BARRATT AND DAVID WILSON HOMES YORKSHIRE WEST

RESIDENTIAL DEVELOPMENT

CARRS LANE, CUDWORTH

LANDSCAPE MANAGEMENT DOCUMENT

FDA Landscape Ltd
Westleigh House
Wakefield Road
DENBY DALE
West Yorkshire
HD8 8QJ

Tel: 01484 861611
Fax: 01484 861616
Email: info@fdalandscape.co.uk

July 2017

CONTENTS

A **INTRODUCTION**

B **MANAGEMENT OBJECTIVES**

C **MANAGEMENT OPERATIONS**

C.1. STANDARD TREES

C.2. ORNAMENTAL SHRUB PLANTING

C.3. NEW NATIVE SPECIES PLANTING

C.4 NEW NATIVE HEDGE PLANTING

C.5. EXISTING WOODY VEGETATION

C.6. PRUNING

C.7. MULCHING

C.8. WATERING

C.9. FAILURE OF PLANT MATERIAL

C.10. GRASSED AREAS

C.11. PUBLIC OPEN SPACES

D REASSESSMENT OF SCHEDULES OF WORK

APPENDIX 1: WILDLIFE LEGISLATION
APPENDIX 2: OPERATIONAL SCHEDULES
APPENDIX 3: RELEVANT LANDSCAPE DRAWINGS

A INTRODUCTION

This Management Plan sets out the management prescriptions to be adopted for the landscape associated with the residential development and Public Open Spaces at Carrs Lane, Cudworth, Barnsley. The prescriptions cover the works to be carried out over the 5 year period relating to the planning condition with a system in place for reviewing operations at the end of the 5 years to allow the plan to be updated in accordance with site conditions and to put in place an appropriate schedule of works going forward.

The Landscape Management Plan covers works detailed in the landscape drawings. The following authorities will be responsible for the maintenance of other areas on site:
Yorkshire Water – Drainage
Highway Authority (Barnsley Metropolitan Borough Council) – Roads, verges and street lighting

A.1 Site Location

The site is located at the Barratt and David Wilson Homes development to the west of Carrs Lane, Cudworth.

The site is a residential development site with extensive areas of open space comprising:

- Existing mature trees
- New tree planting
- New native species planting
- Species rich grassland
- Amenity grassland
- Ornamental shrubs

A.1 Documents

The management prescriptions contained in this document are for the future maintenance and management of work detailed on the following drawings:

R/1789/1C Landscape Masterplan
Subsequent Landscape Details and POS Details

The Landscape Masterplan is appended to this document in Appendix 3. The planting details are available separately from Barratt and David Wilson Homes and should be referred to as necessary.

A.1.1 In the preparation of this document reference has been made to the following Reports:

- *Arboricultural Report* carried out by JCA in September 2015
- *Extended Phase 1 Habitat Survey* by SLR September 2014

A.1.2 Appendix 1 details relevant Wildlife Legislation and Appendix 2 the

Operational Schedules.

A.2 Timing

This Management Plan will become operational on completion of the landscape construction works.

The operations described cover an initial 5 year period. Longer term management will need to be reviewed at the end of this period to ensure that the management objectives are being met.

B MANAGEMENT RESPONSIBILITIES

B.1 The operations detailed within this management document are intended to instruct the appointed Landscape Contractor and subsequent Management Company to carry out the specified maintenance operations to achieve a healthy, visually attractive landscape structure to the development.

B.1.2 After a 12 month Rectification Period during which the Landscape Contractor will be liable for major failures of shrub planting as directed by the Landscape Architects, the householder will assume responsibility for the future maintenance of the planting within their own garden area.

B.1.3 The areas of Public Open Space will be maintained by the Landscape Contractor responsible for the original planting until the end of the Rectification Period and until such a time as it is handed over to the appointed Management Company for ongoing maintenance.

B.1.4 For ease the Management Company and the original Contractor will both be referred to as The Contractor going forward.

MANAGEMENT AIM AND OBJECTIVES

B.2 Landscape Vision

The 'Landscape Vision' is the term given to what it is intended will be the outcome of the management of the site. It is made up of various elements (visual, ecological and recreational) which are described separately below but which are intrinsically linked and must work in harmony in order to achieve a satisfactory outcome.

B.2.1 Visual

The site shall be managed to provide a visually attractive landscape setting for the residential development which both frames and filters views into the site and that is in keeping with the landscape character of the area: roads lined with mature trees, wide green verges and groups of maturing vegetation breaking up the building lines.

B.2.2 Ecological

The site shall be managed to ensure that the native species, tree and shrub planting establish well to provide a diverse wildlife habitat.
This shall underpin both what and how operations are carried out throughout the site.

The ecological objectives for the long-term management, maintenance and monitoring of the habitats comprise the requirements to:

- Manage the new planting to develop mature, healthy trees and a strong buffer to the site boundary
- Maintain the new hedgerows with a bushy growth habit and ensure

they remain attractive and complementary to the surrounding habitat

- Enhance on site habitat for bats and reptiles
- Minimise the potentially adverse environmental impacts resulting from any management operations on site including minimising the use of herbicides and pesticides
- Ensure that pruning and trimming is ONLY undertaken outside the bird nesting season (generally accepted as being 1st March to 31st July but can be longer depending on the species) AND, where feasible, ensuring that the food value of the native vegetation is maximised by aiming to carry out any pruning or trimming in late winter (January or February) or, where ground conditions or other mitigating circumstances prevent this, then as late as possible in the Autumn in order to retain nuts and berries as winter food for the wildlife
- Maintain and enhance the cultural and landscape value of the site by ensuring that the habitat management incorporates visual amenity benefits

B.2.3 Recreational

The open spaces will be managed to provide attractive and useable informal and equipped open spaces, to be used by the residents and wider public.

B.3 SMART Objectives

B.3.1 Private Areas

Following completion of planting in private garden areas the planting will be maintained by the Contractor in accordance with the specification and Schedule of Works until handover to the resident at the time of purchase. The planting at time of handover should be healthy and weed free. (B.1.2)

B.3.2 Public Areas

Planting within Public Areas will be maintained in accordance with best practice guidelines and the specification in subsequent sections.

New Trees – shall be maintained in good health

New Ornamental Planting – shall be maintained to achieve all year round interest and colour. Areas of shrubs shall **not** be maintained at a uniform height with a hedge trimmer but maintained to allow the individual form of the shrub species to develop.

