Lanpro

South Wokingham Distributor Road
Landscape and Ecological Management Plan

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South Wokingham Distributor Road,

Wokingham,

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South Wokingham Distributor Road

Tony Gee and Partners LLP

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Issue Sheet

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Landscape and Ecological Management Plan

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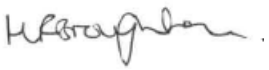

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1 Introduction

1.1 Summary

1.1.1 Lanpro Services Ltd. ('Lanpro') was commissioned by Tony Gee & Partners LLP to prepare a Landscape and Ecological Management Plan (LEMP) to support the discharge of condition 13 of Planning Approval notice 192928, for the landscaping scheme associated with the construction of the South Wokingham Distributor Road (hereby referred to as the 'Development').

1.1.2 The development comprises of 2.7km long, single carriage way road with a cycle lane and footpath. This comprises the central section spanning 2.3km and the SWDR link road, which encompasses the remaining 0.4km.

1.1.3 This LEMP sets out measures for management and monitoring of the landscape and ecological mitigation and enhancements implemented as part of this development.

1.1.4 This LEMP covers a period of ten years following the completion of the Development, with the construction envisaged to take less than two years to complete (therefore the timeline includes eleven years of management prescriptions).

1.1.5 The eleven year post-construction management period will facilitate the safeguarding and enhancement of the site's ecological assets in the short to medium term. The long-term management of the SANGS habitat management is not considered within this document; however temporary measures are included. Long term habitat management will be incorporated within a 'management agreement' as part of this; when areas to be covered by Tony Gee are confirmed temporary management will be required until the residential developer, Persimmon, take over.

1.1.6 This LEMP does not provide ecological guidance relevant to any specific future works beyond the basic habitat maintenance, management and monitoring outlined here. If any future works greater than those outlined in this document are required onsite, an ecological assessment will need to first be undertaken by a Suitably Qualified Ecologist (SQE). If the works are likely to have any long-term ecological or habitat management implications then the LEMP will need to be reviewed to incorporate these new factors, with the amended document providing an update on this version.

1.2 Relevant Drawings and Report

1.2.1 This LEMP should be read in conjunction with the latest revisions of the following drawings and reports:

- 4977_LAN_XX_XX_RP_1000 – Written Landscape Specification
- WMHP-TG-SRWG1-DR-LS-3001 - 3009 'Soft Landscaping Planting Plan'

1.3 Relevant Guidance

1.3.1 This LEMP has been produced with reference to the National Plant Specification 'Handling and Establishing Landscape Plants'.

1.3.2 All plants and planting operations are to comply with the requirements and recommendations of all current relevant British Standard specifications including but not limited to:

- BS 8545. Trees: From Nursery to Independence in the Landscape;
- BS 3936-1:1992. Nursery stock. Specification for trees and shrubs;
- BS 3882:2015 - Specification for topsoil;
- BS 4428:1989. Code of practice for general landscape operations (excluding hard surfaces) (AMD 6784);
- BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations;
- BS3998:2010 Recommendations for Tree Work;
- The Hedgerow Regulations 1997; and
- Local Authority Guidance.

2 The Development

2.1.1 The development is located to the south of Wokingham, Berkshire. The proposed works comprise the Central Section (Spine Road) of the wider South Wokingham Distributor Road (SWDR) development and junctions with the existing road network between Finchampstead Road and Waterloo Road and the SWDR Link Road junction with Easthampstead Road to the Heathlands Road junction.

2.1.2 The Central Section (Spine Road) will span between the proposed Eastern Gateway roundabout (on Waterloo Road) to the proposed Tesco store junction.

2.1.3 The redline boundary has been extended since the initial submission in 2019 to include the northern bank of the Emm Brook bridge, residential properties 76a and 76b Finchampstead Road to the west of the original site and the flood compensation area within the SANG and full extent of the Easthampstead Road basin to the south-east.

2.1.4 The Site is approximately 17.45 ha in size, dominated by grassland (some of which is of botanical interest), traversed by hedgerows and ditches, with scattered scrub and trees also present. The western extent of the Site comprises the existing road network (including 76A and 76B Finchampstead Road) and is predominantly hardstanding. Emm Brook and its tributaries run through the site, surrounded by marginal vegetation and trees which form a valuable ecological corridor.

3 Long Term Design Objectives

3.1 Overall Design Objectives

3.1.1 This section sets out the overall design vision and long-term intents. This management and maintenance plan will ensure the successful establishment and retention of high-quality landscape features, which form the public open spaces throughout the development, with particular focus on enhancing the ecological value and visual amenity of the site.

