



NOTE - CONSTRUCTION ISSUE C03

- Amendments to the design at Church Hill (minor amendments to the boundary treatments to allow for the road reconfiguration, and gates altered at church car park);
- Amendments to the design at Hall Lane (minor amendments to the boundary treatments to allow for the road reconfiguration);
- Diversion of Hall Beck (alteration to watercourse alignment and design);
- Soft landscaping around drainage areas including Attenuation Ponds (refer to Point 6);
- Siting of interceptor channels and filter drains (soft landscaping around changes in Point 3);
- Variation in slope angle on certain sections (change in type of planting in certain areas due to underlying geotechnical feature placement associated with soil stability);
- Inclusion of reinstatement works for areas used as temporary construction compounds;
- Areas of woodland and scrub planting are to be reconfigured, following recent tree clearances; and
- No. 8 additional tree guards will be provided within livestock fields near Blubberhouses Hall to protect growing trees.

DO NOT SCALE

Proposed Vegetation Types

- New Woodland
- Scrub
- G1 Highway Verge and Visibility Splay (Pollinator Mix-Mown to maintain height of 0.26)
- G2 Wildflower and Grass Meadow for Acid Soils
- G3 Upland Heathland/ Acid Grassland with added Heather (Allow for 5% of Heather seed to be sourced via local landowner, the remaining to be sourced commercially due to quantity required)
- G4 Wet Grassland (Alongside Hall Beck watercourse and within Attenuation Pond. Allow areas to recolonise naturally. No seed mix necessary in these areas)
- G5 Wildflower and Grass Meadow Mix for Neutral Soils (Pollinator Mix)
- G6 Woodland Wildflower and Grass Mix
- Rock Outcrops

Existing Features

- NYCC Highway Boundary
- Red Line Boundary
- Special Area of Conservation
- Retained Trees
- Retained Ancient Veteran Trees
- Retained Woodland
- Retained Hedge
- Retained Dry Stone Wall
- Retained Birdsmouth Fence
- Retained Timber Post & Wire and Gates

Proposed Features

- Stone Wall
- Timber Post & 4 Rail Fence
- Birdsmouth Fence
- Timber Post & Wire Fence
- Temporary Fencing
- Other Fencing
- Gate
- Maintenance Access Stile
- Retaining Wall
- Underground Culvert
- Watercourse
- Open Water
- Trees
- Riverine Stone and Gravel
- Timber Post and Rail Tree Guard

Public Access

- Public Rights of Way - Footpath
- Public Rights of Way - Bridleway
- Unsurfaced Unclassified Roads /Permissive Route
- Six Dales Way (National Trail)
- Restricted Byway

Ecological Elements (Indicative Location Only)

- Wildlife Refuge
- Wildlife Hibernation Refuge
- Suitable Trees/Woodland for bat roosts, bat boxes and bird nest boxes
- Woodland Planting for Bats and Birds to encourage flight at height over carriageway

LANDSCAPE ECOLOGY STRATEGY - Refer to sheets 2 to 10 for detail of the proposals for each part of the scheme.

