

Construction Environmental Project Plan



Elm Park

2020-037

Managing Environmental Risk and Realising Opportunities

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PART A: PLANNING AND PROCEDURES

1.0 ENVIRONMENTAL PLANNING

Procedures for environmental planning will be found in the Risk Management System and specifically RMS-PR-050 Project Environmental Planning procedure. Specific procedural actions will be designated for each project through completion of Mi|Risk, using RMS-PR-004 Assessing Risk Profile.

Emergency planning will be undertaken following the Safety & Environmental Emergency Planning Arrangements (SEPPA) procedure (RMS-PR-005) and completing RMS-PL-023. This document will be held in the site’s red Emergency Folder.

1.1 ENVIRONMENTAL PLANNING GOVERNANCE

PRE-CONSTRUCTION PREPARED BY	Dave wood	DATE	1/12/20
TITLE	Pre-Construction Manager	Signed	Dave wood
REVIEW/VERIFICATION	Luke Mulder	DATE	2/12/20
TITLE	Environmental Manager	Signed	[REDACTED]
PERSON RESPONSIBLE FOR UPDATING THE PLAN	TBC		
TITLE	Senior Build Manager		

DISTRIBUTION	A hard copy will be held on site. Further copies are available on request.
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1.2 REVISION RECORD

The Project Environmental Plan and associated documentation (in particular the Mi|Risk Aspects and Impacts Assessment) is to be **reviewed** (and updated as necessary through CRM) **at least each quarter** from the project start date **(or revised for any significant project programme or planned change)**, with the review date and/or any revisions logged below.

Rev	Date	Changes	Initial	
			OM/ CM	EM
1.1	19.01.21	Updated site layout and tree removal plans	JR	

2.0 PROJECT DETAILS & DESCRIPTION

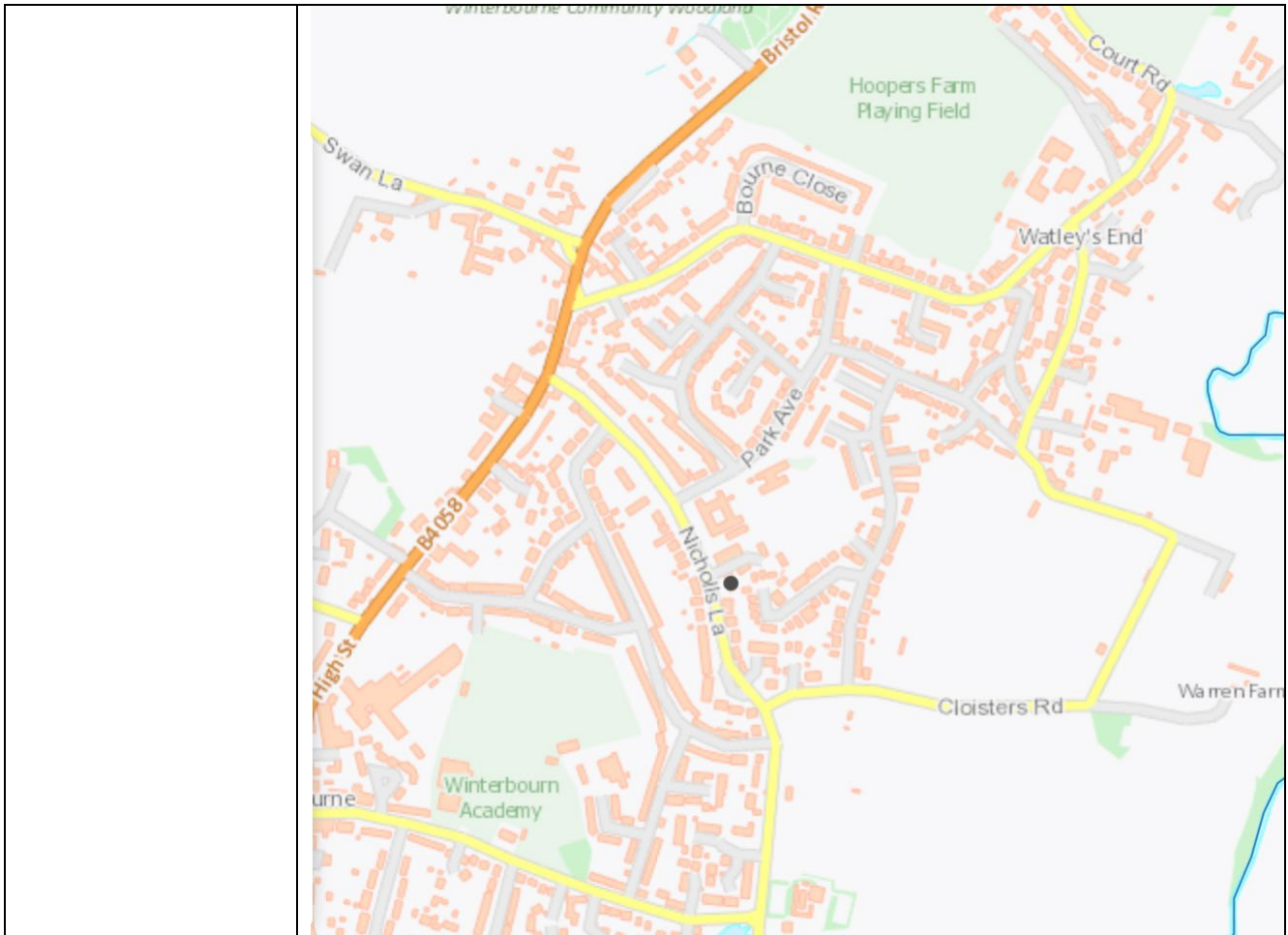
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Elm Park Primary School

PROJECT summary based on Mi Risk and Preconstruction information			
Name	Elm Park Primary School		
Address	Elm Park Primary School, Winterbourne, Bristol, BS36 1NF		
Client	South Gloucestershire Council		
Timescale	Start Date	19/04/2021	Estimated Completion Date 31/05/2022
PROJECT DESCRIPTION			
<p>Elm Park Primary School will be a 1FE, with additional eighth classroom, school located adjacent the current 2FE primary school. The current primary school is set to be demolished, the second phase of which will form part of the main contractors works.</p> <p>The construction will be in 2 phases with phase 1 consisting of enabling works including demolition of four classrooms to allow space for the main contractor to build the new school, whilst allowing enough space in the existing school for the school to function prior to completion. The construction of the new primary school building, which is a 2 storey timber frame structure designed to Passivhaus Classic standards, with adjoining car park. A landscaping package of works consisting of a MUGA and play area are being built on the playing field to give the school some outdoors play space whilst the main contractor is onsite.</p> <p>Phase 2 will consist of demolition the old building and landscaping works.</p>			
SITE OVERVIEW			
The site is located:	The site is located at Elm Park Primary School, Winterbourne, Bristol, BS36 1NF. The National Grid Reference: ST653809. The site is relatively small, contained by the school on the north and east, and two roads on the south and west. The school is set in a semi-rural setting surrounded by residential properties and open agricultural fields. The current school, approximately 1 hectare in size, comprises multiple buildings, hardstanding, small green spaces and a pond. The schools playing field, approximately 0.87 hectares in size is located to the east of the site.		
Geology:	<p>The ground investigation focused on the eastern section of the site in the position of the proposed new school building, where access is currently possible; no information on ground conditions was obtained from the remaining areas of the site.</p> <p>The upmost strata encountered was either topsoil or Made Ground, comprising predominantly Black Tarmacadam in the 0.1m closest to the surface and occasionally gravel of limestone beneath it. Sandstone gravel, probably formed due to the weathering of Sandstone of the Mangotsfield Member, was frequently encountered between the Made Ground or topsoil and the bedrock, with a thickness of between 0.48m and 1.8m. The bedrock, sandstone of the Mangotsfield Member was encountered at shallow depths of less than 2m with strength increasing with depth. It was found to be overlain by what is expected to be weathered Mangotsfield Sandstone.</p>		
Contaminated Land:	<p>Land contamination was assessed through the development of a conceptual model (CM) which describes the relationship between contaminants which may be present from past and current activities. It found that overall contamination risk associated with the site is considered to be low to both human health and controlled waters. In relation to future proposed remedial works at the site, the following is</p>		

	<p>likely to be required:</p> <ul style="list-style-type: none"> - adoption of appropriate health and safety measures, practices and procedures during construction to mitigate potential risks to construction workers; - adoption of appropriate best practice environmental management during construction, e.g. minimisation of dust generation and migration, to mitigate potential risks to controlled waters, visitors and surrounding offsite users; - vigilance to be maintained throughout the works for potential asbestos containing material at surface or other unexpected contamination during potential site earthworks in areas not previously investigated; and, - any water encountered during the development works should be appropriately managed in accordance with best practice and current guidance. Care should be taken not to create any preferential pathways for water to migrate towards and potentially affect surface watercourses. <p>If, during the excavation works any visibly contaminated material is encountered in excavations, advice will be sought from an Environmental Scientist additional testing and assessment of the risks agreed.</p>
<p>Groundwater:</p>	<p>No groundwater was encountered during the drilling of the exploratory holes which reached a dry depth of 1.2m below ground level (bgl) in the case of the borehole and 2.3-2.4m bgl in the case of the trial pits. The only groundwater monitoring reading available detected water at a depth of 3.5m bgl corresponding to an elevation of 61.94m AOD on the 29th July 2020.</p>
<p>Watercourses & Flood Risk:</p>	<p>The eastern boundary of the site is located approximately 600m away from a main river (River Frome) which is beyond a cluster of residential houses.</p>



<p>Biodiversity:</p>	<p>Extracts taken from the ecological survey by Wessex Ecology Consultancy, 2019 (appendix 13.1)</p> <p>Habitats</p> <p>Most of the grassland across the site has been intensively managed and, in the past, treated with fertilisers. This has excluded all but the most tolerant of plant species and all of those recorded are common in both urban and rural areas. Regular mowing means that the grasslands lack any feature that indicates they are likely to be of value for invertebrates. Grasslands such as this are widespread across lowland Britain and are readily recreatable.</p> <p>Most of the grasslands are of minimal nature conservation value. Yet a small area of grassland is significantly more diverse. It includes species such as ox-eye daisy, black knapweed and common bird'sfoot trefoil that are intolerant of fertiliser and have been uncommon due to agricultural intensification. The presence of features such as patches of taller grassland and banks with different aspects and patches of sparsely vegetated ground indicates that the area is likely to be of some value for insects. This is supported by the records of common blue and small copper butterflies and <i>Lasioglossum morio</i> and <i>Lasioglossum calceatum</i> bees, although none of these species is uncommon and the potential value of the area is limited by its small size and isolation from other suitable habitat. The fungus <i>Cyathus olla</i>, which was present on a nearby area of playing field is uncommon. Bristol Regional Environmental Records Centre (BRERC) database does not contain any records from South Gloucestershire, and no 21st century records for the whole area.</p> <p>Most of the trees and shrubs around the site are immature specimens of</p>
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non-native species, but they provide habitat for birds and other wildlife. These include birds of conservation concern, such as greenfinch. The trees generally are of low nature conservation value in a local context. Some of the wooded habitats are of greater value and some hedges include a good variety of native tree and shrub species, although several of these were planted relatively recently. They are dense and provide good habitat for birds and other wildlife. A tree that supports the Nationally Scarce moth red-belted clearwing will be retained and protected during construction. These features are of high nature conservation value in a local context.

The following will be implement to mitigate any habitat loss from the development in line with the ecological surveys recommendations and planning conditions:

Thirty-six trees will be removed to facilitate the proposed development.

- It is proposed to mitigate for the loss of these trees by the implementation of a landscaping scheme including replacement trees and shrubs to enhance that landscape and visual amenity of the site. The details and specification for the proposed landscaping will be agreed with the Local Planning Authority.
- Retention of grass mound and adjacent area with locally rare fungus as well as additional grassland on areas of nutrient-poor subsoils will be plant as replacement of areas of grassland that is lost.
- A replacement pond will be created to replace the existing pond
- Boundaries 6, 8 and 9 will be protected against additional light spillage.
- In order to prevent incidental damage during construction and retained features adjacent to the construction site should be protected using Heras fencing or a similar physical barrier, further detail found in the 'tree' section below.
- Contractors trained on the importance of protecting these features. (refer to section 7.2)
- Impacts on nesting birds should be avoided by carrying out any removal of woody vegetation between 1st October and 1st March. As shown in the construction programme in appendix 13.2 the enabling works, protective fencing and any vegetation removal will all be outside the nesting season. In the event this changes works will be checked by an ecologist before works commence; if occupied nests are found then works in the area, as identified by the ecologist, will cease until a further check has shown the area to be clear of active nests.

Protected Species

No evidence was seen that the site is of any value for badgers. The trees around the site are mostly small and the larger trees are in good condition; no holes, crevices or growths of ivy that could support roosting bats. The school buildings are all modern, and have flat roofs without any lofts, and have walls of plastic panels or well-pointed brick. Features

such as doors, window frames and weather boards are in good condition. The buildings are of no potential for roosting bats. Most of the site does not have potential significant value for foraging and commuting bats, but the tree belts and hedges at areas 6, 8 and 9 could all be used by bats. There are no patches of tall herb vegetation or grassland on the site with the potential to support reptiles.

The HSI assessment of the pond produced a score of 5.1. This is at the low end of the range for below average potential (0.5 to 0.59), only just above poor potential. The low score partially reflects the pond's location, which is in a built-up area surrounded by buildings and roads, although the terrestrial habitats in the immediate vicinity of the pond are of moderate potential value. BRERC do not have any records of great crested newt within 500m of the pond. This isolation, coupled with the relatively recent origin of the pond, makes it extremely unlikely that great crested newt has been able to colonise.

