

Connell Co-op College

This statement has been prepared on behalf of Connell Co-op College, Manchester, by Darwin Group Limited (DGL).

This statement is provided in support of a full planning application for the erection of a new, single storey block, linked back to the existing school development.

This statement will outline the development's compliance with Chapter 4 of the City Council's Guide to Development in Manchester SPD / SPG, and Core Strategy policies EN4 and EN6.

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Energy Efficiency

The proposed development has been designed to achieve a reduction in CO₂ emissions of 25%, in order to comply with paragraph 4.5 within "Guide to Development in Manchester Supplementary Planning Document and Planning Guidance".

The MEP design will develop further through the RIBA stages, and will be aided with the specification of equipment and systems rather than general strategies, the final reduction in CO₂ emissions will be confirmed by the As-Built BRUKL/SBEM.

CO ₂ emission rate from the notional building, kgCO ₂ /m ² .annum	15.9
Target CO ₂ emission rate (TER), kgCO ₂ /m ² .annum	15.9
Building CO ₂ emission rate (BER), kgCO ₂ /m ² .annum	10.6
Are emissions from the building less than or equal to the target?	BER ≤ TER
Are as built details the same as used in the BER calculations?	Separate submission

Building services

The standard values listed below are minimum values for efficiencies and maximum values for SFPs. Refer to the Non-Domestic Building Services Compliance Guide for details.

Whole building lighting automatic monitoring & targeting with alarms for out-of-range values	NO
Whole building electric power factor achieved by power factor correction	<0.9

1- EPH w/NV

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

2- EPH w/Extract (6 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	1	-	-	-	-
Standard value	N/A	N/A	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

3- VRF w/NV (14 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4	4	-	-	-
Standard value	2.5*	2.6	N/A	N/A	N/A
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types ≤12 kW output, refer to EN 14825 for limiting standards.

4- VRF w/MVHR (2 Zones)

	Heating efficiency	Cooling efficiency	Radiant efficiency	SFP [W/(l/s)]	HR efficiency
This system	4	4	-	-	0.73
Standard value	2.5*	2.6	N/A	N/A	0.5
Automatic monitoring & targeting with alarms for out-of-range values for this HVAC system					NO

* Standard shown is for all types >12 kW output, except absorption and gas engine heat pumps. For types ≤12 kW output, refer to EN 14825 for limiting standards.

1- HWS Circuit

	Water heating efficiency	Storage loss factor [kWh/litre per day]
This building	1	0.01
Standard value	1	N/A

Figure 1 – Building Services & CO₂ Reduction

The reduction in CO₂, as figure 1, equates to approximately a third compared to the targeted emission rate. Figure 1 also notes the heating and cooling systems proposed, and the efficiency specified, contributing to the reduction in emissions.

Further to the MEP design, the building envelope has been designed to achieve the following U-values;

- Floor - 0.16 W/m²K
- Walls - 0.19 W/m²K
- Roof - 0.13 W/m²K
- Windows - 1.2 to 1.6 W/m²K (depending on size & configuration)
- External glazed doors - 1.8 to 2.2 W/m²K (depending on size & configuration)

A well-insulated building envelope doesn't directly reduce the CO₂ emissions, but results in more efficient use of building services (such as heating), indirectly reducing the emissions and contributing to a more environmentally friendly design.

Renewable Energy

The proposed development has been designed to achieve 20% of energy demand to be met by renewable sources, in order to comply with paragraph 4.6 within "*Guide to Development in Manchester Supplementary Planning Document and Planning Guidance*".

To achieve this, a roof mounted photovoltaic array of 40m² is proposed. This allows for 6.37 kWh/m² out of a total energy consumption of 26.69 kWh/m², or a contribution of approximately 24% from renewable energy.

As the proposed development links back to the existing school services, use of CHP or other renewable energy sources – to achieve resilience in renewable generation - was unachievable without disruptive work to existing infrastructure.

Environmental Design

The proposed development has been designed to achieve the BREEAM rating of 'Very Good' in accordance with paragraph 4.8 within "*Guide to Development in Manchester Supplementary Planning Document and Planning Guidance*". As part of the concept design process, prior to submission of planning, a BREEAM pre-assessment has been completed (Document reference: ESS0241 Connell Co-op College – BREEAM NC Pre-Assessment – 20.11.11) to confirm the rating of BREEAM Very Good is achievable, and enable appropriate targeting of BREEAM credits.

Water Management & Weather Resilience

With regards to localised flooding, as part of the application documents for the proposed development, a flood risk assessment has been carried out for 201 Alan Turing Way, Manchester.

The flood risk assessment noted a *very low* risk of fluvial flooding, and a *very low* risk for surface water flooding.

The drainage system proposed has been designed allow for a discharge less than the existing surface water runoff, when considering a 1in100 year storm, with an additional 40% allowance for climate change.

The development will also reduce the extents of flooding that is present within the existing network on the site.

Waste Management

As part of the proposed development, and in accordance with paragraph 4.10 within “*Guide to Development in Manchester Supplementary Planning Document and Planning Guidance*”, extension to the existing bin store is proposed to cater for the segregation and storage of operational recyclable waste.

The existing bin store has adequate access for the relevant vehicles, and this will not be impacted by the proposed development.

Construction Management

Modular Construction

The proposed development will be constructed using offsite modular construction techniques to create a warm, air tight and waterproof envelope, enabling internal fit out and external works to be carried out on site.

The general advantages of this are outlined below;

- Up to 75% fewer operatives on site, reducing energy use, size of site compounds, waste generated and disruption to clients.
- 60% reduction in construction programme due to factory-based, repeatable construction processes that often run concurrently with site set up / enabling works/ foundation.
- Up to 90% less waste generated on site, as construction of superstructure is in a controlled factory environment
- Reduction in carbon emissions of up to 50%, as waste is reduced, less materials used, less operatives on site etc.
- 65% of waste generated during manufacture is recycled or re-used.

The above benefits demonstrate that DGL consider the three elements of sustainability – social, economic and environmental - during the design, manufacture and end-use stages.

Social sustainability is addressed through the shorter construction programme, meaning less disruption to the public and the end user during site activities. Social sustainability is also considered during the landscaping and general design, ensuring new developments are architecturally striking whilst following the design language of the area the development sits within, often this is included within the development of the design prior to planning submission.

Environmental sustainability is addressed through the reduction of waste and emissions, but also through considerate design with regards to selection of materials and subcontractors, – this is addressed in the procurement section of this report.

Economic sustainability is catered for via the reduced construction programme, and reduction of waste, emissions, and operatives on site. Further economic measures are offered to the client as part of a value engineering process within the detailed design stage.

Site Considerations

Site considerations are outlined in the “*Project Environmental Plan*” (Document reference 180389-DGL-XX-XX-SP-A-8450) which is appended to this document, and covers information related to;

- Waste Management
- Noise, Dust or Fumes
- Abrasive Wheels
- Storage of Fuels, Oils & Building Chemicals

Biodiversity

To address the requirements outlined in paragraph 4.15 within “*Guide to Development in Manchester Supplementary Planning Document and Planning Guidance*” and, as outlined in the Land Use & Ecology section of the BREEAM pre-assessment document (Document reference: ESS0241 Connell Co-op College – BREEAM NC Pre-Assessment – 20.11.11), a Preliminary Ecological Appraisal was undertaken, as well as a preliminary soft landscaping design.

The preliminary ecological appraisal (document reference 12-11-2020 PEA & Ecology BREEAM) noted;

- *The site was considered low in ecological value with common and widespread habitats present. The risk of presence and significant impact to protected, priority or rare species or notable habitats was very low.*
- *Further ecological surveys or mitigation were considered unnecessary for the development to proceed*
- *To minimise any residual risk of impact, recommendation for hedgehogs, bats and birds are included in the report and should be followed.*
- *With the recommendations followed as described in the report, the proposed development could proceed with a minimal risk of impact to protected, priority or rare species or habitats*

As part of the appraisal, a site survey was carried out, and the primary ecological features were identified as the trees and the hedge. Several trees on the site will required to be removed to allow for the new development. To offset this, four fruit trees will be relocated, and other lost trees are to be compensated within the soft landscaping layout. The soft landscaping layout is described in documents;

- 1235-01 Connells Co-op College soft works 2020 11 30
- 1235 Connells Co-op College_LS_2020_11_30

The biodiversity of the site shall be enhanced through the provision of bird and bat boxes, installed on the proposed building or retained trees, and native soft landscaping, which is to be wildlife attracting.

Waterways

The proposed development, located at 201 Alan Turing Way, Manchester, is not within close proximity to Manchester's watercourses, as such any negative impacts from the development on Manchester's watercourses are not foreseen.

The drainage system proposed has been designed in accordance with the CIRIA SuDS Manual 2015, and the development has been classified as having a potentially 'low' pollution level. In order to manage this level of potential pollution, it is proposed that the following measures are included;

- Catch-pit and filter drain to prevent solid particle entering the attenuation tank
- Filtration of the surface water run-off through the permeable filter stone and membrane.
- Impermeable membrane surround to prevent ingress of water to the substrate.

The combination of pollution protection measures as proposed will satisfy the requirements of national SuDS guidance.