Hedges – Ornamental hedges shall be maintained with an aim of establishment by Year 5. Native hedges shall be maintained and shaped to create established young hedgerows by the end of the first 5 year period.

B.4 Best Practice Guidelines

In order to achieve these aims and objectives in a safe, environmentally

responsible and sensitive manner there are a series of good practice guidelines which should be observed. Such good practice seeks to minimise the potential for negative impact on the environment and the general public. They are detailed below, in no order of ranking. Reference should also be made to the relevant legislation set out in Appendix 2.

- Ensuring that all operatives are suitably qualified, certified and competent to carry out the specific task or are supervised by such a person.
- Ensuring that all works are carried out in accordance with all relevant legislation; British and European standards; good horticultural and arboricultural practice and that the required risk assessments are undertaken and documented as necessary before carrying out works.
- Ensuring that all operations are carried out at the appropriate times of year during suitable weather and ground conditions to minimise adverse impacts on the existing vegetation and ground conditions.
- Ensuring that all tools and equipment are fit for purpose and appropriate for the particular job and site conditions. The Contractor shall allow the consultant Landscape Architect to inspect all machinery and tools intended for the Aftercare Works prior to its being brought to site if required. The use of heavy plant or machinery is to be minimised to reduce trampling of vegetation and ground compaction.
- Ensuring the safety of all members of the public during operations on site. Using interpretative signage to inform the public of operations on site where necessary and particularly where those operations are considered sensitive or may pose a danger to the public.
- Ensuring that all waste (not retained or re-used on site and including any arising in connection with the approved use of chemicals) is disposed of in accordance with the relevant Waste Management Regulations.
- Monitoring operations on site and keeping records of what was carried out, when and what observations were noted which may need immediate action or need to feed into future reviews of the management plan.

B.5 Chemical Control

When chemical compounds/herbicides are to be used, the Contractor shall ensure that all operatives have read and follow carefully the instructions on the manufacturer's label.

The Contractor shall also consult the 'Recommendation for Safe Use of Chemical Compounds Used in Agriculture and Food Storage' published by DEFRA, Fisheries and Food: Safety Pesticides and Infestation Control Division, London SW1, and implement recommendations as necessary.

The Contractor shall submit the name of the chemical compound/herbicide, its supplier, a breakdown of its constituents, the mode and recommended rate of application and any species susceptibility for the Landscape

Architect's consideration. Approval by the Landscape Architect for the use of a particular chemical compound/herbicide shall, in no way, relieve the Contractor of his contractual obligations.

All chemical compounds/herbicides used shall be kept safe at all times on site. Empty containers must be removed from site and disposed of safely.

B.6 Control of Invasive Species

If any *invasive* or *injurious plants* are identified on site, the appropriate method of control shall be implemented, in accordance with relevant best practice and the Environment Agency recommendations with the aim of total eradication within 3 years.

The Wildlife & Countryside Act 1981 places a legal responsibility on land owners / land managers to control any *invasive, non-native plant* and *animal species* which have been identified as having 'the ability to spread causing damage to the environment, the economy, health or the way we live'. This responsibility also extends to native plants which are deemed to cause a problem to farming productivity. These are termed *injurious weeds*.

The list of plant and animal species which have been identified is listed in Schedule 9 of the ACT.

The legal duty placed on land owners does not oblige the land owner to remove or treat the invasive or injurious species but requires that the land owner does not:

- Allow invasive plants to spread onto adjacent land – the owner of that land has the right to take legal action if this occurs
- Plant or encourage the spread of invasive plants outside your property – this can include moving contaminated soil from one place to another or incorrectly handling and transporting contaminated material and cuttings

C MANAGEMENT OPERATIONS

NOTE: All pruning and hedge trimming shall take place during September-November, outside the nesting season, to prevent the disturbance of nesting birds.

C.1.0 STANDARD TREES

C.1.1 The Contractor shall maintain an area of 1000 mm in diameter weed-free around each staked tree.

Where approved chemical compounds/herbicides are used, the Contractor shall remove and dispose of off-site, dead surface matter following application and dieback of weed growth within fourteen (14) days, or as directed by the Landscape Architect.

C.1.2 The trees shall be maintained at all times and the Contractor shall check all stakes and ties regularly. Adjustment to conform to stem growth and to prevent chaffing and renewal of stakes or ties shall be allowed for in the Contractor's rates (excluding vandalism).

C.1.3 The Contractor will inspect and ensure that trees remain firm and well secured after frost heave, strong winds and other ground disturbance. 'Collars' at the base of the trunks created by tree movement shall be broken up by forking and backfilling with topsoil as necessary and refirmed.

C.1.4 The Contractor shall apply a slow release fertiliser to the base of each standard tree. For the first 3 years, in March/April of each year, fertiliser shall be planted at the following rates:

a) Extra Heavy Standards, Heavy Standards, Selected Standards & Standards ..... 200 gms/Tree
b) Light Standards & Feathered Trees ..... 100 gms/Tree
c) Specimen Plants, Transplants & Shrubs (in pits) ..... 50 gms/Plant
d) Plants in Shrub Beds & Hedgelines ..... 25 gms/Plant

C.1.5 The Contractor shall prune all dead or damaged branches in accordance with 6.0. Some wood resulting from these prunings can be left in small piles in areas beneath existing and establishing native hedgerows.

C.1.6 Watering shall be carried out as specified under watering section 8.0.

C.1.7 All failures shall be replaced annually in accordance with clause 9.0.

C.1.8 Trees positioned in shrub beds shall have their tree pits maintained as for shrub beds, as specified in clause 3.

C.1.9 For trees positioned in ornamental lawn areas where tree pits have been returfed or seeded, Aftercare Work shall be as specified in grass maintenance/mowing.

C.2.0 ORNAMENTAL SHRUB PLANTING

Use of Chemicals and Machinery

Reference should be made to B5.

Maintenance of Shrub Beds

C.2.1 Shrub beds, including staked trees and specimen plants, shall be kept free from weed or grass. Forking or hoeing shall be carried out to remove noxious annual and perennial weed roots entirely from the shrub bed before the formation of seed heads. Removal of weed foliage only shall not be permitted.

All weed material resulting from the operation described above shall be collected from the shrub beds and removed from site by the Contractor.

