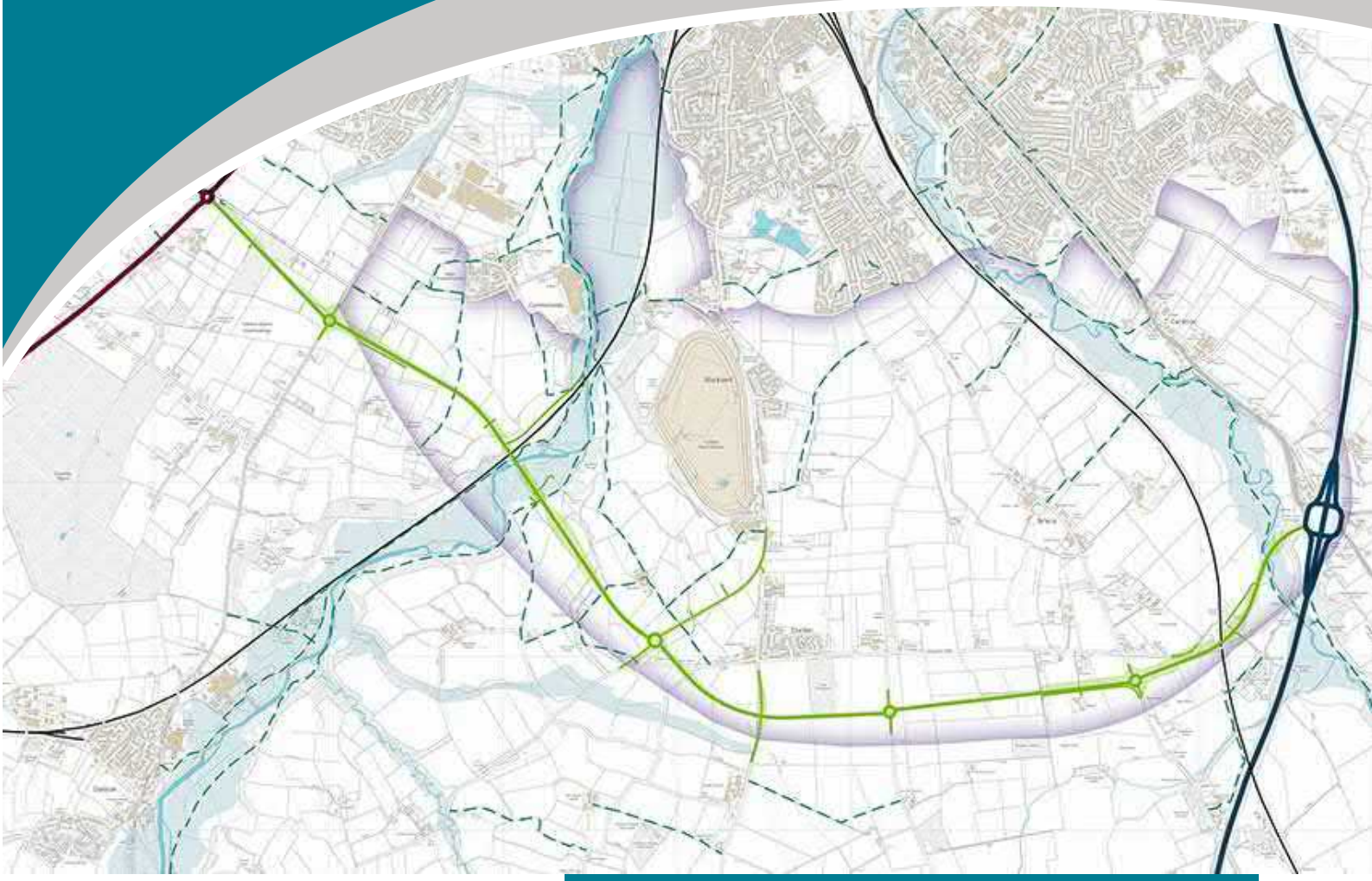
Carlisle Southern Link Road



Landscape Strategy

October 2019

Cumbria County Council

CAPITA

Quality Management

Job No	CS/092903		
Project	Carlisle Southern Link Road		
Location	Carlisle		
Title	Landscape Strategy		
Confidentiality	Commercial in Confidence		
Suitability	S4 – Issued For Planning		
Document Ref.	CSLR-CAP-ELS-00-RP-L-3001	Revision	P01
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Revision Status / History

Revision	Date	Purpose	Prepared	Checked	Approved
P01	2019-10-04	S4 Issued for Planning	RP	JG	WR

1. Introduction

This document has been produced to provide additional information on the design rationale behind the landscape design for the Carlisle Southern Link Road (CSLR). It is to be read in conjunction with the Landscape Plans CSLR-CAP-ELS-00-DR-L-3101 to 3103, Mitigation Plans CSLR-CAP-EGN-00-DR-L-3001 to 3003 and the Mitigation Schedule CSLR-CAP-EGN-00-SH-V-0001.

Overall, the proposed landscape design has been informed by the findings of the Environmental Impact Assessment (EIA) and, in particular, has been designed in response to the existing landscape character and ecological strengths of the site and the local environment.

In addition to mitigating the environmental effects of the scheme and providing opportunities for further enhancement, the proposals aim to provide Environmental Net Gain, in accordance with the Government's 25 Year Plan: "A Green Future: Our 25 Year Plan to Improve the Environment."

The following section of this document, *"Design Rationale"*, will aim to summarise the decision making process for the landscape design. This information will be in accordance with the Pre-Planning Application Advice note, from the County Council Development Control team, dated 15th April 2019. For each local area of the proposed development, the following information will be provided:

- ***Key landscape opportunities and constraints*** **–** to define the key landscape opportunities and constraints in relation to the scheme;
- ***How the EIA has informed the landscape design*** **–** to explain how the Landscape and Visual Impact Assessment (LVIA) and ecological baseline information (species surveys and flora) has informed and shaped the proposed Landscape Plans, providing detail of planting types and mixes;
- ***Landscape design description and explanation*** **–** to set out the reasons why certain landscaping treatments (soft and hard) have been put forward;
- ***Creating a sense of place*** – to explain how landscaping treatments have been designed to create distinctive identities along different parts of the route (highlighting connections with the St Cuthbert Garden Village proposals).

The third section of this document, *"Planting Types",* provides further detail on proposed planting mixes, species and specification, to provide additional detail.

2. Design rationale

To aid navigation along the length of the Scheme, this section begins by setting out general design principles that have been applied throughout the whole Scheme, followed by sections that been divided into geographic areas.

There is a reference to the landscape character areas identified during the landscape impact assessment, which are shown on drawing no. CSLR-CAP-EGN-00-DR-Z-0067. For further details of these character areas, refer to the Landscape Baseline Descriptions and Photography document CSLR-CAP-ELS-00-RP-L-0001. This document highlights the "Key Strengths" of each of the landscape character areas, which have been influenced the landscape design process.

As well as celebrating the existing character of the landscape, the landscape design proposals maximise an opportunity to create an enhanced sense of place that can be linked to the subsequent St Cuthbert's Garden Village development.

2.1. General Design Principles

Throughout the scheme, general design principles have been applied. This section will explain the reasoning behind the approaches used.

Within visibility splays, the landscape design ensures that there will be no obstructions. Predominantly, in vegetated areas, an amenity grass seed mix has been specified (LE1.1) due to its suitability for roadside verges. This mix will be tolerant of road salts and aid with the prevention of soil erosion as it establishes quickly and helps to bind soils. It will also tolerate the high frequency cutting regime that will be required within the visibility splays.

To provide sustainable management of surface water, the highway design incorporates swales alongside the carriageway. The grass species used within these swales will also need to be tolerant of pollution and road salts. These areas will also need to be maintained to a sward height of 75mm to 150mm.

Where tree planting is proposed along the edge of the carriageway, this has been offset by a minimum of 5m for standard tree sizes and 7.5m for semi-mature tree planting. This is in accordance with Design Manual for Roads and Bridges (DMRB) HA56/92 The Good Roads Guide New Roads Planting, Vegetation and Soils.

Where possible, slopes have been graded out to a 1:10 gradient and the hedgerows have been proposed as close to the carriageway as is practical. This was designed to:

1) to minimise the impacts of the road corridor on a landscape where narrow, rural roads are an important landscape characteristic
2) to return more land back to agricultural use
3) to design the earthworks sensitively within the natural topography.

Trees planting has been avoided within a 30m offset from overhead cables to avoid conflicts and ongoing maintenance issues.

Wherever practical, a 3m width area has been left clear to enable access around hedgerows for trimming and maintenance of planting. These unobstructed access routes have also been allowed at the bottom of the slope of embankments, to allow for vehicles to access the drains along here for maintenance.

Design of proposed Sustainable Drainage Systems (SuDS) within the Scheme includes attenuation ponds which will retain water from surface run off from the new highway and cater for stormwater events. These have been designed in accordance with the CIRIA SuDS Manual, 2015. These areas have been designed to have multifunctional benefits, from providing water attenuation, capturing and removing pollutants from the water system, providing varied habitats and food sources for wildlife and in some areas, providing recreational and educational benefits for people. In accordance with the SuDS Manual, the slopes of the ponds have been designed to be a maximum gradient of 1:3, with level areas, or “safety benches” at regular points. The planting around the areas of standing water have been chosen to retain good visibility for safety reasons. Fencing close to the pond edges has also been avoided for this reason. Planting has also been designed to suit the various depths of permanent water and provide a range of habitat types. For further details of the SuDS ponds refer to the Drainage Impact Assessment report (CSLR-CAP-HDG-00-RP-D-0520).

The design of the various proposed bridges across the Scheme has been considered to mitigate the impact of the introduction of large urban features into a predominantly rural landscape. This has significant effects on both the landscape character and visual amenity of an area, so sensitive design plays a large part in being able to reduce the adversity of these effects.

The bridges have been designed to have a slender form and open spans. Within the Caldew Valley, maintaining a visual connection was an important perceptual quality for users of the PROW alongside the River Caldew.

Locally sourced, sandstone masonry cladding has been proposed for the substructures of the bridges to ensure that the designs respond to the local vernacular of the area and create a sense of local distinctiveness and identity. The use of sandstone and weathering steel also help to ensure that the bridges are less visually prominent in the landscape, as the muted colour palette will reduce the dominance of these features.

Good design and use of quality materials for these new structures also help to establish a sense of local pride in these areas and celebrate some of the key characteristics of the landscape.

For more information on bridge designs, refer to the Bridge Design Details Report CSLR-CAP-SBR-00-RP-S-0002.

2.2. Newby West to Dalston Road

*(**Landscape Character Areas**: "Sub-urban Carlisle Urban fringe transport corridor and mixed residential" and "Carlisle urban fringe: lowland ridge and valley farmland and transport corridor")*

2.2.1. Key landscape opportunities and constraints

Opportunities:

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.
- To reference the historic importance of the old Roman Road (approximately following the route of the A595) interconnecting Carlisle with the Roman forts of Old Carlisle and Papcastle.
- To reference the local landscape features, such as blocks coniferous and broadleaf plantation woodland.
- To reference local traditional materials, such as sandstone and traditional red brick.
- To provide a gateway into Carlisle by providing further enhancement of the Newby West roundabout.
- To provide enhancement features to benefit both wildlife and the increasing numbers of residents and commuters within this area, particularly around the proposed SuDS drainage ponds.

Constraints:

- The need for steep embankments to the overbridge does not compliment the natural, open gently sloping topography.
- The large Newby West roundabout has a number of existing underground services which does not allow for the planting of large tree species.

2.2.2. How the EIA has informed the landscape design

Ecological surveys have identified the presence of Barn Owls at Kingrigg. The proposed road increases the risk of traffic collisions for the barn owl population, therefore mitigation measures of semi-mature trees at 5m spacings have been proposed in strategic locations to help to lift the flight path of the birds over the traffic.

An otter population has also been found around Fairy Beck. Therefore, as mitigation for the disturbance to this population, the beck has been diverted through a new area of broadleaf woodland and into the area of mixed woodland around drainage pond A. Here, creation of otter holts has been proposed as further enhancement measures to encourage the population to settle into this area.

The EIA surveys also identified hedgerows with "High to Very High Ecologically Value" that would be lost during the construction of the Scheme. As mitigation for this, these hedgerows have been proposed to be translocated to location indicated on the Mitigation Plan.

2.2.3. Landscape design description and explanation

The proposed design of Newby West roundabout has considered the local landscape character and cultural heritage. Local materials, such as sandstone walling and traditional brick have been proposed as sculptural features. The linear form of these reference the historic Roman Road (approximately following the route of the A595) interconnecting Carlisle with the Roman forts of Old Carlisle and Papcastle. Further enhancement could include working with an artist to develop this narrative and create a contemporary sculpture using weathering steel, or similar material, which complements the colour palette and the design of the overbridge behind. Ornamental shrub, grasses and perennials have been proposed to the centre of the roundabout, with ornamental meadow mixes to the north west and south east, as well as the south-west facing embankments of the overbridge. The proposed planting style here will provide interest through seasonal change, colour, texture and form in a naturalistic style. The objective of this roundabout is to provide a key gateway to the city of Carlisle, therefore, using more ornamental species has been proposed to ensure a prolonged season of interest.