3.1.2 The overall design vision aims of this management and maintenance plan are:

- To safeguard and enhance the integrity of existing landscape and ecological features;
- To maintain and enhance trees and hedges in a healthy condition;
- To maintain existing public access and ensure that potential conflict with the above two objectives are minimised;
- To enhance public awareness and appreciation of the habitats and associated flora and fauna, except where it compromises the first two objectives;
- To ensure the successful establishment and continued growth to maturity of the soft landscape scheme;
- To comply with legal obligations and constraints; and
- To manage the landscape in a manner that ensures the safety of site users.

3.2 Long Term Objectives

3.2.1 The long term intents are set out in the table below:

Table 2.1: Long Term Intents

Year 1-5	On-Going
Ensure good plant establishment	Develop landscape character
Ensure rapid plant growth	Develop structural and visual diversity
Create visual impact	Develop screening / shelter where needed
Create rich / varied wildlife habitats	Increase wildlife habitats / value
Begin the development of natural ground layers	
Create visual and sensory diversity	

4 Management Responsibilities

4.1.1 For the purpose of this report, it is assumed that the implementation contractor will be responsible for the first five years maintenance of all landscape works associated with this development and in-line with the defects liability period set out in the works contract.

4.1.2 Following the initial five years maintenance it is assumed the local highway authority will be responsible for the maintenance of all landscape thereafter.

4.1.3 Any maintenance operatives undertaking works defined in this management plan will have the necessary experience and certificates of competence to undertake landscape management and maintenance operations on site. The projects manager will ensure all operations on site comply with the guidelines set out in this management and maintenance plan.

4.1.4 All persons undertaking management prescriptions on site will be responsible for reviewing all relevant health and safety files alongside the relevant documents set out in Section 1 and this landscape management plan prior to undertaking the works.

5 Proposed Soft Landscape and Ecological Mitigation and Enhancements

5.1.1 The Soft Landscaping Planting Plan (WMHP-TG-SRWG1-DR-LS-3001 - 3009 'Soft Landscaping Planting Plan') illustrates proposed mitigation and enhancements, which would introduce a number of different habitats including the following:

- 329 No semi mature and standard trees;
- 116 No. hedgerow trees;
- 2.26 km of native hedgerow planting;
- 0.21 ha of native shrub mix;
- 0.14 ha of woodland edge mix;
- 1.09 ha of woodland mix;
- 2.4 ha of herbaceous riparian mix;
- 0.46 ha of wet woodland;
- 5.73 ha of flowering lawn and wildflower meadow (wet meadow and semi – shade); and
- 2.81ha of rain garden.

5.1.2 The Development would retain, protect and enhance landscape features such as existing trees, hedgerows and woodland areas where possible with minimal losses.

5.1.3 For full specifications of all proposed planting and planting methods, refer to report 4977_LAN_XX_XX_RP_1000 ' Written Landscape Specification'.

6 Landscape Management

6.1.1 The following section outlines the management prescriptions to ensure a successful establishment and the long-term healthy growth for the soft landscape proposals set out in drawings:

- WMHP-TG-SRWG1-DR-LS-3001 - 3009 'Soft Landscaping Planting Plan' (latest revisions)

6.1.2 For the purpose of this report, we identify the establishment period as the first 5 years following planting, with the long-term management in the years following this.

6.1.3 The establishment period of plants can vary between species and the location of planting, time of year and climatic conditions during establishment. It is therefore important to continuously evaluate the establishment of the planting to ensure the correct prescriptions are adopted to ensure optimum growth.

6.1.4 It is the responsibility of all persons undertaking the landscape management to review the actions set out in this report and propose any necessary adjustments required to ensure the management objectives set out in Section 2 are met in full.

6.1.5 All substantial changes to the prescriptions contained within this report that will have a material impact on the objectives should be consulted with the planning and highways authorities prior to their implementation.

6.2 Management Prescriptions

6.2.1 To ensure successful establishment and the long-term health of all planting associated with the development, the following methods should be strictly followed:

Street Trees and Green Space Trees

General Maintenance Activities

6.2.2 All plants should be regularly re-firmed until sufficiently established, particularly following periods of strong winds and heavy rain.

6.2.3 All stakes, ties and straps should be checked regularly to ensure they are in the correct position and in a good, usable condition. Any damaged guards, stakes and ties should be replaced as required.

6.2.4 Once trees are suitably established, all above ground stakes, ties and straps will be removed and will be disposed of off-site (subject to satisfactory establishment and growth) in year 5.

6.2.5 All grass edges should trimmed and edged and where required, re-cut to ensure a clean edge is retained to the planting area to prevent need for strimming which will result in damage to the tree's stem.

6.2.6 All trees planted along the public highway should achieve a 100% survival and therefore trees that fail must be replaced in the subsequent planting season.

6.2.7 Monitoring visits will be undertaken during late-spring (May/June) annually – a critical period for native planting establishment – to assess the success of the tree planting and, as necessary, recommend revisions to the management.