Appended Documents

- 180389-DGL-XX-XX-SP-A-8450 Project Environmental Plan
- ESS0241 Connell Co-op College – BREEAM NC Pre-Assessment – 20.11.11
- 12-11-2020 PEA & Ecology BREEAM
- 1235-01 Connells Co-op College soft works 2020 11 30
- 1235 Connells Co-op College_LS_2020_11_30

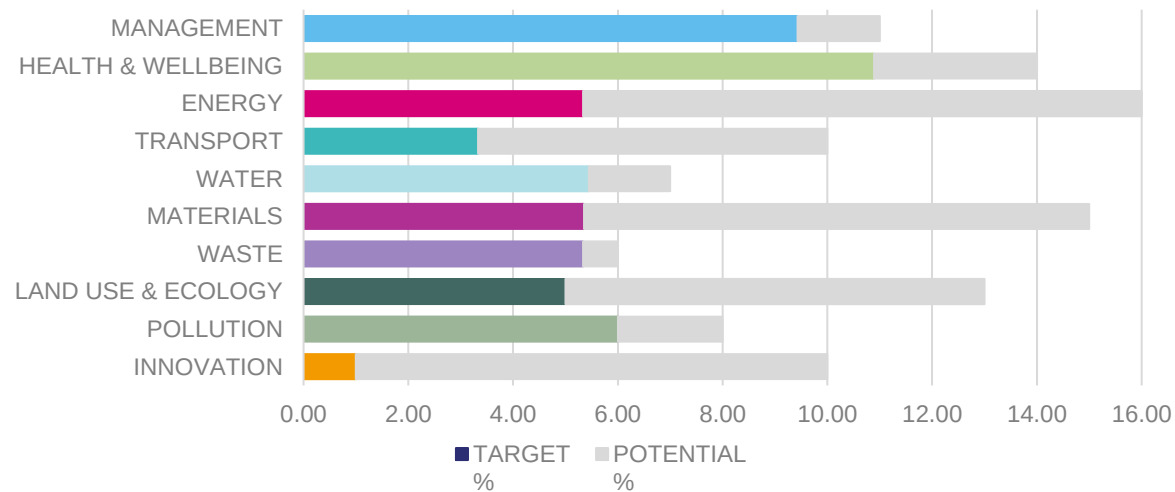
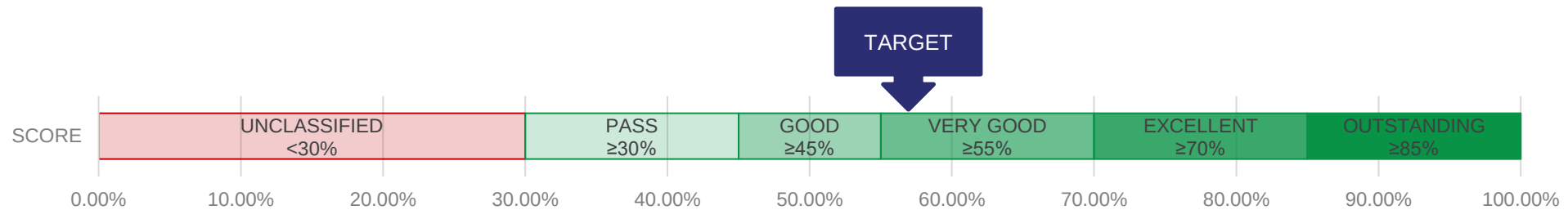
ⁱ i Mtech Consult (2010, revised 2016), “*Environmental Life cycle assessment: Modular Volumetric Construction Systems for Schools*”

BREEAM NC 2018 PRE-ASSESSMENT

CONNELL CO-OP COLLEGE

NOVEMBER 2020

The pre-assessment estimator outlines an indicative strategy to achieve a BREEAM NC 2018 rating of Very Good. This requires an overall score of 55%. Mandatory credits required are **written in red**. **P** indicates criteria that is a pre-requisite for other credits.



MANAGEMENT				AVAILABLE	TARGET
Man 01	Project Brief & Design	Project Delivery Planning	Concept Design	1	0
		Stakeholder Consultation (Interested Parties)	Concept Design	1	0
		Formally Agree Strategic Performance Targets	Concept Design	P	P
		BREEAM AP (Concept Design)	Concept Design	1	1
		BREEAM AP (Developed Design)	Developed Design	1	1
Man 02	Life Cycle Cost & Service Life Planning	Elemental LCC	Concept Design	2	2
		Component Level LCC Options Appraisal	Technical Design	1	1
		Capital Cost Reporting	Technical Design	1	1
Man 03	Responsible Construction Practices	Legally Harvested & Traded Timber	Construction	P	P
		Environmental Management	Construction	1	1
		Formally Agree Strategic Performance Targets	Construction	P	P
		BREEAM AP (Site)	Construction	1	1
		Responsible Construction Management	Construction	2	2
		Utility Consumption	Construction	1	1
		Transportation of Construction Materials & Waste	Construction	1	1
Man 04	Commissioning & Handover	Commissioning - Testing Schedule & Responsibilities	Developed Design	1	1
		Commissioning - Design & Preparation	Design Stage	1	1
		Testing & Inspection Building Fabric	Post-Construction	1	0
		Handover	Handover	1	1
Man 05	Aftercare	Aftercare Support	Occupation	1	1
		Commissioning - Implementation	Post-Occupancy	1	1
		Post-Occupancy Evaluation	Post-Occupancy	1	1
Section Total				21	18
Section Score %				11.00	9.43
Single Credit Value %				0.52	

HEALTH AND WELLBEING				AVAILABLE	TARGET
Hea 01	Visual Comfort	Control of Glare from Sunlight	Developed Design	1	1
		Daylighting	Developed Design	2	2
		View Out	Developed Design	1	1
		Internal & External Lighting Levels, Zoning & Controls	Technical Design	1	1
Hea 02	Indoor Air Quality	Indoor Air Quality Plan	Concept Design	P	0
		Ventilation	Technical Design	1	0
		Emissions from Construction Products	Technical Design	2	0
		Post-Construction Indoor Air Quality Measurement	Pre-Handover	1	0
Hea 04	Thermal Comfort	Thermal Modelling	Developed Design	1	1
		Design for Future Thermal Comfort	Developed Design	1	1
		Thermal Zoning & Controls	Technical Design	1	1
Hea 05	Acoustic Performance	Sound Insulation	Developed Design	1	1
		Indoor Ambient Noise Level	Developed Design	1	1
		Reverberation Times	Developed Design	1	1
Hea 06	Security	Security of Site & Building	Concept Design	1	1
Hea 07	Safe & Healthy Surroundings	Safe Access	Developed Design	1	1
		Outdoor Space	Developed Design	1	1
Section Total				18	14
Section Score %				14.00	10.89
Single Credit Value %				0.78	

ENERGY				AVAILABLE	TARGET
Ene 01	Reduction of Energy Use & Carbon Emissions	Energy Performance	Developed Design	9	2
		Energy Modelling & Reporting	Developed Design	4	0
Ene 02	Energy Monitoring	Sub-Metering of End-Use Categories	Technical Design	1	1
		Sub-Metering of High Energy Load & Tenancy Areas	Technical Design	1	1
Ene 03	External Lighting	External Lighting	Developed Design	1	1
Ene 04	Low Carbon Design	Passive Design Analysis	Concept Design	1	1
		Free Cooling	Concept Design	1	0
		Low & Zero Carbon Technologies	Concept Design	1	1
Ene 08	Energy Efficient Equipment	Unregulated Energy Reduction	Technical Design	2	0
Section Total				21	7
Section Score %				16.00	5.33
Single Credit Value %				0.76	

TRANSPORT				AVAILABLE	TARGET
Tra 01	Transport Assessment & Travel Plan	Travel Plan	Feasibility	2	2
Tra 02	Sustainable Transport Measures	Transport Options Implementation	Feasibility	10	2
Section Total				12	4
Section Score %				10.00	3.33
Single Credit Value %				0.83	

WATER				AVAILABLE	TARGET
Wat 01	Water Consumption	Reduction in Potable Water Use	Technical Design	5	3
Wat 02	Water Monitoring	Water Monitoring	Technical Design	1	1
Wat 03	Water Leak Detection & Prevention	Leak Detection System	Technical Design	1	1
		Flow Control Devices	Technical Design	1	1
Wat 04	Water Efficient Equipment	Unregulated Water Reduction	Technical Design	1	1
Section Total				9	7
Section Score %				7.00	5.44
Single Credit Value %				0.78	

MATERIALS				AVAILABLE	TARGET
Mat 01	Building Life Cycle Assessment	Superstructure	Concept Design	6	1
		Substructure & Hard Landscaping Options Appraisal	Concept Design	1	1
Mat 02	Environmental Product Declarations	Specification of Products with a Recognised EPD	Technical Design	1	0
Mat 03	Responsible Sourcing of Construction Products	Legally Harvested & Traded Timber	Construction	P	P
		Enabling Sustainable Procurement	Concept Design	1	1
		Measuring Responsible Sourcing	Construction	3	1
Mat 05	Designing for Durability & Resilience	Protect Vulnerable & Exposed Elements from Damage & Degradation	Technical Design	1	1
Mat 06	Material Efficiency	Minimise Environmental Impact of Materials	Preparation & Brief	1	0
Section Total				14	5
Section Score %				15.00	5.36
Single Credit Value %				1.07	

WASTE				AVAILABLE	TARGET
Wst 01	Construction Waste Management	Construction Resource Efficiency	Construction	3	3
		Diversion of Resources from Landfill	Construction	1	1
Wst 02	Use of Recycled & Sustainably Sourced Aggregates	Project Sustainable Aggregate Points	Construction	1	0
Wst 03	Operational Waste	Operational Waste	Technical Design	1	1
Wst 05	Adaptation to Climate Change	Resilience of Structure, Fabric, Building Services & Renewables Installation	Concept Design	1	1
Wst 06	Functional Adaptability	Design for Disassembly & Functional Adaptability - Recommendations	Concept Design	1	1
		Design for Disassembly & Functional Adaptability - Implementation	Concept Design	1	1
Section Total				9	8
Section Score %				6.00	5.33
Single Credit Value %				0.67	

LAND USE AND ECOLOGY				AVAILABLE	TARGET
Le 01	Site Selection	Previously Occupied Land	Developed Design	1	0
		Contaminated Land	Developed Design	1	0
Le 02	Identifying & Understanding the Risks & Opportunities for the Project	Assessment Route Selection	Preparation & Brief	P	P
		Survey & Evaluation	Preparation & Brief	1	1
		Determining the Ecological Outcomes for the Site	Concept Design	1	1
Le 03	Managing Negative Impacts on Ecology	Identification & Understanding the Risks & Opportunities of the Site	Concept Design	P	P
		Planning, Liaison, Implementation & Data	Concept Design	1	1
		Managing Negative Impacts of the Project	Concept Design	2	1
Le 04	Change & Enhancement of Ecological Value	Identification & Understanding the Risks & Opportunities of the Site	Concept Design	P	P
		Liaison, Implementation & Data Collection	Concept Design	1	1
		Enhancement of Ecology	Concept Design	3	0
Le 05	Long Term Ecology Management & Maintenance	Roles & Responsibilities, Implementation, Statutory Obligations	Concept Design	P	0
		Planning, Liaison, Data, Monitoring & Review Management & Maintenance	Concept Design	1	0
		Landscape & Ecology Management Plan Development	Concept Design	1	0
Section Total				13	5
Section Score %				13.00	5.00
Single Credit Value %				1.00	

