Name	Scientific Name	Ephemeral Short Perennial	Scrub
<u>Woody Plants</u>			
Butterfly bush	<i>Buddleia davidii</i>	R	A
Elder	<i>Sambucus nigra</i>		F
Goat willow	<i>Salix caprea</i>		A
Grey willow	<i>Salix cinerea</i>		A
Maple species	<i>Acer sp.</i>		R
Poplar species	<i>Populus sp.</i>		R
Silver birch	<i>Betula pendula</i>		F
White poplar	<i>Populus alba</i>		R
White willow	<i>Salix alba</i>		R
<u>Herbaceous Plants</u>			
Annual meadow grass	<i>Poa annua</i>	R	
Bramble	<i>Rubus fruticosus</i>	O	
Broad-leaved dock	<i>Rumex obtusifolia</i>	O	
Broad-leaved plantain	<i>Plantago major</i>	F	
Broad-leaved willow herb	<i>Epilobium montana</i>	F	
Colt's-foot	<i>Tussilago farfara</i>	F	
Common bent	<i>Agrostis capillaris</i>	F	
Common cat's-ear	<i>Hypochoeris radicata</i>	F	
Creeping bent	<i>Agrostis stolonifera</i>	F	
Creeping cinque-foil	<i>Potentilla reptans</i>	O	
Creeping thistle	<i>Cirsium arvense</i>	R	
Curled dock	<i>Rumex crispus</i>	R	
Dandelion	<i>Taraxacum officinalis agg.</i>	O	
Field horsetail	<i>Equisetum arvense</i>	R	
Groundsel	<i>Senecio vulgaris</i>	O	
Hedge mustard	<i>Sisymbrium officinale</i>	R	
Herb robert	<i>Geranium robertianum</i>	O	
Michaelmas daisy	<i>Aster tripolium</i>	F	

² DAFOR abundance codes: D=dominant, A=abundant, F=frequent, O=occasional, R=rare.

Mugwort	<i>Artemisia vulgaris agg.</i>	R	
Perennial rye-grass	<i>Lolium perenne</i>	R	
Red fescue	<i>Festuca rubra</i>	R	
Ribbed melilot	<i>Melilotus officinalis</i>	F	
Rosebay willowherb	<i>Chaemorus angustifolium</i>	F	
Smooth sow-thistle	<i>Sonchus oleraceus</i>	F	
Soft rush	<i>Juncus effusus</i>	R	
Yorkshire fog	<i>Holcus lanatus</i>	R	

Figure 1 Phase 1 Habitat Map



Ashton Canal SBI

- 3.28. Outside the red line boundary to the north lies the Ashton Canal SBI. The Ashton Canal SBI, hosts the European Protected Species floating water-plantain and the endangered Priority Species grass-wrack pondweed. It is situated close to the development site, to the north. A record for floating water-plantain exists (dated 2001) for Lock 4, just downstream of the site. There is potential for shading effects on the canal and its important plants to occur as the proposals entail new tall permanent buildings close to the southern bank. Ashton Canal SBI is 4.9km long in total.
- 3.29. Photos 1 and 2 show the canal viewed from the existing Etihad Stadium bridge. Photo 1 looks west, downstream toward Lock 5. The canal is approximately 15m wide and the water is free of emergent vegetation stands. On the southern bank there is a continuous line of dense young tree growth, approximately 5m to 15m in height. Photo 2 looks east from the same location toward Alan Turing Way; here the canal is similar, with a lower but continuous line of trees along its southern edge. No emergent vegetation is visible. The water looks dark, but clear of turbidity from sediment. The canal towpath in both directions runs along the northern bank and has a paved surface and close-cut amenity grass verges. The line of trees on the southern bank provides shading to the canal.

Shading

- 3.30. Because of the location of the proposed building 50m to the south of the canal, shading studies have been carried out by Populous (Appendix 2, based upon earlier design freeze). Table 4 presents a commentary on shading through the calendar year, based upon these studies. The measurements for shaded sections of canal are approximate, calculated using the measure tool on www.magic.defra, and exclude existing bridges and structures over the canal. Shading was modelled for December through March, and for June. This data has been used to envisage shading for months with the same equinox positions, i.e. September to November, as the sun position is similar relative to the site.
- 3.31. The shading studies (prepared by Populous) show that shading from the proposals occurs on the canal between the months of October and February. The heaviest shading happens in November, December, and January. In these months all sections of the canal do receive some direct sunlight, but the area moves through the day. For example, at midday, in January, approximately 118m of the canal is shaded, equating to 2.4% of the total canal length within the SBI. At 3 pm, 197m is shaded, equalling approximately 4% of the total canal length. During these months, shade extends beyond the scope of the model at 9 am, and 6 pm is after nightfall.
- 3.32. In the model for October and February, shading occurs at the start and end of the day but is reduced to 66m (1.3%) at midday when the sun is highest and is approximately 2% at 3 pm. There is negligible shading in March/September and none the rest of the year. It should also be noted that the southern bank of the canal also supports a dense line of trees, to a height of 15m, with direct shading effects from these, at all times of year.
- 3.33. Both floating water-plantain and grass-wrack pondweed seem likely to be relatively tolerant of shading during the winter, but floating water-plantain would be very sensitive to shading in summer:
- Floating water-plantain is known to be intolerant of competition (Landsdown and Wade 2003), including physical suppression and competition for light and nutrients. In permanent waterbodies the basal rosettes of *L. natans* are winter green (Willby and Wade 2003), but the plant is most visible between the months of June and September when flowers and floating leaves may be visible.
 - Grass-wrack pondweed is reported to prefer partial shade to full sunlight but seems relatively intolerant of high turbidity (Eaton *et al.* 2004 in Birkinshaw *et al.* 2013), such as

caused by regular boat traffic. Grass-wrack pondweed relies heavily on vegetative reproduction via turions for maintaining and spreading its populations. Turions are formed at the ends of branches in summer and are dormant in sediments at the bottoms of canals and lakes during the winter months (Birkinshaw *et al.* 2013).

- 3.34. In conclusion, it seems unlikely that populations of important plants in the Ashton Canal will be significantly affected by shading from the proposals. This is because:
- Shading from proposals only occurs between October and February which is outside the main growing season for water plants in the UK.
 - Shading from proposals is heaviest in November, December, and January, when plants are likely to be largely dormant.
 - Shading does not occur solidly throughout the day in any months.
 - There is no shading at all (or negligible) from the proposals March to September, which are the key growth months.
- 3.35. However, it is difficult to assess the potential impact of proposals fully since there is a lack of recent data on populations of important plants including floating water-plantain and grass-wrack pondweed along the Ashton Canal, and specifically in the potentially affected area.
- 3.36. In addition, other factors potentially affect plants in the Ashton Canal, such as existing shading from bank side trees, water chemistry and nutrient levels, disturbance of sediments from boat traffic and water turbidity.

Table 4 Shading of Ashton Canal by Month (*included in shading model, Appendix 2)

	Approx. metres shaded at midday and 3 pm				
Month	900	1200	1500	1800	Comment
July	0	0	0	0	None
August	0	0	0	0	None
September	8	0	0	0	Negligible shading.
October	Heavy shade	66	112	Heavy shade	Minimal shading at mid-day, but longer shadows at 0900 and 1500. Mid-day shading: 66m/4900m=1.3% of total canal length.
November	Heavy shade	118	197	Heavy shade	All areas receive some direct sunlight between 0900 and 1500. Mid-day shading: 118m/4900m=2.4% of total canal length.
December*	Heavy shade	117	181	Heavy shade	
January*	Heavy shade	118	197	Heavy shade	
February*	Heavy shade	66	112	Heavy shade	Minimal shading at mid-day, but longer shadows at 0900 and 1500. Mid-day shading: 66m/4900m=1.3% of total canal length.
March*	8	0	0	0	Negligible shading.
April	0	0	0	0	None
May	0	0	0	0	None
June*	0	0	0	0	None

Photo 1 Ashton Canal SBI, Looking West, 27/10/2022



Photo 2 Ashton Canal SBI, Looking East, 27/10/2022



LED screens

- 3.1. Three large LED screens (sized Screen A: 17.3m x 19.4m x 300mm, Screen B: 17.3m x 16.9m x 300mm, Screen C: 20.4m X 16.9m x 300mm.) are proposed for the locations shown in Figure 2 (based upon information for Planning Meeting 4, Populous 2023). Screens A and B face north toward the Ashton Canal SBI, and Screen C faces east toward Alan Turing Way.
- 3.2. It has been suggested that the maximum luminance level of the screens would not exceed 300 cd/m² during non-daylight hours or inclement weather. There is no specific condition specific control on the times the screens can be on, but the supporting information for the adjacent CO-OP Live Arena which has similar screens, states *“the screens are likely to be in use between 07:00am and 00:00am, with increased activation during pre- and post-event”*. It is likely that use patterns will be similar for the North Stand. Figure 3 illustrates the screen visibility, including onto a section of the Ashton Canal approximately 300m long.
- 3.3. For the canal, the main issue from the screens (A and B) would be the impact on species using the canal such as bats, birds and invertebrates from increased night-time lighting, i.e. after sunset. In mid-winter, sunset in Manchester is typically at approximately 13:51, so the night is long. However, this is a time of year when bats are mostly hibernating, birds have either migrated or are less active and invertebrates are often dormant. The impact of the screens would thus be reduced at this time of year. In midsummer, sunset is typically at 21:42, leaving just over 2 hours of possible illuminated time when bats and other animals might be affected before screen switch-off.
- 3.4. This location is already a highly urban one, with the CO-OP Live Arena adjacent and street lighting all around, especially on match days when the screens are most likely to be used. Animals in the locality are already likely to be habituated to elevated urban light levels. For e.g. pipistrelle bats are more tolerant of lighting than other species. The canal itself has a line of trees along the south bank which also would attenuate some of the light coming from the screens, especially in summer when the trees are in leaf.
- 3.5. Overall, although the screens undoubtedly will increase light levels along the canal, these levels are already elevated and the new proposals seem unlikely to significantly worsen an already impacted aspect of this habitat and SBI.

Figure 2 LED Screen Locations (blue)

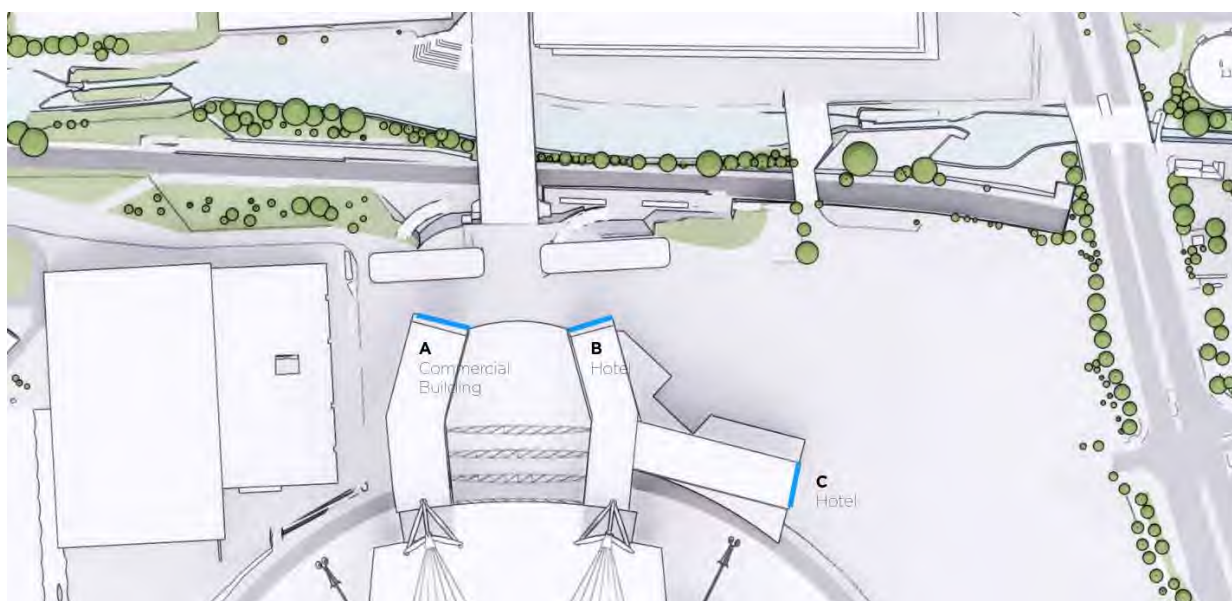
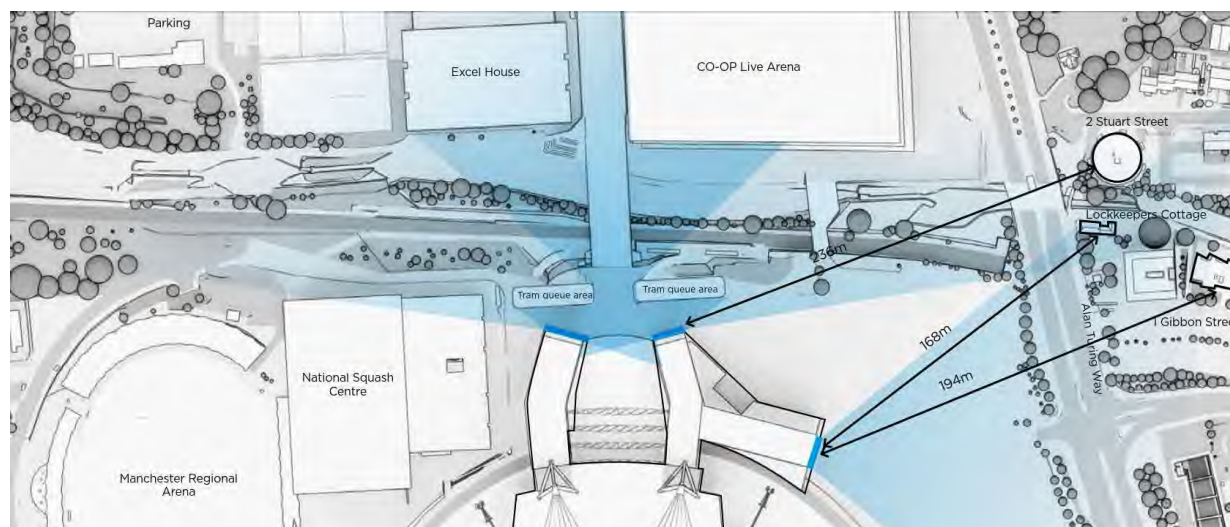


Figure 3 Screen Visibility Cones (blue)



Protected Species

- 3.6. The assessment of buildings on site for their potential to host bat roosts, found all structures to have 'negligible' potential because they were all modern, occupied and of unsuitable construction materials and methods. Table 5 presents the summary descriptions for each structure in relation to bats. The lack of access into the interior of the shop and stadium were not considered to affect the study's findings.
- 3.7. In terms of the quality of commuting and foraging habitat for bats, the site itself offers very limited scope, but is close to the Ashton Canal and supports some vegetation – therefore it is classed as 'Low'. Better quality habitats occur off-site, along the canal, and at Clayton Vale to the northeast – here 'moderate' conditions prevail, limited more by the urban surroundings than by the quality of the habitat itself.
- 3.8. No evidence of other protected species was noted during the site visit, and no further action is needed regarding bats or other protected species.

