LIZ LAKE
ASSOCIATES
LANDSCAPE ARCHITECTS

Landscape Management Plan

BLYTHE VALE, BLYTHE BRIDGE, STOKE ON TRENT

St Modwen Homes

July 2017

Landscape Management Plan

Blythe Vale, Blythe Bridge, Stoke on Trent
St Modwen Homes

July 2017

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1 INTRODUCTION

1.1 Background and Context

1.1.1 This report presents a Management Plan for the communal areas, areas of Public Open Space (POS.) including the SUDs drainage, LEAP and Buffer associated with Land off A521, Blythe Vale, Blythe Bridge, Stoke on Trent. The management of these areas forms part of the planning consent.

1.1.2 The management responsibility will be with the appointed Management Company set up on behalf of the residents by St Modwen Homes. Areas are to be managed in accordance with this Management Plan for a minimum ten-year period, commencing at the time of completion of the contractor's defects liability period. For the duration of the contractor's defects liability period (12 months after completion of works) the maintenance liability of all areas will lie with the developer.

1.1.3 This report has been designed to provide a steering manual for the day-to-day management of the Site and one, which can be updated as required. It sets out in broad terms the landscape aspirations for the Site, both in the short and longer term and provides practical means by which these aims may be translated to well managed results on the ground.

1.1.4 The report relates directly to the detailed landscape proposals, drawings 1965 01 - 05 which can be found in Appendix A.

1.1.5 The Landscape has been designed to the following objectives:

- Create a new distinctive neighbourhood and enhance the quality and role of the Site within its local setting, connecting with adjacent properties and field patterns.
- Provide a landscape infrastructure that is suited to the local conditions and which has low maintenance requirements.

- Create a strong entrance sequence which utilizes and enhances the existing landscape resource of the Site, by retaining key trees and introducing a new tree lined avenue with understorey planting through the centre of the Site creating a sense of place.
- Provide a bold and clear planting structure across the Site using planting mixes that blend into one another to create a unified landscape.
- Provide new trees that are appropriate to the character and setting.
- Provide a new local amenity play provision using natural materials as doorstep parks for the use of all residents.
- Retain and enhance views both from within the Site and form surrounding public viewpoints encouraging natural surveillance particularly to play areas and open spaces.
- Provide open lines of sight with accessible routes and spaces and enhance the biodiversity of the Site.

1.2 Report Structure

1.2.1 The report is structured as follows:

- Section 2: describes the management aims and objectives for the Site.
- Section 3: sets out the management strategy for the existing Site.
- Section 4 and 5: sets out the management for new planting on the Site with specific advice relating to routine maintenance and management operations

2 MANAGEMENT AIMS AND OBJECTIVES

2.1 Aims and Objectives

2.1.1 The primary landscape objective for the landscape areas subject to this Landscape Management Plan is to create and maintain a functional, attractive and sustainable space, to increase the sense of site unity and to increase the visual appeal and emphasize the site's characteristics. The main aim of the Landscape Management Plan is to set mechanisms in place which ensure that the open space and play area and other integral parts of the Site are well managed in perpetuity, for the benefit of the residents so they do not become degraded through neglect, inappropriate management or misuse.

2.1.2 The principle aims for managing the Site are as follows:

- to introduce strong management policies which will enhance the visual appeal of the Site, maximize the screening function and create a high quality landscape setting for the new buildings.
- to encourage appropriate use of the Site by residents, whilst strongly discouraging inappropriate and indiscriminate use of the Site by, for example, vandalism, tipping, anti-social behaviour;
- to ensure that the long term health and vigour of the new planting is optimised in the future.
- Promote wildlife habitat within the Site.

3 MANAGEMENT PLAN

3.1 Works Programme

3.1.1 It is expected that the Management Plan will commence following completion of the landscape works. The provisions of the establishment maintenance specification set out below should also be adopted by the contractor during the 12 month defects liability period, prior to handover.

3.1.2 It should be noted that the proposed annual timing of operations in the following Works Programme are flexible and it is anticipated that the exact programme of works will be influenced by seasonal weather conditions and factors such as variability in growth rates.

3.1.3 In the management schedules set out below, the timing of operations (by season or month) is only given where this is critical, either in terms of achieving optimum results or minimising potential disturbance to wildlife. In general terms pruning or other works to established hedgerows, shrubs and trees, which may contain breeding birds, should avoid the bird breeding season. In most years this is from February to July.

3.2 Legal Constraints

3.2.1 Any inhabitation by statutorily protected species will need to be given due consideration with respect to management operations in the affected areas.

