



## **LANDSCAPE MANAGEMENT AND MAINTENANCE PLAN**

**Proposed Build-to-Rent Apartment and Commercial Development, Malahide Road, Dublin 17**

**Prepared on behalf of John Spain Associates**

**And Claregrove Developments Limited (Client)**

**June 2019 / Project No. 6544**

**Project Title: *Proposed Build-to-Rent Apartment and Commercial Development***

**Document Title: *Landscape Management and Maintenance Plan***

<b>Client Name:</b>	Claregrove Developments Limited
<b>Agent Name</b>	John Spain Associates – Planning & Development Consultants
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### **Quality Assurance**

Approval Status in accordance with Park Hood’s IMS (ISO 14001:2015 and ISO 9001:2015).

<b>Issue</b>	<b>Date</b>	<b>Prepared by</b>
<i>Prepared by</i>	<i>12-11-2019</i>	<i>Johnny Park</i>
<i>Planning Issue</i>	<i>12-11-2019</i>	<i>Johnny Park CLMI Landscape Architect and Director; Park Hood</i>

### **Disclaimer**

All feasible and reasonable attempts have been made to ensure that the information provided by a range of public sector institutions and presented in this report is accurate and up-to-date. Park Hood is not responsible for accidental perpetuation of inaccuracies in these records and any consequent effect on the conclusions in this report.

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## **Notes**

This document is to be read in conjunction with the following drawings:

- 6544 L201 Landscape Masterplan
- 6544-L202 Landscape Proposals- Podiums
- 6544-L203 Land Prop -7th Floor Roof Gardens
- 6544-L204 Boundary Treatment
- 6544-L205 Landscape Proposals- 8th Floor Roof Gardens
- 6544-L206 Green Roofs

## 1.0 INTRODUCTION

### ***Purpose and Scope***

- 1.1 The Landscape Management and Maintenance Plan is part of a standard requirement for the planning application process and relate to the management proposals for open space / external landscape areas which are part of this proposed and phased residential development.
- 1.2 The Plan shall be taken to include this document and any supporting plans, reports and specifications approved as for this proposed residential development. This includes any documentation containing quantitative and qualitative information about the external areas of the site that will be useful to those responsible for managing and maintaining them.
- 1.3 The Management Plan sets out the management aims and objectives for the site along with the specific management objectives for each landscape component, and the associated maintenance works required on an Annual and Occasional basis. Annual Works are those works that will be required every year, such as watering, weeding and cleaning. Occasional Works are those that will be required on an irregular or cyclical basis, such as repairs and renewals.

### ***Contract Requirements***

- 1.4 The company undertaking any part of the works:
  - must adhere to all local government legislations and regulations concerning their respective industry;
  - must adhere to all local government legislations and regulations concerning health and safety; and
  - must be a member of the local statutory body representing and regulating their respective industry.
- 1.5 Any personnel working on site:
  - must be supervised by an appointed senior member of staff;
  - must be suitable trained in their respective task;
  - must hold the necessary government approved certificates if required (i.e. use of chemicals, machinery etc.)
- 1.6 Any hazardous material:
  - has to be correctly labelled, stored and used as per the concerning local government regulations;
  - shall only be used by a supervised, trained, certified (if applicable) and appointed member of staff; and
  - must be approved for use by a representative of the owner.

***Health & Safety***

- 1.7 Management of all areas will be undertaken in accordance with current Health and Safety regulations and Safety, Health and Welfare at Work Acts 2005 and 2010.
- 1.8 This will include staff must undergoing a site health and safety induction course regarding the site specific issues and submission of a Health and Safety Plan prior to commencement of any works.

## 2.0 SITE INFORMATION AND INTRODUCTION

Table 1 General Site Information	
Site Location	Malahide Road, Dublin 17
Client	Claregrove Developments Ltd

Table 2 Landscape Works and Types Summary	
Summary description of external landscape treatments, areas and components	<p><b>Soft Landscape Areas</b> include the following elements:</p> <ul style="list-style-type: none"> <li>• Amenity Grass Seeding;</li> <li>• Groundcover and shrub planting;</li> <li>• Tree planting;</li> <li>• Shrub and Buffer Planting;</li> <li>• Hedgerow planting;</li> <li>• Roof garden planting</li> <li>• Sedum Roofs</li> </ul> <p><b>Hard Landscape Areas</b> include the following elements:</p> <ul style="list-style-type: none"> <li>• Footpaths and public realm hard landscape treatments;</li> <li>• Roads and access arrangements;</li> <li>• Walls and Copings;</li> <li>• Lighting;</li> <li>• Play areas and equipment;</li> <li>• Outdoor Furniture.</li> </ul>

### Management Plan Objectives

- 2.1 The aim of the Management Plan is to coordinate a high standard for maintenance and management of landscape elements across the site to ensure successful visual integration of the development proposal into the surroundings and to protect and enhance nature conservation interests in accordance with the design objectives in the approved planning documents. This includes the appropriate maintenance of existing retained and proposed landscape components within an easily maintained comprehensive landscape framework that can provide (where possible) a diversity of landscape experiences for the users, residents and visitors.