POLLUTION				AVAILABLE	TARGET
Pol 01	Impact of Refrigerants	Pre-Requisite - BS EN 378:2018	Technical Design	P	P
		Impact of Refrigerants	Technical Design	2	1
		Leak Detection	Technical Design	1	0
Pol 02	Local Air Quality	NOx, PPM, VOC Emissions	Technical Design	2	2
Pol 03	Flood & Surface Water Management	Appropriate Consultant	Developed Design	P	P
		Flood Resilience	Developed Design	2	2
		Bespoke Surface Water Run-Off Design Solutions	Technical Design	P	P
		Surface Water Run-Off - Rate	Technical Design	1	1
		Surface Water Run-Off - Volume	Technical Design	1	1
		Minimise Watercourse Pollution	Technical Design	1	0
Pol 04	Reduction of Night Time Light Pollution	Reduction of Night Time Light Pollution	Technical Design	1	1
Pol 05	Reduction of Noise Pollution	Reduction of Noise Pollution	Developed Design	1	1
Section Total				12	9
Section Score %				8.00	6.00
Single Credit Value %				0.67	

INNOVATION				AVAILABLE	TARGET
Exemplary Performance	Man 03	Responsible Construction Practices - All Criteria	Construction	1	1
	Hea 01	Visual Comfort - Daylighting	Developed Design	1	0
	Hea 01	Visual Comfort - Dimmer Switches	Developed Design	1	0
	Hea 02	Indoor Air Quality - Emission Levels	Concept Design	2	0
	Hea 06	Security - SABRE	Concept Design	1	0
	Ene 01	Reduction of Energy Use & Carbon Emissions	Concept Design	5	0
	Wat 01	Water Consumption	Technical Design	1	0
	Mat 01	Building Life Cycle Assessment	Concept Design	3	0
	Mat 03	Responsible Sourcing of Construction Products	Construction	1	0
	Wst 01	Construction Waste Management	Construction	1	0
	Wst 02	Use of Recycled & Sustainably Sourced Aggregate	Construction	1	0
	Wst 05	Adaptation to Climate Change	Concept Design	1	0
	Le 02	Identifying & Understanding the Risks & Opportunities for the Project	Concept Design	1	0
	Le 04	Change & Enhancement of Ecological Value	Concept Design	1	0
	Inn	BRE Approved Innovations	Developed Stage	1	0
Section Total				10	1
Section Score %				10.00	1.00
Single Credit Value %				1.00	

SCORE		
Target Score %		57.12
Target Rating		Very Good



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**Preliminary Ecological
Appraisal Including a
Protected Species
Appraisal & BREEAM
Assessment for Proposed
Development at:
Connell Co-op College, 301
Alan Turing Way
Manchester
M11 3BS**

On behalf of:

Darwin Group

December 2020

Skilled Ecology Consultancy Ltd.

Registered company in England no: 7188811

Registered Office: 7 Trust Court, Histon, Cambridge, CB24 9PW

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0 SUMMARY

- 0.1 Skilled Ecology Consultancy Ltd. was commissioned by Darwin Group to undertake a Preliminary Ecological Appraisal including a Protected Species Assessment of land at Connell Co-op College, 301 Alan Turing Way, Manchester M11 3BS. The report is required for a planning application for a new classroom block and play area. New paths and parking spaces are also proposed.
- 0.2 The survey was conducted on 12th November 2020 by experienced ecologist Tommy Root BSc (Hons) ACIEEM (Hons) (licensed to survey for great crested newts *Triturus cristatus* and licenced to survey for bats - level 2). The survey consisted of an inspection for preferred habitat types and signs and evidence of protected and priority species, such as for bats, great crested newts, reptiles, badgers *Meles meles* and nesting birds following Natural England (English Nature) Guidelines. A local record search was undertaken.
- 0.3 The site occupied an area of approximately 0.7 hectares and included: improved short amenity grassland with common grasses and herbaceous plants, scattered semi-mature trees, beech hedge, car park and footpaths.
- 0.4 The primary features of ecological value were the trees and hedge. Several trees will require removal. Four fruit trees will be relocated other lost trees are proposed for compensation within the soft landscaping. No signs or evidence of protected, priority or rare species were noted during the survey and habitats are highly unlikely to support such species.
- 0.5 Further ecological surveys or mitigation were considered necessary. To minimise any residual risk of impact to protected, priority or rare species, precautionary measures, detailed later in the report, should be followed.
- 0.6 With the recommendations followed as described, development could proceed with a minimal risk of harm or impact to local ecological value or to protected, priority or rare species.
- 0.7 The BREEAM assessment for ecology concludes that a total of eight ecology related credits can be awarded for the development. As detailed earlier, another credit may be possible to achieve in LE1 01 for contaminated land, though this has not been assessed.
- 0.8 Biodiversity enhancement recommendations are also included in the report in accordance with national planning policy.

1 INTRODUCTION

1.1 Background

- 1.1.1 Skilled Ecology Consultancy Ltd. was commissioned by Darwin Group to undertake a Preliminary Ecological Appraisal including a Protected Species Assessment of land at Connell Co-op College, 301 Alan Turing Way, Manchester M11 3BS. The report is required for a planning application for a new classroom block and play area. New paths and parking spaces are also proposed.
- 1.1.2 Wildlife such as nesting birds, bats, reptiles and great crested newts *Triturus cristatus* are protected by law. Protected and priority species and habitats, are also a material consideration for individual planning decisions under the National Planning Policy Framework, 2019 (NPPF) (MHCLG, 2019).
- 1.1.3 This study and report complies with the Chartered Institute for Ecology and Environmental Management (CIEEM) 2017 Guidelines for Preliminary Ecological Appraisal.
- 1.1.4 CIEEM guidelines indicate that ecological surveying typically remains valid for between 18 months and 2 years (CIEEM, 2019).

2 METHODOLOGY

2.1 Desk Study

- 2.1.1 A local biological record search was conducted on behalf of Skilled Ecology Consultancy Ltd. by Greater Manchester Ecology Unit (GMEU).
- 2.1.2 A search of the Multi-agency Geographical Information for the Countryside (MAGIC) was also conducted, to check for statutory nature conservation sites.
- 2.1.3 These results were then combined with the findings of the site survey, in order to assess the risk of ecology issues, relevant to planning, occurring on the site.

2.2 Study Limitations

- 2.2.1 No such limitations were present.

2.3 Initial Site Survey

Habitats and Surroundings

2.3.1 The site was visited on the 12th November 2020 to survey for ecology issues. This included the following:

- Noting the suitability of habitats present on the site, regarding protected, priority and rare species; including plants, amphibians, reptiles, mammals, nesting birds, invertebrates and protected, priority or red-listed Birds of Conservation Concern (BoCC);
- Assessing the habitats surrounding the site and in the local area;
- Direct survey for evidence of protected species as far as possible, e.g. for bats, reptiles, great crested newts, badgers *Meles meles*, and nesting birds;
- Checking for invasive species such as Japanese knotweed *Fallopia japonica* and giant hogweed *Heracleum mantegazzianum*.

Bat Inspection

2.3.2 The assessment for bats was conducted by experienced ecologists, licensed by Natural England to disturb and take bats for science and education. Buildings and trees were inspected externally for bat activity, suitability and potential for roosting following English Nature Bat Mitigation Guidelines (English Nature, 2004) and Bat Conservation Trust Best Practice Guidelines, therefore considerations were:

- the availability of access to roosts for bats;
- the presence and suitability of cracks, crevices, gaps, fissures, ivy growth and other places as roosts;
- signs of bat activity or presence, such as; the bats themselves, droppings, grease marks, scratch marks, urine spatter and prey remains.

2.3.3 Equipment available for use during the survey included a ladder, high powered torch, digital camera and binoculars.

2.3.4 The availability of access to roosts was assessed based upon the presence of holes large enough to allow entry to bats and lack of cobwebs and dirt.

2.3.5 The outside of buildings and trees were inspected for gaps, cavities, access points and crevices, and any signs of bats (droppings, staining, urine spatter), in accordance with Natural England (English Nature) guidelines (English Nature, 2004).

Reptiles & Amphibians

2.3.6 The site was inspected for potentially suitable terrestrial habitats for foraging, sheltering or dispersing amphibians and foraging, sheltering, breeding and basking habitat for reptiles. High quality terrestrial refuges searched for, included:

- Log piles & rockeries,
- Thick leaf litter,
- Compost & manure heaps,
- Mammal burrows,
- Deep ground cracks;
- Refuse suitable for shelter;
- Tussock grassland;
- Hedgerows and any other potential habitats.

Badgers & Other Mammals

2.3.7 Signs and evidence of badgers, and other protected, priority and rare mammal activity searched for included the following:

- Setts, holes and burrows;
- Foraging holes and other diggings;
- Latrines, droppings, spraints and scats;
- Mammal hairs;
- Paw prints and other tracks;
- Feeding remains;
- Scratch marks, bedding material and other signs.

3 RESULTS AND RISK

3.1 Site Description & Location

3.1.1 Features within the proposed construction areas included short, improved amenity grassland with common grasses and herbaceous plants, scattered semi-mature trees, beech hedge, car park and hardstanding footpaths.

3.1.2 Construction area boundaries included:

North & East – metal fencing (early mature tree immediately beyond)

South East – access road

South – car park

North West – college building

West – college grounds

3.1.3 Located within the City of Manchester, with residential housing to the south, with busy roads, buildings, some urban parks and other city features.

3.1.4 No ponds with habitat connectivity were present locally.

3.2 Nature Conservation Sites

3.2.1 The nearest priority habitat was found to be an area of woodpasture and parkland located approximately 1km north (MAGIC, 2020).

3.2.2 A Site of Biological Importance, Ashton Canal (west), was present 0.6km north east of the site (GMEU, 2020).

3.2.3 One statutorily designated nature conservation site, a Local Nature Reserve (LNR), was present within 2km of the site. Clayton Vale LNR is located approximately 1.2km north east of the site. The LNR is designated for its unimproved grassland, woodland and water body habitats including ponds and the River Medlock (MAGIC, 2020).

3.2.4 Ancient Woodland and veteran trees are regarded as irreplaceable habitats (NPPF, 2019). Designated Ancient Woodlands are not present within 2km of the proposed site (MAGIC, 2020).

3.3 Data Search

3.3.1 The following information is a summary of local biological records collated through the Greater Manchester Ecology Unit (GMEU, 2020).

Table 1: Summary of local biological records.