Pruning

6.2.8 Tree pruning will be undertaken regularly to remove dead and dying branches and encourage healthy growth.

6.2.9 All tree pruning will be undertaken regularly to remove dead and dying branches, encourage healthy growth and to maintain a canopy clear of roadways and footways.

6.2.10 To prevent access restrictions all trees adjacent to vehicular access areas, including those on private land must retain a 2.4m clear stem and trees adjacent to pedestrian access areas, including those on private land must retain a 2.0m clear stem.

6.2.11 All tree pruning, other than works required on health and safety grounds, will be undertaken out of the bird nesting season (1st March – 31st August) to avoid disturbance to nesting birds

Watering

6.2.12 All newly planted hedgerow trees should be watered immediately after planting and again during periods of drought. This should be done at a rate of c.25 litres per plant and at weekly intervals during extended drought, but this will be variable dependant on weather patterns.

Weed Control

6.2.13 All newly planted trees should have minimum of 100mm (d) of pulverised bark mulch at 0.5m radius at the base of each plant.

6.2.14 The bark mulch will be topped up regularly to ensure a consistent depth of 100mm to ensure sufficient weed suppression.

6.2.15 All persistent weeds should be hand pulled if not too excessive or treated using a spot herbicide treatment if more widespread or hand pulling fails to control.

6.2.16 If herbicide treatments are to be used, contact with the new planting must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Hedgerow Tree Planting

General Maintenance Activities

6.2.17 All plants should be regularly re-firmed until sufficiently established, particularly following periods of strong winds and heavy rain.

6.2.18 All guards, stakes and ties should be checked regularly to ensure they are in the correct position and in a good, usable condition. Any damaged guards, stakes and ties should be replaced as required.

6.2.19 Once trees are suitably established, all stakes, ties and straps will be removed and will be disposed of off-site (subject to satisfactory establishment and growth) in year 5.

Pruning

6.2.20 Tree pruning will be undertaken regularly to remove dead and dying branches and encourage healthy growth.

6.2.21 A minimum of 0.5m clearance should be maintained between the top of the hedgerow and the bottom of the tree canopy to facilitate hedgerow cutting and to avoid damage to the tree when undertaken.

6.2.22 To prevent access restrictions all trees adjacent to vehicular access areas, including those on private land must retain a 2.4m clear stem and trees adjacent to pedestrian access areas, including those on private land must retain a 2.0m clear stem.

6.2.23 All tree pruning, other than works required on health and safety grounds, will be undertaken out of the bird nesting season (1st March – 31st August) to avoid disturbance to nesting birds.

6.2.24 Trees and shrubs that have failed will be replaced in the subsequent planting season to achieve at least 90% survival.

6.2.25 Monitoring visits will be undertaken during late-spring (May/June) annually – a critical period for native planting establishment – to assess the success of the tree planting and, as necessary, recommend revisions to the management.

Watering

6.2.26 All newly planted hedgerow trees should be watered immediately after planting and again during periods of drought. This should be done at a rate of c.25 litres per plant and at weekly intervals during extended drought, but this will be variable dependant on weather patterns.

Weed Control

6.2.27 All newly planted hedgerow trees should have minimum of 100mm (d) of pulverised bark mulch at 0.5m offset from the centreline of the hedgerow in which they are planted.

6.2.28 The bark mulch will be topped up regularly to ensure a consistent depth of 100mm to ensure sufficient weed suppression.

6.2.29 All persistent weeds should be hand pulled if not too excessive or treated using a spot herbicide treatment if more widespread or hand pulling fails to control.

6.2.30 If herbicide treatments are to be used, contact with the new planting must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Native Species Hedgerow

General Maintenance Activities

6.2.31 All plants should be regularly re-firmed until sufficiently established, particularly following periods of strong winds and heavy rain.

6.2.32 All guards, stakes and ties should be checked regularly to ensure they are in the correct position and in a good, usable condition. Any damaged guards, stakes and ties should be replaced as required.

6.2.33 Once hedge plants are suitably established, all guards, stakes and ties will be removed and will be disposed of off-site (subject to satisfactory establishment and growth) in year 5.

6.2.34 All grass edges should be trimmed and edged and where required, re-cut to ensure a clean edge is retained to the planting area to prevent need for strimming which will result in damage to the plants.

6.2.35 Plants that have failed will be replaced in the subsequent planting season to achieve at least 90% survival and maintain a gap free line to enable small mammals to disperse along the hedge line.

6.2.36 Monitoring visits will be undertaken during late-spring (May/June) annually – a critical period for native planting establishment – to assess the success of the hedgerow planting

and, as necessary, recommend revisions to the management. Monitoring would be carried out by a competent landscape architect, and a member of the Landscape Institute.