3.3 Management of Existing Mature Trees

3.3.1 ***Objective:*** existing mature specimen trees are to be subject to only minimal arboricultural works, to ensure public safety but also to enhance their longevity, their value to the setting of the Site and to optimise their wildlife potential. Mature/veteran trees should be retained if deemed structurally sound and dead wood removed. Particular care should be given to those trees visible from outside the Site to enhance their appearance.

3.3.2 A draft report, Arboricultural Assessment REV B July 2017 has been produced by FPCR Environment and Design Ltd. Extracts from the report in relation to management of retained tress are included below:

4.19 All retained trees should be subjected to sound arboricultural management as recommended within section 8.8.3 of BS5837 Post Development Management of Existing Trees, where there is a potential for public access in order to satisfy the landowner's duty of care. Additionally, inspections annually and following major storms should be carried out by an experienced arboriculturalist or arborist to identify any potential public safety risks and to agree remedial works as required.

4.20 All tree works undertaken should comply with British Standard 3998:2010 and should therefore be carried out by skilled tree surgeons. It would be recommended that quotations for such work be obtained from Arboricultural Association approved contractors as this is the recognised authority for certification of tree work contractors.

4.21 All vegetation and, particularly, woody vegetation proposed for clearance should be removed outside of the bird-breeding season (March - September inclusive) as all birds are protected under the Wildlife and Countryside Act, 1981 (as amended) whilst on the nest. Where this is not possible, vegetation should be checked for the presence of nesting birds prior to removal by an experienced ecologist.

3.3.3 In addition to the advice in the report;

Any trees suspected of providing suitable hibernation roosts for bats are to be inspected by a licensed bat worker and works to be undertaken in accordance with 'Best Working Practice', as specified by The Bat Conservation Trust.

Following the inspection a schedule should be provided of essential remedial surgery/other works or tree removal required for public safety/tree health reasons and this to be supplied to Stafford Borough Council.

Any works to tree should be undertaken at a time to avoid the bird breeding season as noted in the arboricultural assessment and being aware of seasonal variations which may alter nesting seasons.

4 MANAGEMENT OPERATION FOR NEW PLANTING TO COMMUNAL AREAS AND POS

4.1 Aims and Objectives

4.1.1 It is expected that the management operations will commence following Practical Completion of the new planting.

4.1.2 It should be noted that the proposed timing of operations in the following Works Programme are flexible and it is anticipated that the exact programme of works will be influenced by seasonal weather conditions and factors such as variability in growth rates.

4.1.3 In the maintenance schedules set out below, the timing of operations (e.g. by season or month) is only given where this is critical, either in terms of achieving optimum results or minimising potential disturbance to wildlife. In general terms pruning of mature shrubs as well as operations to mature trees, which may contain breeding birds, should be avoided in the bird breeding season. In most years this is from February to July.

4.2 Operation 1 : New Specimen Trees

4.2.1 ***Objective:*** to promote early establishment and vigour in all newly planted trees within the development area. Longer-term management to include replacement as required and formative pruning to create a healthy, strategic landscape component and to perpetuate the original design aims. Please refer to drawing 1965 05 for tree positions and tree planting details, Appendix A.

Establishment Maintenance of New Specimen Trees

4.2.2 Establishment Maintenance of newly planted trees will be required for the first three years after planting to ensure rapid early growth. Visits shall be undertaken at least monthly between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Years 1 and 2. All trees to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- All trees to be treated with an annual application of an approved slow-release fertilizer (e.g. Osmocote) at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- Trees that have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading. Tree supports (including underground guys) to be regularly checked, adjusted, repaired and replaced as necessary and irrigation tubes to be kept free of blockages.
- Weed control is required to keep all planting areas free of grass and weed growth. This weed control must be by hand in Year 1, with chemical control, using Glyphosate, permitted only in 1.0m squares around clear-stemmed trees in Years 2 and 3.
- Trees to be kept free of pests and diseases; regular monitoring to be undertaken.
- General pruning to be carried out to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches.
- Planting areas to be kept free of litter and leaf fall and grass edges to be kept regularly trimmed and tidy.
- Where mulch is used as a top dressing, this to be regularly topped up to 100mm, to ensure a minimum depth of 75mm. Mulch to be kept cleared off adjacent grass, paved areas etc.
- General autumn tidy.
- All arisings to be removed from site and the Site to be left clean and tidy at all times.

4.2.3 An inspection is to be made in August each year. Any losses of planted trees, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement trees are to be of the same specification and size as the original plants.

4.3 Operation 2: Ornamental Shrubs and Herbaceous Planting

4.3.1 *Objective:* to create a high quality ornamental planting scheme to complement the development and its setting. Longer-term management will aim to perpetuate the original design aims and sustain shrubs and herbaceous planting in a healthy, vigorous condition and to maximize the visual amenity of the planting.

