



APPENDIX 10.4 – LANDSCAPE MANAGEMENT AND MAINTENANCE PLAN

Updated to incorporate changes to the revised Landscape Strategy and Planting Schedule



West Sussex County Council

A29 REALIGNMENT

Landscape Management & Maintenance Plan





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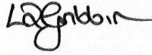

WSP

Kings Orchard
1 Queen Street
Bristol
BS2 0HQ

Phone: +44 117 930 6200

WSP.com

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Signature				
Checked by	Lorna Gribbin	<u>Lorna Gribbin</u>	<u>Lorna Gribbin</u>	<u>Lorna Gribbin</u>
Signature				 <small>Digitally signed by Gribbin, Lorna (UKLXG024) DN: cn=Gribbin, Lorna (UKLXG024), ou=Active, email=Lorna.Gribbin@wsp.com Date: 2021.04.29 08:57:53 +01'00'</small>
Authorised by	Katy Mayhew	<u>Katy Mayhew</u>	<u>Katy Mayhew</u>	<u>Katy Mayhew</u>
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CONTENTS

1	OBJECTIVES	1
2	BACKGROUND	2
2.1	A29 REALIGNMENT	2
3	PRELIMINARIES	3
3.1	ESTABLISHMENT AND DEFECTS LIABILITY PERIOD	3
	DEFECTS LIABILITY	3
4	GENERAL MAINTENANCE	4
5	EXISTING TREES	5
6	EXISTING AND PROPOSED WILDFLOWER / GRASS AREAS	6
6.1	GENERAL MAINTENANCE: ALL GRASS & WILDFLOWER AREAS	6
6.2	AMENITY GRASSLAND	6
6.3	WILDFLOWER MEADOW	6
6.4	WETLAND GRASS	7
7	SHRUB, HEDGE, WOODLAND AND TREE PLANTING AREAS	8
	SHRUBS	8
	WOODLAND PLANTING	8
	TREE PLANTING	8
	HEDGE PLANTING	9
8	WEED CONTROL	10
9	MAINTENANCE SCHEDULES	11

TABLES

Table 6-1 – Grass Cutting Table	6
Table 9-1 – Monthly Programme of Works	01
Table 9-2 – Annual Programme of Works	03
Table 6-1 - Grass Cutting Table	12
Table 9-1 - Monthly Programme of Works	17
Table 9-2 - Annual Programme of Works	19

APPENDICES

No table of contents entries found.

1

OBJECTIVES



1 OBJECTIVES

- 1.1.1. This Landscape ~~Management and Maintenance and Management~~ Plan (LMMP) outlines the proposed management of the landscape elements of the A29 Phase 1 realignment development (hereafter referred to as the 'Scheme'). This document sets out the long-term goals and landscape management practices for the initial five years of the Scheme after planting, and for the lifetime of the development. This LMMP, in its current form, should be viewed as an outline document and will be further developed throughout the design development of the project. A formal review should take place at the end of Year 1, 3 and 5 of the Defects Period, and updated in agreement with the Local Authority.
- 1.1.2. The objectives of this LMMP are:
- To ensure the continued health and vigour of the existing trees, shrubs and any retained vegetation on the site;
 - To ensure the successful establishment and continued healthy growth through to maturity of all proposed vegetation;
 - To manage drainage and infiltration areas to ensure they are effective;
 - To achieve a clean, tidy condition and appearance of all external areas;
 - To ensure the continued existence of natural habitat for existing species and promote the environment wherever possible; and
 - To control invasive and injurious weeds within the planting plots and within the scheme boundary.

2 BACKGROUND

2.1 A29 REALIGNMENT

- 2.1.1. West Sussex County Council (WSCC) (referred to as 'the Applicant') is seeking to obtain detailed planning permission for the Phase 1 realignment of the A29 (the 'Scheme'), to the north of Eastergate village and the north-west of Barnham village, both to the north of Bognor Regis.
- 2.1.2. The aims of the landscape proposals are to improve biodiversity, provide screening for a ~~noise~~ an acoustic barrier and to enhance legibility and connectivity. The proposals sit within the broader overarching principles outlined in the A29 Green Infrastructure Strategy (2020).

3 PRELIMINARIES

3.1 ESTABLISHMENT AND DEFECTS LIABILITY PERIOD

DEFECTS LIABILITY

3.1.1. Defects Liability: Any plants found to be defective during the five-year Defect Liability period as a result of:

- Plant failure;
- Poor or sub-standard materials;
- Lack of vigour; and
- Supplied and installed as not being in accordance with the specification.

