

WITCHER WELL, DUNSOP BRIDGE

LANDSCAPE MANAGEMENT AND MAINTENANCE PLAN

MR IBISON
SEPTEMBER 2021
REV A

AUTHOR	VERSION	CHECKED	DATE	DESCRIPTION
CT	/	AR	29.09.2021	Issued for comment



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DUNSOP BRIDGE

LANDSCAPE
MANAGEMENT AND
MAINTENANCE PLAN

JOHN IBISON

SEPTEMBER 2021

PREPARED BY
RURAL SOLUTIONS LTD

1.0 INTRODUCTION

1.1 INTRODUCTION

1.1.1 The purpose of this document is to provide an outline of the works and required standards to manage and maintain the external landscape areas as identified in the proposed Landscape Masterplan for a site which is located to the north of Dunsop Bridge. It is proposed to convert the existing Witcher Well Fish Hatchery into three 2 bedroomed holiday cottages with low intervention landscape arrangements to enhance the setting of the Site.

1.2 BACKGROUND

1.2.1 This document has been produced on behalf of the Client, who will be responsible for the longer term management and maintenance, once areas of landscape have achieved Practical Completion (PC) and have been maintained under an initial post procurement period. It is intended that this document will be supplemented by detailed design work associated with either discharge of planning conditions and or tender / construction information. These proposals should be read in conjunction with all relevant detailed landscape proposals as the details contained within this report may be subject to change.

1.2.2 This document establishes a Landscape Management & Maintenance Plan (LMMP) which could be implemented at the time of PC under the Client's initial post procurement period, for a time-scale to be agreed. However, any areas of soft landscape completed before PC shall be maintained in accordance with this LMMP or any future agreed versions to ensure healthy establishment of planting prior to obtaining PC. This ensures all newly planted areas are well maintained throughout the duration of the rectification and initial maintenance period.

1.3 SITE LOCATION

1.3.1 The site lies roughly 2.1km north of Dunsop Bridge, located to the west of Whitendale Road in the Ribble Valley, Lancashire.

1.3.1 This document focusses on the management and maintenance of the landscape within the boundary as illustrated on the overleaf location plan and Landscape Masterplan.

1.4 QUALITY OF WORK

1.4.1 This document has been produced to set out the management and maintenance principals associated with the proposed landscape as identified in site overleaf.

1.4.2 The purpose of the LMMP is to ensure that the landscape is maintained to a standard appropriate for a high quality development during a minimum of five years from the date of PC. After this time, the management proposals should be reviewed and amended accordingly to suit any changing landscape conditions and ultimately, should seek to inform the maintenance operations in perpetuity.

1.4.3 In conjunction with this document, reference should be made of relevant detailed landscape proposals. These drawings are referred to as 'Contract Drawings' for the duration of this document. These drawings indicate the areas to be maintained and form the initial forecast of the scope and nature of the maintenance work. However, maintenance work will fluctuate as the Client's requirements change, Site conditions dictate or 'best practice' techniques are improved.

1.4.4 It is intended that the contract period for the management and maintenance works will be no less than five years



from the date of successful implementation of all landscape works / Practical Completion. Reference should be made to any Contract Particulars as provided by the Client.

- 1.4.5 Landscape workmanship and maintenance generally to be subject to the following British standards:
- BS 4428: 1989 - General Landscape Operations
 - BS 3936-1:1992 Nursery Stock. Specification for trees and shrubs
 - BS 7370-4 Grounds maintenance
 - BS 5837:2012 Trees in relation to design, demolition and construction recommendations
 - BS 8601:2013 Specification for subsoil and requirements for use
 - BS 3882:2015 Specification for topsoil

1.5 DESCRIPTION OF THE WORKS

- 1.5.1 The Works comprise of Landscape Maintenance operations which cover all aspects to the landscape associated with the Site, as illustrated on the Landscape Masterplan overleaf, but shall not be limited to; trees, shrubs, wildflower grass areas, weed control in both soft and hard landscapes.
- 1.5.2 The Client reserves the right to add additional specifications for the future maintenance of the Site, should the proposals be altered to include new landscape elements not already covered by this document. This document covers all long term objectives relating to maintenance and management operations for external works to the Site for a period of five years generally.
- 1.5.3 It is intended that the frequency of establishment operations will be ever decreasing and eventually replaced with a regular approach to maintenance, once the landscape is established. All operations will be carried out in line with recommendations made within this report. However, a flexible and adaptable approach to the maintenance of all landscaped areas will need to be adopted for the proposed timescale of this document.

1.6 OBJECTIVES

1.6.1 The Client shall, where reasonable, ensure that the development and management of a safe, diverse and interesting landscape, maintained in accordance with general best practice horticultural operations, to all landscape areas.

1.6.2 The LMMP shall be for a minimum period of five years. This document should set a precedent and it is recommended that this document be used to guide all future maintenance operations within this Site in perpetuity. The LMMP should be reviewed and amended as necessary to ensure that it remains reactive to changing site conditions.

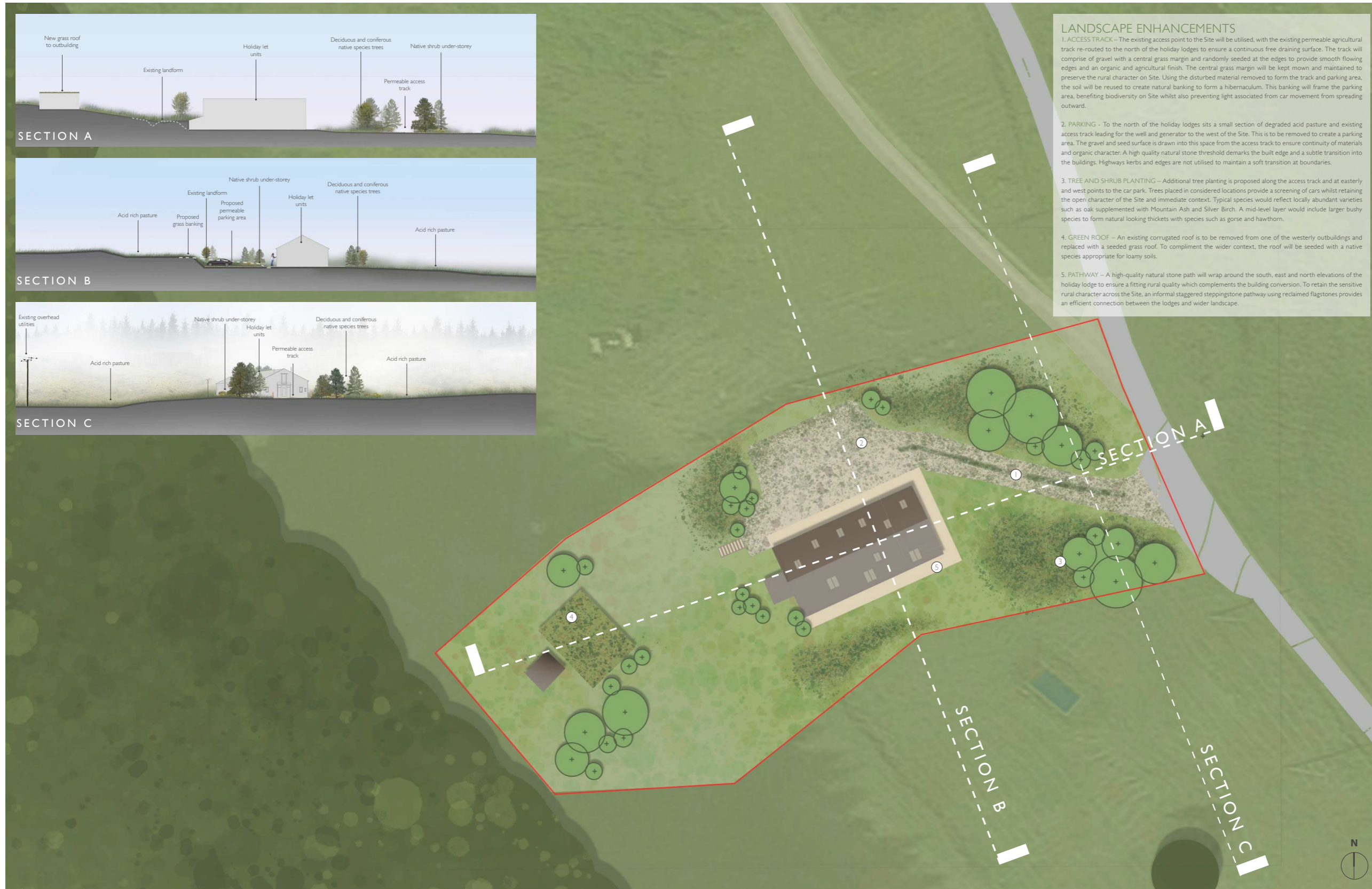
1.6.3 Due to the nature of the Site, the Site will be phased in accordance with the Client's construction programme. Therefore there may be areas of landscape awaiting enhancement. The objective with such areas is to keep the land open, deter the growth of self-seeded trees, shrubs and other flora and to prevent the development of habitats for protected species of plants and animals, whilst keeping within the requirements of the Wildlife & Countryside Act 1981.