Establishment Maintenance of Ornamental Shrubs and Herbaceous Planting

4.3.2 Establishment Maintenance of new planting will be required for the first three years after planting to ensure rapid early growth. Visits to be undertaken at least monthly between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- Watering as required to ensure healthy growth, particularly in Years 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.
- All shrubs to be treated with an annual application of an approved slow-release fertilizer (e.g. Osmocote) at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- Plants that have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading.
- The need for weed control will be minimised through the use of mulch in planting areas. The mulch is to be regularly topped up to a depth of 75mm, ensuring that the lower branches and foliage of plants are not smothered. Mulch to be kept cleared off adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds.

Any additional weed control required must be by hand in Year 1, with chemical control, using Glyphosate, permitted only in Years 2 and 3 in those areas without herbaceous plants. Where herbaceous species are present hand weeding will be required.

- Plants to be kept free of pests and diseases, regular monitoring to be undertaken.
- General pruning to be carried out to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches.
- Planting areas to be kept free of litter and leaf fall.
- General autumn tidy.
- All arisings to be removed from Site and the Site to be left clean and tidy at all times.

4.3.3 An inspection to be made in August each year. Any losses of shrubs or herbaceous plants, whether by natural means or vandalism and any other plants that have failed to thrive, to be noted and replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants.

Longer Term Management of Ornamental Shrubs and Herbaceous Planting

4.3.4 Regular maintenance visits should be made at monthly intervals between April and September with at least two visits during the dormant season each year. It will be necessary to undertake general 'tidying' e.g. removal and replacement of dead plants, litter and leaf fall clearance, topping up, raking and sweeping of mulch to provide a tidy appearance etc., as described above for the Establishment Maintenance. All arisings to be removed from Site and the Site to be left clean and tidy at all times.

4.3.5 Following completion of the Establishment Maintenance, the need for both watering and weed control is likely to be reduced but topping up of mulch must

still be undertaken as necessary to maintain the beds in a weed free condition. At this stage it may be possible, in those areas without herbaceous planting, to use a residual soil acting herbicide, such as Casaron, to minimise the need for physical removal of weeds. Planting beds to be maintained in a weed free state and mulch material to be kept topped up to a depth of 75mm, as appropriate. In dry summers some ornamental beds may require watering to ensure healthy growth.

4.3.6 Regular monitoring for pests and diseases will also be needed on an ongoing basis and any necessary control measures undertaken as soon as possible.

4.3.7 General and formative pruning to shrubs to remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, discoloured, thin, weak, over-crowded, old or broken branches from shrubs by pruning back with a clean cut to the main stem, or to a sound and healthy outward growing lateral. Ground cover plants eg Vinca spp. to be trimmed to shape and to prevent encroachment onto adjoining hard surfaces, shrub species or grass edges in April to June each year.

4.3.8 Specific shrub species shall be pruned in accordance with best horticultural practice and as specified by the following guidance notes:

4.3.9 Vigorous species to be pruned as necessary to restrict lateral and top growth, to prevent infringement on adjoining plants, paths, grass, edges etc. It may be necessary in 5 + years after planting, to undertake rejuvenative pruning of these and other species, if they outgrow their location or become over-mature. In these cases shrubs to be cut to 100mm above ground level in March. Plant re-growth is to be monitored and any shrubs which do not regenerate successfully to be removed and replaced, with plants of the same size and specification as the original plants.

4.3.10 Ground cover and under storey mixes to be monitored and pruned in single species groups to ensure that swamping of less vigorous species does not occur. Vinca to be constrained to prevent suckering extensively throughout planting areas.

4.3.11 Herbaceous planting to be dead headed after flowering, with flower stems cut to ground level, with the exception of plants which display decorative seed heads,

which are to be kept tidy and seed heads removed in the autumn. The other exception is biennial species, which should be allowed to set seed in the vicinity of the parent plant, to progenerate. Seedlings to be retained and re-distributed as necessary.

4.3.12 Where necessary to maintain a tidy appearance and in accordance with good horticultural practice, herbaceous plants e.g. Geranium, to have dead leaves cut back to ground level in the autumn. Those species, which retain attractive winter, leaves e.g. Euphorbia and Bergenia spp. to be retained unpruned but tatty leaves to be cut out on a regular basis. Vigorous herbaceous species e.g. Geranium spp. to be divided and splits used to extend/gap up the original planting in October, as necessary to ensure longevity and free flowering of the parent plants. Following this treatment the areas affected should be re-mulched.