Table 5 Building Descriptions and Bat Roost Potential Categories

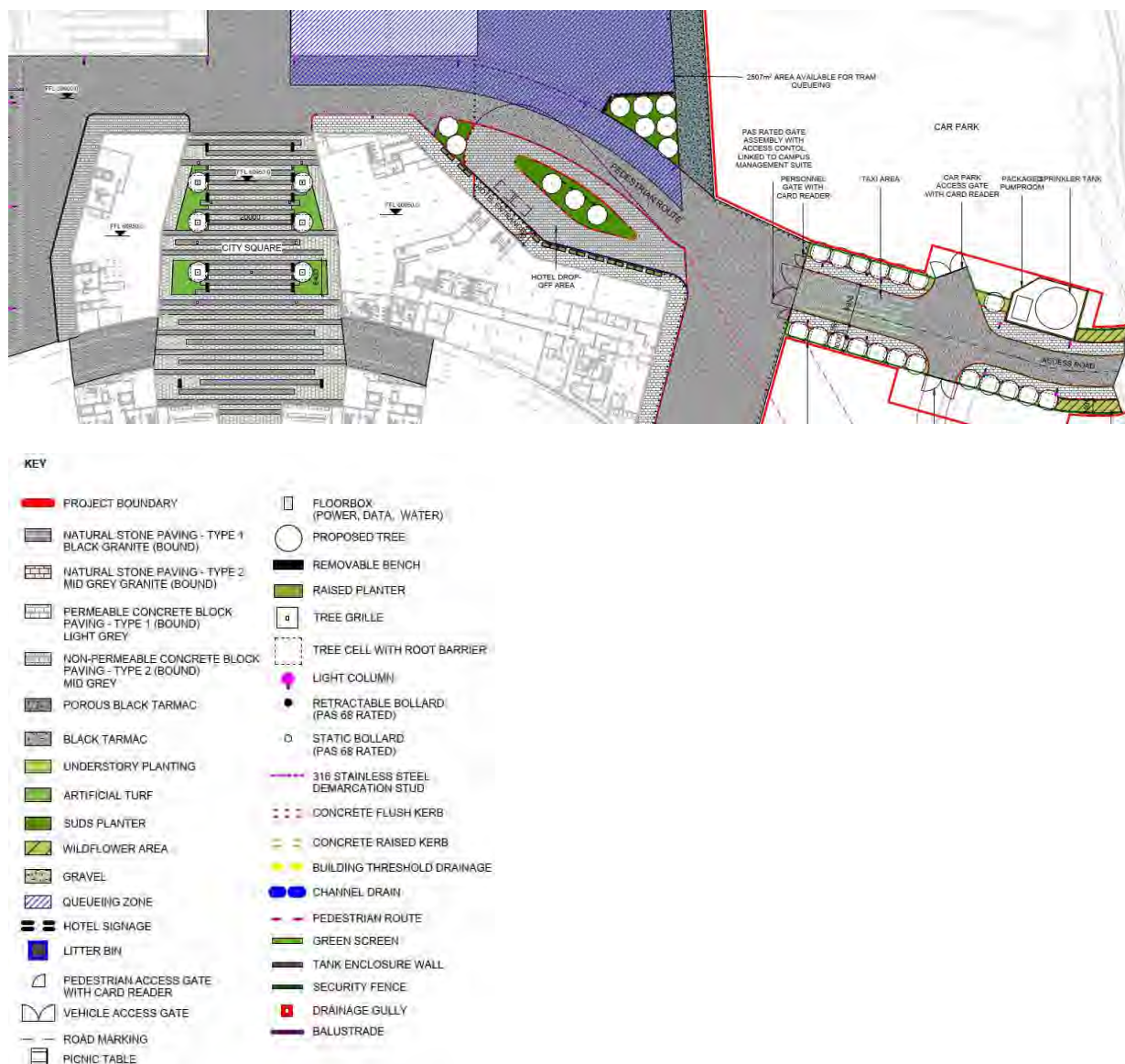
Building Reference	Description	Bat Roost Potential Category (see Table 1)	Evidence of Other Protected Species
1	Shop. A modern steel frame building clad with coloured panels.	None	None
2	Stadium. Concrete and steel construction with cladding.	None	None
3	Café. Steel supported awning shelters seating and café and associated small buildings.	None	None
4	Bar. Steel supported awning shelters seating and associated small buildings.	None	None
5	Podium. Steel supported awning over stage.	None	None
6 & 7	Metro station canopies. Modern construction and materials, with open sides.	None	None

4. Summary

- 4.1. The Manchester City Football Club stadium is a modern structure situated within an urban location, but close to suburban areas and wildlife corridors such as the Ashton Canal and Clayton Vale.
- 4.2. The desk study found a single European Protected Site within 10km of the proposals – Rochdale Canal SAC. This site is too distant to be affected by proposals.
- 4.3. No SSSI were located within 1km of the site.
- 4.4. No National Nature Reserves were located within 1km of the site.
- 4.5. Clayton Vale Local Nature Reserve is located 734 m to the northeast of the site, separated from it by the Alan Turing Way. This site is too distant to be affected by proposals.
- 4.6. Ashton Canal SBI is located close to the development site, 50m to the north, and supports important plant communities including the European Protected Species floating water-plantain and the endangered Priority Species grass-wrack pondweed.
- 4.7. Two additional SBIs, located further away, are too distant to be affected by proposals.
- 4.8. Three areas of the Priority Habitats Deciduous Woodland and Wood Pasture and Parkland are present within the search area. They are not adjacent to site and are not considered likely to be affected by proposals.
- 4.9. Two species of bat have been recorded within the 1 km search area, with only common pipistrelle roosts known close to the site. The nearest roosts are both approximately 250 m away and unlikely to be affected by proposals.
- 4.10. Other protected species recorded in the site's immediate vicinity include peregrine and little ringed plover, but neither from the site itself. The peregrine routinely nests elsewhere, and nesting habitats for little ringed plover are not present on site. Other protected mammal and bird species occurring in the wider 1 km search zone include badger, barn owl, black redstart and kingfisher.
- 4.11. Several Priority Species have been recorded locally but not on site, including mammals, invertebrates and birds. Only lapwing and linnet have records close to the site but neither are likely to nest on site due to lack of suitable habitat.
- 4.12. The site visit found the site and its environs to be completely comprised of previously developed land, all of which is in current use. Habitats on site are buildings, hardstanding, and scrub and ephemeral short perennial vegetation. A total of 35 plant species were recorded: a species-poor selection of common and widespread plants typical of such post-developed sites. No evidence of protected species was noted, and the site was considered unsuitable for most protected and Priority species. Existing buildings were assessed to have negligible potential for bats and no evidence of bird nesting was noted. The native scrub (153m²) and ephemeral vegetation (598m²) habitats will be completely lost to the proposals. The Soft Landscaping Plan (Populous NSE-POP-ZZ-00-DR-A-000600) shows approximately 1018m² of new habitats including native tree planting and wildflower area (Figure 4).

- 4.13. The Ashton Canal was identified as potentially affected by shading from the new buildings and by light pollution from the LED screens. Shading studies showed extensive shading to occur on the canal during November to February, but it has been concluded that important plants if present would likely be dormant during the most affected months and thus little affected during this time. An assessment of the potential impact of the LED screens concluded they undoubtedly will increase light levels along the canal, but these are already artificially elevated, and the new proposals seem unlikely to significantly worsen an already impacted aspect of this habitat and SBI.

Figure 4 Soft Landscape Plan Detail and Key



Recommendations

- 4.14. There is an opportunity to provide ecological enhancements in the new proposals, namely, to offer nest sites for swifts (*Apus apus*), and bat roosts on the new buildings. An ecologist should be involved in the detail of product selection and siting, and monitoring should be implemented to help understand uptake by wildlife of such measures. Some suggested artificial external swift and bat boxes are presented in Appendix 3.

- 4.15. Any clearance of vegetation such as trees scrub should be undertaken outside the bird breeding season, March to August inclusive to avoid disturbance to nesting birds. Alternatively, if this is not possible, habitat clearance can occur under the supervision of an appropriately skilled Ecological Clerk of Works (ECOW) working to a suitable method statement aimed at preventing disturbance and destruction of active bird nests.
- 4.16. A Landscape and Environmental Management Plan (LEMP) should include details of landscape management as well as installation and maintenance of features for wildlife, and monitoring.

BREEAM

- 4.17. Guidance on reporting ecological assessments in relation to BREEAM UK New Construction 2018 and Home Quality Mark (HQM) has been considered in relation to this study. The project has the potential to achieve credits under the following headings: LE02 Ecological Risks and Opportunities; LE03 Managing Impacts on Ecology; and LE04 Ecological Change and Enhancement. Please refer to the BREEAM report prepared by Me-Engineers which also accompanies this application.
- 4.18. Regarding credits for LE02 Ecological Risks and Opportunities – this report, the PEA, provides evidence for the BREEAM credits which are currently being targeted under this heading (LE02), as follows:
 - A survey and evaluation of the site has been undertaken early enough to understand the ecological features that are present before works commence.
 - Current and potential ecological value and condition of the site and related areas.
 - Direct and Indirect risks to current ecological value from the project.
 - Capacity and feasibility for enhancement of the site's ecological value.
 - The survey has been communicated with the project team early enough to influence planning decisions.
 - The ecological outcomes identified for the site have been identified, appraised and the optimal ecological outcomes have been selected.
 - The ecological outcomes are defined through liaison of the project team including client, owner, occupier, design team and specialist consultants (drainage engineer, acoustic consultant, landscape architect).
- 4.19. Further BREEAM credits can be attained for Managing Impacts on Ecology (LE03) by demonstrating the ecological value loss of the site has been minimised or negated using the mitigation hierarchy defined by BREEAM, as follows:
 - There is minimal existing ecological value on site, but a very small area of native scrub (153m²) and ephemeral vegetation (598m²) will be lost. Existing scrub has low ecological value as it is of low diversity, young, planted or self-colonised and common in the area. Ephemeral habitats are dominated by ruderal plants indicative of poor ecological condition. Together, the habitats have potential to host breeding birds which are protected by law. The impact of the loss has been minimised by committing to clearance of vegetation outside of the bird breeding season to avoid illegal disturbance of nesting birds. This has been agreed in principle by the client and will be included in the Landscape and Environmental Management Plan (LEMP).
 - The existing habitats will be replaced by new landscaped areas totalling approximately 1,018m² including 7 formal constructed planters with native trees (field maple, oak and Scots pine - information prepared for Planning Meeting 4, Populous 2023). There are some smaller planted areas including wild flower verges near Alan Turing Way. Other measures and plans in place with MCFC (e.g. Manc-groves) are likely to

provide opportunities for similar habitat to regenerate in at least compensatory amounts so the effect locally is likely to be further reduced.

- The potential shading impacts of the proposals on the nearby Ashton Canal SBI and its rare plants floating water-plantain and grass-wrack pondweed have been fully assessed and found likely to be insignificant.
- An assessment of the lighting impact of LED screens (A and B) on the Ashton Canal SBI concluded that although the screens undoubtedly will increase light levels along the canal, these are already artificially elevated, and the proposals seem unlikely to significantly worsen an already impacted aspect of this habitat and SBI.

4.20. Under LE04, which targets ecological change and enhancement, credits can be achieved by implementation of the recommendations in this report, through inclusion in the LEMP, as follows:

- Installation of swift nest boxes external to the new structure, sited according to ecological advice.
- Installation of bat roost features external to the new structure, sited according to ecological advice.
- Preparation of a LEMP which includes management, maintenance, and monitoring of the above ecological enhancement measures.

4.21. The client has requested further information on the swift and bat boxes (Appendix 3).

Reference List

BIRKINSHAW, N., KEMP, E. & CLARKE, S. 2013. The ecology of grass-wrack pondweed *Potamogeton compressus*. Natural England Commissioned Reports, Number 130. BRIG (ed. Ant Maddock) 2008. UK Biodiversity Action Plan Priority Habitat Descriptions Open Mosaic Habitats on Previously Developed Land (Updated July 2010) From: UK Biodiversity Action Plan; Priority Habitat Descriptions.

Butcher, B., Carey, P., Edmonds, R. Norton, L. and Treweek, J. (2020). The UK Habitats Classification User Manual Version 1.1. <http://www.ukhab.org/>

Collins, J. (ed.), 2016. Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust.

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R.D., Lock, L., Musgrove, A.J., Noble, D.G., Stroud, D.A. and Gregory, R.D., 2015. Birds of Conservation Concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. *British Birds*, 108, 708–746.

Institute of Environmental Assessment, 1995. Guidelines for Baseline Ecological Assessment. E & F.N. Spon, an imprint of Chapman & Hall.

JNCC, 2010. Handbook for Phase 1 habitat survey: a technique for environmental audit. Revised reprint, JNCC.

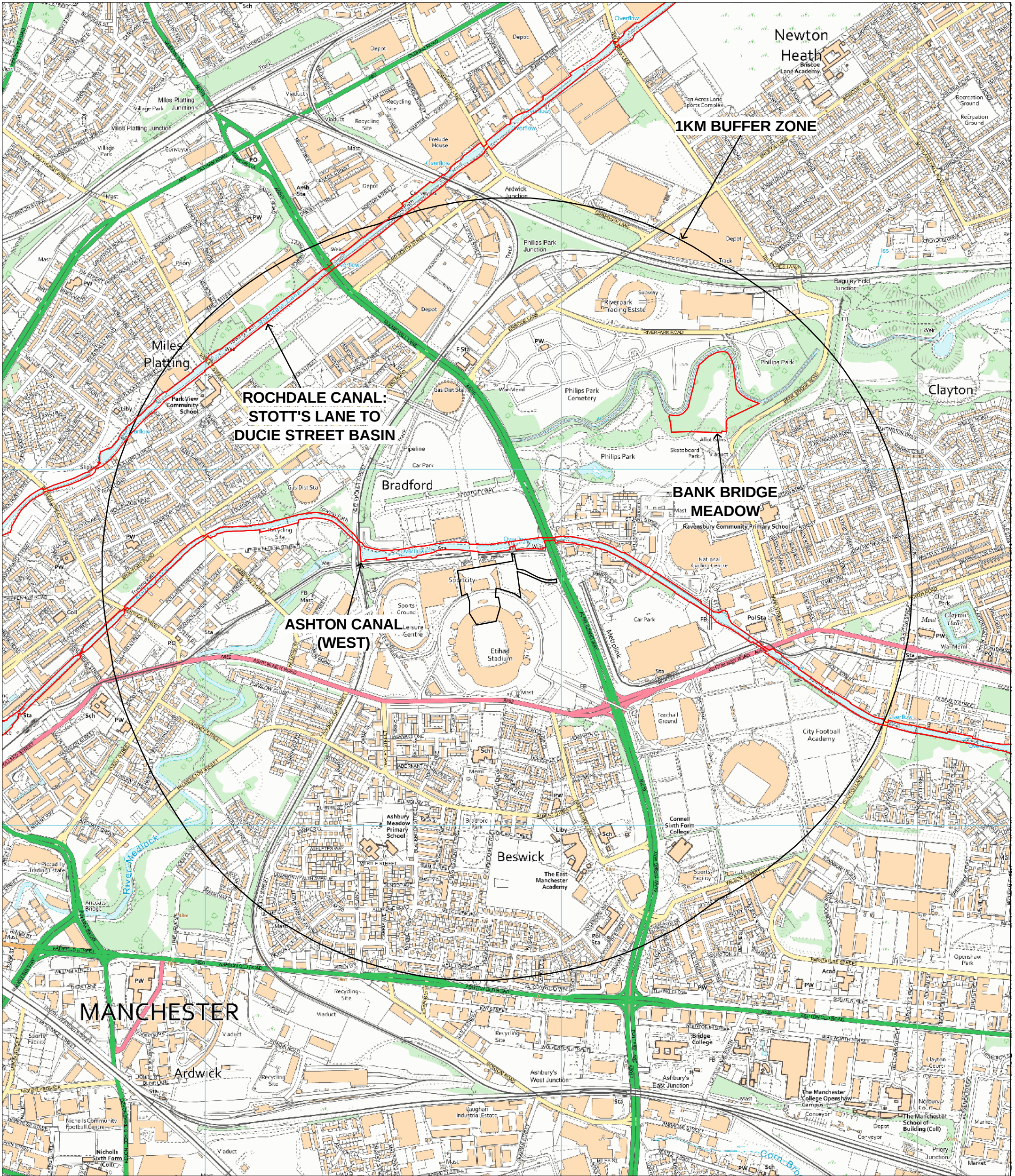
Lansdown RV & Wade PM, 2003. Ecology of the Floating Water-plantain, *Luronium natans*. *Conserving Natura 2000 Rivers Ecology Series No. 9*. English Nature, Peterborough.

NPPF, 2021. National Planning Policy Framework, updated July 2021. Ministry of Housing, Communities and Local Government.

Stace, C., 2019. *New Flora of the British Isles*. Fourth Edition. C & M Floristics.

Willby N, Eaton J & Clarke S (2003). *Monitoring the Floating Water-plantain*. *Conserving Natura 2000 Rivers Monitoring Series No. 11*, English Nature, Peterborough.