C.2.2 Where herbaceous material or bulbs are incorporated into shrub beds the use of chemical compounds/herbicides shall not be permitted and the Contractor shall allow in his rates for hand cultivations only.

C.2.3 Following frosty weather and strong winds, the Contractor shall inspect shrub beds and firm any plant that has been loosened.

C.2.4 The Contractor shall apply a slow release fertiliser (eg Enmag or similar approved) over each shrub bed at a rate of 25 gms/shrub once a year in Spring (March/April).

C.2.5 Shrubs shall be pruned once annually to remove all deadwood, broken or damaged or crossing branches as specified in 6.0. Shrubs shall be pruned where appropriate during Years 1-3 to promote bushiness.

All arisings shall be carted off-site.

C.2.6 The Contractor shall replace all failures in accordance with clause 9.0.

C.3.0 NEW NATIVE SPECIES PLANTING

C.3.1 An area of 300 mm diameter around each plant shall be kept free from weed growth. All arisings resulting from weed control shall be removed from site.

C.3.2 Following frosty weather and strong winds, the Contractor shall inspect planting areas and firm any plant that has been loosened.

C.3.3 Annually apply a slow release fertiliser (Enmag or similar approved) to each pit in Spring at a rate of 50 gms/pit.

C.3.4 Prune all damaged or broken branches. Hard prune all shrub and understorey in Year 3 after planting to promote bushiness and thereafter annually in February to remove all deadwood, broken or damaged branches.
Native planting areas should not be cut back in the Autumn to avoid the loss

of valuable food sources for fauna. Remove all arisings from site unless directed otherwise by the Landscape Architect.

C.3.5 Replace all failures in Year 1.

C.3.6 Replace all failures in subsequent years to achieve 80% stocking rate.

C.3.7 Remove all litter.

C.4 NEW NATIVE SPECIES HEDGE PLANTING

General Maintenance Years 1-4

C.4.1 An area of 300 mm diameter around each transplant shall be kept free from weed growth. All invasive herbaceous scrubby vegetation, (eg Bramble & Nettles) and non-native or highly invasive tree species, shall be cleared and removed from site four (4) times annually.

C.4.2 Transplants shall be firmed in as necessary at each maintenance visit and particularly in Year 1 after planting after cold and frosty conditions before roots have taken hold.

C.4.3 Prune hedgerows to 450 mm in Year 3 to encourage bushiness. In Year 4 trim sides and top to begin formative pruning into an A shaped, dense hedge with a maximum height of 2 metres.
Prune only out of the bird nesting season (1st March to 31st July).

C.4.4 Ensure all standard trees planted within the hedge are suitably protected and remain undamaged.

C.4.5 Replace all failures in Year 1 in accordance with Section 9.

In Years 2-4 replace all failures as required to produce a uniformly vegetated hedge line.

C.4.6 Remove all litter/fly tipping at each maintenance visit

C.4.7 Top up mulch annually in Spring to restrict competition from grasses and herbs during Years 1-4 (See Section 7) to the original depth.

C.4.8 Do not apply fertilisers to the hedgeline or use fertilisers, manure or pesticides within 2 metres of the centre line of the hedge to prevent leaching and the growth of undesirable, competitive ruderal weeds.

General Maintenance Year 5

C.4.9 Generally aim to maintain hedges at a height of not less than 1.8 metres. Prune in Year 5 to establish the desired height and width and maintain the A shape and density of the hedges. Prune outside the bird nesting season (1st March to 31st July) and aim to cut in January or February or, where ground conditions or other mitigating circumstances prevent this, then as late as possible in the Autumn. Avoid winter cutting in order to retain nuts and berries as winter food for the wildlife.

C.4.10 Remove any non-native or competitive plants from the ground layer by hand pulling to avoid disturbance to surrounding ground and plant life and dispose of arisings off site.

C.4.11 Do not apply fertilisers to the hedgeline or use fertilisers, manure or pesticides within 2 metres of the centre line of the hedge to prevent leaching and the growth of undesirable, competitive ruderal weeds.

C.4.12 Assess the need for planting to either replace defective or failed plant material or gap up as necessary to produce a consistently uniform hedge line.

C.4.13 Remove all litter/fly tipping at each maintenance visit.

C.4.14 Assess the need for top up mulch depending on the establishment of the hedge and the desire to provide conditions suitable for development of a herbaceous ground layer.

C.5.0 EXISTING WOODY VEGETATION

C.5.1 Trees and Hedges

All existing trees and hedgerows within and on the boundaries of the site shall be maintained in a safe condition and as a reasonable visual amenity.

The sections of existing native hedge on the southern boundary will be laid by a professional hedge layer to encourage regrowth and allow the lengths of new hedgerow to establish properly.
Establishing hedgerow trees will be maintained as single standards.
Existing hedges within rear gardens shall be maintained by the Occupier following handover.

Once the laid hedges have had time to re-establish (to be assessed on annual walkover) they shall be managed by cutting in February every other year. This shall be done on a rotational basis for the hedges across the site so that all hedges are not cut at the same time.

The trees shall be inspected on an annual basis by a suitably qualified arboriculturist and any recommendations for tree work shall be undertaken as required all in accordance with British Standards.

C.6.0 PRUNING

C.6.1 All pruning work, whether on newly planted material or existing vegetation, shall be carried out in accordance with BS 3998 where applicable. Resultant wounds shall be treated with approved fungicidal sealant.

C.6.2 All pruning of trees shall be carried out between November and March inclusive unless otherwise directed in the notes below. The following operations shall be carried out:

a) All diseased tissues and any dieback shall be pruned to the nearest bud with clean wood.

b) The removal of unsightly ‘water shoots’ and epicormic growth from standard, selected standard, heavy standard and extra heavy standard trees.
c) Formative pruning to remove branches that cross, are damaged or have malformed shoots, to maintain a balanced tree crown.

C.6.3 Broken and vandalised branches shall be cut back to the next joint, removing splinter wood and left to heal naturally. If the tree, in the opinion of the Landscape Architect is beyond pruning, it shall be removed by the Contractor, and the ground made good.

C.6.4 Newly planted shrubs shall only be pruned as required by the Landscape Architect. At the end of the growing season the shrubs shall be checked and all deadwood, broken or damaged or crossing branches shall be cut out.