Pruning

6.2.37 The ultimate desired height and width of the newly planted hedgerow is 2- 3m (h) and 1.5m (w).

6.2.38 The newly planted hedgerow should be lightly formatively pruned regularly throughout the year to encourage healthy, bushy growth and to increase the wildlife value of the hedge. This should be continued until the desired height and width is achieved.

6.2.39 Once the desired hedgerow height and width has been achieved and plants are suitable established, a variable cutting schedule on a 3 year or more rotas should be adopted to provide a range of habitats for invertebrates and to ensure a supply of fruit and berries is available to birds and wildlife within the hedgerows each year.

6.2.40 When pruning, any dead and dying branches should be removed from within the hedge to promote healthy growth.

6.2.41 When pruning, care should be taken to avoid damage to any hedgerow trees.

6.2.42 All formative pruning should be undertaken out of the bird nesting season (1st March – 31st August) to avoid disturbance to nesting birds. If pruning is required during bird nesting season advice from a suitably qualified ecologist should be sought prior to undertaking any works.

Watering

6.2.43 All newly planted hedge plants should be watered immediately after planting and again during periods of drought. This should be done at a rate of c.15 litres per plant and at weekly intervals during extended drought, but will be variable dependant on weather patterns.

Weed Control

6.2.44 All newly planted hedgerows should have minimum of 100mm (d) of pulverised bark mulch at 0.5m offset from the centreline of the hedgerow at planting.

6.2.45 The bark mulch will be topped up regularly to ensure a consistent depth of 100mm to ensure sufficient weed suppression.

6.2.46 All persistent weeds should be hand pulled if not too excessive or treated using a spot herbicide treatment if more widespread or hand pulling fails to control.

6.2.47 If herbicide treatments are to be used, contact with the new planting must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Native Woodland Mix, Native Wet Woodland Mix, & Low Woodland Edge Mix

General Maintenance Activities

6.2.48 All plants should be regularly re-firmed until sufficiently established, particularly following periods of strong winds and heavy rain.

6.2.49 All guards, stakes and ties should be checked regularly to ensure they are in the correct position and in a good, usable condition. Any damaged guards, stakes and ties should be replaced as required.

6.2.50 Once all plants are suitably established, all guards, stakes and ties will be removed and will be disposed of off-site (subject to satisfactory establishment and growth) in year 5.

6.2.51 All grass edges should be trimmed and edged and where required, re-cut to ensure a clean edge is retained to the planting area to prevent need for strimming which will result in damage to the plants.

6.2.52 Trees and shrubs that have failed will be replaced in the subsequent planting season to achieve at least 90% survival and maintain a gap free line to enable small mammals to disperse along the hedge line.

6.2.53 Monitoring visits will be undertaken during late-spring (May/June) annually – a critical period for native planting establishment – to assess the success of the woodland planting and, as necessary, recommend revisions to the management.

Pruning

6.2.54 A thinning and coppicing regime will be implemented to maximise the wildlife value of the woodland by increasing the diversity of tree structure, shade and ground cover. Thinning, coppicing and management works are anticipated to start at 10 years onwards, with successive works about every 10 years following, although dependent on rate of growth. Trees to be thinned or coppiced will be selected according to tree health, surrounding vegetation and ground conditions (e.g. coppicing to allow light to maintain areas of ground flora) to provide a structurally diverse woodland with a high scrub content.

6.2.55 Thinning works to be undertaken outside of the bird nesting season. (1st March – 31st August) to avoid disturbance to nesting birds. If pruning is required during bird nesting season advice from a suitably qualified ecologist should be sought prior to undertaking any works.

Deadwood Log Piles

6.2.56 The addition of deadwood will add structural complexity to the woodland, providing habitat for a range of species. Logs used from any pruning works should be utilised where possible. Deadwood should be 20cm in diameter. Larger logs could be standalone features, and logs with small diameters could be arranged into piles to create more complex features.

Woodland Flora Species

6.2.57 In the tenth year, if woodland flora species do not resemble a recognisable NVC, supplementary planting a range of woodland herbs, grasses, and sedges should be undertaken. It is important to choose species based on woodland type.

Watering

6.2.58 All newly planted tree and shrub plants should be watered immediately after planting and again during periods of drought. This should be done at a rate of c.50 litres per tree and at weekly intervals during extended drought, but will be variable dependant on weather patterns.

Weed Control

6.2.59 All newly planted trees and shrubs should have minimum of 100mm (d) of pulverised bark mulch at 0.25m radius from the stem of each plant.

6.2.60 The bark mulch will be topped up regularly to ensure a consistent depth of 100mm to ensure sufficient weed suppression.

6.2.61 All persistent weeds should be hand pulled if not too excessive or treated using a spot herbicide treatment if more widespread or hand pulling fails to control.