APPENDIX 1 DESK STUDY



**GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 86774 98682
ETIHAD STADIUM - MAP 1**

KEY
SITE OF BIOLOGICAL IMPORTANCE
 **SBI BOUNDARY**

SCALE 1:10,000

THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH
THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE
CONTROLLER OF HMSO ©CROWN COPYRIGHT
UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT
AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

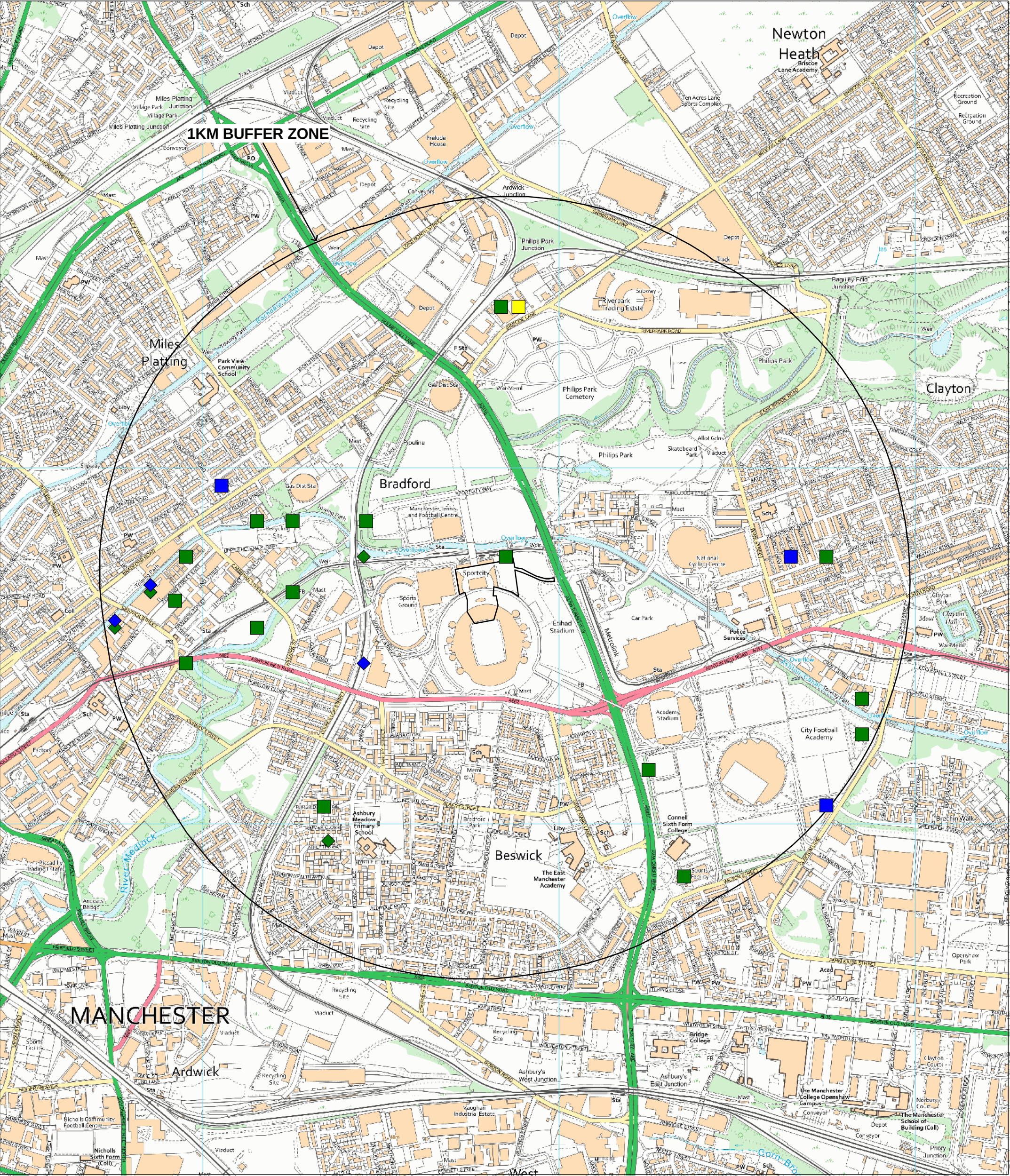
TAMESIDE MBC LICENCE NO LA100022697, 2022



**Greater Manchester
Ecology Unit**

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

Date Produced: 03/11/2022



**GREATER MANCHESTER ECOLOGY UNIT
ECOLOGICAL SEARCH - SJ 86774 98682
ETIHAD STADIUM - MAP 4**

SCALE 1:10,000

BAT DATA COURTESY OF SOUTH LANCS BAT GROUP

THE MAP IS BASED UPON ORDNANCE SURVEY MATERIAL WITH
THE PERMISSION OF ORDNANCE SURVEY ON BEHALF OF THE
CONTROLLER OF HMSO (C)CROWN COPYRIGHT
UNAUTHORISED REPRODUCTION INFRINGES CROWN COPYRIGHT
AND MAY LEAD TO PROSECUTION OR CIVIL PROCEEDINGS