4.3.13 Ornamental grasses including Carex spp. to be kept in a tidy condition and grass heads to be cut down after flowering. Leaves to be cut down as necessary to retain a tidy appearance.

4.4 Operation 3: New Hedges

4.4.1 ***Objectives***: Promote early growth of new hedge plants to create well-structured and healthy, dense hedges. Please refer to drawings 1965 01-03 for planting locations and planting details, Appendix A.

Initial Establishment Maintenance of New Hedges

4.4.2 Establishment Maintenance of new hedge planting will be required for the first three years after adoption to ensure rapid early growth. Monthly visits to be undertaken between April and September, with two visits during the dormant season, to ensure that the following maintenance requirements are satisfactorily undertaken:

- watering as required to ensure healthy growth, particularly in Years 1 and 2. All planting areas to be visited weekly in periods of dry weather and sufficient water to be applied to eliminate drought related stress.

- hedge plants to be treated with an annual application of an approved slow-release fertilizer (e.g. Osmocote), at the manufacturer's recommended rates in April of Years 1, 2 and 3.
- plants, which have become loosened, lifted up or out of the ground to be set upright and re-firmed by treading.
- the need for weed control will be minimised through the use of mulch in planting areas. The mulch is to be regularly topped up to 75mm, ensuring that the lower branches and foliage of plants are not smothered. Mulch to be kept clear of adjacent grass, paved areas etc. This will generally suppress weeds but there may be some localised ingress of weeds. Any additional weed control required to keep the hedge trench free of grass and weed growth must be by hand in Year 1, with chemical control, using glyphosate, permitted only in Years 2 and 3.
- plants to be kept free of pests and diseases, regular monitoring to be undertaken.
- general pruning to be carried out to trim laterals, remove straggling stems, over-vigorous shoots, suckers and dead, misshapen, broken or otherwise unhealthy branches. Leading shoots to be left untrimmed during the establishment period.
- planting areas to be kept free of litter and leaf fall.
- general autumn tidy.
- all arisings to be removed from Site and the Site to be left clean and tidy at all times.

4.4.3 An inspection to be made in August each year. Any losses of hedge plants, whether by natural means or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. Replacement plants to be of the same specification and size as the original plants, in accordance with 3.9 above.

Longer term Management of New Hedges

4.4.4 Regular maintenance visits should be made at a minimum of monthly intervals between April and September with two visits during the dormant season each year. It will be necessary to undertake general 'tidying' eg removal and replacement of dead plants, litter and leaf fall clearance, topping up, raking and sweeping of mulch to provide a tidy appearance etc, as described above for the Establishment Period. All arisings to be removed from Site and the Site to be left clean and tidy at all times.

4.4.5 An inspection to be made in August each year. Any losses of planted plants, whether by natural means, wear and tear or vandalism and any other plants that have failed to thrive, to be replaced in the planting season following the loss. This to include any plants that are relatively short lived and which will require routine replacement during the period of the Management Plan. Replacement plants to be of the same specification and size as the original plants.

4.4.6 Following completion of the Establishment Period, the need for both watering and weed control is likely to be reduced but these and topping up of mulch must still be undertaken as necessary to ensure healthy growth and maintain the beds in a weed free condition. At this stage it will be possible to use a residual soil acting herbicide, such as Casaron, to minimise the need for physical removal of weeds. Planting beds to be maintained in a weed free state and mulch material to be kept topped up to a depth of 75mm, as appropriate. In dry summers some ornamental hedges may require watering to ensure healthy growth.

4.4.7 Regular monitoring for pests and diseases will also be needed on an ongoing basis and any necessary control measures undertaken as soon as possible.

4.5 Operation 4: Short Amenity Grass

4.5.1 ***Objective :*** Areas of short mown grass are to be maintained as a high quality sward, for informal recreational use.

Establishment Maintenance of New Areas of Short Grass

4.5.2 Areas of newly seeded/turfed grass to be subject to establishment maintenance during the first year after seeding.

4.5.3 Swards to be cut six times during the growing season, once the grass has established sufficiently to be stable and well rooted. The first cut to be made when the grass has reached 50mm in height and the grass shall not be cut lower than 25mm. All cutting operations to be carried out in suitable dry weather conditions. Cuttings to be removed or distributed lightly and evenly over the sward.

4.5.4 Any failed areas of grass to be seeded at the correct season. Any ingress of pernicious perennial weeds to be hand pulled.