Species	Approximate Location
Birds	
Skylark (UK priority & red-listed)	Within 2km
Linnet (UK priority & red-listed)	Within 2km
Lapwing (UK priority & red-listed)	Within 2km
Mammals: bats	
Common pipistrelle (UK protected & priority)	Within 2km
Brown long eared (UK + EU protected, UK priority)	3km east
Mammals: other	
Badger (UK protected)	Within 2km
Hedgehog (UK protected & priority)	Within 2km

3.4 Protected, Priority & Rare Species

Vegetation & Habitats

3.4.1 Semi-mature trees/shrubs included:

Field maple *Acer campestre*, Jacquemont's birch *Betula utilis* var. *jacquemontii*, Atlas cedar *Cedrus atlantica*, Austrian pine *Pinus nigra* ssp. *Nigra*, wild cherry *Prunus avium*, English oak *Quercus robur*, silver lime *Tilia tormentosa*, apple *Malus domestica*, plum *Prunus domestica*, Japanese cherry 'Accolade' *Prunus serrulata*, domestic pear *Pyrus communis*.

The four fruit trees (located south west corner) are of significance to the college (planted by students) and are proposed for transplanting on the site.

A hedge composed of beech *Fagus sylvatica* was present at the south of the main park area.

3.4.2 Main site grasses/herbaceous area:

Annual meadow grass *Poa annua*, Yorkshire fog *Holcus lanatus*, white clover *Trifolium repens*, dandelion *Taraxacum officinale* agg, common daisy *Bellis perennis*, ribwort plantain *Plantago lanceolata*, creeping buttercup *Ranunculus repens*, curled dock *Rumex crispus*, zigzag clover *Trifolium medium*, common mouse-ear *Cerastium fontanum*, smooth sow thistle *Sonchus oleraceus*, prickly sow thistle *Sonchus asper*, spear thistle *Cirsium vulgare*, hairy bittercress *Cardamine hirsuta*, common field speedwell *Veronica persica*, non-native fleabane species *Conyza* sp, nipplewort *Lapsana communis*, lesser knapweed *Centaurea nigra*, groundsel *Senecio vulgaris* and red dead-nettle *Lamium purpureum*.

3.4.3 Area south of sports court (short cut grass): wild cherry *Prunus avium*, English oak *Quercus robur*, dandelion *Taraxacum officinale* agg, groundsel *Senecio vulgaris*, curled dock *Rumex crispus*, creeping buttercup *Ranunculus repens*, meadow buttercup *Ranunculus acris*, dovesfoot cranesbill *Geranium mole* and hairy bittercress *Cardamine hirsuta*

3.4.4 Area of proposed path extension (south east of sports court): lime species *Tilia* sp, curled dock *Rumex crispus*, white clover *Trifolium repens*, dandelion *Taraxacum officinale*, creeping buttercup *Ranunculus repens*, common field speedwell *Veronica persica* and stinging nettle *Urtica dioica*

Rough grassland (southern area of proposed path extension): false oat grass *Arrhenatherum elatius*, dandelion *Taraxacum officinale*, meadow buttercup *Ranunculus acris*, curled dock *Rumex crispus* and common vetch *Vicia sativa*

3.4.5 No Schedule 9 invasive, protected or priority plant species were observed. No UK priority habitats were present.

Bats

3.4.6 All trees present were either too small in trunk diameter or immature to support features suitable for roosting bats. The adjacent building was modern and lacking external features suitable for bats to access the building internally or to roost externally on the building.

3.4.7 No evidence of individual bats or field signs (droppings, urine stains) were discovered associated with buildings or trees on the site.

3.4.8 The site was very low in suitability or potential for foraging bats.

Other Protected & UK Priority Mammals

3.4.9 The site was relatively small in area and negligible in suitability for foraging by badgers *Meles meles*, if present locally.

3.4.10 The site was unsuitable for aquatic mammals such as otter *Lutra lutra* or water vole *Arvicola amphibius*.

3.4.11 The site was considered low in suitability for hedgehogs *Erinaceus europaeus*.

3.4.12 No signs or evidence of ground dwelling protected, priority or rare mammals were observed.

Birds

- 3.4.13 Birds observed or heard on or close to the site during the survey included; herring gull *Larus argentatus*, magpie *Pica pica*, blackbird *Turdus merula* and pied wagtail *Motacilla alba*.
- 3.4.14 Herring gull are a red listed Bird of Conservation Concern (BoCC). All other species recorded were common, widespread, green-listed Birds of Conservation Concern (BoCC) species.
- 3.4.15 It was considered likely that very low numbers of protected or UK priority birds such as song thrush *Turdus philomelos* might, on occasions, forage over the site. Nesting or significant foraging by such species was considered highly unlikely.
- 3.4.16 One nest box was noted onsite, possibly more are present onsite.
- 3.4.17 The BoCC ratings are summarised as follows:
- Red-listed - highest conservation concern;
 - Amber-listed - moderate conservation concern;
 - Green-listed - least conservation concern.

Great crested newts & Other Amphibians

- 3.4.18 The site was considered negligible in suitability or potential as terrestrial habitat for amphibians of any species. No ponds were identified with habitat connectivity to the site.
- 3.4.19 Amphibians were not observed during the survey visit.

Reptiles

- 3.4.20 The site was considered negligible in suitability or potential for reptiles of any species with negligible safe basking, foraging or breeding habitat present.

Invertebrates

- 3.4.21 The construction zone was low in diversity of habitats, size and diversity of flora necessary to support a significant assemblage of invertebrates of conservation concern. It is possible that the occasional priority species may visit the site, though significant use by such species was considered unlikely.
- 3.4.22 No protected or priority invertebrates were observed during the survey visits.

- 3.4.23 No significant areas of standing deadwood or rotting tree stumps were present for breeding stag beetles.

Other Protected, Priority or Rare Species

- 3.4.24 No signs or evidence of any other protected or priority species were observed on the site. Habitats present were unsuitable for such species.

4 DISCUSSION OF RISK AND LEGISLATION

4.1 Protected & Priority Species

Bats

- 4.1.1 Bats are protected under the Wildlife and Countryside Act 1981 as amended by the Countryside Rights of Way Act 2000 and under the Conservation of Habitats and Species Regulations 2017. Some bats are also UK priority species. A summary of the offences likely to be relevant to development are:

- Intentionally or deliberately kill, injure or take a bat;
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection, whether bats are present or not;
- Damage or destroy a breeding site or resting place of any bat;
- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection;
- Deliberately disturb a bat anywhere.

- 4.1.2 No evidence of bats (individual bats, droppings, urine stains) was present. No potential for roosting bats was identified on the site. The site was very low in suitability for foraging bats, though it could not be discounted that on occasions common bat species may visit the site temporarily for foraging during summer months.

- 4.1.3 The risk of significant impact to bats or local bat conservation was negligible.

- 4.1.4 Further bat surveys or mitigation were considered unnecessary. However, to minimise any residual risk of harm, or impact to bats, precautionary measure, detailed later should be followed.

Other Protected, Priority & Rare Mammals

- 4.1.5 The site was very low in suitability for any other protected, priority or rare mammals. No signs or evidence of such were observed on the site or adjacent to the site. It could not be discounted that very occasionally hedgehogs may visit the site, though significant use by many hedgehogs was considered very unlikely.
- 4.1.6 Further surveys for any other protected, priority or rare mammals was considered unnecessary. However, to minimise any residual risk of impact to hedgehogs, precautionary measures, detailed later in the report, should be followed.

Birds

- 4.1.7 Wild birds are protected under the Wildlife and Countryside Act 1981 and, with certain exceptions (e.g. pest species) in certain situations, it is an offence to intentionally:
- Kill or injure any wild bird;
 - Take, damage or destroy the nest of any wild bird while it is in use or being built;
 - Take or destroy the egg of any wild bird.
- 4.1.8 Some bird species (such as barn owls) are also specially protected under Schedule 1 of the Wildlife and Countryside Act 1981 and others are UK priority species.
- 4.1.9 Protected birds and UK priority bird species have been recorded locally (GMEU 2020). However, given the small size of the site and common and widespread habitats present, the risk of significant use or nesting by such species was low. No signs or evidence of protected, priority or rare birds were observed. Further surveys or mitigation for such were considered unnecessary.
- 4.1.10 The shrubs and trees present were considered potentially suitable for nesting by low numbers of common garden birds. To prevent harm to activity nesting birds and compensate for habitat loss, precautionary measures, detailed later in the report, should be followed.

Great Crested Newts & Other Amphibians

4.1.11 Great crested newts are protected under the Wildlife and Countryside Act 1981 as amended by the Countryside Rights of Way Act 2000, and the Conservation of Habitats and Species Regulations 2017. Great crested newts are also UK priority species. A summary of the offences likely to be relevant to development are:

- Intentionally or deliberately capture or kill;
- Intentionally injure;
- Deliberately disturb, or intentionally or recklessly disturb in a place of shelter or protection;
- Damage or destroy a breeding site or resting place;
- Intentionally or recklessly damage, destroy or obstruct access to a place used for shelter or protection.

4.1.12 Habitats present were not considered potentially suitable as amphibian terrestrial habitat and a lack of suitable local waterbodies nearby greatly reduces the possibility of presence.

4.1.13 Great crested newts have not been recorded locally (GMEU 2020).

4.1.14 Overall, it was considered that the risk of presence and risk of impact to amphibians of any species was negligible. Further amphibian surveys or mitigation were considered unnecessary.

Plants

4.1.15 The four fruit trees (located south west corner) are of significance to the college (planted by students) and are proposed for relocation in the soft landscape design. Other semi-mature trees are proposed for removal and replacement within the soft landscaping scheme.

4.1.16 No rare, protected, priority or Schedule 9 plant species were present.

4.1.17 No UK priority habitats were present or proposed for impact.

4.1.18 Further botanical surveys or mitigation were considered unnecessary.

Reptiles

4.1.19 Widespread reptile species including, grass snake, adder, slow worm and common lizard, are protected from intentional killing and injuring under the Wildlife and Countryside Act 1981. They are also UK priority species.

4.1.20 The site was negligible in suitability or potential for reptiles. The risk of presence or impact was negligible.

4.1.21 Further reptile surveys or mitigation were considered unnecessary.

Invertebrates

4.1.22 Habitats proposed for impact were unlikely to support an assemblage of rare invertebrates of conservation concern. The risk of presence or significant impact to such species was very low.

4.1.23 Further invertebrate surveys or mitigation were considered unnecessary.

Other Protected & Priority species

4.1.24 No signs or evidence of other protected, priority or rare species were observed on the site and it was considered that there was a low risk of such species occurring on the site or being impacted by the proposed development.

4.2 Other Issues

Sensitive Habitats

4.2.1 The site was a significant distance from designated nature conservation sites (LNR, SSSI, RAMSAR). The proposed development is small scale. The risk of direct or indirect impact to such sites was very low. Further surveys or mitigation for such were considered unnecessary.