TAMESIDE MBC LICENCE NO LA100022697, 2022



**Greater Manchester
Ecology Unit**

Telephone 0161 342 4409
Email: gmeu@tameside.gov.uk

Date Produced: 03/11/2022

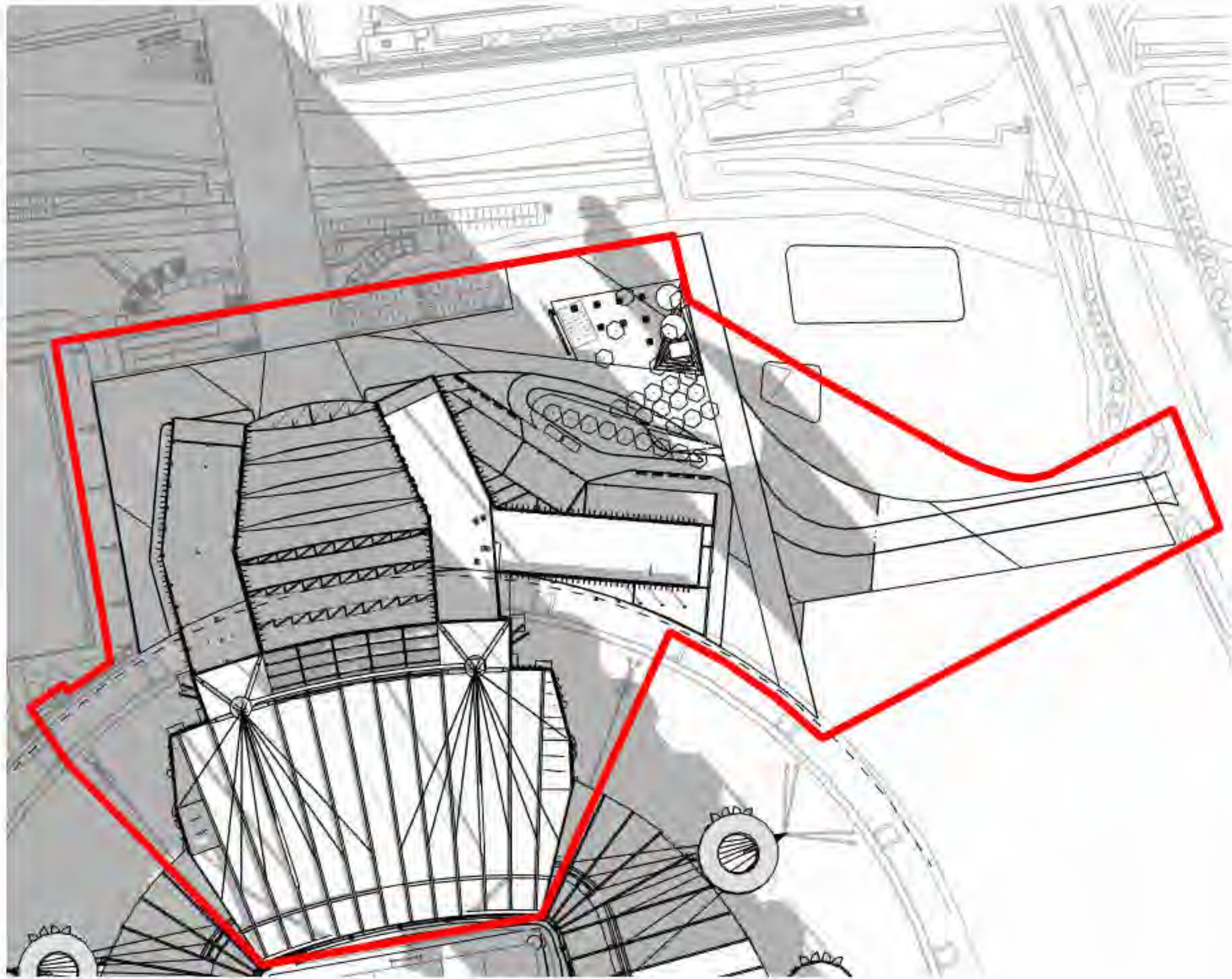
**KEY
BAT ROOSTS**

- ◆ COMMON PIPISTRELLE
- ◆ PIPISTRELLE SP

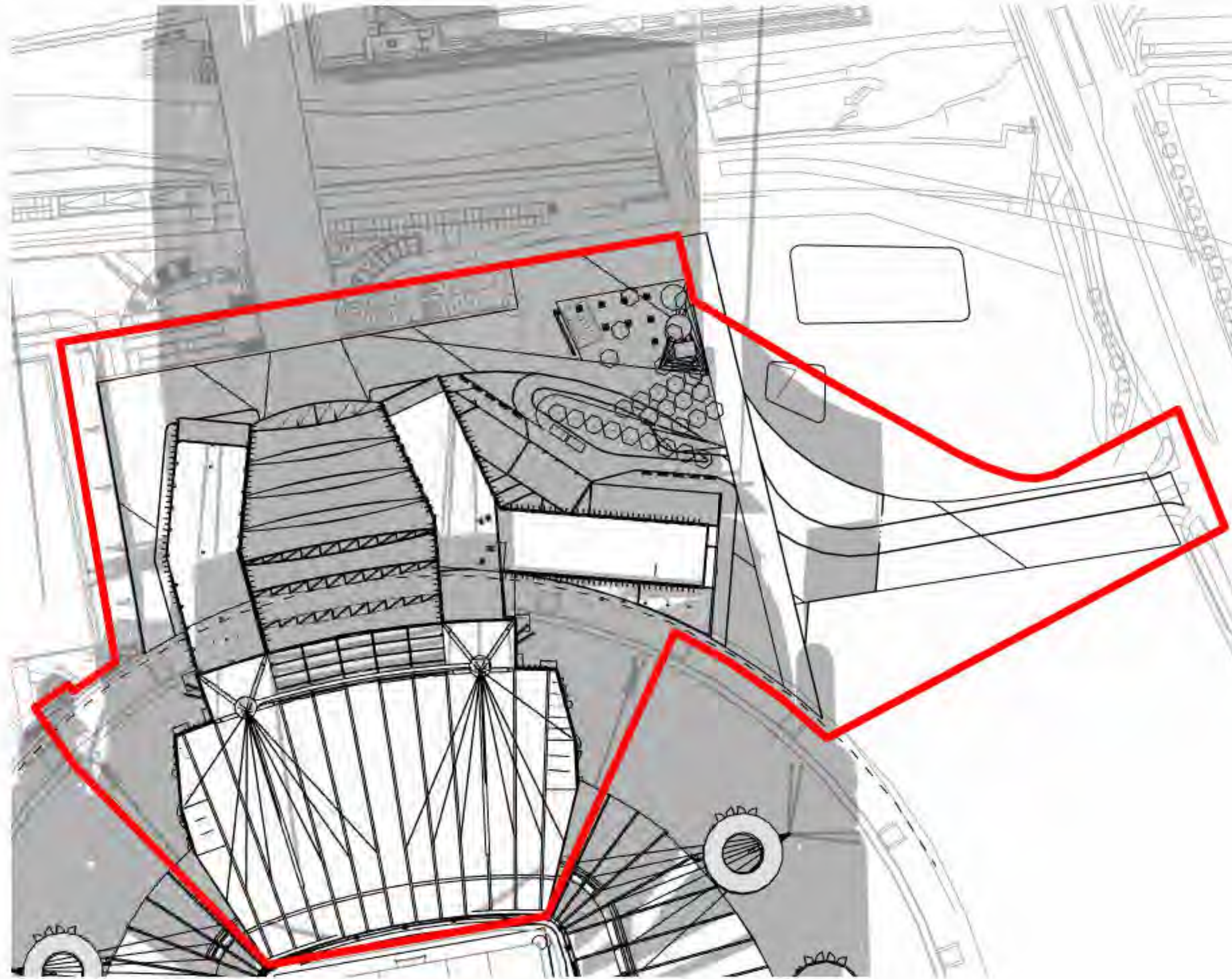
BATS OTHER SIGNS

- COMMON PIPISTRELLE
- PIPISTRELLE SP
- SOPRANO PIPISTRELLE

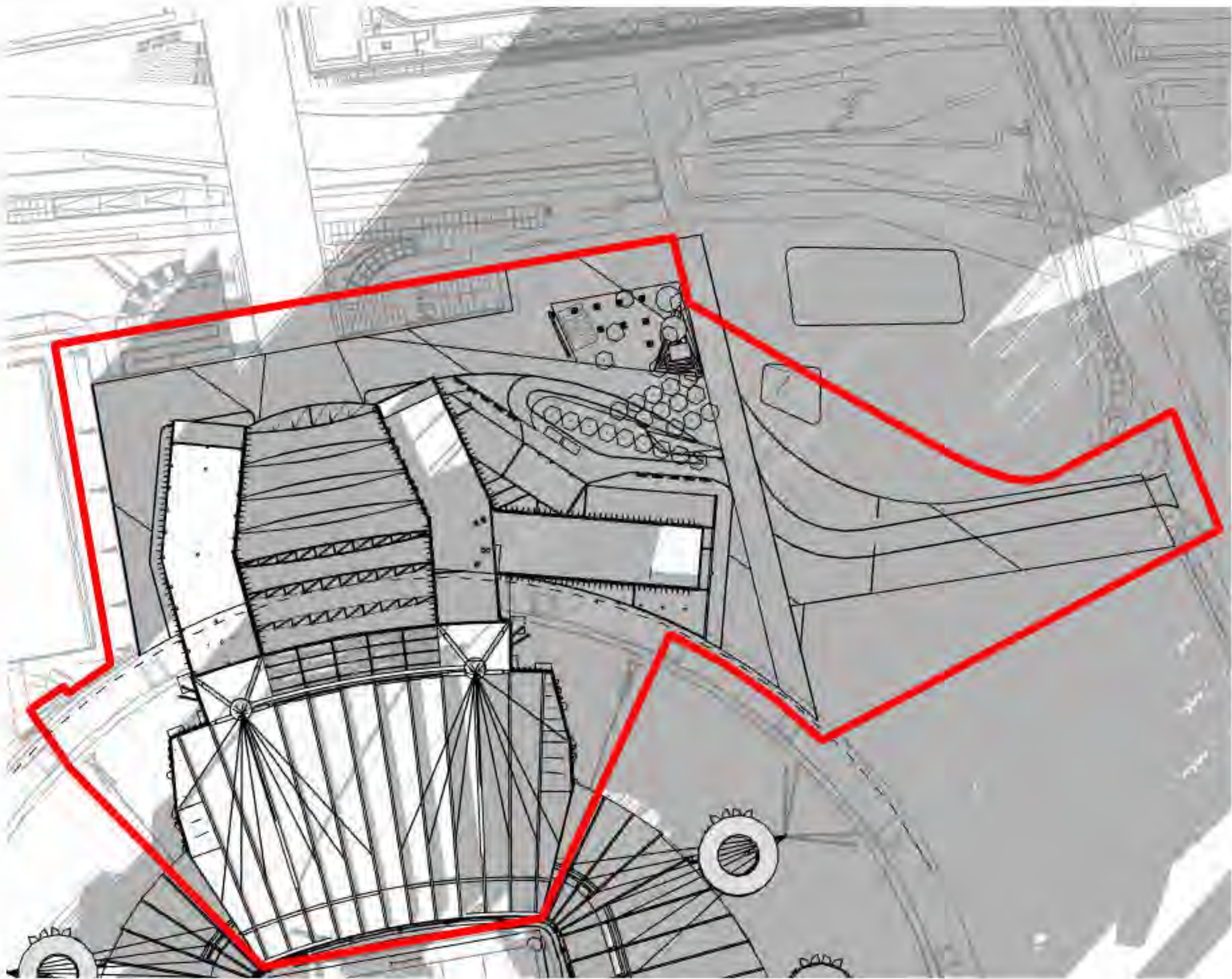
APPENDIX 2 SHADING STUDIES



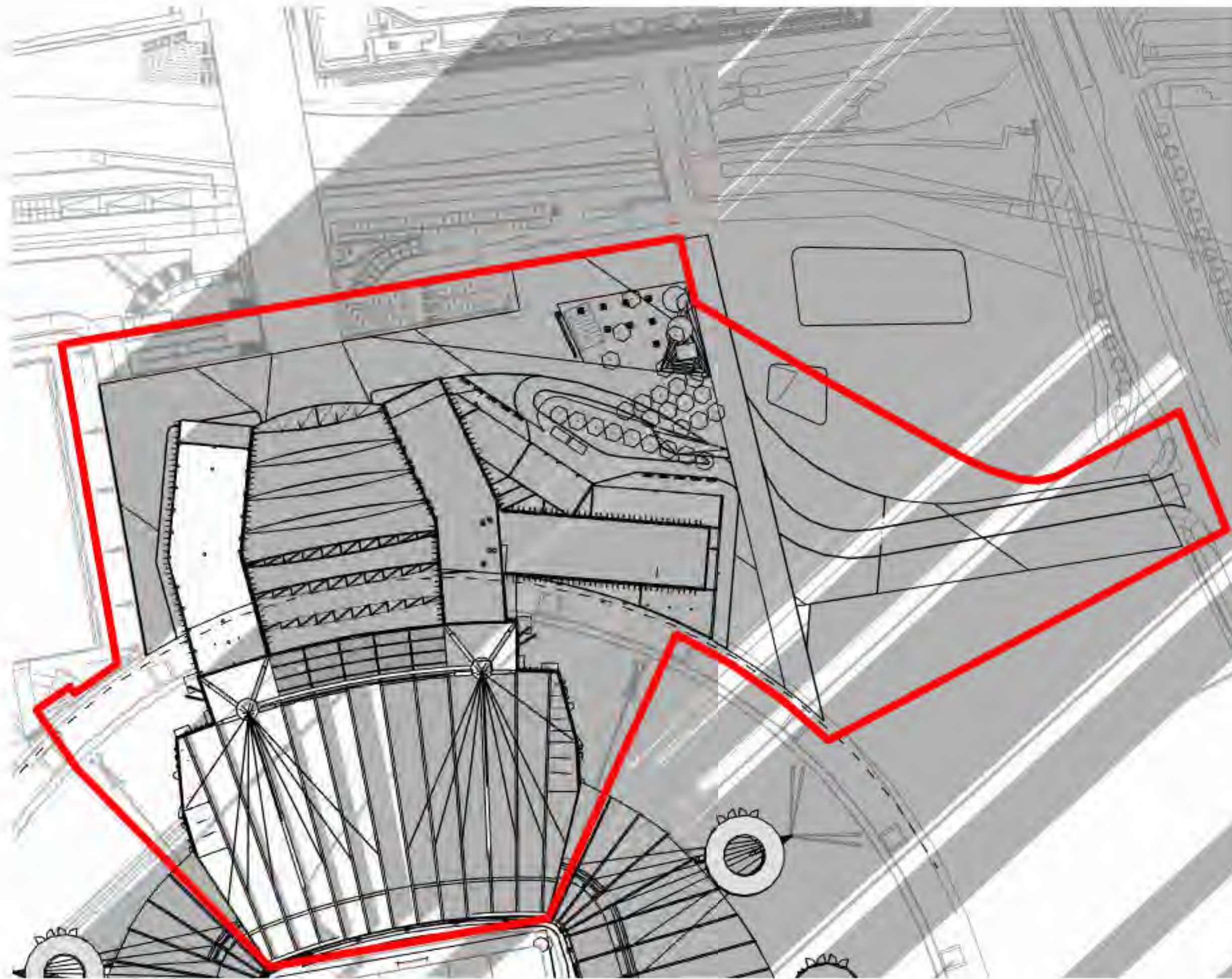
1 SHADOW STUDIES - DECEMBER 0900
1:1000



2 SHADOW STUDIES - DECEMBER 1200
1:1000

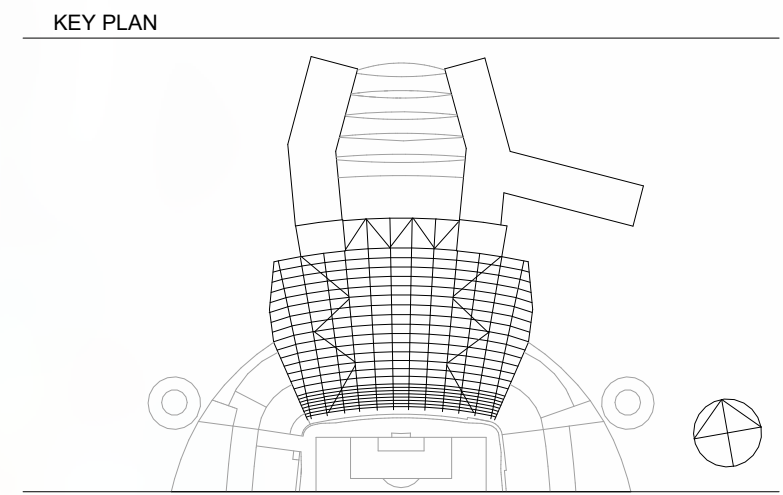


3 SHADOW STUDIES - DECEMBER 1500
1:1000



4 SHADOW STUDIES - DECEMBER 1800
1:1000

REVISIONS		
REV	DATE	DESCRIPTION
00	16.01.23	DRAFT - Issued for Information
01	25.01.23	Issued for Information



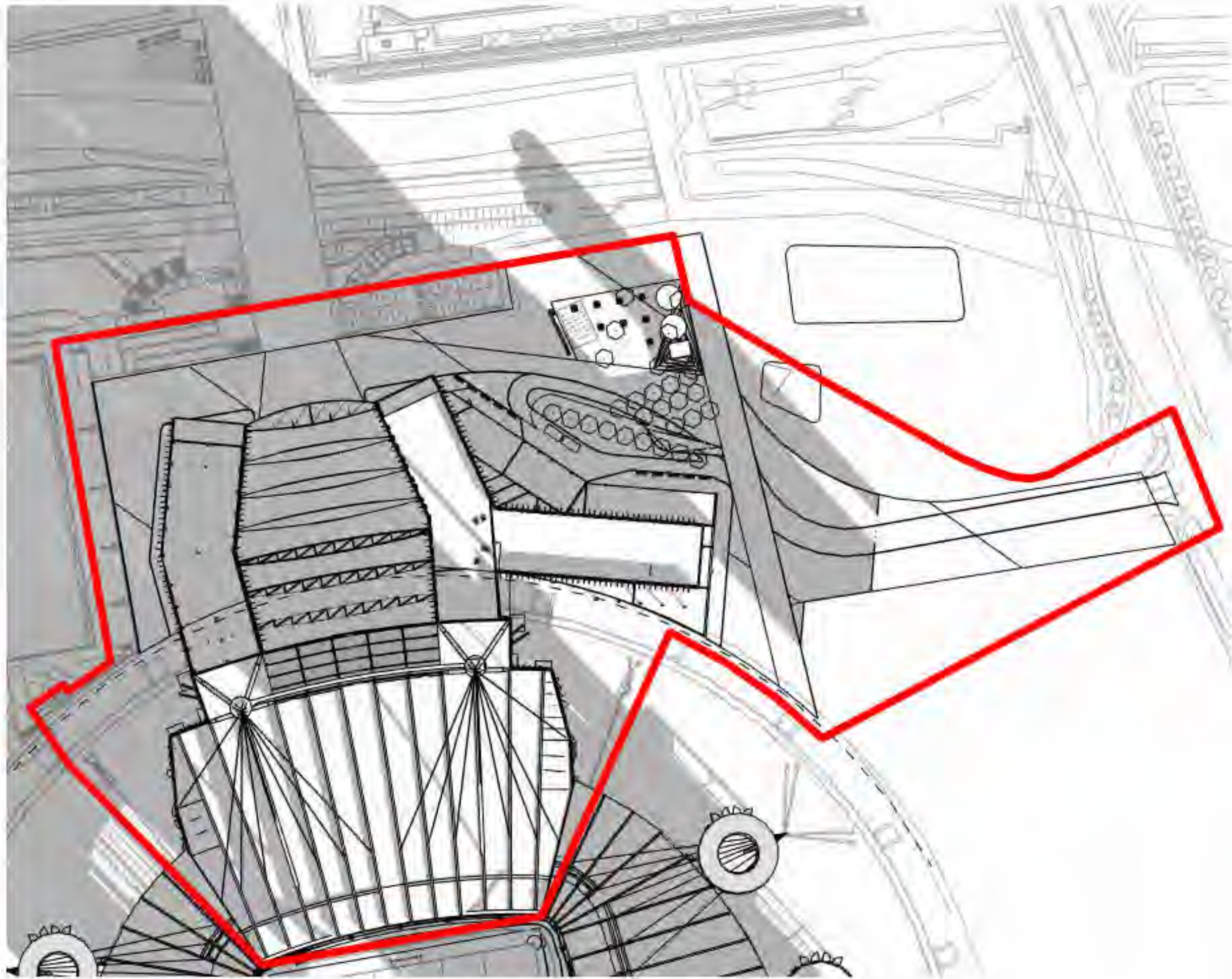
© COPYRIGHT. ALL RIGHTS RESERVED
THIS WORK IS COPYRIGHT AND CANNOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY OTHER MEANS (GRAPHIC, ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING) WITHOUT THE WRITTEN PERMISSION OF POPULOUS ANY LICENSE, EXPRESS OR IMPLIED, TO USE THIS DOCUMENT FOR ANY PURPOSE WHATSOEVER IS RESTRICTED TO THE TERMS OF THE AGREEMENT OR IMPLIED AGREEMENT BETWEEN POPULOUS AND THE INSTRUCTING PARTY.
USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SETTING OUT.

ARCHITECT
POPULOUS®
14 BLADES COURT | DEODAR ROAD | LONDON | SW15 2NU | UNITED KINGDOM
TELEPHONE +44 (0)20 8874 7666 FACSIMILE +44 (0)20 8874 7470
ALL PRODUCTION & INTELLECTUAL PROPERTY RIGHTS RESERVED © POPULOUS 2009

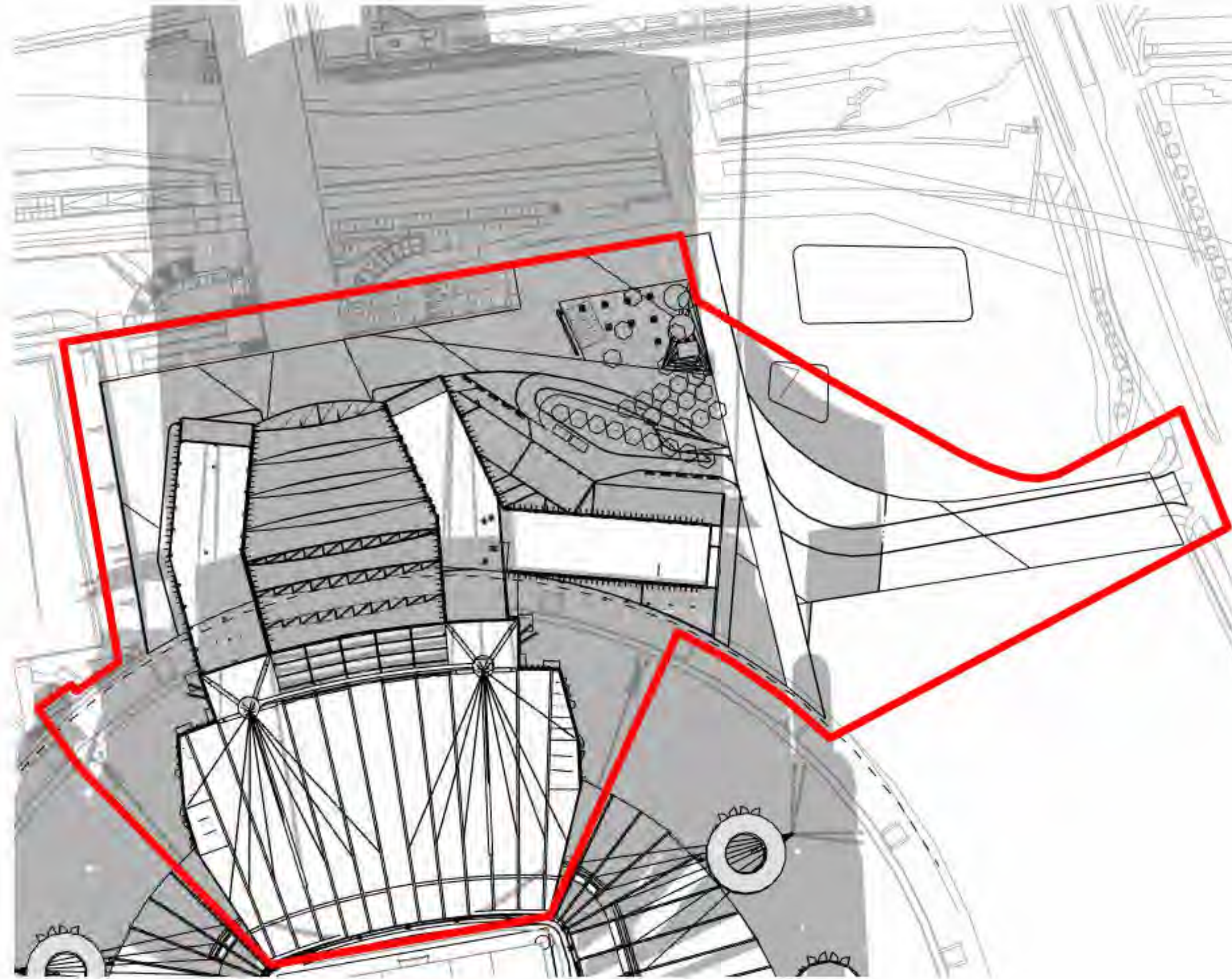
PROJECT NAME
MCFC NORTH EXPANSION

DRAWING TITLE
**SHADOW STUDIES - WINTER
DECEMBER**

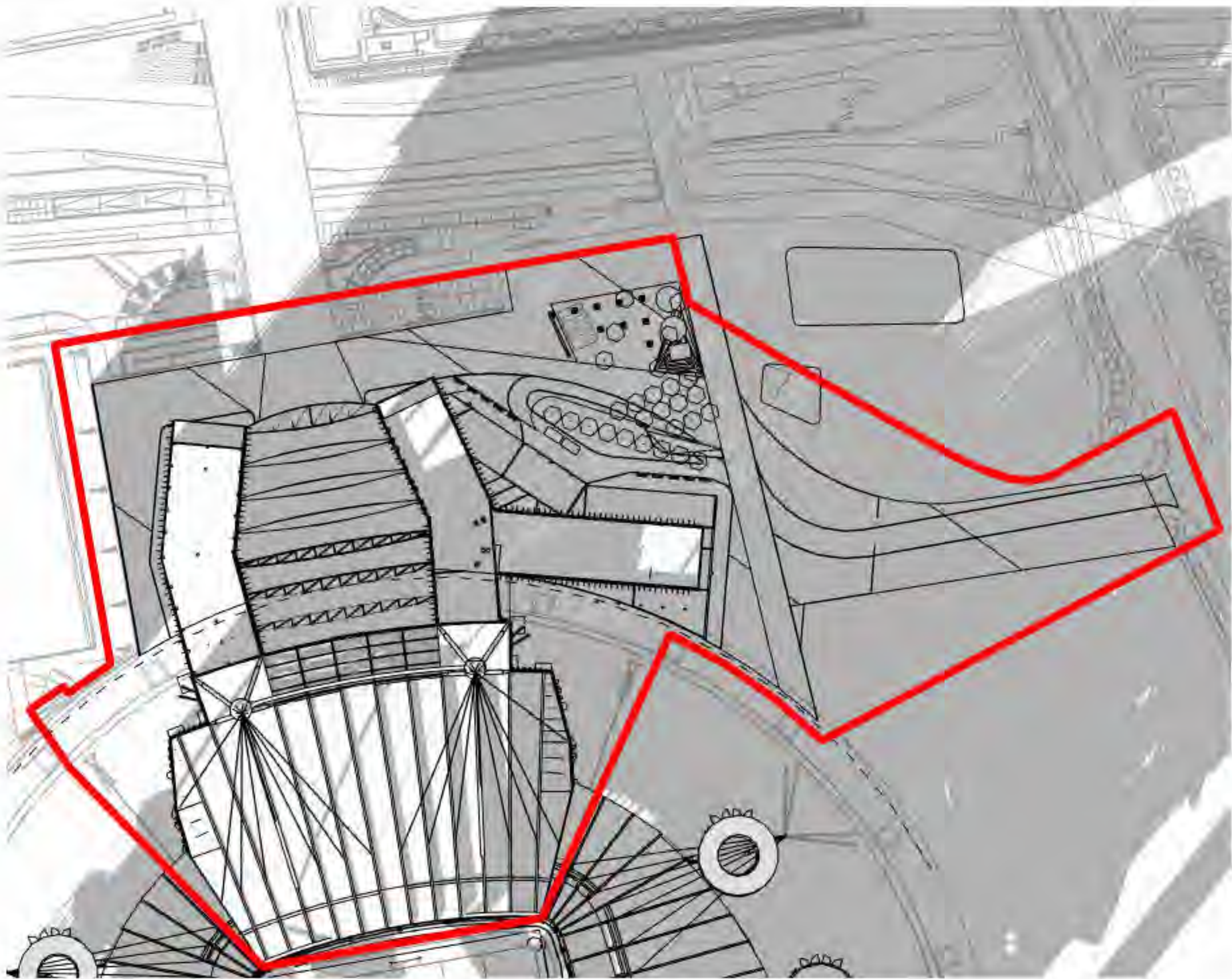
STATUS		RIBA STAGE			PROJECT NO.		
S1		3			4348		
DATE				SCALE		SIZE	
11/14/22				1 : 1000		A1	
DRAWN		CHECKED		APPROVED			
JW		CF		MT			
PROJECT	ORIGIN	ZONE	LEVEL	TYPE	ROLE	DRAWING	REV
NSE-POP-NS- ZZ- DR- A - 000008							01