~~Materials supplied shall~~ Shall be replaced immediately by the contractor for the first 18-month period at his own cost; followed by an additional 42 months by WSCC (totalling a five-year period).

3.1.2. Failures of plants (Pre-practical Completion): Any trees, shrubs and plants, other than those found to be missing or maliciously damaged, which are found to be defective at practical completion of the entire project shall be replaced by the Contractor entirely at his own cost.

3.1.3. Malicious damage or theft prior to Practical Completion: All loss or damage arising from theft or malicious damage prior to practical completion of the entire project shall be made good by the Contractor at his own expense.

3.1.4. Post Practical Completion: The maintenance of the planted areas after the date of practical completion will be carried out by the Contractor for a ~~5~~ five-year period as specified.

3.1.5. Any plants found to be defective Post Practical Completion as a result of:

- Plant failure;
- Poor materials;
- Lack of vigour; and
- Being not in accordance with the specification.

Shall be replaced immediately by the contractor at his own cost.

3.1.6. Replacement of plants shall take place as many times as is necessary, in the 5 year Defects Liability Period, in order to maintain a complete cover of plants and to maintain the scheme as designed by the Landscape Architect in the As Built Drawings (A29-CAP-HPN-00-DR-C-0239 S0-P03) and be within the correct season for the type of plants specified.

4 GENERAL MAINTENANCE

- 4.1.1. No existing trees, shrubs or other plants shall be removed or cut without specific instructions from the Contract Administrator and written agreement of the Local Planning Authority Tree Officer.
- 4.1.2. All debris including pruning and litter shall be removed from site to a previously approved recycling centre.
- 4.1.3. The Contractor shall attend quarterly site inspections with the Project Landscape Architect as indicated in Section 4.9 Maintenance Schedule. Management prescriptions shall be adapted as required following findings from inspections.
- 4.1.4. The Landscape Contractor shall hold a BASIS amenity horticultural products certificate in order to be able to provide appropriate advice on the selection and application of herbicides (if required), and shall be competent in identifying plant species, including those proposed as part of seed and planting mixes and all undesirable species.
- 4.1.5. Any diseases or pests present should be reported to the Council in the first instance and a programme of removal and replacement should be provided by the Contractor.
- 4.1.6. Weed control shall be in accordance with Section 8 and 9 of this document.
- 4.1.7. Maintenance shall be carried out as per maintenance schedules in Section 4.9 of this document.
- 4.1.8. The Contractor shall liaise with adjacent landowners regarding the access arrangements and working hours to carry out hedge maintenance.
- 4.1.9. Litter shall be removed on a monthly basis or as necessary on the whole site where heavy littering has occurred. A co-ordinated approach to tackling litter problems should be sought with other management agencies and landowners in order to achieve a litter free zone.
- 4.1.10. Adjacent landowners should be encouraged to report illegal fly tipping activity. Provision should be made to remove any such illegal material as soon as possible to discourage any future fly tipping activity.

5 EXISTING TREES

- 5.1.1. Temporary protective fencing will be erected around retained hedgerows and trees prior to the construction period, as specified in the Arboricultural Report Version 1 and Tree Protection Plan Appendix 3.4 of the ES. The location and extent of the protective area will be defined ~~by the project arboriculturalist~~ in accordance with an Arboricultural Method Statement in advance of the works and updated by them as required throughout the works. Protective fencing will be maintained throughout the construction period. It is the Contractors responsibility to ensure all fencing around retained tees, hedges and other protected habitats are installed and maintained throughout the Construction period.
- 5.1.2. All works should be carried out in accordance with BS 3998:~~1989~~ 2010 *Recommendations for Tree Work*, and BS 5837:2012: *Trees in Relation to Design, Demolition and Construction*, and should be undertaken by certificated personnel from the Arboricultural Association's list of Registered Contractors. Proof of experience and insurance provision will be required. All work shall be undertaken at the appropriate time and with the consent of the Overseeing Organisation who shall approve a programme of work with the Council.
- 5.1.3. All operations shall be carefully carried out to avoid damage to retained trees on site or neighbouring trees adjacent to the site. No trees to be retained shall be used for anchorage or winching purposes.
- 5.1.4. The trees should be checked annually for signs of deterioration or distress and the appropriate actions undertaken, where a potential safety hazard is identified.
- 5.1.5. The understorey should otherwise remain undisturbed with little pro-active management required other than the severing of ivy stems where crown infestation of the larger trees is evident or where maintenance of grass or planted areas is required.
- 5.1.6. All diseased wood, prunings and rubbish should be removed from site to the nearest approved recycling centre and the site left in a clean and tidy condition.
- 5.1.7. Where identified by the Project arboricultural consultant or Council tree officer for health and safety reasons, any heavy branches to be removed should be removed in sections and undercut to avoid tearing the bark, thereafter to be lowered by slings. No branch stumps should be left, and no cuts should be sealed with fungicidal sealant. No cuts should be capable of holding water. Removed wood should be left for a minimum of 24hrs prior to cutting into sections ~~to allow flight of Bats in cavities~~.
- 5.1.8. Heavy ivy growth is not recommended in development situations, where wind risk may be a concern. The form of the tree can also be affected, and it is therefore proposed to remove dense infestation of ivy if evident on site or during the maintenance period.
- 5.1.9. Bat surveys should be carried out on mature trees which are to be felled or are subject to any remedial work being carried out (refer to 70055091_WSP_ECO_RP_A29 Bats_V01); and Clearance Plans A29-CAP-HPN-00-DR-C-0246 S0-P01 TO 250). This should be completed by a suitably qualified specialist and in accordance with the Natural England policy.