Surrounding Areas

The site does not border any site with a nature conservation designation. Adjacent areas are a mixture of housing and domestic gardens. None of these areas has significant ecological value.

Trees:

The trees are mainly situated around the boundaries of the school field and car parking area to then north of the school buildings. There is a belt of trees which extends north-south across the eastern edge of the existing playground separating the hardstanding playground from the playing field. This group predominantly consists of a line of Beech trees, presumably planted as a screen. Several of these trees, at either end of the group, have been allowed to grow on. The trees within the centre of the group have been suppressed by a category A Oak trees growing within the centre of the group.



Forty trees will be removed to facilitate the proposed development. It is proposed to mitigate for the loss of these trees by the implementation of a landscaping scheme including replacement trees and shrubs to enhance that landscape and visual amenity of the site.

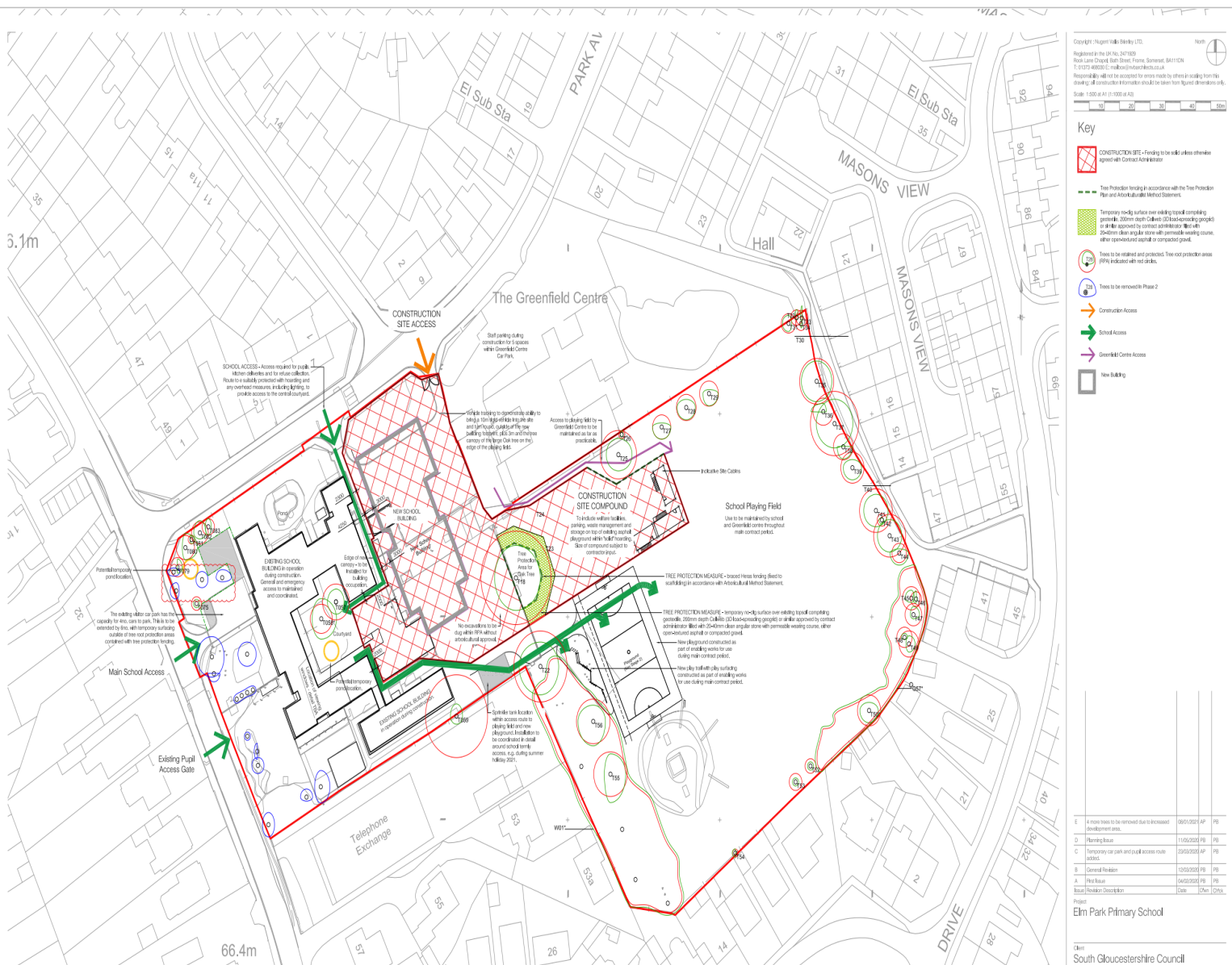
	<p>Tree Protection</p> <p>The Arboricultural report in appendix 13.3 includes the arboricultural impact assessment (AIA), Arboricultural method statement and the following tree protection measures for the trees to be retained on site during and after development:</p> <ul style="list-style-type: none"> - will require both above and below ground protection. - Below ground protection measures, based on the root protection areas (RPA), will involve the erection of tree protection barriers. - Where the proposed site layout encroaches into the RPAs of retained trees, measures are recommended to minimise the potential damage to the roots and the root environment of the trees in question. <p>Tree protection fencing for phase one and 2 are included in the appendix Plan 2.</p>
<p>Invasive Species</p>	<p>No invasive species have been observed on or adjacent to site.</p>
<p>Archaeology:</p>	<p>The Archaeological Evaluation at Elm Park Primary School, Winterbourne uncovered a number of probable man-made ditches, which may be prehistoric or Romano-British in date, and one probable palaeochannel. Although their characteristics are very different, the alignment of probable ditches may suggest the western and southern sides of some kind of enclosure or boundary system. However, as no finds were uncovered, no definitive conclusion can be reached on this without further data being collected. Therefore, it is believed that there is a need for further investigation of the site in order to clarify the above.</p> <p>This project is designed to excavate and record all buried archaeological deposits and finds within the areas of the site impacted by the new school building, which will be sited on the current school car park and encompasses the significant archaeological features found in evaluation trenches 4, 5 and 6. The results of the fieldwork will subsequently be assessed in order to identify and characterise each class of archaeological data recovered from the site. Following this, a combined and final report will be produced, outlining the results of the evaluation and excavation fieldwork and their significance within the wider archaeological landscape.</p>
<p>Refer to the project’s Mi Risk assessment that addresses the environmental aspects with detailed impacts mitigation plan and actions required to manage these items.</p>	

2.1 SITE LAYOUT PLAN

Copies of the site layout, logistics and drainage plans are to be placed within the SEPA document and on the H&S and Environmental Noticeboard. The layout plan may include the following, and any other site specific detail, in reference to this checklist, as applicable:

Site SHE Criterion	Y/NA	Site SHE Criterion	Y/NA
o Site Boundary	Y	o Logistics route / access points	Y
o Site Cabins / Offices	Y	o Nuisance risk avoidance / touch points	Y
o Material storage areas	Y	o Material and Reuse areas	Y
o Fuel stores/designated refuel points	Y	o Skip and recycling areas	Y
o Liquids / COSHH stores	Y	o	
o Tree or Hedge Protection Areas	Y	o	

Phase 1 logistics plan;

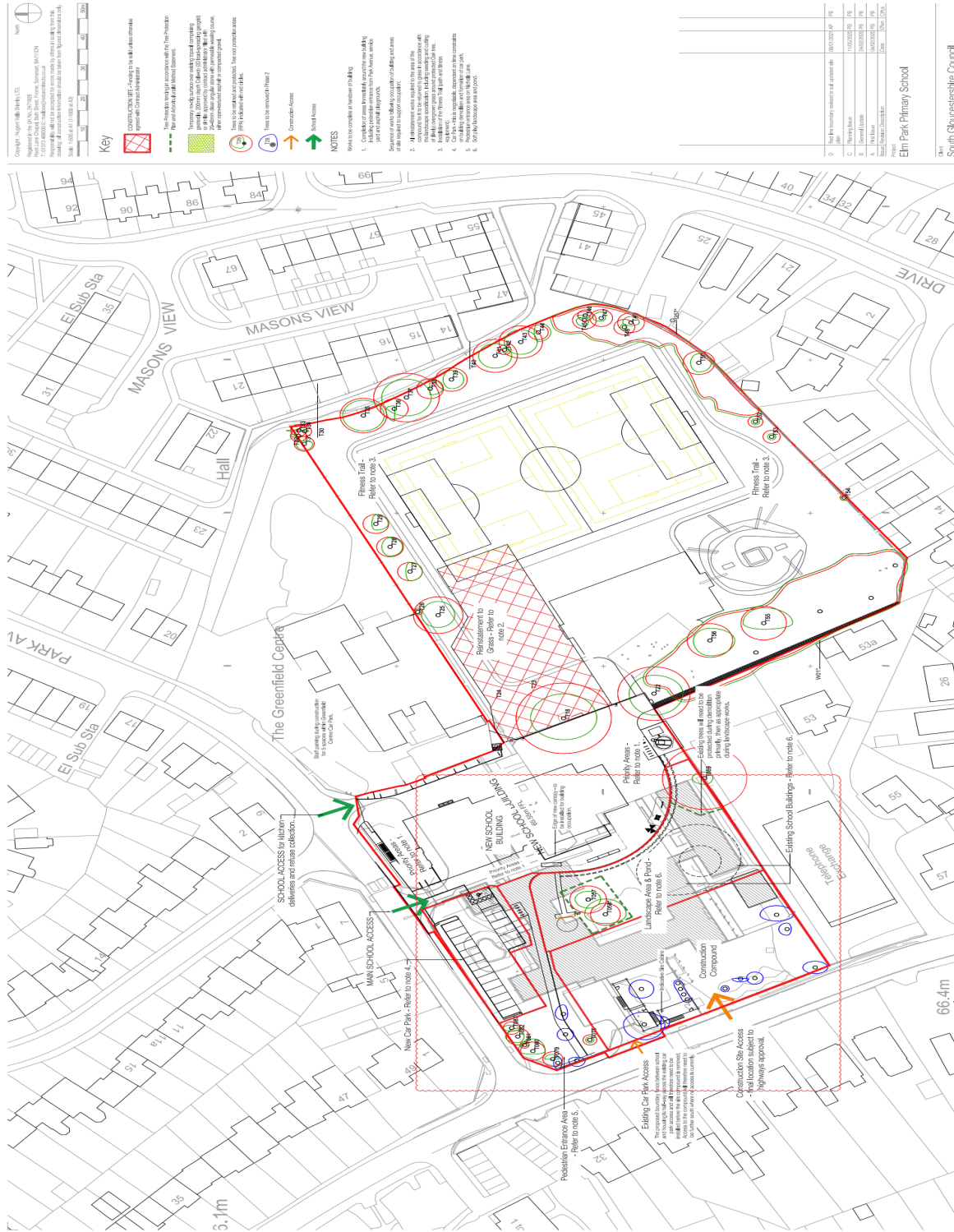


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Phase 2 logistics plan:



3.0 CLIENT OR PROJECT SPECIFIC REQUIREMENTS

The applicable environmental requirements to be delivered by the project, in addition to Willmott Dixon targets and procedures, are summarised in the table below, and may include contractual requirements, as well as any conditions required by the Local Authority with respect to Planning or nuisance mitigation for the local community.

For this project the following requirements are specified:		
Site Working Hours	Monday – Friday:	7:30- 18:00
	Saturday:	Not specified
Noisy Works Restrictions	Local Authority:	Subject to planning
	Client:	Not specified
Delivery Time Restrictions	Not currently specified	
Vehicle/Traffic Restrictions	Not currently specified	
Planning Conditions	<p>Planning conditions 15: Ecological Report (Compliance)</p> <p>The development should proceed in accordance with the recommendations made in Section 6 of the Ecological Report by Wessex Ecological Consultancy (August, 2019). This includes the retention of the features of nature conservation value (the grassland 'mound' and adjacent area with locally rare fungus and the tree containing the Nationally Scarce moth), replacement tree planting with native species, relocation of the existing pond and translocation of contents (at appropriate time of year), protection of nature conservation feature during construction, avoiding light spill onto boundaries 6, 8, 9 and timing of works regarding breeding bird season.</p> <p>This condition has been addressed through implementing the ecological recommendations in the project design and the retention, replacement and relocation of habitats have been outlined in section 2 'biodiversity'</p> <p>Planning conditions 16: Ecological Mitigation</p> <p>Prior to the first occupation of the development hereby approved a location plan to include the type of 2 bat boxes, 4 bird boxes (including one house sparrow terrace), a bee hotel and new lighting as set out in the Ecology Report (Wessex Ecological Consultancy (August, 2019)) should be submitted to the local planning authority for approval in writing. The works shall be carried out in accordance with the approved details.</p> <p>The ecological location plan is under development and will be submitted to planning for approval in due course.</p>	

4.0 ENVIRONMENTAL RISK ASSESSMENT MATRIX & ASPECTS AND IMPACTS

Environmental risk is assessed using the Assessing Risk Profile procedure and completing Mi|Risk. Provide summary of Mi|Risk for reference in s4 of the PEP if required. Individual



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environmental aspects and their significance are identified, along with appropriate mitigating actions. Those activities that remain after preconstruction mitigation, and that have a HIGH residual risk, should be discussed further and appropriate management should be considered, with specific RAMS for these activities to cover health, safety and environmental impact mitigations. The Mi|Risk Risk initial review summary for the start of the project may be held in this section or shown on request by the project team to stakeholder on request.

5.0 ENVIRONMENTAL PERMITS, LICENCES & EXEMPTIONS

The project may require specific environmental permits/licences/consents/permissions for its operational delivery, which will be included within the Mi|Risk project assessment. The project team will review/complete the environmental permits/licences/consents/permissions for its operations, using the list below, with the support of the LCO's Environmental Manager. Note that this list is not exhaustive, and there may be other permits required, as recorded in the Action notes on Mi|Risk. Copies of permits etc. will be kept in this section.