1.6.4 All problems and damage which is evident on Site shall be identified and described in detail in order that the Client can give instructions for rectification at the earliest stage.

1.6.5 The Client's maintenance requirements are generally given as quality standards, which the Landscape Contractor is required to adhere to. Exceptions are made where a specific operation is an important part of the management, for example the timing of cutting of ecologically important hedgerows or grass.

1.6.6 The Landscape Contractor shall be responsible for all aspects of the works and job organisation, the techniques to be employed and their appropriate sequence in order to comply with the Schedule of Maintenance Operations as set out in Section 3.0 and the detailed Specification of Maintenance Works set out in Section 5.0.

LANDSCAPE MASTERPLAN



2.0 APPROACH TO MAINTENANCE OPERATIONS

2.1 HARD LANDSCAPE

OBJECTIVE

To identify a programme of maintenance operations associated with all hard landscape elements.

MOSS, LICHENS AND ALGAE GROWTH

- Clean with a proprietary cleaner suitable for the purpose. This must be used in accordance with the manufacturer's recommendations.

WEED GROWTH

- If the problem detracts from the aesthetics, mechanically remove and/or treat with weed killer.
- Do not apply weed killer if there is a chance of rain within 48 hours.
- Care for dispersal of weed killer in case of damage to other vegetation in the area.

CRACKED PAVERS

- Replace if there is a trip hazard, or affects structural integrity or detracts from the aesthetics.
- Investigate the likely causes e.g. cracking caused by impact point loading and if necessary modify work practices.

LIPPING (PAVERS STANDING PROUD)

- If there is a trip hazard, or it detracts from the aesthetics, remove offending pavers, check paver thickness before replacing and/or adjusting the laying course so that the pavers are level after re-compacting.

LITTLE OR NO JOINTING AGGREGATE

- Re-fill joints with compliant aggregate and re-compact.
- Review/modify maintenance procedure, re-fill joints with compliant aggregate and re-compact.

2.2 SOFT LANDSCAPE

TREES

OBJECTIVE

To establish and maintain healthy, well formed, attractive, safe trees.

REQUIREMENTS

Individual tree maintenance shall be required and applied to all landscaped areas. It is likely that the works required to individual trees will consist of:

- Epicormic growth removal;
- Pruning out of damaged and diseased branches; and
- Maintenance of tree guying.

Only hand tools shall be used to achieve the maintenance work required. Each tree shall be individually considered and the general description of work to be undertaken shall be interpreted in relation to the species, shape, size, character and condition of each individual tree. All operations shall be carried out so as to leave a well-balanced tree crown, however consideration will be given to the establishment of trees which support a range of wildlife, and are fitting in this landscape of prominent single trees and small clumps.

Arboricultural works shall be carried out in accordance with the general safety factors set out in BS3998 (2010) "Tree Work - Recommendations", or any amendments thereto. Ideally, all tree pruning operations shall only be undertaken within the dormant season and outside the bird nesting season. The removal of live wood from any species shall not be undertaken during periods of severe frosts.

OPERATIONS - REGULATIVE PRUNING

Tree pruning shall be carried out in accordance

with the Arboriculture Research Note 48/83/PATH as issued by the Arboricultural Advisory and Information Service.

Pruning cuts shall wherever possible be made at a fork or at the main stem. All wounds shall be kept as small as possible. The final pruning cut shall be made so that both the branch, bark ridge and branch collar remain intact.

As part of tree pruning operations, all or any of the following works as may be necessary:

EPICORMIC GROWTH REMOVAL

Remove all epicormic buds, growth from the trees' stems and/or root suckers from all trees in grassland and all trees in ground cover and shrub beds in order to achieve and to maintain single, clean stemmed trees to a height of 2.5m or to the height specified.

ADDITIONAL PRUNING REQUIREMENTS

Remove any reverted branches from cultivars of tree species within the trees crown. Remove by pruning any undesirable climbing plants at base and main stem of the tree.

PRUNING OUT: DEADWOOD, DAMAGED & DISEASED WOOD

Prune back using appropriate equipment all dead, damaged or diseased wood to its point of origin. The cutting of the branch shall not damage the branch collar if taken off at a main limb or on the bole. The triple cut method shall be used when carrying out the pruning operation and the final wound shall be smooth and free of snags.

All damage to main limbs or boles shall be cleaned to remove damaged or diseased tissue back to, but not into, live wood or bark. The final wound shall be smooth and free of snags.

Once trees have become established, dead wood may be left on the tree to encourage insect life, subject to there not being a risk of infection to the tree. Trees should be encouraged to develop a habit in keeping with the open landscape rather than an ornamental habit.

SHRUB PLANTING OBJECTIVE

PRUNING SHRUBS

Planting is to be thinned and shaped to each specimen appropriate to species, location, season and stage of growth, leaving a well-balanced natural appearance. Shrubs should be pruned to encourage new growth into the space available and discouraged from growing too large and crowding other plants. Care should be taken not to damage the stem or branches and cuts made above and sloping away from an outward facing healthy bud, angle so that water will not collect on cut area. Cuts should be made with clean sharp secateurs, hand saws or other approved pruning tools.

WEED CONTROL

Weed control is to be carried out in the spring and by hoeing or hand-pulling. Selected as biodegradable glyphosate-based herbicides can be used in severe circumstances once planting has established.

GRASS CUTTING OBJECTIVE

To maintain areas of grass at the required height.

GRASS CUTTING: GENERAL REQUIREMENTS

Cut grass with appropriate machinery, based on frequency outlined within Section 3 - Schedule of Operations,

Timing and Frequency, to meet the quality standards set out in Grass Cutting Specifications.

All loose stones or other harmful material from whatever source which may damage grass cutting equipment or create a possible hazard to persons or property shall be removed from the area.

All litter from grass cutting areas shall be removed from the area prior to grass cutting based on frequency outlined within Section 3 - Schedule of Operations, Timing and Frequency.

Cut grass neatly around all new or existing structures, fences and the like during each operation to ensure that the height of the grass along the boundary or around the feature does not exceed the height of the grass in the rest of the grass cutting area.

Grass cutting equipment shall be of a type capable of producing a high standard of finish. Cylinder mowers are to be preferred on cutting fine and short grass, but in areas where this is not possible other appropriate machinery should be used.

SPECIFICATIONS FOR MAINTENANCE OF GRASSED AREAS

MEADOW GRASS AREAS

Within the first year, most of the sown species are perennial and will be slow to germinate and grow and will not usually flower in the first growing season. There will often be a flush of annual weeds from the soil in the first growing season. This weed growth is easily controlled by topping or mowing.

It is important to cut back annuals before they die back, set seed and collapse as this cut will

reveal the developing tussock mixture and give it the space it needs to develop.

Once established meadow grassed areas requires minimal maintenance. Unwanted perennial weeds (docks, thistle) may need control - to the immediate curtilage of the buildings and parking areas - by occasional spot treatment with a herbicide. To control scrub and bramble development, tussocky areas may need cutting every 2-3 years between October and February.

For wildlife this cutting is best done on a rotational basis so that no more than half the area is cut in any one year leaving part as an undisturbed refuge.

Rough grass shall be allowed to grow to the length appropriate to the species. The grass areas shall be cut no more than 6no. times each year, with some areas being left unmanaged, usually in April through to September.

