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A4059 Cynon Gateway North

Environmental Statement
Volume 4:
Non-Technical
Summary

October 2020



Prepared for: A4059 Cynon Gateway North (L1) - Stage 1 of 2020



Quality Management

Job No	CS097025		
Project	A4059 Cynon Gateway North		
Location	Abertawe, Wales		
Title	Volume 4 Non-Technical Summary		
Document Reference	CGW-CAP-74/PM-SP-14-0004	Issue / Revision	PD2_24
File Reference	W:\projects\09\025\09025\CGW-CAP-74\PM-SP-14-0004\14-0004_Cynon Gateway\1 - Documents\14-0004_PAC Volume 4 Environmental Impact Assessment		
Date	09 October 2019		
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Revision Status / History

Rev	Date	Prepared	Checked	Authorised
PD1	21/09/2020	SA issued for client review	BL	MC
PD2	09/10/2020	SA issued for PAC	BW	JC

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Purpose of the Non-Technical Summary

This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) for the A4059 Cynon Gateway North scheme, hereafter referred to as the "Proposed Scheme".

Its purpose is to summarise the main findings of the Environmental Impact Assessment (EIA) process in non-technical language. It enables anyone with an interest in the Scheme, including the general public, to understand how the Proposed Scheme could affect them and the environment in which they live.

This NTS provides an overview of the findings reported in the Environmental Statement. It does not, and is not intended to, convey all of the

information relating to the Proposed Scheme and its potential effects on the environment. For detailed information pertaining to any part of this NTS, please refer to the Environmental Statement (Volume 1 of the EIA).

This document covers:

- a description of the Proposed Scheme, including details of: the site location, why the project is needed and what is being proposed;
- an overview of the EIA process, its objectives and the scope of assessment;
- a summary of the construction, operational and residual effects identified through the EIA process and reported under topic headings covering different aspects of the environment; and
- a summary of the Proposed Scheme as identified through the EIA.



A digital copy of this NTS can be obtained via the Redstart Wales website. As specified in Volume 1 of this EIA, the NTS can be accessed through the below methods. Digital and hard copies of the Environmental Statement can be obtained upon request from Rhonda Cynon Tal County Borough Council via the following methods:

- Website**
dex.redstartwales.com/
- Email**
consultation@redc.gov.uk
- Telephone**
01445 425014
- Post**
Freeport Business Park
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Ceredigion SA31 2XK

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A4059 Cynon Gateway North

Rhondda Cynon Taf County Borough Council are planning the development of the A4059 Cynon Gateway North link road (hereafter referred to as the 'Proposed Scheme'. This will provide a link between the existing A4059 Aberdare Bypass and the future A485 Heads of the Valley scheme via a connection at Croesbrychan Road.

- increase safety of users;
- improve environmental impacts; and
- reduce congestion.

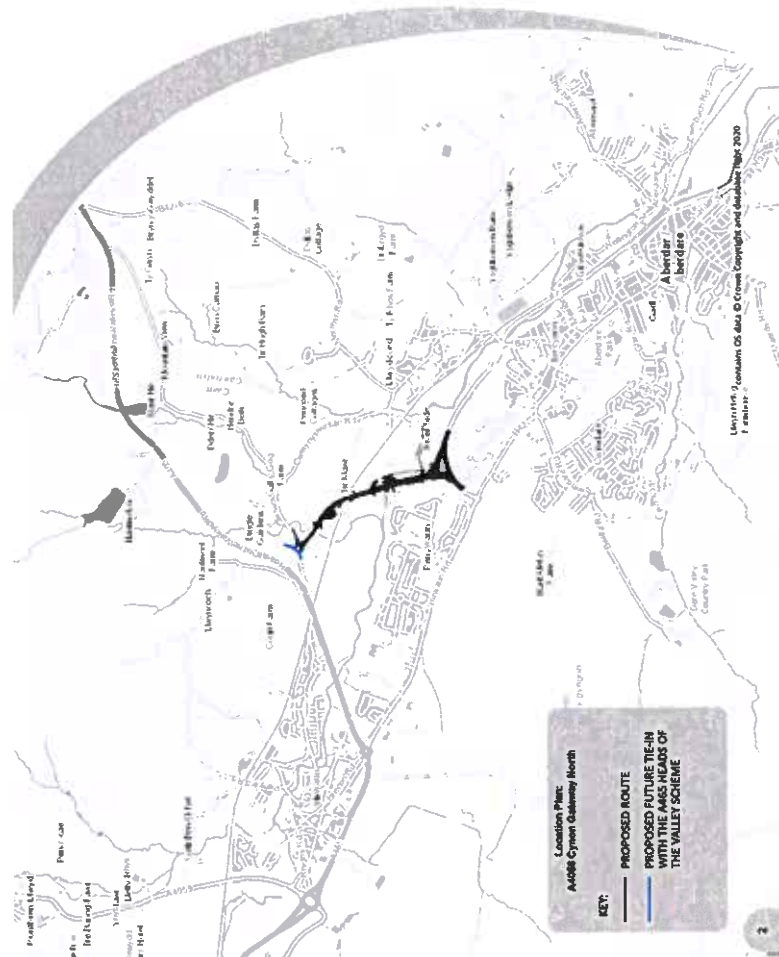
The Proposed Scheme will also connect Rhondda Cynon Taf to West Wales and the Midlands, providing socio-economic benefits to the local communities.