C.6.5 Pruning of existing well established shrub material shall be carried out where indicated on the Contract Drawings and shall conform to the following:

a) Shrubs flowering in Winter shall be pruned in March subject to confirmation that there are no active birds’ nests in the vegetation.
b) Shrubs flowering in March to July shall be pruned immediately after flowering subject to confirmation that there are no nesting birds in the vegetation.
c) Shrubs flowering July to September shall be cut back to old wood in January to February.
d) Rose bushes other than Species Roses shall be pruned in February to encourage basal growths and keep plants in a balanced and compact habit.
e) Pruning and removal of branches shall be carried out using sharp, clean implements to give a clean cut with one flat face. Any cuts or wounds over 20 mm in diameter are to be painted with an approved sealant.
f) The Contractor shall cut newly planted or existing hedges as indicated on the Contract Drawings and in the Schedule of Quantity. Cutting will be such as to encourage a stable shape and remove current growth rather than old wood.
g) All arisings from pruning work shall be removed from site to Contractor’s own tip.

C.6.6 Ornamental hedges (Beech and flowering evergreen) to be maintained by the future occupier at a recommended height of 1000mm.

C.7.0 MULCHING

C.7.1 The mulch to all ornamental shrub beds shall be topped up in the first Spring after planting after the completion of the early Spring maintenance visit (ie March/April) to achieve an overall depth of 50 mm.

C.8.0 WATERING

C.8.1 Watering visits, when required, shall be instructed and confirmed in writing by the Landscape Architect.

C.8.2 The following rates are given as a guideline to the Contractor for the volume of water required per visit:

Extra Heavy & Heavy Standard Trees ...45 litres per Tree
Selected Standard & Standard Trees ... 30 litres per Tree
Specimen Plants ..... 15 litres per Plant
Transplants, Shrubs, Hedging
and Herbaceous Material ..... 10 litres per Plant

(NB 4.5 litres = approximately 1 gallon).

C.8.3 The Contractor shall include in his rates for bringing to site sufficient water carts, hoses or sprinklers to provide adequate water to fulfil the above Specification. He shall also be responsible for paying all charges in connection with the supply of water required unless otherwise instructed in writing by the Landscape Architect.

C.9.0 FAILURE OF PLANT MATERIAL

C.9.1 The Contractor shall replace, at his own expense, any tree, transplant, specimen plant, shrub or herbaceous material which has died or has not developed full foliage throughout its branches during the twelve (12) months following planting. Replacements shall take place as early as possible during the planting season following the original planting period.

C.9.2 The Contractor shall subsequently make good any further failures during the following twelve (12) months if the Aftercare period is two (2) years.

C.9.3 Replacement plant material required as a result of vandalism shall be identified separately and provided by the Contractor at the rates indicated in the Schedule of Rates (if provided) or as agreed in writing between the Contractor and the Landscape Architect.

C.9.4 All replacement plant material shall conform to the original Specification unless otherwise agreed in writing between the Contractor and the Landscape Architect.

C.9.5 The Contractor shall make good at his own expense all necessary repairs to levels, grassed areas and paving required because of plant replacements.

C.10.0 GRASSED AREAS

C.10.1 Short mown Amenity Grass

Grassed areas shall be mown as indicated on the Contract Drawings and in the Schedule of Quantity. Litter shall be collected prior to each cut. The disposal of grass cuttings by the chosen machine shall not result in cut grass being left in rows; rather the mowers shall reduce the cuttings to fine particles to be spread around to decompose rapidly. Works around newly planted trees shall be carried out by hand-tool rather than mechanically.

The Contractor should note that mowing includes for cutting the grass, trimming grass edges, trimming around the base of trees, manholes, street lights, signposts, up to the edges of paving, fencing and other boundaries

etc to keep the total area in a neat and tidy condition at all times.

Short amenity grass shall be maintained at a height between 25 and 65mm.

In drought conditions mowing operations shall continue only so long as grass growth continues to reach maximum allowable height. In very wet conditions all operations shall cease until conditions allow operations to continue without either damaging the surface levels and contours of the grassed areas or leaving divots from mowing machines. Alterations required to the Aftercare Programme due to special weather conditions shall be agreed with the Landscape Architect in writing.

C.10.2 **Long grass / wildflower grass areas**

To be successful, initial maintenance on wildflower grass areas must be carefully managed to ensure the creation of suitable conditions for the wildflower seeds to establish without being outcompeted by the grass nurse crop. The following cutting regime is a guideline and the actual cutting programme adopted will dependant on the growth in each situation, this in turn being directly by soil fertility, rainfall and ground temperature. The cutting regime will differ, depending on whether the sward is established in Autumn or Spring.

C.10.2.1 *Spring Establishment:*

Year 1

1st cut to 4-7 cm approx 6 weeks after sowing if sufficient material has established

2nd cut to 4-7 cm approx in May (when sward height exceeds 10 cm)

3rd cut to 4-7 cm in September/October

Cuttings can be first used to create the reptile habitat piles where shown on the landscape masterplan. Heaps should be a minimum of 1m3.
Excess arisings to be carted off site.

Year 2 (where cutting is carried out)

1st cut to 4-7 cm March/April

Final cut to 4-7 cm end September/October.

Habitat piles to be replenished in accordance with specification in 12.3 and all excess arisings to be removed from site.

C.10.2.2 *Autumn Establishment:*

Year 1

1st cut to 4-7 cm in March (if sufficient material)

2nd cut to 4-7 cm in early May

3rd cut to 4 cm in September

Cuttings can be first used to create the reptile habitat piles where shown on the landscape masterplan. Heaps should be a minimum of 1m3.
Excess arisings to be carted off site.

Year 2 (where cutting is carried out)

1st cut to 4-7 cm March/April

Final cut to 4-7 cm end September/October.

Habitat piles to be replenished in accordance with specification in 12.3 and all excess arisings to be removed from site.

Years 2/3 to 5

Subsequent maintenance of wildflower grass areas shall be undertaken to manage grass at different heights to create a diversity of habitats which will enable the colonisation of a range of plant, bird, small mammal, invertebrate and insect life. Alterations to the cutting regime will ultimately be dependent on the sward composition and how the various areas are establishing and being used and will include:

Cutting in Autumn (end September/October) once grasses and flora have seeded. Replenish grass reptile habitat piles in accordance with 12.3 and then remove remaining arisings from any grass maintenance operations from the grass surface.