The Newby West drainage pond (Pond A) has been designed to increase amenity value and biodiversity due the proximity of residential development and land allocations. A circular, informal resin bonded path has been designed around this pond with durable timber seating, timber information boards and an area of timber terraced seating overlooking the drainage pond. Felled timber could be used to create some of the timber seating as well as informal natural play interventions, such as stepping logs. Timber cycle stands have also been proposed to cater for passing cyclists using both existing routes and the new multiuser paths along the link road. The proposed furniture will be chosen to complement the natural surroundings and create a sense of identity through a limited palette of materials.

To the south of the proposed road in this area, it was identified during the arboricultural impact assessment that due to the density and maturity of the existing plantation woodland, the risk of windfalls from the exposed edge would be reduced if the trees were felled approximately a 25metre offset from the northern edge in a scalloped edge and replanted. The remaining northern area of plantation woodland has been acquired as part of this Scheme to enable the decontamination of the land within this woodland. Therefore, clear felling was proposed and replanting of the area with mixed native woodland and understorey shrub planting to provide diverse habitat for wildlife. This planting has been extended around proposed Ponds A and B.

Pond B, at Dalston Road pond has been designed to echo the materials and style of Pond A and retain amenity value.

To the west of Pond B, to break up the areas of species rich grassland on the cutting slope to the north, native shrub planting and individual trees have been proposed to the slopes. Areas of mixed bulbs and perennials are also introduced on the deeper cuttings towards the Caldew valley, to provide seasonal interest and change.

2.2.4. Creating a sense of place

This section of the scheme has been planted with more mixed woodland that any other, with woodland mixes containing Scots Pine and European Larch. This will create a

distinctive character within this landscape, complimenting the blocks of plantation woodland that are a key characteristic of the existing landscape here.

The creation of two areas of publicly accessible green space within this section of the Scheme has provided further opportunities to create a sense of place. The proposed material palette within these spaces has also been limited to natural materials, such as sandstone and timber, to retain rural qualities. By introducing areas of seating, cycle stands and informal footpaths, these new spaces provide opportunities for people to make short cycle journeys or walks from the proposed residential developments and St Cuthbert's Garden Village.

Alongside the main carriageway, the landscape character surveys identified that the typical boundary treatment throughout this landscape is hedgerows with hedgerow trees, therefore this characteristic has been proposed wherever possible. Within this section of the scheme, a two hedgerow species mixes will be used; one for alongside cycleways containing thornless native species (Le4.2c and LE4.4c) and another more typical species rich native hedgerow (LE4.2a and LE4.4a). For this group of hedgerows, a different species mix has been proposed for hedgerows to the west of the Caldew Valley to those to the east of the Scheme, to create some sense of local distinctiveness and reflect the species noted in the hedgerow surveys.

The Newby West roundabout has been designed to celebrate this gateway into Carlisle with a more colourful and ornamental mix of planting design and hard landscape features such as local sandstone walling. There is further potential for artwork and sculpture to enhance this area, referencing the historic importance of the old Roman Road interconnecting Carlisle with the Roman forts of Old Carlisle and Papcastle. This roundabout design will be noticeably distinctive from the adjacent roundabouts on this route. On the A689, the nearest roundabout is simple in design, planted with a central area of shrub and willow with amenity grass to the edge. The proposed Cummersdale Roundabout (which is also simple in design, with a circular local sandstone wall and broadleaf woodland planting to the centre and amenity grass to the edge.

2.3. Cummersdale Roundabout to Caldew Valley

*(**Landscape Character Areas**: "Gently rolling lowland ridge and valley farmland and industrial Cummersdale" and "Caldew river valley green corridor, mill and print works")*

2.3.1. Key landscape opportunities and constraints

<u>Opportunities:</u>

- To retain rectilinear field patterns wherever possible.
- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.
- To provide additional areas of broadleaf woodland with ecological benefits as well as visual screening from Cummersdale.
- To return maximum land use of slopes back to agricultural use and integrate these better into the natural topography, consequently reducing the overall width of the road corridor.

Constraints:

- Loss of numerous sections of existing hedgerows and hedgerow trees.

2.3.2. How the EIA has informed the landscape design

To minimise the effects on landscape character, mitigation has been introduced to minimise impacts on natural topography, hedgerows and hedgerow trees. The Cummersdale Roundabout design has been considered to reflect local landscape character.

To minimise the visual impact for residents at Cummersdale, a woodland block has been introduced to visually screen Cummersdale roundabout. In addition to this, a false cutting and hedgerow planting has been proposed to visually screen the road and partially screen traffic from Cummersdale. Grading out slopes also mitigates the impact of the new road within the natural landscape.

The EIA surveys also identified hedgerows with “High to Very High Ecologically Value” that would be lost during the construction of the Scheme. As mitigation for this, these hedgerows have been proposed to be translocated to location indicated on the Mitigation Plan.

2.3.3. Landscape design description and explanation

The Cummersdale Roundabout has been designed to be modest and reflect the local rural characteristics of the area and, over time, reduce the perceived width of the roundabout by using broadleaf woodland planting to create a visual screen. The sandstone wall would reference this typical boundary type within the townscape of Cummersdale and the circular form of this would be contrasting with the adjacent roundabouts along the route.

The design of the length of road between Cummersdale Roundabout and the Caldew valley is simplistic with new hedgerows with hedgerow trees planted as close to the carriageway as possible and species rich grassland to much of the cutting slopes to the north. Wherever possible, the slopes away from the carriageway have been graded out to 1:10 to allow them to be returned to agricultural land. This was considered important in this gently rolling landscape where the natural topography is a key characteristic. To break up the large cuttings and to add interest, native shrub planting and individual trees have been proposed to the slopes. Areas of mixed bulbs and perennials are also introduced on the deeper cuttings towards the Caldew valley, to provide seasonal interest and change.

At the junction of the link road and the multiuser path to the Caldew valley, the landscape design has been considered to provide reference to the cultural value of the Caldew valley “green corridor”, which already features a well-used footpath/ cycleway. A bespoke enhanced feature has been proposed for this junction, referencing the rich history of the Cummersdale mills. The design proposes use of locally found materials, such as sandstone walling, complemented by laser cut weathering steel (or similar) contemporary

artwork feature and ornamental shrub, perennial and grass planting that offers similar qualities to the natural vegetation found in this valley.

2.3.4. Creating a sense of place

To reinforce the sense of place on the threshold of these two landscape character areas, the history of the Caldew Valley has been proposed to be referenced through artwork and design.

A simple landscape design proposal through this area of the scheme has been proposed to reflect some of the key characteristics of this rural landscape. To reinforce one of the key characteristics of this landscape, hedgerows with hedgerow trees have been proposed throughout the majority of this section of the Scheme. Within this section of the scheme, a two hedgerow species mixes will be used; one for alongside cycleways containing thornless native species (Le4.2c and LE4.4c) and another more typical species rich native hedgerow (LE4.2a and LE4.4a). For this group of hedgerows, a different species mix has been proposed for hedgerows to the west of the Caldew Valley to those to the east of the Scheme, to create some sense of local distinctiveness and reflect the species noted in the hedgerow surveys.

2.4. Caldew Valley

*(**Landscape Character Areas**: "Caldew river valley green corridor, mill and print works.")*

2.4.1. Key landscape opportunities and constraints

<u>Opportunities:</u>

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.
- To celebrate historic features within this valley through interpretation material or an artwork strategy, including: mills, station, rifle range, mill races.
- To celebrate the ecological diversity within the valley through interpretation material or an artwork strategy.
- To improve amenity value within this green corridor.

<u>Constraints:</u>

- Restrictions from Natural England on planting the river floodplain with a preference for natural regeneration of vegetation following completion of the scheme.

2.4.2. How the EIA has informed the landscape design

On the western side of the valley, proposed scrub planting will help to integrate the new engineered slopes better into the surrounding valley sides and will mitigate effects on landscape character and nature conservation.

Within the valley floor and on the eastern side of the valley, the EIA has identified various environmental impacts created by the Caldew Bridge and embankments in this location. The landscape design has been heavily influenced by the need to mitigate these effects through planting design. Firstly, the embankment slopes have been proposed to be planted with broadleaf woodland mix to help to visually screen these steep, engineered

slopes and better integrate them within the existing adjacent broadleaf woodland around the tributaries and valley sides to the east. Further planting of scrub and scattered trees around the base of this will help to reduce impacts on landscape character, visual impact, and water environment.

The ecological surveys identified an area of woodland to the west of Peastree Farm that had particularly rare and diverse ground flora, which has characteristics of Ancient Woodland. Adjacent to this, an area of less dense, “High Forest” woodland planting was proposed to allow for translocation of the ground flora in this area, with little competition from a shrub understorey layer.

2.4.3. Landscape design description and explanation

To the west of the valley, the engineered slopes around the new multi-user path have been proposed to be planted with native scrub to better integrate these within the valley side. Species rich hedgerows with hedgerow trees have also been proposed here to provide connectivity for wildlife and help visually screen the new 3m wide path and slopes.

Access to the Caldew Valley northern drainage pond (Pond C) has been provided by an informal path and timber seating provided to increase amenity value. Information boards relating to the wildlife in the valley as well as the history of adjacent Cummersdale Station, it’s links with Cummersdale’s mills and industrial past, as well as the old mill pond and mill race itself. Planting has been designed to provide a rich diversity of habitats whilst retaining open views over the pond itself.

Caldew Valley southern drainage pond (Pond D) – the PROW on the east of the River Caldew is less frequently used that the PROW on the west, however, the existing PROW will be diverted around the bridge pier and embankment as part of this scheme. Therefore, recreational use has been considered with simple design interventions using natural materials, such as timber seating and information boards explaining about the ecological importance of the River Caldew. To add interest to this route and provide users with an increased connection with the water, an area of boardwalk has been proposed as part of the diversion of the PROW. Information boards on the functionality of the Sustainable Drainage Systems (SuDS) used throughout the scheme could also be included here. Future enhancement, as part of the St Cuthberts Garden Village scheme could provide further enhancement to this area if population and usage of this as a recreational space is likely to increase.

Planting and seeding has been restricted to areas outside of the river floodplain here, with a preference to let this area naturally regenerate.

Outside of the river floodplain, areas of scrub and scattered trees have been planted to help screen the base of the large embankment for the Caldew Bridge crossing, as well as broadleaf woodland planting on the embankment itself. The SuDS pond to the south of the embankment has been planted and seeded with grassland species, native scrub, individual trees and various aquatic species to provide a rich range of habitats and an open character to the pond.

2.4.4. Creating a sense of place

To mitigate the effects on the perceptual qualities of this landscape and to reinforce the key characteristics of this landscape, an artwork strategy has been proposed to celebrate the rich cultural and ecological diversity of this area. As illustrated in the appendix, this could include interpretations of the historic print works and textile mill, as well as referencing the rifle range and historic maps of the area.

Further enhancement has been suggested through the creation of areas of publicly accessible spaces around the drainage ponds. The proposed material palette within these spaces has also been limited to natural materials, such as sandstone and timber and natural stone boulders, to enhance the characteristics of this river corridor.

To the north-west of the valley, a denser scrub mix has been proposed to reflect the existing vegetation cover in this area and to help visually screen and integrate the engineered slopes of the Caldew Bridge embankments here.

In contrast, the south-eastern side of the valley has been proposed with a native broadleaf woodland planting mix, which will continue within the deep cuttings to the south-east. Over time, this will create a range of varied landscape types that reflect the local changes in vegetation cover in the natural landscape.

2.5. Durdar Roundabout and spur roads

*(**Landscape Character Areas**: "Sub-urban Carlisle: Busy linear settlements, racecourse and irregular field patterns.")*

2.5.1. Key landscape opportunities and constraints

Opportunities:

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.
- To provide reference to the local landscape character through the design of "gateway locations", including Durdar roundabout.

Constraints:

- Deep cuttings required between the Caldew Bridge crossing and Durdar Roundabout which, due to depth, are not able to be graded out to tie into the natural topography.
- Alignment of the road corridor resulting in severed field patterns.
- Positioning of existing electricity pylons and overhead wires restricts the grading out of some slopes and restricts tree planting in this locality.

2.5.2. How the EIA has informed the landscape design

Impacts on landscape character here include damage to natural topography, damage to field patterns, loss of hedgerows and hedgerow trees, damage to tranquillity and overall increased urban qualities. To mitigate some of these impacts, woodland planting has been proposed to try to re-establish the "field pattern" around Durdar roundabout, with benefits of providing visual screening of this new, urban feature. Proposed hedgerows and hedgerow trees along this route have also been proposed to mitigate loss of these features within the landscape.