Why build the road?

Currently, the B4275 Hirvaun Road and the A4059 provide the connectivity between Aberdare and the A465 Heads of the Valley Road via the roundabout at Hwaun, which will be taken off-line with the A465 dualing scheme. These roads often have a large amount of congestion within the local villages.

The Proposed Scheme was first proposed within the Rhondda Cynon Taff Local Development Plan (LDP) 2006-2021. It was identified that the Proposed Scheme would be needed to improve accessibility to the towns and villages in the area, providing a 'gateway to the Cynon Valley', reduce local commuting times, and assist the strategic development of both Hirwaun and Aberdare.

The addition of a new road in the area also aims to reduce the environmental and safety issues identified in the LDP through traffic building up in residential areas. Road schemes are being prioritised in the area to



A4059 Cynon Gateway North

Route Description

The Proposed scheme is 1.2km long with a permanent footprint of approximately 8.1 hectares and will provide a direct link from the A4059 Aberdare Bypass to the A465 Heads of the Valleys highway. This will enable the bypassing of Hirwaun Road where it passes south of and east through Penyauan.

Key Features

- ## Key Features
- Single carriageway, 10mph road.
 - Connection to the Aberdare Bypass via a proposed 60m diameter roundabout.
 - Two underpasses to accommodate Gwynhislod Road, agricultural access and the footpath north of the Afon Cynon.
 - A single span arch over bridge over the Afon Cynon.
 - A single span bridge over the river the disused Aberdare to Hwlwm Mineral Railway line.
 - A four span bridge over the Nant Iwri river and
 - Reinforced earth embankments, drainage attenuation ponds, fencing and noise barriers across the Proposed Scheme as appropriate.

Sensitive Areas

Sensitive areas that will be impacted by the Proposed Scheme include:

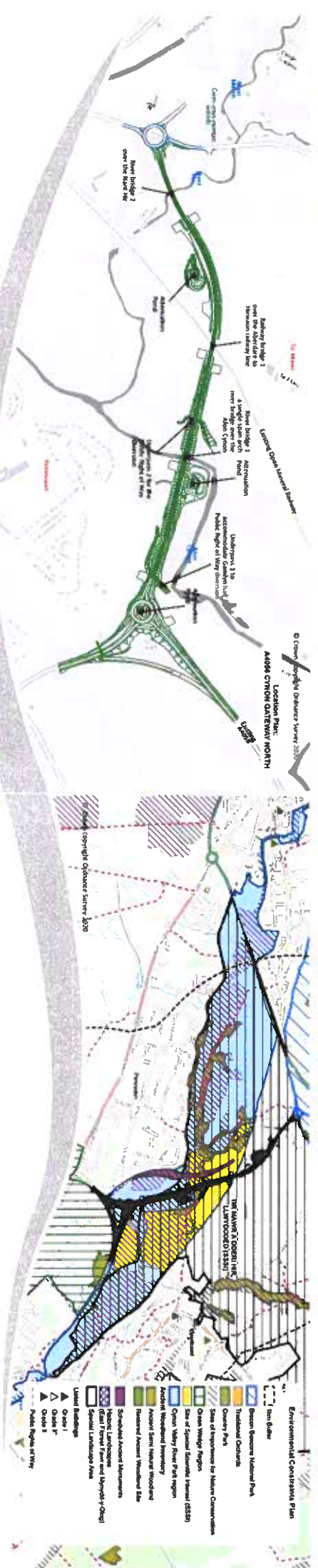
- **Tirumala's Deed:** His unwavering devotion, Special Site of Scientific Interest (SSSI)
- **The Upper Cymru Floodplain Site of Importance for Nature Conservation (SINC)** and
- **The Garmyn Vardur Scheduled Ancient Monument (SAM)** and

The Proposed Scheme's

Objectives

The objectives of the Proposed Scheme are to:

- reduce the volume of traffic in Llandudnod and Penrynau.
- create a gateway to the Gwyn Valley.
- assist the development of economic strategies in Harriau and Aberdare, and
- complement RCTBC's regeneration plans.



The Environmental Impact Assessment

The Environmental Impact Assessment (EIA) is a technical process carried out in accordance with relevant legislation and government guidance.

The EIA is a study of potential impacts the Proposed Scheme will have on the environment. It is undertaken to identify the potential impacts through the construction and operation phases of the Scheme and provide mitigation to reduce the effect of those impacts on the environment.