5 RECOMMENDATIONS & BREEAM

5.1 Precautionary Measures and compensation

Bats

5.1.1 The risk of significant impact to roosting, foraging and commuting bats was very low, to minimise any residual risk of impact the below recommendations should be followed:

- Any proposed external lighting should be minimised. Where external lighting is required it should be warm white LED lamps as these produce the least amount of heat and UV light possible, minimising the attraction effects on insects and minimising disturbance to local bats;

- Any external lighting proposed for the development should be aimed carefully, to minimise illumination of boundary habitats and avoid light spillage into the sky, or horizontally out from any buildings, by using hoods or directional lighting;
- External security lighting should be set on short timers and be sensitive to large moving objects only, to prevent any passing bats switching them on.
- The trees proposed for removal will be compensated for on a one-for-one basis (see soft landscaping design).

Birds

- 5.1.2 It is recommended that to prevent harm to nesting birds, any necessary clearance or reduction of hedgerow and trees should be conducted outside of the main bird breeding season (March until the end of August). If this timescale is not possible then an ecologist should check the site for active bird nests before vegetation clearance.
- 5.1.3 If an active bird nest was found, it would be necessary to protect the nest from harm or disturbance until the bird had finished nesting.
- 5.1.4 Any nesting boxes that are removed should be replaced/relocated outside of the main bird nests season.

Hedgehogs

- 5.1.5 The risk of impact to hedgehogs was considered low. However, to minimise any residual risk of impact or harm, the following precautionary measures should be undertaken:
- Ground vegetation should be maintained short by regular mowing to prevent habitats improving for wildlife;
 - During development, construction materials should be stored on hardstanding or off the ground on pallets, to prevent wildlife from sheltering in the materials and being harmed by movement of the materials;
 - The site should be well drained and ground vegetation maintained short throughout the development, to prevent attracting wildlife into harm's way;
 - Any excavations for the development should be covered at night or have a roughly sawn plank placed in them to facilitate escape for any wildlife which may fall in;

- No works at night when hedgehogs are mostly active.

5.2 BREEAM LE 01- Site Selection

5.3.1 The proposed construction zone is previously undeveloped ground. Therefore, no credit can be awarded for this category.

5.3.2 Credit achievement for the second credit in LE 01 has not been assessed in this report because it pertains to contaminated land, not ecology.

5.3 BREEAM LE 02- Ecological Risks and Opportunities

Ecological Value of Site

5.4.1 Regarding Survey and Evaluation, the following criteria have been achieved:

- A SQE was appointed to undertake a Preliminary Ecological Appraisal and prepare a report, with the information to be used to help inform the detailed design of the proposed development;
- The SQE has produced a Preliminary Ecological Appraisal Report which includes baseline data and considers the Zone of Influence;
- The report includes assessment of potential impacts on ecological receptors, and makes recommendations for ecological enhancement of the site post-development;
- The report will be shared with project team and will be used to inform site preparation, design, and construction works.

5.4.2 Consequently, one credit can be awarded.

5.4.3 Regarding Determining the Ecological Outcomes for the site, the following criteria have been achieved:

- One credit has been awarded with regard to Survey and Evaluation;
- The SQE has, and will continue to, liaise and collaborate with appropriate stakeholders to identify the optimal ecological outcome;
- The SQE has identified measures early in the project to influence the ecological outcome of the site, paying regard to the mitigation hierarchy;
- Measures to appraise and select measures to meet the optimal ecological outcomes for the site have been identified and decided upon.

5.4.4 Consequently, one credit can be awarded.

5.4.5 Regarding the Exemplary Level Criteria:

- One credit has been awarded with regard to Determining the Ecological Outcomes;
- Wider site sustainability-related activities and the potential for ecosystem related benefits has been considered, including as a minimum landscape, health and wellbeing, resilience, infrastructure, and community and end user involvement;
- It is understood and accepted within this calculation that credits have been achieved for the following issues: HE 07 Safe and Healthy Surroundings (both credits), Pol 03 Flood and Surface Water Management: achieve credits for 'Surface water run-off', and, 'Minimising watercourse pollution', and, Pol 05 Reduction of Noise Pollution.

5.4.6 Consequently, one credit can be awarded.

5.4.7 Overall, three credits can be awarded for LE 02.

5.4 BREEAM LE 03- Managing Impacts on Ecology

5.5.1 To make the credits under LE03 available, the following prerequisite criteria must be achieved: Criteria 1: LE02 must be achieved. Three credits under LE 02 can be achieved; therefore, credits under LE03 are available.

5.5.2 Potential negative impacts from the proposed development, including construction works, have been assessed and analysed by the SQE, and recommendations have been made regarding protected and priority species on site.

5.5.3 The SQE has proposed measures and recommendations for the proposed site's preparation and construction phases; these will be passed to the project team via the submission of the report.

5.5.4 Following the submission of this report to the project and design teams, and the dissemination of the appropriate recommendations and measures, one credit can be awarded.

5.5.5 Following on from the award of this credit, due to the no net-loss of ecological value (see LE 04), an additional two credits can be awarded.

5.5.6 Overall, three credits can be awarded for LE 03.

5.5 BREEAM LE 04- Change and Enhancement of Ecology

5.6.1 Up to three credits can be awarded based on the calculation of the change in ecological Biodiversity Units as result of the development, with an additional exemplary level credit for achieving significant net gain. Credits are awarded as follows:

- Minimising loss of ecological value (one credit - percentage score of 75-94);
- No net loss of ecological value (two credits - percentage score of 95-104);
- Net gain of ecological value (three credits - percentage score of 105-109); and
- Significant net gain of ecological value (percentage score of 110 or above – exemplary).

5.6.2 There are no linear foliage or watercourses on the Site and as such no Biodiversity Unit calculations have been undertaken for watercourses.

5.6.3 The percentage change in Area Biodiversity Units = 72%

5.6.4 This low Biodiversity Unit score is despite including more trees, a new native species hedgerow around the new car park and creation of a wildflower meadow lawn within the soft landscape design. The low score was due to the large loss of trees and lawn and replacement with hardstanding and buildings.

5.6.5 The percentage change in Biodiversity units is within the 110% or above category (significant net-gain), therefore no credits may be awarded.

5.6 BREEAM LE 05- Long term ecology management and maintenance

5.7.1 This assessment does not meet the pre-requisite criteria for credit achievement because although Criteria 2-3 in LE- 03 have been achieved no credits can be awarded for LE- 04 for 'Change and Enhancement of Ecology' has been awarded.

5.7.2 Consequently, no credits may be rewarded.

5.7.3 A Landscape and Ecology Management Plan (LEcMP) will be developed following BS 42020:2013 Section 11.1 covering five years after project completion. The document is not provided now as it may need substantial revision from the design stage to the post-construction stage. The LEcMP will include:

- Actions and responsibilities, prior to handover, to give to relevant individuals;
- The ecological value and condition of the site over the development life;

- Identification of opportunities for ongoing alignment with activities external to the development project and which supports the aims of BREEAM's Strategic Ecology Framework.
- Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts;
- Clearly defined and allocated roles and responsibilities.

5.7.4 The scope of the LEcMP content can be seen in Appendix 8.4.

5.7.5 It is possible that one credit may be awarded, once the client commits to having a LEcMP and meets the requirements for the prerequisites in relation to LE03.

5.7.6 Overall, two credits may be awarded for LE- 05 once the above criteria are met.

5.7 Enhancements

5.2.1 The following will be undertaken to enhance the development for wildlife to provide a net gain in accordance with national planning policy.

5.2.2 To provide new nesting and roosting habitat the below boxes should be installed:

- 2 x Schwegler 1B general purpose box (trees).
- 1 x Schwegler 2H bird box (trees).
- 1 x Vivara pro sparrow terrace (buildings).
- 2 x Eco Integrated Bat Box (buildings).

5.2.3 Both the bat and bird boxes will be installed high on the new buildings (just below the roofline) or on retained trees (above 4m) and should be free from obstructions and light sources. The bat box will be positioned facing a southerly aspect, while bird boxes will be facing north and east.

5.2.4 Bat and bird boxes can be purchased on-line through suppliers such as The Wildlife Shop and NHBS.

5.2.5 Any new soft landscaping for the proposed development will be native and wildlife attracting, see soft landscape design.

6 CONCLUSION

- 6.1 The site was considered low in ecological value with common and widespread habitats present. The risk of presence and significant impact to protected, priority or rare species or notable habitats was very low.
- 6.2 Further ecological surveys or mitigation were considered unnecessary for the development to proceed.
- 6.3 To minimise any residual risk of impact, recommendations for hedgehogs, bats and birds are included in the report and should be followed.
- 6.4 With the recommendations followed as described in the report, the proposed development could proceed with a minimal risk of impact to protected, priority or rare species or habitats.
- 6.5 The BREEAM assessment for ecology concludes that a total of eight ecology related credits can be awarded for the development. As detailed earlier, another credit may be possible to achieve in LE1 01 for contaminated land, though this has not been assessed.
- 6.6 Furthermore, by following the biodiversity enhancements, the development would be enhanced even further for the benefit of local wildlife in accordance with national planning policy.

7 REFERENCES

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8 APPENDICES

8.1 Appendix 1: Figures

Figure 1 – Habitat map of the site. 12th November 2020.