6 EXISTING AND PROPOSED WILDFLOWER / GRASS AREAS

6.1 GENERAL MAINTENANCE: ALL GRASS & WILDFLOWER AREAS

- 6.1.1. The Scheme includes areas of existing ~~grassland to be retained~~, new wildflower meadow seed mix areas; and new wetland grass mix areas ~~and new amenity grass mix areas to the roadside verges~~.
- 6.1.2. Generally, the entire area will be inspected prior to any cutting for obstacles such as rubbish and rubble etc. Obstacles to be removed from site. In the case of fixed obstacles such as manholes or standpipes, these should be clearly marked to avoid possible damage.
- 6.1.3. Dead wood which is found within the existing grass areas is to be removed from site.
- 6.1.4. Grass cutting is to be undertaken with great care. This may be by a combination of hand-held trimmers and industrial mowers set at the required setting in order to maintain the grass at the required height as set out in Table 6-1 Grass Cutting Table. Trimmers with guards fitted are essential, so that at no time will the cutter come in contact with trees.

Table 6-1 – Grass Cutting Table

Grass Area Designation*	Frequency	Height of Cut
Amenity grass	4 cuts per year	50-60mm
Visibility splays	3 cuts per year	50mm
Wildflower Meadow	Year 1: 3 cuttings per year Subsequent years: 1 cut per year	First year 40-60mm Subsequent years: 100mm
Wetland Grass	1 cut per year	100mm

- 6.1.5. Any hollows which appear within the grassland due to settlement or other causes, which are considered to be potentially hazardous, shall be top dressed in early spring with good quality topsoil and seeded with the appropriate grass seed mix for that area.
- 6.1.6. Molehills on grass areas shall have the soil removed and evenly distributed throughout the grass area or within nearby cultivated areas.
- 6.1.7. Weed control shall be in accordance of Section 8 and 9 of this document.

~~6.2 AMENITY GRASSLAND~~

- ~~6.2.1. Grass shall be cut during the growing season (generally April-October) using a sharp cutter to give a clean, even cut. Arisings shall be left in situ.~~

6.3 WILDFLOWER MEADOW

- 6.3.1. Allow arisings to dry and shed seed for 1-7 days, arisings will be collected and removed off site to a licensed recycling / disposal centre. Grass cutting will be undertaken when ground and weather conditions are suitable, refer to ~~table~~ Table 6-1.

6.4 WETLAND GRASS

- 6.4.1. A wetland grass seed mix is proposed for use within the roadside swales and the perimeter of the attenuation basins.
- 6.4.2. Allow arisings to dry and shed seed for 1-7 days, arisings will be collected and removed off site to a licensed recycling / disposal centre. Grass cutting will be undertaken when ground and weather conditions are suitable, refer to table 6- 9-1.

7 SHRUB, HEDGE, WOODLAND AND TREE PLANTING AREAS

SHRUBS

- 7.1.1. Shrub planting is located across the site (refer to Landscape drawings ~~WSP-LA-GA-004~~ A29-CAP-HPN-00-DR-C-0239 S0-P03), they have been proposed in key visual areas for screening purposes and to provide planting on sloped embankments.
- 7.1.2. Shrubs shall be maintained in their natural shape and pruned as set out in Section 9 of this document. Any growth which will obscure signs, visibility splays or sight-lines shall be removed. Once established, any supporting canes shall be removed from the shrubs.