Permit/Licence	Purpose	Required (Y/N)	Date Applied	Date Received
Abstraction licence	Usually for open loop boreholes, the application process can take 3 months following testing of the boreholes and has a cost implication, from October 2009 onwards it is also likely that dewatering of quantities greater than 20m ³ /day will also require a licence, if the dewatering will be for less than 28 days a temporary licence can be applied for and takes around 1 month.	N		
Section 32 Consent	Required for drilling boreholes and requires a form to be submitted to the Environment Agency. If applying to drill boreholes for water abstraction i.e. open loop GSHP the EA will set conditions on the drilling and subsequent testing of the boreholes. Consent will take 1-2 weeks.	N		
Water Discharge Consent	Required to discharge to either groundwater or surface water i.e. discharging back to a borehole following abstraction, pumping dewatering water to a river/ stream. Requires an application to be made to the Environment Agency and the application process can take 4 months.	N		
Trade Effluent Consent	Required to discharge anything other than 'domestic' sewage to a foul sewer, therefore any dewatering water, pool testing water or other discharge other than toilet and kitchen waste will require consent from the sewerage company/ authority. This can take 4-6 weeks and has a cost, dependent on the sewerage provider.	N		
Section 61 Consent	Required when noisy works are likely to occur. Requires an application to be made to the local authority giving details of the methods to be used and anticipated noise levels. Can take a number of weeks to be granted.	N		
Waste Exemptions	U1 Exemption – Use of waste (crushed and excavation)	Y		
	T7 Exemption – Crushing bricks and concrete	N		
	T5 Exemption – Screening and blending of waste	N		
	U8 Exemption – Use of waste for specified purpose	N		
	Refer to RMS-PR-071 Exempt Waste Activities on Site			
Headwall agreements	Required from the Environment Agency for headwalls to be altered or built. Consent may take a number of months and the Environment Agency should be consulted during the design of the Headwall.	N		
Environmental Permit for Flood Risk Activities	Formally Flood Defence Consents. Permitting options now in place for flood risk activities – exclusions, exemptions and environmental permits. Consult with Environmental Manager and refer to RMS-PR-054 procedures.	N		
Wildlife	Numerous wildlife permits and will be determined by what wildlife is on the site e.g. badgers, bats etc. For further information please refer to the ecology report and consult with your environmental manager.	N		
Footpaths	Consent in the form of a 'public path order' is required from the local authority to enable any public footpaths to be diverted, it is likely that this will require the proposal to be advertised and any objections considered and therefore will take some time, and also involves the cost of application and advertising, for further information please refer to the relevant local authorities website.	N		

6.0 WEEKLY INSPECTIONS

The project team will complete weekly inspections on the company’s systems, using the checklists to ensure all operational risk controls are maintained, or if observations made that these need reinstating, to record corrective actions taken with images before/after, as well as any mitigation actions needed by the site team, such as briefings or toolbox talks.

7.0 ENVIRONMENTAL AWARENESS AND TRAINING

The project will require specific roles, toolbox talks and training, dependent on the works occurring on site and the Mi|Risk profile assessment.

7.1 SPECIFIC ROLES

In reference with the Mi|Risk summary, the following specific roles will be required on this project and the project’s construction team will appoint Competent persons (e.g. SEATS or equivalent):

Role	Designated Person
Carbon Co-ordinator	Build Manager TBC
Biodiversity Co-ordinator	Build Manager TBC
Community Co-ordinator	Social Values Manager TBC
Waste Co-ordinator	Build Manager TBC
Timber / Materials Co-ordinator	Build Manager TBC

7.2 IDENTIFIED PRIORITY TOOLBOX TALKS & TRAINING

The following risk-based priority training needs have been identified for this project:

Toolbox Talk/Training	Supply Chain/WD People	When Required	Completed (Y)
Be A Good Neighbour	All	Within 1 st week	
Fuel Storage & Handling	Groundworkers Demolition	After induction	
Tree Protection	Groundworks & Demolition contractor	Within 1 st weeks	

NOTE: the above list of training is not exhaustive and during the life of the project, toolbox talks will be used at relevant project phases to remind the site team, supply chain and trades of best practice procedures and advice.

Toolbox Talks (TBTs) and Trade Information Sheets are provided on the RMS Reference Resources section of The Hub. TBTs to be recorded using the TBT Register (RMS-FM-062).

8.0 ENVIRONMENTAL COMMUNICATIONS

Refer to RMS-RM-064 Communications procedures for responsibilities when communicating information internally and externally, or capturing observations, incidents and accidents (RMS-PR-002), engaging with our people (RMS-PR-003) and any external interested party.

8.1 ENVIRONMENTAL OBSERVATIONS and INCIDENTS (Mi|SHE)

Any environmental observations and incidents, such as spillages, adverse effects on wildlife or significant dust emissions, must be recorded on Mi|Project within 24 hours of occurrence. Actions taken on observation/discovery of potential impact or following an incident, and to prevent a reoccurrence, should also be recorded and closed out as soon as practicable. Response will be to **STOP – CONTAIN – NOTIFY – CLEAN-UP**, following SEEPA procedures RMS-PR-005 and using the SEEPA Plan RMS-PL-023.

Observations (Level 4) and Minor incidents (Level 3) are important learning opportunities and all reporting will help continued improvements and trending, using Mi|SHE via Mi|Project.

8.2 ENFORCEMENT AUTHORITY VISITS (Mi|Project)

Environmental visits from enforcement authorities (e.g. Environment Agency or Local Authority) must be recorded on Mi|SHE via Mi|Project, along with corresponding actions. Actions required following the visit must be closed out as soon as practicable.

Any communications from regulatory bodies regarding complaints about the site or possible enforcement action should be copied to the Environment Manager, who can then offer support and guidance as needed. Use the Reference document to prepare for when an inspector calls.

8.3 COMMENTS, COMPLIMENTS & COMPLAINTS (Mi|Project)

All communication with neighbours or the general public must be recorded on Mi|SHE Communications Registration via Mi|Project, whether positive or negative, and any corresponding actions closed out as soon as practicable. This may include complaints, comments, compliments and regular letter drops.

It is essential that positive management action is demonstrated, with continued improvement and learning from each event, as assurance and mitigation of regulatory intervention. The information recorded is an important tool to manage the site's relationship with the local community, as well as evidence for the project's Considerate Construction (CC Scheme). The communication information recorded on Mi|SHE (in Mi|Project) replicates the CCS log, therefore it is sufficient evidence to present to the CCS Monitor.

8.4 CONSIDERATE CONSTRUCTORS SCHEME

As a [Partner member](#) of the Considerate Constructors Scheme (CCS), all Willmott Dixon projects over 6 weeks in duration are registered with the Scheme. Each site will have a CCS folder on site, containing the Reference checklist document for CCS Monitor Visits and relevant evidence to present to the attending CCS Monitor. LCO Environmental and Community teams should be informed of Monitor visits in advance and to support visits. The communication information recorded on Mi|SHE (in Mi|Project) replicates the CCS log, therefore it is sufficient evidence to present to the CCS Monitor.

8.5 ENVIRONMENTAL SITE VISITS AND AUDITS

Project audits and site inspection visits will be conducted by the Environmental Manager, or competent auditors to ISO14001 standards, to ensure the LCO's compliance with the environmental management system, according to RMS-RM-090 Performance procedures. LCO Health, Safety and Managers will also include environmental observations and corrective actions as part of their site visit reports.

PART B: BIODIVERSITY ACTION PLAN

9.0 INTRODUCTION

This Biodiversity Action Plan (BAP) should be completed at all three project stages: **Preconstruction, Operations and Post-construction**. The BAP should demonstrate project commitment to mitigating harmful impact on existing site Biodiversity as well as commitment towards maximising enhancement measures in accordance with the [Group Biodiversity Strategy](#) and project specific requirements, either on or off site.

9.1 PRECONSTRUCTION PLANNING and OPERATIONAL DELIVERY of Mitigation, Enhancement and Eradication actions

To be completed during the Preconstruction Stage and reviewed before starting on site (this is by no means an exhaustive list)
Last column to be completed during the Operations Stage and reviewed throughout on site duration (this is by no means an exhaustive list)

Actions	Basic / Intermediate / Extensive	Mitigation	Enhancement	Eradication	WD / BREEAM / Planning / Ecologist Requirement	Status <i>(indicate programme date, whether in progress or completed, who's responsible for collating evidence and quantity of outcome for BOD)</i>
Engage Landscape Architect at earliest opportunity and ensure that the Landscape Plan is checked by Ecologist.	Basic	✓	✓	✓	Willmott Dixon	Landscape architect to be contacted.
Ecology Report to define simple and effective enhancement measures.	Basic		✓		Willmott Dixon	Ecological Enhancements of the PEA reviewed.
Identify suitable plant / shrub/ flower species for attracting insects, butterflies and other wildlife.	Basic		✓		Willmott Dixon	Species identified
Wildflower mix; use existing topsoil and subsoil where possible.	Intermediate		✓		Willmott Dixon	Surplus topsoil to be investigated for reuse

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Actions	Basic / Intermediate / Extensive	Mitigation	Enhancement	Eradication	WD / BREEAM / Planning / Ecologist Requirement	Status <i>(indicate programme date, whether in progress or completed, who's responsible for collating evidence and quantity of outcome for BOD)</i>
Avoid soil import – initial outlay. Budget for soil scientist with view to utilising existing soil for reuse.	Intermediate	✓	✓		Willmott Dixon	TBC
Remove threat of invasive species and record area eradicated in the Biodiversity Outputs Delivery (BOD) document.	Extensive			✓	Willmott Dixon	End of programme

Complete Section 12 Project SHE Closeout with data entry to the Biodiversity Outputs Data sheet at the end of project delivery.

PART C: RESOURCE EFFICIENCY

10.0 ENVIRONMENTAL SUSTAINABILITY OBJECTIVES, TARGETS AND PROJECT ACTION PLANNING

10.1 MEASURING PERFORMANCE

Environmental Key Performance Indicators (eKPIs)

The site team (Operations supported by Commercial to validate data to billed readings and waste invoices) are required to collect data on the project's environmental sustainability performance, which includes the Constructing Excellence Key Performance Indicators in line with the environmental objectives. Meter readings (electricity, water, etc) must be entered monthly and waste information recorded on MiProject by the 7th of each month.

Reported data is to be reviewed on a monthly basis and any data outliers are to be validated to ensure readings are correct and data provided correct; discuss variance to targets with the LCO's Environmental Manager to note reasons or review options for improvement.

Note: If a site is unable to complete MiProject entries due to limited connectivity, remote support to enter data should be identified.

Project Objectives Delivery (10 Point Plan)

Core environmental and sustainability indicators of the Project's performance are included in the business's 10 Point Plan for sustainable design and operational delivery of projects. Each project must maintain a tracking document against the projects performance of the 10 Point Plan (RMS-FM-086). The objectives are reviewed annually and reset for the start of each year (i.e. projects starting from 1st Jan will reference the objectives for that new year; projects may end 1-3 years later, but will still perform to the objectives for the year in which the project began. Projects with distinct and separate phases will differ; the objectives applicable for the subsequent phase will be those for the year in which the new phase began).

The Resource Management Plan, Materials Reuse Register and Materials Management Plan will be recorded in the proceeding sections.

10.2 RESOURCE MANAGEMENT PLAN

Review the following action plan, amend suggested options in red text or delete if not relevant/practicable.

Actions that will be taken by the project to improve resource efficiency and avoid waste carbon and materials are logged here, including:

- Completion of Waste Prediction Tool RMS-FM-030 to set target for waste skips and track actual number used
- Design decisions to reduce waste
- Construction methods to reduce waste
- Materials management
- Skip selection and waste stream segregation
- Material takeback/reuse schemes
- Operational carbon reducing actions (energy for site and welfare, such as electricity, gas, diesel)
- Water reducing actions (alternative techniques/dry approaches, improving design and programming to reduce demand or using alternative sources (attenuation of harvested water))

Action	Additional Costs (£)	Cost Savings (£)	Action Owner	RAG Status (Red/Amber/Green)	Impact on resource efficiency (✓ = Alt + 0252)							
					Reduced Waste	Reduced Materials Required	Reduced vehicle movements	Increased recycling rates	Material Reuse (on/off site)	Reduced energy use	Reduced water use	Community/Social Benefits
Waste Reduction Actions												
Insert design decisions to reduce waste			Pre construction team		✓	✓	✓					
Design out waste workshop			Pre construction team		✓	✓	✓					
Non-hazardous products specified to reduce hazardous waste			Pre construction team		✓		✓	✓				

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Impact on resource efficiency (✓ = Alt + 0252)

Action	Additional Costs (£)	Cost Savings (£)	Action Owner	RAG Status <small>(Red/Amber/Green)</small>	Impact on resource efficiency									
					Reduced Waste	Reduced Materials Required	Reduced vehicle movements	Increased recycling rates	Material Reuse (on/off site)	Reduced energy use	Reduced water use	Community/Social Benefits	Reduced Nuisance	
Material reuse with charities /organisations (e.g. Community Wood Recycling Scheme)			Operations team						✓				✓	
Material Take Back Scheme			Operations team						✓					
Optimal Skip compaction (Achieve <10% void space)			Operations team					✓						
Material reuse area			Operations team		✓	✓	✓		✓					
Operational Carbon (Energy) Savings														
Eco cabins			Operations team/QS								✓	✓		
Early connection to grid			Operations team								✓			
Use of hybrid generators			Operations team								✓			✓
Timed zoning of cabins			Operations team								✓			✓

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Impact on resource efficiency (✓ = Alt + 0252)

Action	Additional Costs (£)	Cost Savings (£)	Action Owner	RAG Status <small>(Red/Amber/Green)</small>	Impact on resource efficiency (✓ = Alt + 0252)								
					Reduced Waste	Reduced Materials Required	Reduced vehicle movements	Increased recycling rates	Material Reuse (on/off site)	Reduced energy use	Reduced water use	Community/Social Benefits	Reduced Nuisance
LED temporary lighting			Operations team							✓			
Energy sub-meters to be installed			Operations team							✓			
Night Electrical Shut Down			Operations team							✓			✓
Use of efficient plant & equipment			Operations team							✓			
Site Travel Management Plan			Operations team				✓					✓	
Water Reduction Actions													
Water sub-meters to be installed			Operations team								✓		
Rainwater harvesting			Operations team								✓		
					Impact on resource efficiency (✓ = Alt + 0252)								

10.3 REUSE OF MATERIALS

Materials Reuse Records

Materials can be reused on- or off-site, as long as used for the purpose of original intent, or through use of the relevant regulatory agreed protocol and code of practice. Records of material reuse must be kept on MiProject, with evidence for regulatory assurance held in the PEP files, as well as to demonstrate positive efforts taken to avoid waste creation.