2.2 The objectives are summarised as follows:

- To ensure a high standard of sustainable management of all landscape areas in a neat, tidy and substantially weed free condition;
- To ensure that all seeded areas are established and maintained in a condition that contributes to the visual amenity of the development;
- To establish and maintain tree and shrub planting to provide an overall landscape framework and landscape character;
- To maintain and enhance biodiversity and fulfil all legal requirements in relation to the protection and management of ecological features and the protection and management of protected species  
To ensure health and safety to minimise risk of injury and damage to people and property; and
- To provide a mechanism or monitoring and review with practices reviewed on an annual basis in accordance with changing site circumstances and the views of key stakeholders.

2.3 There will be a five year guarantee after construction that all the proposed planting works still exist and is established in line with landscape design expectations. This is just to make sure that no planting has been removed or damaged due to the subsequent construction or plant failure.

2.4 If removal of any tree is necessary, agreement shall be reached with the Council as to replacement with matching or appropriate species in the next planting season.

#### ***Landscape Specifications***

2.5 Landscape works to be undertaken by an ALCI approved landscape contractor and in accordance with BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces). The general landscape proposals are indicated on Dwg. No's. 6544 L201, L202, L203, L205, L206.

2.6 When using pesticides the Contractor must use a certified operator and take appropriate safety precautions in accordance with the European Communities (Sustainable Use of Pesticides) and Sustainable Use Directive (SUD) Regulations.

2.7 Plant supply shall be obtained from a nursery that are members of the Horticultural Trades Association Nursery Certification Scheme and approved by the project and local authority landscape architect.

2.8 All planting stock shall be of local provenance or if unavailable national provenance. Origin and provenance have the meaning given in the National Plant Specification and grown in Ireland.

#### ***Ground Preparation***

2.9 Prior to cultivation, planted areas shall be cleared of all loose debris, rubbish, stones over 25mm in diameter, roots, and other extraneous matter. Grass and weeds shall be sprayed with 'Glyphosate' or similar *SUP / SUD* approved herbicide.

2.10 Topsoil Depths: spread over prepared subsoil in layers not exceeding 150 mm, each layer firmed before spreading the next. Top Soils shall comply with multipurpose grade within *BS 3882:2015: Specification for Top Soil*. Overall minimum depths after firming and settlement to be:-

- Shrub / Hedgerow areas      500 mm
- Lawn and Grass areas      150mm

2.11 Planted areas to be cultivated to a depth of 300mm by hand or rotovator, incorporating planting compost, soil improver and fertilizer base dressing of the types. The topsoil shall have been reduced to a fine tilth on completion of the cultivation works.

***Timetable for Landscape Works***

2.12 The landscape works shall be undertaken by the end of the next available planting season and during the following periods:

- Deciduous trees and shrubs: Late October to late March;
- Conifers and evergreens: September/ October or April/ May; and
- Container grown plants: At any time if ground and weather conditions are favourable.

***Proposed Standard Tree Planting***

2.13 Tree supply and planting shall correspond to *BS 8545:2014 Trees: from nursery to independence in the landscape - Recommendations*. Planting of trees shall be undertaken in favourable weather conditions between October 31st to March 31st.

2.14 Tree pits shall be excavated to suitable dimensions to accommodate roots or root-balls or baskets with bases and sides broken up to a minimum depth of 150mm to assist drainage and root penetration. Any unsuitable material such as large clay lumps, bricks, concrete, timber and sand shall be removed off-site. All tree pits shall be backfilled, after planting, with a 3:1 volume mixture of topsoil and mulching compost/manure or similar approved.

2.15 The planted trees shall be full and well-shaped with crowns thinned by 30% according to good horticultural practice and in a manner that does not affect the overall stature, structure or good appearance of the tree. All work shall conform to a minimum standard as set out in *BS 4043:1989 Recommendations for transplanting root-balled trees*.

***Proposed Shrub and Groundcover Planting***

2.16 Shrub plants to be planted at 2 to 3 plants per m<sup>2</sup> to linear strip to base of bank. Transplants and container grown shrubs shall be of the size stated and conform to *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*.

2.17 Planting pockets 400x400x300mm deep with cultivated and evenly incorporated: organic manure 100mm layer over area of pit, fertiliser 35g. 75mm depth bark mulch dressing on completion of planting.

### ***Hedgerow Planting***

- 2.18 Hedgerow plants to be planted at 4 per linear meter (in double staggered row at 500mm centres) to top of bank. Transplants shall be of the size stated, shall conform to *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*.
- 2.19 Planting pockets 400x400x300mm deep with cultivated and evenly incorporated: organic manure 100mm layer over area of pit, fertiliser 35g. 50mm depth bark mulch dressing on completion of planting.

### ***Grass Seeding***

- 2.20 Coburn's 'GreenLawn' mixture (or similar approved) suitable for general amenity areas. Sowing rate 35g per m<sup>2</sup>.

### ***Sedum Green Roof***

- 2.21 Pre grown *Sedum* plant mix vegetation mats on 80-100mm extensive free draining substrate and filter fleece. All maintenance to Manufacturer's instructions. Refer to as built drawings for details of company.