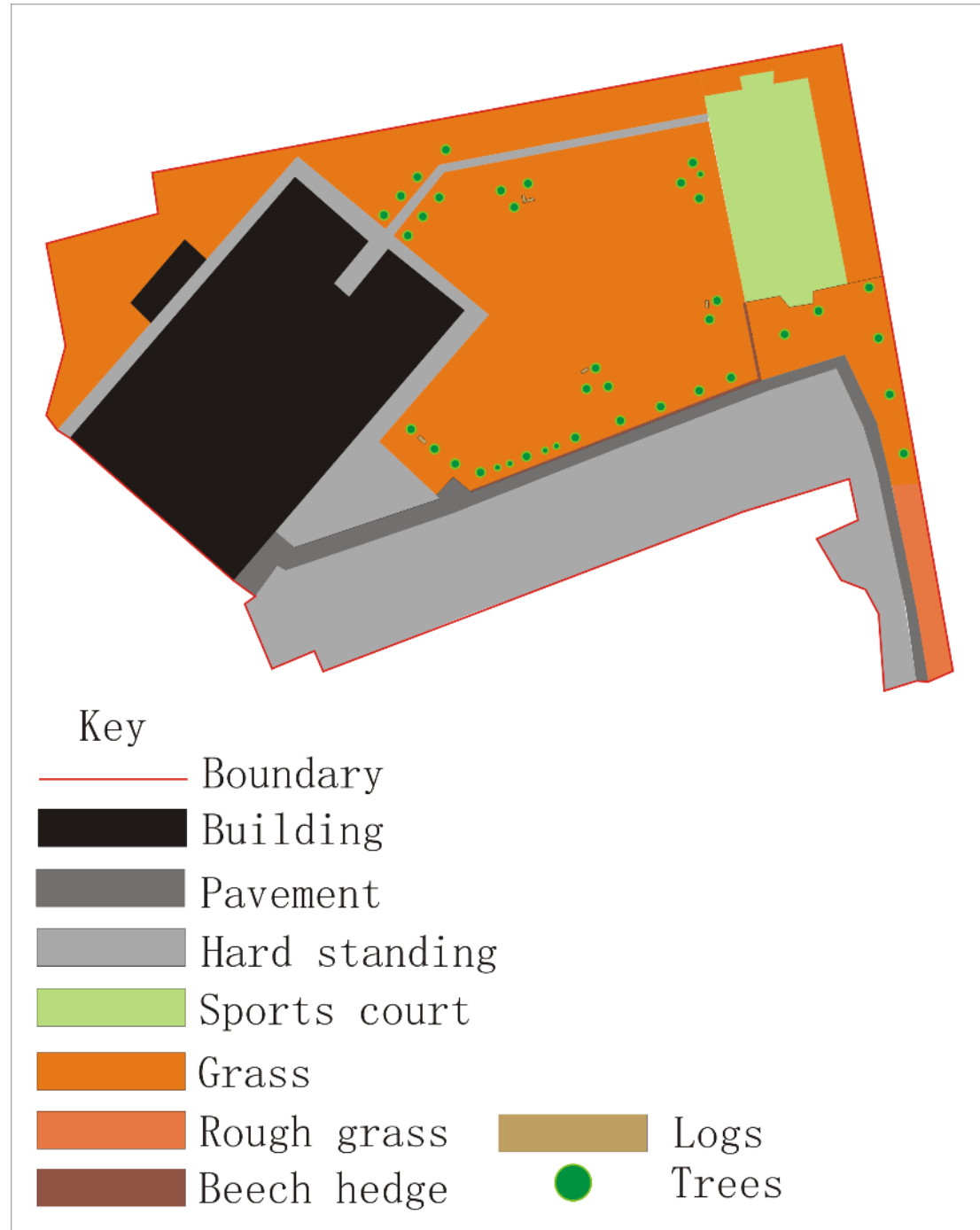
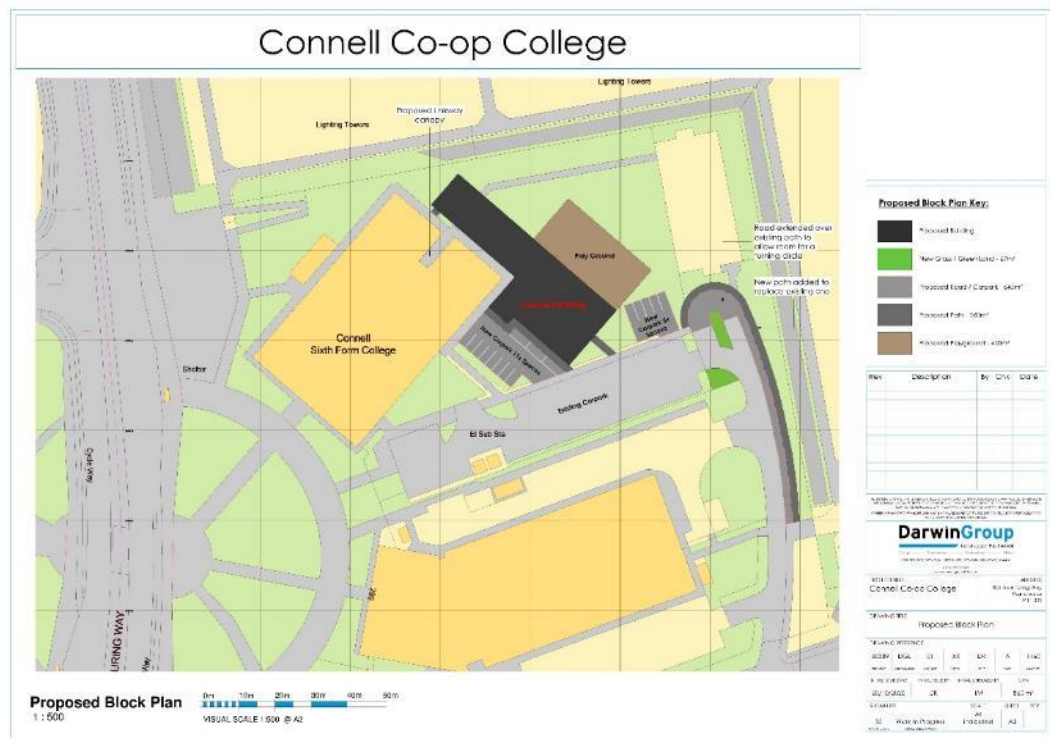


Figure 2 – Location map. 12th November 2020.



Figure 3 – Development map. 12th November 2020.

8.2 Appendix 2: Photographs

Photograph 1: The park - south west side on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 2: North west site area on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 3: View from north west corner on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 4: View from north east corner on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 5: Eastern boundary on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 6: East Side of Construction zone on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 7: Southern park boundary on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 8: South West Corner on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 9: Southern side of beach hedge on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 10: Area south of sports court - proposed for additional parking on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 11: South east area proposed for new path on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

Photograph 12: Bird nest box – main construction zone area on land at Connell Co-op College, Manchester. 12th November 2020.



Photograph by Tommy Root 2020

8.3 Appendix 3: Suitably Qualified Ecologist Details

Name:

Mr Roger Spring BSc MCIEEM.

Qualifications:

BSc, Conservation Ecology, Deakin University Melbourne, Australia, completed 2001.

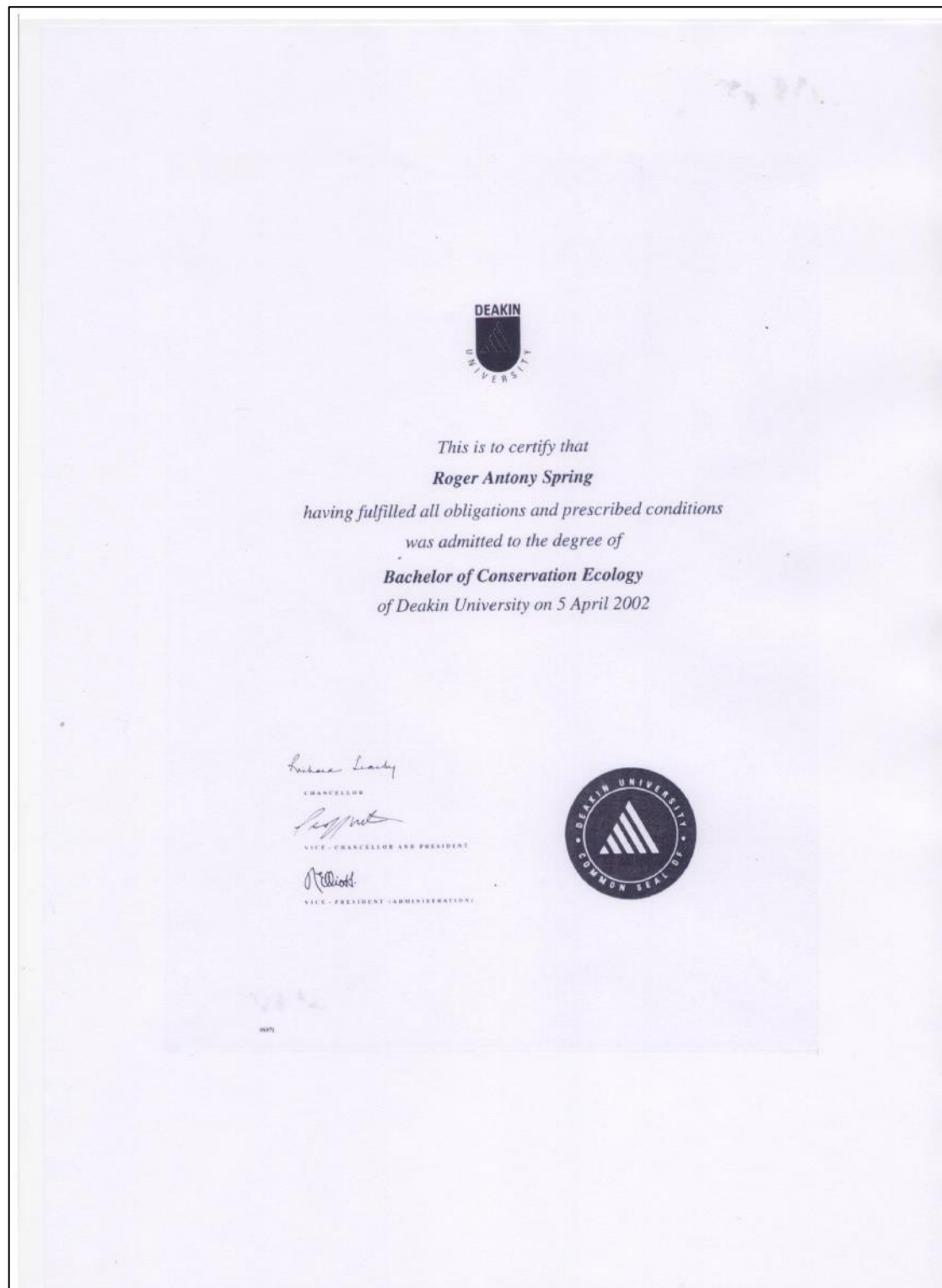
Professional Membership:

Full Member of the Institute of Ecology and Environmental Management (no: 4054).

Ecological Experience:

Over seven years of continual, post-graduate, professional, ecological experience.





8.4 Appendix 4: Five Year Ecological Management Plan

Table 2: Five Year Ecological Management Plan for the BREEAM Development at Connell Co-op College.