Longer Term Short Grass Management

4.5.5 Areas of short grass once established for twelve months and new areas of turf, are to be cut a minimum of sixteen times during each growing season (ie between March and October). However, it will be weather permitting and should be reviewed to suit extreme weather ie extremely dry arid conditions it may be necessary to reduce the cut leaving the grass slightly longer. The height of grass shall not exceed 50mm before cutting, topped to a height of 25mm. Any short grass that abuts a vertical obstacle to be strimmed at the same time as each grass cut to achieve a neat edge. Swathes of arisings to be collected up and composted or removed from Site.

4.5.6 All grass edges against paved areas, kerbs or other hard surfaces to be edged regularly to maintain a 10-20mm clear gap between the two surfaces.

4.5.7 In March and September of each year, all grass edges to be trimmed in accordance with the above paragraph, to be re-cut to a straight line or smooth curve as appropriate using a half moon edging tool or similar.

4.5.8 The sward to be treated with an approved selective herbicide, at the recommended rate of application on an annual basis in May of each year, to control broad-leaved weeds.

4.5.9 Any damage to the sward caused by pests (moles, rabbits etc.) or by vehicles or general wear and tear, to be reinstated by top dressing, re-cultivation, re-seeding and watering, at the correct season, as necessary. Any reinstated areas to be protected and subject to establishment maintenance as itemised above. If grass growth is poor it may be necessary to apply a spring and / or autumn fertilizer to the sward, to encourage vigour. Similarly, turf aeration and scarification may also be necessary, to alleviate compaction and control the development of thatch.

4.5.10 Any leaf material, broken branches or other debris which occur on the grass, to be removed as necessary, to maintain a clear grass surface.

5 SITE SPECIFIC AREAS

5.1 Operation 5: Southern Quarter and POS

This area is the lowest part of the Site, therefore suits the location of an attenuation feature, which is envisaged to provide informal POS facilities and complements both a LEAP and the existing green infrastructure. This facility benefits from good surveillance and combined with shared surface routes will help define a natural character. The southern edge is set back and faces outwards to provide a strong acoustic frontage to the A50 beyond.

5.1.1 ***Objectives***:

- Provide suitable vegetation to enhance wildlife habitats.
- Maintain and enhance existing Hedgerow/trees where possible to ensure canopy and form is retained as described within the arboricultural assessment.
- Create appropriate habitat and a safe maintenance strategy for attenuation structure to the POS.
- Promote early establishment and vigour in all newly planted trees.
- Longer term management to include replacement as required and formative pruning to existing and proposed trees to create a healthy, strategic landscape component and to perpetuate the original design aims.
- Ensure that the SUDs specific items are maintained in a safe and functional manner. (Please refer to Operation 6: Swales, Attenuation structure/Balancing Pond and existing Pond).

5.1.2 From Year 5 onwards it may be necessary to undertake strategic canopy lifting/coppicing of vigorous trees and multi-stemmed specimen shrubs, to allow understorey shrub edge mix to thrive, without being shaded out. Decisions are

likely to be required in the longer term about the possible need for thinning out some of the tree specimens once established.

5.2 Operation 6: Swales, Attenuation Structure/Balancing Pond and existing Pond

5.2.1 ***Objective***: To manage the balancing ponds and swales (all the responsibility of the developer unless adopted) to optimise their surface water balancing and filtration function to comply with EA (Environment Agency) flood requirements and also to perpetuate their value as habitat, to provide safe, well balanced areas of open water and diverse marginal fringes of vegetation / marshy habitat, suited to amphibians and other aquatic fauna.

- Swales are located along the central east west POS feature. Their purpose is to take storm water away from the main residential area linking in with the attenuation structure feature.
- The attenuation structure is designed to take all runoff from the Site and swales. For further information on Site wide SUDs and drainage scheme refer to Consulting Engineers.
- Public access is not encouraged however the swales and balancing pond feature compliant slopes should anyone have to enter for whatever reason, other than maintenance.
- Care should be exercised when working near or within the immediate vicinity/banks of the existing retained pond which has a permanent water body.

5.2.2 **Specification**: the attenuation structure should be subject to an initial restorative regime of de-silting after the first full year of use as part of its annual inspection (subject to use). This is to include removal of common reed and great willow herb and other marginal vegetation at the headwall between the swale and the basin and also at the outfall. The inspection is to be carried out by a civil engineer to access the bank structure and headfall/out flow provision.

5.2.3 Thereafter, the need for major pond maintenance eg de-silting / dredging, removal of large amounts of vegetation is likely to be become necessary after a further 5-10 years although still subject to annual inspection.

5.2.4 The works are to be undertaken under the supervision / watching brief of an appropriately licensed ecologist and are to be undertaken only when reptiles and amphibians are likely to be hibernating and out of the pond (eg January). In the unlikely event that any newts are discovered within the pond a European Protected Species (EPS) licence is to be obtained from Natural England prior to undertaking the works.