WOODLAND PLANTING

- 7.1.3. Woodland edge planting is proposed to the boundaries of the Scheme to provide connectivity between on-site and existing off-site tree cover, and to provide screening for the proposed acoustic barrier.
- 7.1.4. As the planting matures it may be necessary to selectively thin the planted areas at 5 and 10 years to achieve an appropriate canopy and understorey. This cannot be definitive as the importance of biodiversity should be considered when removing species.
- 7.1.5. If thinning work is required it should take place during the dormant months, typically November to January, and out of the wildlife nesting and breeding seasons.
- 7.1.6. Tree stakes should be checked and adjusted, repaired or replaced as necessary. Stakes should be removed by Year 5, or as instructed by the project Landscape Architect.
- 7.1.7. Provide artificial irrigation through the use of a Bowser to maintain healthy growth during the establishment period growing season (April – September, inclusive).

TREE PLANTING

- 7.1.8. Individual native trees are proposed in areas of orchard planting and along pathways, where they will provide a more immediate visual impact.
- 7.1.9. In addition to the maintenance prescriptions for the Woodland Edge Planting, the individual tree planting also requires the actions outlined below.
- 7.1.10. Minor pruning of dead or damaged wood shall be carried out as necessary. Wounds exceeding 25mm diameter must not be treated with a sealant. On substantial trees, West Sussex County Council's Tree Officer must be consulted for any necessary approvals.
- 7.1.11. Fruiting trees are proposed in the Scheme. A management plan shall be agreed with the Local Authority and Contractor regarding picking up fallen fruit from fruiting trees.
- 7.1.12. Newly planted specimen trees shall be checked at 6 monthly intervals for signs of damage, disease or pests present and all tree ties shall be adjusted accordingly at six monthly intervals or as required during monthly maintenance visits. Care should be taken when carrying out maintenance operations so as not to damage the base of trees with grass cutting machinery.
- 7.1.13. Once the trees have reached establishment and no longer require support, guards, ties and stakes may be removed and disposed of at the nearest recycling centre or kept in storage for reuse in the future.

- 7.1.14. Twice yearly tree inspections are required to assess any surgery and/or maintenance requirements.

HEDGE PLANTING

- 7.1.15. Native species hedge planting is proposed along site boundaries and adjacent to the proposed acoustic barrier. Hedges will help create wildlife corridors and define boundaries. Hedge adjacent to the noise barrier will be allowed to grow freely without maintenance.
- 7.1.16. No hedge maintenance shall take place during bird nesting season, see schedule in Section 9.
- 7.1.17. Hedges to achieve established height of 1.8m
- 7.1.18. Where growth on established hedge is up to two years old, highway hedgerow planting may be maintained with tractor mounted side arm flails, provided they cut cleanly without leaving ragged ends.
- 7.1.19. Growth on established hedges shall be reduced to slightly above the point of the previous cut (to a maximum height of 1.8m and a maximum width of 1.2m) and on completion, ~~both sides of the hedge shall be perpendicular and the top shall be level and at right angles a slight angle to the sides. base with the base being wider than the top of the hedge (within a tolerance of 100mm).~~

~~ALL HEDGE CLIPPINGS SHALL BE REMOVED FROM SITE TO A PREVIOUSLY APPROVED RECYCLING CENTRE.~~ CLIMBERS

- 7.1.20. Native climber species such as; Hedera helix, Clematis and Honeysuckle, which may be included to screen the western side of the acoustic barrier (subsequent to Planning Condition), will require regular watering within their establishment years (Initial 18 months plus the 5 year maintenance period) and during the growing seasons (refer to table 9.1). Watering as required to ensure moisture levels are appropriate for establishment.
- 7.1.21. The climbers shall be inspected at regular intervals during the growing season to ensure they are secure and following the supporting mesh or wires (if required), to cover the face of the acoustic barrier evenly.