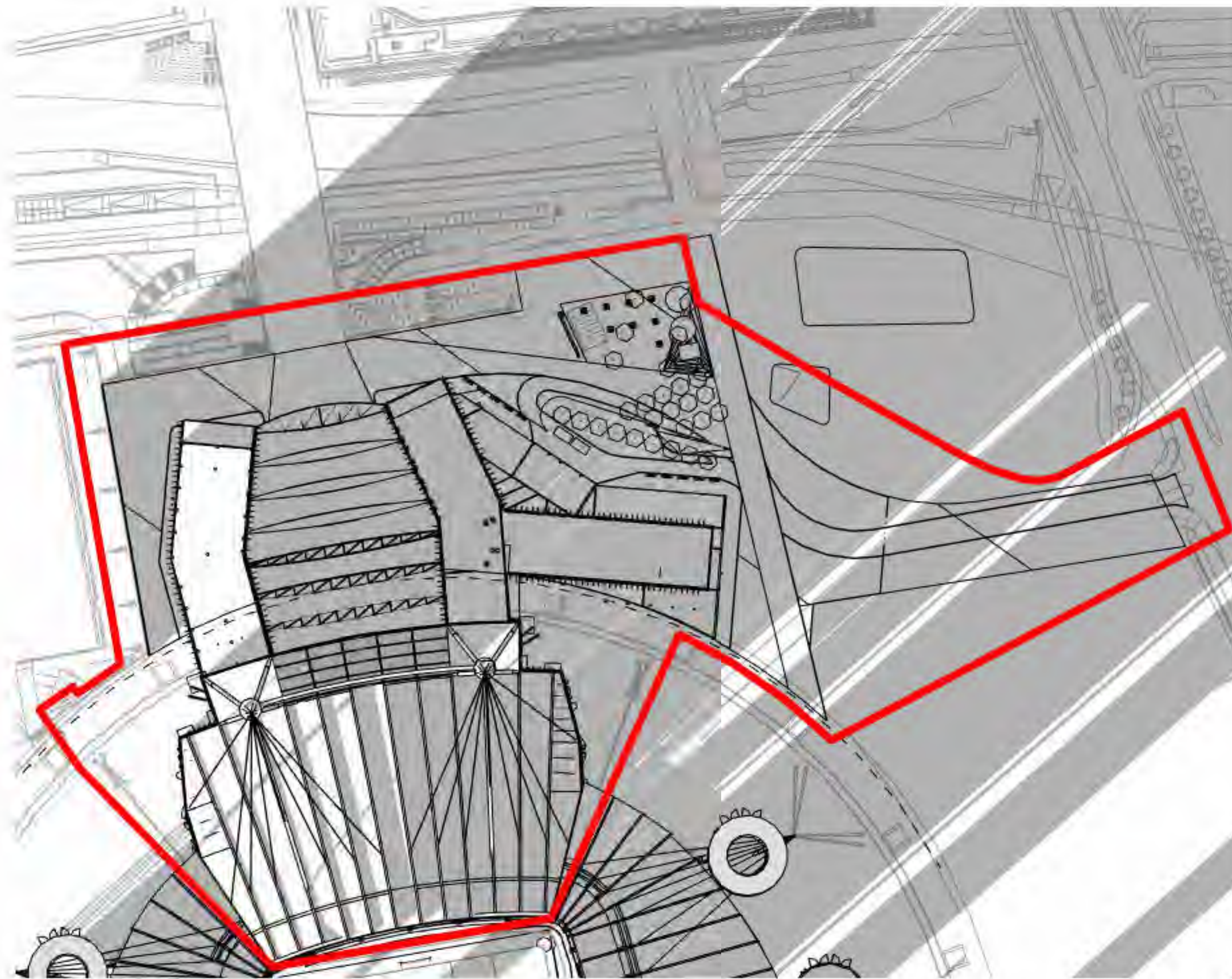
1 SHADOW STUDIES - JANUARY 0900
1:1000



2 SHADOW STUDIES - JANUARY 1200
1:1000

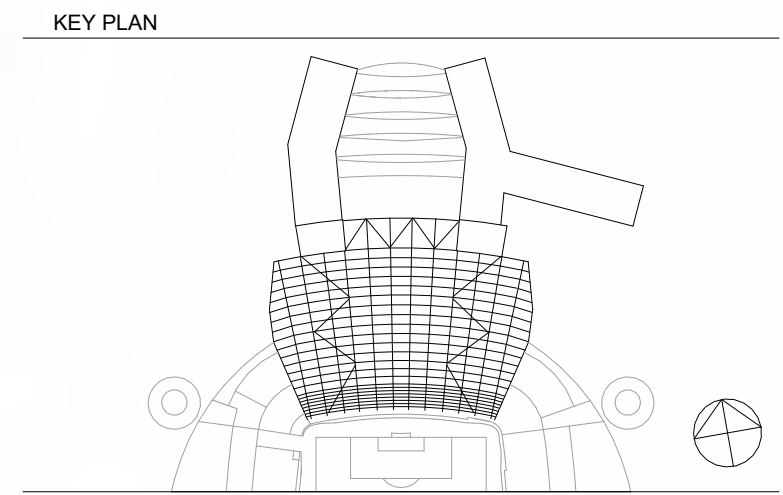


3 SHADOW STUDIES - JANUARY 1500
1:1000



4 SHADOW STUDIES - JANUARY 1800
1:1000

REVISIONS		
REV	DATE	DESCRIPTION
00	25.01.23	Issued for Information

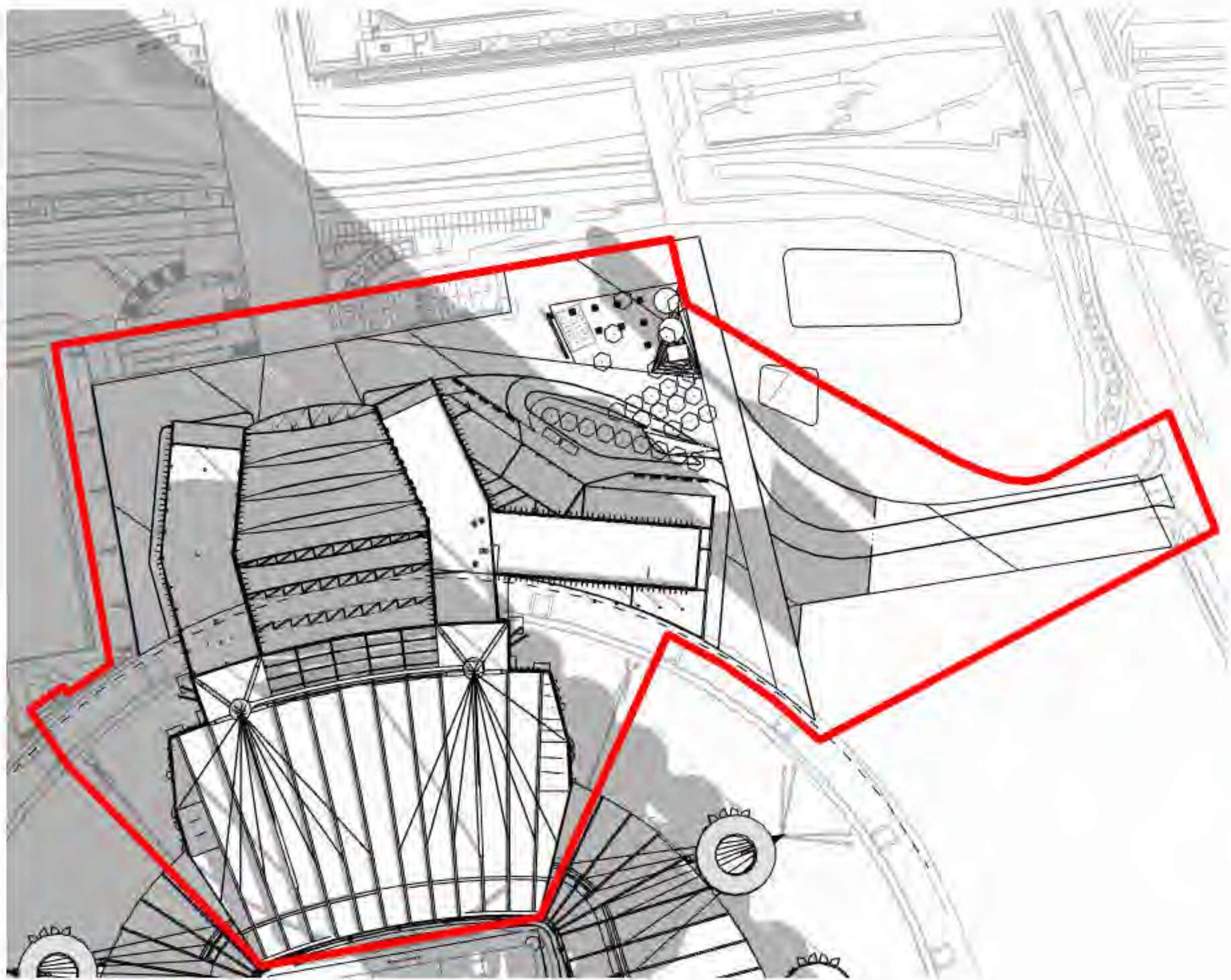


© COPYRIGHT. ALL RIGHTS RESERVED
THIS WORK IS COPYRIGHT AND CANNOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY OTHER MEANS (GRAPHIC, ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING) WITHOUT THE WRITTEN PERMISSION OF POPULOUS ANY LICENSE, EXPRESS OR IMPLIED, TO USE THIS DOCUMENT FOR ANY PURPOSE WHATSOEVER IS RESTRICTED TO THE TERMS OF THE AGREEMENT OR IMPLIED AGREEMENT BETWEEN POPULOUS AND THE INSTRUCTING PARTY.
USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SETTING OUT.

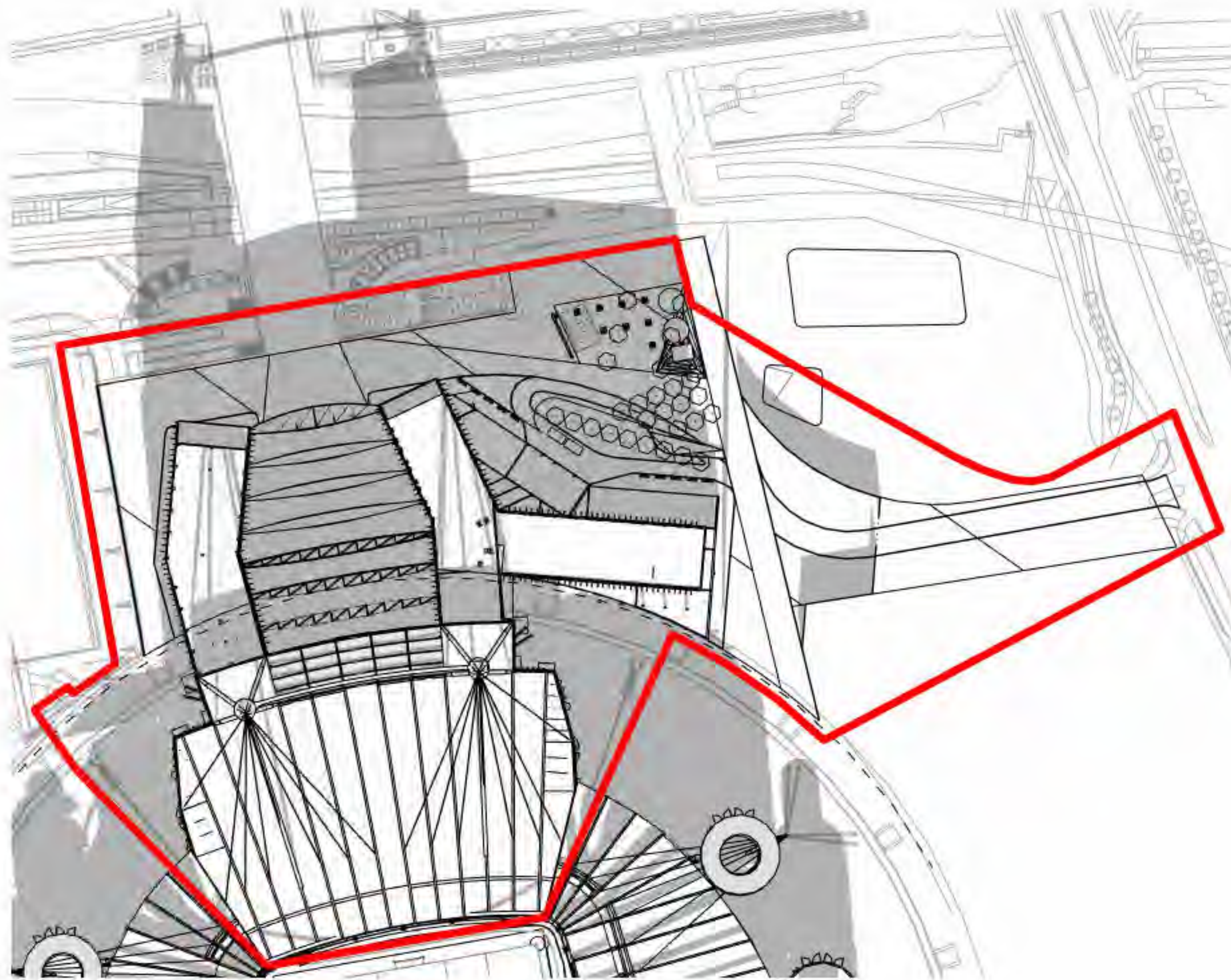
ARCHITECT
POPULOUS®
14 BLADES COURT | DEODAR ROAD | LONDON | SW15 2NU | UNITED KINGDOM
TELEPHONE +44 (0)20 8874 7666 FACSIMILE +44 (0)20 8874 7470
ALL PRODUCTION & INTELLECTUAL PROPERTY RIGHTS RESERVED © POPULOUS 2009

PROJECT NAME
MCFC NORTH EXPANSION
DRAWING TITLE
**SHADOW STUDIES - WINTER
JANUARY**

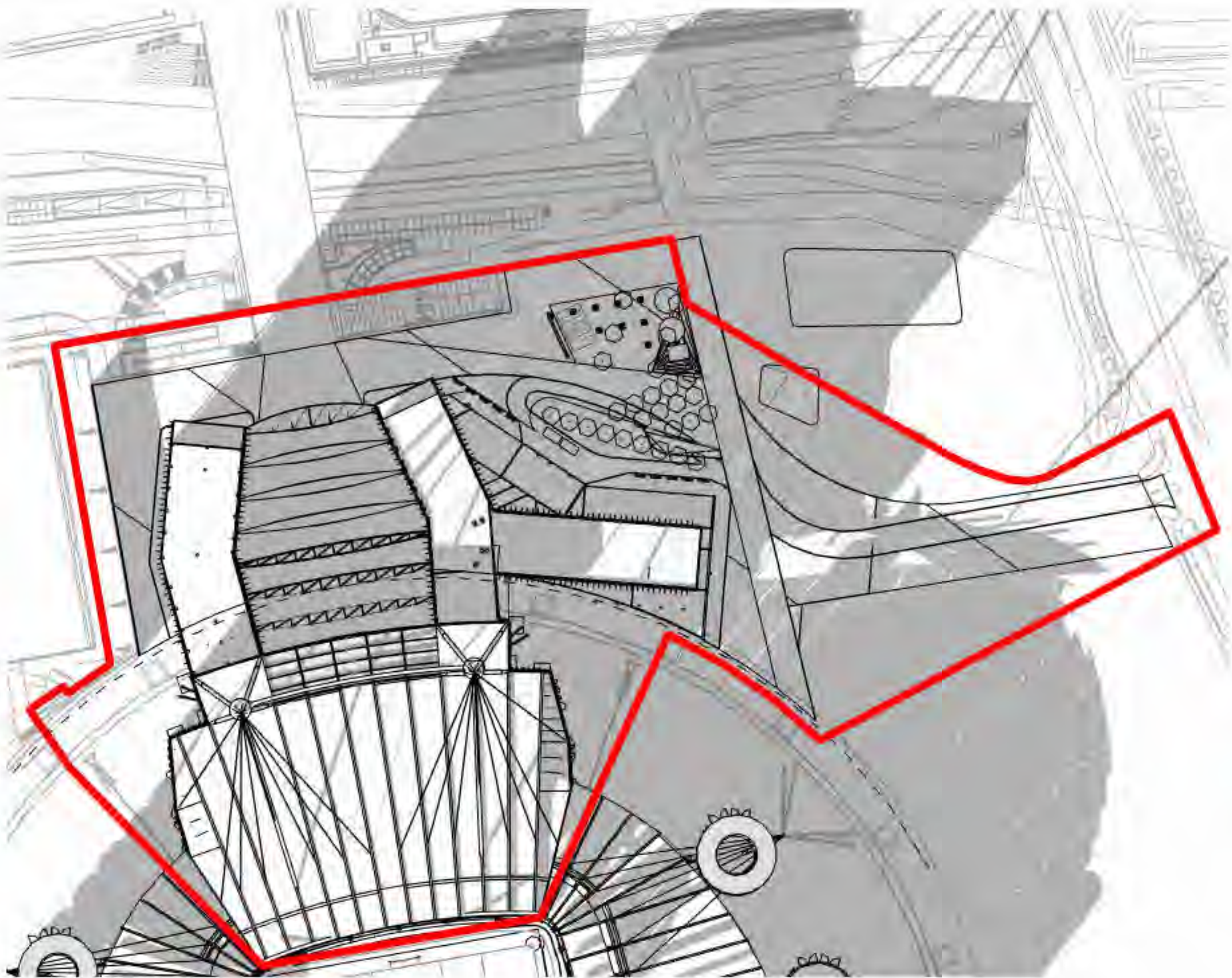
STATUS		RIBA STAGE			PROJECT NO.		
S1		3			4348		
DATE				SCALE		SIZE	
11/14/22				1 : 1000		A1	
DRAWN		CHECKED		APPROVED			
JW		CF		MT			
PROJECT	ORIGIN	ZONE	LEVEL	TYPE	ROLE	DRAWING	REV
NSE-POP-NS- ZZ- DR- A - 000019							
00							