6.2.62 If herbicide treatments are to be used, contact with the new planting must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Native Shrub and Native Wetland Shrub Mix

General Maintenance Activities

6.2.63 All plants should be regularly re-firmed until sufficiently established, particularly following periods of strong winds and heavy rain.

6.2.64 All guards, stakes and ties should be checked regularly to ensure they are in the correct position and in a good, usable condition. Any damaged guards, stakes and ties should be replaced as required.

6.2.65 Once shrub plants are suitably established, all guards, stakes and ties will be removed and will be disposed of off-site (subject to satisfactory establishment and growth) in year 5.

6.2.66 All grass edges should be trimmed and edged and where required, re-cut to ensure a clean edge is retained to the planting area to prevent need for strimming which will result in damage to the plants.

6.2.67 Shrubs that have failed will be replaced in the subsequent planting season to achieve at least 90% survival and maintain a gap free line to enable small mammals to disperse along the hedge line.

6.2.68 Monitoring visits will be undertaken during late-spring (May/June) annually – a critical period for native planting establishment – to assess the success of the shrub planting and, as necessary, recommend revisions to the management.

Pruning

6.2.69 Due to the species and density of planting proposed the mature heights of plants will be relatively low and due to the requirement to create a natural planting area, maintenance should be minimal. At this point the planting should be left to fully naturalise in shape and form adapting to the conditions of the site.

Watering

6.2.70 All newly planted shrub plants should be watered immediately after planting and again during periods of drought. This should be done at a rate of c.15 litres per plant and at weekly intervals during extended drought, but will be variable dependant on weather patterns.

Weed Control

6.2.71 All newly planted shrubs should have minimum of 100mm (d) of pulverised bark mulch at 0.25m radius from the stem of each plant. The bark mulch will be topped up regularly to ensure a consistent depth of 100mm to ensure sufficient weed suppression.

6.2.72 All persistent weeds should be hand pulled if not too excessive or treated using a spot herbicide treatment if more widespread.

6.2.73 If herbicide treatments are to be used, contact with the new planting must be avoided and all health and safety prescriptions set out by the herbicide manufacturer must be followed.

Native Species Rich Grassland and Wildflower Mix for Herbaceous Riparian Mix, Wildflower Meadow, Wetland Meadow & Rain Garden Areas, and Semi-Shade Meadow

First Year Management

6.2.74 In the first year, newly sown meadow areas should be left unmaintained until later summer. Annual weed arising after sowing will provide shelter to the sown seeding, and provide habitat for invertebrates. Cut in August and removed and disposed of away from site.

6.2.75 In the second and subsequent years the grassland will be managed as a hay meadow with a cut in late summer (August) and the hay left to dry for 1-7 days to allow shed. The timings will need to be reviewed dependent on prevailing conditions, with advice sought from a suitably qualified ecologist.

6.2.76 An ecologist will visit the Site in spring (May) and summer (July/August) Year 1 to check the establishment of seed mix and weeds. Remedial actions will be communicated to the land manager at the earliest opportunity.

6.2.77 Assuming that the seed mix has established successfully after Year 1, an ecologist will visit the site in late-spring (May) in Years 2, 3 and 5 – a critical period for grassland establishment – to assess the success of grassland management and, as necessary, recommend revisions to the management.

Weed Control

6.2.78 A flush of weeds is to be expected in the first season after sowing and these should be left unmanaged within the first year. It is likely that some pernicious weeds (e.g. thistle, ragwort, or dock) will persist following the ground preparation and can be treated by hand pulling if not too extensive or using spot treatment with a suitable herbicide if more widespread.

Management Once Established

6.2.79 Mow the re-growth through to late autumn/winter to c50mm and again in spring if needed. Hay cut following flowering in July or August, leave the ‘hay’ to dry and shed seed for 1-7days then remove from site.

Flowering Lawn

First Year Management

6.2.80 In the first year, newly sawn meadow areas should be regularly cut (four times) to a hight of 40-60cm to control the flush of annual weed growth. Where cuttings are dense, these should be removed and disposed of away from site.

6.2.81 In the second and subsequent years the lawn will be cut regularly to a hight of 25-40mm. To allow flowering, mowing can be relaxed from late June. When the swards gets untidy (after 4-8 weeks) cut again. Mowing can be suspended later in the year to allow cowslip to flower. Cutting should be collected and removed of site.

6.2.82 An ecologist will visit the Site in spring (May) and summer (July/August) Year 1 to check the establishment of seed mix and weeds. Remedial actions will be communicated to the land manager at the earliest opportunity.

6.2.83 Assuming that the seed mix has established successfully after Year 1, an ecologist will visit the site in late-spring (May) in Years 2, 3 and 5 – a critical period for grassland establishment – to assess the success of grassland management and, as necessary, recommend revisions to the management.

