

Assessment of Biodiversity

Version 1
23.02.2023

Prepared for: Exemplar

Site: Barnsley

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1. Introduction

1.1 Background to the project

The client is proposing the re development of the Springfield Street site in Barnsley comprising of a new healthcare facility constructed on an existing hard standing site with some areas of scrub developing within the site.

1.2 Site location and context

The Preliminary Ecological Appraisal stated:

“The site is located within the Kingstone area of Barnsley in an urban environment and enclosed by existing residential land uses. The habitat on site comprises of scrub habitat growing within areas of hard standing”.

The total area of the site is approximately 0.65 acre / 0.26 hectare.

1.3 Report purpose and scope

1.3.1 This assessment was requested by the client for the purposes of supporting a planning application for the site’s development specifically in reference to comments made at pre application stage in relation to demonstrating biodiversity net gains in accordance with National Planning Policy Framework.

1.3.2 A Preliminary Ecological Appraisal confirmed habitats present. Therefore, the habitats present are confirmed and using the UK Habitats Classification System (UKHAB) it is possible that the appropriate habitat classification is used in the BNG Calculator.

1.3.3 The scope of the Assessment is therefore:

- Assessment of the habitats within the site in accordance with the UK Habitats Classification (UK Habitats Classification Working Group, 2018).
- Completion of Condition Assessments of each habitat in accordance with those presented in The Biodiversity Metric 3.1: Auditing and accounting for biodiversity value: technical supplement (Crosher, et al., Beta version, July 2019).
- An assessment of BNG using The Biodiversity Metric 3.0 Calculation Tool Beta Test Final (Natural England, 2020).

2. Survey Methods

2.1 Vegetation and Habitats

2.1.1 An extended phase one habitat survey plan (in accordance with JNCC, 2010) is provided in appendix 2 which confirmed the habitats present. Appendix 3 is the habitat mapping based on is based on the UK Habitat Classification system (UK Habitats Classification Working Group, 2018) which details modified grassland, scattered trees and bramble scrub.

2.1.2 The UKHAB scheme has been designed to function at two scales: fine and large scaling. It has been considered for the purposes of this survey that the finer scale is appropriate for the classification of habitats using the measurement of 25m square.

2.1.3 Whilst on the site the habitat survey searched for all plants including those that are considered rare, uncommon or are statutorily protected such as those listed in schedule 9 of the *Wildlife and Countryside Act 1981* (as amended).

2.2 Limitations

2.2.1 The survey was conducted inside the optimal survey period for vascular plants as determined by JNCC, 2010 (August 2021), however broad species and habitats are identifiable.

2.3 Evaluation

- 2.3.1 Habitats have been assessed to determine whether they meet those described in the UK Biodiversity Action Plan – Priority Habitat descriptions which are used to form Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006.
- 2.3.2 <https://www.daftlogic.com/projects-google-maps-area-calculator-tool.htm> has been used to measure habitat size and all habitats are calculated as areas.
- 2.3.3 The BNG Assessment tool “The Biodiversity Metric 3.1 – Natural England 2020) is used for the evaluation and condition assessment is made using the technical support provided by Natural England.
- 2.3.4 There are no high or very high value distinctiveness habitats and as such habitat connectivity is not calculated.
- 2.3.5 Other government advice on wildlife such as the National Planning Policy Framework (NPPF) or the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017, is referenced where applicable and any impacts on protected species are evaluated in accordance with current guidance.

3. Survey results

3.1 History of site

- 3.1.1 The recent history of the site can be examined using historic aerial imagery. From 2000 to 2019 the site has been car park (urban sealed surfacing) with subsequent scrub development in the , and little change has occurred since 2019.
- 3.1.2 An examination of <https://magic.defra.gov.uk/MagicMap.aspx> indicates no priority habitat present on site.

3.2. Site description and assessment of habitats

3.2.1 The site is best described as a neglected introduced shrub border to the periphery of an urban sealed surfacing site.

3.2.2 A condition assessment for the amenity grassland / modified grassland is provided below and in appendix 5. The condition habitat assessment scored 2 essential criterion and 1 criteria passed making it a poor condition.

Condition Assessment Criteria		Condition Achieved (Y/N)	Notes/Justification
1	The appearance and composition of the vegetation closely matches characteristics of the specific heathland habitat type (see UKHab definition linked above). Indicator shrubs, grasses, herbs and lower plants for the specific heathland habitat type are very clearly and easily visible. NB - this criterion is essential for achieving good condition.	n	
2	There are at least two dwarf shrub species frequent, and cover of dwarf shrubs is between 25-75% for Lowland heathland, 50-75% for upland dry heath, or >20% for upland wet heath. NB - this criterion is essential for achieving good condition.	n	
3	All age classes (pioneer, degenerate and mature) present with at least 10% pioneer heather in the lowlands or at least 10% degenerate/mature in the uplands. NB - this criterion is essential for achieving good condition.	n	
4	Unshaded bare ground is between 1-10%. NB - this criterion is essential for achieving good condition.	y	
5	No signs disturbance of sensitive areas ¹ , including managed burns.	y	
6	No more than 33% of heather shoots should be grazed, or flowering heather plants are at least frequent in autumn.	n	
7	There is an absence of invasive non-native species listed on Schedule 9 of WCA, 1981, or shallon <i>Gaultheria shallon</i> , and there is less than 5% cover of bracken <i>Pteridium aquilinum</i> ² .	n	
8	Cover of scattered trees and/or scrub ³ should be less than 20% for upland heaths; less than 15% for lowland dry heaths; and less than 10% for lowland wet heaths.	n	
9	No signs of any damaging activities ⁴ or contamination to the habitat such as: artificial drains, peat extraction, silt, leachate or eutrophication.	n	
Essential criteria for achieving good condition 1-4 achieved (Y/N)			2
Number of criteria passed			1
Condition Assessment Result	Condition Assessment Score	Score Achieved *1/	
Passes 8 or 9 of 9 criteria including all essential criteria 1-4	Good (3)		
Passes 6 or 7 of 9 criteria; OR Passes 8 of 9 criteria excluding any of the essential criteria 1-4	Moderate (2)		
Passes 0, 1, 2, 3, 4 or 5 of 9 criteria	Poor (1)		