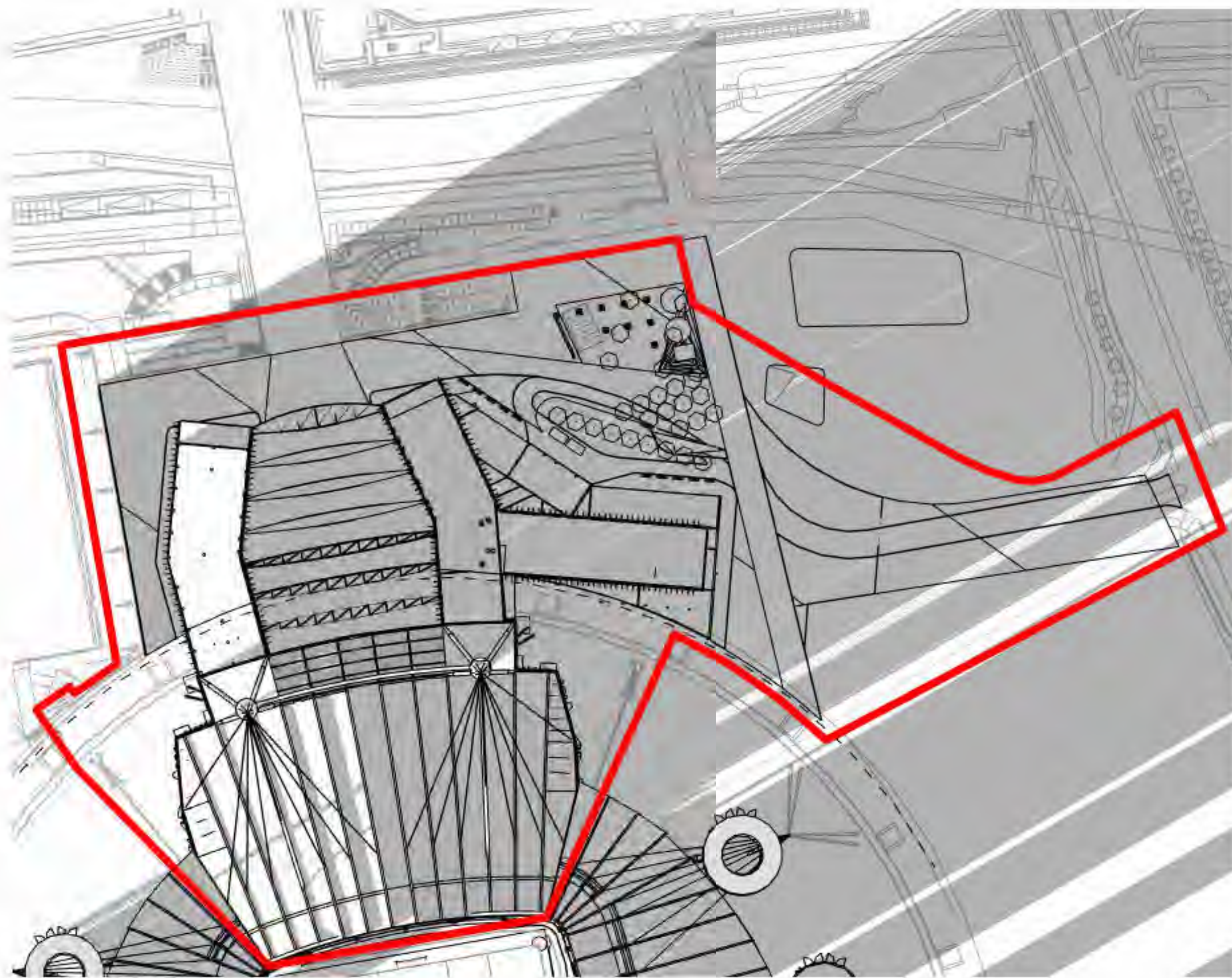
1 SHADOW STUDIES - FEBRUARY 0900
1:1000



2 SHADOW STUDIES - FEBRUARY 1200
1:1000

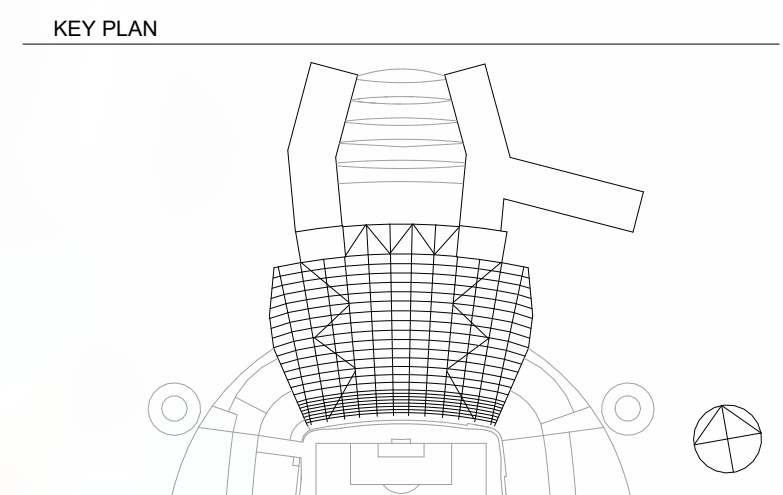


3 SHADOW STUDIES - FEBRUARY 1500
1:1000



4 SHADOW STUDIES - FEBRUARY 1800
1:1000

REVISIONS		
REV	DATE	DESCRIPTION
00	25.01.23	Issued for Information

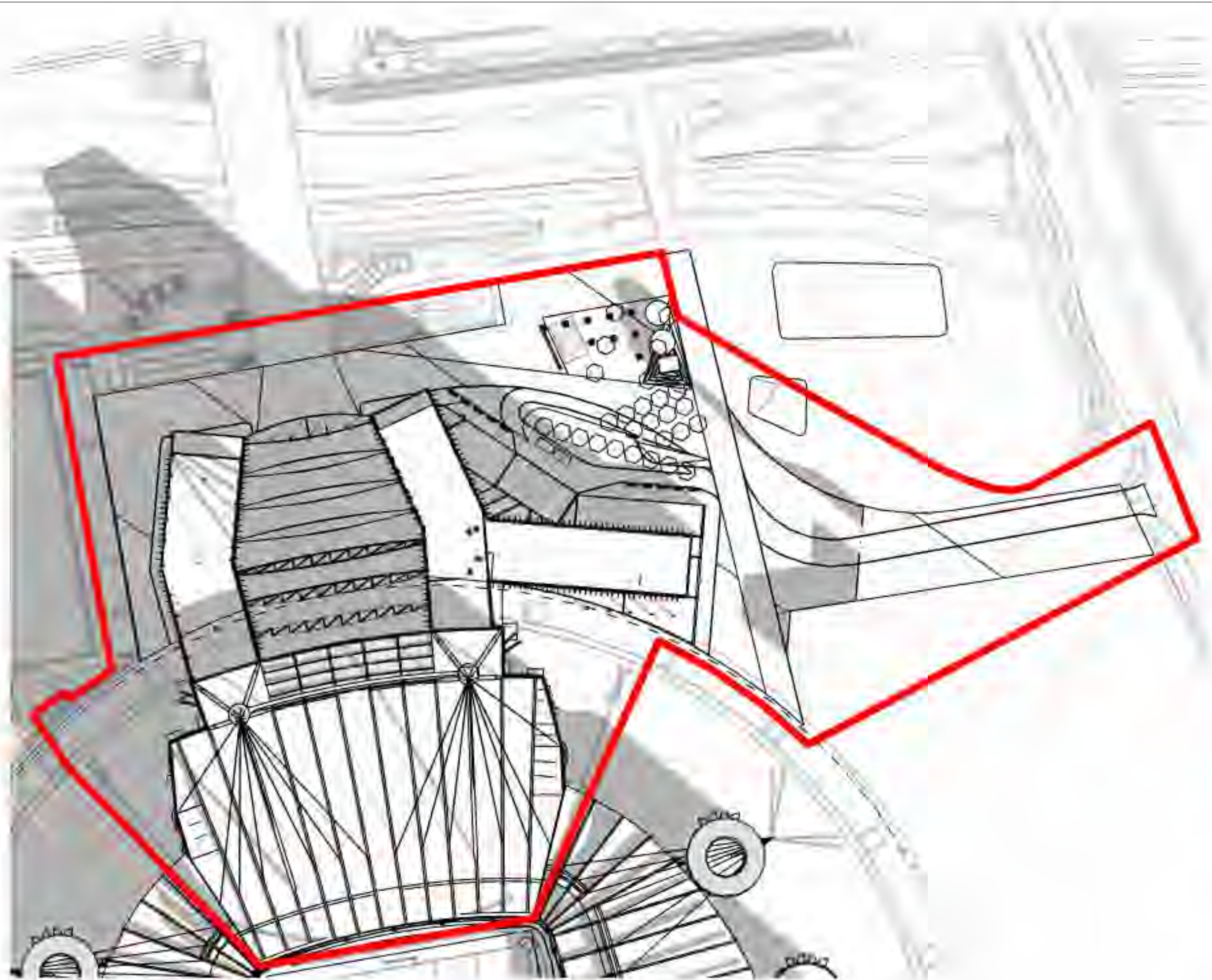


© COPYRIGHT. ALL RIGHTS RESERVED
THIS WORK IS COPYRIGHT AND CANNOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY OTHER MEANS (GRAPHIC, ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING) WITHOUT THE WRITTEN PERMISSION OF POPULOUS ANY LICENSE, EXPRESS OR IMPLIED, TO USE THIS DOCUMENT FOR ANY PURPOSE WHATSOEVER IS RESTRICTED TO THE TERMS OF THE AGREEMENT OR IMPLIED AGREEMENT BETWEEN POPULOUS AND THE INSTRUCTING PARTY.
USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SETTING OUT.

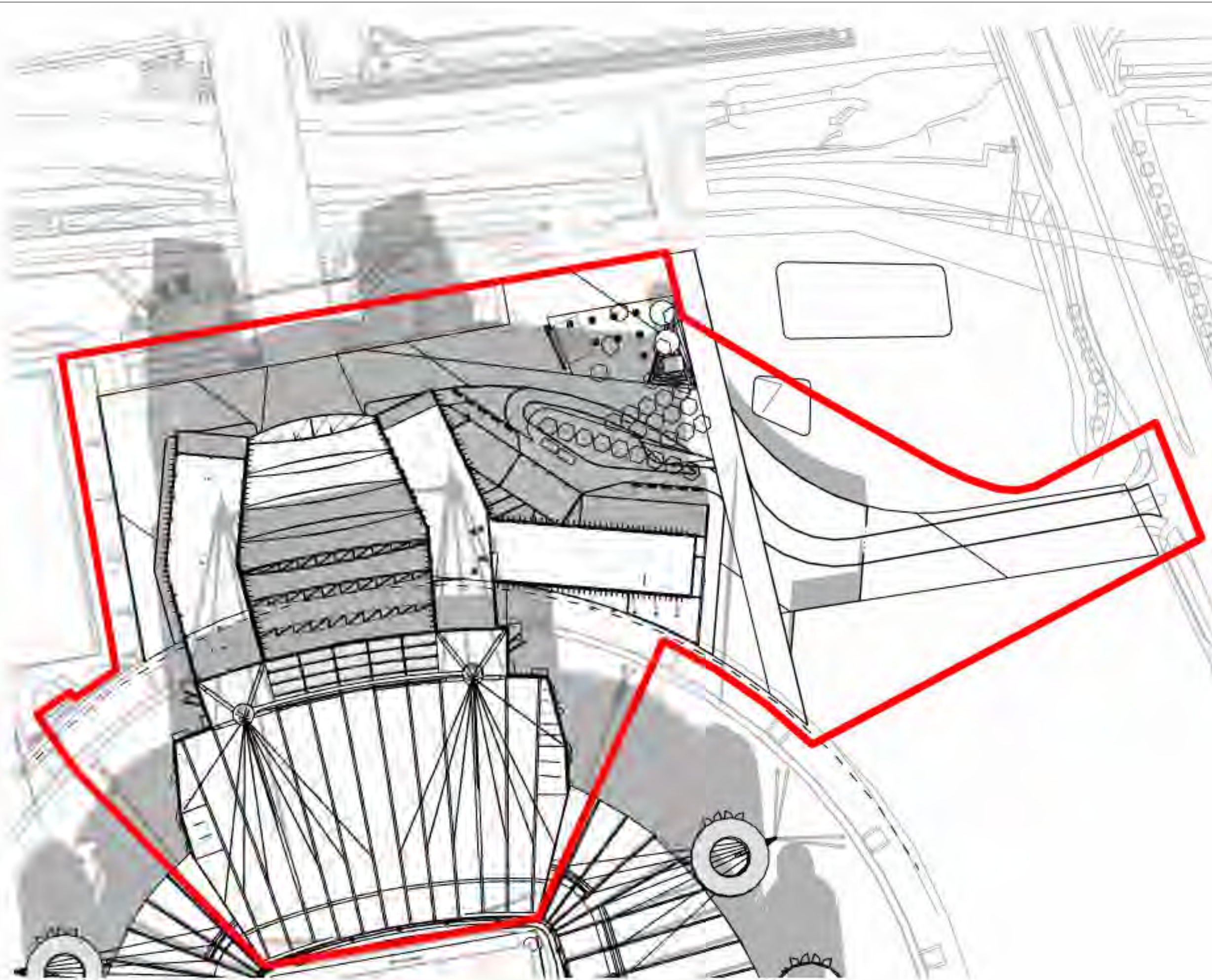
ARCHITECT **POPULOUS®**
14 BLADES COURT | DEODAR ROAD | LONDON | SW15 2NU | UNITED KINGDOM
TELEPHONE +44 (0)20 8874 7666 FACSIMILE +44 (0)20 8874 7470
ALL PRODUCTION & INTELLECTUAL PROPERTY RIGHTS RESERVED © POPULOUS 2009