### ***Performance Criteria***

- 2.22 Performance criteria are indicators for assessing the quality and success of the particular plant mixtures used for a purpose i.e. screen planting, seeding, tree planting etc. Such indicators will be based upon aspects such as:-
- Health and condition of planting;
  - Plant growth; and
  - Achievement of desired visual effect.

## **3.0 LANDSCAPE SOFTWORKS – ESTABLISHMENT MAINTENANCE**

### ***General Introduction***

- 3.1 Establishment maintenance will form part of the landscape contractors works. The period of establishment maintenance will be 12 months after the completion of the planting and grassing works prior to handover.
- 3.2 Prior to handing over, all plants deaths shall be replaced, and all defects made good to the satisfaction of the landscape architect and/or the management company.

### ***Establishment Maintenance Operations – Amenity Grass Areas***

- 3.3 The developer and contractor shall be responsible for maintaining all grassed areas in a neat and tidy, weed free and litter free condition, throughout the complete growing season, or when the landscape works are completed, whichever is the later.

Works required prior to First Cut

- 3.4 When the new sward has reached a height of 50mm the contractor shall remove all loose debris, stones and rubbish above 25mm in any direction prior to cutting. Following the surface clearance and prior to cutting the contractor shall lightly roll all newly grassed areas with a smooth and even weight.

First Cut

- 3.5 All new grass sward shall be given first cut at least two days after rolling. The first cut shall leave not less than 35mm height.

Subsequent and Management

- 3.6 Grass shall be cut regularly (a total of 12-16 times during the growth season) to a length consistent with the season and quality of growth. The normal establishment of cut shall be 25mm. All arisings shall be removed if the height of the grass exceeds 100mm prior to cutting
- 3.7 All established grass areas shall receive an application of an approved top dressing (N:P:K) (20:10:10) at the rate of 15g/M2 as directed by the site management or landscape architect.
- 3.8 Any areas of settlement or local depressions shall be made up and re-sown by the contractor at his own expense.
- 3.9 The edges of seeded areas, adjacent to shrub beds and margins are to be carefully trimmed square and to a true line. The contractor should note that this also applies to the area around the base of trees planted in grass areas.
- 3.10 All areas of failed grass shall be reinstated using the seed mix as specified within the landscape contract, with ground cultivation prior to seeding meeting the same requirements.
- 3.11 All new grass areas shall be handed over as complete, well established sward at the end of the establishment maintenance period.

***Establishment Maintenance Operations – Planting operations***

- 3.12 Weed Control: All planted areas shall be kept entirely weed free throughout the establishment maintenance period, using approved residual and translocated herbicides, or mechanical means, or a combination of both.
- 3.13 Wind Firming: All plants shall be inspected at monthly intervals for wind firmness, and re-firmed as necessary.
- 3.14 Stakes & Tree Ties Checking: Stakes shall be checked monthly for firmness, and re-firmed as necessary, and all tree and plant ties inspected and loosened as required.
- 3.15 Pruning: Shall be carried out on a monthly basis, and will include the removal of minor dead wood or damaged wood. Formative pruning shall be undertaken at the appropriate time of the year for the species involved in order to enhance the plants best feature e.g. flowering, stem colour etc.

- 3.16 Inorganic Fertilizer: All shrub-planting areas shall receive a fertilizer top dressing in July of ‘Osmocote’ slow release fertilizer (N:P:K) (18:11:10) to be lightly raked in.
- 3.17 Watering: All plants shall be watered as required during the establishment maintenance period to ensure survival of all plant material. Suggested water requirements for tree irrigation are as per following table.

Table 3 Watering Requirements for Establishment Maintenance Period (days)									
	Feathered	Light Standard	Standard		Heavy Standard		Extra Heavy Standard		Semi Mature
Girth (cm)	6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	20+
Height (m)	1.8-3.0	2.4-2.7	2.7-3.0	3.0-3.6	3.6-4.2	4.2-4.8	4.8-5.4	5.4-6.0	6.0+
Estimated daily* transpiration rate (litres)	1	1	1.2	2	3	4	5	6	7+
Suggested first season summer watering requirements (litres per month)	36	36	45	75	115	150	190	220	300+
*Calculations for transpiration and suggested watering requirements are based on a typical Plane Tree in a tree pit ameliorate with 25% peat and with a 50mm mulch layer. The figures are approximate and are for guidance only. Allow an extra day for every 10mm of rainfall.									

- 3.1 Litter Removal: Litter that may have accumulated in grass and planted areas must be lifted and removed from the site each month.
- 3.2 Failed Planting Areas: Prior to the end of the establishment maintenance period, the contractor will receive from the landscape architect a list of plant material that must be replaced by the contractor. Any plant material which has failed to establish, or has died, throughout this period must be replaced with healthy plant stock of similar specification at the contractors own expense. Successfully established plant material shall be those plants showing positive signs of growth i.e. shoot extension and growth over time. Breaking into leaf is not to be taken as evidence of successful establishment.
- 3.3 Handover of Planted Areas: All newly planted areas shall be handed over as complete and well established at the end of the establishment maintenance period.

#### **Establishment Maintenance Operations – Sedum Green Roof**

All maintenance to Manufacturer’s instructions. Refer to as built drawings for details of company.

- 3.4 Watering: Regular watering in the first weeks is crucially important. A quick establishment is important for the plants to cope with the harsh conditions on a roof.