Weed Control

6.2.84 A flush of weeds is to be expected in the first season after sowing and these can be managed by a cutting regularly within the first year. It is likely that some pernicious weeds (e.g. thistle, ragwort, or dock) will persist following the ground preparation and can be treated by hand pulling if not too extensive or using spot treatment with a suitable herbicide if more widespread.

Management Once Established

6.2.85 Once established the grass verge can be cut regularly to a maintained height of 40-60mm.

6.2.86 To allow flowering, mowing can be relaxed from late June. When the swards gets untidy (after 4-8 weeks) cut again.

6.2.87 Where cowslips have established, mowing should be suspended earlier in the year to allow cowslip to flower.

6.2.88 Mowing should be restricted in areas where spring bulbs have established to allow the bulbs to flower. Once the bulbs are spent and the foliage begins to die back, these areas can be strimmed back to maintain a neat appearance.

6.2.89 Cuttings should be collected and removed of site.

River Enhancements

6.2.90 The realignment of the Upper Emm Brook and its tributaries have been designed to enhance channel sinuosity and retain in-channel habitat where possible. River complexity, aquatic and riparian vegetation, and flow variation will be enhanced through

the introduction of shallow marginal shelves, willow spiling, backwater habitats, and floodplain scrapes.

6.2.91 The location and design of these habitats are outlined in the following drawings:

- WMHP-TG-SRWG1-DR-LS-3021
- WMHP-TG-SRWG1-DR-LS-3022
- WMHP-TG-SRWG1-DR-LS-3023
- WMHP-TG-SRWG1-DR-LS-3024
- WMHP-TG-SRWG1-DR-LS-3025
- WMHP-TG-SRWG1-DR-LS-3026
- WMHP-TG-SRWG1-DR-LS-3027

6.2.92 The management of the planting, within and surrounding these features, will follow the designation within drawing WMHP-TG-SRWG1-DR-LS-3001 - 3009 'Soft Landscaping Planting Plan' (latest revisions) and the relevant prescriptions outlined above.

6.2.93 Any failed plug planting or seeding will be topped-up until sufficient planting densities have been achieved. If particular species are failing, suitable alternatives will be used in replacement.

Deadwood within Backwater and Scrape Habitats

6.2.94 Large deadwood habitats, created using site gained felled trees, will be installed within the backwaters to provide hydraulic variability and habitats for fish, amphibians, invertebrates, and perching sites for birds. The felled wood must be secured and pinned down.

6.2.95 Monitoring visits will be undertaken during late spring (May/June) to ensure deadwood is secured and not obstructing water flow. Secure, move, or replace deadwood where required.

Water levels within backwater habitats

6.2.96 In order to ensure the backwaters perform as intended and remain connected to the Emm Brook it is essential to monitor the water levels at regular intervals during the first year post installation.

6.2.97 The typical water level of the Emm Brook is 49.1mAOD. The connection between the backwaters and the Emm Brook is proposed to match the base level of the Emm Brook (~49.6mAOD). The average base of the proposed backwater habitats is 48.1mAOD (backwater south of the bridge) and 48.0mAOD (backwater north of the bridge). A slope, graded at 1 in 10 from the mouth to the deepest point of the backwater, feeds from the Emm brook into the habitats.

6.2.98 The mouth of the backwaters must remain open and free from debris buildup to ensure water retention and access for wildlife, especially in low-flow conditions.

6.2.99 Backwater habitats will provide lateral connectivity to the watercourse and refuge habitats for fish, amphibians, invertebrates, and aquatic plants, especially during high flow or pollution events.

6.2.100 The water levels and access to the backwaters will be monitored in winter (November/December), spring (March/April), and summer (July/August) of the first year to measure if the slope leading into the habitat is maintained and an appropriate gradient, if the base level of the backwater is retained, and if the backwater remains wet year-round.

6.2.101 If there are extended dry periods within the backwater, mouth and base levels should be reduced to prevent desiccation in August year one. Levels will be reassessed in year 5.

6.2.102 It is recommended that monitoring visits continue in spring (March/April) and summer (July/August) from year one onwards to assess the backwater and remove accumulated debris or silt that may block water flow from the Emm Brook or reduce habitat functionality within the backwater.

Backwater Marginal Shelves

6.2.103 The backwater habitats will have 2m wide marginal shelves ~0.2m below the typical water level. The shelves will provide an area of high ecological value, supporting emergent and submerged macrophytes and breeding and nursery grounds for fish and amphibians.

6.2.104 The shelves should remain submerged or seasonally wet year-round. The water levels of the shelves will be monitored in winter (November/December), spring (March/April) and summer (July/August) of the first year. If the shelves do not remain submerged or seasonally wet, they should be lowered in August year one. Levels will be reassessed in year 5. Additionally, if there is erosion or undercutting along the shelves, they should be staked to prevent habitat loss.