PROJECT NAME
MCFC NORTH EXPANSION
DRAWING TITLE
**SHADOW STUDIES - WINTER
FEBRUARY**

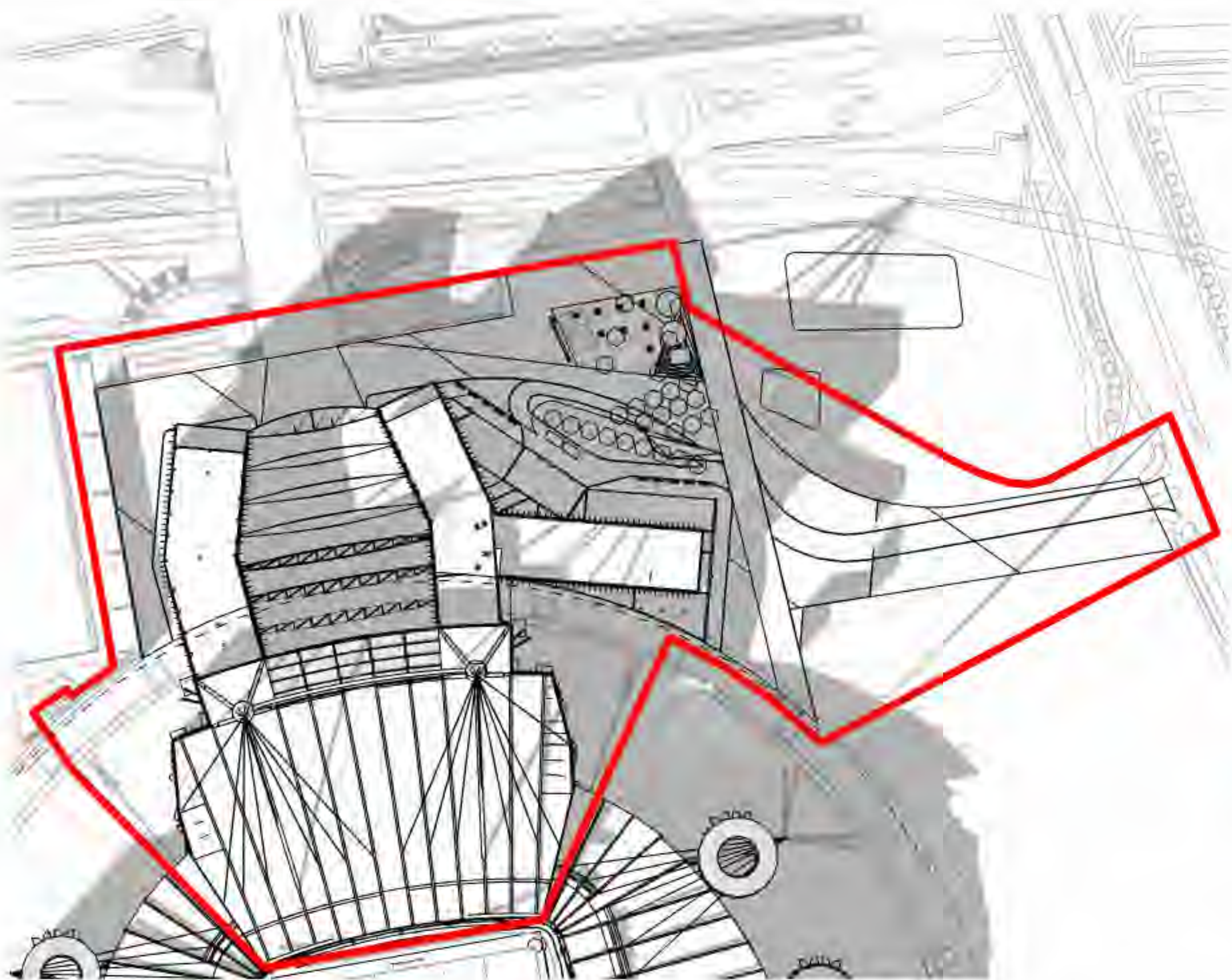
STATUS		RIBA STAGE			PROJECT NO.		
S1		3			4348		
DATE				SCALE		SIZE	
11/14/22				1 : 1000		A1	
DRAWN		CHECKED		APPROVED			
JW		CF		MT			
PROJECT	ORIGIN	ZONE	LEVEL	TYPE	ROLE	DRAWING	REV
NSE-POP-NS- ZZ- DR- A - 000020							00



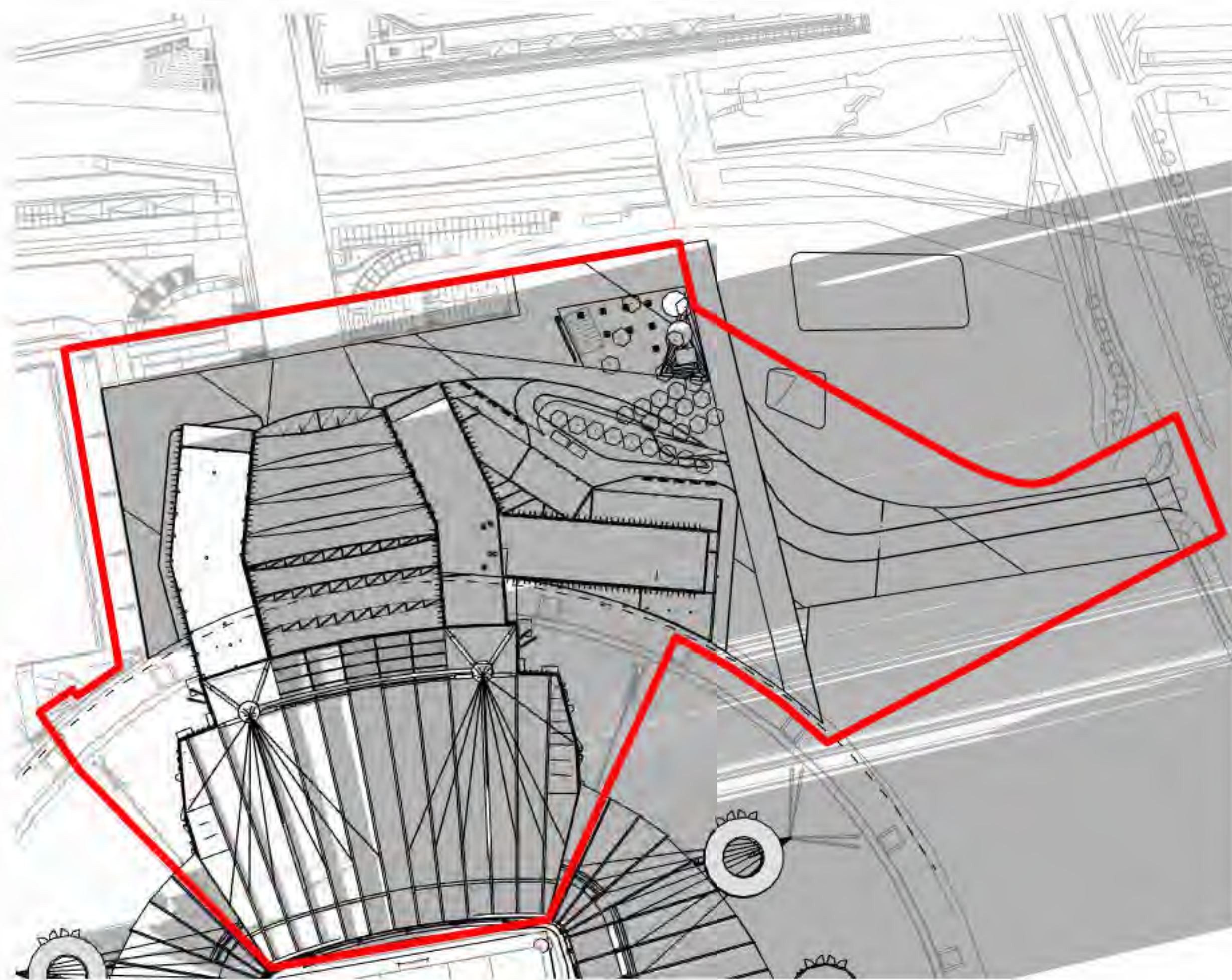
1 SHADOW STUDIES - MARCH 0900
1:1000



2 SHADOW STUDIES - MARCH 1200
1:1000

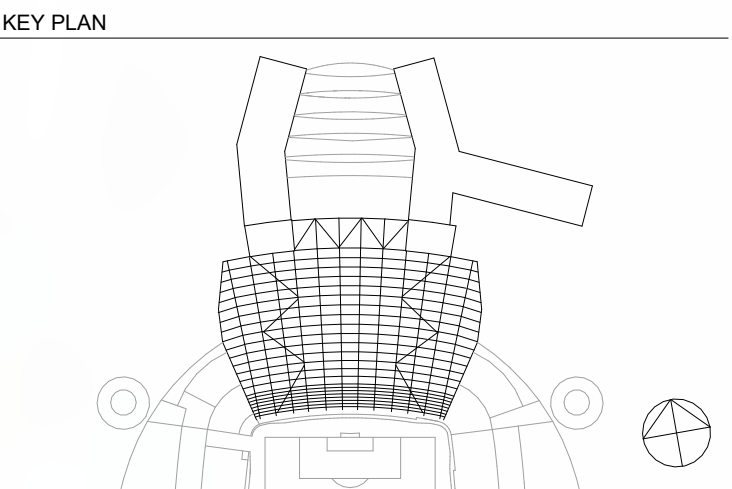


3 SHADOW STUDIES - MARCH 1500
1:1000



4 SHADOW STUDIES - MARCH 1800
1:1000

REVISIONS		
REV	DATE	DESCRIPTION
00	25.01.23	Issued for Information

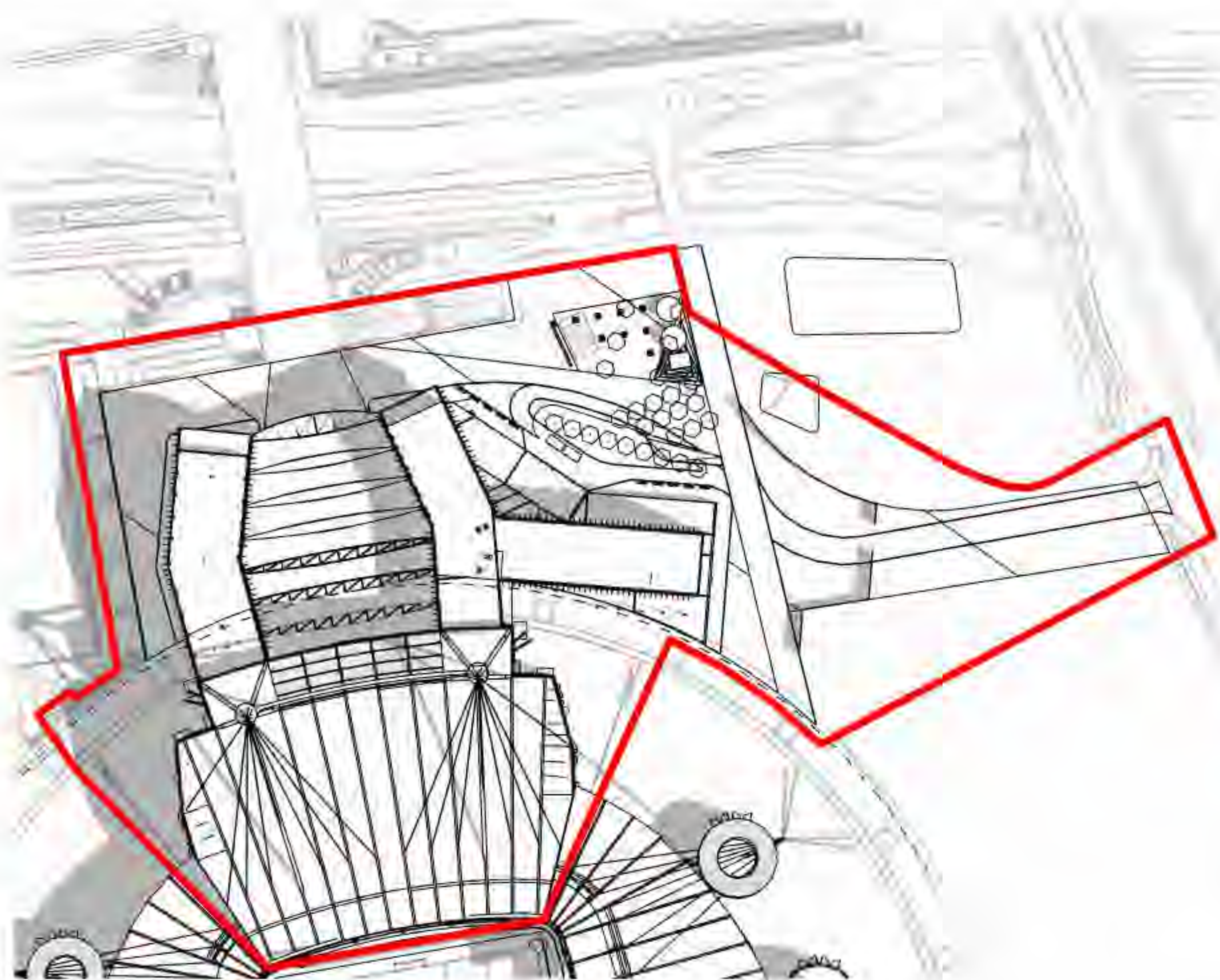


© COPYRIGHT. ALL RIGHTS RESERVED
THIS WORK IS COPYRIGHT AND CANNOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY OTHER MEANS (GRAPHIC, ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING) WITHOUT THE WRITTEN PERMISSION OF POPULOUS ANY LICENSE, EXPRESS OR IMPLIED, TO USE THIS DOCUMENT FOR ANY PURPOSE WHATSOEVER IS RESTRICTED TO THE TERMS OF THE AGREEMENT OR IMPLIED AGREEMENT BETWEEN POPULOUS AND THE INSTRUCTING PARTY.
USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SETTING OUT.

ARCHITECT
POPULOUS®
14 BLADES COURT | DEODAR ROAD | LONDON | SW15 2NU | UNITED KINGDOM
TELEPHONE +44 (0)20 8874 7666 FACSIMILE +44 (0)20 8874 7470
ALL PRODUCTION & INTELLECTUAL PROPERTY RIGHTS RESERVED © POPULOUS 2009

PROJECT NAME
MCFC NORTH EXPANSION
DRAWING TITLE
SHADOW STUDIES - SPRING MARCH

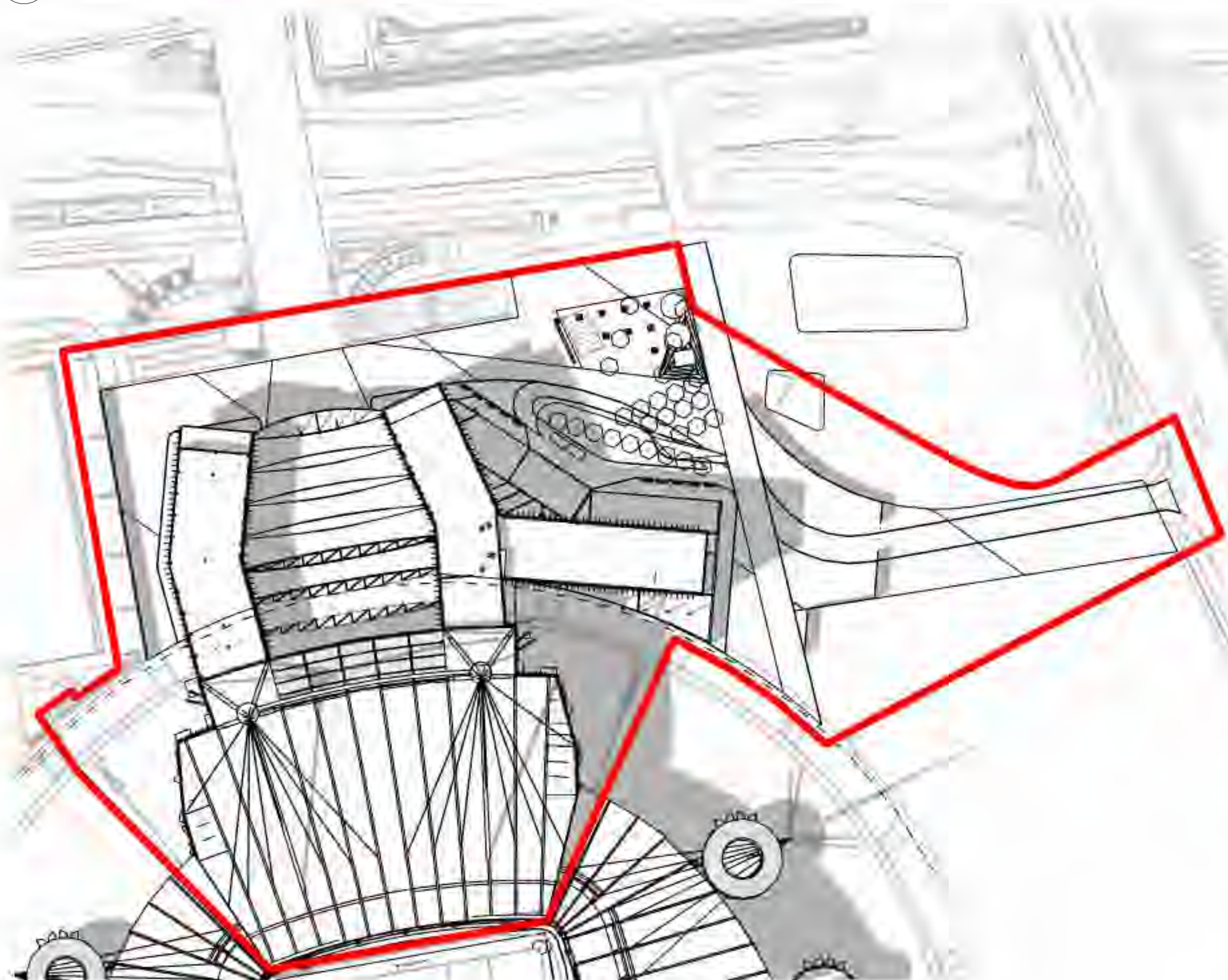
STATUS		RIBA STAGE		PROJECT NO.			
S1		3		4348			
DATE		SCALE		SIZE			
11/14/22		1 : 1000		A1			
DRAWN	CHECKED	APPROVED					
JW	CF	MT					
PROJECT	ORIGIN	ZONE	LEVEL	TYPE	ROLE	DRAWING	REV
NSE-POP-NS- ZZ-DR- A - 000021							00