Impacts on agricultural land use included severance of fields and reduction in productivity as a result. Therefore, as mitigation for these impacts particular hedgerows have been shown to be removed to maximise field sizes.

The EIA surveys also identified hedgerows with "High to Very High Ecologically Value" that would be lost during the construction of the Scheme. As mitigation for this, these hedgerows have been proposed to be translocated to locations indicated on the Mitigation Plans.

2.5.3. Landscape design description and explanation

To the west of this section of the scheme, the steep cuttings have been proposed to be planted with native broadleaf woodland to create a landscape feature that is more typical of this landscape and provide better connectivity with the wooded tributaries to the east of the Caldew valley. Where feasible, earthworks have been graded out into the existing topography and returned to agricultural land use, allowing for hedgerows to be positioned closer to the edge of the carriageway to create a narrower road corridor.

A simple design approach has been taken for the link between Durdar roundabout and the new junction at Floshes, to respond to the typical characteristics of this landscape.

The section of road between the proposed Durdar roundabout is in deep cutting with steeper slopes, which are proposed to be seeded to create a species rich grassland with swathes of native bulb and perennial planting to provide seasonal variation. Closer to Durdar Bridge, earthworks can be graded out to the north of the link road to return more land to agricultural use and avoid steep engineered slopes.

2.5.4. Creating a sense of place

A simple design approach has been taken for the link between Durdar roundabout and the new junction at Floshes, to respond to the typical characteristics of this landscape.

To mitigate the impacts on local landscape character, the design of Durdar roundabout references the irregular pattern of hedgerow field boundaries and hedgerow trees, with semi mature oak trees to provide reference to the hedgerow trees in this area which are a key characteristic of this landscape. Within this section of the scheme, a two hedgerow species mixes will be used; one for alongside cycleways containing thornless native species (Le4.2c and LE4.4c) and another more typical species rich native hedgerow (LE4.2b and LE4.4b). For this group of hedgerows, a different species mix has been proposed for hedgerows to the east of the Caldew Valley to those to the west of the Scheme, to create some sense of local distinctiveness and reflect the species noted in the hedgerow surveys.

Naturalistic, ornamental meadow planting emphasises the rural qualities of this landscape but provides a longer lasting period of seasonal interest.

As a further enhancement reference could be made to Carlisle Racecourse, with a delicate yet prominent sculpture of a horse. Further development of the narrative with an artist would be most beneficial for the success of this feature. As demonstrated within the images included within the appendix, materials and form of this sculpture should be carefully considered within the rural setting.

As with the proposals for the other sections of the Scheme, the design of Durdar Roundabout has been considered to ensure that it will be complimentary of the St Cuthbert's Garden Village proposals and has been presented at the Enhancements Workshop with Carlisle City Council and Cumbria County Council on 30th July 2019. This roundabout will be locally distinctive and contrast the adjacent Cummersdale and Redcat Roundabouts, which are both planted with areas of broadleaf woodland.

2.6. Durdar Roundabout to Redcat Roundabout

*(**Landscape Character Areas**: "Sub-urban Carlisle: Busy linear settlements, racecourse and irregular field patterns.")*

2.6.1. Key landscape opportunities and constraints

Opportunities:

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.
- To provide some level of visual screening of Durdar Bridge and associated earthworks.

Constraints:

- The curved alignment of the new Durdar Bridge not typical of the linear road network and landscape pattern.
- Positioning of existing electricity pylons and overhead wires restricts the grading out of some slopes and restricts tree planting in this locality.

2.6.2. How the EIA has informed the landscape design

Key characteristics identified within the landscape character area include an open, flat landscape, hedgerow boundaries with hedgerow trees and rectilinear field patterns. As a result, the landscape has been designed to reflect these characteristics to minimise the effects on this landscape.

To minimise the loss of Important Hedgerows, an existing hedgerow boundary has been retained to the north of the link road here and the slopes have been proposed to be seeded with species rich grassland and planted with individual trees.

2.6.3. Landscape design description and explanation

The landscape design here is simple, with hedgerow boundaries with hedgerow trees proposed close to the carriageway edge and as much land returned to agricultural use as much as possible.

2.6.4. Creating a sense of place

Redcat Roundabout has been designed to be simple in appearance, with a central area of broadleaf woodland to minimise the overall perceived width of this urban feature and to reinforce a sense of place in this location. This design also provides contrast with the two roundabouts to the east and west, which comparatively more formal in design to ensure that it is locally distinct.

Within this section of the scheme, a two hedgerow species mixes will be used; one for alongside cycleways containing thornless native species (Le4.2c and LE4.4c) and another more typical species rich native hedgerow (LE4.2b and LE4.4b). For this group of hedgerows, a different species mix has been proposed for hedgerows to the east of the Caldew Valley to those to the west of the Scheme, to create some sense of local distinctiveness and reflect the species noted in the hedgerow surveys.

2.7. Redcat Roundabout to Brisco Roundabout

*(**Landscape Character Areas**: "Sub-urban Carlisle: Busy linear settlements, racecourse and irregular field patterns.")*

2.7.1. Key landscape opportunities and constraints

Opportunities:

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.

Constraints:

- Large noise bunds and earthworks around overbridges create uncharacteristic features within the landscape that are difficult to mitigate in this relatively flat, open landscape.

2.7.2. How the EIA has informed the landscape design

Ecological surveys have identified the presence of Barn Owls at the Piggery. The proposed road and roundabout here increases the risk of traffic collisions for the barn owl population, therefore mitigation measures of semi-mature trees at 5m spacings have been proposed in strategic locations to help to lift the flight path of the birds over the traffic.

Rectilinear woodland blocks are a typical feature within this landscape and therefore, woodland planting has been proposed to help to "soften" the appearance of the engineered slopes around Brisco roundabout.

2.7.3. Landscape design description and explanation

To the west of this section, a simple design approach has been proposed with hedgerow boundaries and hedgerow trees providing as narrow a road corridor as is feasible. Where land is severed, woodland planting has been proposed to try to improve green infrastructure and connectivity. Closer to Brisco Roundabout, larger blocks of woodland planting have been proposed around the earthworks. The semi mature trees proposed for Barn Owl mitigation have been set back 7.5m from the edge of the carriageway, with native shrub planting and amenity grassland has been proposed due to its suitability to be mown at a high frequency to avoid creating a habitat likely to support barn owl prey, such as voles, to aim to further decrease the risk of barn owl collision.

The design of the pond in this area focuses on creating an area to support a diverse range of wildlife, rather than the public, due to its location away from rights of way and residential areas. A combination of broadleaf woodland planting, aquatic planting, species rich grassland, native shrub and individual trees has been proposed here to provide a variety of habitats.

2.7.4. Creating a sense of place

At Brisco Roundabout, to mitigate the impacts of the Scheme on local landscape character and reinforce a sense of place, the design of this roundabout references the curved sandstone walls found at both Brisco Hall and Woodside Park, which are key features in this landscape. Semi – mature beech trees planted formally also reference this

key feature. The landform of this roundabout has been proposed to gently slope toward the north of the roundabout, to mirror the gently sloping topography. Naturalistic, ornamental meadow planting emphasises the rural qualities of this landscape but provides a longer lasting period of seasonal interest. Further enhancement could make reference to the agricultural heritage of Brisco and the surrounding landscape through use of a sculpture. An example of this could be a delicate sculpture of a limousine bull, which would also reference the use of the adjacent Cumberland Show field.

As with the proposals for the other sections of the Scheme, the design of Brisco Roundabout has been considered to ensure that it will be complimentary of the St Cuthbert's Garden Village proposals and has been presented at the Enhancements Workshop with Carlisle City Council and Cumbria County Council on 30th July 2019. This roundabout will be locally distinctive and contrast the adjacent Redcat Roundabout, which is planted with a central area of broadleaf woodland and is surrounded by a relatively open landscape, in contrast to the proposed, wooded embankments which will enclose the Brisco Roundabout. Within the Enhancements Workshop, this roundabout was noted to be a "gateway" to the Garden Village from the east, which is why a more formal design approach has been taken for this location.

2.8. Brisco Roundabout to West Coast Main Line (WCML)

*(**Landscape Character Areas**: "Agricultural Brisco and historic parkland.")*

2.8.1. Key landscape opportunities and constraints

Opportunities:

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.

Constraints:

- N/A

2.8.2. How the EIA has informed the landscape design

To mitigate the visual impact from Newbiggin Hall cottages, the embankments have been planted with broadleaf woodland to help visually screen both the engineered slopes and the road here.

The proposed semi mature trees used for barn owl mitigation extend around the eastern edges of Brisco Road to mitigate the risk of collisions around the new roundabout.

2.8.3. Landscape design description and explanation

The design of the SuDS pond in this section of the scheme focuses on creating an area to support a diverse range of wildlife, rather than the public, due to its location away from rights of way and residential areas. A combination of broadleaf woodland planting, aquatic planting, species rich grassland, native shrub and individual trees has been proposed here to provide a variety of habitats.

2.8.4. Creating a sense of place

There is limited opportunity within this section of the road, other than proposing features such as hedgerows boundaries with hedgerow trees that are typical within this landscape.

Within this section of the scheme, a two hedgerow species mixes will be used; one for alongside cycleways containing thornless native species (Le4.2c and LE4.4c) and another more typical species rich native hedgerow (LE4.2b and LE4.4b). For this group of hedgerows, a different species mix has been proposed for hedgerows to the east of the Caldew Valley to those to the west of the Scheme, to create some sense of local distinctiveness and reflect the species noted in the hedgerow surveys.

2.9. WCML to Junction 42

*(**Landscape Character Areas**: "Petteril river valley green wedge and transport corridor.")*

2.9.1. Key landscape opportunities and constraints

Opportunities:

- To provide better green infrastructure connectivity and quality through design of hedgerows, woodland and tree planting.

Constraints:

- N/A

2.9.2. How the EIA has informed the landscape design

The visual impact from Carleton has been mitigated by proposed woodland planting on the steel embankments of the Petteril Bridge crossing.

The loss of river bank trees has also been mitigated by planting new individual trees around the Petteril Bridge crossing.

2.9.3. Landscape design description and explanation

The areas to the west of the River Petteril and SuDS Pond G has been designed to increase amenity value and biodiversity, due the proximity of the riverside public right of way along the River Petteril and the introduction of a small car park on Newbiggin Road. A circular informal path has been designed around this pond with seating, information boards. The pond has been designed with slackened slopes (maximum 1:3) and varied depths to enable a range of planting and habitat types. Felled timber could be used to create some of the timber seating as well as informal natural play interventions, such as stepping logs. Timber cycle stands have also been proposed to cater for passing cyclists using both existing routes and the new multiuser paths along the link road.

The design of the most easterly SuDS pond within the scheme, Pond H, in this area focuses on creating an area to support a diverse range of wildlife, rather than the public, due to its location away from rights of way and residential areas. A combination of broadleaf woodland planting, aquatic planting, species rich grassland, native shrub and individual trees has been proposed here to provide a variety of habitats.

2.9.4. Creating a sense of place

The creation of a publicly accessible green space around the SuDS pond to the west of the River Petteril has provided further opportunities to create a sense of place. The proposed material palette within these spaces has been limited to natural materials, such as sandstone and timber, to retain rural qualities. There are further opportunities for enhancement along the River Petteril PROW to provide further interpretation boards relating to the local ecology of the area, including the otter population at the River Petteril.

The embankments required for the Petteril Bridge close to Junction 42 of the M6 have been proposed to be planted with broadleaf woodland, which as this establishes will relate more to the areas of wooded valley sides on the opposite side of the M6 at Newbiggin Woods, which is a key strength of this landscape character area.

Within this section of the scheme, a two hedgerow species mixes will be used; one for alongside cycleways containing thornless native species (Le4.2c and LE4.4c) and another more typical species rich native hedgerow (LE4.2b and LE4.4b). For this group of hedgerows, a different species mix has been proposed for hedgerows to the east of the Caldew Valley to those to the west of the Scheme, to create some sense of local distinctiveness and reflect the species noted in the hedgerow surveys.

3. Planting types

This section includes the planting schedules proposed for the Scheme, including details of species and specification.