Records will summarise materials provided to exchange/reuse networks, charitable and community groups, and reuse with other WD projects, as well as waste recycling with supplier takeback scheme use. Materials reused on or off site from demolition and excavation processing, if designated as product with supporting evidence by use of Aggregate QP, DoWCoP or waste exemption. Records of material treatment, stockpiling and final destination must be kept throughout DoWCoP, Aggregate Quality Protocol and waste exemption management. Section 10.4 to record planned reuse of materials. All corresponding evidence must be filed in the PEP Appendices.

10.4 MATERIAL MANAGEMENT PLAN (MMP)

The following opportunities for materials reuse has been identified on this project at Pre-Construction. These include the generation of materials on site and/or the import of processed materials from donor sites, as well as use of purchased recycled materials (aggregates, soils) that are imported onto the project’s site.

Material Prediction	Volume generated from site activities	Volume to be exported	Control Mechanism allowing reuse	Volume Imported	Source of Import
Topsoil			U1 Exemption		
Subsoil			DoWCoP-MMP		
Aggregates			U1 Exemption		

Footnote on Control Mechanism ‘drop-down’ options: details on the limits associated with the control mechanisms are shown in Section 10.3. DoWCoP MMP stands for the ‘Definition of Waste Code of Practice Materials Management Planning’, facilitated for the industry by [CL:aire](#)

Supporting documentation for **imported recycled materials** will be retained on file, providing:

- o proof of origin, quality certification and lab test results for soil and aggregates (both certificate and sample results to be dated within three months and reflective of material provided).

This will be included in Section 10.4 as a table with supporting evidence.

The table in Section 10.4.1 must be completed and plans filed in this section if material reuse onsite is identified in Mi|Risk or following discussions with your Environment Manager.

10.4.1 MATERIAL MANAGEMENT PLAN TRACKING

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The MMP Tracker may be appended with supporting map and topographic levels evidence, or the following table may be used, with additional lines as necessary.

This MMP Summary may be supported by detailed engineering drawings and groundworker excavation records or daily logs, that will be appended to this document as supporting evidence.

Date	Source	Destination	Volume	Plan Reference

PART D: WASTE DUTY OF CARE

11.1 REGISTRATIONS, PERMITS, EXEMPTIONS AND VALIDATION CHECKS

Waste Carriers

All waste removal companies, including project supply chain partners removing their own waste from site, **must be** registered waste carriers. Copies of their Waste Carrier Registration Certificates **must be** obtained and filed within this section of the plan.

Permits and Exemptions

The Environmental Permitting Regulations require that a premise receiving / treating waste must either hold an *Environmental Permit* or *be registered exempt* from permitting requirements. Copies of such documentation, along with details of permitted waste types, must be requested from construction/demolition/excavation waste service providers, prior to any waste being removed from site (i.e. PRIOR to the use of their services being made). The Duty of Care Schedule must be completed PRIOR to any materials being moved from site.

The full permit document will be checked as recorded on the Waste Portal, or if not available, to be held on file (not just front cover). The landfill diversion percentage will be stated in the Duty of Care Schedule, with supporting evidence held on file (or provided on the Waste Portal).

Validation Checks

All Waste Carrier Registrations, Environmental Permits and Waste Exemptions will be checked using the Waste Portal, and to ensure the waste service provider remains valid, by visiting the environmental [Public Register](#) and following the steps in procedure RMS-PR-069 Waste Carrier and Permit Checks. Duty of Care Audits will be carried out before the project uses waste contractors or destination sites. For any waste removed from site which is considered as high risk and/or where the project team has suspicions that it is not being handled in compliance with the Duty of Care (e.g. large quantities of soil/stone or hazardous waste), confirmation of acceptance of the waste at the proposed destination must be gained to ensure compliance. Where there is *'due cause for concern'*, excavation or waste lorries should be tracked (paper trail with supporting evidence to be held on the waste portal or PEP) to ensure they are taking the waste(s) to the correct destination.

DoWCoP (CL:aire) confirmation for Materials removal for reuse on another site

Soil and stone being removed to a Receptor DoWCoP site (CL:aire) for reuse **must be** designated as a material, by the Receiving site's Qualified Person **BEFORE** any soil/stone material is removed from site. The QP **must register** your site as a 'donor' site, within their MMP **BEFORE** any material is removed. No material is to leave site **until confirmation** has been received from the QP that CL:aire and the Environment Agency has approved the registration. Refer to Section 10.3.

11.2 SITE WASTE DATA

The Building Manager must ensure that all waste materials leaving site, including those managed by supply chain partners, are recorded on MiProject SED, having checked WTN's against approved destination sites to ensure that only approved sites are used. Use the Waste Card checklist RMS-RE-009 and reference the correct Waste Description for the EWC code used, as well as the Waste Stream Skip standard void guide RMS-RE-010.

11.3 WASTE TRANSFER DOCUMENTS

There are two types of documentation controlling the transfer of wastes from our sites: **Waste Transfer Notes** (for non-hazardous wastes) and **Hazardous Waste Consignment Notes** (for hazardous wastes). Mixed waste loads will be supported by the Waste Data Entry slip RMS-FM-031, with evidence of waste stream percentage and skip voidage using RMS-RE-010.

NOTE: Copies of all *Waste Transfer Notes* must be kept for **at least two years** and *Hazardous Waste Consignment Notes* **for three years**. They should be readily available upon demand for inspection by the Environment Agency, Natural Resources Wales or Local Authority.

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Willmott Dixon Holdings Waste Carriers Registration:	Reg. Number: CBDU63761	Type: Upper tier	Expiry: 27/09/2021	Being used: Yes/No
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DUTY OF CARE SCHEDULE

Validation with Waste Portal (date/initial of check), then date/initial when no longer used

Producer	Waste Details		Carrier Details		Destination Details			Date when...		
	Supply Chain	Waste type(s)	EWC Code(s)	Carrier	Waste Carrier Licence Number and Expiry Date	Disposal Site Permit/Exemption No.	Waste Transfer/Disposal Site Address	%age Landfill Diversion	Waste Portal check	No longer used
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					
					Exp: <input type="text"/>					



DUTY OF CARE SCHEDULE

Validation with Waste Portal (date/initial of check), then date/initial when no longer used

Producer	Waste Details		Carrier Details		Destination Details			Date when...	
Supply Chain	Waste type(s)	EWC Code(s)	Carrier	Waste Carrier Licence Number and Expiry Date	Disposal Site Permit/ Exemption No.	Waste Transfer/ Disposal Site Address	%age Landfill Diversion	Waste Portal check	No longer used
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					
				Exp: <input type="text"/>					

12.0 PROJECT CLOSEOUT CHECKLIST – for reference in delivery and on completion

Item	Actions	Yes/NA	
Aggregate Quality Protocol	Have the record logs been completed for reuse of crushed materials?		
	Has the Aggregate Quality Protocol document (GP-FM-EM-620) been closed out?		
Definition of Waste Code of Practice (DoWCoP, managed by CL:AIRE)	Have the record logs been completed for the reuse of excavated material?		
	Has the required information been returned to the appropriate consultants?		
MiProject (eKPIs)	Have all the Waste Transfer Notes been added to MiProject?		
	Are the Waste Management Service Provider diversion from landfill figures accurate? Has the final project C/D/E performance data been received from each provider?		
	Has the Material Reuse log been completed?		
	Have the final utilities meter readings been entered onto MiProject? Image of final meter reading available?		
MiProject (Incidents & Communication)	Have all environmental incidents, Enforcement Authority visits and external communications been added to MiProject?		
	No. L1 & 2 incidents	No. L3 incidents	No. L4 observations
	No. of complaints		
Project Sustainability Plan	Has all required evidence been included in the project sustainability folder (on LCO server)?		
BREEAM Home Quality Mark (HQM) CfSH Ska	Has all required evidence been included in the project BREEAM/HQM/CfSH/Ska folder?		
Ensure all activities proposed in the MEE (sections 9.1 and 9.2) have been completed and closed out.			
Include in the O&M plan for biodiversity maintenance / management of green infrastructure (green roofs/walls etc).			

Specify any new sustainable materials/systems you have investigated as part of this project that should be shared within the Pre Construction Department.		
Complete the Biodiversity Output Document (BOD) for this project		
Suggest any environmental case studies that could be produced concerning the above.		
Document Archiving	Have all relevant documents been scanned and saved as per LCO procedures (e.g. WTNs)	
	Have paper copies of all Waste Transfer Notes been archived as per LCO procedures	

13.0 APPENDICES

13.1	Ecological survey
13.2	Construction programme
13.3	Arboricultural report

Wessex Ecological Consultancy

28 Egerton Road, Bishopston, Bristol BS7 8HL

Tel: 0117 9441034

Email: dawn or rupert@wessexeco.co.uk

Web: wessexeco.co.uk



**ELM PARK PRIMARY SCHOOL,
WINTERBOURNE**

ECOLOGICAL REPORT

for

SOUTH GLOUCETERSHIRE COUNCIL

AUGUST 2019

Partners: Dawn Lawrence BSc (Hons) MIBiol; Rupert Higgins BSc (Hons) MIEEM

ELM PARK PRIMARY SCHOOL, WINTERBOURNE ECOLOGICAL REPORT

1 INTRODUCTION

The purpose of this report is to provide an assessment of the impact on biodiversity of a proposal to carry out improvements at Elm Park Primary School, and to make proposals for further survey, mitigation and enhancement as appropriate.

2 METHODS

An Extended Phase 1 survey was carried out on 13th August 2019. It covered vegetation types and vascular plants and birds. The site and surrounding areas were searched for badger setts and for other signs of badger activity, including paths, feeding signs and dung pits. Trees were carefully searched, using binoculars where necessary, for potential bat roosts in holes, crevices and dense growths of ivy. Buildings were checked for features that might support roosting bats. Habitat quality for reptiles and other protected species was assessed, this included compiling a Habitat Suitability Index (HSI) to evaluate the potential of a pond on site for great crested newt.

3 SURVEY RESULTS

3.1 Site Description

The survey site consists of the existing school buildings and associated playing fields, play grounds and tree lines. The site includes a small wildlife area with a pond.

Neither the survey site itself nor any adjoining area has any nature conservation designation. The closest Site of Nature Conservation Interest is along the River Frome, approximately 600m to the east. The only site with a statutory nature conservation designation in the surrounding area is a section of railway cutting approximately 1km to the south, which is a geological Site of Special Scientific Interest (SSSI).

3.2 Vegetation

The areas described below are shown on the attached map.

1: The largest vegetated area on the site is the playing field, which has close-mown grassland. Most of this grassland is dominated by perennial rye-grass (*Lolium perenne*) with smaller quantities of rough-stalked meadow grass (*Poa trivialis*), creeping bent (*Agrostis stolonifera*) and red fescue (*Festuca rubra*). Herb species include white clover (*Trifolium repens*), creeping buttercup (*Ranunculus repens*) and rat's-tail plantain (*Plantago major*).

1a: Parts of the playing field are slightly more diverse. Red fescue is more frequent here, and additional herb species include common catsear (*Hypochaeris radicata*),

smooth hawkbeard (*Crepis capillaris*) and self-heal (*Prunella vulgaris*). The bird's-nest fungus *Cyathus olla* is present in the south-western corner of the playing field.

1b: The banks of the mound here support significantly more diverse grassland. Additional species present here include ox-eye daisy (*Leucanthemum vulgare*), black knapweed (*Centaurea nigra*) and common bird's-foot trefoil (*Lotus corniculatus*).

2: The lawns in the north-western part of the site are dominated by red fescue and perennial rye-grass, with herb species including smooth hawkbeard, common catsear and autumnal hawkbit (*Scorzoneroides autumnalis*). The moss *Rhytidiadelphus squarrosus* is locally frequent. There are scattered immature trees across the area; most of these ornamentals, including various cherries (*Prunus spp*), but they include silver birch (*Betula pendula*) and apple (*Malus domestica*).

2a: This area is largely unvegetated, but immature trees are scattered throughout. Most are ornamental, but native species include silver birch, field maple (*Acer campestre*) and willow (*Salix x reichardtii*).

3: This area is dominated by a lined pond. Much of this has stands of soft rush (*Juncus effusus*), yellow flag (*Iris pseudacorus*) and water-lilies (*Nymphaea spp*). Areas of open water are dominated by rigid hornwort (*Ceratophyllum demersum*) with smaller amounts of Canadian pondweed (*Elodea canadensis*) and the moss *Fontinalis antipyretica*. Wild flowers have been sown in the surrounding grassland and ox-eye daisy and common bird's-foot trefoil survive in good quantity.