3.2.4 Summary of area based habitat. The total area of the site is approximately 0.65 acre / 0.26 hectare..

Habitat ref	UK Habitat Classification Type	Condition Assessment Result	Ha
Habitat 1	Scrub (heathland)	Poor	0.06
Habitat 2	U1C Artificial unsealed surface	N/A	0.20

4. Evaluation and Assessment

4.1 Proposed habitat creation and enhancement

The site shall be developed as proposed in appendix 3 which shall consist of new building, access, car parking, neutral grassland, native tree planting and introduced shrub. A summary of the habitats created by the proposal is provided below. Total coverage is 0.65 acre / 0.26 hectare.

Habitat Type	Hectare
Neutral grassland (created)	0.015
Urban developed land (created)	0.22
Urban trees (21no. small size moderate condition)	0.08
Urban – Introduced shrub	0.01

4.2 Habitat creation methods – Neutral grassland

Other neutral grassland contains perennial ryegrass *Lolium perenne* cover at less than 30% with 9-15 species per meter square present. Grassland will be created throughout the site in ‘good’ condition to an area of 0.98ha.

Recommended Seed Mixes:

- Emorsgate Seeds EM3 Special General Purpose Meadow Mixture.
- Emorsgate Seeds EH1F Wildflowers for Hedgerows – for shaded areas.

- Emorsgate Seeds EM8F Meadow Mixture for Wetlands– for wetter areas.

Considerations:

- If soil is being imported into the site, then nutrient poor soil should be used to create wildflower areas in order to support the establishment of the meadow.
- Don't add fertiliser as this will increase fertility of the soil and negatively impact the wildflower meadow.
- Reducing soil fertility: Due to the baseline conditions of the site intensive nutrient stripping techniques are not considered necessary and therefore nutrients should be removed from the grassland through silage cuts

Creation Methodology:

- Create a fine tilth for a seedbed by digging or rotovating the soil then firming and raking.
- Sow seed mixture evenly by hand at 5g per square meter during, late summer/early autumn.

Additional Methodology:

- Designate some areas of grassland for creation of a calcareous species sward with thin poor soils and good drainage. These areas should be managed in line with 'other neutral grassland' once established.
- Remove topsoil and spread limestone chippings.
- Translocation of soils from habitats within the site to be removed by development should be carried out by an experienced contractor alongside Suitably Qualified Ecologist (SQE) who can identify appropriate soils.

Habitat creation methods – Urban trees

Recommended Species: At least 70% of trees should be native species found in the local area, taking into account the requirement to plant trees that will be appropriate for anticipated changes in climate. Species within allotment should include fruit-bearing species associated with a traditional orchard.

Considerations:

- Trees will adapt to natural conditions. Additional watering will only be required during a particularly long dry spell or if trees are planted out with of the tree planting season (October to March inclusive).
- Up to 30% of street trees will not establish and therefore supplementary planting over the following three years will be required to achieve prescribed numbers over the longer term.

Creation Methodology:

- Advanced nursery stock trees or larger will be planted within optimal tree planting season (October to March inclusive).
- Suitable wooden stakes will be used to support the trees.
- Weeds will be controlled around the base of the trees by applying organic mulch (10cm depth in a 50cm buffer around trees), this will also assist with water retention. This will be applied in early summer until trees are successfully established (minimum 3 years).

4.3 Management and monitoring

The following section details management and monitoring methodologies for the habitats proposed to be created and retained on site

It is the responsibility of Exemplar to implement habitat creation, management and monitoring of the site for a 30 year period as per best practice guidelines or their accredited agents.

The site should be subject to a UKHAB classification survey alongside a condition assessment of the created and enhanced habitats. This survey should be carried out by a suitably qualified ecologist, starting 1 year after the project is completed, with follow up visits within year 2, 5, 10, 20, until the final visit on year 30. A report provided by an independent assessor shall be submitted to the LPA, when habitats as listed in the Biodiversity Metric are judged to have reached target condition.

A review of management of all habitats should be undertaken at years 10 and 20 with the management programme will be updated/adjusted accordingly.

General Management

The following management practices are recommended throughout the site in order to protect created habitats from harmful management practices.

- Weed control will be undertaken using non-chemical interventions wherever possible including mulching and hand pulling. Where deemed necessary, the spot application of eco-friendly herbicides may be used, avoiding areas containing waterbodies such as ponds and rivers.
- The application of fertilisers will be avoided as excessive nutrient loading will negatively alter the species composition of the habitats.
- Care should always be taken when maintaining habitats to avoid damage or disturbance to protected species such as breeding birds and water vole.
- Any arisings and/or cuttings created by maintenance will need to be removed and disposed of off-site or in a suitable location such as a designated compost heap or alternatively composted within the allotments on site.