LE1.1 Verge and Embankment Grass Seed

This seed mix has been specified predominately within visibility splays close to the carriageway edge. It is designed to be tolerant of pollution and road salts and a high frequency cutting regime.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
35g/m2	40	Grassland Perennial	Dipper Strong Creeping Red Fescue	*(Festuca rubra rubra)*	Seed
	20	Grassland Perennial	Tetris Smooth Stalked Meadow Grass	*(Poa pratensis)*	Seed
	22.5	Grassland Perennial	Perennial Ryegrass	*(Lolium perenne)*	Seed
	10	Grassland Perennial	Chewings Fescue	*(Festuca Rubra Commutata)*	Seed
	5	Grassland Perennial	Highland Browntop Bentgrass	*(Agrostis castellana)*	Seed
	2.5	Grassland Perennial	Small Leaved White Clover	*(Trifolium repens)*	Seed

LE1.15 Agricultural Reinstatement Grass Seed

This seed mix is to be sown on areas of earthworks that are to be returned for agricultural land use.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
8g/m2	67	Grassland Perennial	Perennial Ryegrass	*(Lolium perenne)*	Seed
	20	Grassland Perennial	Hybrid Ryegrass	*(Lolium x boucheanum)*	Seed
	6.5	Grassland Perennial	Small Leaved White Clover	*(Trifolium repens)*	Seed
	6.5	Grassland Perennial	Timothy Grass	*(Phleum pratense)*	Seed

LE1.2 Native Bulb and Perennial Mix

This mix of native bulbs and perennials to use intermittent ally on cutting slopes to provide seasonal variation along the route.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
15/m2	15	Bulb	Daffodil	*Narcissus narcissi*	Bulb
15/m2	15	Bulb	Bluebell	*Hyacinthoides non-scripta*	Bulb
20/m2	15	Bulb	Snowdrop	*Galanthus nivalis*	Bulb
20/m2	15	Bulb	Primrose	*Primula vulgaris*	Bulb
5/m2	10	Perennial	Foxglove	*Digitalis purpurea*	Plug
5/m2	5	Perennial	Meadow crane's-bill	*Geranium pratense*	Plug
5/m2	10	Perennial	Shuttlecock Fern	*Matteuccia struthiopteris*	Plug
5/m2	10	Perennial	Large male fern	*Dryopteris filix-mas*	Plug
5/m2	5	Perennial	Hart's tongue fern	*Asplenium scolopendrium*	Plug

LE1.31 Species Rich Grassland: Meadow Grass Seed

Throughout the scheme, five different species rich grassland mixes have been proposed for different areas or microclimates. This meadow grass seed mix contains a wide range of species compared to the grass seed for the visibility splays and will provide greater ecological value. This mixture also contains some wildflower species meaning it supports a wider range of pollinators, as well as being a great habitat for various invertebrates, birds and mammals.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
5g/m2	0.5	Grassland Perennial	Agrimony	*(Agrimonia eupatorium)*	Seed
	0.2	Grassland Perennial	Autumn Hawkbit	*(Leontodon autumnalis)*	Seed
	0.5	Grassland Perennial	Birdsfoot Trefoil	*(Lotus corniculatus)*	Seed
	0.25	Grassland Perennial	Browntop Bent	*(Agrostis capillaris)*	Seed
	0.5	Grassland Perennial	Bulbous Buttercup	*(Ranunculus bulbosus)*	Seed
	0.25	Grassland Perennial	Common Knapweed	*(Centaurea nigra)*	Seed
	25	Grassland Perennial	Crested Dogstail	*(Cynosurus Cristatus)*	Seed
	5	Grassland Perennial	Golden Oat Grass	*(Trisetum flavescens)*	Seed
	1.6	Grassland Perennial	Lady's Bedstraw	*(Galium verum)*	Seed
	1.5	Grassland Perennial	Meadow Buttercup	*(Ranunculus acris)*	Seed
	5	Grassland Perennial	Meadow Fescue	*(Festuca pratensis)*	Seed
	1	Grassland Perennial	Meadow Sweet	*(Filipendula ulmaria)*	Seed
	1	Grassland Perennial	Oxeye Daisy	*(Leucanthemum vulgare)*	Seed
	2	Grassland Perennial	Red Clover	*(Trifolium pratense)*	Seed
	3	Grassland Perennial	Ribwort Plantain	*(Plantago lanceolata)*	Seed
	0.2	Grassland Perennial	Rough Hawksbit	*(Leontodon hispidus)*	Seed
	1	Grassland Perennial	Salad Burnet	*(Sanguisorba minor)*	Seed
	1	Grassland Perennial	Self Heal	*(Prunella vulgaris)*	Seed
	6.5	Grassland Perennial	Sheeps Fescue	*(Festuca ovina)*	Seed
	30	Grassland Perennial	Slender Creeping Red Fescue	*(Festuca rubra litoralis)*	Seed
	1	Grassland Perennial	Sweet Vernal Grass	*(Anthoxanthum odoratum)*	Seed
	5	Grassland Perennial	Teno	*(Phleum bertolonii)*	Seed
	2	Grassland Perennial	White Clover	*(Trifolium repens)*	Seed
	1	Grassland Perennial	Yarrow	*(Achillea millefolium)*	Seed
	0.5	Grassland Perennial	Yellow Rattle	*(Rhinanthus minor)*	Seed

LE1.32 Species Rich Grassland: Hedgerows and Shaded Areas

This seed mix is to be sown within the hedgerow corridor either side of the hedge trench. These species are better suited for the shady microclimate that will be created by the establishing hedgerows and will provide a diverse mix of native species providing floral interest between April and September.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
5g/m2	0.2	Grassland Perennial	Betony	*(Stachys officinalis)*	Seed
	2	Grassland Perennial	Bluebell	*(Hyacinthoides non scripta)*	Seed
	0.2	Grassland Perennial	Bugle	*(Ajuga reptans)*	Seed
	1	Grassland Perennial	Corn Marigold	*(Chrysanthemum segetum)*	Seed
	1.8	Grassland Perennial	Corncockle	*(Agrostemma githago)*	Seed
	15	Grassland Perennial	Crested Dogstail	*(Cynosurus Cristatus)*	Seed
	0.1	Grassland Perennial	Foxglove	*(Digitalis purpurea)*	Seed
	0.8	Grassland Perennial	Garlic Mustard	*(Alliara petiolata)*	Seed
	0.2	Grassland Perennial	Greater Stitchwort	*(Stellaria holostea)*	Seed
	2	Grassland Perennial	Hedge Bedstraw	*(Galium mollugo)*	Seed
	0.5	Grassland Perennial	Hedge Parsley (Upright)	*(Torillis japonica)*	Seed
	0.2	Grassland Perennial	Lords & Ladies	*(Arum maculatum)*	Seed
	0.5	Grassland Perennial	Meadow Sweet	*(Filipendula ulmaria)*	Seed
	1	Grassland Perennial	Ragged Robin	*(Lychnis flos cuculi)*	Seed
	0.5	Grassland Perennial	Ransoms	*(Allium ursinum)*	Seed
	3	Grassland Perennial	Red Campion	*(Silene dioica)*	Seed
	25	Grassland Perennial	Slender Creeping Red Fescue	*(Festuca rubra litoralis)*	Seed
	10	Grassland Perennial	Strong Creeping Red Fescue	*(Festuca rubra rubra)*	Seed
	2	Grassland Perennial	Sweet Cicely	*(Myrrhis odorata)*	Seed
	25	Grassland Perennial	Tall Fescue	*(Festuca arundinacea)*	Seed
	2	Grassland Perennial	White Campion	*(Silene alba)*	Seed
	1	Grassland Perennial	Wood Avens	*(Geum urbanum)*	Seed
	5	Grassland Perennial	Wood Meadow Grass	*(Poa nemoralis)*	Seed
	1	Grassland Perennial	Wood Sage	*(Teucrium scorodonia)*	Seed

LE1.33 Species Rich Grassland: Woodland Grass and Wildflower Seed

This species rich mix is proposed to be sown within the various areas of proposed woodland planting to provide a more diverse ground flora that will provide additional benefit to wildlife in these areas.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
4g/m2	3	Grassland Perennial	Garlic Mustard	*Alliaria petiolata*	Seed
	0.8	Grassland Perennial	Ramsons	*Allium ursinum*	Seed
	1.6	Grassland Perennial	Betony	*Betonica officinalis - (Stachys officinalis)*	Seed
	1	Grassland Perennial	Rough Chervil	*Chaerophyllum temulum*	Seed
	0.2	Grassland Perennial	Foxglove	*Digitalis purpurea*	Seed
	2	Grassland Perennial	Meadowsweet	*Filipendula ulmaria*	Seed
	1	Grassland Perennial	Hedge Bedstraw	*Galium album - (Galium mollugo)*	Seed
	1	Grassland Perennial	Water Avens	*Geum rivale*	Seed
	0.2	Grassland Perennial	Wood Avens	*Geum urbanum*	Seed
	2.8	Grassland Perennial	Bluebell	*Hyacinthoides non-scripta*	Seed
	0.8	Grassland Perennial	Hairy St John's-wort	*Hypericum hirsutum*	Seed
	0.2	Grassland Perennial	Primrose	*Primula vulgaris*	Seed
	1.5	Grassland Perennial	Selfheal	*Prunella vulgaris*	Seed
	2.7	Grassland Perennial	Red Campion	*Silene dioica*	Seed
	0.2	Grassland Perennial	Ragged Robin	*Silene flos-cuculi - (Lychnis flos-cuculi)*	Seed
	1	Grassland Perennial	Wood Sage	*Teucrium scorodonia*	Seed
	10	Grassland Perennial	Common Bent	*Agrostis capillaris*	Seed
	2	Grassland Perennial	Sweet Vernal-grass (w)	*Anthoxanthum odoratum*	Seed
	7	Grassland Perennial	False Brome (w)	*Brachypodium sylvaticum*	Seed
	28	Grassland Perennial	Crested Dogstail	*Cynosurus cristatus*	Seed
	1	Grassland Perennial	Tufted Hair-grass (w)	*Deschampsia cespitosa*	Seed
	20	Grassland Perennial	Slender-creeping Red-fescue	*Festuca rubra*	Seed
	12	Grassland Perennial	Wood Meadow-grass	*Poa nemoralis*	Seed

LE1.34 Species Rich Grassland: Sandy Soils Grass and Wildflower Seed

This seed mix is to be sown amongst the areas of scrub planting on the western valley slopes of the Caldew, where the conditions are likely to be drier than elsewhere across the Scheme. These species are more drought tolerant and have stabilising properties. This will provide greater wildlife value within these areas that will support early pollinators and other invertebrates.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Form
5g/m2	1	Grassland Perennial	Birdsfoot Trefoil	*Lotus corniculatus*	Seed
	2.5	Grassland Perennial	Black Medick	*Medicago lupulina*	Seed
	25	Grassland Perennial	Crested Dogstail	*Cynosurus Cristatus*	Seed
	1	Grassland Perennial	Dark Mullen	*Verbascum nigrum*	Seed
	0.7	Grassland Perennial	Gorse	*Ulex europaeus*	Seed
	0.1	Grassland Perennial	Harebell	*Campanula rotundifolia*	Seed
	0.4	Grassland Perennial	Kidney Vetch	*Anthyllis vulneraria*	Seed
	3	Grassland Perennial	Lady's Bedstraw	*Galium verum*	Seed
	2.5	Grassland Perennial	Oxeye Daisy	*Leucanthemum vulgare*	Seed
	0.2	Grassland Perennial	Rough Hawkbit	*Leontodon hispidus*	Seed
	25	Grassland Perennial	Slender Creeping Red Fescue	*Festuca rubra litoralis*	Seed
	25	Grassland Perennial	Tall Fescue	*Festuca arundinacea*	Seed
	5	Grassland Perennial	Smaller Cat's Tail	*Phleum bertolonii*	Seed
	0.4	Grassland Perennial	Vipers Bugloss	*Echium vulgare*	Seed
	0.4	Grassland Perennial	Weld	*Reseda luteola*	Seed
	3	Grassland Perennial	White Campion	*Silene alba*	Seed
	1.8	Grassland Perennial	Wild Carrot	*Daucus carota*	Seed
	2	Grassland Perennial	Yarrow	*Achillea millefolium*	Seed
	1	Grassland Perennial	Yellow Rattle	*Rhinanthus minor*	Seed

LE2.6 Native Shrub

These native shrubs will provide good wildlife value and have been proposed to break up cuttings and embankments, as well as in swathes around some of the SuDS ponds to provide both areas of cover and a food resource for varies species of fauna. These will be planted on a 1m grid to provide dense cover once established.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
1 plants / m2	20	Native Planting: Shrub	Dogwood	*Cornus sanguinea*	40-60	BR	1+1 Transplant
	25	Native Planting: Shrub	Dog rose	*Rosa canina*	40-60	BR	1+1 Transplant
	15	Native Planting: Shrub	Field rose	*Rosa arvensis*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Blackthorn	*Prunus spinosa*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Holly	*Ilex aquifolium*	30-40	C	3L
	15	Native Planting: Shrub	Hazel	*Corylus avellana*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Goat willow	*Salix caprea*	40-60	BR	1+1 Transplant

LE2.11a Native Broadleaf Woodland: High Forest

(Note: LE1.33 to be sown over this area)