4: The boundary here is dominated by a line of cypress (*Cupressus x leylandii*) trees that have been planted in the adjacent telephone exchange site. Associated species growing in the school site include bramble (*Rubus fruticosus agg*), holly (*Ilex aquifolium*) and white bryony (*Bryonia dioica*) over a ground flora dominated by ivy (*Hedera helix*). There is a semi-mature Lombardy poplar (*Populus nigra var. italica*), marked as a), on the boundary.

5: There is a line of immature beech (*Fagus sylvatica*) along this boundary, with a mature red oak (*Quercus rubra*) marked as b) on the attached map.

6: This boundary has a tall line of trees and shrubs including ornamental cherries, beech, hazel (*Corylus avellana*), field maple, holly, ash (*Fraxinus excelsior*) and dogwood (*Cornus sanguinea*). There is a semi-mature beech tree marked c) on the attached map. The ground flora is dominated by ivy with other species including wood avens (*Geum urbanum*).

7: The garden boundaries here are largely open, or have low growing hedges dominated by ornamental species. In the eastern part of the boundary there is a large patch of blackthorn (*Prunus spinosa*) with associated species including hazel, willow and holly and immature trees of rowan (*Sorbus aucuparia*).

8: This boundary is dominated by a line of semi-mature trees, comprising walnut (*Juglans regia*), lime (*Tilia x vulgaris*), sweet chestnut (*Castanea sativa*), beech, sycamore (*Acer pseudoplatanus*) and aspen (*Populus tremula*). There are scattered

patches of shrubs, including hawthorn (*Crataegus mongyna*), holly, dogwood and field maple, along the fenceline.

9: This is a tall hedge line of hazel, field maple, hawthorn, wayfaring tree (*Viburnum lantana*) and dogwood, with associated immature trees of lime, horse chestnut (*Aesculus hippocastanum*), rowan and Italian alder (*Alnus cordata*).

10: This is a line of semi-mature cypress trees, with single semi-mature silver birch and beech trees marked d).

11: The road boundary has a wide line of cypress trees, with some associated horse chestnut.

3.3 Birds

The following species were recorded in the areas shown on the attached map:

- 1: Black-headed gull.
- 2: Collared dove and wood pigeon.
- 4: Wood pigeon.
- 6: Chiffchaff and blue tit.
- 7: Wood pigeon, robin and blue tit.
- 8: Carrion crow, wood pigeon and robin.
- 9: Magpie and house sparrow.
- 10: Magpie, wood pigeon and blue tit.

3.4 Invertebrates

The following species were recorded in the areas shown on the attached map:

- 1b: Painted lady, small copper and common blue butterflies; *Agriphila tristella* and *Agriphila streminella* moths; *Eristalis tenax*, *Sphaerophoria scripta*, *Platycheirus albimanus* and *Erothrix rufomaculata* flies; *Bombus terrestris*, *Bombus lapidarius*, *Bombus hortorum*, *Lasioglossum calceatum* and *Lasioglossum morio* bees.
- 2: Red-belted clearwing moth.
- 3: *Aeshna mixta* and *Sympetrum striolatum* dragonflies and *Ischnura elegans* damselfly; painted lady butterfly; cinnabar moth.
- 4: *Gracillaria syringella* moth.
- 6: Gatekeeper butterfly; *Phyllonorycter nicellii*, *Phyllonorycter coryli*, *Lyonetia clerkella* and *Stigmella flosacetella* moths; *Pentatoma rufipes* and *Campyloneura virgula* bugs.
- 7: *Lyonetia clerkella* and *Stigmella plagicolella* moths.
- 8: *Episyrphus balteatus* fly.
- 9: *Phyllonorycter coryli* and *Cameraria oehridella* moths.

3.5 Protected Species

No badger setts or other signs of badger activity were found.

The Habitat Suitability Index (HSI) of the pond gave a score of 0.51 and is summarised at appendix 1 below.

Further details are given in the Assessment section below.

4 ASSESSMENT

The habitats on the site have been assessed in order to determine whether they are of nature conservation value in a national, regional or county context, are of either high or low value in a local context, or are of minimal nature conservation value. The assessment has used standard ecological criteria, including rarity, diversity, size and fragility. Reference has been made to suitable guidance, including the UK and South Gloucestershire Biodiversity Action Plans (BAPs). The value of the site for groups not surveyed, such as most invertebrates, has been assessed using information gathered on the nature and structure of the habitats present.

4.1 Habitats

Most of the grassland across the site has been intensively managed and, in the past, treated with fertilisers. This has excluded all but the most tolerant of plant species and all of those recorded are common in both urban and rural areas. Regular mowing means that the grasslands lack any feature that indicates they are likely to be of value for invertebrates. Grasslands such as this are widespread across lowland Britain and are readily recreatable.

Most of the grasslands are of minimal nature conservation value.

The grassland around the area shown as 4b) on the attached map is significantly more diverse. It includes species such as ox-eye daisy, black knapweed and common bird's-foot trefoil that are intolerant of fertiliser and have been uncommon due to agricultural intensification. The presence of features such as patches of taller grassland and banks with different aspects and patches of sparsely vegetated ground indicates that the area is likely to be of some value for insects. This is supported by the records of common blue and small copper butterflies and *Lasioglossum morio* and *Lasioglossum calceatum* bees, although none of these species is uncommon and the potential value of the area is limited by its small size and isolation from other suitable habitat. The fungus *Cyathus olla*, which was present on a nearby area of playing field is uncommon. Bristol Regional Environmental Records Centre (BRERC) database does not contain any records from South Gloucestershire, and no 21st century records for the whole area.

This area, as shown on the attached map, is of high nature conservation value in a local context.

Most of the trees and shrubs around the site are immature specimens of non-native species, but they provide habitat for birds and other wildlife. These include birds of conservation concern, such as greenfinch.

The trees generally are of low nature conservation value in a local context.

Some of the wooded habitats are of greater value. The hedges at areas 6 and 9 include a good variety of native tree and shrub species, although several of these were planted relatively recently. They are dense and provide good habitat for birds and other wildlife. A tree in area 2 supports the Nationally Scarce moth red-belted clearwing.

These features are of high nature conservation value in a local context.

4.2 Protected Species

No evidence was seen that the site is of any value for badgers.

The trees around the site are mostly small and the larger trees are in good condition; no holes, crevices or growths of ivy that could support roosting bats.

The school buildings are all modern, and have flat roofs without any lofts, and have walls of plastic panels or well-pointed brick. Features such as doors, window frames and weather boards are in good condition. The buildings are of no potential for roosting bats.

Most of the site does not have potential significant value for foraging and commuting bats, but the tree belts and hedges at areas 6, 8 and 9 could all be used by bats.

There are no patches of tall herb vegetation or grassland on the site with the potential to support reptiles.

The HSI assessment of the pond produced a score of 5.1. This is at the low end of the range for below average potential (0.5 to 0.59), only just above poor potential. The low score partially reflects the pond's location, which is in a built-up area surrounded by buildings and roads, although the terrestrial habitats in the immediate vicinity of the pond are of moderate potential value. BRERC do not have any records of great crested newt within 500m of the pond. This isolation, coupled with the relatively recent origin of the pond, makes it extremely unlikely that great crested newt has been able to colonise.

4.3 Surrounding Areas

The site does not border any site with a nature conservation designation. Adjacent areas are a mixture of housing and domestic gardens. None of these areas has significant ecological value.

5 IMPACTS

5.1 Habitats

There would be no significant ecological impact associated with loss of parts of the main playing field or with small scale loss of trees and shrubs, other than those identified above as being of interest.

There would be moderate adverse impacts if the grasslands identified as being of ecological interest, the trees and shrubs identified as being of interest, large numbers of other trees and shrubs or the pond are affected.

There would also be an adverse impact if the tree that supports red-belted clearing is lost,

5.2 Protected Species

There would be no adverse impact on badgers.

There would be no adverse impacts on bats unless boundaries 6, 8 or 9 are either lost or are subject to increased light spill.

No impact on amphibians has been identified, but it is possible that some species breed in the pond and might be affected if the pond is lost.

No other potential impacts on protected species have been identified.

5.3 Surrounding Areas

There are no potential impacts on features of nature conservation value in the surrounding area.

6 MITIGATION

Significant impacts would be avoided if the features identified as being of nature conservation value are retained.

The loss of any trees or shrubs should be mitigated by carrying out replacement planting of appropriate native species.

If areas of diverse grassland are to be lost then mitigation could be achieved by creating replacement grassland on areas of nutrient-poor subsoils.

If the pond is to be lost then mitigation could be achieved through creation of a similar replacement pond. Since the existing pond is of relatively recent origin then this could achieve a reasonable level of mitigation. The replacement pond should be created before the existing pond is destroyed. Plant material and any amphibian eggs, larvae or adults should be transferred to the new pond.

Boundaries 6, 8 and 9 should be protected against additional light spillage.

In order to prevent incidental damage during construction and retained features adjacent to the construction site should be protected using Heras fencing or a similar physical barrier. Contractors should be briefed on the importance of protecting these features.

Impacts on nesting birds should be avoided by carrying out any removal of woody vegetation between 1st October and 1st March. If this is not possible the vegetation should be checked by an ecologist before works commence; if occupied nests are found then works in the area, as identified by the ecologist, will cease until a further check has shown the area to be clear of active nests.

7 ENHANCEMENT

There are opportunities for ecological enhancement of the site.

These have been identified with regard to the South Gloucestershire BAP. In particular, the site has potential to contribute to the aims of the BAP by enhancing connectivity between sites in the wider area, and by providing additional habitat for insects, birds and other wildlife.

The BAP species for which habitats could be enhanced include song thrush, dunnock, house sparrow and hedgehog, and potentially various bat species.

The following measures are recommended:

- Planting of native trees or shrubs around the site;
- Retention of any felled timber in large sections;
- Providing further features such as bee hotels in the forest school area;
- Planting small areas with nectar-rich flowers; and
- Fitting bird and bat boxes to trees on and around the site.