- During site clearance and management, wood (including dead wood) should be used to create refugia in a suitable location (within native scrub, woodland, or pond edges) wherever possible.
- All areas are to be monitored for controlled and/or invasive species and appropriate action taken to remove if found.
- All areas to be monitored for fly-tipping, rubbish and litter annually (both construction and post-construction phases) with appropriate action taken to remove if found.

Neutral Grassland

The created and retained other neutral grassland areas within the site will require regular monitoring and annual maintenance to achieve 'good' condition, allowing the more desirable species to flourish and to reduce the presence of unwanted species that will attempt to colonise the area. The following sets out the UKHAB criteria as to what is considered to be a good condition other neutral grassland.

Aim:

- The appearance and composition of the vegetation closely matches characteristics of UKHAB type definition. Indicator species are easily and clearly visible throughout the sward.
- Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds, and small mammals to live and breed.
- Cover of bare ground between 1% and 5% of total habitat area to provide an important resource to insects.
- There is greater than 9 species per meter squared.

Management:

- For the first year of growth, cut to 5cm in May, then cut every 2 months or when sward reaches approximately 15cm. Stop cutting by August to allow wildflowers to seed. Final cut to 5cm will be in October.
- From the second year onwards, cut to 5cm in March or April, then make a second cut to 5cm in October.

- From the second year onwards, designate some areas to receive a cut to 5cm during August in order to produce a more varied habitat that will encourage different species of wildflower.
- Remove all arisings from the area, dispose of in designated areas such as a compost heap.
- Remove encroaching scrub and bracken manually using hand tools.
- Annually create areas of bare ground or 'scrapes' covering 1% to 5% of total habitat area by manually scraping away vegetation with hand tools. These scrapes should be located in sunny areas such as south facing embankments, if possible.

Monitoring:

- Habitat will be monitored for controlled and/or invasive species annually and appropriate action taken to remove if found.
- Monitor for damage, cover of bracken and scrub.
- Monitor bare ground cover.
- Check sward height throughout the first year and cut when it reaches 15cm.

Modified grassland

Modified grassland amenity areas will be created throughout the site which will require annual management to achieve 'good' condition. The following sets out the UKHAB criteria as to what is considered to be a good condition modified grassland.

Aim:

- There must be between 6-8 species per meter square.
- Scrub accounts for less than 20% of habitat area.
- Physical damage (such as excessive poaching, damage from machinery use or storage) is evident in less than 5% of total grassland area.
- Cover of bare ground is between 1 and 10%.
- Cover of bracken is less than 20%.
- There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).

Management:

- Manage turf using supplier's instructions for first year of growth.
- Regularly cut grassland to required length for its amenity usage.
- Remove encroaching scrub and bracken manually using hand tools.
- Annually create areas of bare ground or 'scrapes' covering 1% to 5% of total habitat area by manually scraping away vegetation with hand tools.

These scrapes should be located in sunny areas such as south facing embankments if possible.

Monitoring:

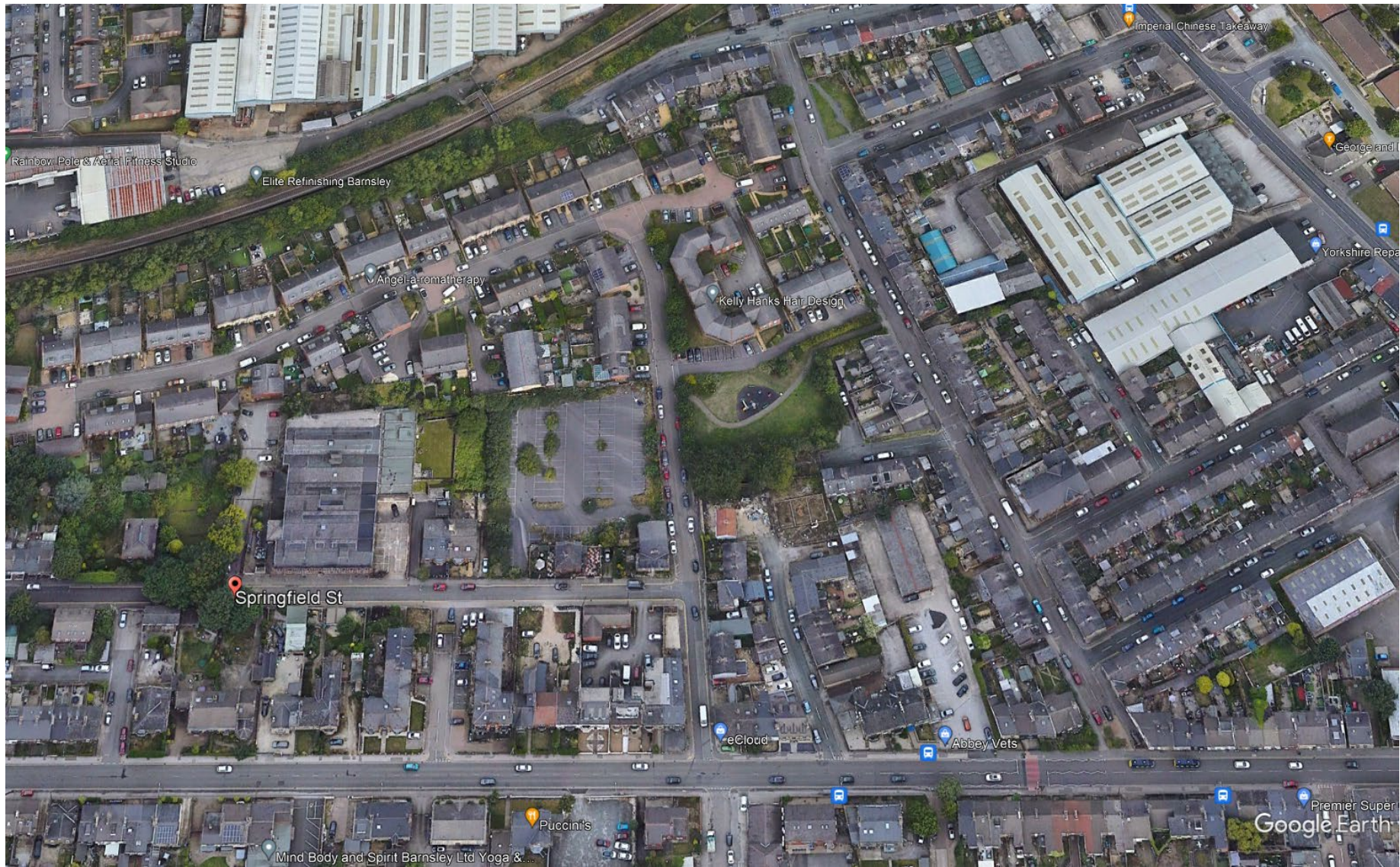
- Habitat will be monitored for controlled and/or invasive species annually and appropriate action taken to remove if found.
- Monitor for damage, cover of bracken and scrub.
- Monitor bare ground cover.