The grass shall be allowed to grow to a maximum height of approximately 200 - 250mm. The height of grass shall not be cut lower than 100m.

Arisings from the first cut each year shall be removed from the area. Arisings from subsequent cuts shall be left in-situ.

Mowing established rough grassed areas may require heavy duty cutting equipment: lawn mowers are not tough enough to deal with thick tussocks or woody scrub. Tractor mounted flail mowers are suitable for large areas, petrol brush cutters (professional 'strimmers') are good for small or awkward areas.



3.0 MANAGEMENT AND MAINTENANCE SCHEDULE

The schedule below lists the timing of key operations and should be read in conjunction with the detailed Maintenance Specification in Section 5.0.

OPERATION	LANDSCAPE ELEMENT	FREQUENCY	MONTHS AND/OR FREQUENCY OF ACTION - FIVE YEAR MANAGEMENT PLAN												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
LITTER PICK	All hotspot areas	As required to provide a neat and tidy appearance	x	x	x	x	x	x	x	x	x	x	x	x	x
WATERING	Planting and newly seeded grassed areas	As necessary to establish.				x	x	x	x	x	x				
TREE PLANTING	Trees	Undertake biannual inspection of all newly planted trees. Replace any dead or dying plants. Loosen tree ties where necessary.				x					x				
	Tree stakes and ties	Remove or loosen within years 5/ 6 and monitor establishment													
RE-FIRMING / TREE GUYS	Trees	Only as required			x			x			x				x
PRUNING	Trees	When instructed												x	
	Plants	Individual to each plant species and desired habit required			x									x	
THINNING BY TRANSPLANTING SURPLUS PLANTS	Plants	As required					x						x		
FERTILISER APPLICATION	Trees	As required				x									
	Planted Areas	As required				x									
	Grassed areas	As required				x									
GRASS CUTTING	Meadow Grassed areas	Typically 1 cut per year									x				
WEED CONTROL	Grass areas, plant beds, tree surround	As required			x	x	x	x	x	x	x	x			
	Hard Surfaces	Monthly						x		x					

OPERATION	LANDSCAPE ELEMENT	FREQUENCY	MONTHS AND/OR FREQUENCY OF ACTION - FIVE YEAR MANAGEMENT PLAN												
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
LEAF REMOVAL (Wet and damp leaves)	Hard Surfaces	As necessary	x	x	x	x						x	x	x	x
HARD SURFACES	Pedestrian & Vehicular Surface	Annual inspection of all hard surfaced areas.		x											
		Monthly maintenance to keep surfaces free from dirt, detritus, weeds and algae	x	x	x	x	x	x	x	x	x	x	x	x	x
CHECKING HYDROLOGICAL FUNCTIONING OF FLUSH	Vegetation associated with water edges	Inspect quarterly and after heavy rain events; undertake any repairs/ maintenance as required.	x			x				x			x		
		Cut back encroaching vegetation: monthly; remove arisings.			x	x	x	x	x	x	x	x	x		
INSPECT HEALTH AND SAFETY	Trees	For health and safety issues each visit, otherwise annually			x										



4.0 CONDITIONS AND STANDARDS

4.1 OBJECTIVE

4.1.1 To ensure the work is carried out efficiently with minimal disruption.

only the agreed routes and parking areas. Use of Banksman when manoeuvring machinery around Site is recommend at all times.

4.2 TIMING OF OPERATIONS

4.2.1 The Client shall reasonably perform all Works in a timely manner to ensure that the aims and objectives associated with the development of the landscape proposals are achieved and maintained throughout the Contract period.

4.3.3 The Client shall ensure that transport directly or indirectly involved in the Works shall at all times when leaving the Site be in a state of cleanliness to preclude the fouling of public or private roads on or adjacent to the Site.

4.2.2 The Client reserves the right to defer or prohibit any Works being proposed by this LMMP, or to suspend Works if it is in progress, if in the opinion of the Client, the Works being proposed or in progress, is likely to be dangerous or damaging to the Site, to wildlife, to adjacent property, to shrubs or trees (but excluding weeds), or to members of the public.

4.3.4 The Client will ensure a Manager/Supervisor associated with the maintenance operations to be contactable by mobile telephone at all times, whether on Site or not.

4.2.3 The Client reserves the right to defer or prohibit herbicide application, or to suspend it when in progress if, in the opinion of the Client, the Works is likely to be dangerous or damaging to the Site, to plant material other than those to be eradicated or to members of the public.

4.3 NEW AND EXISTING SERVICES

4.3.1 The Client shall allow maintenance operatives time to locate, identify and familiarise himself with all capped, existing and proposed services on Site which may affect the Works. They shall ensure any subcontractors are made aware of these risks and obtain appropriate method statements should the need arise. Subcontractors shall satisfy themselves of the extent and nature of the services and shall be responsible for the repair of any damage to them caused by their Works or those of any subcontractors used to fulfil their obligations under the terms of the contract. When / if it is necessary to arrange the temporary disconnection of services, it shall be the Clients responsibility to ensure that all necessary arrangements are made with the said undertakers and shall inform the subcontractor of such arrangements, and not to allow such time to affect the programme of Works.

4.2.4 Any subcontractors carrying out Works, as contained within this LMMP, shall seek the permission of the Client (which shall not unreasonably be withheld) to work weekends or Public Holidays where applicable.

4.2.5 The Client shall not grant the use of noisy work equipment, for example mowing machines, chainsaws, chipping machines, before 8.00 a.m. and after 6.00 p.m. without prior permissions.

4.3.2 The Client shall be notified when he considers that the Works may affect existing services. In such cases the Client may instruct or amend the setting out of the Works as necessary.

4.3 ACCESS TO SITE

4.3.1 The Client shall ensure maintenance operatives have free access to the Site for the duration of the Works.

4.4 DUST AND NUISANCE

4.5.1 The Client shall ensure all contractors take all necessary steps to eliminate dust and mud nuisance (including woody waste, grass and herbage clippings) during the carrying out of the Works.

4.3.2 The Client will be responsible for agreeing methods of access to the Site and also for ensuring that his own vehicles and those of subcontractors, suppliers or others employed by him under this contract use

4.4.2 The existing highway and private access routes

used by vehicles of the Client or any of their subcontractors or suppliers of materials or plant, shall be kept clean and clear of dust, grass debris, and mud dropped by the said vehicles or their tyres. The Landscape Contractor shall immediately clear all dust and mud from the work spreading onto these highways or any public or private right of way.

4.5 ENVIRONMENTAL PROTECTION

4.5.1 All contractors employed by the Client shall be fully conversant with existing legislation, including European legislation, relating to wildlife and nature conservation issues, and protected species and habitats.

4.5.2 When working in or close to watercourses, the Client is referred to Environment Agency publication "Works in, Near or Liable to Affect Watercourses". All such works shall be in compliance with this guidance and they shall ensure all subcontractors are made aware of any relevant implications.

4.5.3 It is an offence under the Wildlife and Countryside Act (1981) to destroy the nest of all birds. For this reason all trees which are to be receive formative pruning must be free from actively breeding birds. In addition the Client should note the special protection afforded to bats, which may use trees for nesting and hibernation over the winter period.

4.5.4 To ensure that nesting birds are not resident, works on trees shall usually be carried out outside of the normal breeding season (between the months of November to February inclusive) subject to the vegetation not being used by hibernating bats. Where vegetation to be cleared supports an active nest / hibernating bat works are to cease immediately until the Client consents that Works can recommence.

4.5.5 Under the Conservation (Natural Habitats, &c.) (amendment) regulation 2007, there is no longer the 'incidental result defence' which cover acts which are the incidental result of an otherwise lawful activity which could not have been reasonably avoided. As such, land owners/managers are now

required to ensure the no European Protected Species are present on Site that could be harmed in any of the following ways:

- capture, injure or killed;
- picked, cut or destroyed;
- take or destroy eggs;
- disturb animals significantly to effect the ability to survive, breed or rear or nurture their young; and
- damage or destroy a breeding site or resting place.

4.6 DAMAGE TO PROPERTY, SURFACES & EXISTING LANDSCAPE FEATURES

4.6.1 The landscape contractor or subcontractor are to indemnify the Client against any damage to property, any existing landscape planting or surfaces arising out of or in connection with his acts in the execution of this Contract or his negligence. He shall make good any such damage at his own expense to the satisfaction of the Client.