Rupert Higgins

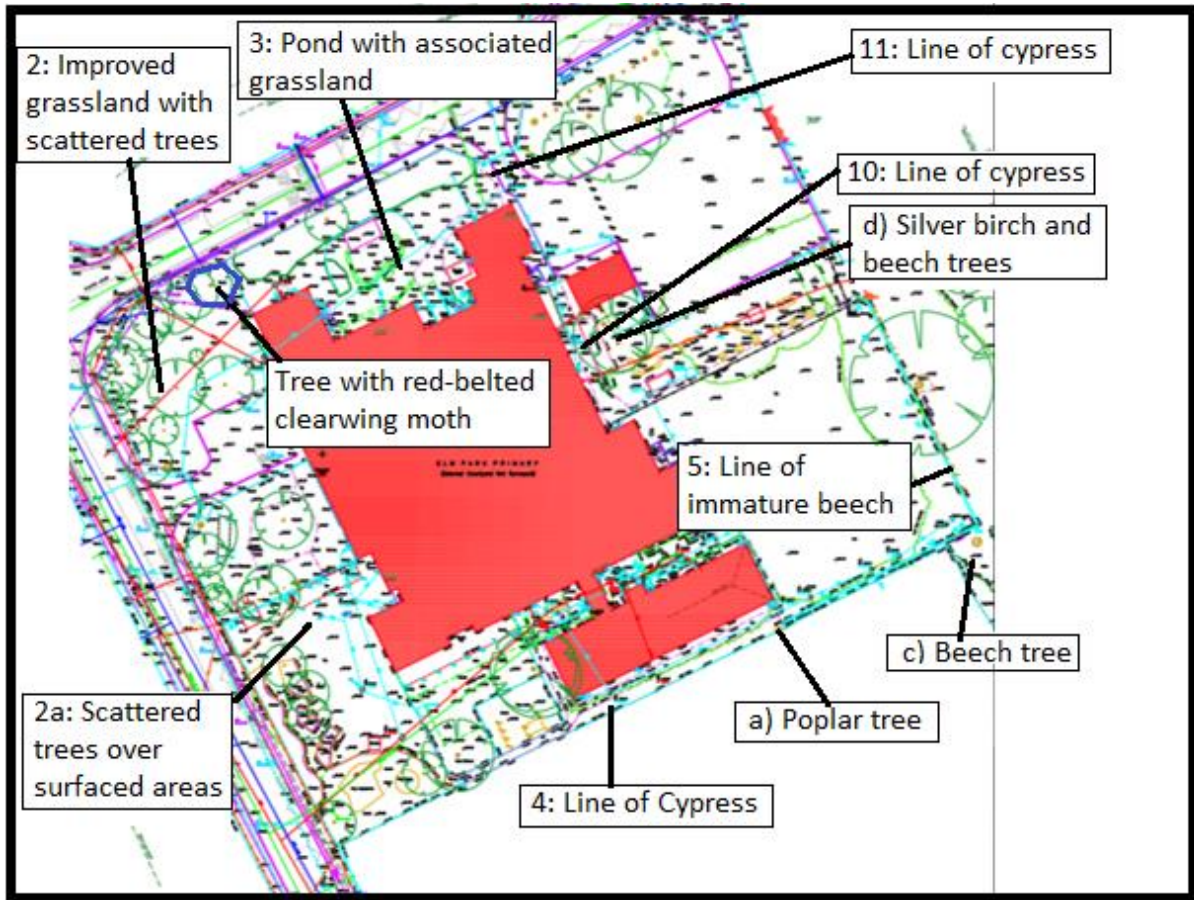
Wessex Ecological Consultancy

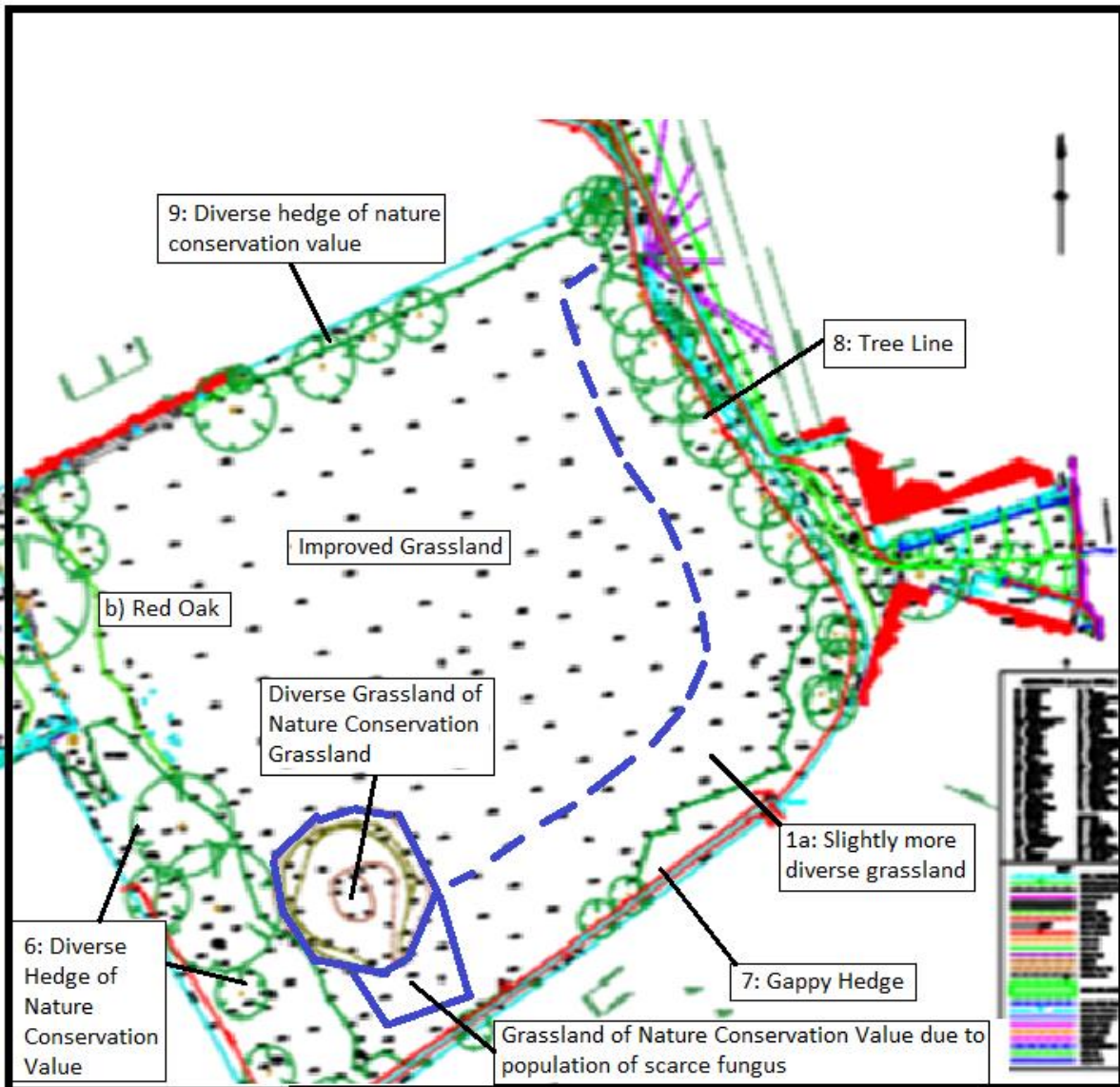
22nd August 2019

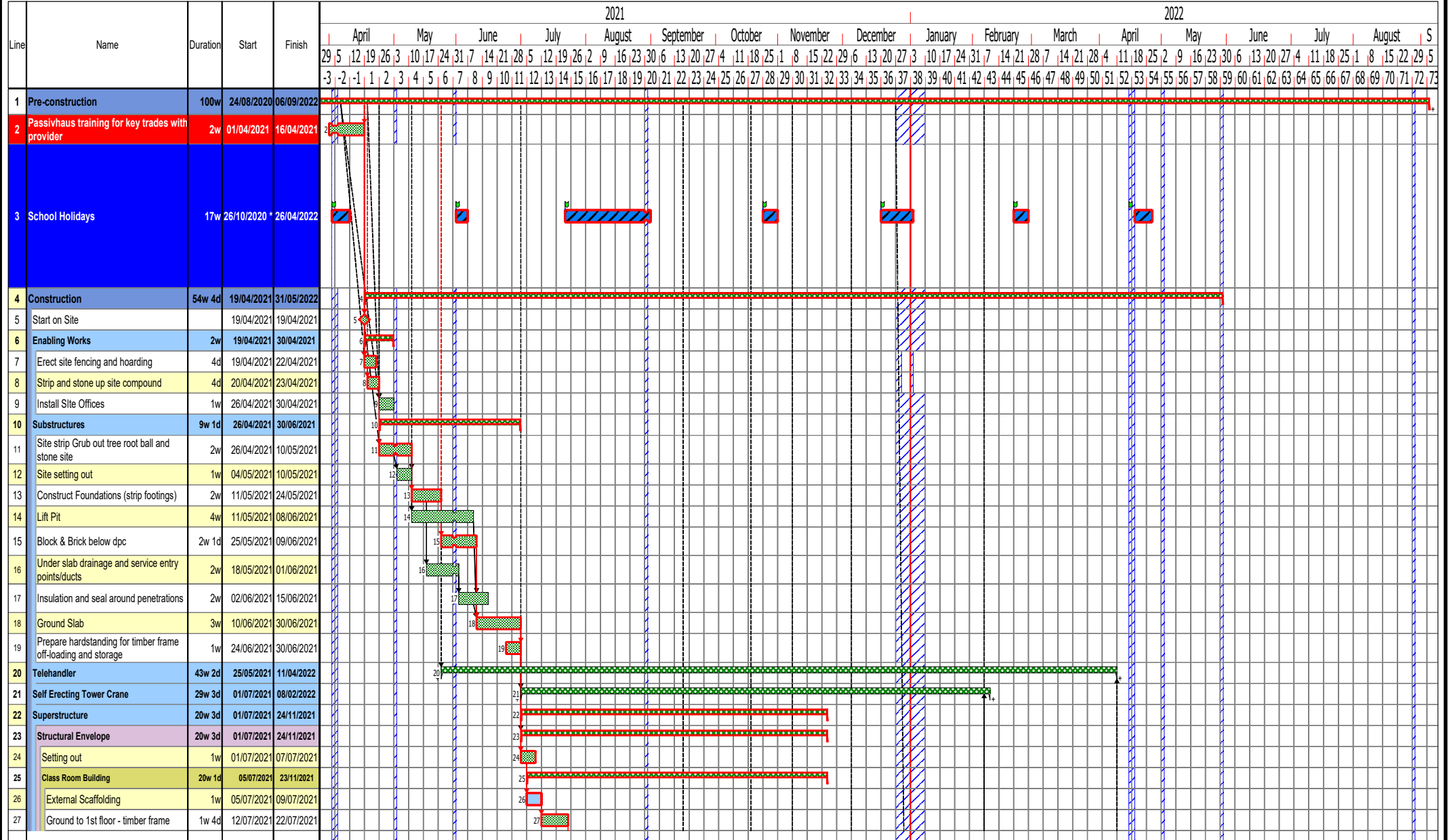
APPENDIX 1 HSI ASSESSMENT OF POND

Feature	Score	Notes
Geographical Location	1	
Pond Area	0.05	c15m ²
Permanence	0.9	Never dries out
Water Quality	0.67	Moderate – invertebrates reasonably numerous but not diverse
Shade	1	Unshaded
Waterfowl	1	None present, no signs
Fish	1	None seen
Pond Count	0.1	None in surrounding area
Terrestrial Habitat	0.67	Moderate, due to presence of shrubs and stone pile close to pond, although poor in wider area due to roads and buildings
Macrophyte Cover	0.55	c25% cover, remainder of pond dominated by emergents

Product of scores is 0.00202005, giving overall score of 0.51







Prog. Number: 00001	Issue Date: 09/07/2020	Prog. Status: Pre-construction Stage 3+
Revision: 01	Revision Date: 16/10/2020	Rev. Comment:



Elm Park Primary School, Winterbourne

Arboricultural Report containing:

- Arboricultural constraints
- Arboricultural impact assessment (AIA)
- Tree protection
- Arboricultural method statement



On behalf of
South Gloucestershire Council Property Services.

Prepared by:
Chris Wright *M.Arbor.A, Tech. Cert. (Arbor. A.)*
Arboricultural Consultant
May 2020

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1.0 Instructions/Scope

- 1.1 Silverback Arboricultural Consultancy have been instructed to compile an arboricultural report containing arboricultural impact assessment, tree protection plans and arboricultural method statement regarding trees growing within the grounds of Elm Park Primary School, Winterbourne. This report is intended to accompany a planning application relating to the demolition of the existing school and the construction of a new school with associated works. This document has been produced to demonstrate that the implications of the proposed development, to the existing trees, has been fully considered during the detailed design process.
- 1.2 Recommendations for the safeguarding of trees in close proximity to development are set out in, BS5837:2012 Trees in relation to design, demolition and construction – Recommendations. We have therefore carried out the assessment of the trees in accordance with that document
- 1.3 Specifically, this report and the accompanying information are supplied to:
- Assess the impact of the proposed development on the trees on or adjacent to the site, and the impact that retained trees will have on the site post development
 - Identify trees to be removed, trees to be retained and specify measures necessary to protect retained trees during the demolition and construction phases of the development
 - Recommend necessary remedial tree works to be undertaken to trees that will be retained prior to commencement of the demolition and construction phases of the development
 - Present information regarding the location of protective barriers or fencing and ground protection on a Tree Protection Plan
 - Identify special engineering, excavation or protection measures intended to minimise the impact on retained trees where the site design layout requires a breach of the Root Protection area, (RPA)
 - Provide an Arboricultural Method Statement for the recommended works detailing measures which should be implemented to protect retained trees during the demolition and construction phases of the development.
- 1.4 This report is based on an arboricultural survey and tree constraints plan compiled by Silverback Arboricultural Consultancy dated September 2019

1.5 Documents Provided

- Arboricultural survey and tree constraints plan compiled by Silverback
- Proposed site layout dwg N^o 1952 2100

1.6 Presentation of the Data Collected

- The data significant to the proposed site layout is presented on the Arboricultural Impact Assessment Plan (Drawing Number 200505-EPPS-AIA-NB (appendix 1).
- All other relevant data are presented within the main body of this report.
- Trees have been allocated an individual tree number. This tree number is used to identify individual trees and/or groups of trees throughout this report, and on all plans presented in the appendices of this report.

2.0 Report Limitations

- 2.1 Trees are living, dynamic organisms that can be affected by external conditions. It is therefore not possible to state with any certainty that a tree is safe.
- 2.2 No internal decay devices, or other invasive tools to assess tree condition, were used. No soil excavation or root inspection was undertaken.
- 2.3 This report has not considered the effect that trees or vegetation may have on the structural integrity of adjacent buildings or structures.
- 2.4 The survey contained within this report is not a tree safety inspection. It has been carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the recommendations contained within the tree schedule sheets (appendix 1). A full assessment of the levels of risk posed by trees would be informed by considering site use together with hazards present within the aerial parts of a tree(s). Changes in site use are likely to occur during, and result from, the proposed development. In the light of these changes, regular tree risk assessments are advised.
- 2.5 Tree condition can change rapidly, the recommendations contained within this report are based on the condition of the tree at the time they were inspected. Any amendments to the design or position of the proposed development will invalidate this report

2.6 While this appraisal is not a tree risk assessment it nonetheless takes into account observed structural defects of the inspected trees in order to inform conclusions with regard to their retentive worth.

3.0 Legal duty

3.1 It is the responsibility of the tree owner to ensure that their tree(s) is in a safe and stable condition, including the effects of root activity, through duty of care in the *Occupiers Liability Act (1957 & 1984)*.

3.2 The Wildlife and Countryside Act, 1981 makes it an offence to disturb a nesting bird or recklessly endanger a bat or its roost. Professional advice should be sought, where relevant, before undertaking any recommended works.

3.3 We were not made aware of any Tree Preservation Orders or other statutory constraints covering the trees on the site.

4.0 Tree and Site Assessment

4.1 The proposed development is for the demolition of the existing school and the construction of a new school with associated works. The area proposed for development currently comprises existing school buildings, playground and field. It is intended to undertake the development in two phases. Phase One will involve the partial demolition of the existing school building, construction of new school building, creation of a new playground and fitness track within the existing playing field to the east of the school buildings. Phase two will involve the demolition of the remaining school building and soft and hard landscaping to the west of the new school.

4.2 The trees are mainly situated around the boundaries of the school field and car parking area to then north of the school buildings. There is a belt of trees which extends north-south across the eastern edge of the existing playground separating the hardstanding playground from the playing field. This group predominantly consists of a line of Beech trees, presumably planted as a screen. Several of these trees, at either end of the group, have been allowed to grow on. The trees within the centre of the group have been suppressed by a category A Oak trees growing within the centre of the group.

4.3 Eighty-three trees, six groups of trees, and woodland area were surveyed. Of the trees surveyed five trees were categorised **A**, sixteen trees and the wooded area were categorized **B**, five trees were categorised **U**, the remaining trees and hedgerow were categorized **C**. The trees were assessed and graded in accordance with the Cascading Chart of Tree Quality Assessment contained within BS5837:2012.

5.0 Arboricultural Constraints

5.1 Trees have a widely spreading, shallow root system. In most cases, the majority of tree roots are situated within the top 600 mm of soil although some roots may extend down to 2m. Small feeder roots can also be expected to extend beyond the outer edge of the canopy. Roots can therefore be easily damaged by construction activity

5.2 Constraints on the design of the development are presented in the Arboricultural Impact Assessment Plan (appendix 1). These constraints are also considered in the main body of the report below and recommended remedial works and mitigating measures.