Actions	Season for works to occur	Years to be undertaken
Installing bird boxes	All year round	1
Installing bat boxes	All year round	1
Cleaning bird boxes	End of Winter- to avoid impact to nesting birds.	1-5
Replace damaged or lost bat and bird boxes	As necessary	1-5
Planting new shrubs and trees	Spring or Autumn	1
Remedial work- Replace any damaged or lost bird or bat boxes. Replace dead shrubs and trees like for like.	As above	1-5
Watering trees & hedgerows	As necessary	1-5
No use of chemicals such as insecticides.	As necessary	1-5

4No transplanted Apple trees from cap parking area
See tree constraints plan

4No Tilia cordata Green Spire

NEW FOOTPATH

3No Pinus nigra

3No Betula utilis

3No Sorbus aucuparia

Re-instate grass after building is completed

3No Betula utilis

NEW PLAYGROUND

NEW BUILDING

1No sorbus aucuparia

NEW CAR PARKING

3No Sorbus aucuparia

3No Sorbus aucuparia

3No Betula utilis

Re-instate hard wearing grass

NEW CAR PARKING

Re-instate hard wearing grass

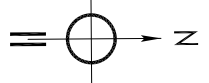
Native species hedgerow 36m
72No Carpinus betulus
108No Crataegus monogyna
36No Corylus avellana
18No Ilex aquifolium
18No Rosa canina

Trees - Selected Standard: Native = (n); wildlife friendly = (w); multi-stemmed (MS)			
Name	Girth	Root condition	Habit

Betula utilis (w)	10-12cm	Bare root or root balled	Ornamental tree with very white stems upright branches up to 12m	9
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Tilia cordata Green Spire (w)	10-12cm	Bare root	Deciduous tree ideal for restricted locations up to 15m	4

Hedge Plants - 7 per linear metre in staggered rows: Native = (n); wildlife friendly = (w); multi-stemmed (MS)				
Name	Size	Root condition	Habit	Density per sqm

Carpinus betulus (n)	60cm	Bare rooted	Deciduous	2
Crataegus monogyna (n)	60cm	Bare rooted	Deciduous	3
Corylus avellana (n)	60cm	Bare rooted	Deciduous	1
Ilex aquifolium (n)	60cm	Bare rooted	Evergreen	0.5
Rosa canina (n)	60cm	Bare rooted	Deciduous	0.5



The planting shall be carried out in the first planting (seedling) season following completion of the development (between December and March inclusive).

All plant stock, plant handling and planting to be undertaken in accordance with the following British Standard Specifications and Code of Practice:

- BS 3936:1992 Part 1 Nursery Stock - Specification for trees and shrubs;
- BS 3936:1998 Part 10 Nursery Stock - Specification for ground cover plants;
- BS 4428:1989 - Code of Practice for General Landscaping Operations (excluding hard surfaces);
- BS 8545:2014 Trees from Nursery to Independence in the Landscape;
- The Code of Practice for Plant Handling 2002 (Horticultural Trades Association).

LEGEND (SOFT WORKS)

- Retained trees and hedgerows
- Extra heavy standard tree
- Transplanted tree
- New hedgerow
- Wild flora lawn - Emorsgate EL1 (or similar)

Notes
Plan to be read in conjunction with the engineer and landscape drawings.

No measurements to be scaled off drawing. Worked from figured dimensions only.

All dimensions shown on drawing are shown in millimetres unless otherwise stated.

All dimensions and levels to be checked on site. Landscape Architect to be notified immediately of any discrepancies prior to the commencement of works.



Skilled Ecology Consultancy Ltd.

Date	Reason for revisions	By
16.11.2020	Enhance biodiversity	JW
Client Cornells Co-op College		
Project: Cornells Co-op College, 301 Alan Turing Way, Manchester, M11 3SS		
Drawing Title: Soft works		
Scale: 1:200 @ A1	Date: November 2020	
Drawing Number: 1238-01	Revision Number: B	

LANDSCAPE SPECIFICATION

For proposed soft works at:

Land at Connells Co-op College, 301 Alan Turin Way, Manchester,
M11 3BS

Date:
11 December 2020

Project Ref: 1235

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LIST OF APPENDICES

Appendix 1 - Soft works plans

1 Design Strategy

- 1.1 The following speciation is for the new landscape areas associated with the classroom development at Connells Co-op College, 301 Alan Turin Way, Manchester, M11 3BS.
- 1.2 The speciation is accompanied by the soft works plans at the appendices of this report:
 - 1235-01 Connells Co-op College Soft Works Plan
- 1.3 The landscape specification and soft works drawings have been prepared in support of planning application, and for detailing planting, management, and maintenance.
- 1.4 There are several trees and hedgerows to be retained on the site boundaries which require protection during all landscaping works

2 Planting area preparation

- 2.1 Areas of new landscaping to boundaries and shrub areas should be protected throughout the construction phase to avoid ground compaction.
- 2.2 Any areas that are unavoidably subject to compaction should have topsoil removed and stored until landscaping can take place; these areas should be cultivated and de-compacted prior to reapplication of topsoil.
- 2.3 In areas of new landscaping, existing ground cover, understorey vegetation, leaf litter and other surface debris shall be removed using hand operated tools only, e.g. chainsaws, brush cutters, rakes etc. Care shall be taken to ensure tools do not cause impact damage to neighbouring tree RPAs, stems or branches. Particular care to be taken when new planting within the RPAs of retained trees takes place.
- 2.4 A suitable approved systemic herbicide shall be applied 4 weeks prior to cultivation at no more than manufacturer's approved rates by spot treatment to emergent weeds only, taking care to prevent spray drift onto the stems or leaves of trees to be retained, where necessary.
- 2.5 If necessary, a second application may be applied at least 2 weeks prior to cultivation.
- 2.6 Within the RPAs of the trees to be retained, there shall be NO raising of levels with imported topsoil, and these areas will be protected throughout development phase.

Sub soil

- 2.7 Ideally subsoil reclaimed from the site is reused. Imported subsoil should match as closely as possible those on site. Alternatively, if current soil condition is poor, imported subsoil shall meet the following specification:
 - Texture 5-50% clay
 - PH 6-7.5
 - Stones <20%
- 2.8 To be free from toxic substances, weed seeds, plastic, metals etc. Subsoil shall be spread to a minimum of 250mm below new grass and shrub areas. Tree pits to be constructed as described in section 1.3 'Plant and Planting Specification'. Subsoil to be spread by hand or using a back-acting track vehicle to cause minimum compaction and loss of soil structure. No soil handling shall be undertaken when the soil is wetter than the plastic limit.

Top soil

- 2.9 Ideally topsoil reclaimed from the site is reused. Imported topsoil should match as closely as possible those on site. Alternatively, if the current soil condition is poor, general purpose grade as described in Table 2, Topsoil Characteristics of BS 3882 - Specification for topsoil should be used. Soil shall be stored in heaps not exceeding 1.5 metres high. Heaps shall be

graded to shed water and avoid ponding, maintained in a weed-free condition and protected from contamination or trespass by heavy machinery.

2.10 Topsoil shall be lightly consolidated in layers not exceeding 150mm using track laying machinery. Works shall not be undertaken in periods of wet weather.

2.11 Topsoil shall be laid to the following minimum depths:

- 150mm below new grass areas;
- 400mm beneath new shrub areas.

2.12 Finished levels, after settlement, shall be as follows:

- 25mm above adjacent paving, new grassed areas and non-mulched shrub beds;
- 75mm below adjacent paving and grass for mulched planting beds.

2.13 Tree pits to be back filled with topsoil to BS3882 specification.

Soil improvement

2.14 40 litres of compost to be incorporated into the top 200mm of each square metre of topsoil for all ornamental shrub beds.

Tree pit

2.15 Imported backfill topsoil shall be general purpose grade as described in Table 2, Topsoil Characteristics of BS 3882 - Specification for topsoil.

3 Planting specification

- 3.1 The planting shall be carried out in the first planting (seeding) season following completion of the development (between December and March inclusive).
- 3.2 All plant stock, plant handling and planting to be undertaken in accordance with the following British Standard Specifications and Code of Practice:
- BS 3936:1992 Part 1 Nursery Stock - Specification for trees and shrubs;
 - BS 3936:1981 Part 10 Nursery Stock - Specification for ground cover plants;
 - BS 4428:1989 - Code of Practice for General Landscaping Operations (excluding hard surfaces);
 - BS 8545:2014 Trees from Nursery to Independence in the Landscape;
 - The Code of Practice for Plant Handling 2002 (Horticultural Trades Association).

Plant Stock:

- 3.3 Plant stock to be supplied in accordance with the size and description specified on the plant schedule.
- 3.4 Plant stock shall be healthy, vigorous, free from pests and diseases and suitably hardened off for the proposed situation of planting, and lifted at a time in accordance with good nursery practice. Stock shall have a well formed fibrous root system and be free from perennial weeds. The form of trees shall be in accordance with BS 3936: 1992 Part 1 Section 7 - Form of trees.

Plant Handling:

- 3.5 All plant materials shall be lifted, bundled, labelled, packaged, transported, temporarily stored and planted in accordance with the procedures and methods illustrated in the publication, "Plant Handling" (Horticultural Trades Association) and relevant sections of BS 4043:1989 - Recommendations for transplanting of root-balled trees.

Hedge Planting:

- 3.6 All bare root stock shall be planted between December and March inclusive. Plants shall be delivered to site in quantities which can be planted the same day. No plant roots shall be allowed to dry out.
- 3.7 Plant handling as with Shrub planting: 7 plants per linear metre in staggered rows at approximately 25cm centres. L or T shaped notches 2m spacing, remove weeds, large stones to 50cm x 50cm. Back-filled gently with original topsoil and insert whip and cane support and photo-degradable guards need to be applied.

Select Standard and Transplant Tree Planting:

- 3.8 Pits to be prepared to 800x800x800mm. Sides to be scarified if sides have become compacted during excavation. Excavated material of usable quality to be retained in separated topsoil and subsoil for reuse where possible.
- 3.9 Standard Trees to be single staked using one stake (50mm diameter), driven into ground 300mm below bottom of pit. Base of pit to be filled with 200mm of 3:1 mix of approved topsoil.
- 3.10 Trees to be centrally located and stem placed in an upright position. Pit to be back-filled with original subsoil and topsoil to match previous levels, or subsoil and topsoil as described in section 2. Backfill firmly with original top soil, to 50mm above previous ground level to allow for settlement where possible.
- 3.11 Saw stakes to leave 600mm above soil level. Fix adjustable tree ties to each stake using biodegradable tree ties.
- 3.12 Water in same day with 50 litres per tree.
- 3.13 All works shall be carried out to the minimum standard according to BS 3936:1992 -Nursery stock specification for trees and shrubs and BS 8545:2014 Trees from Nursery to Independence in the Landscape.

Mulch:

- 3.14 Planting beds shall be spread with a medium grade bark mulch to a settled depth of 75mm. Mulch to be free from fines, weeds, disease and contaminants.