4.4 The results of the BNG calculation are indicated below:

5. Conclusions

5.1 In accordance with the habitats present within the site and the proposals for the site's redevelopment the BNG Assessment predicts a change of +51.79% and in 0.12 habitat units. It is not possible to replace the medium distinctiveness habitat (scrub) on the site and therefore the trading rules can't be satisfied in relation to scrub habitat. It is however noted that urban trees are a medium distinctiveness habitat and 0.08 is proposed whilst only 0.06 of mixed scrub exists.


On-site baseline	<i>Habitat units</i>	0.24
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.36
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	51.79%
	<i>Hedgerow units</i>	0.00%
	<i>River units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	0.12
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	51.79%
	<i>Hedgerow units</i>	0.00%
	<i>River units</i>	0.00%
Trading rules Satisfied?	No - Check Trading Summary ▲	

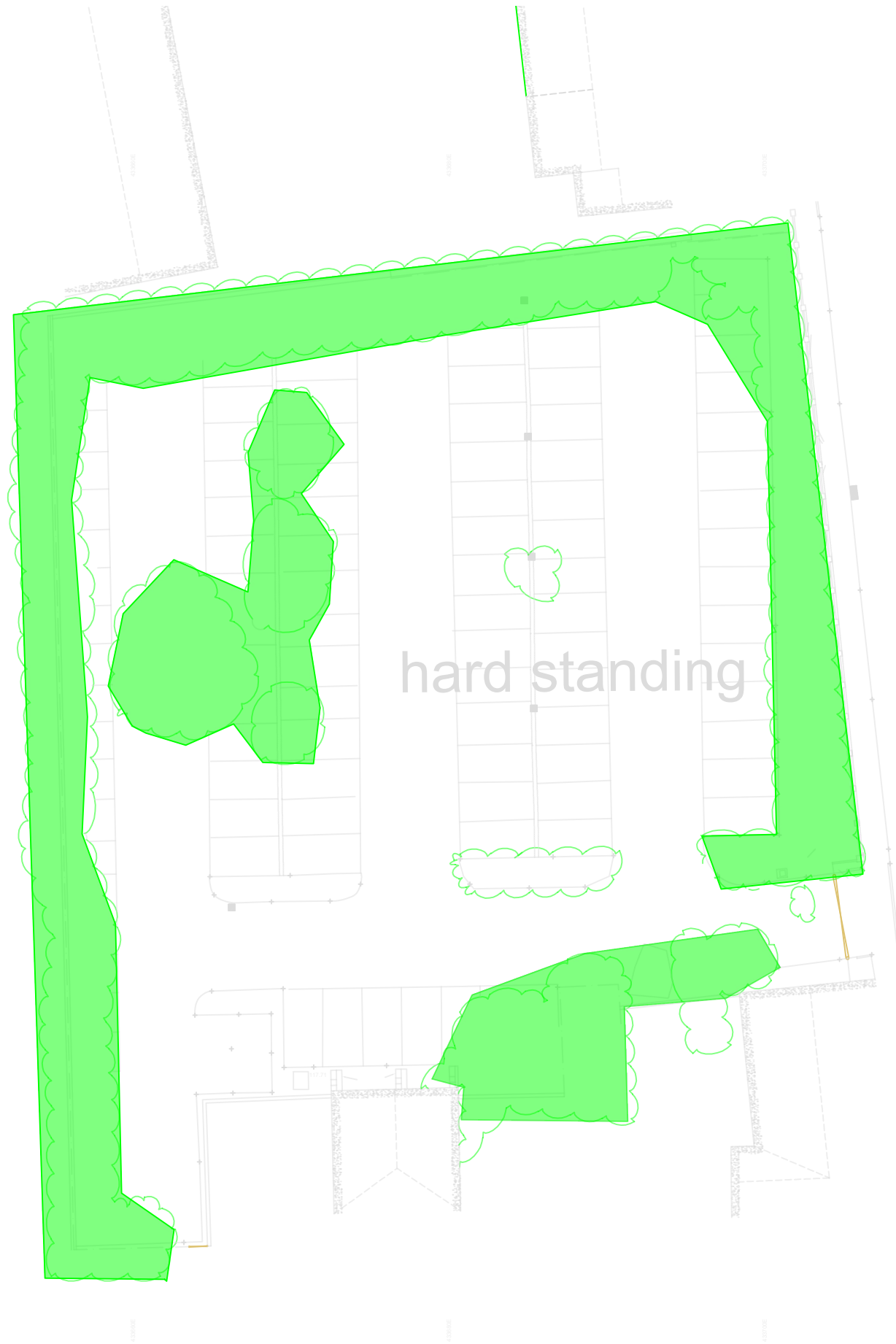


Appendix 2 Extended phase one habitat plan

PHASE ONE HABITAT MAP

KEY

 A.2. Scrub