- The main objectives of the EIA process are to:
- ensure that consideration and reporting of the likely significant effects is undertaken so that planning and design decisions can be fully informed;
 - ensure that the relative importance of the likely impacts and their effects are properly evaluated;
 - aid the identification of measures that could reduce the magnitude of potentially negative effects and the scope for such mitigation; and
 - to provide opportunities for stakeholders, including the public and statutory environmental bodies, to comment on proposals

The findings of the EIA are summarised in this document under separate topic chapters, as scoped into the assessment. These topics are:

- Air Quality
- Cultural Heritage
- Biodiversity
- Landscape (Landscape Character)
- Landscape (Visual Impact)
- Geology and Soils
- Material Assets and Waste
- Noise and Vibration
- Agricultural Land Holdings
- Walkers, Cyclists and Horse Riders
- Private Property, Community Land and Development Land
- Human Health
- Road Drainage and the Water Environment
- Cumulative Effects

Where potential impacts and their effects have been identified, the EIA makes an assessment of the significance of these effects on the environment. The significance of an effect is typically assigned to one of five categories (very large, large, moderate, slight or neutral).

Whilst the process of assigning significance into one of these categories may vary between topics, by placing all identified issues on the same scale, the decision making process can be informed appropriately by being comparable across all topics.

In general the greater the value (or sensitivity) of an environmental feature or receptor, and the greater the magnitude (or extent) of the impact, then the more significant the effect on the environment will be. Effects can be adverse (negative) and beneficial (positive) in nature. They can be both temporary or permanent.

Where potentially significant adverse environmental effects have been identified, appropriate mitigation has been selected following a hierarchy of: avoidance, reduction, remediation and compensation.

Significance category	Typical description
Very	Effects at this level are material in the decision-making process
Large	Effects at this level are likely to be material in the decision-making process
Moderate	Effects at this level can be considered to be material decision-making factors
Slight	Effects at this level are not material in the decision-making process.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error



Air Quality

The Proposed Scheme has the potential to lead to short-term dust and vehicle emissions during the construction phase, and long term air quality impacts during the operational phase through changes in road routes and traffic.

The air quality assessment focuses on a number of existing sensitive environmental receptors within proximity of the Proposed Scheme (i.e. residential properties, sites of ecological importance) and predicts the local air quality with and without the Proposed Scheme in place for the year 2023.

The assessment focuses on concentrations of the air pollutant Nitrogen Dioxide (NO2) and Inhalable Particulate Matter (PM10).

The predicted concentrations of these air pollutants have been compared against National Air Quality Objectives (NAQOs) to determine the extent to which the effects identified are significant.



Environmental Effects

Construction

Without mitigation in place, there is likely to be a medium risk of dust settling impacts at nearby human receptor locations, a low risk of human health impacts and a high risk of dust impacts to nearby ecological receptors, namely the Tir Mawr A Dderl He Site of Special Scientific Interest (SSSI).

Construction traffic impacts are likely to be non-significant and will be temporary in nature.

Operation

The Proposed Scheme is not anticipated to cause an exceedance of the NAQOs in the sensitive receptor areas and therefore likely to not cause a significant impact at the receptor locations. It is likely to have an overall beneficial impact.

Mitigation

Short-term

The risk assessment of dust from the demolition and construction phases of the Proposed Scheme concluded that there is a overall high risk of dust impacts.

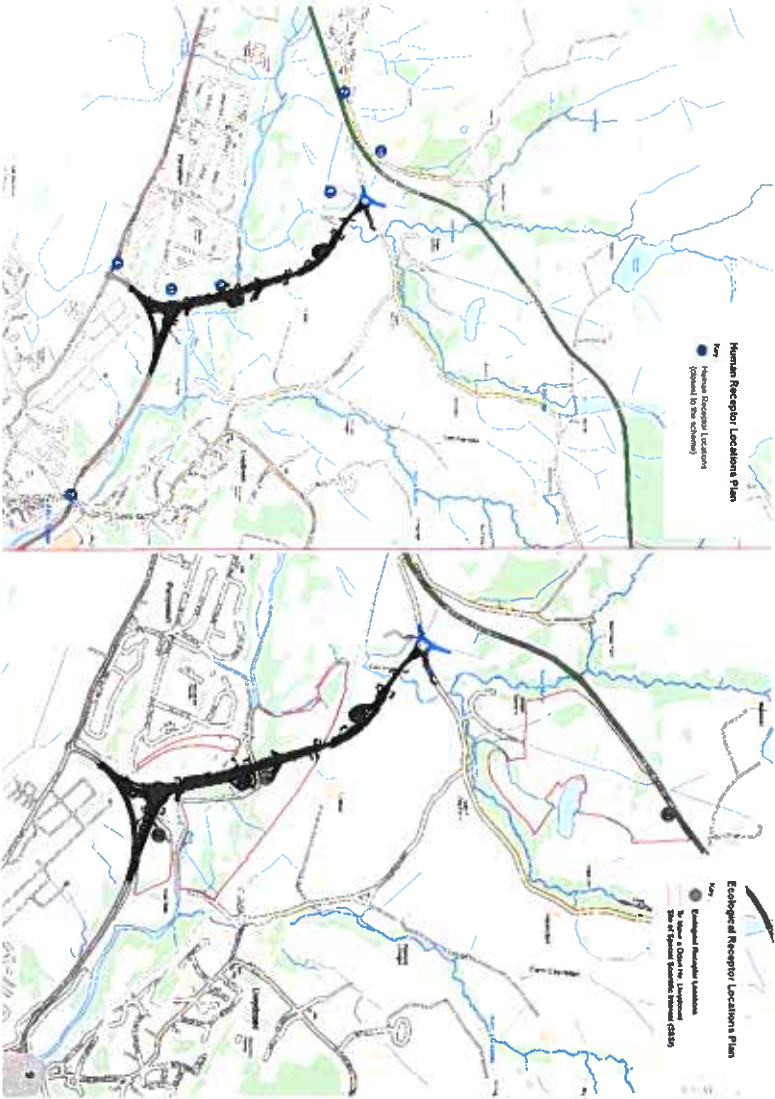
Mitigation measures based on the Institute of Air Quality Management (IAQM) guidance documents will be implemented to reduce the potential of any significant impacts. These include:

- implementation of a Dust Management Plan (DMP)
- utilising water bowsers where necessary
- planning of site layout to keep dust causing activities away from receptors when possible, and
- ensuring stock piles are regularly wetted.

Long-term

The Proposed Scheme will not lead to long-term impacts on air quality and may be beneficial.

Therefore, no mitigation is required for the operational phase of the Proposed Scheme for air quality



Cultural Heritage

The assessment of cultural heritage assesses the impacts of the Proposed Scheme on archaeology, historic buildings and the historic landscape.

A study of 2km study area was applied to inform historic buildings and the historic landscape. Understanding of the impacts of the Proposed Scheme on the archaeological remains and designated and non-designated historic assets

Three designated historic assets located outside of the 2 km were also identified and assessed due to the potential for inter-visibility.

Environmental Effects

Construction

Seven scheduled archaeological monuments, one scheduled historic building, one scheduled and listed historic building, 12 listed historic buildings and two historic landscapes are likely to be affected by the Proposed Scheme.

Operation

The Proposed Scheme will result in the loss of the setting of the Garnlyn Viaduct, identified as a high value asset with the impact being permanent, and the former non-designated historic landscape surrounding the Garnlyn Cottages

Mitigation

Construction

A Construction Environmental Management Plan (CEMP) with a specific heritage management plan will be implemented to ensure areas of

high archaeological value are avoided during construction.

An exclusion zone is proposed surrounding the Gamtlyn Viaduct to protect the remains and regular monitoring would be undertaken throughout the construction phase to ensure it is not physically impacted.

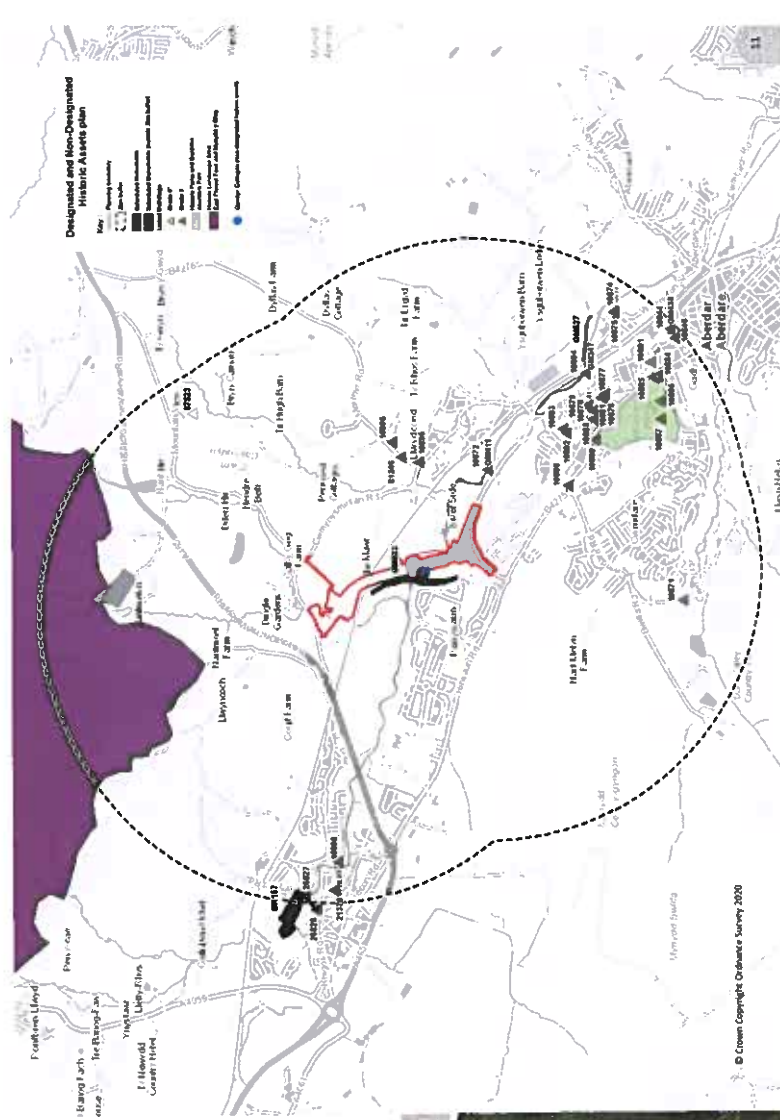
The impact on all known and potential archaeological remains and historic buildings will be mitigated through implementation of the CEMP, a programme of archaeological investigation works, and through the training of construction staff on site. Assets of value would be recorded and reported if found on site during construction.