8 WEED CONTROL

- 8.1.1. A weed management plan should be submitted for each successive year of maintenance and should include the control of the following species:
- Spear Thistle;
 - Creeping Thistle;
 - Broad Leaved Dock;
 - Common Ragwort.
- 8.1.2. The following methods of treatment may be used:
- Hand removal; or
 - Cutting on grass and wildflower meadow areas.
- 8.1.3. Advice on the methods of weed control is available from several sources, including DEFRA publications, notably 'The Weeds Act 1959' – guidance note on the methods that can be used to control harmful weeds (PB7 190).
- 8.1.4. Weed control to areas of hard standing shall be carried out twice per year or as required to maintain the area in a weed free condition.
- 8.1.5. Unightly dead weeds should be removed from areas of hard standing at the request of the Overseeing Organisation.
- 8.1.6. In areas of specimen tree, mulch mats will be used to suppress weeds.
- 8.1.7. In areas of woodland planting, application of mulch to suppress weeds may be used. Apply in spring before weed growth.

9 MAINTENANCE SCHEDULES

Table 9-1 – Monthly Programme of Works

OPERATION	MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Grass / Seeded Areas													
Amenity grass 4 cuts				✕		✕		✕		✕			
Wetland grass										X			
Visibility splays 40 3 cuts				✕	✕	✕	✕✕✕	✕✕	X	✕	X		
Wildflower grass (Year 1) 3 cuts									X	X	X		
Wildflower grass (Year 2 onwards) 1 cut										X			
Climbers													
Watering				✕	✕	✕	✕	✕	✕	✕	✕		
Tying in climbers to supporting mesh				✕		✕		✕		✕			
Hedges													
Hedges 1 cut													X
Litter													
All hard & soft landscaped areas, every week month or as required		X	✕	✕	✕	✕	✕	✕	✕	✕	✕	X	✕



Litter bin collection, every week <u>month</u> or as required	X	<u>X</u>	X	<u>X</u>	X	<u>X</u>	X	<u>X</u>	X	<u>X</u>	X	<u>X</u>
Inspections												
Hard & soft landscaped areas	X			X			X		X			
Quarterly inspections during 5 year defects period – Contractor and Landscape Architect	X			X			X			X		
Annual Landscape Inspection Report during 5 year defects period									X			
Weed Control												
Injurious & invasive weeds within soft and hard landscaped areas				X	X	X	X	X	X			
Weed control to grass and wildflower areas			X						X			
Hard landscaped areas			X						X			
Trees												
Inspection of all trees, guards, ties, mulch mats and stakes			X						X			
Deadwood removal, thinning and crown-lifting requirements	X										X	X
Remulch to a depth of 50mm			X						X			

Table 9-2 – Annual Programme of Works

Planting Type	Task	5 Years Maintenance Period				
		1	2	3	4	5
Specimen Trees	A - Check tree stakes and ties for tightness and overall condition. Adjust ties as required.		•	•	•	•
	B - Inspect mulch mats and pegs. Replace damaged Damaged items shall be replaced with mulch mats and pegs to match the originals. - original specifications. - biodegradable mulch mats and pegs shall be allowed to naturally decay at the end of the 5 year maintenance period	•	•	•		
Specimen Trees, Woodland Edge Mix, Scrub, Native Shrub	C – Firming – straighten any plants to an upright position that have been subject to frost heave or wind rock and re-firm the ground	•	•	•	•	•
	D – Prune as appropriate to encourage vigour and to remove dead, dying or diseased branches. Chip small arisings on site with material over 150mm diameter.	•		•		•
	D2 – Replace dead, dying or diseased trees, plants or shrubs in planting season following identification of loss.	•	•	•	•	•
	E – Hand pull all weeds from around the base of the trees to be removed to a radius of 500mm.	•	•	•	•	•

Planting Type	Task	5 Years Maintenance Period				
		1	2	3	4	5
	F – Re-mulch to a depth of 50mm.	•	•	•	•	•
	G - Regular watering according to Landscape Institute Technical Bulletin: Watering Restrictions and Watering Specification (May 1996) during the first two growing seasons (Apr-Oct) following planting, thereafter, watering as necessary in following years.	•	•	•	•	•
	H – Review and remove tree stakes, guards and ties in Year 3, 4 & 5; dispose off-site (recycle) and backfill holes with topsoil. If not ready for removal in Year 3, review in Years 4 and 5 as necessary – all tree stakes, guards and ties shall have been removed by end of year 5			•	•	•
Species Rich Grass mix, Grassed Swale & Grassed Pond Drainage (Exclude 2.5m wide verge from kerb line)	I - Cutting to according to table with Table 9-1	•	•	•	•	•
All	J - Monitor and remove coarse weeds by hand pulling	•	•	•	•	•
All	K - Landscape Inspection	•	•	•	•	•



Kings Orchard
1 Queen Street
Bristol
BS2 0HQ

wsp.com

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