- 3.5 Weed Control: Hand pulling weeds whilst they are very small will cause less damage to the Sedum. This is paramount as a simple grass weed will turn into a small lawn if a roof is not properly cared for during the first year.
- 3.6 All established areas of *Sedum* green roof shall receive an application of 'Osmocote' slow release fertilizer (N:P:K) (18:11:10) granular fertilizer in April and October at the rate of 10g/M2 as directed by the site management or landscape architect.
- 3.7 All areas of failed *Sedum* shall be reinstated using the mix as specified within the landscape contract, with ground preparation meeting the same requirements.
- 3.8 Debris: Removal of all debris and leaves from the roof surface, rainwater outlets, and gutters.

## 4.0 LANDSCAPE SOFTWORKS – LONG TERM MANAGEMENT

### Amenity Grass Areas

- 4.1 Performance Criteria: Grassed areas shall have good grass cover without obvious bare patches.
- 4.2 Maintenance Objectives: To establish and maintain an even cover of grass sward.

### *Maintenance Operations Years 1 – 20*

- Grass Cutting: All grassed areas will be maintained between 20 – 40mm in height during April to August inclusive and between 30 – 50mm at all other times;
- Frequency of cuts may be up to 20 cuts per annum, dependent on the length of the growing season and weather, with the majority undertaken during the spring and summer months. Clippings may be let fly, but all adjacent hard surfaces shall be swept clean after cutting with all clippings removed to contractors tip;
- Grass Verges & Edges: All edges to grassed areas against buildings, footpaths, roadways, trees and any other obstruction shall be kept neat and tidy. Border edges shall be clipped and not exceed 50mm length at any time;
- Weeding: Spot weeding of isolated areas of weed infestation may be undertaken using an approved selective herbicide; and
- Reinstatement of failed areas: All areas of failed grass shall be reinstated using the seed mix as specified within the original landscape contract, with ground cultivation prior to seeding meeting the same requirements.

### Groundcover and Shrub Planting Areas

- 4.3 Performance Criteria: By year 5 all ground cover planting shall have achieved closed canopy and shall have been thinned and pruned.
- 4.4 Maintenance Objectives: To establish and maintain a weed free cover of healthy growth, clipped or pruned as necessary to give a neat and tidy finish contained within the planted area.

### *Maintenance Operations Years 1 – 3*

- Monthly inspection for wind firming and watering to establish good growth;
- Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 30g/M<sup>2</sup>; and
- Remove and replace all dead, dying and diseased or vandalized plant material, replacements to be as originally specified within the main landscape contract or as agreed with Management Company.

### *Maintenance Operations Years 3 – 5*

- Annual application of an approved residual herbicide in the winter months, with removal or spot treatment with an approved translocated herbicide during the main growing season;

- In the appropriate season for the species involved, prune and tidy the plants removing dead, dying or diseased plant material;
- Selectively thin plants that are restricting the natural and attractive development of their neighbours; and
- Remove all arising from site.

#### ***Maintenance Operations Years 5 – 20***

Operations to include the above, plus:

- Bi – annually prune and tidy the plants removing all dead, dying or diseased plant material from the site; and
- Replace as necessary all shrubs that are not contributing satisfactorily to overall objectives of the landscape management plan. Replacements shall be approved with the supervising officer.

#### **Hedgerows**

- 4.5 Performance Criteria: All hedges shall have a complete canopy and be managed to form a continuous impenetrable thicket to the desired height by year 5.

#### ***Maintenance Operations Years 1 – 3***

- Monthly inspection for wind firming and watering as required ensuring establishment and survival of plant material;
- Pruning shall be directed at maintaining true and even levels as necessary during the growing season, with all arisings removed from site;
- The first cut can commence when all danger of frost has receded. When cutting avoid strong sunlight, best carried out on a dull and wet day;
- The last cut shall commence no later than 4 weeks before the first frost. Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 30g/M<sup>2</sup>;
- Maintain the planted area weed free by applying an annual dressing of an approved residual herbicide in the winter months and spot treatment with an approval translocated herbicide during the growing season; and
- Remove and replace all dead, dying, diseased or damaged plant material, replacements to be as originally specified within the main landscape contract, or as agreed with management company representative.

#### ***Maintenance Operations Years 3-20***

Operations to include the above, plus:

- Maintain top and side of hedges in a rectangular profile using suitable, approved mechanical methods, to true and even levels. Remove any cuttings lodged in the surface of the hedge and rake up and remove all arisings; and

- Maintain weeds or grass growth at the base of the hedge to a maximum height of 100mm by regular hand cutting or by application of an approved residual herbicide.

### **Standard Tree Planting**

- 4.6 Performance Criteria: To provide a healthy growing tree that contributes to the overall aesthetics of the landscape.
- 4.7 Maintenance Objectives: To ensure establishment and maintenance of trees with a well-shaped habit.