ECOLOGY MITIGATION MEASURES AND ENHANCEMENTS

- Culvert / Underpass Specification**
- All culverts shall have natural bed material and will re-use excavated rock and gravels.
 - To allow safe and undisturbed passage of otters, Structures 7, 8 and 10 will be designed with integrated mammal ledges on both sides of the structure and will follow Specifications detailed within DMRB Vol. 10, Section 4. Refer to Drg Ref No NYKGDD-WSP-SMN-ALL-DR-CB-001 P06 Typical Culvert Detail Sheet 1.
 - Otter fencing will be constructed to align with Structures 7, 8 and 10, for a distance of 100m each side of the culvert with the following specifications:
 - 50mm mesh fence, buried 500mm below ground with a reverse-facing (90-degree angle) base of 300mm.
 - The fence would be at least 1500mm above ground with a reverse-facing (45-degree angle) crank of 300mm.
 - The locations are shown on drawings NYKGDD-WSP-HFE-SG-DR-CH-030005 and 03006. Refer to Drg Ref No NYKGDD-WSP-HFE-SG-DR-CH-03015 Typical Fencing Detail, Otter Fencing
 - To allow safe and undisturbed passage of fish, Structures 7, 8 and 10 have been designed in accordance with Environment Agency's Fish Pass Manual. The design criteria shall be specific to brown trout of less than 25cm and large course fish between 25 - 50 cm and incorporate a Keystone baffle system. Refer to Drg No NYKGDD-WSP-SMN-ALL-DR-CB-001 Typical Culvert Details Sheets 1 and 2.
 - Tree and shrub planting to be located 5m distance from culverts and supporting structural earthworks as shown on the drawings.
- Wildlife Kerbs**
- All kerbs adjacent to gully grates will be fitted with a wildlife kerb (inset kerb stones) to allow amphibians to bypass the gully grates. Refer to Drg Ref No NYKGDD-WSP-HKF-SG-DR-CH-11001 and NYKGDD-WSP-HKF-SG-DR-CH-11006.
- Interceptor Drain**
- Concrete lined drainage channels will be located on either side of the highway to collect surface water runoff, protect embankments and cuttings and prevent flood issues on the highway. To allow small animals to climb onto the interceptor drain will be designed and constructed with rough materials (Rock Rolls) e.g. pebbles/gravel at 50m intervals; each strip being at least 50cm in width.
 - Tree and shrub planting to occur 2.5m back from top of slope of interceptor channel.
- Wildlife Towers and Barn Owl boxes (off-site)**
- Two wildlife towers will be constructed according to the Barn Owl Trust (BOT) specifications. The locations are shown on Figure 5 of the DLEMMMP report.
 - Five barn owl boxes will be provided. The locations are shown on Figure 5 of the DLEMMMP report.
- Bird Boxes**
- 20 nesting bird boxes would be installed in locations to be set out in drawings NYKGDD-WSP-ELS-SG-DR-LE-00027 to 00036. The nesting boxes shall be a mixture of:
- 2x treecreeper nest boxes;
 - 5x 25mm traditional wooden bird nest boxes;
 - 5x 28mm traditional wooden bird nest boxes;
 - 5x 32mm traditional wooden bird nest boxes; and
 - 3x traditional open-fronted bird nest boxes
- Artificial Bat Boxes /Rockets**
- Installed in areas of retained woodland/trees and placed at locations set out in drawings NYKGDD-WSP-ELS-SG-DR-LE-00027 to 00036.
- 5 x Eco Kent Bat Box (or equivalent).
 - 6 x Schwegler Bat Box 2F double front Panel (or equivalent).
 - 3 x 1FD Schwegler Bat Box (or equivalent).
 - 3 x 2FN Schwegler Bat Box (or equivalent).
 - 3 x Schwegler 1FF bat boxes (or equivalent).
- Creation of Artificial Roost Features in Trees**
- 10 chainsaw/drill hollows will be created on suitable trees to provide bat roosting opportunities. The exact location is to be determined on site by the ECoW and Principal Contractor.
- Tree Trunk Translocation**
- 5 trees that are to be felled that have confirmed roosting features (as identified pre-construction) will have the trunk translocated to a suitable donor tree, if it is possible to do so. The exact location is to be determined on site by the ECoW and Principal Contractor.
- Wildlife Refuge Piles**
- 10 wildlife refuge piles will be created using excavated stone material and woody debris/logs collected as a result of the works. These will be created in a variety of sizes and materials within and adjacent to diverted watercourses, road embankments and newly created habitats to provide shelter for invertebrates, small mammals and herpetofauna.
 - Three of the refuge piles shall be made suitable for hibernation, in accordance with DMRB, Vol 10, Section 4, LD 118 Biodiversity Design. Refer to Drg Ref No NYKGDD-WSP-HDG-SG-DR-CD-0500_021.
 - The exact location of these features will be determined on site by the ECoW and Principal Contractor.
- Boundary Features**
- Retaining wall, built structures and stone boundary features will contain crevices and provide habitat for invertebrates, reptiles, amphibians and plants.
- Rocky outcrops**
- Rocky outcrops (comprising boulders and large rocks retained during excavations) will provide habitat for invertebrates, reptiles, amphibians and plants. The exact location to be determined on site by the Landscape Architect and Principal Contractor.

Note.

All works within the NYCC Highway boundary to be the responsibility of the NYCC Highways Department from the end of the 5-Year Establishment Period.

Areas of land outwith the NYCC Highways boundary will revert to the Landowner for ongoing maintenance.

For details of planting proposals please refer to Planting Plans, Drg Ref No NYKGDD-WSP-ELS-SG-DR-LE-00011 to 00026.

This design has been issued in advance of the full ground investigation results. It is possible that, following review of the ground investigation, changes may be required to the earthworks design with associated impacts on the design or layout of other elements of the project. This drawing is therefore subject to possible change following review of the ground investigation when this has been made available to WSP.

The design information shown on this drawing and any associated setting out information is based on British National Grid.

REV	DATE	BY	DESCRIPTION	CHK	APP
C03	21/08/23	MM	FOR CONSTRUCTION	SF	AW
C02	03/04/23	JY	CONTRACTORS STORAGE AREAS REVISED	SF	AW
C01	01/02/23	MM	CONSTRUCTION ISSUE BASED ON HIGHWAY DESIGN VERSION JUNE 2021	SF	AW

DRAWING STATUS: **S3 - FOR REVIEW**

wsp

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DESIGNER: **wsp**

SITE/PROJECT: **A59 KEX GILL DIVERSION**

TITLE: **Landscape Ecology Mitigation Monitoring and Management Plan OVERVIEW SHEET (Sheet 1 of 10)**

SCALE @ A1: NOT TO SCALE	CHECKED: SF	APPROVED: AW
PROJECT NO: 70049554	DESIGNED: SF	DRAWN: MM
		DATE: AUGUST 2023

DRAWING NO: **NYKGDD-WSP-ELS-SG-DR-LE-00027** REV: **C03**

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