4 Maintenance

- 4.1 External space shall be maintained by the Developers agent during the time of implementation. Thereafter a landscape contractual arrangement should be made to ensure the maintenance of all soft landscaped areas on behalf of the school.

Regular visits:

- 4.2 Monthly maintenance visits to include the following operations:
- Hand weed planting beds ;
 - Remove litter;
 - Sweep mulch spillage;
 - Re-firm plant stock as necessary;
 - Adjust stakes and ties as necessary;
 - Prune plant stock as required to encourage good form and maintain the width of footways;
 - Check all plant stock and report signs of pests, disease, death and damage;
 - Maintain paths free of debris and overhanging plants;
 - Inspect paths for build up of algae and apply treatment to maintain a slip free surface.

Watering:

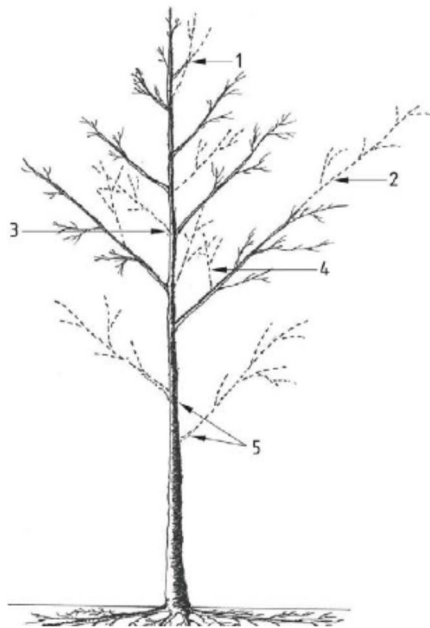
- 4.3 Plant stock to receive the following quantities of water:
- Select standard and transplant trees - 25 litres on 10 occasions throughout the growing season, or when less than 30mm precipitation at the end of any 4 week period;
 - Hedgerows - 20 litres per m² on three occasions throughout growing season, or when less than 30mm precipitation at the end of any 4 week period;

Plant replacements:

- 4.4 Within 5 years of completion of the development all dead, dying and vandalised plant stock to be replaced at the end of each growing season throughout the maintenance period.

Management of new trees:

- 4.5 Trees shall be inspected every autumn in order to assess their condition and identify tree work requirements. Tree works shall be carried out in accordance with the recommendations of the assessment in accordance with BS8545 Trees from Nursery to Independence in the Landscape.



4.6 Formative pruning of trees (BS8545:2014)

- Co dominant leader to be removed
- Over vigorous laterals to be subordinated
- Opposite branches to be removed
- Upright growth into crown to be removed
- Lower branches from nursery to be kept subordinated and to not form part of final scaffold

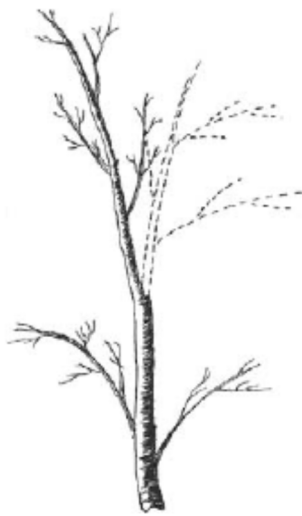
-  Likely extension growth following pruning



4.7 Lateral branches subordinated to retain size at no more than 50% diameter of main stem at point of attachment.



- 4.8 Included branch unions or weak forks to be pruned out.



- 4.9 Co-dominant leaders to be pruned out or subordinated to the main leader.

Hedgerows:

- 4.10 Trim outside of the bird nesting season in late February. Maintain hedgerow at 0.75m width and 1.2m high.

Grass cutting:

- 4.11 Grass to be cut throughout the first growing season to maintain a sward of 40mm to create tillering of grasses and make good coverage. To be edged and clippings removed and watered as necessary.

Management Soft works

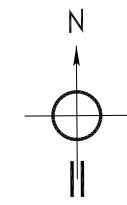
	Year 1	Year 2	Year 3	Year 4	Year 5
Wild flora lawn care	Regular mowing throughout the first growing season to maintain a 40mm sward. Maintain tidy edges and remove arisings	Regular mowing throughout the first growing season to 25-40mm sward. Maintain tidy edges and remove arisings	Regular mowing throughout the first growing season to 25-40mm sward. Maintain tidy edges and remove arisings	Regular mowing throughout the first growing season to 25-40mm sward. Maintain tidy edges and remove arisings	Regular mowing throughout the first growing season to 25-40mm sward. Maintain tidy edges and remove arisings
Hedgerows	Formative pruning, reduce to 75cm to encourage bushy growth.	Formative pruning, reduce to 1m to encourage bushy growth.	Maintain at 1.2m height and 70cm width.	Maintain at 1.2m height and 70cm width.	Maintain at 1.2m height and 70cm width.
Inspection of tree health	Yearly Check tree health. Ensure good form by formative pruning	Yearly Check tree health. Ensure good form by formative pruning	Yearly Check tree health. Ensure good form by formative pruning	Yearly Check tree health. Replace, dead dying and diseased stock. Remove stakes and ties	Yearly Check tree health. Replace, dead dying and diseased stock

5 Plant schedule

Trees - Selected Standard: Native = (n); wildlife friendly = (w); multi-stemmed (MS)				
Name	Girth	Root condition	Habit	Number
Betula utilis (w)	10-12cm	Bare root or root balled	Ornamental tree with very white stems upright branches up to 12m	9
Pinus nigra (n)	10-12cm	Root balled	Naturalised conifer up to 15m	3
Sorbus aucuparia	10-12cm	Bare root or root balled	Native tree with red berries in autumn up to 12m	10
Tilia cordata 'Green Spire' (w)	10-12cm	Bare root	Deciduous tree ideal for restricted locations up to 15m	4

Hedge Plants - 7 per linear metre in staggered rows: Native = (n); wildlife friendly = (w); multi-stemmed (MS)					
Name	Size	Root condition	Habit	Density per lsqm	Number
Carpinus betulus (n)	60cm	Bare rooted	Deciduous	2	72
Crataegus monogyna (n)	60cm	Bare rooted	Deciduous	3	108
Corylus avellana (n)	60cm	Bare rooted	Deciduous	1	36
Ilex aquifolium (n)	60cm	Bare rooted	Evergreen	0.5	18
Rosa canina (n)	60cm	Bare rooted	Deciduous	0.5	18

APPENDIX 1

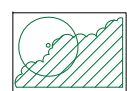
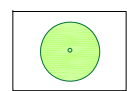
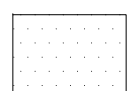


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-  Retained trees and hedgrows
-  Extra heavy standard tree
-  Transplanted tree
-  New hedgerow
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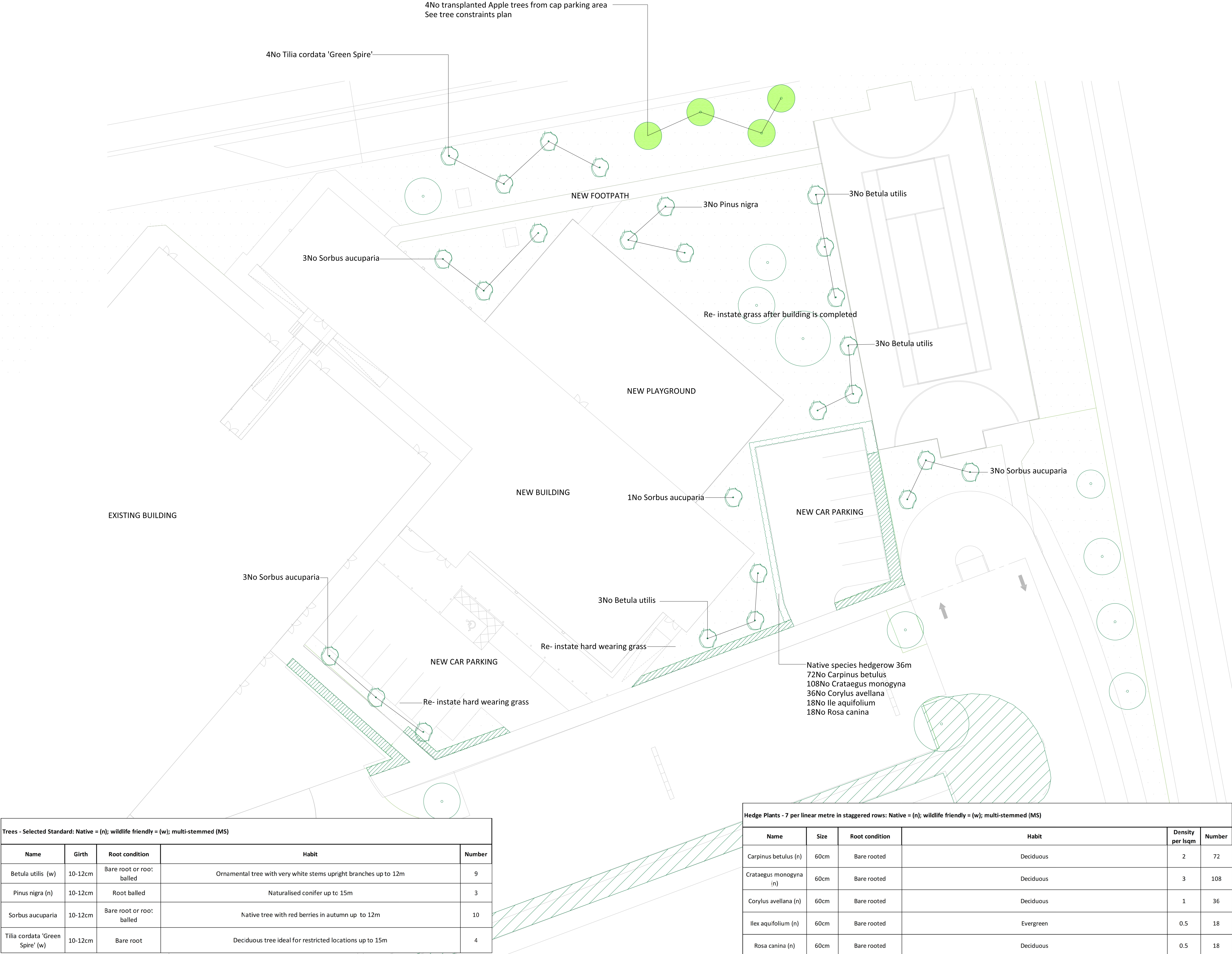
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Project: Connells Co-op College, 301 Alan Turing Way, Manchester, M11 3BS		
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