The broadleaf woodland has been proposed to be split into two different types for different functions. This “High Forest” mix has been proposed to provide areas of less dense woodland with an open understorey to allow for areas of ground flora from the affected area of adjacent woodland on the eastern side of the Caldew Valley to be translocated and establish with little competition. The High Forest is proposed on the more level areas between the top of the road cutting and the existing woodland. In accordance with DMRB Volume 10 Section 1 Part 2 HA 56/92 “The Good Roads Guide New Roads Planting, Vegetation and Soils”, trees here are to be planted on a 6 x 6m grid, which will provide approx.. 277 trees per ha. The maximum height these trees can reach before the first thinning is necessary is 20m.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
0.028/m2	3.5	Native Planting: Tree	English Oak	*Quercus robur*	150-175	BR	Feathered
	1	Native Planting: Tree	Sessile Oak	*Quercus petraea*	150-175	BR	Feathered
	2	Native Planting: Tree	Beech	*Fagus sylvatica*	150-175	BR	Feathered
	2	Native Planting: Tree	Silver Birch	*Betula pendula*	150-175	BR	Feathered
	1	Native Planting: Tree	Field Maple	*Acer campestre*	150-175	BR	Feathered
	1	Native Planting: Tree	Wild Cherry	*Prunus avium*	150-175	BR	Feathered
	1	Native Planting: Tree	Rowan	*Sorbus aucuparia*	150-175	BR	Feathered
	1	Native Planting: Tree	Crab Apple	*Malus sylvestris*	150-175	BR	Feathered
	25	Native Planting: Tree	English Oak	*Quercus robur*	60-80	BR	1+1 Transplant
	10	Native Planting: Tree	Sessile Oak	*Quercus petraea*	60-80	BR	1+1 Transplant
	20	Native Planting: Tree	Beech	*Fagus sylvatica*	60-80	BR	1+1 Transplant
	10	Native Planting: Tree	Silver Birch	*Betula pendula*	60-80	BR	1+1 Transplant
	2.5	Native Planting: Tree	Field Maple	*Acer campestre*	60-80	BR	1+1 Transplant
	10	Native Planting: Tree	Wild Cherry	*Prunus avium*	60-80	BR	1+1 Transplant
	5	Native Planting: Tree	Rowan	*Sorbus aucuparia*	60-80	BR	1+1 Transplant
	5	Native Planting: Tree	Crab Apple	*Malus sylvestris*	60-80	BR	1+1 Transplant

LE2.11b Native Broadleaf Woodland: Scrub Woodland

(Note: LE1.33 to be sown over this area)

The broadleaf woodland has been proposed to be split into two different types for different functions. This “Scrub Woodland” mix has been proposed to provide areas of woodland with a shrub understorey layer. This provides good visual screening qualities by avoiding clear stems once trees become more established. It also provides good habitat and a food source for wildlife. In accordance with DMRB Volume 10 Section 1 Part 2 HA 56/92 “The Good Roads Guide New Roads Planting, Vegetation and Soils”, plants here are to be planted on a 1.5 x 1.5m grid, at a ratio of 8 shrubs to 1 tree. This will provide approx. 493 trees per ha (at approx. 4.5m spacings) and 3951 shrubs (with 4444 plants overall). The maximum height these trees can reach before the first thinning is necessary is 15m.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
0.44 plants per m2	2.5	Native Planting: Tree	English Oak	*Quercus robur*	150-175	BR	Feathered
	1	Native Planting: Tree	Sessile Oak	*Quercus petraea*	150-175	BR	Feathered
	2	Native Planting: Tree	Beech	*Fagus sylvatica*	150-175	BR	Feathered
	2	Native Planting: Tree	Silver Birch	*Betula pendula*	150-175	BR	Feathered
	1	Native Planting: Tree	Field Maple	*Acer campestre*	150-175	BR	Feathered
	2	Native Planting: Tree	Wild Cherry	*Prunus avium*	150-175	BR	Feathered
	1	Native Planting: Tree	Rowan	*Sorbus aucuparia*	150-175	BR	Feathered
	1	Native Planting: Tree	Crab Apple	*Malus sylvestris*	150-175	BR	Feathered
	25	Native Planting: Shrub understory	Hazel	*Corylus avellana*	40-60	BR	1+1 Transplant
	15	Native Planting: Shrub understory	Hawthorn	*Crataegus monogyna*	40-60	BR	1+1 Transplant
	15	Native Planting: Shrub understory	Blackthorn	*Prunus spinosa*	40-60	BR	1+1 Transplant
	2.5	Native Planting: Shrub understory	Guelder rose	*Viburnum opulus*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub understory	Holly	*Ilex aquifolium*	30-40	C	3L
	10	Native Planting: Shrub understory	Dog Rose	*Rosa canina*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub understory	Elder	*Sambucus nigra*	40-60	BR	1+1 Transplant

LE2.12 Native Mixed Woodland

(Note: LE1.33 to be sown over this area)

The native mixed woodland has been proposed to be split into two different types for different functions. This “Scrub Woodland” mix has been proposed to provide areas of woodland with a shrub understorey layer. The tree species within this mix contains a higher percentage of native coniferous species such as Scots Pine and Larch and is found to the west of the scheme where plantation woodland is a more typical characteristic. This mix of scrub and tree species provides good visual screening qualities by avoiding clear stems once trees become more established. It also provides good habitat and a food source for wildlife. In accordance with DMRB Volume 10 Section 1 Part 2 HA 56/92 “The Good Roads Guide New Roads Planting, Vegetation and Soils”, plants here are to be planted on a 1.5 x 1.5m grid, at a ratio of 8 shrubs to 1 tree. This will provide approx. 493 trees per ha (at approx. 4.5m spacings) and 3951 shrubs (with 4444 plants overall). The maximum height these trees can reach before the first thinning is necessary is 15m.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
0.44 plants per m2	4	Native Planting: Tree	Scots Pine	*Pinus sylvestris*	150-175	BR	Feathered
	3	Native Planting: Tree	Larch	*Larix decidua*	150-175	BR	Feathered
	2	Native Planting: Tree	Silver Birch	*Betula pendula*	150-175	BR	Feathered
	1	Native Planting: Tree	English Oak	*Quercus robur*	150-175	BR	Feathered
	1	Native Planting: Tree	Sessile Oak	*Quercus petraea*	150-175	BR	Feathered
	1	Native Planting: Tree	Wild Cherry	*Prunus avium*	150-175	BR	Feathered
	0.5	Native Planting: Tree	Rowan	*Sorbus aucuparia*	150-175	BR	Feathered
	25	Native Planting: Shrub understory	Hazel	*Corylus avellana*	40-60	BR	1+1 Transplant
	15	Native Planting: Shrub understory	Hawthorn	*Crataegus monogyna*	40-60	BR	1+1 Transplant
	15	Native Planting: Shrub understory	Blackthorn	*Prunus spinosa*	40-60	BR	1+1 Transplant
	2.5	Native Planting: Shrub understory	Guelder Rose	*Viburnum opulus*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub understory	Holly	*Ilex aquifolium*	30-40	C	3L
	10	Native Planting: Shrub understory	Dog Rose	*Rosa canina*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub understory	Elder	*Sambucus nigra*	40-60	BR	1+1 Transplant

LE2.81 Native Scrub Planting

(Note: LE1.34 to be sown over this area)

Scrub species to be planted on a 2 x 2m grid which is expected to establish to become a dense cover of scrub. This offers early flowering species to support pollinators and good cover and habitat for birds and mammals.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
0.25 plants per m2	20	Native Planting: Tree	Hawthorn	*Crataegus monogyna*	40-60	BR	1+1 Transplant
	40	Native Planting: Shrub	Gorse	*Ulex europaeus*	20-40	C	1.5L
	20	Native Planting: Shrub	Bramble	*Rubus fruticosus*	30-40	BR	1+1 Transplant
	20	Native Planting: Shrub	Dog rose	*Rosa canina*	30-40	BR	1+1 Transplant

LE2.82 Native Scrub with Scattered Trees

(Note: LE1.35 to be sown over this area)

To provide more sparse cover, this planting should be planted on a 6 x 6m grid. The tree species here are predominantly Alder, however, there are 15 shrubs to every 1 tree within this mix. This mix also provides benefit of additional “softening” in appearance of the bottom of the Caldew Bridge earthworks and a transition into the broadleaf woodland on the steep slopes.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Specification
0.027 per m2	5	Native Planting: Tree	Alder	*Alnus glutinosa*	8-10	250 -350	BR	Standard	Clear stem to min. 175cm min. 7 breaks
	1	Native Planting: Tree	Goat Willow	*Salix caprea*	8-10	250 -350	BR	Standard	Clear stem to min. 175cm min. 7 breaks
	0.5	Native Planting: Tree	Osier willow	*Salix viminalis*	8-10	250 -350	BR	Standard	Clear stem to min. 175cm min. 7 breaks
	0.5	Native Planting: Tree	Downy Birch	*Betula pubescens*	8-10	250 -350	BR	Standard	Clear stem to min. 175cm min. 7 breaks
	10	Native Planting: Shrub understory	Hawthorn	*Crataegus monogyna*		40-60	BR	1+1 Transplant	
	15	Native Planting: Shrub understory	Bramble	*Rubus fruticosus*		30-40	BR	1+1 Transplant	
	15	Native Planting: Shrub understory	Alder buckthorn	*Frangula alnus*		40-60	BR	1+1 Transplant	
	15	Native Planting: Shrub understory	Elder	*Sambucus nigra*		40-60	BR	1+1 Transplant	
	20	Native Planting: Shrub understory	Dogwood	*Cornus sanguinea*		40-60	BR	1+1 Transplant	
	18	Native Planting: Shrub understory	Dog rose	*Rosa canina*		40-60	BR	1+1 Transplant	

LE3.2 Ornamental Shrub, Grass and Perennial Planting

This planting mix is designed to provide areas of heightened seasonal interest, providing colour, form and texture throughout the year. Species have been selected to provide a “naturalistic” planting style. This mix will be used in areas where a higher impact is required, such as roundabouts and other “gateway” locations. An exact mix of species and densities will vary between different locations.

Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form	Specification
Shrub/ Tree	Snowy Mespilus	*Amelanchier lamarckii*	120-150	C	10L	Multi-stem
Shrub/ Tree	Black Elder	*Sambucus nigra ‘Gerda’*	120-150	C	10L	Multi-stem
Shrub/ Tree	Witch Hazel	*Hamamelis intermedia*	120-150	C	10L	Multi-stem
Shrub	Midwinter Fire Dogwood	*Cornus sanguinea*	60-80	C	3L	
Shrub	Red Barked Dogwood	*Cornus alba"Siberica"*	60-80	C	3L	
Shrub	Dwarf Mountain Pine	*Pinus mugo*	20-30	C	10L	
Shrub	Mexican Orange Blossom	*Choisya ternata*	30-40	C	3L	
Shrub	Shrubby Veronica	*Hebe 'Caledonia'*	20-30	C	2L	
Ornamental Grass	Giant Oat Grass	*Stipa gigantea*	40-50	C	5L	
Ornamental Grass	Orange New Zealand Sedge	*Carex testacea*	30-40	C	2L	
Ornamental Grass	Tufted Hair Grass	*Deschampsia cespitosa*	30-40	C	3L	
Ornamental Grass	Feather Reed Grass	*Calamagrostis x acutiflora 'Karl Foerster'*	40-50	C	3L	
Ornamental Grass	Moor Grass	*Sesleria autumnalis*	20-30	C	2L	
Ornamental Grass	Snowy Woodrush	*Luzula nivea*	20-30	C	2L	
Perennial	Soft Shield Fern	*Polystichum setiferum*	20-30	C	2L	
Perennial	Royal Fern	*Osmunda regalis*	20-30	C	2L	
Perennial	Male Fern	*Dryopteris filix-mas*	20-30	C	2L	
Perennial	Siberian bugloss "Jack Frost"	*Brunnera macrophylla ‘Jack Frost’*	10-15	C	9cm	
Perennial	Yarrow	*Achillea millefolium"Terracotta"*	20-30	C	2L	
Perennial	Black-eyed Susan	*Rudbeckia fulida*	20-30	C	2L	
Perennial	Sneezeweed	*Helenium"Waltraut"*	20-30	C	2L	
Perennial	Purple Top	*Verbena bonariensis*	20-30	C	2L	
Perennial	Montbretia	*Crocosmia "Lucifer"*	20-30	C	2L	
Perennial	Elephant's Ears	*Bergenia "Silberlicht"*	20-30	C	2L	
Perennial	Cow Parsley	*Anthriscus sylvestris 'Ravenswing'*	20-30	C	2L	

Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form	Specification
Perennial	Phlomis	*Phlomis russeliana*	20-30	C	2L	
Perennial	White Gaura	*Gaura lindheimeri*	20-30	C	2L	
Perennial	Globe Thistle	*Echinops ritro 'Veitch's Blue'*	20-30	C	2L	
Perennial	Balkan Clary	*Salvia nemorosa 'Caradonna'*	20-30	C	9cm	
Perennial	Sweet Rocket	*Hesperis matronalis*	20-30	C	9cm	
Perennial	Sweet Rocket	*Hesperis matronalis var. albiflora*	20-30	C	2L	
Perennial	Geranium	*Geranium rozanne*	20-30	C	2L	
Shrub	Small White Periwinkle	*Vinca minor "Alba"*	10-15	C	9cm	
Shrub	Great Burnet	*Sanguisorba officinalis*	10-15	C	9cm	
Bulb	Primrose	*Primula vulgaris*		C	Bulb	

LE3.3a Ornamental Meadow Mix A

This mix is designed to provide areas of meadow planting with a high impact, colourful display from late spring to early autumn. The mix contains both native and non-native species to lengthen the flowering period, which is of benefit to both pollinators and visual interest. This mix provides a white, blue and purple colour palette and is tolerant of light shade.