5.3 The Arboricultural Impact Assessment Plan (AIA), (appendix 1), shows the Root Protection Areas (RPAs) for the individual trees identified in the tree schedule tables. This represents the minimum area in m² which ideally, should be left undisturbed around each tree were it to be retained. The AIA also shows a representation of the crown spread of each tree measured in four cardinal directions. The RPA has been calculated in accordance with Section 4.6 of BS5837:2012 Trees in relation to design, demolition and construction – Recommendations.

5.4 Trees Identified for Retention and Removal.

Thirty-six trees will be removed to facilitate the proposed development. These trees were all categorised C2 with the exception of T02, T03, T65, T67 and T71 which were categorised B2.

- T01- T17, T19- T21, T23, T24, T060, T061, T085, T086 will be removed to facilitate phase one of the proposed development.
- T062-T071 will be removed to facilitate phase two of the proposed development.
- T069, T076, T084 will be removed in accordance with good arboricultural practice.

The remaining trees will be retained and protected throughout the proposed development.

5.4.1 Mitigation

It is proposed to mitigate for the loss of these trees by the implementation of a landscaping scheme including replacement trees and shrubs to enhance that landscape and visual amenity of the site. The details and specification for the proposed landscaping will be agreed with the Local Planning Authority.

5.4.2 Trees Outside Site Boundary

There are no trees outside of the site boundary, which are affected within the current proposals

6.0 Arboricultural Impact Assessment

6.1 The position of the existing school building is outside the calculated Root protection Area of all trees proposed for retention. Any excavation or soil compaction in this area could potentially lead to root severance or damage. This could subsequently lead to a reduction in the trees ability to take up water and nutrients, which may lead to a deterioration in the tree's health.

Protective fencing, in accordance with BS5837:2012, will be erected to prevent any unauthorised access into the Root Protection Area (RPA) during the demolition works.

6.2 It is proposed to position the Construction Site Compound within the existing playing field to the east of the school buildings. This encroaches into the calculated Root Protection Area of T18 a mature Oak trees is growing on the edge of the existing playground and field. Any excavation or soil compaction in this area could potentially lead to root severance or damage.

The Root Protection Area to the west of the tree stem is covered by hard surfacing forming the existing playground area. This hard surfacing will be retained throughout the proposed development to protect any underlying roots in the area.

Protective fencing, in accordance with BS5837:2012, will be erected to prevent any unauthorised access into the Root Protection Area (RPA) during the works.

Where the site compound extends into the un-protected section of the RPA temporary ground protection will be installed, in accordance with Arboricultural Practice Note (APN) 12 'Through the Trees to Development' using a Cellular Confinement System such as 'Cellweb'.

6.3 A new fitness trail is to be installed around the boundaries of the existing playing field. The path of the track will extend through the calculated Root Protection Area of several trees proposed for retention. Any excavation or soil compaction in this area could potentially lead to root severance or damage.

Where new hard surfacing is to be installed within the Root Protection Areas of retained trees construction will be in accordance with Arboricultural Practice Note (APN) 12 'Through the Trees to Development' using a Cellular Confinement System such as 'Cellweb'

6.4 Storage and mixing of construction materials could lead to soil compaction of ground contamination through spillage.

All storage and mixing of materials will be undertaken within the designated Construction Site Compound, outside the Root Protection Area (RPA) of the retained trees. If considered necessary, due to ground levels, a suitable water proof ground covering with bunds at the edges to prevent leakage will be laid over the storage, mixing area.

6.5 Overhanging and low branches could potentially be damaged during the erection of scaffolding or during the delivery of materials to site.

The protective fencing will enclose the branch spreads of the retained trees preventing any potential damage to the tree canopies

6.6 Service runs in association with the proposed project have been planned outside of any Root Protection Area of retained trees.

Should this change, installation of drainage or services runs will be in accordance with Section 7.7 (Underground and above-ground utility apparatus) of BS5837:2012.

6.7 **Shading:-** Potential shading of buildings by retained trees can lead to pressure for the pruning or removal or remove of the trees. *BS5837: 2012 par 5.3* states that proposed buildings should be designed to take account of existing trees, their ultimate size and density of foliage, and the effect that these will have on the availability of light.

There are no potential shading issues associated with the propose development.

6.8 **Future growth:-** Future extension growth of branches can result in the continuous whipping of branches against the fabric of a building or damage to the roof tiles. Structures should therefore be located with due consideration for a tree's ultimate growth.

The proposed building is at a sufficient distance from the retained trees for there to be no issues.

7.0 Tree Protection

The trees to be retained on site during and after development as listed in Section 5.4 will require both above and below ground protection. Above ground protection may involve remedial tree surgery works. These works, where applicable, discussed in Section 7.1 below.

7.0.1 Below ground protection measures, based on the root protection areas (RPA), indicated in the Arboricultural Impact Assessment Plan (appendix 1), will involve the erection of tree protection barriers as discussed in Section 7.2. Where the proposed site layout encroaches into the RPAs of retained trees, measures are recommended to minimise the potential damage to the roots and the root environment of the trees in question.

7.0.2 Tree protection fencing for phase one of the development are illustrated in Tree Protection Plan 1 (Drawing Number 200505-EPPS-TPP-Ph1-NB) (appendix 2). Tree protection fencing for phase two of the development are illustrated in Tree Protection Plan 2 (Drawing Number 200505-EPPS-TPP-Ph2-NB) (appendix 3).

7.0.2 The potential position of tree roots as indicated in the Arboricultural Impact Assessment Plan (appendix 1) and Tree Protection Plans (appendix 2&3) are only guidelines based on calculations shown in BS5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'.

7.1 Recommended Remedial Tree Surgery Works

Other than the tree removal detailed in Section 5.4 of this report, no remedial tree works are considered necessary to facilitate the proposed development.

7.2 Tree Protection Fencing

The Tree Protection Plans (appendix 2&3) indicates the location of the proposed tree protection barriers where appropriate. These barriers will create a Construction Exclusions Zone (CEZ) around the retained trees

7.2.1 The Construction Exclusion Zones will be erected in accordance with the recommendations in Section 6.2 of BS5837:2012. The specifications for the barriers for are presented in Figure 2 from BS5837:2012 (appendix 4).

7.2.2 It is *essential* that tree protection fencing barriers are erected before any demolition, site preparation or construction work be commenced. (Remedial tree works however, should be undertaken before such fencing is erected – See Section 7.1). Once erected the protective fencing will be retained and maintained in position for the duration of the development

7.2.3 Should any construction activity require the repositioning of the tree protection barriers, advice will be sought from Silverback Arboricultural Consultancy and approval requested from the Local Authority Tree Officer before any of the fencing is altered.

7.3 Damage Limitation-Special Measures

Areas are identified on the Tree Protection Plans (appendix 2&3) where special measures will be required to minimise the impact of the proposed site layout on the retained trees where the construction works breach the RPAs.

7.3.1 Where new temporary or permanent hard surfacing is to be installed within the Root Protection Areas of retained trees, construction will be in accordance with Arboricultural Practice Note (APN) 12 'Through the Trees to Development' using a Cellular Confinement System such as 'Cellweb'

7.3.2 In the event of any unforeseen circumstances the project arboriculturalist will be informed immediately and will advise on suitable precautionary measures.

8.0 Arboricultural Method Statement

This section sets out the basis of the methodology for all works in relation to the proposed development in proximity to trees located within the site boundary.

- 8.0.1 Copies of the Arboricultural Method Statement document will be available for inspection on site and will form the basis of the management of all works relating to the trees on the site for the Site Agent/Manager following commencement of the project.

8.1 Programme of Works

Phase One

- Arboricultural works
- Erection of protective barriers including site hoarding
- Installation of temporary ground protection within RPA of T18
- Partial demolition of existing school building
- Construction of new school building
- Construction of new playground within playing field
- Installation of fitness trail
- Removal of protective barriers, site hoarding and temporary ground protection around T18
- Re-instatement of grass where site compound was situated.

Phase two

- Arboricultural works
- Erection of protective barriers and site hoarding
- Demolition of remaining school building
- Hard and soft landscaping works.

8.2 Works Requiring Tree Protection

PHASE 1			
Development Operation	Tree Number	Type of Protection	Reference
Partial demolition of existing school.	All trees	Protective fencing Inspection by Arboricultural Submission of site visit report	Paragraph 8.4 Appendix 2.0 Paragraph 8.7 Appendix 7.0
Installation of temporary ground protection around T18	T18	Protective fencing CellWeb Cellular Confinement System Monitoring by Arboricultural Submission of site visit report	Paragraph 8.4 Appendix 2.0 Paragraph 8.5 Appendix 6.0 Paragraph 8.7 Appendix 7.0
Installation of fitness trail	Trees around playing field	CellWeb Cellular Confinement System Monitoring by Arboricultural Submission of site visit report	Paragraph 8.6 Appendix 6.0 Paragraph 8.7 Appendix 7.0
PHASE TWO			
Development Operation	Tree Number	Type of Protection	Reference
Demolition of remaining school building. New hard and soft landscaping	Trees at front of school	Protective fencing Inspection by Arboricultural Submission of site visit report	Paragraph 8.4 Appendix 2.0 Paragraph 8.7 Appendix 7.0

8.3 Arboricultural Works

The work recommendations presented in the Tree Schedule (appendix 1) and the recommendations discussed in Section 7.1 set out the proposed works to trees within the development site. These works will be carried out before commencement of other site operations including the erection of protective barriers.

- 8.3.1 The removal of trees detailed in section 5.4 of this report will be undertaken to facilitate the construction of the new development. The proposed tree works will be undertaken by a professional arboriculturalist in accordance with the recommendations contained in BS3998:2010. Tree work-recommendations.

8.4 Tree Protection Fencing

BS5837: 2012 recommends the erection of protective fencing around retained trees before development commences. The position of the fencing is calculated using the tree's diameter (DBH) measured at 1.5m up the stem. The area within the fencing is called the Root Protection Area (RPA).

- 8.4.1 To allow access to the site and facilitate the construction it will not be possible to erect the protective fences at recommended distance contained with BS5837:2012. It is proposed to erect the protective fencing as indicated on the Tree Protection Plans (TPP) (appendix 2&3). This will create a Construction Exclusion Zone (CEZ)
- 8.4.2 The protective fencing will incorporate the site hoardings which will be erected around the site prior to the commencement of any works. The protective fencing will be constructed in accordance with BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations'. This will consist of a vertical and horizontal scaffold framework well braced to resist impacts. Vertical tubes will be spaced at a maximum interval of 3m and driven securely into the ground. Weldmesh panels will then be securely fixed to the framework., in accordance with Figure 2 of BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations' (appendix 4).

8.4.3 Once erected the protective fencing will be retained and maintained in position for the duration each phase of the development as detailed within this report. If it is necessary to move the protective fencing advice will be sought from Silverback Arboricultural Consultancy and approval requested from the South Gloucestershire Council Tree Officer before any of the fencing is altered.

8.4.4 Weatherproof signage should be attached to the fencing indicating its function as illustrated (appendix 5).

8.4.5 In the CEZ (construction exclusion zone):

- There must be no alteration of ground levels, including soil stripping other than those detailed within this report
- Any installation of drainage or services will be in accordance with Section 7.7 (Underground and above-ground utility apparatus) of BS5837:2012.
- Oil, bitumen, cement or other harmful materials must not be stored, mixed or discharged within 10m of any retained trees
- Fires will not be lit beneath or within 10m upwind of tree canopies

8.5 Installation of temporary ground protection within RPA of T18.

Prior to the commencement of any demolition or construction works on site, temporary ground protection will be installed over the exposed Root Protection Area of T18, as indicated on the Tree Protection Plan TPP1 (appendix 2). This will be constructed using a three dimensional ‘Cellular Confinement System’ (CCS), “Cellweb” to prevent any ground compaction or potential impact on the health of the tree roots. (appendix 5) Once installed this will be retained and maintained in position for the duration of phase one of the development.

8.5.1 The position of the Construction Site Compound, within the RPA of the tree, will be cleared of vegetation and a general level created using hand tools and clean sand where necessary. A geo textile membrane will then be laid across the surface.

8.5.2 200mm deep ‘Cellular Confinement System’ (CCS) will then be laid across the area. This will provide a load-bearing and permeable structure. The cellular design and perforated cell walls reduce the vertical load pressure on sub soils to tree roots and prevents damage.

8.5.3 Once the CCS is in place it will be backfilled with clean angular stone which will enable air and moisture to reach the roots and encourage healthy growth. A porous wearing course will then be applied. The edges of the area will be retained using tannalised wooden retaining boards staked into the ground tapering down to the existing ground level with top-soil.

8.5.4 The existing hard surfacing within the calculated RPA of T18 will be retained throughout the proposed works.

8.6 Installation of Fitness Trail

Where the fitness trail extends through the calculated Root Protection Area of retained trees, it will be constructed using a three dimensional ‘Cellular Confinement System’ (CCS), “Cellweb” to prevent any ground compaction or potential impact on the health of the tree roots. (appendix 5)

8.6.1 The position of the new trail will be marked out, cleared of vegetation and a general level created using hand tools and clean sand where necessary. A geo textile membrane will then be laid across the surface.

8.6.2 75mm deep ‘Cellular Confinement System’ (CCS) will then be laid across the area. This will provide a load-bearing and permeable structure. The cellular design and perforated cell walls reduce the vertical load pressure on sub soils to tree roots and prevents damage.

8.6.3 Once the CCS is in place it will be backfilled with clean angular stone which will enable air and moisture to reach the roots and encourage healthy growth. A porous wearing course will then be applied, to a depth of 30-40mm as the finished surface. The edges of the trail will be retained using tannalised wooden retaining boards staked into the ground tapering down to the existing ground level with top soil.