The design of the Proposed Scheme reduces the impact on Gamlyn Viaduct's historical setting through retention of important landscape features (rivers, railway and public footpaths), use of materials sympathetic to the landscape, retention of vegetation and proposed planting reflecting the

surrounding historic landscape. Such features will also reduce the impact on other designated historic assets in the wider landscape and soften those on the Gamllyn Cottages. This mitigation is discussed further in other topic chapters, notably Landscape Character and Visual Impact.

Operation

There are no long-term mitigation measures specific to cultural heritage recommended, however the mitigation from visual impact and noise impacts will also protect the cultural heritage assets discussed above.



Biodiversity

The assessment for Biodiversity considers impacts on sites, habitats and species recognised for their ecological value. It considers both 'designated' sites afforded protection under law, or local authority planning controls and 'non designated' sites which may not be protected, but nevertheless have some wildlife value.

These include the Ir Mawr a Dden Hir, Llyngegoed Site of Special Scientific Interest (SSSI) and the Upper Cynon Floodplain Site of Importance for Nature Conservation (SINC). A variety of habitats listed as priority habitats under the Environment (Wales) Act 2016 are also present on the site.

Environmental Effects

Construction

Without mitigation, construction activities have the potential to cause impacts on biodiversity through:

- disturbance of habitats, particularly from the SSSI and SNC;
- direct mortality of species;
- disturbance within hibernation or breeding seasons;
- pollution of air, water or land causing habitat modification or reduction in prey species; and
- severance of wildlife commuting corridors and habitats

Operation

During operation, impacts would include severance of habitats for species such as downy woodpecker, bat, oter and marsh titlary butterfly due to the road alignment and introduction of lighting into the area, and direct mortality of species that forage along verges, or cross the road e.g. barn owl and marsh titlary butterfly. Additionally, air pollution from car exhausts has the potential to impact sensitive habitats close to the Proposed Scheme, particularly within the SSSI and SNC.

Mitigation

Mitigation measures were agreed with the County Ecologist and in consultation with Natural Resources Wales.

Construction

A Construction Environmental Management Plan (CEMP) will be implemented detailing measures to minimise construction's adverse quality impact, noise and vibration, pollution controls to water and air, and for site traffic.

Site clearance will be undertaken according to specific method statements, at appropriate times of year and under supervision of an ecologist to minimise disturbance to species.

Site compounds and storage areas have been chosen to avoid, as far as possible, sensitive habitats.

Best practice guidance will be followed in respect to environmental protection during the construction phase.

Habitat improvement works within the SSSI will also be implemented with the consent of the landowner and NRW, such as excessive scrub and bracken removal.

Soils from the SSSI will be reused for additional habitat creation managed as replacements for lost SSSI habitat.

Hedgecrows removed for construction will be reinstated as soon as possible after construction is completed to reduce impacts to downy woodpecker severity.