4.7.2 The Client reserves the right, in all cases, to make alternative arrangements for the rectification of such damage, using his own or any other Agency and to deduct the cost from monies owing.

4.7 STANDARDS OF MAINTENANCE & WORKMANSHIP

4.7.1 Method Statements and Risk Assessments for each operation must be maintained and available on request by the Client.

4.7.2 The landscape contractor or subcontractor will be responsible for ensuring health and safety of all operatives during maintenance visits and take the necessary precautions to prevent risk to the general public during routine maintenance visits.

4.7.3 The landscape contractor or subcontractor shall ensure any potentially hazardous operations such as but not limited to; cutting of grass verges, removal of tree branches, spraying or strimming are carried out at an appropriate time together with appropriate hazard warning methods.

- 4.7.4 Where a British Standard exists for materials to be used in the maintenance works, unless otherwise stated, the minimum requirements of the latest standard shall apply.
- 4.7.5 All work shall be carried out by operatives qualified to carry out the particular tasks required by the maintenance specification. Where British Standard Codes of Practice exist the work is to be carried out in accordance with the latest Code.
- 4.7.6 All materials or articles, required to complete the maintenance requirements shall comply with any specified standard, whether a British Standard, other named standard or otherwise, shall be satisfied by compliance with any relevant national or governmental standard of any member state of the European Communities, or any relevant international standard recognised in such a member state, provided that in either case the standard in question offers guarantees of safety, suitability and fitness for purpose.
- 4.7.7 When any material or article is required to comply with a British Standard, such material or article or its container shall bear the stamp of the registered certification trademark of the British Standards Institution. Alternatively, the landscape contractor shall submit to the Client test certificates furnished by the supplier or manufacturer of the material or article indicating compliance with the relevant British Standard.
- 4.7.8 Please refer to Detailed Specification of Maintenance Works set out in section 5.0 for specific maintenance standards.



5.0 MAINTENANCE WORKS SPECIFICATION

5.1 SUSTAINABILITY PRINCIPLES

- 5.1.1 The design vision for the site at Witcher Well seeks to enhance the existing landscape setting, complementing the surrounding landscape character by:
- Retaining acid grassland within site and propose planting of wildflower grass where required, enhancing the biodiversity on Site; and
 - Maintaining all existing and proposed landscape features with a light touch to preserve the existing landscape character.

5.2 TREES

5.2.1 OBJECTIVE

To establish and maintain healthy, well formed, attractive, and safe trees and woodland.

- 5.2.2 Detailed list of proposed tree species and specification to be confirmed as part of the detailed landscape design.

5.2.3 REQUIREMENTS

Individual tree maintenance shall be required and applied to all landscaped areas.

5.2.4 ESTABLISHMENT OF NEW PLANTING

- Duration: Min. Five Years.
- Weed control: Method: Keep curtilage of building clear of weeds through manual removal and use of suitable herbicides as required. Keep planting areas clear of weeds through use of suitable herbicides as required.
- Area: Maintain a weed free area around tree and shrub, minimum diameter the larger of 1m or the surface of the original planting pit.
- Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows.
- Watering: To ensure the successful and healthy plant establishment during contract period.

5.2.5 ESTABLISHMENT OF NEW PLANTING - FERTILISER

- Time of year: March or April.
- Type: Organic.
- Spreading: Spread evenly.
- Application rate: 250 g per feathered, standard

or larger tree.

- 5.2.6 It is likely that the works required to individual trees will consist of:

- Epicormic growth removal.
- Pruning out of damaged and diseased branches.
- Maintenance of tree ties and stakes.

5.2.7 TREE GUYING, STAKES AND TIES

Inspection/ Maintenance times: As scheduled.

Stakes:

- Replace loose, broken or decayed stakes to original specification.
- If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.

Ties:

- Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing. Where chafing has occurred, reposition or replace ties to prevent further chafing.
- Removal of stakes and ties: During spring when no longer required to support the tree. Fill stake holes with lightly compacted soil.

5.2.8 REFIRMING OF TREES AND SHRUBS

- Timing: Any disturbances which could lead to loss of the tree/plant.
- Refirming: Tread around the base until firmly bedded. Collars in soil at base of tree stems, created by tree movement, break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

- 5.2.9 Only hand tools shall be used to achieve the maintenance work required.

- 5.2.10 Each tree shall be individually considered and the general description of work to be undertaken shall be interpreted in relation to the species, shape, size, character and condition of each individual tree. All operations shall be carried out so as to leave a well balanced tree crown, however consideration will be given to the establishment of trees which support a range of wildlife, and are fitting in this landscape of prominent single trees, small clumps and woodland areas.

- 5.2.11 Arboricultural works shall be carried out in accordance with the general safety factors set out in BS 3998 (2010) "Tree Work - Recommendations", or any amendments thereto.

- 5.2.12 Ideally, all tree pruning operations shall only be undertaken within the dormant season and outside the bird nesting season. The removal of live wood from any species shall not be undertaken during periods of severe frosts.

5.2.13 OPERATIONS - REGULATIVE PRUNING

Tree pruning shall be carried out in accordance with BS 7370-4:1993 Grounds maintenance. Recommendations for maintenance of soft landscape along with the Arboriculture Research Note 48/83/PATH as issued by the Arboricultural Advisory and Information Service.

5.2.14 TREE WORK GENERALLY

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Protection: Avoid damage to neighbouring trees, plants and property.
- Standards: To BS 3998:2010 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
- Removing branches: Cut as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

5.2.15 ADDITIONAL WORK

Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

5.2.16 PREVENTION OF WOUND BLEEDING

Standard: To BS 3998:2010 clause 9 and Appendix B.

5.2.17 PREVENTION OF DISEASE TRANSMISSION

Standard: To BS 3998:2010 clause 9 and Appendix B.

5.2.18 CLEANING OUT AND DEADWOODING

Remove:

- Dead, dying, or diseased wood, broken branches and stubs.
- Fungal growths and fruiting bodies.
- Rubbish, wind blown or accumulated in branch forks.
- Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.

5.2.19 PRUNING GENERALLY

Pruning:

- In accordance with good horticultural and arboricultural practice.
- Removing branches: Do not damage or tear the stem or bark.
- Wounds: Keep as small as possible and cut cleanly back to sound wood.
- Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
- Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.

5.2.20 CUTTING AND PRUNING GENERALLY

Tools: Appropriate, well maintained and sharp.

Final pruning cuts: Chainsaws: Do not use on branches of less than 50 mm diameter. Hand saws: Form a smooth cut surface. Anvil type secateurs: Do not use.

5.2.21 Removing branches:

- Do not damage or tear the stem.
- Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.