Scrape Habitats

6.2.105 Adjacent to the backwater creation, shallow depression scrapes within the floodplain will be created to naturally accumulate water during wet weather and high flow, enhancing hydrological connectivity. Scrapes hold seasonal water and support wading birds, mammals, amphibians, and invertebrates.

6.2.106 The edge of the scrapes will be dropped down 0.1m from the existing ground level (approx. 50mAOD) into scrape margins (~2m wide) with a gradual slope (<1 in 10) before dropping to an undulating base of no more than 1m depth (49.0mAOD).

6.2.107 Inspect scrape margins in winter (November/December), spring (March/April), and summer (July/August) to assess vegetation establishment and ensure that levels are appropriate to support emergent macrophytes. Monitor water depth within the scrape in winter (November/December), spring (March/April) and summer (July/August). Adjust levels to improve water retention to ensure scrapes remain damp or seasonally wet, where necessary. Levels should be lowered in August year one. Levels should be reassessed in year 5.

Two-stage Channel

6.2.108 The realigned channels of the Luckley Brook and Emm Brook tributaries will incorporate low-level berms, forming a two-stage channel. The berms will promote channel sinuosity, provide habitat, and improve lateral connectivity. The berms will form floodplain benches, flooding during the mean annual flood flow and will support a range of water tolerant plant species.

6.2.109 The water levels of the berms will be monitored in winter (November/December), spring (March/April) and summer (July/August) of the first year. If the berms do not remain submerged during the mean annual flood flow, they should be lowered in August year one. Levels will be reassessed in year 5. Additionally, if there is erosion or undercutting along the berms, they should be staked to prevent habitat loss.

Willow Spiling

6.2.110 Spiling should be regularly re-firmed until sufficiently established, particularly following periods of strong winds and flood events.

6.2.111 Where possible, any willow rods that have failed will be replaced in the subsequent planting season.

6.2.112 The base of the banks should be monitored once a year in summer for undercutting. If erosion persists, additional erosion control measures, such as matting or stones, should be installed to protect the spiling.

6.2.113 Once established, tree pruning will be undertaken regularly to remove dead and dying branches and reduce shading of the watercourse.

6.2.114 The willows will require a coppicing regime. Coppicing and management works are anticipated to start at 10 years onwards, with successive works about every 10 years following, although dependent on the rate of growth. Trees to be thinned or coppiced will be selected according to tree health.

6.2.115 Work is to be undertaken outside of the bird nesting season. (1st March – 31st August) to avoid disturbance to nesting birds. If pruning is required during bird nesting season, advice from a suitably qualified ecologist should be sought before undertaking any work.

Monitoring Habitat Condition

6.2.116 For successful establishment, it is essential to undertake regular monitoring visits to assess the condition of all the newly planted areas across the development.

6.2.117 The purpose of the monitoring visits is to provide a detailed assessment of plant establishment and conditions.

6.2.118 It is recommended that monitoring visits are undertaken yearly in the first five year defects period, and then once every 5 years. Monitoring should be undertaken between May and August. Photography of vegetation, species lists, and condition assessments to assess current condition against target condition will be used across all habitat types. Additional

quadrat sampling will be used for grassland habitats to identify the habitat type and the number of species per m^2. Quadrats will also help to estimate percentage of bare ground, and potential bramble cover.

6.2.119 It is recommended that the monitoring visits are carried out prior to any scheduled maintenance activity.

6.2.120 Following the monitoring visit, the management regime should be altered, where necessary, to ensure the targeted condition objectives are met.

6.2.121 The management and/or eradication of invasive species will be a form of adaptive management as many habitats rely on either a lack or low cover of invasive species to achieve condition criteria. Different invasive species will require different management prescriptions and as such, appropriate management should be planned upon the identification of species.

6.3 Management Schedule

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Hedgerow Tree, Woodland Planting, Street Tree and Green Space Planting:	Hedgerow Trees 100% establishment Woodland Planting 100% establishment Street and Green SpaceTrees 100% establishment								
Inspect & formative prune in accordance with good Arboricultural practice to BS 3998:2010. Maintain a clear stem for all hedgerow trees annually after year 3 in order for hedgerow trees to be distinguishable.		1	Nov - Mar						ongoing
Replace dead or dying trees.	Next available planting season	1	Nov - Mar						
Check ties and stakes, and remove if no longer required.	As necessary	2	-						
Maintain depth of loose mulch.	75 mm depth minimum	1	-						