- There must be absolutely no works affecting the balancing pond or swale during the March to June (inclusive) period when newts are likely to be concentrated in the pond and all works should be restricted to the November to February period, during suitably cold weather.
- To prevent impacts on breeding birds, vegetation removal / weed control, in reeds, other aquatic vegetation, scrub and other woody vegetation associated with the wetland habitat, shall be undertaken outside the bird breeding season. This is generally March to July (inclusive) but may extend beyond this period if seasonal conditions vary from the norm.
- If for any reason emergency works are required that could potentially affect breeding birds and/or great crested newts, an appropriately licensed ecologist shall be consulted prior to works and if considered necessary, Natural England to be contacted.
- Regular visual site inspections of the attenuation structure and swale and surrounding area should be undertaken in April, July, September and December as part of the routine maintenance schedule to check the following:
- Water level, colour and general quality of the water if present. Any indication of aquatic pollution, impeded or excessive drainage of attenuation structure and associated swale, to be reported immediately to the developer/ those responsible for maintenance.

- The raised retaining embankment should be inspected for any signs of erosion, wear and tear or other degradation on a yearly basis and any disrepair to be made good, as part of the maintenance regime, to ensure that it is fit for purpose.

- It is also necessary to monitor and inspect the outfall for any signs of impediment or blockage. Specialist servicing of the petrol interceptor will also be required, in accordance with manufacturer's instructions. This work to be undertaken by developer or their agents at least twice per year and a certificate of compliance to be issued by a competent organisation within 14 days of such inspection.

- Routine monitoring of the attenuation structure and swale to include inspection for signs of excessive silting or vegetation growth within the swale, on the island or in the pond; indications of inappropriate recreational pressure / misuse of the pond and its environs and in particular any disturbance of the refuge area (8m environmental buffer zone) to the north and east of the pond, also the presence of litter or other debris to be noted and appropriate action undertaken.

- The results of the site inspection shall be passed on to the Management Company representative on behalf of St Modwen Homes and any recommendations made relating to significant, developing or repeating management issues undertaken.

  Any colonisation of the ponds by algal blooms may need to be addressed. This is likely to be a result of nutrient enrichment and should, where possible be addressed at source or an approved proprietary product eg Viresco. The use of barley bales or mats may help reduce any problem in this respect. Monitor the ponds for any sign of pollutants or other contamination, debris, unexpectedly high or low levels of water or other abnormalities and report any such concerns to the EA. A scheme of remedial works to be agreed and implemented. This situation where water is standing for prolonged periods should be questioned/investigated and monitored as required.

- The swale to be managed on a low key regime, to perpetuate the filtration function of the reed growth and to optimise its value as an autumn /winter food / shelter resource and also as a nest /roost site for birds. To this end 50% of the reed growth (in blocks) is to be cut to ground level annually in the late autumn / winter period (prior to onset of the bird breeding season) each year. Any ingress of willow, bramble or other woody / ruderal species is to be cut at the same time as the reed growth. In the event that woody / ruderal vegetation is becoming too dominant in the view of the EA, it may be necessary to undertake some hand-grubbing of this vegetation (herbicide treatment is not generally permitted in this area due to the presence of great crested newts, without the prior agreement of the licensed ecologist and Natural England). Any blockages caused by excessive vegetation growth or debris that might be prohibiting natural water flow or drainage in the swale or in the inlet and outlet gullies shall be removed with immediate effect.

5.2.5 The arisings from the swale vegetation management operations are to be raked off the swale and distributed in low swathes in locations to be agreed with the EA.

5.3 Operation 7: Grass cutting Wild Flower Areas to open spaces and swales (Emorsgate EM8 mix for Seasonally Wet Soils - wildflower Grassland)

Strim to height of 75mm, once in late August, once again in mid-October and in mild winters once again in mid-March. Rake off all cut material at once, except for the August cut which shall be left for 3-5 days after cutting to allow to dry, for re-dispersal of seeds. NB. It will be necessary for the company maintaining the wildflowers to have an understanding of the principles of wildflower management, which is different from normal amenity grass management. This should ideally be demonstrated before the contract for the grounds maintenance is let. Rake off cut material to set the seed and then remove from Site, to an approved composting facility or to approved Site facility to be set up with residents associated.

5.4 Operation 8: Entrance and Northern Quarter

5.4.1 The proposed vehicular access to the Site has been designed to provide a well landscaped welcome to this new residential development, with a spine that reduces in width and scale off the main highway. Landscaped verges will be used to accommodate changes in level along to the northern boundary.

In line with acoustic recommendations, the northern edge will be fronting or siding onto the A521 and a well defined frontage faces the spine road which is accessed by means of secondary roads/shared surface which avoids direct plot access off the spine road.