<p>5.2.22 Cutting:</p> <ul style="list-style-type: none"> • Cut at a fork or at the main stem to avoid stumps wherever possible. • Large branches: Remove only if unavoidable. Remove in small sections and lower to ground with ropes and slings. 	<p>REQUIRED)</p> <ul style="list-style-type: none"> • General: Cut back selectively to lateral or sub-lateral buds or branches to retain flowing branch lines without leaving stumps. • Operations: Reduce crown by 15%. 	<p>5.2.32 REMOVING TREES (AS REQUIRED)</p> <ul style="list-style-type: none"> • Standards: To BS 3998:2010 Appendix A and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets. • Existing services: Check for below and above ground services. • Smaller trees: Cut down and grub up roots. • Tree stumps: Removal: Cut as close to ground as possible and kill by applying ammonium sulphate into drilled holes immediately after felling. Removal by winching: Do not use other trees as supports or anchors. • Protection: Avoid damage to neighbouring trees, plants and property. • Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained. • Filling holes: Material: Use as-dug material and/ or imported soil as required. • Finishing: Consolidate and grade to marry in with surrounding ground level. 	<p>bole. The triple cut method shall be used when carrying out the pruning operation and the final wound shall be smooth and free of snags.</p> <p>5.2.37 All damage to main limbs or boles shall be cleaned to remove damaged or diseased tissue back to, but not into, live wood or bark. The final wound shall be smooth and free of snags.</p> <p>5.2.38 Once trees have become established, dead wood may be left on the tree to encourage insect life, subject to there not being a risk of infection to the tree. Trees should be encouraged to develop a habit in keeping with the open and rural landscape rather than an ornamental habit.</p>
<p>5.2.23 Dead branches and stubs:</p> <ul style="list-style-type: none"> • When removing, do not cut into live wood • Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions. • Disease or fungus: Do not apply fungicide or sealant. 	<p>5.2.28 CROWN LIFTING (AS REQUIRED)</p> <ul style="list-style-type: none"> • Clearances: Remove branch systems to give clearance. Height: 2.5m above footpaths, 5.5m above vehicular carriageways. • Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sub-lateral buds or branches. Do not leave stumps. 	<p>5.2.29 BARK DAMAGE</p> <p>Wounds:</p> <ul style="list-style-type: none"> • Do not attempt to stop sap bleeding. • Bark: Remove ragged edges using a sharp knife. • Wood: Remove splintered wood from deep wounds. • Size: Keep wounds as small as possible. 	<p>5.2.39 PRUNING OF EXCESSIVE OVERHANG</p> <ul style="list-style-type: none"> • Timing: Annually. • Operations: Remove growth encroaching onto grassed areas, paths, roads, sight lines and lighting.
<p>5.2.24 Pruning cuts shall wherever possible be made at a fork or at the main stem. All wounds shall be kept as small as possible. The final pruning cut shall be made so that both the branch, bark ridge and branch collar remain intact.</p>	<p>5.2.30 CAVITIES IN TREES</p> <ul style="list-style-type: none"> • Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice. • Water filled cavities: Do not drain. • Sound wood inside cavities: Do not remove. • Cavity openings: Do not cover. 	<p>5.2.33 As part of tree pruning operations, all or any of the following works as may be necessary:</p>	<p>5.2.40 FORMATIVE PRUNING OF YOUNG TREES</p> <ul style="list-style-type: none"> • Standard: Type and timing of pruning operations to suit the plant species. Time of year: Do not prune during the late winter/ early spring sap flow period. • Young trees up to 4m high: • Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader. • Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
<p>5.2.25 APPEARANCE:</p> <ul style="list-style-type: none"> • Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance. • Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife. • Disease or infection: Give notice if detected. Growth retardants, fungicide or pruning sealant: Do not use unless instructed. 	<p>5.2.31 CUTTING TREE ROOTS (AS REQUIRED)</p> <ul style="list-style-type: none"> • Excavating: Use hand tools only. • Protected area: Do not cut roots within an area which is the larger of the branch spread of the tree or an area with a radius of half the tree's height, measured from the trunk. • Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval. • Cutting: Make clean smooth cuts with a hand saw. • Wounds: Minimize. Avoid ragged edges. • Finishing: Pare cut surfaces smooth with a sharp knife. • Backfilling: Protection: Cover cut roots with clean sharp sand. • Material: Backfill with original topsoil. 	<p>5.2.34 EPICORMIC GROWTH REMOVAL</p> <p>Remove all epicormic buds, growth from the trees' stems and/or root suckers from all trees in grassland and all trees in ground cover and shrub beds in order to achieve and to maintain single, clean stemmed trees to a height of 2.5m or to the height specified.</p>	<p>5.2.35 ADDITIONAL PRUNING REQUIREMENTS</p> <p>Remove any reverted branches from cultivars of tree species within the trees crown. Remove by pruning any undesirable climbing plants at base and main stem of the tree.</p>
<p>5.2.26 CROWN THINNING (AS REQUIRED)</p> <ul style="list-style-type: none"> • Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches. • Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown. • Quantity: 15 %. • Cutting: Make no cuts of more than 50 mm diameter. • Branches: Cut back to lateral or sub-lateral buds or branches without leaving stumps • Appearance: Leave a uniform and well balanced structure of branches and foliage. 	<p>5.2.36 PRUNING OUT OF DEADWOOD, DAMAGED AND DISEASED WOOD</p> <p>Prune back using appropriate equipment all dead, damaged or diseased wood to its point of origin. The cutting of the branch shall not damage the branch collar if taken off at a main limb or on the</p>	<p>5.3 SHRUBS</p> <p>OBJECTIVE</p> <p>5.3.1 To establish and maintain healthy, well formed, attractive shrubs. Planting areas to provide seasonal interest throughout the year by ensuring:</p> <ul style="list-style-type: none"> • Ensure the satisfactory establishment and growth of new ground cover planting; • Maintain planting in a healthy and attractive condition and enhance the value of planting as a food source to wildlife; and • Ensure continuity of the design approach and 	
<p>5.2.27 CROWN REDUCTION/ SHAPING (AS</p>			

	amenity value of planting.	Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken, damaged or crossing branches and stems.	or property shall be removed from the area.	to ensure a consistent cleanly mown sward and the height of cut determined as the height above ground level to the cutting blade measured with the machine standing on a hard level surface.
5.3.2	GENERAL REQUIREMENTS Plant handling at the nursery, and during transit up to delivery shall be in accordance with 'Plant Handling' published by the Committee for Plant Supply and Establishment (CPSE). The contractor shall comply with clauses 3 & 4 of the above booklet (obtained from the horticulture trades association) which refers to the receipt, unloading and temporary storage of plants.	5.3.10 DEAD AND DISEASED PLANTS • Removal: As soon as possible. • Replacement: In the next suitable planting season.	5.4.4 All litter from grass cutting areas shall be removed from the area prior to grass cutting based on frequency outlined within Section 3 - Schedule of Operations, Timing and Frequency.	5.4.13 All guards shall be in place and in good condition and all safety devices shall be operational and of a type originally fitted on manufacture.
5.3.3	Wherever possible all trees, shrubs supplied shall be British grown stock, indigenous to the area and fully hardened off. Plant material may be imported as necessary if unavailable in the UK.	5.3.12 PRUNING SHRUBS Shrubs to be thinned and shaped to each specimen appropriate to species, location, season and stage of growth, leaving a well-balanced natural appearance.	5.4.5 Cut grass neatly around all new or existing structures, walls, fences and the like during each operation to ensure that the height of the grass along the boundary or around the feature does not exceed the height of the grass in the rest of the grass cutting area.	5.4.14 All machines shall have an effective silencer of the type originally fitted on manufacture.
5.3.4	Plants shall be healthy and exemplar specimens of their species, free from all pests and diseases with good fibrous root systems, free from damage. All planting to be in compliance with BS 4428: 1989 code of practice for general landscape operations (excluding hard surfaces).	5.3.13 Shrubs should be pruned to encourage new growth into the space available and discouraged from growing too large and crowding other plants. Care should be taken not to damage the stem or branches and cuts made above and sloping away from an outward facing healthy bud, angle so that water will not collect on cut area.	5.4.6 Grass around established trees in grass shall not exceed the height of the grass in the rest of the grass cutting area. This shall be maintained by using appropriate equipment, ensuring that no damage occurs to the tree, especially its bark and roots.	5.4.15 CUTTING REQUIREMENTS
5.3.5	All plants to conform to BS 3936 and to be supplied from local sources wherever possible, in accordance with HTA National Plant Specification and Nursery Certification Scheme. Bundles (bare root) or pots to be clearly labelled with species and size. Sizes stated in the schedule are minimum sizes. Any changes to the plant species or specifications must be approved with the Local Authority. Storage of plant material on site should be minimised.	5.3.14 Cuts should be made with clean sharp secateurs, hand saws or other approved pruning tools. For best stem colour, some species should be cut back hard to encourage new growth to within 5-7cm from the ground in March. Other shrubs should be cut back after flowering.	5.4.7 Grass cutting shall be a consistent height over the whole cutting area, mimicking the height and form of the grass to the wider context where possible.	5.4.22 MEADOW SEED MIX Areas of wildflowers shall be cut to a height of between 40 and 60mm as specified below, after the seeding of desirable species, usually in late summer/early autumn.
5.3.6	For security reasons, edges of paths, roads etc. will be planted with shrubs that grow to less than 0.5m high. Taller shrubs will be positioned so they do not impede lines of sight or overhang buildings.	5.4 GRASS CUTTING	5.4.8 Take care when carrying out operations adjacent to glazed areas of buildings, in order to avoid damage to windows etc., from flying stones or other debris. Any damage to existing buildings or structures, shall be made good.	5.4.23 Arisings shall be raked off and removed off Site, by such means that avoids pulling, tearing or causing other damage to the soil surface and retained vegetation. The removal of arisings shall be completed within 14 days of cutting unless otherwise instructed, or agreed by the Client.
5.3.7	Shrubs shall be maintained in a balanced/natural shape and shall be annually pruned to allow for this.	5.4.1 OBJECTIVE To maintain areas of grass at the required height.	5.4.9 Grass cuttings from work that lie on drives, paths, roads and the like: cuttings which fall on such places shall be swept up and scattered on adjoining grass in the grass cutting area. All service covers within the sward must be kept clear of any build up of arisings and must be specifically checked and cleared as necessary at the end of the mowing season.	5.4.24 Cut to 40mm after flowering. In all cases, remove the clippings.
5.3.8	Replacement of any failed shrubs will be allowed for annually to ensure that the planting areas are abundant.	5.4.2 GENERAL REQUIREMENTS The Client shall cut grass, with appropriate machinery, based on frequency outlined within Section 3 - Schedule of Operations, Timing and Frequency, to meet the quality standards set out in Grass Cutting Specifications. The Client may require that certain areas may need to be cut more frequently than others sharing the same specification to achieve and maintain the same objective.	5.4.11 Grass cutting equipment shall be of a type capable of producing a standard of finish commensurate with the Clients instructions. Scythe or petrol trimmer are to be preferred on cutting meadow mix, but in areas where this is not possible other appropriate machinery should be used.	5.4.25 If wildflower areas are sown in Spring, the following maintenance operations should be carried out : • Throughout first year: Cut to 40-60mm removing cuttings if dense. (NB: It is unlikely mix will flower in first growing season.) • Maintenance thereafter: 'Hay cut' after flowering season (Late July to August). Cut to 40-70mm. Leave the 'hay' to dry and shed seed for 1-7 days before removing from the Site. • September/October Cut regrowth to 50mm. In all cases, remove the clippings.
5.3.9	REMOVAL OF DEAD PLANT MATERIAL	5.4.3 All loose stones or other harmful material from whatever source which may damage grass cutting equipment or create a possible hazard to persons	5.4.12 Cutters and blades shall be sharpened and set according to the manufacturers' recommendations	5.5 WEED CONTROL
				5.5.1 OBJECTIVE Not to completely maintain a 'weed free