Client:
Exemplar Healthcare

Project:
Barnsley


Detail:
Phase One Habitat Map

Drawn By:	Date:	Scale:
SB	22.03.2023	NTS

Drg No:	Revision:
TR-01	V1


Appendix 3 Proposed development and ecological enhancements

Ecological enhancements


 Neutral wildflower creation bounded by native hedge

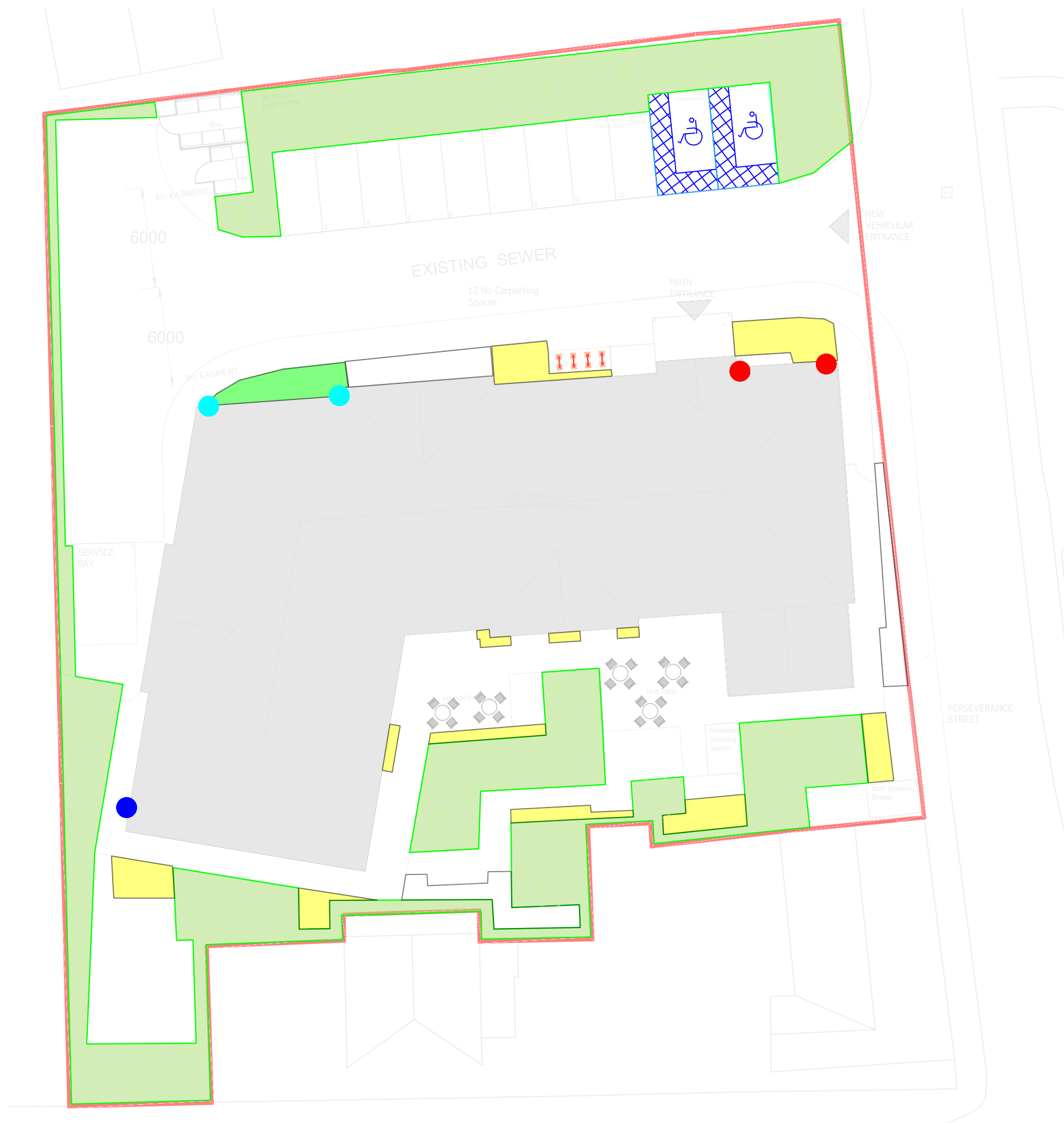
 Introduced shrub

 Schwegler Sparrow terrace

 Ibstock eco swift box

 Ibstock enclosed bat box

 Native tree planting



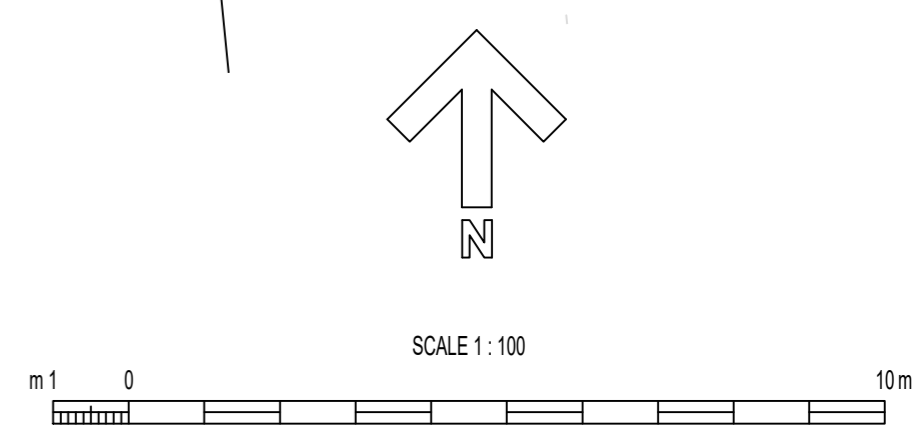
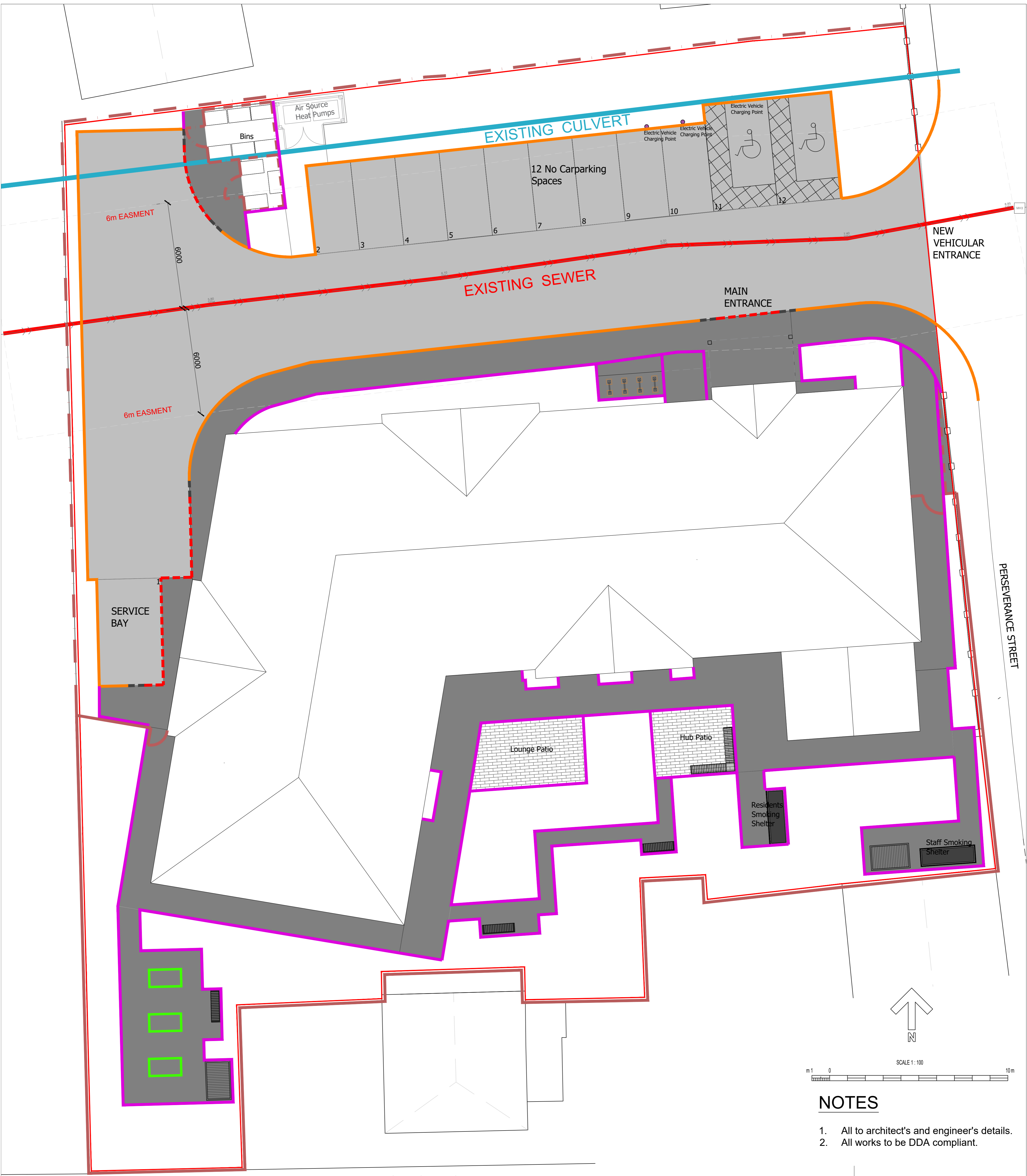
Client:
Exemplar