Well defined urban blocks provide a clear hierarchy of routes and public spaces and provide overlooking to the existing natural area around the pond.

5.4.2 *Objectives*:

- Provide a dense covering of vegetation to northern boundary to enhance wildlife habitats and protect the habitat surrounding the existing pond.
- Maintain and enhance existing trees, particularly the large individual trees to ensure canopy and form is retained as described within the arboricultural assessment.
- Further planting along the boundary to be assessed on Site only once thinning out, clearing and removal works as per the arboricultural works have been undertaken.
- Create a strong dense structure of native shrub planting to reinforce the corridor link adjoining the eastern boundary (8m environmental buffer zone) and POS provision.
- Promote early establishment and vigour in all newly planted trees.
- Longer term management to include replacement as required and formative pruning to existing and proposed trees to create a healthy, strategic landscape component and to perpetuate the original design aims.

5.4.3 Native species planted along the existing pond vicinity, should in the longer term be subject to minimal management to allow the trees to develop into character trees of value to wildlife.

5.4.4 From Year 5 onwards it may be necessary to undertake strategic canopy lifting/coppicing of vigorous trees and multi-stemmed specimen shrubs, to allow understorey shrub edge mix to thrive, without being shaded out. Decisions are likely to be required in the longer term about the possible need for thinning out some of the tree specimens. Refer the arboricultural assessment for maintenance operations.

5.5 Operation 9: Eastern Quarter

5.5.1 Clearly defined by existing hedgerow this area complements existing properties. Pedestrian and cycle permeability is maintained between the spine road and quieter roads around the pond area, which benefits from active surveillance from surrounding properties. Existing natural areas around the pond is envisaged to provide informal POS. The Site will require a separate sub-station which will need to be located off highways accessible road and avoid natural constraints.

5.5.2 *Objectives*:

- Provide a dense covering of vegetation to eastern boundary incorporating the existing trees to assist the acoustic baffling.
- Maintain and enhance existing trees to ensure canopy and form is retained as described within the arboriculture assessment.
- Create a strong dense structure of native shrub planting reinforcing the boundary.
- Promote early establishment and vigour in all newly planted trees.
- Longer term management to include replacement as required and formative pruning to existing and proposed trees to create a healthy, strategic landscape component and to perpetuate the original design aims.

5.6 Operation 10: Western Quarter

'The western edge uses a strong building line, defined by terrace blocks, to assist with acoustic baffling and the set back outward looking nature of this edge aims to minimise the impact of noise. The dwellings aspect onto the spine road complement with approach on the opposite side to produce a welcoming and legible entrance to the Site. This quarter is accessed via a secondary road off the spine road which has been set away from the new main junction on the A521, and leads to a series of routes that complement the existing landscaping.'

5.6.1 ***Objectives***:

- Provide a dense covering of vegetation to western boundary incorporating the existing trees to assist the acoustic baffling.
- Maintain and enhance existing trees to ensure canopy and form is retained as described within the arboriculture assessment.
- Create a strong dense structure of native shrub planting reinforcing the boundary.
- Promote early establishment and vigour in all newly planted trees.
- Longer term management to include replacement as required and formative pruning to existing and proposed trees to create a healthy, strategic landscape component and to perpetuate the original design aims.

From Year 5 onwards it may be necessary to undertake strategic canopy lifting/coppicing of vigorous trees and multi-stemmed specimen shrubs, to allow understorey shrub edge mix to thrive, without being shaded out. Decisions are likely to be required in the longer term about the possible need for thinning out some of the tree specimens.

5.7 Operation 11: Long Term Management Objectives

5.7.1 The POS will become a linear amenity hub with the eastern quarter housing the existing pond a strong wildlife safe haven as planned.

5.7.2 Adding strategically placed wood log piles and fallen tree trunks away from trafficked areas will also encourage wildlife colonies to nest and create homes and encourage wildlife enhancement through habitat creation.

5.7.3 Areas of nettles and brambles are to be encouraged to grow and be managed so that they do not become a nuisance, to residents and walkers but will become safe havens for wildlife.

5.7.4 Areas to the curtilage of the development to be planted with wildflowers, including digitalis, wild poppy, daffodils etc., to create year round interest and colour.

5.7.5 As the above if trees are to be removed due to disease or dying then the areas to be set aside for wildflower seeding until the replacement trees have reached maturity.

5.7.6 Decay is important as invertebrates and fungi are imperative to maintain a woodland ecosystem, particularly in the close context with Lee Valley Reginal Park.