C.10.3 **Fertiliser** (short mown amenity grass areas only)

The Contractor shall supply and evenly spread over the specified areas with an approved distributor, a post-emergent fertiliser. The fertiliser shall be compounded granular free flowing material and shall supply the ratio of plant nutrients N:P:K at 2:1:1 for Spring Dressings and N:P:K at 1:1:1½ for Autumn Dressings. They shall be spread at a rate of 35 gms/m^2. No fertiliser with the insoluble phosphate representing more than 10% of the total phosphate will be acceptable.

C.10.4 **Weedkiller**

The Contractor shall supply and apply a suitable selective herbicide to grassed areas, to be applied only on the written instruction of the Landscape Architect. The herbicide shall be approved by the Landscape Architect and applied at the rate and in accordance with the manufacturer's instructions. The Contractor shall only spray during calm conditions, when rain is not imminent and not during drought conditions. Three days shall elapse before recommencement of mowing operations.

C.10.5 **Remedials**

The Contractor shall be responsible for remedial works on grassed areas within the Contract boundary, disturbed by cultivations, planting or other

operations carried out by the Contractor in the execution of the Works.

In Spring and Autumn, or otherwise as instructed by the Landscape Architect, the Contractor shall re-seed any areas which fail to germinate, with approved grass seed mix. Topsoil shall be cultivated and aerated by forking as necessary to tie in with adjacent levels to promote good sward establishment.

Returfing of damaged or bare areas identified by the Landscape Architect shall comply with all good horticultural practice. The Contractor shall remove or make up all areas to a level sufficient to take replacement turves. The base of the area will be lightly broken up and levelled prior to final placement of the turf.

C.11.0 PUBLIC OPEN SPACES AND PLAY AREA

C.11.1 Play Area

The play area will be installed as the site nears completion in order to prevent Health and Safety issues during the construction phase. Once installed the play area will be maintained in accordance with the Schedules at Appendix 2.

Prior to handover to the Management Company the equipped Play Space in the Central POS shall be inspected on a daily, weekly and monthly schedule in accordance with NPFA and ROSPA guidelines.

The Play Area/equipment and safety surfacing shall be inspected annually by an independent specialist to ensure the long term safety of the site, equipment and ancillary items. This will also meet legal and insurance responsibilities as well as complying with the requirements of EN 1176 (European Playground Standard)

C.11.3 Fencing and Gates

Inspect all fences, railings and gates for any necessary repair, on each maintenance visit.

C.11.4 Street Furniture

Inspect all seats and litter bins for defects / damage. Report any defect or damage to Client and seek approval for repair / replacement as required.

C.11.5 Footpaths/Paved Areas

Where indicated in Schedules of Quantity, footpaths and paved areas shall be treated with a total weed killer in accordance with the manufacturer's instructions. The chemical compound/herbicide shall be approved by the Landscape Architect and of an appropriate type for the conditions on site and applied in April-June.

C.11.6 Litter

Litter shall be collected and carted off site during each maintenance visit.

C.11.7 **Planting**

Planting beds within the POS areas shall be assessed once the have been in use for 6 months. Any areas of planting that are shown to be vulnerable are to be replaced with more robust species or removed all together and replaced with grass or hard surfacing as appropriate.

C.12 ECOLOGICAL CONSIDERATIONS

C.12.1 **Nesting Season**

All works to existing trees and shrubs shall be carried out

C.12.1 **Tree Replacement**

In the event that any of the existing mature trees require to be replaced, such replacements shall be native and of a suitable species, size and form for the location, all as agreed between the Client, consultant Landscape Architect, Ecologist and Arboriculturist and Local Authority as required.

Existing hedgerows to be retained will be gapped up as necessary using a similar palette of species. New sections of native hedgerow, native scrub planting around the site will consist of locally appropriate planting mixes and within the housing development itself ornamental species have been selected which have wildlife value in the form of berries, fruits and flowers.

C.12.2 **Invasive Weeds**

The site shall be monitored at each maintenance visit for evidence of invasive weed growth. Should any such species be identified the Management Company shall prepare a plan of action for the treatment of the weeds which shall be implemented immediately.

C.12.3 **Reptile Habitat**

Reptile egg laying habitat created to the north of the attenuation basin as shown on the landscape masterplan Grass heaps should be replenished after grass cutting operations and should be managed as follows:

- The 3 locations should be replenished on an annual rotational basis so that each heap is topped up every 4 years.

C.12.4 **Habitat Protection**

Site operative should be made aware of the habitats that are to be protected and understand the Tree Protection methods that are to be employed during construction.

D REASSESSMENT OF SCHEDULES OF WORKS

D.1 Monthly monitoring visits by the Management Company will be made to determine whether the Management Objectives (Section B) are being met.

Any operations falling short of the objectives will be brought to the attention of the Supervisor for the Management Company's operatives.

D.2 An annual walkover assessment will be made by the Management Company in conjunction with a qualified Arboriculturist, Ecologist and Landscape Architect as required. Any recommendations shall be carried out within three (3) months of the report, unless any trees are identified as potentially dangerous and in need of urgent attention. In this instance, works shall be carried out Immediately.

D.3 Re-assess the need for adjustment of the operational schedules annually following the annual walkover and undertake to amend the document as required.

D.4 At the end of the first 5 year period the management operations will be reviewed and assessed by all parties for their appropriateness and revised as necessary to provide an effective plan going forward.

APPENDIX 1:
Relevant Wildlife Legislation

Breeding Birds

All wild birds are protected under the ***Wildlife & Countryside Act 1981*** (as amended) during the breeding season (which is normally assumed to be from the 1st March to 31st July).

Bat species

All British bat species and their roosts are legally protected under the ***Wildlife & Countryside Act 1981*** (as amended), through inclusion in Schedule 5 and under the ***Conservation of Habitats and Species Regulations 2010*** which implements the EC Directive 92/43/EEC in the UK. Under the legislation, it is an offence to intentionally kill, injure or capture bats, deliberately disturb bats and damage, destroy or obstruct access to bat roosts. Since the introduction of the ***Countryside and Rights of Way (CROW) Act*** in ***2000*** it is also an offence to recklessly harm or disturb bats in their roosting places.

Reptile species

The four common reptile species (Common Lizard, Grass Snake, Adder and Slow-worm) are listed under Schedule 5 of the ***Wildlife & Countryside Act 1981*** (as amended), in respect of Section 9(5) and part 9(1). This protection was extended by the Countryside and Rights of Way (CROW) Act 2000. This legislation makes it an offence to:

Intentionally or recklessly, kill or injure any of the above species and / or;
Sell, or attempt to sell, any part of the species, alive or dead.