#### ***Maintenance Operations Years 1 – 3***

- Monthly inspection for wind firming and watering as required ensuring establishment and survival of plant material (fortnightly during dry spells);
- Bi-monthly tree tie check to ensure that the trees are not being strangled by support. Loosening of trees ties as necessary;
- Maintain a 1m diameter area of weed free soil around the base of each tree by hand. This to be carried out monthly during the main growing season and bi-monthly thereafter;
- Annual application of an approved fertilizer in July of 17:17:17, N:P:K at a rate of 60g/tree;
- Remove and replace all dead, dying, diseased or damaged plant material, replacements to be as originally specified within the main landscape contract, or as agreed with the supervising officer;
- Prune the trees to remove any dead, dying or diseased shoots and limbs to create a balanced form for future growth, remove; and
- Tree Guards and Grilles: Where supplied and fitted, tree guards (mild steel and 'Weldmesh') are to be inspected, re-fixed or replaced as necessary to original specification and to prevent chaffing of tree.

#### ***Maintenance Operations Years 3-5***

Operations to include the above, plus:

- Removal of tree stakes, tree ties and tree guards as necessary, as trees become wind firm and established to prevent strangulation of tree.

#### ***Maintenance Operations Years 5-20***

Operations to include the above, plus:

- Some selective thinning of tree groups may be required during this period, at years 10 and 20;
- Visibility Splays: Any vegetation other than grass on visibility splays or road sight lines will be kept to below 600mm above channel lines on road. In addition, the visibility splay will be kept free of all structures or vegetation other than that approved in the planning consent.

### ***Sedum Green Roof***

- 4.8 All maintenance to Manufacturer's instructions. Refer to as built drawings for details of company.
- 4.9 Performance Criteria: Areas shall have good coverage without obvious bare patches.
- 4.10 Maintenance Objectives: To establish and maintain an even cover of *Sedum*.

### **Maintenance Operations Years 1 – 20**

- Minimum 4 no inspections on all roofs to align with the growing season and throughout with one visit in the winter, and one in August to cutting and remove flowers.
- Hand pulling weeds whilst minimum 4 no times per year.
- Foot traffic to be kept to a minimum in spring in advance of the flowering season.
- All established areas of Sedum green roof shall receive an application of 'Osmocote' slow release fertilizer (N:P:K) (18:11:10) granular fertilizer in April and October at the rate of 10g/M2 as directed by the site management or landscape architect.
- All areas of failed Sedum shall be reinstated using the mix as specified within the landscape contract, with ground preparation meeting the same requirements.

### **Maintenance Operations Years 3 – 20**

#### **Watering**

- 4.11 In any period of extended drought ensure survival of all plants, for recommended water requirements refer to Table 3 for guidance.

#### **Existing / Mature Trees**

- 4.12 Management Objectives:
- To maintain the trees in as healthy and attractive condition for as long as possible;
  - To ensure continuity in tree cover and their contribution to the landscape structure, biodiversity, and screening/amenity value of the site;
  - To ensure that trees are healthy and safe, particularly in places in proximity to residential properties and with public access. and
  - In certain locations, arising's from woodland management activity can be used as basis for opportunities for amphibians, invertebrates and bryophytes micro-habitats by leaving piles of dead wood or recumbent dead logs.

#### ***Maintenance Operations – Annual and Occasional***

- Trees should be regularly visually checked for the presence of any diseased or rotten wood; fungal or other infections/disease; and stability. If any such issues are identified, then the advice of qualified Arboricultural consultant should be sought immediately;

- The health of the trees shall be monitored and any works required for health and safety or to promote the health and sustainability of existing trees shall be identified, scheduled and actioned at a suitable time of year;
- Any works recommended for each tree should be documented and a formal application made to the Council (if required) with the exception of the removal of dead wood in advance of the works being undertaken wherever necessary;
- All works should be completed at an appropriate time of year and in accordance with relevant EU wildlife legislation. Where possible this should be outside of the bird nesting season (i.e. between October through to March inclusive). In any event according to the nature of the works, there may be an additional requirement for monitoring or a watching brief by a qualified ecologist to ensure there are no nesting birds or bats present;
- All works shall be carried out by a skilled, qualified and approved Arboricultural Contractor in accordance with *BS3998: 2010 'Tree Work - Recommendations*. All personnel will be familiar with the content of these guidelines prior to commencing work within the site;
- All brushwood and logs that result from surgery and felling of trees on site shall be removed off site. Brushwood may be chipped on site, but all wood chippings resulting from these operations shall be raked up, bagged and removed;
- Where surgery works affect carriageways or public roads, the Arboricultural Contractor shall ensure the relevant permissions and road control permits are obtained, and all necessary health and safety parameters are met;
- Selective thinning and coppicing of existing scrub and trees is to be assessed on site. This will allow trees and shrubs to develop diversity of form and different types of nesting, feeding and foraging habitat and extend the potential life of individual plants. Additional thinning of the scrub areas may be required at intervals following an initial selective thin and coppice. The timing of thinning should be informed by an assessment on site. A competent person, such as a qualified arboriculturist should plan thinning and coppicing operations. All thinning and coppicing operations should be undertaken between October and February;
- Any tree that dies or is necessarily felled, but which is not removed as part of a programme of thinning or coppicing, shall be replaced with a tree of appropriate species and stock size. Such replacement shall be with a tree of either the same or similar species as those existing. Replacement and enhancement planting is best undertaken during the planting season (November through to March inclusive.); and
- Possible damage to drainage/services and adjoining building foundations must be considered before choosing a replacement tree species and location.