5.8 Operation 12: Site Housekeeping, Hard Landscaping and Open Spaces

5.8.1 ***Objective:*** Ensure that the Site is respected and that the hard and soft landscape elements including high quality fixtures are maintained in good condition, without the risk of degradation through natural processes or abuse.

Routine Site Monitoring

5.8.2 All furniture including benches and light fittings etc., are to be regularly checked and cleaned and if necessary repaired, treated with an appropriate preservative or replaced as appropriate, and in accordance with manufacturer's instructions.

5.8.3 Regular routine checks of the Site within management, will be required and any litter, dumped material or other debris to be removed on a weekly basis. Vigorous attention will be required with respect to control of dog fouling.

5.8.4 All areas of paving, flush and raised edging to paths and planting, kerbs, macadam and other hard surface areas throughout the Management areas of the Site, to be kept free of leaves, litter and silt deposits, swept or alternative method of debris removal e.g. suction or blowing, on a monthly basis and maintained free

of grass, weed, moss or algae growth, using appropriate translocated (e.g. Glyphosate) and residual (e.g. Casaron) herbicides and moss-killers. Particular attention is required to areas that may be prone to slipperiness. It may be necessary to use a pressure washer on occasion to remove any silt or algae build up.

5.8.5 Longer term management of paths, steps, areas of self binding gravel, as well as kerbs, macadam and other hard surfaces etc., will include twice annual monitoring in April and September of each year and repair/replacement to be undertaken as necessary, to prevent further deterioration.

5.8.6 Site drainage issues also to be addressed on a routine basis to ensure that there are no problems relating to blockages or disrepair of main drains or laterals, dispersal of surface water etc. This will include regular checking and clearance of any drainage gulleys and grated drainage channels and rodding of underground drainage pipes as necessary.

5.8.7 Gritting and snow clearance to be undertaken on an 'as required' basis to all paths and other hard surfaced areas.

5.8.8 Any unauthorised use of the areas or vandalism/graffiti/loitering/dens or other abuse or anti-social behaviour, to be reported immediately to the Local Authority/Police (as appropriate) for further action and/or removed as soon as possible. Similarly, any inappropriate use of the open space by residents e.g. installation of personal possessions/ children's play equipment etc. into the communal areas, dumping of shopping trolleys, storage of bikes etc., to be similarly reported and appropriate action/warnings issued.

5.9 Operation 13: Play Spaces; LEAP Provision

Refer to drawings 1965 04 LEAP Detail, Appendix A.

5.9.1 *Objectives*: Ensure surfacing and equipment and safety fencing is kept clean and safe in line with manufacturer's instructions. The play provision provides for two distinct age groups and their different needs, it is important for the safety of the

users that these areas are maintained as separate entities to the required specified standards.

5.9.2 Play provision on Site comes in the form of a LEAP (Local Area Equipped Play. This area is within the public open space to the central/western area of the Site. The LEAP area has been designed to manufacturer's specification and to BS EN 1176 and will have a post installation check ensuring full compliancy. This will be in association with ROSPA, in accordance with the manufacturer's specification and carried out by a registered member of the RPII (Register of Play Inspectors International.) The LEAP is unfenced but has specifically located implied boundaries to prevent overspill onto roads and into specific pieces of equipment. These should be inspected to ensure function and effectiveness.

5.9.3 An annual follow up inspection will be undertaken on or before the anniversary of the post installation inspection for the duration of the play areas lifespan. The lifespan is that specified by the manufacturer. Please note that these inspection techniques in general can be applied to other equipment where there is no manufacturer's maintenance strategy in places as 'best practice'.

5.9.4 Safety surfacing to play areas should be checked monthly for foreign objects and worn/reduced surface areas to ensure compliancy with regards to fall height impact (Please note this inspection frequency and procedure may vary and must follow the manufacturer's specification.)

5.9.5 Bound safety surfaces should be monitored on a monthly basis with an annual inspection to verify fit for purpose and condition. This will also be in accordance with manufacturer's specification.

5.9.6 All pieces of play equipment to be checked monthly to ensure components are tight and no sharp edges or gaps have opened. All components to be tamper proof and if required to be replaced like for like from manufactures specification list.

5.9.7 Play equipment to be tested annually and reported upon based on manufacturer's check list. All equipment within public realm to carry a valid safety certificate. Any piece of equipment that is damaged or not fit for purpose to be put beyond use until removal or repair.

5.9.8 The areas will have a life span for as long as the play equipment lasts and, in time, will require redesigning and replacing together with the surrounding hardscape with new modern equipment with the existing soft landscaping retained and integrated into the new scheme. The time that this will happen will depend on the use and wear of the equipment and in line with manufacturer's recommendations.

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