Operations

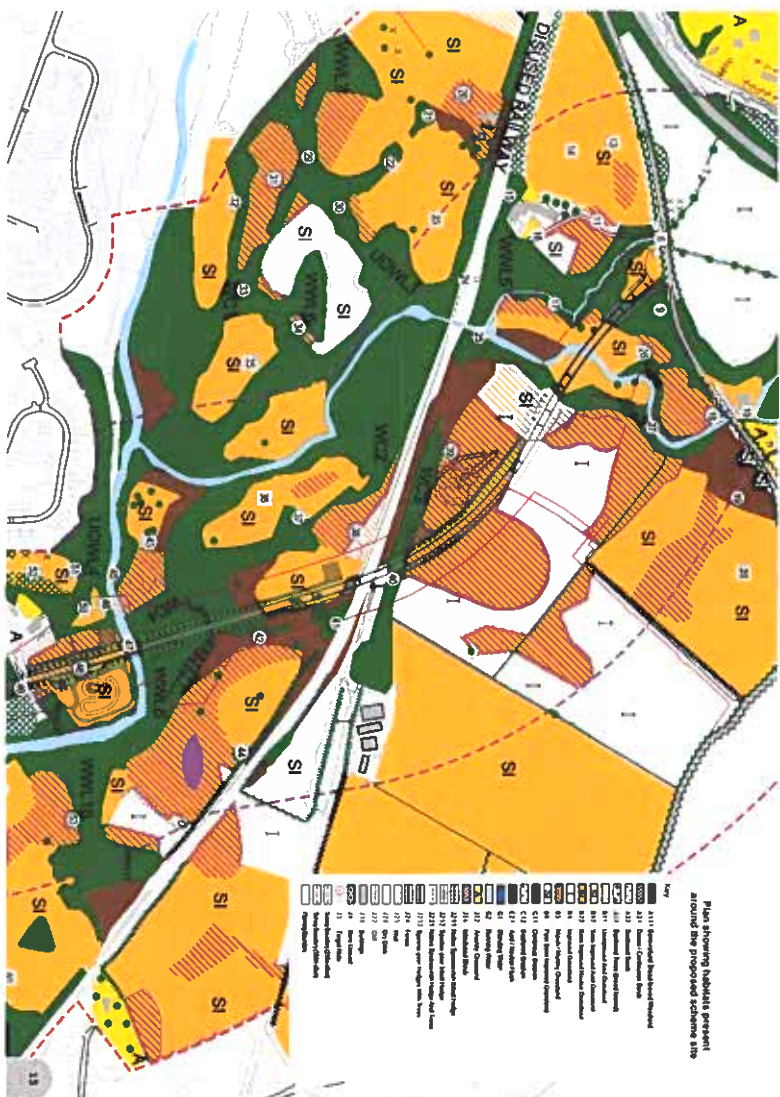
Compensation sites for the loss of SSSI and Marsh Fritillary habitat have been agreed and are

Lighting will be fitted with back shields to prevent light spillage and impacts on bat flight paths and areas used by dormouse.

use as flight paths and for other species to cross, maintaining some connectivity between habitats. The majority of crossings by bats and others are along the stream and river corridors, which are to be crossed by open viaducts and therefore allow unimpeded passage for wildlife. Reinstatement of riparian woodland as close as possible to the river crossing structures will assist in maintaining connectivity for dormouse at the northern end of the Proposed Scheme.

Hedgecrows will be planted where possible in locations where trees are not suitable to discourage barn owl hunting along the carriageway to reduce chances of direct mortality.

Opportunities to enhance bat roosting and dormouse habitats along the route of the Proposed Scheme will also be considered.



Landscape (Landscape Character)

The landscape is an important natural resource with its character widely appreciated for its appearance and contribution to regional identity and sense of place

Any impacts of the Proposed Scheme on features in a landscape (landforms, vegetation or settlement patterns), may affect the overall character of that landscape.

The landscape assessment considered the impact the Proposed Scheme would have on the six landscape character areas identified within the study area.

Environmental Effects

Construction

During construction there will be a number of impacts on the local landscape:

- an increase in urban features and traffic in the rural areas;
- increased lighting at night time, particularly through the winter months;
- severance of local fields and Tir Mawr A Ddwr Hir Lwydcoed SSSI; and
- loss of mature woodlands, hedgerows and important grasslands.

Operation

The main impacts on the landscape character during operation will be from the road, structures, high engineered embankments, change in traffic movement, additional light intrusion, a change in the mosaic field patterns, loss of woodland, hedgerows and important grassland and a general increase in urban features within the landscape.

Prior to mitigation the worst effects will be within the following character areas:

- Cynon River Valley Floor and Sides with the Gamlyn Viaduct and SSSI; and
- Mosaic hillside and scarp slopes (Special Landscape Area Brecon Beacons Edge at Lwydcoed) including the crossing over the railway and Nant Hir.

Mitigation

Mitigation to reduce the landscape impacts will include:

- tree planting and native woodland creation, to help mitigate the steep engineered embankments, trees lost to the Proposed Scheme and the effect of the roundabout, lighting columns and vehicular movement on the landscape.

- retention of vegetation where possible near to the Gamlyn Viaduct to tie the Proposed Scheme back into the landscape;
- harvesting of the SSSI grass seed to incorporate it into the species rich grassland which is to be planted throughout the Proposed Scheme;
- engineered slopes to be seeded and slopes allowed to green over;
- planting of species rich hedgerows with native hedgerow tree planting; and
- bridges designed to visually recede into the landscape.

The landscape assessment concludes that in Year 15 of the Proposed Scheme operation there will still be a large negative impact on the Cynon River Valley Floor and Sides, and a moderate adverse impact on the Mosaic Hillside and Scarp Slopes character areas.