The Sand Lizard and Smooth Snake receive greater protection under both the ***Wildlife & Countryside Act 1981*** (as amended) and from the Conservation of Habitats and Species Regulations 2010 which gives them full protection under Regulation 39.

The legislation protects these species from:

deliberately or intentionally killing and capturing (taking) or intentional injuring;
deliberately disturbing;
deliberately taking or destroying eggs;
damaging or destroying a breeding site or resting place, or intentionally damaging a place used for shelter and protection;
intentionally obstructing access to a place used for shelter; and
keeping, transporting, selling or exchanging; offering for sale or advertising.

Water Vole

Since April 2008 the Water Vole has received full protection under Section 9 of the ***Wildlife & Countryside Act 1981*** (as amended). Legal protection makes it an offence to:-

intentionally kill, injure or take (capture) a water vole;
possess or control a live or dead water vole or any part of a water vole;
intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb a water vole while they are using such a place;
sell, offer for sale or advertise for live or dead water voles.

RELEVANT HEALTH & SAFETY LEGISLATION

Health & Safety at Work Act 1974 (and amendments)
HSE's Managing Health and Safety in Forestry

RELEVANT PESTICIDES, BIOLOGICAL CONTROL AGENTS LEGISLATION

Control of Pesticides Regulations 1986 (COPR), as amended by the Control of Pesticides (amended) Regulations 1997 (COP(A)R)
Control of Substances Hazardous to Health 2002 (COSHH)
Waste Management (Duty of Care) Regulations 2002
Waste Management Regulations 1996
Waste Management Licensing Regulations 1994 (plus carious amendments)
Environment Protection Act 1990

APPENDIX 2:
Operational Schedules

Operation	Year					Proposed Frequency	Restrictions
	1	2	3	4	5		
Standard Trees - Section C.1.0							
Maintain tree pits weed free	✓	✓	✓	✓	✓	6 visits per year	Avoid the use of chemicals in sensitive / nature conservation areas
Fertilise trees	✓	✓	✓			Once annually	In March or April
Water trees	✓	✓	✓			Weekly / as required	April to September and weekly during prolonged dry weather (See Section 8.0)
Check firmness of trees in tree pits and re-firm as required	✓	✓	✓			At each visit	Carry out additional checks after exceptionally windy or frosty weather during early establishment years (Year 1-2)
Prune damaged branches	✓	✓	✓	✓	✓	As required	Prune as soon as identified
Check tree stakes & ties & repair / replace	✓	✓	✓			Every 3 months in perpetuity	Replace with materials to existing specification and replace as soon as identified
Check establishment of trees and remove stakes as required			✓	✓		As required. Aim to remove all stakes by end of initial 5 year period	
Replace defective & failed trees	✓	✓	✓	✓	✓	Once annually in planting season	In nearest available planting season, replacing all failures in Year 1 (the first year planting) and thereafter as agreed at the annual walkover (See Section D)
Top up mulch to tree pits in grassed areas	✓	✓				Once annually in perpetuity	In March or April
Litter pick and remove all arisings	✓	✓	✓	✓	✓	At each visit in perpetuity	Dispose of to tip in accordance with relevant Waste Management Regulations

Ornamental Shrub Beds - Section C.2.0							
Maintain shrub beds weed free	✓	✓	✓	✓	✓	6 visits per year in perpetuity	Avoid the use of chemicals in areas containing herbaceous plant material or bulbs
Apply slow release fertiliser	✓	✓	✓	✓	✓	Once annually	In March or April
Check firmness of shrubs in shrub bed and re-firm as required	✓	✓	✓	✓	✓	At each visit	Carry out additional checks after exceptionally windy or frosty weather during early establishment years (Year 1-2)
Water as required	✓	✓	✓			Weekly / as required	April to September and weekly during prolonged dry weather (See Section 8.0)
Prune damaged shrubs	✓	✓	✓	✓	✓	As required	Prune as soon as identified
Replace defective & failed plant material	✓	✓	✓	✓	✓	Once annually in planting season	Varied responsibility and replacement requirements dependant on Year of replacement & area (See Section 9.0)
Top up mulch	✓	✓	✓	✓	✓	Once annually in perpetuity	In March or April
Litter pick / remove flytipping and remove all arisings	✓	✓	✓	✓	✓	At each visit in perpetuity	Check for harbouring wildlife

New Native Planting - Sections C.3.0 and C.4.0							
Maintain 300mm diameter area around each plant weed free and remove undesirable herbaceous or woody species	✓	✓	✓	✓	✓	Four times annually	Avoid the use of chemicals in areas within the catchment area of water bodies
Control the spread of any invasive or undesirable weed	✓	✓	✓	✓	✓	As required in perpetuity	Before flowering / seeding and in accordance with specific requirements for the particular weed species
Check firmness of plant material in ground and re-firm as required	✓	✓	✓	✓	✓	At each visit	Carry out additional checks after exceptionally windy or frosty weather during early establishment years (Year 1-2)

Hard prune hedges to 450mm height			✓			Once in Year 2	Out of bird nesting season
Continue pruning to achieve desired height and width				✓	✓	Once annually in perpetuity	Out of bird nesting season
Water as required	✓	✓	✓			Weekly / as required	April to September and weekly during prolonged dry weather (See Section 8.0)
Replace defective & failed plant material	✓				✓	Once annually in planting season	In nearest available planting season, replacing all failures in Year 1 (the first year planting) and thereafter as agreed at the annual walkover (See Section D)
Top up mulch	✓	✓				Once annually	In March or April
Litter pick / remove flytipping and remove all arisings	✓	✓	✓	✓	✓	At each visit in perpetuity	Check for harbouring wildlife and dispose of arisings to tip in accordance with relevant Waste Management Regulations
Existing Woody Vegetation – Section C.5.0							
Carry out recommendations made by Arboriculturist at annual walkover	✓	✓	✓	✓	✓	As required / agreed in perpetuity	Out of bird nesting season
Remove any failing / dead material for Health & Safety or visual reasons (otherwise leave in situ)	✓	✓	✓	✓	✓	As required in perpetuity	Out of bird nesting season
Carry out initial management to existing boundary hedgerows by laying sections of hedge	✓					Outside bird nesting season	Carried out by qualified craftsman/woman
Carry out ongoing annual trimming of existing hedgerows until	✓	✓	✓	✓	✓	Until house is occupied	