### **Monitoring Objectives and Performance Criteria**

- 4.13 At the end of the defects liability period (1 year), the overall soft landscape areas shall be in a visually neat and tidy condition and completed to the contract specification prior to handing over to the appointed management company. The management company will inspect all areas of seeding and planting regularly throughout the year, to ensure the landscape management objectives are achieved.
- 4.14 The landscape sub-contractors with responsibility for the site shall record all site visits, maintenance operations undertaken and any other significant events i.e. fire, theft or vandalism of plant materials. This information shall be used to prepare an annual report at the end of each year that will summarize maintenance operations together with an assessment by the contractor of the current state of the site.
- 4.15 The appointed supervising officer shall prepare a long-term review after years 5, 10, 15 and 20. This report shall summarize the management undertaken together with an assessment of the performance of the landscaped areas against the performance criteria stated within this plan. This review shall include recommendations for improving the management plan, if necessary dependant on findings.

## 5.0 LANDSCAPE HARDWORKS – LONG TERM MANAGEMENT

### **Paved Areas**

- 5.1 Performance Criteria: All hard surface areas shall remain in good repair and free of any trip hazards.
- 5.2 Maintenance Objectives: To repair any sunken/raised paving elements, making good damaged units or subsistence to match original materials and retain the paved areas in clean condition.

### ***Maintenance Operations***

- Annual inspections of hard surface areas and maintenance carried out as necessary e.g. re-pointing as required;
- Sweep with pedestrian equipment and dispose arisings (1 x per month, March – September);
- Apply herbicide, weed wipe (1 x per year); and
- Clean paved surfaces according to manufacturer's recommendations including removal of stained surfaces and removal of chewing gum.

### **Fencing, Barriers & Bollards**

- 5.3 Performance Criteria: All fences shall remain in good visual condition.
- 5.4 Maintenance Objectives: To repair any damaged elements and ensure barriers succeed in design objective e.g. protect planting

### ***Maintenance Operations***

- Annual inspections of hard works areas and maintenance carried out as necessary;
- Extension or strengthening of barriers as required;
- Clean bollards and barriers only according to manufacturer's recommendation; and
- Repaint fencing as required and as per manufacturer's recommendation.

### **Walls and Copings**

- 5.5 Performance Criteria: All walls, planters and copings shall remain in good visual condition.
- 5.6 Maintenance Objectives: To repair any structural damage as required and retain surfaces in clean condition.

### ***Maintenance Operations***

- Annual inspections of hard surface areas and maintenance carried out as necessary;
- Maintain and clean painted surfaces;
- Remove graffiti as required; and
- Repaint and/or re-point as required and as per manufacturer's recommendation.

### **Street and Courtyard Furniture**

- 5.7 Performance Criteria: All street furniture shall remain in good visual and workable condition;
- 5.8 Maintenance Objectives: To repair any structural damage as required and retain surfaces in clean condition.

#### **Maintenance Operations**

- Annual inspections and maintenance carried out as necessary;
- Maintain and clean surfaces, remove graffiti as required;
- Repaint as required and as per manufacturer's recommendations;
- Remove severely damaged and broken street furniture immediately; and
- All repair works to be carried out according to the latest H&S and BS legislation.

### **Litter Bins**

- 5.9 Performance Criteria: All litter bins should remain in good visual condition and hygienic condition
- 5.10 Maintenance Objectives: To maintain litter bins in clean condition

#### **Maintenance Operations**

- Empty litter bins and remove contents to tip;
- To retain the litter bin in clean condition;
- To replace any damaged litter bin as per original selection; and
- Clean and/or repaint as required and as per manufacturer's recommendation.

### **Light Fittings**

- 5.11 Performance Criteria: All external lighting within public realm areas should remain in good working order and good visual condition
- 5.12 Maintenance Objectives: To maintain lighting fitting in good working order.

#### **Maintenance Operations**

- Regular inspections and repair as necessary;
- Clean and/or repaint as required and as per manufacturer's recommendation;
- All repair works to be carried out according to the latest H&S and BS legislation; and
- All repair works to be inspected and signed off by a certified electrician.

### **Litter Operations**

- 5.13 Performance Criteria: To maintain as far as possible a clean, litter free environment.
- 5.14 Maintenance Objectives: Collect and remove from site all extraneous matter on a regular basis so that its presence is not detrimental to the appearance of the site.

- Collect and remove to contractor's tip all extraneous rubbish not arising from routine maintenance works which is detrimental to the appearance of the site. This rubbish to include stones, bricks debris, paper, confectionery and other wrappings, bottle, cans and plastic containers;
- Collect and remove to the contractors tip all extraneous matter which has been deliberately deposited on site by persons known or unknown; and

## 6.0 MAINTENANCE AND INSPECTION OF PLAY AREAS

6.1 *Performance Criteria: All equipped areas of play to remain in safe condition, good repair and in good visual condition. Maintenance of the play area will be in line with the requirements of BSEN 1176 and / or BSEN 1177 or BS 5696, DIN 7926 and BS 7188, with inspections every 2 weeks by qualified personnel, and quarterly and annual inspections by an independent inspection company.*