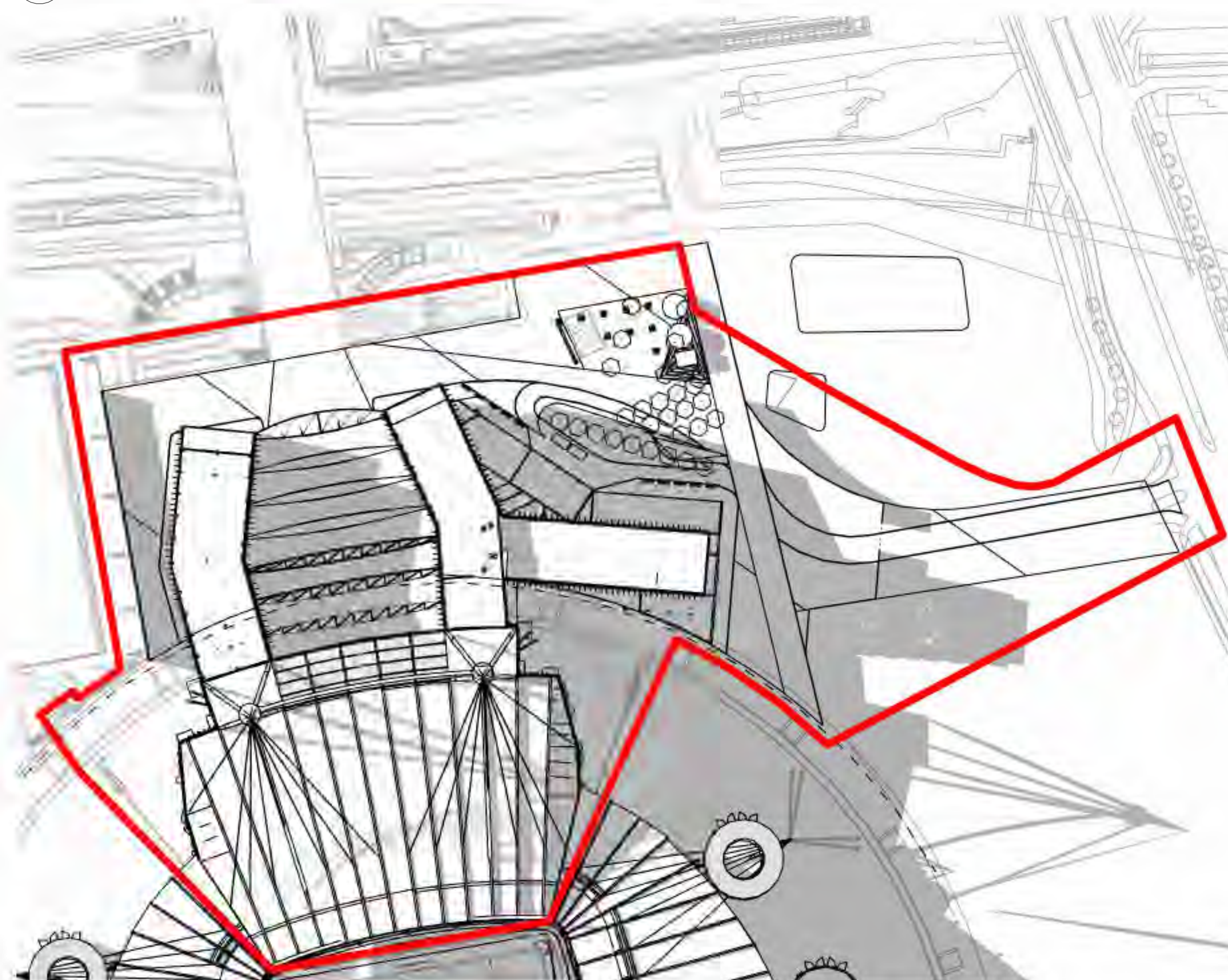
1 SHADOW STUDIES - JUNE 0900
1 : 1000



2 SHADOW STUDIES - JUNE 1200
1 : 1000

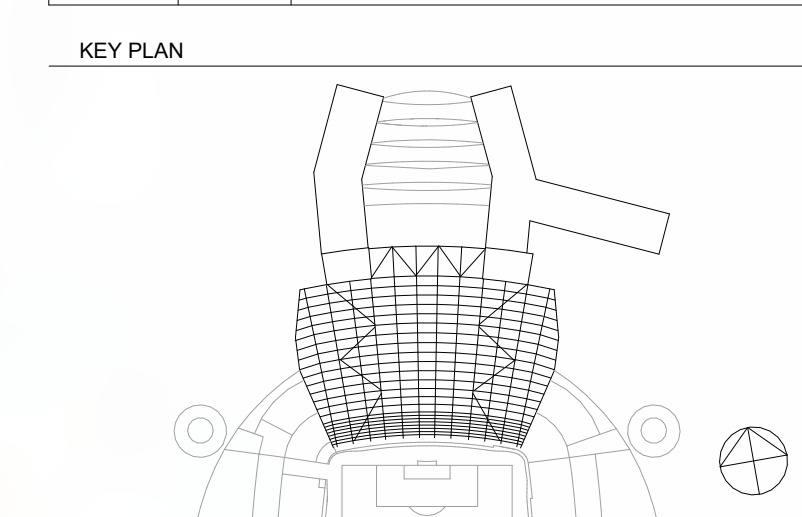


3 SHADOW STUDIES - JUNE 1500
1 : 1000



4 SHADOW STUDIES - JUNE 1800
1 : 1000

REVISIONS		
REV	DATE	DESCRIPTION
00	16.01.23	DRAFT - Issued for Information
01	25.01.23	Issued for Information



© COPYRIGHT. ALL RIGHTS RESERVED
THIS WORK IS COPYRIGHT AND CANNOT BE REPRODUCED OR COPIED IN ANY FORM OR BY ANY OTHER MEANS (GRAPHIC, ELECTRONIC OR MECHANICAL INCLUDING PHOTOCOPYING) WITHOUT THE WRITTEN PERMISSION OF POPULOUS ANY LICENSE, EXPRESS OR IMPLIED, TO USE THIS DOCUMENT FOR ANY PURPOSE WHATSOEVER IS RESTRICTED TO THE TERMS OF THE AGREEMENT OR IMPLIED AGREEMENT BETWEEN POPULOUS AND THE INSTRUCTING PARTY.
USE FIGURED DIMENSIONS IN PREFERENCE TO SCALED. CHECK ALL DIMENSIONS ON SITE BEFORE FABRICATION OR SETTING OUT.

ARCHITECT
POPULOUS®
14 BLADES COURT | DEODAR ROAD | LONDON | SW15 2NU | UNITED KINGDOM
TELEPHONE +44 (0)20 8874 7666 FACSIMILE +44 (0)20 8874 7470
ALL PRODUCTION & INTELLECTUAL PROPERTY RIGHTS RESERVED © POPULOUS 2009

PROJECT NAME
MCFC NORTH EXPANSION
DRAWING TITLE
**SHADOW STUDIES - SUMMER
JUNE**

STATUS		RIBA STAGE		PROJECT NO.			
S1		3		4348			
DATE			SCALE		SIZE		
11/14/22			1 : 1000		A1		
DRAWN		CHECKED	APPROVED				
JW		CF	MT				
PROJECT	ORIGIN	ZONE	LEVEL	TYPE	ROLE	DRAWING	REV
NSE-POP-NS- ZZ -DR- A - 000007							01

APPENDIX 3 Swift and Bat Boxes

Always get detailed input from an ecologist on siting and product choice to maximise benefits to wildlife.

Swifts

Swifts will come back to the same nest year after year. They like high, deep crevices to nest, but because suitable sites in many old houses and buildings have been lost, their numbers have declined dramatically and they are now on the UK Red list of conservation concern. Artificial nest boxes provide a good alternative, and are readily adopted by the birds.

In order to help swifts find new nest sites, it is important to lure them in for a few years until the colony becomes established. Taped calls of other swifts should be played at an appropriate volume via a loudspeaker during the breeding season (May-July), especially in fair weather at dusk and dawn.

Get detailed input from an ecologist on siting and product choice to maximise benefits to wildlife.

Siting Information

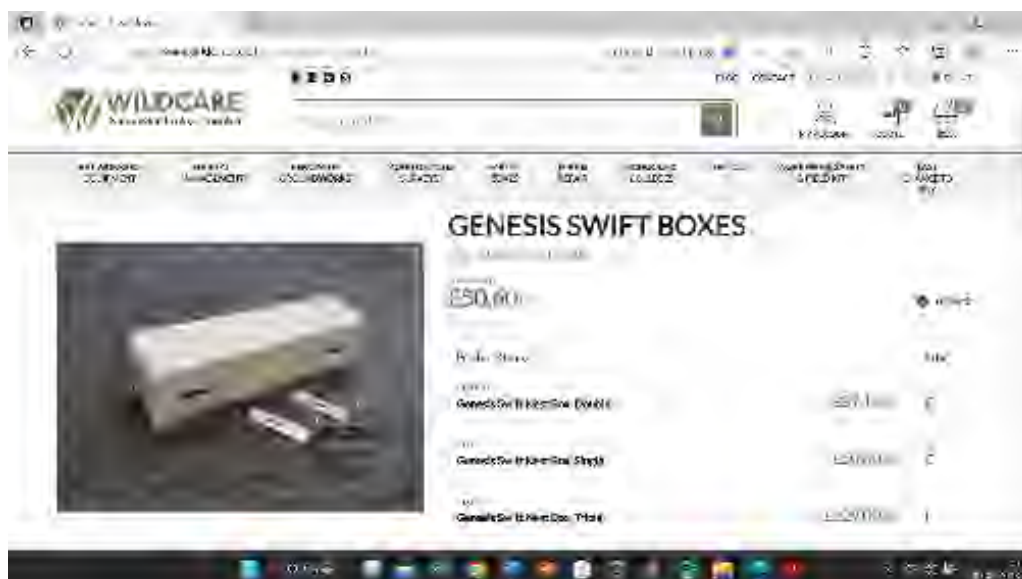
Avoid fixing over windows and doors.

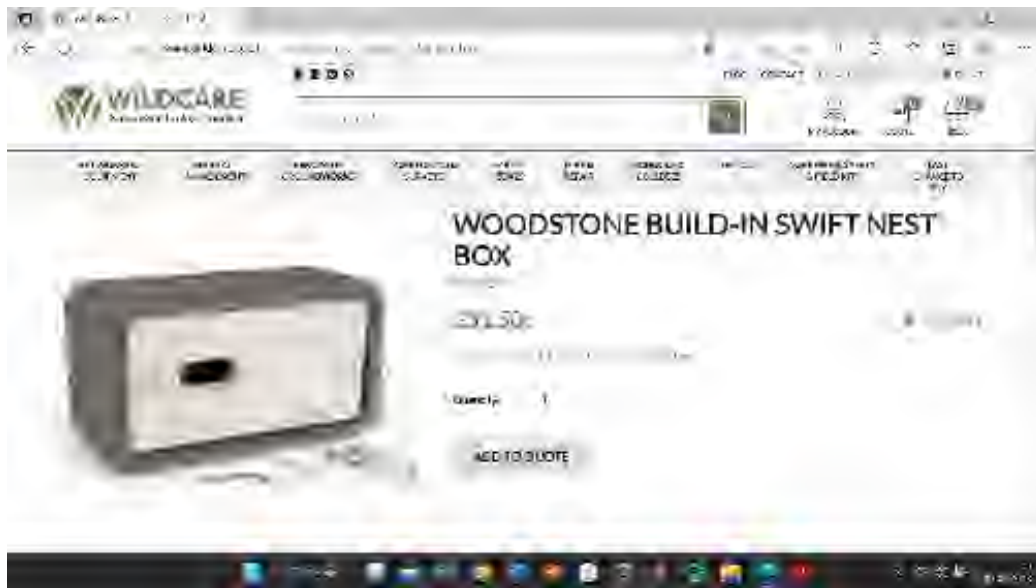
Swift boxes should ideally be positioned at least 5m above ground, ideally under an overhand or eaves for protection. Take appropriate precautions when working at height, especially with a heavy nest box. Boxes should face in a North Westerly or North Easterly direction to shelter them from the glare of the sun.

Further information on siting on modern structures is presented here: <https://www.swift-conservation.org/MakingHomesForSwifts.htm#2%20Offices%20and%20Apartment%20Buildings>

Example products

Select long-lasting 'woodcrete' or similar products. Both these can be affixed to exterior locations. Wooden products can be used if deep eaves are available to protect the box from wet (and rot).





Bats

Natural roosting sites for bats are in decline due to changes in building standards and countryside management practices. Installing a bat box is a simple and affordable way of providing much needed roost space for a variety of species.

External boxes are suitable for most British species and mean that building designs do not need to be changed. They are also easy to repair and replace. They must be attached firmly, however, for safety of bats and humans.

Placing bat boxes in the correct location and at the correct height is essential to encourage bats to occupy them.

More information can be found at <https://www.bats.org.uk/our-work/buildings-planning-and-development/bat-boxes/putting-up-your-box>.

Siting Information

Bats need dark locations so site boxes away from direct lighting.

Boxes should be put as high as possible to try and avoid predation from cats on the ground or nearby structures.

Bats use dark tree lines or hedgerows for navigation, so putting boxes near these features could help bats find the box.

Position at a minimum height of 3-6 metres (the higher the better) in an open, sunny position (6-8 hours of direct sunlight, or in a location where it receives the morning sun if this is not possible).

Install boxes in a range of orientations so bats can choose the appropriate temperature for the weather.

Replace or repair fallen and damaged boxes.

Example products

Select long-lasting materials which will not rot such as 'woodstone'. Robust wooden boxes are also good if the box can be sited in a sheltered locations where it will not get wet.

Genesis Swift Boxes | bat boxes - Search | Woodcrete & WoodStone Bat Boxes

https://www.nhbs.com/4/bat-boxes?q=&hPP=60&idx=titles&p=0&fR%5Bhide%5D%580%5D=false&fR%5Blive%5D%580...

Practical Conservation Equipment
All Equipment

Selected Filters [Clear All](#)

Category: Woodcrete & WoodStone Bat Boxes

Equipment Categories

- Bird Boxes 181
- Bat Boxes 70
 - Bat Boxes for External Walls 28
 - Woodcrete & WoodStone Bat Boxes 31
 - Integrated Bat Boxes 22
 - Bat Boxes for Trees 30
 - Wooden Bat Boxes 17
 - Roof Tiles for Bats 4
 - Maternity Roost Boxes 16
 - Heated Bat Boxes 2
 - Bat Roost Access 5
 - For Cavity Species 29
 - For Crevice Species 38
 - Google Customer Reviews 7
 - Habitats & Feeders 121

Close x

0 items | £0.00 [View Basket](#)

Practical Conservation Equipment > Bat Boxes > Bat Boxes for External Walls

Beaumaris Woodstone Bat Box

Manufacturer: Vivara Pro

- ✓ Suitable for external walls
- ✓ Single narrow cavity for crevice-dwelling species
- ✓ Available in two sizes

Select product

Average customer review ★★★★★

Maxi
In stock
£41.95
#231797

Midi
Out of stock: Usually dispatched within 1-2 weeks
£31.45
#231796

4.9 ★★★★★
Google Customer Reviews

11:39 09/02/2023

Chillon Bat Box | bat boxes - Search | Woodcrete & WoodStone Bat Boxes

https://www.wildcare.co.uk/vivara-pro-chillon-woodstone-11245.html

WILDCARE
Nationwide Ecology Supplies

Search products

BLOG CONTACT T.01451 833 181 INC. VAT EX VAT

MY ACCOUNT QUOTE £0.00

BAT WORKERS' EQUIPMENT HABITAT MANAGEMENT FENCING & GROUNDWORKS MONITORING & SURVEYS HABITAT BOXES HIRE & REPAIR SCHOOLS & COLLEGES OPTICS WORKWEAR, SAFETY & FIELD KIT LAST CHANCE TO BUY

CHILLON WOODSTONE BAT BOX

SKU 11245

£32.30^{EX VAT}

✓ In Stock

Large crevice-style bat box that can accommodate small colonies.

Quantity 1

[ADD TO BASKET](#) OR [ADD TO QUOTE](#)

11:43 09/02/2023