handover to occupant							
Litter pick / remove flytipping and remove all arisings	✓	✓	✓	✓	✓	At each visit in perpetuity	Check for harbouring wildlife and dispose of arisings to tip in accordance with relevant Waste Management Regulations
Grass Areas – Section C.10.0							
Maintain amenity grass	✓	✓	✓	✓	✓	As required between height tolerances as specified in perpetuity	
Maintain wildflower grass areas during the early establishment period	✓	✓				Up to 3 times for newly established areas in Year 1. Twice in Year 2 (as specified)	Remove arisings
Maintain wildflower meadow area			✓	✓	✓	Once annually Sept/October in perpetuity	Remove arisings
Apply fertiliser to amenity grass areas only	✓	✓	✓	✓	✓	Once annually in perpetuity	Spring or Autumn
Apply selective herbicide	✓	✓	✓	✓	✓	Once annually in perpetuity	As required and instructed by the Landscape Architect
Reinstate any damaged areas of amenity grass as required by re-seeding or re-turfing		✓	✓	✓	✓	Annually in season in perpetuity	
Create grass reptile habitat piles	✓						
Replenish grass habitat piles on rotational basis as specified		✓	✓	✓	✓	In October after grass cut	
Public Open Spaces – Section C.11.0							
Assess success of planting around	✓					After first 6 months	Replace any area of vulnerable planting with

public areas							more robust species, grass or hard surfacing as appropriate
Inspect play area for damaged or defective equipment or surfacing	✓	✓	✓	✓	✓	On each visit In perpetuity	Carry out repairs as necessary immediately
Check fences and gates for damage	✓	✓	✓	✓	✓	On each visit in perpetuity	Carry out repairs as necessary immediately
Check seating for damage or defect	✓	✓	✓	✓	✓	On each visit in perpetuity	Carry out repairs as necessary immediately
Apply weedkiller to footpath and paved areas	✓	✓	✓	✓	✓	April-June in perpetuity	Weed killer to be approved by Landscape Architect.
Collect all litter and remove from site	✓	✓	✓	✓	✓	On each visit in perpetuity	
Management Plan Review – Section D							
Carry out Monthly Monitoring visit	✓	✓	✓	✓	✓		Assess the need for actions and instruct operators
Carry out annual walkover	✓	✓	✓	✓	✓		Act on recommendations for works as required and adjust the operational schedules where required.
Undertake necessary survey work with specialist consultants, review this document and prepare new plan as required					✓	Once	Consultation with Client, consultant Landscape Architect, Ecologist, Arboriculturist and Management Company

APPENDIX 3:
R/1/789/1C Landscape Masterplan

Development layouts and landscaping are not intended to form part of any contract or warranty unless specifically incorporated in writing into the contract. Images and development layouts are for illustrative purposes and should be used for general guidance only. Development layouts including parking arrangements, social/affordable housing, commercial buildings/space, retail buildings/space, play areas and public open spaces may change to reflect changes in planning permission and are not intended to form part of any contract or warranty unless specifically incorporated in writing. Please speak to your solicitor to whom full details of any planning consents including layout plans will be available.

WARNING TO HOUSE-PURCHASERS
Property Misdescriptions Act 1991

Images and site layout are intended for illustrative purposes only and should be treated as general guidance only.

Site layout including parking arrangements, (social/ affordable housing, community buildings, play areas and public open spaces) may change to reflect changes in the planning permission for the development. Please speak to your solicitor to whom full details of any planning consents including layout plans will be available.

Site layouts and landscaping are not intended to form part of any contract or warranty unless specifically incorporated in writing into the contract.

DO NOT SCALE. IF IN DOUBT ASK.

KEY

- Existing tree to be retained and protected
- Existing tree to be removed
- Proposed semi-mature (30-35cm girth) tree
- Proposed Extra heavy standard (14-16cm girth) tree
- Proposed heavy standard (12-14cm girth) tree
- Proposed selected standard (10-12cm girth) tree
- Proposed light standard (6-8cm girth) tree
- Proposed Beech hedging
- Proposed evergreen flowering hedge (Escallonia)
- Proposed instant box hedging
- Proposed native hedge
- Proposed low native shrub mix
- Proposed native tree and shrub mix
- Proposed ornamental shrub planting
- Proposed turf
- Rear gardens
- Proposed short mown amenity grass
- Proposed infrequently mown amenity grass
- Proposed wildflower meadow
- Proposed hedgerow edge wildflower seed
- Decorative gravel over geotextile membrane.
- 1800mm High Screen Fence
- 1800mm Screen Wall Fence
- 450mm High Timber Knee Rail
- 1200mm High Railings to LEAP
- 450mm high raised tree planter to POS
- Proposed Bat box - Ibstock Enclosed Box C finished in a material to match the house
- Proposed Reptile Habitat - mounds of cut grass for reptile egg incubation - see detail sheets, Biodiversity and Ecological Management Plan and Landscape Management Document

PROTECTION OF EXISTING VEGETATION

Existing vegetation to be retained on site shall be protected where necessary during works by a tree protective barrier, secured to a scaffold tubing framework with fluorescent tape to the top rail. Protective fencing shall be erected on the canopy drip line wherever possible. Laminated, waterproof A4 signs shall be fixed to the fence posts at 10m intervals bearing the words 'PROTECTED TREE ZONE - NO STORAGE OR OPERATIONS WITHIN FENCED AREA'.

Tracking of machinery, storage of chemicals and building materials shall not be permitted within the protected area. Leaks or spills should be removed immediately and the contaminated soil replaced. No bonfires shall be lit within 5m of the canopy spread. Any excavation work beneath the canopy spread shall be carried out by hand.

All works affecting trees within the development shall be subject to BS 5837:2012.

TREE PLANTING

A hierarchy of tree sizes will be used across the site. Semi-mature trees will be used at key focal points at the road junctions and as the centre feature of the seating area within the central POS. Extra heavy standards will be planted within the grass verges along the central boulevard. The avenue style tree planting will provide instant structure to the scheme. Plot frontages in key locations will be planted with heavy standard trees, whilst selected standards will be planted to all other plot frontages and within rear gardens at key focal point locations. Light standards will be planted along the lengths of new hedgerow planting and within rear gardens in order to extend the wildlife corridor through the site. Foundation design of new buildings shall accommodate proposed tree planting in accordance with NHBC guidelines.