Plants / seed per m2	Common Name	Latin Name	Form
2g / m2	Yarrow	*Achillea millefolium*	Seed
	Hollyhock	*Alcea malviflora*	Seed
	Common columbine	*Aquilegia vulgaris*	Seed
	Aster	*Aster amellus*	Seed
	Betony	*Betonica officinalis*	Seed
	Bellflower	*Campanula persicifolia*	Seed
	Catananche caerulea	*Catananche cerulea*	Seed
	Common Knapweed	*Centaurea nigra*	Seed
	Greater Knapweed	*Centaurea scabiosa*	Seed
	Wild Carrot	*Daucus carota*	Seed
	Foxglove	*Digitalis purpurea*	Seed
	Purple Coneflower	*Echinacea purpurea*	Seed

Plants / seed per m2	Common Name	Latin Name	Form
	Vipers Bugloss	*Echium vulgare*	Seed
	Flat Sea Holly	*Eryngium planum*	Seed
	Meadow Cranesbill	*Geranium pratense*	Seed
	Sweet Rocket	*Hesperis matronalis*	Seed
	Field Scabious	*Knautia arvensis*	Seed
	Ox-eye Daisy	*Leucanthemum vulgare*	Seed
	Purple Toadflax	*Linaria purpurea*	Seed
	Perenial Flax	*Linum perenne*	Seed
	Purple Loosestrife	*Lythrum salicaria*	Seed
	Oregano	*Origanum vulgare*	Seed
	Selfheal	*Prunella vulgaris*	Seed
	Balkan Clary	*Salvia nemorosa*	Seed
	Clary	*Salvia sclarea*	Seed
	Great Burnet	*Sanguisorba offcinialis*	Seed
	Small Scabious	*Scabiosa columbaria*	Seed
	Devil's-bit Scabious	*Succisa pratensis*	Seed
	Germander	*Teucrium chamaedrys*	Seed
	Purple Top	*Verbena bonariensis*	Seed
	Spiked Speedwell	*Veronica spicata*	Seed

LE3.3b Ornamental Meadow Mix B

A second ornamental meadow mix is will provide variation in colour, with more golden hues. This mix also contains both native and non-native species to lengthen the flowering period, which is of benefit to both pollinators and visual interest.

Plants / seed per m2	Common Name	Latin Name	Form
2g / m2	Yarrow	*Achillea millefolium*	Seed
	Golden Margorite	*Anthemis tinctoria*	Seed
	Yellow Ox-eye	*Buphthalmum salicifolium*	Seed
	Viper's Bugloss	*Echium vulgare*	Seed
	African Love Grass	*Eragrostis curvula*	Seed
	Flat Sea Holly	*Erygium planum*	Seed
	Blue Fescue	*Festuca longifolia*	Seed
	Lady's Bedstraw	*Galium verum*	Seed
	Summer Hyacinth	*Galtonia candicans*	Seed
	Avens	*Geum chiloense*	Seed
	Macedonian scabious	*Knautia macedonica*	Seed
	Prairie Blazing Star	*Liatris pychnostachya*	Seed
	Maltese Cross	*Lychnis chalcedonica*	Seed
	Sticky Catchfly	*Lychnis viscaria*	Seed
	Missouri Evening Primrose	*Oenothera missouriensis*	Seed
	Oregano	*Origanum vulgare*	Seed
	Primrose	*Primula acaulis*	Seed
	Common Cowslip	*Primula veris*	Seed
	Meadow Buttercup	*Ranunculus acris*	Seed
	Black Eyed Susan	*Rudbeckia fulgida*	Seed
	Balkan Clary	*Salvia nemorosa*	Seed
	Great Burnet	*Sanguisorba officinalis*	Seed
	Small Scabious	*Scabiosa columbaria*	Seed
	Lambs Ears	*Stachys lanata*	Seed
	Elegant Clarkia	*Clarkia elegans*	Seed
	Sweet Scabious	*Scabiosa atropurpurea*	Seed
	Bullwort	*Ammi majus*	Seed

Plants / seed per m2	Common Name	Latin Name	Form
	Scentless Camomile	*Matricaria inodora*	Seed
	Flowering Flax	*Linum grandiflorum*	Seed
	Black Eyed Susan	*Rudbeckia hirta*	Seed

LE4.2a Native Species Rich Hedgerows (West of River Caldew)

(Note: LE1.32 to be sown either side of the hedge trench in this area)

Hedgerow planting has been proposed to have three different species mixes for different locations. This first species mix is to be planted to the west of the River Caldew (away from cycleways – where a thornless species mix is proposed). The species have been informed by hedgerow surveys across the study area, to try to protect and enhance the existing landscape characteristics. The species and percentage mixes have also been designed to provide good species diversity and wildlife value.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
5 plants per lin m	40	Native Planting: Shrub	Hawthorn	*Crataegus monogyna*	40-60	BR	1+1 Transplant
	15	Native Planting: Shrub	Blackthorn	*Prunus spinosa*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Dog Rose	*Rosa canina*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Field Rose	*Rosa arvensis*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Crab Apple	*Malus sylvestris*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Elder	*Sambucus nigra*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Holly	*Ilex aquifolium*	30-40	C	3L
	5	Native Planting: Shrub	Honeysuckle	*Lonicera periclymenum*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Hazel	*Corylus avellana*	40-60	BR	1+1 Transplant

LE4.2b Native Species Rich Hedgerows (East of River Caldew)

(Note: LE1.32 to be sown either side of the hedge trench in this area)

This second hedgerow species mix is to be planted to the east of the River Caldew (away from cycleways – where a thornless species mix is proposed). The species have been informed by hedgerow surveys across the study area, to try to protect and enhance the existing landscape characteristics. The species and percentage mixes have also been designed to provide good species diversity and wildlife value.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
5 plants per lin m	40	Native Planting: Shrub	Hawthorn	*Crataegus monogyna*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Blackthorn	*Prunus spinosa*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Beech	*Fagus sylvatica*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Guelder Rose	*Viburnum opulus*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Crab Apple	*Malus sylvestris*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Goat Willow	*Salix caprea*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Elder	*Sambucus nigra*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Holly	*Ilex aquifolium*	30-40	C	3L
	5	Native Planting: Shrub	Broom	*Cytisus scoparius*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Hazel	*Corylus avellana*	40-60	BR	1+1 Transplant

LE4.2c Native Species Rich Hedgerows (Thornless)

(Note: LE1.32 to be sown either side of the hedge trench in this area)

This species mix has been designed to be planted in all locations alongside cycleways to avoid causing thorns damaging cycle tyres and potentially causing accidents. All species have been recorded within the study area during the hedgerow surveys and provide high wildlife value.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Height (cm)	Root Zone	Form
5 plants per lin m	20	Native Planting: Shrub	Hazel	*Corylus avellana*	40-60	BR	1+1 Transplant
	25	Native Planting: Shrub	Beech	*Fagus sylvatica*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Crab apple	*Malus sylvestris*	40-60	BR	1+1 Transplant
	20	Native Planting: Shrub	Elder	*Sambucus nigra*	40-60	BR	1+1 Transplant
	5	Native Planting: Shrub	Honeysuckle	*Lonicera periclymenum*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Goat Willow	*Salix caprea*	40-60	BR	1+1 Transplant
	10	Native Planting: Shrub	Broom	*Cytisus scoparius*	40-60	BR	1+1 Transplant

LE4.4a Native Species Hedgerow with Hedgerow Trees (West of River Caldew)

(Note: LE1.32 to be sown either side of the hedge trench in this area)

The hedgerow mix here matches LE4.2a, but this mix also has standard tree planting. Tree spacing is to be random, in single species groups of no more than 3no. Trees to be spaced randomly, minimum spacing of 15m, maximum spacing of 30m. Trees at 15m spacings to be in odd numbers of 1no, 3no, or 5no only.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
25no per 500 linear m	50	Native Planting: Tree	English Oak	*Quercus robur*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	15	Native Planting: Tree	Field Maple	*Acer campestre*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	10	Native Planting: Tree	Sycamore	*Acer pseudoplatanus*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	10	Native Planting: Tree	Beech	*Fagus sylvatica*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Rowan	*Sorbus aucuparia*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Silver Birch	*Betula pendula*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Wild Cherry	*Prunus avium*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
5 plants/ lin m	40	Native Planting: Shrub	Hawthorn	*Crataegus monogyna*		40-60	BR	1+1 Transplant		
	15	Native Planting: Shrub	Blackthorn	*Prunus spinosa*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Guelder Rose	*Viburnum opulus*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Crab Apple	*Malus sylvestris*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Goat Willow	*Salix caprea*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Elder	*Sambucus nigra*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Holly	*Ilex aquifolium*		30-40	C	3L		
	5	Native Planting: Shrub	Honeysuckle	*Lonicera periclymenum*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Hazel	*Corylus avellana*		40-60	BR	1+1 Transplant		

LE4.4b Native Species Hedgerow with Hedgerow Trees (East of River Caldew)

(Note: LE1.32 to be sown either side of the hedge trench in this area)

The hedgerow mix here matches LE4.2b, but this mix also has standard tree planting. Tree spacing is to be random, in single species groups of no more than 3no. Trees to be spaced randomly, minimum spacing of 15m, maximum spacing of 30m. Trees at 15m spacings to be in odd numbers of 1no, 3no, or 5no only.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
25no per 500 linear m	50	Native Planting: Tree	English Oak	*Quercus robur*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	15	Native Planting: Tree	Field Maple	*Acer campestre*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	10	Native Planting: Tree	Sycamore	*Acer pseudoplatanus*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	10	Native Planting: Tree	Beech	*Fagus sylvatica*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Rowan	*Sorbus aucuparia*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Silver Birch	*Betula pendula*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Wild Cherry	*Prunus avium*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
5 plants/ lin m	40	Native Planting: Shrub	Hawthorn	*Crataegus monogyna*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Blackthorn	*Prunus spinosa*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Beech	*Fagus sylvatica*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Guelder Rose	*Viburnum opulus*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Crab Apple	*Malus sylvestris*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Goat Willow	*Salix caprea*		40-60	BR	1+1 Transplant		

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
	5	Native Planting: Shrub	Elder	*Sambucus nigra*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Holly	*Ilex aquifolium*		30-40	C	3L		
	5	Native Planting: Shrub	Broom	*Cytisus scoparius*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Hazel	*Corylus avellana*		40-60	BR	1+1 Transplant		

LE4.4c Native Species Hedgerow with Hedgerow Trees (Thornless)

(Note: LE1.32 to be sown either side of the hedge trench in this area)

The hedgerow mix here matches LE4.2c, but this mix also has standard tree planting. Tree spacing is to be random, in single species groups of no more than 3no. Trees to be spaced randomly, minimum spacing of 15m, maximum spacing of 30m. Trees at 15m spacings to be in odd numbers of 1no, 3no, or 5no only.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
25no per 500 linear m	50	Native Planting: Tree	English Oak	*Quercus robur*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	15	Native Planting: Tree	Field Maple	*Acer campestre*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	10	Native Planting: Tree	Sycamore	*Acer pseudoplatanus*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	10	Native Planting: Tree	Beech	*Fagus sylvatica*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Rowan	*Sorbus aucuparia*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
	5	Native Planting: Tree	Silver Birch	*Betula pendula*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
	5	Native Planting: Tree	Wild Cherry	*Prunus avium*	8-10	250 -350	BR	Standard	min. 175cm	min. 7 breaks
5 plants/ lin m	20	Native Planting: Shrub	Hazel	*Corylus avellana*		40-60	BR	1+1 Transplant		
	25	Native Planting: Shrub	Beech	*Fagus sylvatica*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Crab apple	*Malus sylvestris*		40-60	BR	1+1 Transplant		
	20	Native Planting: Shrub	Elder	*Sambucus nigra*		40-60	BR	1+1 Transplant		
	5	Native Planting: Shrub	Honeysuckle	*Lonicera periclymenum*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Goat Willow	*Salix caprea*		40-60	BR	1+1 Transplant		
	10	Native Planting: Shrub	Broom	*Cytisus scoparius*		40-60	BR	1+1 Transplant		

LE5.11 Individual Trees (Semi Mature)

Locations shown on Landscape Plans. Exact locations of species distribution to be confirmed in detailed design.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem
As shown	As shown	Native Planting: Tree	Copper Beech	*Fagus sylvatica "Purpurea"*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	English Oak	*Quercus robur*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Sessile Oak	*Quercus petraea*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Sycamore	*Acer pseudoplatanus*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Field Maple	*Acer campestre*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Horse Chestnut	*Aesculus hippocastanum*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Beech	*Fagus sylvatica*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Rowan	*Sorbus aucuparia*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Silver Birch	*Betula pendula*	20-25	500 - 550	RB	Semi mature	min. 250cm
As shown	As shown	Native Planting: Tree	Wild Cherry	*Prunus avium*	20-25	500 - 550	RB	Semi mature	min. 250cm

LE5.12 Individual Trees (Standard)

Locations shown on Landscape Plans. Exact locations of species distribution to be confirmed in detailed design.