8.7 Supervision and Monitoring

It is recommended that the Arboricultural Consultant is employed to oversee operations relating to works close to or within RPAs and to issue a site inspection report of practical completion for the following operations:

Phase 1

- The erection of protective barriers around the retained trees in accordance with TPP1 (appendix 2)
- Installation of temporary ground protection within RPA of T18
- Installation of no-dig surfacing to form fitness trail

Phase 2

- The erection of protective barriers around the retained trees in accordance with TPP2 (appendix 3)

8.7.1 It is recommended that a record of site visits completed by the project arboriculturalist are maintained for inspection on site and copies are forwarded to the Local Planning Authority Tree Officer.

8.7.2 This development will be overseen Silverback Arboricultural Consultancy. If there are any alterations to the proposed working methodology necessary, works will be stopped until the arboricultural consultant has been notified and agreement reached with the Local Planning Authority Tree Officer.

9.0 Contact Details

9.1 Arboricultural Consultant

Chris Wright

Silverback Arboricultural Consultancy

E-mail: chris@silverbackarb.co.uk

9.2 Local Authority Tree Officer

Lea Bending

Arboricultural Officer

South Gloucestershire Council

E-mail: lea.bending@southglos.gov.uk



10.0 References

Mattheck, C. and Breloer, H. (1995). The Body Language of Trees: A handbook for failure analysis. Research for Amenity Trees **4**. HMSO, London.

British Standard 5837:2012 - Trees in relation to design, demolition and construction – Recommendations. British Standards Institution, London

British Standard 3998:2010 - Tree Work Recommendations. British Standards Institution, London

11.0 Appendices

1. Arboricultural impact assessment plan (AIA)
2. Tree protection plan phase one (TPP1) *Amended full tree removal plan for both
3. Tree protection plan phase two (TPP2) phases is given in appendix 2.
4. BS5837:2012 Trees in relation to construction: Recommendations Protective Fencing Detail
5. Protective fencing sign
6. Cellular Confinement System detail
7. Site inspection report

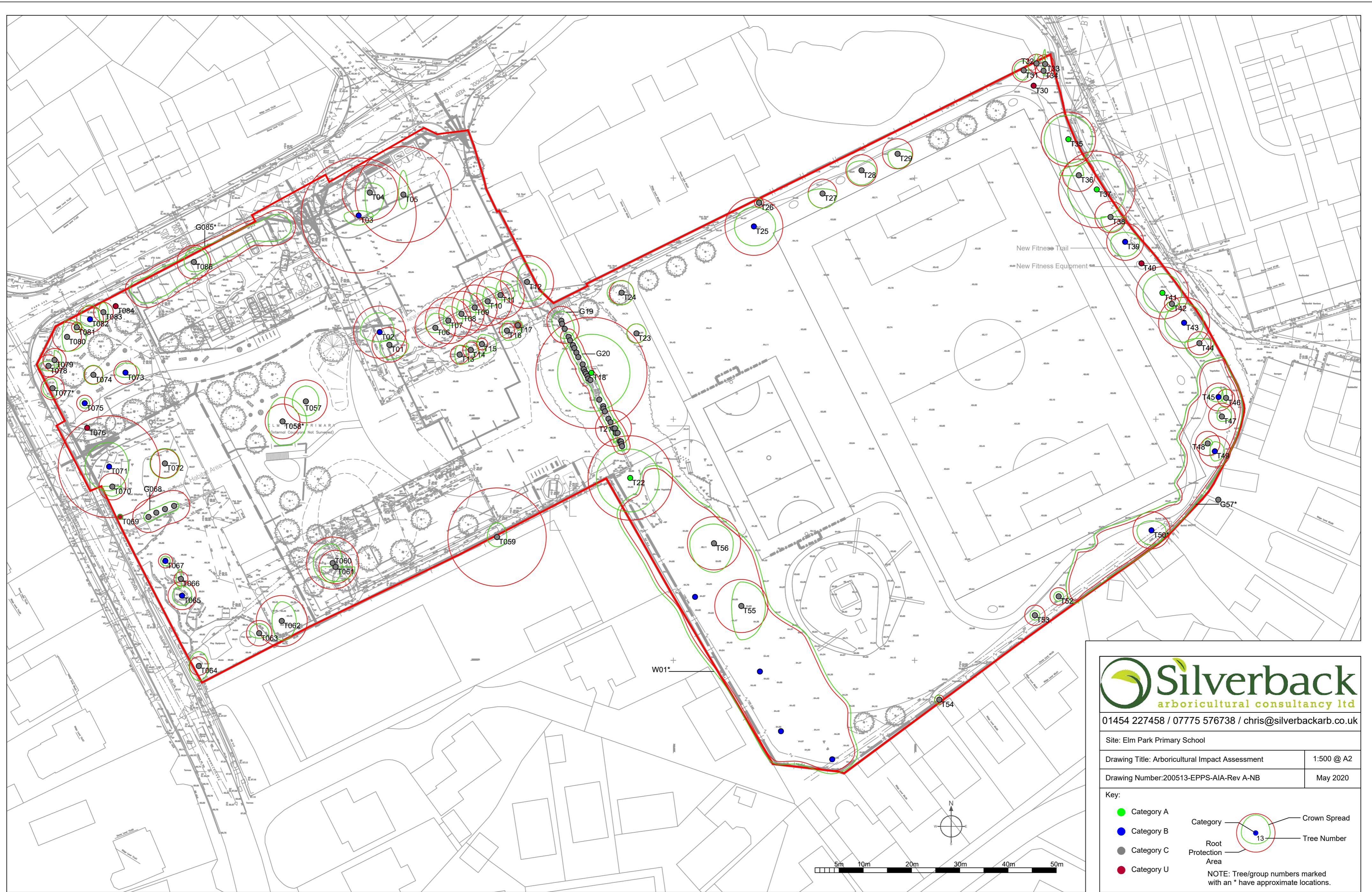
Chris Wright. MArborA, Tech Cert.Arbor.A

Principal Consultant

Silverback Arboricultural Consultancy

12th May 2020





Silverback
arboricultural consultancy ltd

01454 227458 / 07775 576738 / chris@silverbackarb.co.uk

Site: Elm Park Primary School

Drawing Title: Arboricultural Impact Assessment	1:500 @ A2
Drawing Number: 200513-EPPS-AIA-Rev A-NB	May 2020

Key:

- Category A
- Category B
- Category C
- Category U

Category Crown Spread
 Root Protection Area

NOTE: Tree/group numbers marked with an * have approximate locations.



- Key
- Planning Application Boundary
 - Existing Building
 - Trees to be retained and protected
 - Trees to be removed

Tree identified as needing to be removed for arboricultural reasons.

Tree identified as needing to be removed for arboricultural reasons.

Tree identified as needing to be removed for arboricultural reasons.

Issue / Revision	Description	Date	Dwn	Chck
D	4 more trees to be removed due to increased development area.	08/01/2021	AP	PB
C	Planning Issue	11/05/2020	PB	PB
B	General Update	24/02/2020	AP	PB
A	First Issue	14/01/2020	AP	PB

Project
 Elm Park Primary School

Client
 South Gloucestershire Council

Drawing Title
 Tree Removal Plan

Project No. 1952 Drawing No. 2060 D

Project Stage	Issue Suitability
RIBA 3	Suitable for Stage Approval

Project Ref	Origin	Zone	Level	Type	Discipline	Suitability
ELM	NVB	XX	XX	DR	L	S4



**BS 5837:2012 – TREES IN RELATION TO DESIGN, DEMOLITION AND
CONSTRUCTION – RECOMMENDATIONS**

PROTECTIVE BARRIER DETAIL

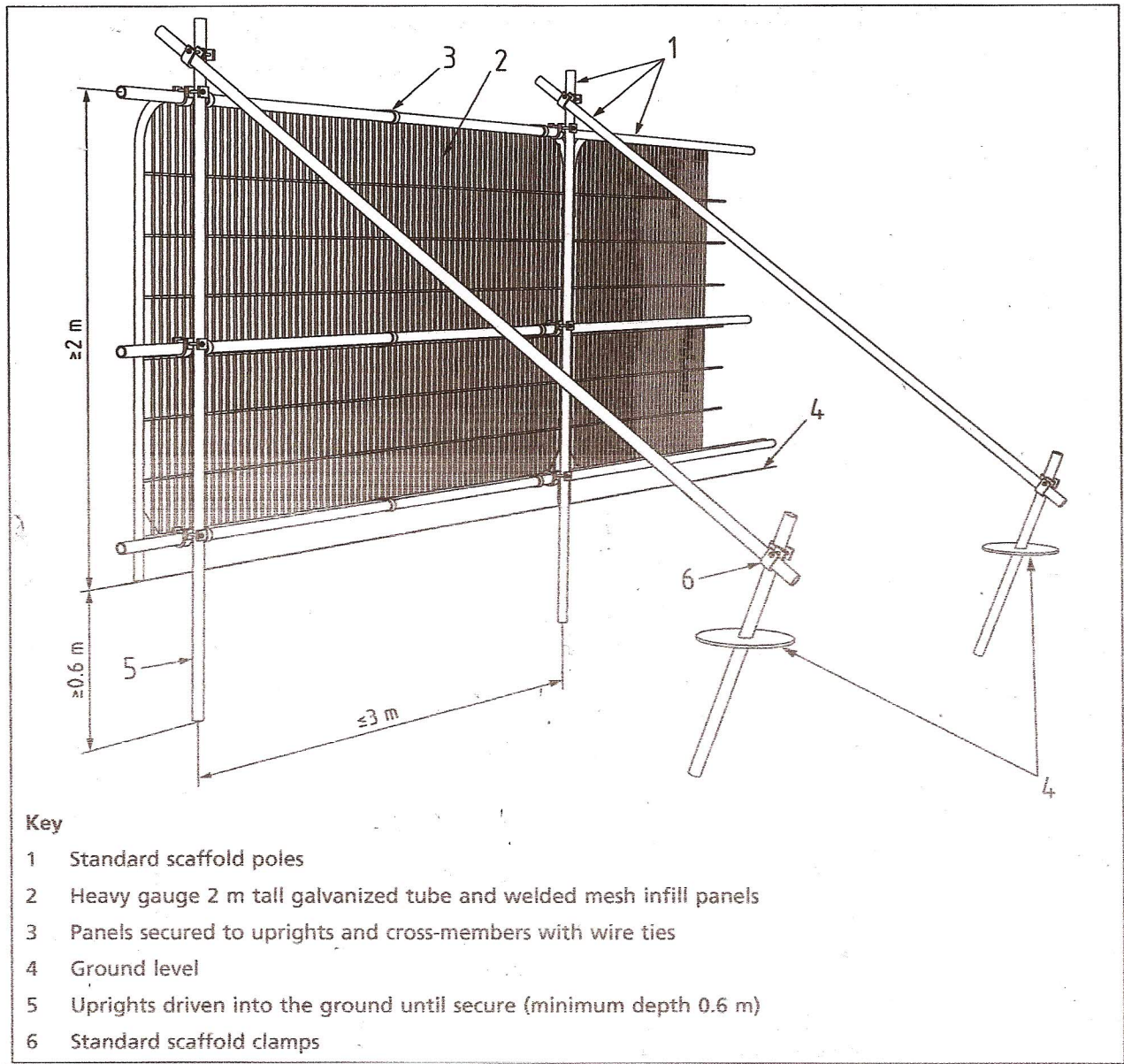


Figure 2 Default specification for protective barrier



TREE PROTECTION AREA

KEEP OUT !

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**

Cellweb® TRP

Tree Root Protection

Cellweb® TRP is a 3D cellular confinement tree root protection system. The system provides a 'no dig' solution for the construction of new hard surfaces within root protection areas (RPAs). Cellweb® TRP has been designed and independently tested to comply with recommendations made in Arboricultural Practice Note 12 and BS 5837 2012 – Trees in relation to design, demolition and construction.



Cellweb® TRP Key Functions

Cellweb® is a 'no dig' solution which is constructed directly on the existing ground surface. This eliminates the requirement for excavation, preventing root severance.

Cellweb® is a completely porous system allowing continued water permeation and gas exchange between the rooting environment and atmosphere.

Cellweb® spreads point loads, minimising increases in soil compaction within the rooting environment. This maintains an open graded soil structure allowing continued root growth, water, gas and nutrient migration.

The Cellweb® TRP system comprises the following three components

Treetex™ Geotextile. Following minimal ground preparation the Treetex™ is laid onto the existing ground and top soil. This acts as a separation layer, separating the system above from the soil and rooting environment below. Treetex™ performs as a hydrocarbon pollution control measure in accordance with BS5837, holding 1.7lt of oil per square meter.

Cellweb® 3D Cellular Confinement. The Cellweb® is installed on top of the Treetex™ layer. This is fixed to the ground using ten steel J pins per panel. The panels can be cut to the required shape and adjoining panels can be connected using heavy duty staples or cell ties.

4-20mm Clean Angular Stone. The expanded Cellweb® is infilled with a 4-20mm clean angular stone. The confined angular stone locks together to produce a rigid stone mattress, while maintaining air pockets for continued water permeation and gas exchange. The low fines content of the stone prevents the Treetex™ layer from becoming blocked over time.

Which depth of Cellweb® TRP?

The Cellweb® System is provided in four different depths; 200mm, 150mm, 100mm and 75mm. The depth required is determined by the proposed traffic loadings and the site ground conditions. Geosynthetics in house engineering department can provide a free site specific technical recommendation. For free technical and engineering support please contact Geosynthetics Ltd 01455 617139 or the full installation guide can be found on our website www.geosyn.co.uk.

Indicative Cellweb with overfill