Suggested tree species:

- Acer campestre (Ac)
- Acer platanoides 'Lacinlatum' (ApL)
- Aesculus hippocastanum (Ah)
- Alnus glutinosa (Ag)
- Alnus incana 'Aurea' (AIA)
- Betula pendula (Bp)
- Betula utillis var. jacquemontii (Buj)
- Carpinus betulus (Cb)
- Fagus sylvatica (Fs)
- Malus sylvestris (Ms)
- Malus tschonoskii (Mt)
- Prunus padus (Pp)
- Prunus sargentii (Ps)
- Prunus subhirtella 'Autumnalis Rosea' (PsAR)
- Pyrus calleryana 'Chanticleer' (PcC)
- Quercus robur (Qr)
- Sorbus aria (Sa)
- Sorbus aucuparia (Sau)
- Sorbus 'Joseph Rock' (SJR)
- Tilia cordata 'Green Spire' (TcGS)

SHRUB PLANTING

A combination of evergreen and deciduous shrubs with areas or herbaceous plants will be planted across the site. The plant species will be grouped to create distinct areas within the development. A mixture of shrub sizes will be used to emphasize key focal points and to create structure within individual beds.

Species to be selected from: ( ) density/m2

Berberis frikartii 'Amstelveen'(5), Berberis thunbergii 'Atropurpurea Nana'(5), Bergenia cordifolia 'Silberlicht'(6), Buddleia davidii 'Lochinch'(2), Ceanothus thrysiflorus repens(4), Chaenomeles superba 'Jet Trail'(4), Cornus alba 'Spaethii'(2), Cornus stolonifera 'Flaviramea'(2), Cotoneaster conspicuus 'Decorus'(6), Cotoneaster lacteus(2), Crtlsus 'Allgold'(4), Elaeagnus pungens 'Maculata'(3), Escallonia 'Apple Blossom'(4), Euonymous fortunelii 'Emerald Gaiety'(6), Festuca spp(6), Geranium 'Johnson's Blue'(4), Hebe albicans 'Red Edge'(4), Hebe 'Autumn Glory'(4), Hypericum x moserianum(4), Juniperus sabina 'Tamariscifolia' (3), Lavandula 'Hidcote'(6), Lonicera 'Maygreen'(4), Lonicera 'Silver Beauty'(4), Nepeta faasenii(4), Perovskia 'Blue Spire'(6), Phormium var, Potentilla 'Red Ace'(5), Prunus laurocerasus 'Zabeliana'(3), Pyracantha 'Orange Charmer'(3), Rubus x 'Betty Ashburner'(4), Spiraea 'Gold Flame'(4), Spiraea 'Shirobana'(4), Viburnum tinus 'Eve Price'(3)

HEDGE PLANTING

A mix of Beech Escallonia and Box hedging will be used throughout the site to create structure and definition to the site. The different hedge species will be used to create distinct areas within the site, Beech and Escallonia hedges are to be planted as a double staggered row of 40-60cm high hedging plants. The Box hedges are to be planted in 'Instant Hedge' troughs 30-35cm high.

PUBLIC OPEN SPACE

Three Public Open Spaces (POS) will be provided on site. The western POS will provide an informal recreation area, with a mixture of native shrub planting and native hedgerow enclosing extensive wildflower meadow. The combination of different planting types will create an important series of interlinking wildlife habitats on site. The Central POS will be a more formal recreation area with a central seating area, LEAP and ornamental shrub and tree planting. The southern POS contains the attenuation basin for the site. The area will be planted with native shrubs, trees and hedgerows to the boundaries and the basin itself will be sown with a wildflower mix suitable for wet/damp conditions.

SITE BOUNDARIES

The existing boundary vegetation will be retained and cut back to form manageable hedgerows. Additional hedgerow planting will take place along all boundaries outside of private gardens. In addition to the hedgerows, standard trees and where space permits, areas of native shrubs will be planted. The boundary planting will create a robust green boundary to the site which will provide and attractive edge to the development and important wildlife habitats and food sources.

Native hedge will be composed of the following species mix:

Acer campestre	5%
Corylus avellana	10%
Crataegus monogyna	40%
Ilex aquifolium	5%
Lonicera periclymenum	5%
Prunus spinosa	20%
Rosa canina	10%
Viburnum opulus	5%

Occasional hedgerow tree specimens of native species planted at intervals through the length of the hedge.

ECOLOGICAL ENHANCEMENTS

The proposed landscape scheme includes the following measures in order to comply with the recommendations in the Extended Phase 1 Habitat Survey Report by SLR (Ref: 424-03696-00024) *September 2014*:

1. To retain the value of the site for nesting and foraging birds landscape planting comprises a mix of native and semi native shrubs and trees that provide cover and berries and fruits using species such as Hawthorn, Blackthorn, Crab Apple and Rowan and nectar bearing and wildlife attracting ornamental and herbaceous species.
2. Existing hedgerows around the perimeter of the site are to be retained and gapped up as necessary in order to retain and strengthen the existing wildlife corridor. 20 integral bat boxes are to be incorporated into the construction of selected properties (where shown on the plan).
3. Wildflower meadows are to be incorporated into the 2 perimeter POS areas to enhance the foraging territory for bats.
4. Enhancement of grass snake breeding areas will be incorporated into the POS area. Piles of cut grass will be left in the areas marked on the plan. See Landscape Management Document for detailed actions.

Rev.C: Amended to Incorporate Ecological recommendations — July 17
Rev.B: Re-plan in line with YW-04-03 AA Proposed Site Layout. (EW) — May 17
Rev.A: Minor amends to POS — Oct 15

Sue Farmer BA MALD MLI
Landscape Architect

fdalandscape

Westleigh Hall
Wakefield Road
Denby Dale
Huddersfield HD8 8QJ
telephone 01484 864661
fax 01484 864616
Rdn 01484 866900
email info@fdalandscape.co.uk
www.fdalandscape.co.uk

client: Barratt Homes

project: Residential Development

CARRS LANE, CUDWORTH

drawing title: LANDSCAPE MASTERPLAN

scale	date	drawn by	drawing no
1:500 @A0	Oct 15	EW	R/1789/1C