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Keep planting clear of weeds by mechanical / chemical control.		1-2	Apr-Aug						ongoing
Monitoring visit by landscape architect / ecologist			May/June						
Thinning coppicing			Nov – Mar						Year 10 onwards
Hedgerow planting:	Vigorous and healthy establishment without gaps and bushy base								
Keep planting clear of weeds by maintaining full thickness of mulch and hand weeding.		2	-						
Pruning to promote shape and bushy growth			Nov - Mar						
Replacement of dead stock.	Next available planting season	1	Nov						

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Formative prune to achieve required hedge height and form, generally 2-3m across the development.	To achieve required height and form	Cut on a three-year cycle.	Jan-Feb						Ongoing on a 3-year cutting cycle across the Site
Maintain depth of loose mulch.	75 mm depth minimum	1	-						ongoing as required
Shrub Planting:	Vigorous and healthy establishment								
Keep planting clear of weeds by mechanical/ chemical control.		1-2	-						
Maintain depth of loose mulch.	75 mm depth minimum	1	-						ongoing as required
Replacement of dead stock.	Next available planting season	1	Nov						
Native Grassland and Wildflower Mix:	A heathy, dense sward								

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Year 1, In August take a hey cut to a height of 50mm. Leave for 1-7days to dry and remove.	A heathy, dense sward	1	August						
Year 2 onwards cut biannually in late August and October. After flowering in July or August take a hay cut to a height of 50mm. Leave for 1-7 days to dry and remove. Cut again in October to a height of 50mm.	Reduce soil fertility and encourage diverse sward.	1	July/ August & October						
Monitoring of grass growth and species									
Over seeding; reinstate wear and tear, bald patches or wheel ruts	If the coverage is poor with large areas of bare ground, depending on ground conditions, rotovate or scarify, top dress and over seed with a seed mix matching the composition found locally.								
Flowering Lawn Mix:	A heathy, dense sward								

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Year 1, post seeding, mow 4 times per year to maintain a minimum hight of 40-60mm	A heathy, dense sward	4	April – October						
Year 2 onwards cut regularly to a hight 25-40mm. Relax cutting from late June.	Reduce soil fertility and encourage diverse sward.	4	April - June & October						
Monitoring of grass growth and species									
Over seeding; reinstate wear and tear, bald patches or wheel ruts	If the coverage is poor with large areas of bare ground, depending on ground conditions, rotovate or scarify, top dress and over seed with a seed mix matching the composition found locally.								
Backwater Habitats:	Correct water levels to be maintained and marginal vegetation established.								

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Monitor levels of mouth, base, and slope, and marginal shelves.	Ensure mouth of the backwaters remain open and free from debris build up to ensure water retention. Shelves must remain submerged or seasonally wet.	3	Winter (November/December), spring (March/April) and summer (July/August)						
If required, reduced levels to prevent desiccation.		1	August						
Remove accumulated debris or silt		1	March or April						ongoing as required
Secure deadwood	Ensure deadwood is secured and not obstructing water flow	1	August						ongoing as required
Keep planting clear of weeds by mechanical control.		1-2	Apr-Aug						ongoing
If required, marginal shelves staked to prevent erosion	If there is erosion or undercutting along the shelves, they should be	1							

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
	staked to prevent habitat loss								
Scrape Habitats:	Correct water levels to be maintained and marginal vegetation established.								
Monitor water and marginal shelves level	Ensure scrapes remain damp or seasonally wet and that shelves are an appropriate level to support emergent macrophytes.	3	Winter (November/December), spring (March/April) and summer (July/August)						
If required, reduced levels to prevent desiccation.		1	August						
Keep planting clear of weeds by mechanical / chemical control.		1-2	Apr-Aug						ongoing
Two-stage Channel:	Correct water levels to be maintained.								

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Monitor water levels on berms	Shelves must remain submerged during mean annual flood flow.	3	Winter (November/December), spring (March/April) and summer (July/August)						
If required, reduced levels.		1	August						
Willow Spiling:									
Inspect & formative prune in accordance with good Arboricultural practice to BS 3998:2010.		1	Nov - Mar						ongoing
Replace dead or dying trees.	Next available planting season	1	Nov - Mar						
Keep planting clear of weeds by mechanical / chemical control.		1-2	Apr-Aug						ongoing
Monitoring visit by landscape architect / ecologist		1	May/June						

Operation	Target	Frequency per annum	Season/Month	Y1	Y2	Y3	Y4	Y5	Y6 onwards
Thinning coppicing			Nov – Mar						Year 10 onwards
All areas:									
Invasive non-native species to be controlled by chemical or mechanical means (mechanical to be tried first).	Eradication where practicable	As required	Apr-Sept						ongoing as required
Watering	Landscape Institute's Technical Bulletin on Water Restrictions must adhere to.	Frequency as necessary for the continued thriving of all areas.							ongoing as required
Condition assessment	Assess condition of proposed habitat types against BNG target.	Once per year	May and August						