<p>environment' but to put in place weed control measures to address how areas should be dealt with if pernicious weeds establish and prevent the establishment of new native grasses, hedgerows, shrub and tree planting etc. to ensure the proposed landscape character is not detrimentally affected.</p>	<p>all operators working with pesticides shall hold Certificates of Competence appropriate to the type of operation in progress or shall work under the direct and personal supervision of a holder of such a Certificate at all times. Not more than two non-certificated operatives shall work under the responsibility of a Certificate holder.</p>	<p>appropriate mechanical or manual means to weed the Site sufficiently to allow safe pesticide application.</p>	<p>5.5.24 The Client should be notified immediately of any evidence of invasive weeds (The Wildlife and Countryside Act 1981) or Injurious weeds (Weeds Act 1959). In particular but not limited to either Giant Hogweed (<i>Heracleum mantegazzianum</i>), Himalayan Balsam (<i>Impatiens glandulifera</i>) or Japanese Knotweed (<i>Fallopia japonica</i>) within the Site area. Eradication methodologies for each of these plants must be approved by the Developer in order to eradicate both weeds completely from the Site.</p>
<p>5.5.2 Where weeds begin to establish in areas close to built form, ensure specific treatments are applied. The most common weed treatments are described in detail within this section.</p>	<p>5.5.10 Any maintenance operatives required to provide the Client with photocopies of the Certificates of Competence for any employee who will be applying pesticides and chemicals within the Site contained in the Contract.</p>	<p>5.5.16 If present, climbing weeds shall be pulled carefully out of ground cover shrubs, other shrubs and trees and then be taken off site to tip.</p>	<p>5.5.25 WEED CONTROL - SPECIFICATIONS For the purpose of the LMMP "weed free" means the reasonable absence of live weed throughout the key landscape areas.</p>
<p>5.5.3 WEED CONTROL: GENERAL REQUIREMENTS All pesticides and marker dyes used shall appear on the current Pesticides Safety Directorate database (PSD) or Health and Safety Executives (HSE) Approved Lists for the use required and shall be non-toxic to human beings, birds and animals under normal use and circumstances.</p>	<p>5.5.11 All persons employed in the handling and use of pesticides shall use the technical and engineering controls and wear the personal protective equipment (PPE) identified in the assessment carried out under the COSHH Regulations 1988 and as detailed in the approved Code of Practice for Using Plant Protection Products (DEFRA 2006).</p>	<p>5.5.17 During pesticide application ensure that:</p> <ul style="list-style-type: none"> • All spray equipment is efficient, well maintained and free from leaks; • No damage is done to shrubs, trees or grass surfaces whether owned by the Client, residents or other parties; • Damage to species with green or otherwise sensitive bark is avoided; • The weather conditions are suitable throughout the area and for the duration of the operation; • Placement of pesticides is accurate avoiding drift; and • The edges of sprayed areas are neat and accurate and do not extend into grass areas. 	<p>5.5.26 WEED CONTROL - AREAS In order to give a neat and natural appearance to all planted & grass areas treat weed growth by the most appropriate means (chemically, mechanically or by hand) as many times as necessary in order to keep the areas weed free. Do not apply pesticide to control weed or grass growth in or next to water course. Use appropriate mechanical or manual means to affect weed or grass control in such locations.</p>
<p>5.5.4 It is recommended that advice should be sought from a BASIS approved person for the correct pesticide to use.</p>	<p>5.5.12 All users including the Client are required to keep records of all pesticide applications and retain them retain these records for at least three years. Refer to the approved Code of Practice for Using Plant Protection Products. Any Landscape Contractor is to provide the Client with a signed copy of their pesticide record sheets at the same time as the application for payment.</p>	<p>5.5.18 If dead vegetation after pesticide application constitutes a fire hazard or is unsightly he may cut back the dead vegetation by suitable means.</p>	<p>5.5.27 WEED CONTROL AT HARD FEATURES In order to give a neat appearance around individual hard features in grassed areas e.g. stepping stones, man-hole covers and walls. Use pesticides to maintain a weed free strip or spot around those features up to but not exceeding 200mm in width, or 400mm in diameter.</p>
<p>5.5.5 Ensure that pesticide and marker dye application, storage, handling and transport comply with all relevant legislation, statutory instruments and Codes of Practice.</p>	<p>5.5.13 The Landscape Contractor shall supply approved signs stating "Herbicide Application in Progress". Sufficient signs will be erected by the Landscape Contractor before work commences to ensure that, as far as is reasonably practicable, members of the public are made aware that pesticide application is being, or is about to be, undertaken. All such signs shall remain in position throughout the operation and shall be removed as soon as practicable after the works are completed.</p>	<p>5.5.19 Any areas of weed surviving due to being missed during spraying, or inclement weather shall be re-treated/</p>	<p>5.5.29 WEED CONTROL IN WATERCOURSES AND DITCHES Watercourses and ditches are to be maintained as much as required in order to maintain their performance capabilities.</p>
<p>5.5.6 Pesticide and marker dye will not be left unattended unless placed in a secure, fixed, appropriately labelled, purpose built container or vault.</p>	<p>5.5.14 No marker dye is to be used in pesticide applications to hard landscapes or hard surfaces or when applying a residual herbicide.</p>	<p>5.5.20 All bottles, tins, bags, wrappers or other form of container which have contained chemicals, shall when empty, be disposed of in a safe and proper manner at an approved location.</p>	<p>5.5.30 The use of pesticides is prohibited unless permission is sought, use appropriate mechanical or manual means to affect weed or grass control in such locations.</p>
<p>5.5.7 Do not draw water from any water course or water surface for any weed control operations. Nor, before, during and after pesticide application pollute public drains, water courses, other sources of water supply and water surfaces with pesticide concentrate, diluted pesticides or with marker dye.</p>	<p>5.5.15 If weed growth before any proposed application of pesticide is so tall as to create a difficulty use</p>	<p>5.5.21 Any plants damaged during spraying operations shall be made good.</p>	<p>5.5.31 Weeds are to be removed at the end of the</p>
<p>5.5.8 The pesticide to be used, method of application, type and size of spray nozzle, knapsack pressure, droplet size and dilution shall (when appropriate) to be in accordance with manufacturer's recommendations in order to achieve the intended result.</p>		<p>5.5.22 The manufacturer's instructions shall be strictly abided by and the correct fallow period allowed prior to new seeding or planting.</p>	
<p>5.5.9 In accordance with the Control of Pesticides Regulations 1986 (COPR) (as amended 1997),</p>		<p>5.5.23 The application of granular pesticide shall be made manually or by means of an approved spreader and lightly forked into the topsoil or as per the manufacturers recommendations.</p>	