Landscape Character Area
"Cynon river valley floor and sides"

Landscape Character Area
"Urban settlement fringe"

Landscape Character Area
"Cynon river valley floor and sides"

Landscape (Visual Impact)

The assessment of visual impact considers how views of the landscape from sensitive locations, such as residential properties and outdoor locations with public access, will be changed as a result of the Proposed Scheme.

Environmental Effects

The impacts on 11 different viewpoints from residential areas, National Cycle Network routes and Public Rights of Way, were considered for this assessment and are summarised below.

Construction

Construction activities will negatively impact the views through:

- Loss of vegetation;
- Earthworks and construction work (including stock piles);
- The siting of temporary buildings and construction compounds;
- The visibility of plant and materials;
- The use of floodlighting; and
- Changes in traffic flows.

Operation

Operational impacts will negatively impact the views through:

- The height and appearance of the engineered embankments;
- Position, height and appearance of newly built structures;
- Visibility of the carriageway and traffic movement;
- Loss of vegetation;
- Lighting of the carriageway at night; and
- Headlight lighting from traffic.

Mitigation

Construction

Mitigation for the construction phase will be detailed in the Construction Environmental Management Plan (CEMP) and will include:

- Planning of the site layout to screen sensitive receptors;

- Only removing vegetation when essential;
- Use of directional lighting; and
- A 1m height limit on SSSI soil and a 2m height limit on other soil stockpiles.

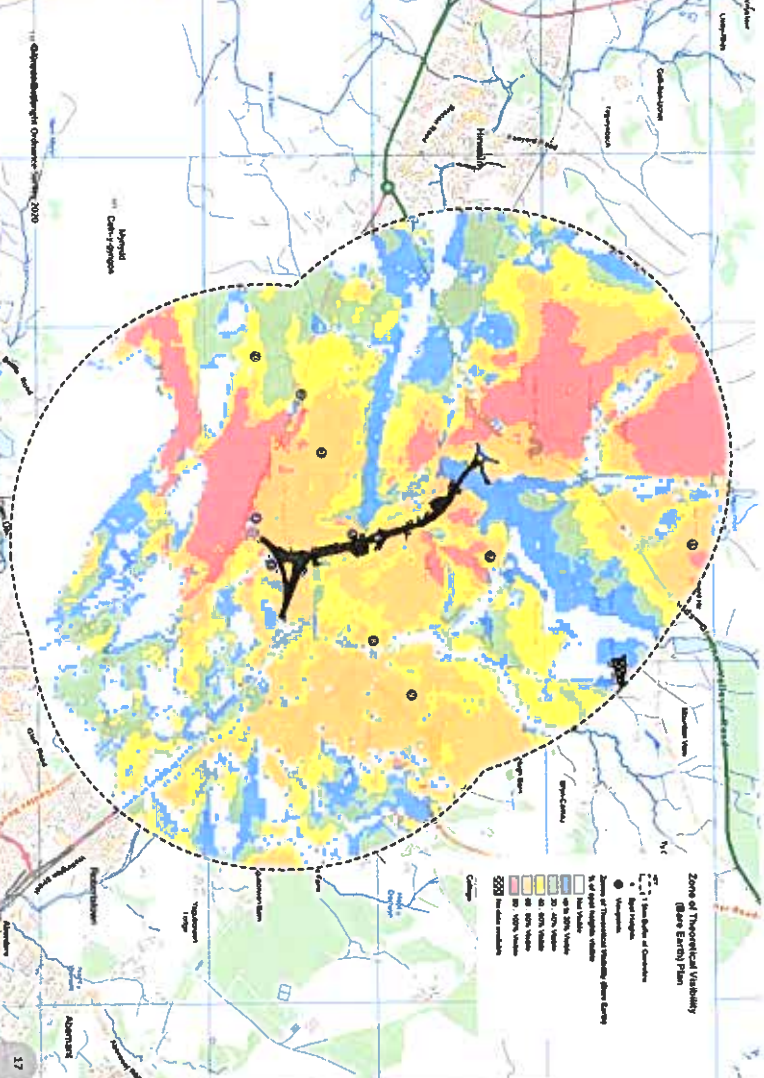
Operation

For the long-term (permanent) mitigation, landscape planting (native woodland, grass seeding, hedgerows) will be implemented to permanently reduce the visual impact of the Proposed Scheme on the local area.

The engineered slopes are to be seeded and slopes allowed to green over.

Riparian woodland will be planted by the Nant Hir to replace vegetation lost to the new bridge.

The visual impact assessment concludes that in Year 15 of the Proposed Scheme operation there will still be a very large negative impact on the CED/12 PROV and a large negative impact on the National Cycle Network Route 46 and Gwynn Cottages.



Visualisation showing the proposed development in green over a photograph of the existing view, used to assess the visual impact from Gwynn Cottages Road North.



Geology and Soils

The assessment of geology and soils considers the impact of the Proposed Scheme on the soil and geological and hydrological conditions. This includes factors such as the character of existing soils, perched groundwater and ground gas, and the risks of soil contamination i.e. from landfill.