6.2 *Litter: Play areas shall be kept free of litter, so that at no time it will not be greater than 5%.*

### **Maintenance Operations**

- Every two weeks, all play equipment, fencing, gates and bins will be visually inspected and any damage reported to the Management Company in accordance with ROSPA Information Sheet 24. If any equipment is damaged, the equipment will be made inoperable at the time of visit pending repair;
- Each play area will receive a post installation inspection with a corresponding report, and will receive three quarterly and one annual inspection from an independent inspection company;
- At each maintenance visit, all extraneous material including stones, bricks, debris, paper, confectionery, bottles, cans, glass, dog fouling, soil washing onto paths and paved areas and any other materials whatever their composition considered detrimental to the appearance of the site will be collected and removed. This excludes any arisings from fly tipping wherein the cost and arrangements for the removal of such material will be agreed separately from the removal of litter;
- Loose surfacing such as Bark chips shall be re-spread to maintain an even depth over the whole of the covered area. Particular attention shall be paid to fall areas around play equipment;
- All equipped areas for play shall be inspected and maintained in accordance with the requirements of BSEN1176 and/or BSEN1177 and amendments; and
- Annual inspections of play equipment in accordance with ROSPA Guidance and EN 1176/7 shall be carried out. Inspections shall be by an independent specialist. A written report shall be generated to included, but not limited to: site safety, safety and condition of equipment, surfacing and ancillary safety items, compliance with EN 1176. The report should include any remedial action required with an assessment of the degree of risk.

## 7.0 GENERAL SUMMARY

### *Introduction*

- 6.1 All works, materials and operations will be in accordance with relevant legislation, British Standards, Regulations (including the CDM Regulations) and Codes of Practice.
- 6.2 It is important that all maintenance activities, significant events, surveys and monitoring activities are recorded. These provide an effective database against which the effects of maintenance and management activities can be assessed.
- 6.3 The landscape contractor responsible for maintaining the site shall maintain a record of site visits and the maintenance operations undertaken. The landscape contractor shall also record any significant events, i.e. fire, theft or vandalism of plant material or fencing. Specialist Contractors may be used on an as needs basis to complete specialist operations and/or occasional works.

### *Process for Monitoring and Review*

- 6.4 The Landscape Management Plan and maintenance schedules will be monitored and assessed for their effectiveness on an annual basis for the first five years following the completion of the development. The review will include advice from specialist consultants as required (such as a qualified arboriculturist and ecologist), the Landscape Management Contractor and other stakeholders including representative(s) from the Council and residents association. The review shall include (as appropriate):
  - Technical Reports - advising on particular aspects such as protected species, general management and health & safety issues;
  - Records / Attendance sheets demonstrating the maintenance work undertaken;
  - Site visit to assess landscape components, condition, and need for any mitigation or enhancement; and
  - Record and Minutes.

### *Annual Reviews*

- 6.5 The landscape contractor will prepare an annual report at the end of each year of maintenance that shall be made available to the appointed member of the management committee supervising the maintenance contract.
- 6.6 The report will include a summary of the maintenance tasks undertaken during the course of the year together with an assessment by the landscape contractor of their perceived effects be they positive or negative. The appointed member will prepare a long-term review report after 5, 10 and 15 years of the maintenance contract.
- 6.7 The report shall include a brief summary of the preceding period of the management plan together with an assessment of the performance of the landscape areas against the performance criteria stated

in this plan. The review shall also include recommendation for future maintenance including potential remedial or enhancement works.

***Five Year Review***

- 6.8 The Landscape Management Plan will be reviewed every five years, or as required to ensure the satisfactory management of the landscape in perpetuity.

## Appendix A Sample Management and Maintenance Report

SAMPLE MAINTENANCE REPORT			
Date		Weather	
Start Time		Finish Time	
<b>Personnel on Site</b>			
Staff Names		Skills	
<b>Tasks Undertaken</b>			
<b>Management Tasks</b>	<b>Tick Box</b>	<b>Comments</b>	
Cutting Grass	<input type="checkbox"/>		
Weeding	<input type="checkbox"/>		
Strimming Meadow	<input type="checkbox"/>		
Pruning	<input type="checkbox"/>		
Dead-heading	<input type="checkbox"/>		
Litter Picking	<input type="checkbox"/>		
Weed Spraying	<input type="checkbox"/>	Specify chemicals and location	
		_____	
Other	<input type="checkbox"/>		
<b>Tasks incomplete</b>			
<b>Management Task</b>	<b>Specify Reasons</b>		
<b>Management and Maintenance Notes</b>			
Date of next site Visit			
<b>Management Signoff</b>			
Site Foreman		Signature	
Approved Manager		Signature	

## Appendix B Specifications for Replacements - Post planting

### Plant Material Generally

- B1 Trees, shrubs and other plant materials as specified on the drawing shall be supplied from an approved source. Landscape products will be obtained from sustainable sources and from suppliers committed to sustainability.
- B2 All trees and shrubs shall correspond exactly with the species, varieties and sizes shown on the planting plan, and shall comply with the relevant sections of *BS 3936 - Part 1: Nursery stock specification for trees and shrubs*.
- B3 All shrubs, hedging plants, whips, feathered whips and climbing plants shall be properly grown, healthy, well established nursery transplants of good form, stock & strain, and shall have a well-developed fibrous root system.