- growing season (October - November). When clearing vegetation care should be taken to avoid great crested newt and water vole habitats.
- 5.5.32 Aquatic vegetation arisings should be stacked close to the waters edge for 48 hours to drain and allow wildlife to return to the water. Vegetation should then be removed off site and disposed of at an approved location.
- 5.5.33 **SPECIES SPECIFIC WOODY WEED CONTROL**
All vigorous plant species identified such as bramble, elderberry etc., shall be cut once a year between October and early January and the arisings removed off site. The cut stems should not be treated with appropriate herbicide but managed to ensure species do not become dominant within areas.
- 5.5.34 **BROADLEAVED WEED CONTROL**
All areas of grassland cut as Short/Rough Grass shall be treated with selective herbicide at least twice per annum, generally in both spring and autumn, to control broadleaved weed.
- 5.5.35 **DOCK CONTROL**
Control docks by performing localised targeted selective herbicide application at least twice per annum, generally in both spring and autumn. This maintenance operation shall be carried out to reasonably control the spread of docks but not to eradicate all docks if areas are minor and not impacting on the successful establishment of newly planted species.
- 5.5.36 **CONTROL AND MANAGEMENT OF NOXIOUS WEEDS AND NON-NATIVE INVASIVE SPECIES**
Routine monitoring for the presence of non-native invasive species or Injurious weeds should be undertaken. Upon identification of the non-native invasive or Injurious weeds, the selection of control measures.
- 5.5.37 The flowering period for the most species is from June onwards, control measures should optimally be initiated during spring (late February to late May) to prevent plants setting seed after flowering.
- 5.5.38 Monitoring of the control measures should be undertaken approximately six to eight weeks after treatment to determine the success of the measures used, with additional treatments if required to secure full eradication. It should be noted that certain types of non-native invasive species or Injurious weeds, and in particular ragwort, can be difficult to control in certain situations. As a result, it may be necessary to use a variety of control methods over an extended period to reduce populations.
- 5.5.39 Japanese knotweed and giant hogweed will require continual treatments for a period of at least five years to control as their robust and extensive root/seed bank nature results in little of the applied herbicide being taken up, resulting in regular regrowth.
- 5.5.40 **COMMON RAGWORT (Senecio jacobea)**
Pulling by hand is suitable for smaller areas and is best undertaken when the ground is moist after recent rainfall and especially after the plant has flowered but before it has set seed.
- 5.5.41 Alternatively, cutting between flowering stage and seed set will reduce the risk of spread, but does not destroy the plant and may result in the plant becoming more vigorous in the following year. It will therefore be necessary to undertake two consecutive years of control measures.
- 5.5.42 Arisings must be removed from site immediately and burnt or taken to an appropriate landfill site.
- 5.5.43 Treatment with selective herbicides can be made to the plants in the first year of growth, optimally in late spring (April to May) or early autumn (mid-August to mid-October) before frost damages the foliage. No single herbicide treatment will completely eliminate a ragwort infestation due to successive germinations of the weed.
- 5.5.44 **JAPANESE KNOTWEED (Fallopia japonica)**
It is recommended that a suitably qualified and experienced person with knowledge in the control of non-native invasive species should be commissioned to prepare method statements for the control of Japanese knotweed. The method statement must be approved by the contractor to the client prior to commencement of the eradication work. For further information please refer to Environment Agency (2013) Managing Japanese knotweed on development sites, the knotweed Code of Practice.
- 5.5.45 The primary objective of control measures should be total eradication of the plant by targeting the underground rhizome and not the aerial parts alone. Japanese knotweed is highly invasive and extremely difficult to eradicate completely. All control measures will require follow-up procedures to ensure complete eradication which should be undertaken for a minimum of two growing seasons (and up to five growing seasons) after control.
- 5.5.46 Control of Japanese knotweed is best carried out in-situ whenever possible. The Environment Agency states 'you should only consider excavating Japanese knotweed as a last resort, unless it is part of an on-site treatment method.' (p26. Environment Agency (2013) Managing Japanese knotweed on development sites, the knotweed Code of Practice).
- 5.5.47 **GIANT HOGWEED (Heracleum mantegazzianum)**
Younger plants can be pulled out of the soil using hand tools, ideally when the soil is moist following rain. It is important that the whole of the plant is removed. For larger plants, cut back the upper stem and use the lower stem to lever the roots out. Small fibrous side roots do not send up new plants, however the central crown of the root must always be removed to prevent the plant regenerating.
- 5.5.48 Glyphosate is the most effective chemical control for giant hogweed however follow-up treatment will be required to deal with seedling re-growth even where the initial infestation has been controlled.
- 5.5.49 The seed from giant hogweed may remain viable for up to 15 years and its complete eradication will therefore require continued control measures. Seed dispersal may be up to 4m from the parent plant so care should be taken to restrict the movement of plant material after control measures have taken place. Care should be taken not to stockpile such soil or any vegetative material within 10m of a watercourse. Monitoring of the site and subsequent follow-up control of hogweed seedlings will be required for a minimum of 5 years following treatment or after any soil disturbance at the site.
- 5.5.50 The use of tracked machines and equipment should be limited in any contaminated areas to prevent the transfer of vegetative material and seed-laden soil around the site within the tracks. On leaving the site, any tracked machinery should be thoroughly cleaned within a designated area to prevent the spread of material. All operatives engaged in control should be made aware of the serious health, safety and environmental risks associated with the plant and provided with complete protective clothing.
- 5.5.51 It is recommended that a suitably qualified and experienced person with knowledge in the control of non-native invasive species should be commissioned to prepare method statements for the control of giant hogweed. The method statement must be approved by the Client prior to commencement of the eradication work.
- 5.5.52 **INDIAN OR HIMALAYAN BALSAM (Impatiens glandulifera)**
Plants are shallow rooted and can be pulled by hand in August when any new seeds are sprouting, however plants can be effectively controlled by cutting or strimming down to the ground before the plants flower in June. If the plant is cut down earlier, there will be greater seed production in the re-growth. Once cut back, regular mowing will control re-growth however total eradication may take up to 5 years.
- 5.5.53 Dispose of vegetative material by composting, however if seeds are present the material must be burnt or taken to a licensed landfill site.
- 5.5.54 Glyphosate is the most effective means of chemical control and should be used when the plant is active in late spring. Repeat treatments will be required for up to 5 years and routine monitoring will ensure that any re-growth can be controlled.

5.6 WATERING

- 5.6.1 Ensure that sufficient water is applied to maintain healthy growth. Water both shrubs and specimens during dry periods.

5.7 VEHICULAR ACCESS & FOOTPATHS

5.7.1 OBJECTIVE

To identify a programme of maintenance operations associated with all hard landscape elements. Refer to section 5.5 Grass Cutting for requirement associated with mown grass paths.

5.7.2 GENERAL REQUIREMENTS

Pedestrian and vehicular surfaces should be maintained in a clean, firm and sound condition, free from surface irregularities, algae, weeds and detritus. Ensure that hard landscape surfaces are safe and comfortable to use and are clean from litter and other debris.

- 5.7.3 All paved surfaces shall be swept regularly to ensure that they are clean, tidy and free from dust, litter and debris (removing all arisings off site). Increase sweeping in autumn when leaves are falling.

- 5.7.4 All hard landscape surfaces and edgings shall be inspected monthly checking for mechanical damage, vandalism, settlement, frost heave, staining, litter and debris or any other defect. Any such defects shall be documented and a corrective methodology agreed and implemented as appropriate.