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
As shown	As shown	Native Planting: Tree	English Oak	*Quercus robur*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Sessile Oak	*Quercus petraea*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Sycamore	*Acer pseudoplatanus*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Field Maple	*Acer campestre*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Horse Chestnut	*Aesculus hippocastanum*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Beech	*Fagus sylvatica*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Rowan	*Sorbus aucuparia*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Silver Birch	*Betula pendula*	8-10	250 - 350	BR	Standard	min. 175cm	
As shown	As shown	Native Planting: Tree	Wild Cherry	*Prunus avium*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Scots Pine	*Pinus sylvestris*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks

Plants / seed per m2	% of planting mix	Planting Type	Common Name	Latin Name	Girth (cm)	Height (cm)	Root Zone	Form	Clear Stem	Specification
As shown	As shown	Native Planting: Tree	Larch	*Larix decidua*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Alder	*Alnus glutinosa*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Crack Willow	*Salix fragilis*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Goat Willow	*Salix caprea*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Hawthorn	*Crataegus monogyna*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Downy Birch	*Betula pubescens*	8-10	250 - 350	BR	Standard	min. 175cm	min. 7 breaks
As shown	As shown	Native Planting: Tree	Silver Birch	*Betula pendula*	8-10	250 - 350	BR	Standard, multistem	min. 175cm	

LE6.1a Pond and Wetland Planting: Marginal species A 0-250mm depth (above permanent water level)

This species mix has been shown in two different groups to show species that would be planted outside of the permanent water level and those that will establish within the first 250mm of the margins of the pond. This first group will tolerate being submerged during some of the year, however, they will typically be planted within the dry margins of the ponds.

Plants / seed per m2	Planting Type	Common Name	Latin Name	Form
7no./m2	Marginal wetland vegetation	Amphibious bistort	*Persicaria amphibia*	Plug plant
	Marginal wetland vegetation	Marsh marigold	*Caltha palustris*	Plug plant
	Marginal wetland vegetation	Reed Canary Grass	*Phalaris arundinacea*	Plug plant
	Marginal wetland vegetation	Brooklime	*Veronica beccabunga*	Plug plant
	Marginal wetland vegetation	Wild Angelica	*Angelica sylvestris*	Plug plant
	Marginal wetland vegetation	Purple Loosestrife	*Lythrum salicaria*	Plug plant
	Marginal wetland vegetation	Greater Bird's-foot Trefoil	*Lotus uliginosus*	Plug plant
	Marginal wetland vegetation	Gypsywort	*Lycopus europaeus*	Plug plant
	Marginal wetland vegetation	Waterforget-me-not	*Myosotis scorpiodes / laxa-cespitosa*	Plug plant
	Marginal wetland vegetation	Fool's Watercress	*Apium nodiflorum*	Plug plant
	Marginal wetland vegetation	Ragged Robin	*Lychnis flos-cuculi*	Plug plant
	Marginal wetland vegetation	Water Dock	*Rumex hydrolapathum*	Plug plant
	Marginal wetland vegetation	Water Mint	*Mentha aquatica*	Plug plant
	Marginal wetland vegetation	Cuckoo Flower	*Cardamine pratensis*	Plug plant
	Marginal wetland vegetation	Lesser Spearwort	*Ranunculus fl ammula*	Plug plant
	Marginal wetland vegetation	Jointed Rush	*Juncus articulatus*	Plug plant
	Marginal wetland vegetation	Hop Sedge	*Carex pseudocyperus*	Plug plant
	Marginal wetland vegetation	Marsh Woundwort	*Stachys palustris*	Plug plant
	Marginal wetland vegetation	Water Figwort	*Scrophularia auriculata*	Plug plant

LE6.1a Pond and Wetland Planting: Marginal Species B 0-250 permanent water (within permanent water level)

This second group will be planted within the wet margins of the ponds and will provide excellent wildlife value.

Plants / seed per m2	Planting Type	Common Name	Latin Name	Form
7no./m2	Marginal wetland vegetation	Branched Bur-reed	*Sparganium erectum*	Plug plant
	Marginal wetland vegetation	Lesser Bulrush	*Typha angustifolia*	Plug plant
	Marginal wetland vegetation	Common Clubrush	*Schoenoplectus lacustris*	Plug plant
	Marginal wetland vegetation	Flote-grass	*Glyceria fluitans*	Plug plant
	Marginal wetland vegetation	Pond Sedge	*Carex acutiformis*	Plug plant
	Marginal wetland vegetation	Water Plantain	*Alisma plantago-aquatica*	Plug plant
	Marginal wetland vegetation	Marsh Speedwell	*Veronica scutellata*	Plug plant
	Marginal wetland vegetation	Flowering rush	*Botomus umbellatus*	Plug plant
	Marginal wetland vegetation	Arrowhead	*Sagittaria sagittifolia*	Plug plant

LE6.1b Pond and Wetland Planting: Deep aquatics (up to 600mm depth)

These species are better suited for the margins of the ponds areas, up to a permanent water depth of 600mm. This will allow for some areas of clear water within the centres of the ponds, providing a range of aquatic habitats.

Plants / seed per m2	Planting Type	Common Name	Latin Name	Form
5no./m2	Submerged or floating wetland species	Fennel Pond Weed	*Potamogeton pectinatus*	BR - Bunched
	Submerged or floating wetland species	Broad-leaved Pond Weed	*Potamogeton natans*	BR - Bunched
	Submerged or floating wetland species	Spiked Water Milfoil	*Myriophyllum spicatum*	BR - Bunched
	Submerged or floating wetland species	Unbranched bur-reed	*Sparganium emersum*	9cm pot
	Submerged or floating wetland species	Water-crowfoot	*Ranunculus aquatilis*	BR - Bunched
	Submerged or floating wetland species	Frogbit	*Hydrocharis morsus-ranae*	BR - Bunched
	Submerged or floating wetland species	Pond Water Lily	*Nymphaea alba*	BR - Bunched

Plants / seed per m2	Planting Type	Common Name	Latin Name	Form
	Submerged or floating wetland species	Water Soldier	*Stratiotes aloides*	BR - Bunched

LE6.2 Banks and Ditches Dry Zone Seed Mix

This seed mix is proposed for the slopes of the SuDS ponds where the conditions are likely to be drier. This provides a species rich grassland cover with good wildlife value and an open landscape.

Plants / seed per m2	Planting Type	Common Name	Latin Name	Form
5g/m2	Grassland Perennial	Red Fescue	*Festuca rubra*	Seed
	Grassland Perennial	Sweet Vernal Grass	*Anthoxanthum odoratum*	Seed
	Grassland Perennial	Crested Dogtail	*Cynosurus cristatus*	Seed
	Grassland Perennial	Quaking Grass	*Briza media*	Seed
	Grassland Perennial	Tufted Hair Grass	*Deschampsia caespitosa*	Seed
	Grassland Perennial	Selfheal	*Prunella vulgaris*	Seed
	Grassland Perennial	Yellow Rattle	*Rhinanthus minor*	Seed
	Grassland Perennial	Meadow Sweet	*Filipendula ulmaria*	Seed
	Grassland Perennial	Meadow Vetch	*Lathyrus pratensis*	Seed
	Grassland Perennial	Common Birdsfoot Trefoil	*Lotus corniculatus*	Seed
	Grassland Perennial	Hairy Sedge	*Carex hirta*	Seed
	Grassland Perennial	Black Knapweed	*Centaurea nigra*	Seed
	Grassland Perennial	Ribwort Plantain	*Plantago lanceolata*	Seed
	Grassland Perennial	Silverweed	*Potentilla anserina*	Seed
	Grassland Perennial	Common Sorrel	*Rumex acetosa*	Seed

4. Appendix

This section contains images to illustrate the descriptions within the Landscape Strategy and includes the enhancement proposals discussed during the Enhancements Workshop on 30th July 2019 with Capita, Carlisle City Council and Cumbria County Council.

Newby West Roundabout

Example of sculptural walling style that could be used in local sandstone on Newby West roundabout.
Image credit: http://stonecurrents.com

Example of local sandstone masonry at Newby West.

Example of large scale sculpture that could be used as a further enhancement at the Newby West roundabout. The fine detail on this Antony Gormley sculpture, “Firnament” is effective and provides a level of transparency which avoids it being too dominant in the landscape.
Image credit: https://www.jupiterartland.org/artwork/firmament

Examples of sculptural use of weathering steel that could be used on Newby West roundabout, complementing the weathering steel used in the overbridge.
Image credit: https://m.chinametalsculpture.com

Examples of sculptural use of weathering steel that could be used on Newby West roundabout, complementing the weathering steel used in the overbridge.
Image credit: https://broadbent.studio/wakefield-2

Ornamental “meadow” style planting LE3.3b. A perennial mix of vibrant colours and rich textures providing an excellent resource for pollinators as well as high visual impact.
Image credit: http://www.pictorialmeadows.co.uk

Pinus mugo - example of ornamental evergreen shrub species within LE3.2 planting.
Image credit: https://greenleafnurseries.co.nz

Stipa gigantea and Helanium - example of ornamental grass and perennial species within LE3.2 planting.
Image credit: https://www.thetimes.co.uk/article/joe-swift-ornamental-grasses-make-a-comeback-z2zd7ft2x

Carex testacea - example of ornamental grass species within LE3.2 planting.
Image credit: http://www.plantmaster.com/share/eplant.php?plantnum=3004

Cornus “Midwinter Fire” (showing colourful winter stems and structure) - example of ornamental shrub species within LE3.2 planting.
Image credit: https://www.crocus.co.uk/

Phlomis russeliana - example of ornamental perennial species within LE3.2 planting.
Image credit: https://www.crocus.co.uk/

SuDS Ponds A and B

Example of contemporary, robust timber information/ interpretation board.
Image credit: https://www.fwdp.co.uk

Example of bespoke timber terraced seating, creating an informal gathering space.
Image credit: http://www.frostslandscapes.co.uk

Indicative placemaking" opportunity for amenity pond areas, using contemporary lettering on timber to indicate sense of arrival.
Image credit: http://www.frostslandscapes.co.uk

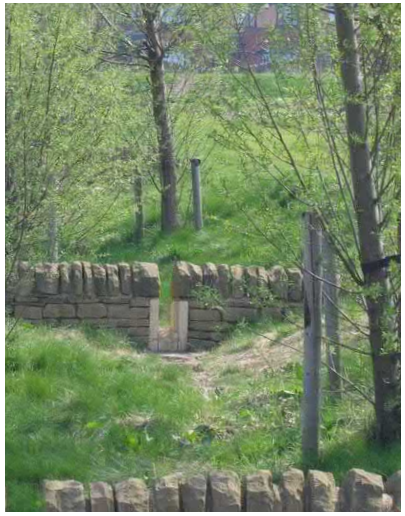
Indicative informal, self binding gravel path within timber edge used for informal routes around amenity pond areas.
Image credit: https://www.breedon-special-aggregates.co.uk/

Indicative timber cycle stands to be provided at entrance to amenity pond areas.
Image credit: https://woodscape.co.uk

Example of contemporary, robust timber seat. Similar seating with backs and armrests also to be proposed.
Image credit: https://www.streetlife.nl/

Example of how felled timber could be reused to create informal playful features, such as stepping logs over swales.
Image credit: https://twitter.com/nigeldunnett/

Indicative example of a potential enhancement project, which could involve the local community using felled tree branches to create "bug hotels"
Image credit: https://www.thewilddeckcompany.co.uk/



Indicative example of using natural stone as SuDS check dams.
Image credit: https://www.susdrain.org/

Cummersdale Roundabout

Example of Sandstone masonry within Cummersdale which will be used for a circular wall around the area of broadleaf planting for Cummerdale roundabout.

Example of Sandstone masonry within Cummersdale which will be used for a circular wall around the area of broadleaf planting for Cummerdale roundabout.