Project:
Barnsley

Detail:
Ecological Enhancements

Drawn By: SB Date: 23.05.2023 Scale: NTS

Drg No: TR-01 Revision: V1



NOTES

1. All to architect's and engineer's details.
2. All works to be DDA compliant.

KEY

<p> BOUNDARY MARKER</p> <p> SECURE PERIMETER FENCE - 2.1m HIGH CLOSE BOARDED TIMBER FENCE WITH ACCESS CONTROLLED GATES TO MATCH</p> <p> PERIMETER FENCE - 1.8m HIGH CLOSE BOARDED TIMBER FENCE</p> <p> KNEE RAIL - 450mm HIGH BIRDS MOUTH POST 100x100mm / 100x100mm RAIL IN 1200mm LENGTHS / GALVANISED POST STRAP / PRESSURE TREATED.</p> <p> PATH EDGING - TOBERMORE TEXTURED EDGING 150x915x50. NATURAL</p> <p> KERBS - TOBERMORE TEXTURED KERB 125x255x195. NATURAL</p>	<p> TRANSITION KERBS - TOBERMORE 125x150x915. / NATURAL.</p> <p> DROPPED KERBS - TOBERMORE 125x150x915 / NATURAL.</p> <p> ACCESS ROAD / PARKING - BLACK MACADAM</p> <p> FOOTPATHS - BLACK MACADAM.</p> <p> PAVEMENT - TOBERMORE MANHATTAN / SILVER / 600x150x80.</p> <p> SMOKING SHELTER - NBB OUTDOORS HORTON SMOKING SHELTER WITH 2no INTER GRATED SEATING / HRN02 4 SIDED / H2110xW3164XD1074 / BLACK FINISH / POLYCARBONATE ROOF & SIDES / COMPLAINT WITH SMOKING LEGISLATION ACT 3368.</p>	<p> GARDEN SHED - KETER CORTINA GARDEN SHED / H2260xW1390xL2180 / LIGHT COMPOSITE PANEL FINISH / PENT ROOF / LOCKABLE.</p> <p> BENCH - NBB COMPOSITE BENCH WITH ARM & BACK RESTS / H450xW1800xD400 / GREY.</p> <p> GERLINDE CORNER ARBOR - W2500xD2500xH2030. TWO SEATS WITH CORNER TABLE - PRESSURE TREATED</p> <p> RAISED VEGETABLE PLANTER - NBB COMPOSITE RAISED PLANTER / H600xL1900xw900 / GREY. HERBS: BASIL, CHIVES, LEMON BALM, SAGE, CORIANDER, GARLIC (3 No. 2L PLANTS.) ONLY 2 PLANTERS TO BE PLANTED; THE OTHER IS FOR RESIDENTS.</p> <p> CYCLE STANDS - SHELTERS4LESS SHEFFIELD CYCLE STANDS / H750xW760 / GALVANISED.</p>
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NOTE:

1. Do not scale from this drawing.
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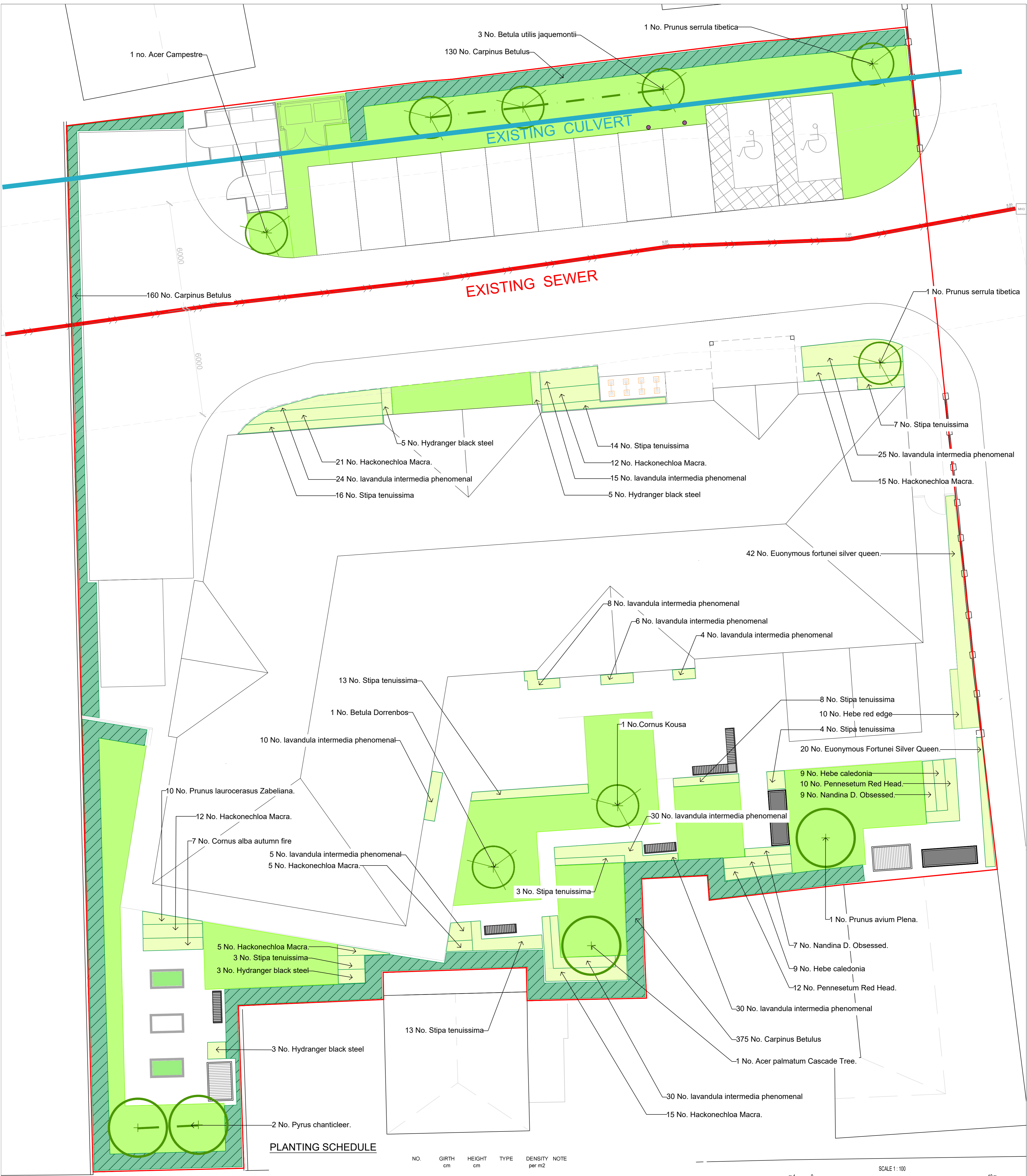
Project:
Perseverance Street Barnsley