- 5.7.5 Where scheduled inspection detects paved areas are in need of replacement, extension or alteration to their original intended function or to minimise risk of injury, then such repair and/or renewals should be effected immediately. Remove defective paving, through excavation and make good base and sub-base materials as required, reuse salvageable paving units, and relay paving, buying in new products to replace any that are damaged or defective. Where there is differential settlement or the units, wobble, or are not firmly bedded, jointed or pointed, ensure that the units are relayed firmly, re-bedding, jointing and where appropriate pointing, all to match the bonding pattern existing on site. Top up any loose

gravel paths once a year.

5.8.6 SPECIFIC PERFORMANCE CRITERIA

- Herbicide: Apply a suitable herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
- Hard surfaces: Remove litter, leaves and other debris.
- Surface gutters and channels: Remove mud, silt and debris.
- Drainage gullies: Empty traps and flush clean.
- Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.

5.8 TOPSOIL AND SUBSOIL

5.8.1 OBJECTIVE

Where new soil profiles are required, the objective is to recreate similar profiles to those found on site to ensure subsoil and topsoil depths are maintained, nutrient levels are maintained and adequate drainage is provided through the correct preparation of subsoil layers.

- BS 8601:2013 Specification for subsoil and requirements for use
- BS 3882:2015 Specification for topsoil

- 5.8.2 New topsoil to conform with BS 3882:2015 Specification for topsoil (or most current BS at time of reading) and to be highly friable with a good level of nutrients and organic microbial activity. All topsoil to be free from perennial weeds, bulk vegetation growth, fragments of glass, bricks, concrete and other foreign matter, disease-free and without pesticide contamination.

- 5.8.3 Existing site won topsoil can be stockpiled to be used where quality and suitability has been agreed in advance of planting and meets with the criteria as set out within the relevant BS 3882:2015.

- 5.8.4 Handling and storage of topsoil to be in accordance with the detailed landscape specification. Provide as necessary imported topsoil to make up any deficiency of existing topsoil on site and to complete the work. Import topsoil to BS 3882:2015 Multipurpose Grade to meet with the BS.

5.8.5 TOPSOIL & ROOTING DEPTHS

Spread topsoil in accordance with BS 3882: 2015 and ensure topsoil is spread over prepared subsoil in accordance with BS 8601:2013. Overall topsoil and planting depths as follows based on a maximum of 300mm topsoil depths laid over locally prepared free draining subsoil:

- Wildflower Area rooting depths to be 450mm max. (300mm topsoil + 150mm subsoil)
- Shrub Planting rooting depth to be 600mm max. (300mm topsoil + 300mm subsoil)
- Trees Planting rooting depth to be 900mm max. (300mm topsoil + 600mm subsoil)

5.9 NATURE CONSERVATION

PRINCIPLES

- 5.9.1 Management procedures should conserve natural features and enhance the biodiversity of the site, including:

- The careful timing of grounds management activities to avoid nesting/breeding seasons.
- Use material from felling and scrub control to create log and habitat piles to provide habitats for insects in particular the stag beetle.
- Where safety allows, instead of felling mature trees carry out remedial work to retain as standing dead wood.
- Removed vegetation from water features should be left for 24 hours to allow aquatic life to escape back into the water.
- Pond clearance should be undertaken between September to November to avoid plant growing, bird nesting and amphibian breeding periods.

5.10 PEST CONTROL

5.10.1 OBJECTIVES

The objectives of pest control shall be:

- Control of significant threats caused by pests effecting the healthy establishment of non-invasive flora and fauna populations which can be expected to inhabit the site and the possible health risks to the general public.
- Prevention of loss or damage to structures or property by pests.
- Protection of environmental quality to green open space outside buildings.

5.10.2 GENERAL REQUIREMENTS

The emphasis shall be on control, not complete eradication. Establishing acceptable pest thresholds are site specific. Reference shall be made of Sections 14 and 16 of the Wildlife and Countryside Act 1981 which offers guidelines for the completion of an application to release an invertebrate biological control agent in England.

- 5.10.3 For example, it may be acceptable at one site to have a plant species develop rapidly. However, this may not be acceptable at another site. Allowing a pest population to survive at a reasonable threshold reduces selection pressure. This lowers the rate at which a pest develops resistance to a control, because if almost all pests are killed then those that have resistance will provide the genetic basis of the future population.

- 5.10.4 Preventive cultural practices by selecting plant species best suited to local growing conditions and maintaining healthy flora and fauna is the first line of defense.

- 5.10.5 Monitoring through regular observation is critically important. Observation is broken into inspection and identification during regular site wide maintenance visits. Record-keeping is essential, as is a thorough knowledge of pest behavior and reproductive cycles.

- 5.10.6 Mechanical controls to prevent a pest reaching an unacceptable level, are the first options. They include simple hand-picking of dead, dying or diseased material, use of barriers, traps, or pest guards to help discourage spread within the site and disrupt breeding.

- 5.10.7 Natural biological processes and materials can provide control, with acceptable environmental impact, and often at lower cost. The main approach is by introducing predators or pathogenic nematodes that infect the pest with a fatal bacterial disease. Biological insecticides, derived from naturally occurring microorganisms also fall in this category. Further 'biology-based' or 'ecological' techniques should be checked against relevant statutory recommendations for the UK along with

any relevant EU directives.

- 5.10.8 As a last resort, synthetic pesticides can be used as required. Use shall be at specific times in a pest's life cycle. Matching the application technique to the plant species, the pest, and the pesticide is critical. The use of low-volume spray equipment reduces overall pesticide use and labor cost.

5.11 LITTER

- 5.11.1 Litter pick 'windblown' areas as required.

5.12 HERBICIDE

- 5.12.1 Herbicide use to be kept to a minimum. Chemicals will be used for weed control and in order to treat pest and diseases where identified. Any use of chemicals will be carried out strictly in accordance with Manufacturer's instructions.

- 5.12.2 Any herbicide used on site shall be of a type approved by and applied in accordance with Pesticide Regulations 1986 and any relevant Codes of Practice issued by DEFRA. Herbicide shall be applied to topsoil to eradicate any weed germination which has occurred either prior to or following cultivation.

- 5.12.3 Apply all pesticide/herbicide strictly in accordance with manufacturer's recommendations, all relevant Local Authority requirements and current CDM regulations observing all precautions. Remove all containers and chemicals from site immediately once they are no longer required.

5.12.4 CHEMICALS GENERALLY:

Use only products approved by and applied in accordance with Pesticide Regulations 1986 and any relevant Code of Practice issued by DEFRA and all current Health & Safety legislation, COSHH requirements and CDM regulations. Ensure site operatives are certified. Ensure no chemical products are used in or nearby waterways.

5.13 BIOSECURITY

- 5.13.1 Detailed reference should be made of relevant statutory guidelines which set out the approach to affective biosecurity management such as DEFRA's

published guidance on Protecting Plant Health, A Plant Biosecurity Strategy for Great Britain and the Tree Health Management Plan - April 2014.

- 5.13.2 Approach to good biosecurity measures should start with the basic approach based on:

- Ensure footwear is clean prior to the visit (visually free from loose soil and plant debris). If necessary brush or wash in soapy water before the visit;
- Ensure that vehicles are cleaned regularly to remove any accumulated mud, especially from wheels and wheel arches;
- Keep vehicular access to a minimum: do not enter areas unnecessarily and, where practicable, keep to established hard tracks;
- Monitor the tree population regularly for symptoms of ill-health, such as foliar death and damage; crown dieback/dead branches; fungal fruiting bodies; encrustations, fluxes, and bleeding on the bark; the formation of sunken cankers on stems and branches. If such symptoms are present, get expert arboricultural advice immediately.

5.14 MAINTENANCE AND MONITORING

- 5.14.1 The Landscape Management Plan and Maintenance Schedules should be monitored and assessed for their effectiveness on an annual basis for the first five years following the completion of the development.

- 5.14.2 The review may include (as appropriate):

- Specialist reports - advising on particular aspects such as protected species, general silvicultural husbandry and health and safety issues;
- Records or attendance sheets demonstrating the maintenance work undertaken; and
- A walk over assessment of the landscape areas to assess landscape components and their condition, and the need for enhancement

- 5.14.3 The review should identify any changes to site conditions and circumstances, whether the aims and objectives of the Landscape Management Plan are being met, and where identified changes are

needed to existing management practices and time frames.



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