New broadleaf woodland planting will establish to become a good visual screen within the centre of the Cummersdale roundabout and provide differentiation with the adjacent Newby West and Durdar Roundabout designs.
Image credit: https://www.energylivenews.com/ Shutterstock

Caldew Valley: highway junction to multiuser path

A contemporary graphic or series of motifs would be an effective way of using an artwork strategy to celebrate the rich cultural heritage of this area.
Image credit: https://bcalandscape.co.uk/

A contemporary sculpture would be an effective way of using an artwork strategy to celebrate the rich cultural heritage of this area.
Image credit: http://www.cb-arts.co.uk

Artwork could be inspired by the industrial history of the Caldew Valley.
Image credit: https://www.linkedin.com/company/steadmcalpinandcoltd

Example of "naturalistic" ornamental grasses within LE3.2 planting.
Image credit: http://www.clairegreener.com

Example of smooth, glacial boulders which could be used to help with placemaking.
Image credit: https://www.cedstone.co.uk/

Example of simple wayfinding which could add to placemaking qualities and provide improved connectivity for pedestrians and cyclists.
Image credit: http://www.cb-arts.co.uk

Cornus "Midwinter Fire" (showing colourful winter stems and structure) - example of ornamental shrub species within LE3.2 planting.
Image credit: https://www.crocus.co.uk/

Rudbeckia fulgida - example of ornamental perennial species within LE3.2 planting.
Image credit: https://www.whiteflowerfarm.com/

Sanguisorba "Tanna" - example of ornamental perennial species within LE3.2 planting.
Image credit: https://www.crocus.co.uk/

Calamagrostis x acutiflora "Karl Foerster" - example of ornamental grass species within LE3.2 planting.
Image credit: https://www.crocus.co.uk/

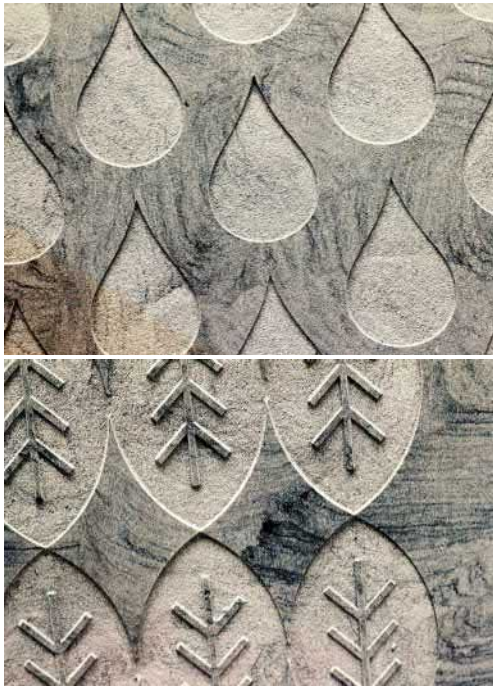
Caldew Valley: close to bridge piers along PROW

Using patterns inspired by the old print works or Stead McApline fabrics would be an effective way of using an artwork strategy to celebrate the rich cultural heritage of this areas.
Image credit: https://broadbent.studio

The sculptural use of natural stone here would also compliment the natural setting.
Image credit: https://broadbent.studio

A contemporary graphic or series of motifs would be an effective way of using an artwork strategy to celebrate the rich cultural heritage of this area.
Image credit: https://bcalandscape.co.uk/

A contemporary graphic, pattern or series of motifs would be an effective way of using an artwork strategy to celebrate the rich cultural heritage of this area. This could be repeated through information/ interpretation boards to help to reinforce the sense of place.
Image credit: http://s418836063.websitehome.co.uk/sw/



A contemporary pattern would be an effective way of using an artwork strategy to celebrate the rich cultural heritage of this area. This could be repeated within inserts on the sandstone masonry on the bridge piers to help to reinforce the sense of place.
Image credit: https://bcalandscape.co.uk/

An example of the sandstone masonry on the Caldew railway bridge piers. The new Caldew CSLR bridge crossing will also use sandstone masonry to help reinforce a sense of place.

Caldew Valley: close to bridge piers along PROW

As an enhancment measure, natural stone boulders could be used to help with placemaking and provide in formal seating/ play features alongside the Caldew PROW.
Image credit: http://www.poddesign.net/

As an enhancment measure, felled timber could be used to create informal play features.
Image credit: http://www.poddesign.net/

Example of contemporary, robust timber information/ interpretation board.
Image credit: https://www.fwdp.co.uk

Example of contemporary, robust timber information/ interpretation board.
Image credit: https://www.fwdp.co.uk

Example of contemporary, robust timber seat. Similar seating with backs and armrests also to be proposed.
Image credit: https://www.streetlife.nl/

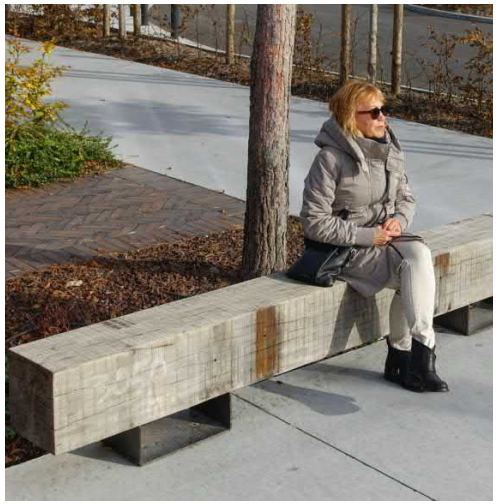
Caldew Valley: Pond C (Caldew valley north)

Enhancement could include the creation of log piles or other features to encourage wildlife around the northern side of this pond, which is likely to be less frequently visited.
Image credit: https://creativestarlearning.co.uk/

Example of contemporary, robust timber information/ interpretation board. To help to create a sense of place and identity, timber has been proposed for the majority of the furniture materials in various forms.
Image credit: https://www.fwdp.co.uk

Contemporary, yet sympathetic graphics within proposed signage will provide reference to the importance of the former Cummersdale Station, which was adjacent to the new SuDS pond here.
Image credit: http://s418836063.websitehome.co.uk/sw/

Examples of natural, robust timber information/ interpretation board which could provide short pieces of information about the rich local wildlife and ecological designations for the River Caldew.
Image credit: http://www.heinejones.com.au



Example of contemporary, robust timber seat. Similar seating with backs and armrests also to be proposed.
Image credit: https://www.streetlife.nl/

Indicative timber cycle stands to be provided at entrance to amenity pond areas.
Image credit: https://woodscape.co.uk

Caldew Valley: Pond D (Largest drainage pond)

Enhancement measures could include the introduction of an organic shaped timber boardwalk to provide additional amenity value in this area. This would allow for access over the areas of standing water to provide a more interesting perspective for those using the PROW in this area.
Image credit: https://www.thewilddeckcompany.co.uk/

Indicative example of using natural stone as SuDS check dams.
Image credit: https://www.susdrain.org/

Indicative example of how felled timber could be used to create additional marginal habitats within larger SuDS ponds.
Image credit: https://www.queenelizabetholympicpark.co.uk/

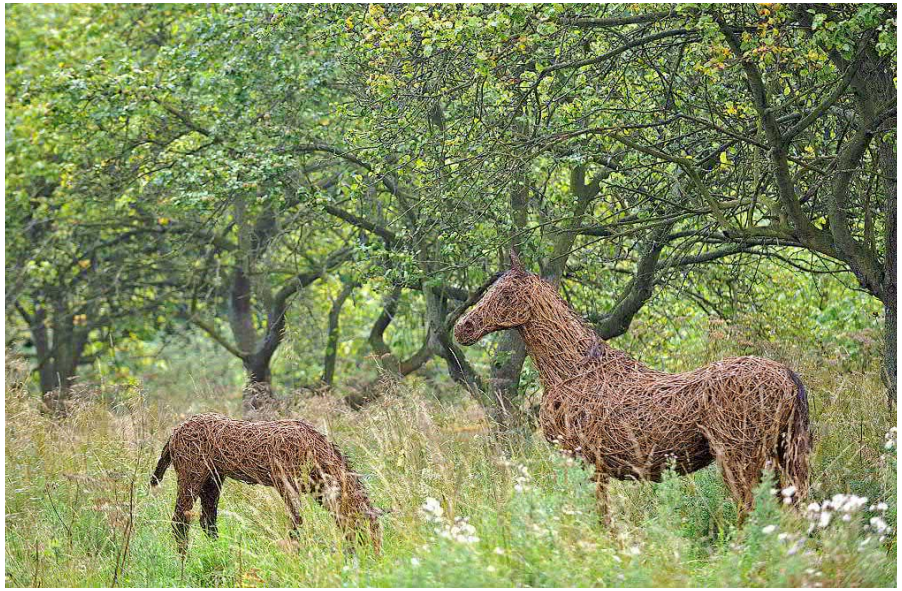
A timber deck would provide an interesting space for visitors. Information could be provided on the function of the drainage pond.
Image credit: https://www.thewilddeckcompany.co.uk/

Example of bespoke timber terraced seating, creating an informal gathering space.
Image credit: http://www.frostslandscapes.co.uk

Examples of natural, robust timber information/ interpretation board which could provide short pieces of information about the rich local wildlife and ecological designations for the River Caldew.
Image credit: http://www.heinejones.com.au

Example of contemporary, robust timber information/ interpretation board.
Image credit: https://www.fwdp.co.uk

Durdar Roundabout



Example of potential enhancement feature on this roundabout, relating to Carlisle Racecourse. To make this more dynamic, a horse could be designed to be jumping the hedges here. These images are examples in bronze wire and willow, which give a light, “natural” appearance and interesting texture.
Image credit: https://www.emmastothard.com

Example of a semi mature oak tree, which will be planted within the new hedgerows to provide instant impact.
Image credit: http://nangleandniesen.ie/oak-trees

New native hedgerows will be planted in a geometric form to reference the irregular field patterns in this landscape and to provide some structure and form through the winter months.

Ornamental “meadow” style planting LE3.3b. A perennial mix of vibrant colours and rich textures providing an excellent resource for pollinators as well as high visual impact.
Image credit: http://www.pictorialmeadows.co.uk

Ornamental “meadow” style planting LE3.3a. A perennial mix of vibrant colours and rich textures providing an excellent resource for pollinators as well as high visual impact.
Image credit: http://www.pictorialmeadows.co.uk

Redcat Roundabout

Roundabout to be simple in design, comprising a mown grass edge and woodland (broadleaf rather than mixed) planting to the centre. As shown here, once established the new broadleaf woodland planting will establish to become a good visual screen within the centre of the Redcat roundabout and provide differentiation with the adjacent Durdar and Brisco roundabout designs.

New broadleaf planting will take several years to establish. Trees will be planted as feathered stock with shrub planting planted as transplants. This will provide a “naturalistic” area of planting that will complement the local landscape character.
Image credit: https://www.energylivenews.com/ Shutterstock

Brisco Roundabout

Example of potential enhancement feature on this roundabout could make reference to the agricultural heritage of Brisco and the surrounding landscape through use of a sculpture. This could be a delicate sculpture of a limousine bull, for example, which would also reference the use of the adjacent Cumberland Show field. These image shows a willow sculpture, which give a light, “natural” appearance and interesting texture, however, a bronze wire or similar would be more durable.
Image credit: https://www.emmastothard.com

These curved, sandstone walls around the entrance to Brisco Hill are also similar to those at Woodside Park. As a reference to this, a series of curved sandstone walls have been proposed to reinforce a sense of place at this roundabout.

To provide an effective contrast, alternative, semi-mature beech and copper beech trees have been proposed, in four groups of three. The landscape character surveys noted a higher proportion of mature beech trees and hedgerows in this area, so this feature celebrates this characteristic and helps to develop the sense of place.
Image credits: https://www.woodlandtrust.org.uk

Ornamental “meadow” style planting LE3.3b. A perennial mix of vibrant colours and rich textures providing an excellent resource for pollinators as well as high visual impact.
Image credit: http://www.pictorialmeadows.co.uk

Ornamental “meadow” style planting LE3.3a. A perennial mix of vibrant colours and rich textures providing an excellent resource for pollinators as well as high visual impact.
Image credit: http://www.pictorialmeadows.co.uk

SuDS Pond G (west of River Petteril)

Indicative placemaking" opportunity for amenity pond areas, using contemporary lettering on timber to indicate sense of arrival.
Image credit: http://www.frostslandscapes.co.uk

Example of contemporary, robust timber information/ interpretation board.
Image credit: https://www.fwdp.co.uk

Example of contemporary, robust timber seat. Similar seating with backs and armrests also to be proposed.
Image credit: https://www.streetlife.nl/

Indicative timber cycle stands to be provided at entrance to amenity pond areas.
Image credit: https://woodscape.co.uk

Enhancement could include the creation of log piles or other features to encourage wildlife around the northern side of this pond, which is likely to be less frequently visited.
Image credit: https://creativestarlearning.co.uk/

Example of how felled timber could be reused to create informal playful features, such as stepping logs over swales.
Image credit: https://twitter.com/nigeldunnett/

Indicative example of a potential enhancement project, which could involve the local community using felled tree branches to create "bug hotels"
Image credit: https://www.thewilddeckcompany.co.uk/

Indicative informal, self binding gravel path within timber edge used for informal routes around amenity pond areas.
Image credit: https://www.breedon-special-aggregates.co.uk/