Title:
Hardworks and Boundary Treatments

AMENITYTREE
ENVIRONMENTAL PLANNING CONSULTANTS
Willow Cottage, School Lane, Burdwarley, CH3 9NX. 01829 770 075

Status:
Comment

First Issued: MAY 2023 Drawn: AP
Scale: 1:100 Size: A1
Drawing No.: AT.23.1253.100.r1

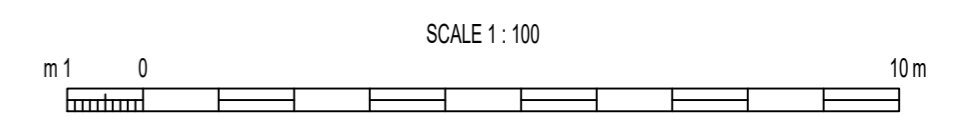


PLANTING SCHEDULE

NO.	GIRTH cm	HEIGHT cm	TYPE	DENSITY per m2	NOTE
1.0 TREES					
1.1	Acer palmatum Cascade Tree.	1	18-20	350-400	RB NA Underground guyed / Greentech Mona Watering system.
1.2	Prunus avium Plena.	1	18-20	350-400	RB NA Underground guyed / Greentech Mona Watering system.
1.3	Pyrus chanticleer.	2	18-20	350-400	RB NA Underground guyed / Greentech Mona Watering system.
2.0 MULTI STEM SHRUBS					
2.1	Acer campestre.	1	NA	150-175	RB NA Underground guyed / MJin 5 Breaks.
2.2	Betula Dorrenbos.	1	NA	150-175	RB NA Underground guyed / MJin 5 Breaks.
2.3	Betula utilis jaquemontii.	3	NA	150-175	RB NA Underground guyed / MJin 5 Breaks.
2.4	Cornus Kousa.	1	NA	150-175	RB NA Underground guyed / MJin 5 Breaks.
2.5	Prunus serrula Tibetica.	2	NA	150-175	RB NA Underground guyed / MJin 5 Breaks.
3.0 HEDGES					
3.1	Carpinus betulus.	685	NA	100	RB NA
Planted in a double staggered row @ 50cm ctrs.					
4.0 SHRUBS / ORNAMENTAL GRASSES / GROUND COVER PLANTS					
4.1	Cornus alba autumn fire.	7	NA	30-45	3L 3
4.2	Euonymous Fortunei Silver Queen.	62	NA	45-60	3L 3
4.3	Hackonechloa Macra.	85	NA	20-30	3L 4
4.4	Hebe Red Edge.	10	NA	30-45	5L 3
4.5	Hebe caledonia.	18	NA	20-30	3L 5
4.6	Hydranger Black Steel.	16	NA	30-45	3L 3
4.7	Lavandula intermedia Phenomenal.	187	NA	20-30	3L 5
4.8	Pennesetum Red Head.	22	NA	30-45	3L 4
4.9	Nandina D. Obsessed.	16	NA	20-30	2L 5
4.1	Prunus laurocerasus Zabeliana.	10	NA	20-30	3L 5
4.11	Stipa tenuissima.	81	NA	30-45	3L 4
5.0 HERBS FOR PLANTERS					
5.1	Basil	3	NA	NA	2L
5.2	Chives	3	NA	NA	2L
5.3	Lemon Balm	3	NA	NA	2L
5.4	Sage	3	NA	NA	2L
5.5	Coriander	3	NA	NA	2L
5.6	Garlic	3	NA	NA	2L

KEY

- TREES - 18-20cm GIRTH
- MULTI STEM SHRUBS - 175-200cm GIRTH
- HEDGE
- SHRUB/ORNAMENTAL GRASSES
- AMENITY LAWNS
- HERBS: BASIL, CHIVES, LEMON BALM, SAGE, CORIANDER, GARLIC (3 No. 2L PLANTS.) ONLY 2 PLANTERS TO BE PLANTED; THE OTHER IS FOR RESIDENTS.



NOTES

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2. All works to be DDA compliant.

NOTE:
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 3. The dimensions of all materials must be checked on site before being laid out.

Project:
Persverance Street Barnsley

Title:
Softworks - Planting Plan

AMENITYTREE
 ENVIRONMENTAL PLANNING CONSULTANTS

Willow Cottage, School Lane, Burdwardsley, CH3 9NX. 01829 770 075

Status:
Comment

First Issued: **MAY 2023** Drawn: **AP**

Scale: **1:100** Size: **A1**

Drawing No.:
AT.23.1253.101.r1

Appendix 5 BNG Metric