### Trees and Woodland Areas

- B4 All trees shall have a well – balanced crown with an established framework of branches consistent with the species, a single straight stem and a well-developed fibrous rooting system.
- B5 Bare rooted trees, where specified shall conform to the above.
- B6 Root-balled trees, where specified shall be supplied with a root-ball of diameter and depth appropriate to the size and species of the tree. The minimum diameter shall be no less than ten times the diameter of the stem measured at 300mm above ground level. The root-ball shall be thoroughly moistened, prior to lifting from the nursery.

## Appendix C Maintenance Task Schedules

Month	Location	Task	Duration	Comments
January	Lawn Shrubs/Borders Green Roof	Cut and collect arising Weeding/Litter picking Weeding/Debris clearing	Every 3 weeks Every 3 weeks Once	
February	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking	Every 3 weeks Every 3 weeks	
March	Lawn  Shrubs/Borders  Roses  Rhododendrons Topiary	Apply slow release fertiliser Cut and collect arising Apply Medium release fertiliser Weeding/Litter picking Mulch all beds Apply slow release fertiliser Remove dead buds Prune dead wood Prune into shape	Once Every 2 weeks Once Every 2 weeks Once Once Once Once Once	10%N:5%P <sub>2</sub> O <sub>5</sub> :3%K <sub>2</sub> O  7%N:7%P <sub>2</sub> O <sub>5</sub> :7%K <sub>2</sub> O  15%N:6%P <sub>2</sub> O <sub>5</sub> :12%K <sub>2</sub> O  Only light prune
April	Lawn Shrubs/Borders  Green Roof	Cut and collect arising Weeding/Litter picking  Apply slow release fertiliser Weeding /debris clearing	Every 2 weeks Every 2 weeks  Once Once	  15%N:6%P <sub>2</sub> O <sub>5</sub> :12%K <sub>2</sub> O
May	Lawn Shrubs/Borders  Rhododendrons	Cut and collect arising Weeding/Litter picking Apply herbicide/pesticide Dead Heading	Every 2 weeks Every 2 weeks Once Every 2 weeks	Aphids, Vine Weevil, Black Spot, Mildew etc. Start as soon as the flowers are going over
June	Lawn  Shrubs/Borders  Rhododendrons	Water on Sulphate of Ammonium Cut and collect arising Weeding/Litter picking Apply herbicide/pesticide Dead Heading	Once Weekly Weekly Every 2 weeks Weekly	Only necessary if lawn appears pale Aphids, Vine Weevil, Black Spot, Mildew etc.
July	Lawn  Roses  Shrubs/Borders  Rhododendrons	Water on Sulphate of Ammonium Cut and collect arising Apply slow release fertiliser Dead Heading Weeding/Litter picking Apply herbicide/pesticide Dead Heading	Once Weekly Once Weekly Weekly Every 2 weeks Weekly	Only necessary if lawn appears pale  15%N:6%P <sub>2</sub> O <sub>5</sub> :12%K <sub>2</sub> O  Aphids, Vine Weevil, Black Spot, Mildew etc.
August	Lawn	Cut and collect arising	Weekly	

	Roses Shrubs/Borders	Dead Heading Weeding/Litter picking Apply herbicide/pesticide	Weekly Weekly Every 2 weeks	Aphids, Vine Weevil, Black Spot, Mildew etc.
	Rhododendrons Topiary	Dead Heading Prune into shape	Weekly Once	Only guidance prune
	Green Roof	Cut and remove flowers Weeding /debris clearing	Once Once	
September	Lawn	Apply slow release fertiliser Aerate and overseed Cut and collect arising	Once Once Every 2 weeks	10%N:5%P <sub>2</sub> O <sub>5</sub> :3:K <sub>2</sub> O
	Shrubs/Borders	Weeding/Litter picking Apply herbicide/pesticide Apply medium release	Every 2 weeks Every 2 weeks Once	Aphids, Vine Weevil, Black Spot, Mildew etc.
	Rhododendrons Lavenders	fertiliser Dead Heading Dead Heading	Once Every 2 weeks Every 2 weeks	7%N:7%P <sub>2</sub> O <sub>5</sub> :7%K <sub>2</sub> O
October	Lawn Roses Shrubs/Borders	Cut and collect arising Prune back Weeding/Litter picking Prune back	Every 2 weeks Once Every 2 weeks Once	Aphids, Vine Weevil, Black Spot, Mildew etc.
	Rhododendrons Lavender Climber Topiary	Apply herbicide/pesticide Prune out dead wood Cut back Prune back Prune into shape	Once Once Once Once Once	Hard prune and shaping for next year
	Hedges	Prune into shape	Once	Hard prune and shaping for next year
	Green Roof	Apply slow release fertiliser Weeding /debris clearing	Once Once	15%N:6%P <sub>2</sub> O <sub>5</sub> :12%K <sub>2</sub> O
November	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking Apply herbicide	Every 2 weeks Every 2 weeks Every 2 weeks	
December	Lawn Shrubs/Borders	Cut and collect arising Weeding/Litter picking Apply herbicide	Every 3 weeks Every 3 weeks Every 3 weeks	