Environmental Effects

Construction

The construction of culverts and bridges has the potential to introduce pollutants and sediments into the watercourses within the site area.

There will also be a loss of soils and soil quality through construction of the Proposed Scheme due to loss of woodland and associated vegetation.

Loss of mineral reserves in the south of the Proposed Scheme could occur.

Operation

During operation, surface water run-off has the potential to introduce pollutants and sediments into the watercourses and groundwater.

Permanent loss of woodland and vegetation could impact groundwater conditions and create permanent loss of top soils.

Mitigation

A soil handling strategy and Soil Management Plan will be implemented to reduce the impact on soils from the construction phase.

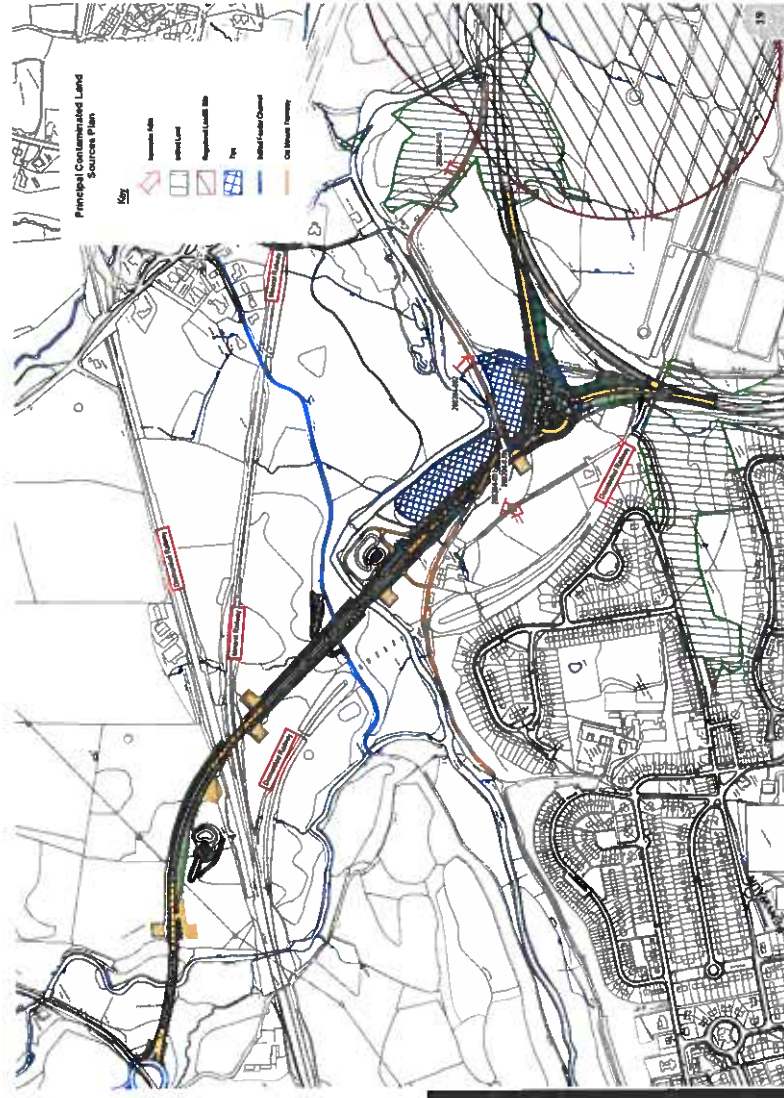
Top soil should be stripped from the road length of the Proposed Scheme and stockpiled for reuse. The stockpiles will be seeded to maintain their stability and reduce dust.

Groundwater monitoring will take place for a period of 12 months in areas where cuttings are anticipated to ensure groundwater quality is maintained.

A targeted site investigation will take place within the historical mining area to ensure any mineral resources are protected.

Contamination will be mitigated through the implementation of the Construction Environmental Management Plan (CEMP).

During operation the highway drainage will discharge into controlled attenuation ponds and sewers to reduce the chance of potential contamination to watercourses and groundwater.



Material Assets and Waste

The assessment of Material Assets and Waste focusses on the use of materials and products, the use of sustainable materials and excavated materials, and the production of disposable waste.

Environmental Effects

Construction

The majority of impacts associated with the Proposed Scheme would occur during the construction phase. They relate to the extraction and use of raw materials and the generation and disposal of wastes from the Proposed Scheme.

A quantity of material will need to be imported to the site (for earthworks and the drainage network), which will have a negative effect on the availability of resources within the region. There are enough material reserves in the local area to provide the virgin material required for the Proposed Scheme; however the amount of material that will be re-used/offered during construction is currently unknown. If the Proposed Scheme is required to be constructed using majority virgin material instead of re-used/recycled material, then the impact could be large for materials and waste

The Proposed Scheme will cause a reduction in the mineral resources (sand, gravel and coal) of the area, although the impact will be negligible.

Operation

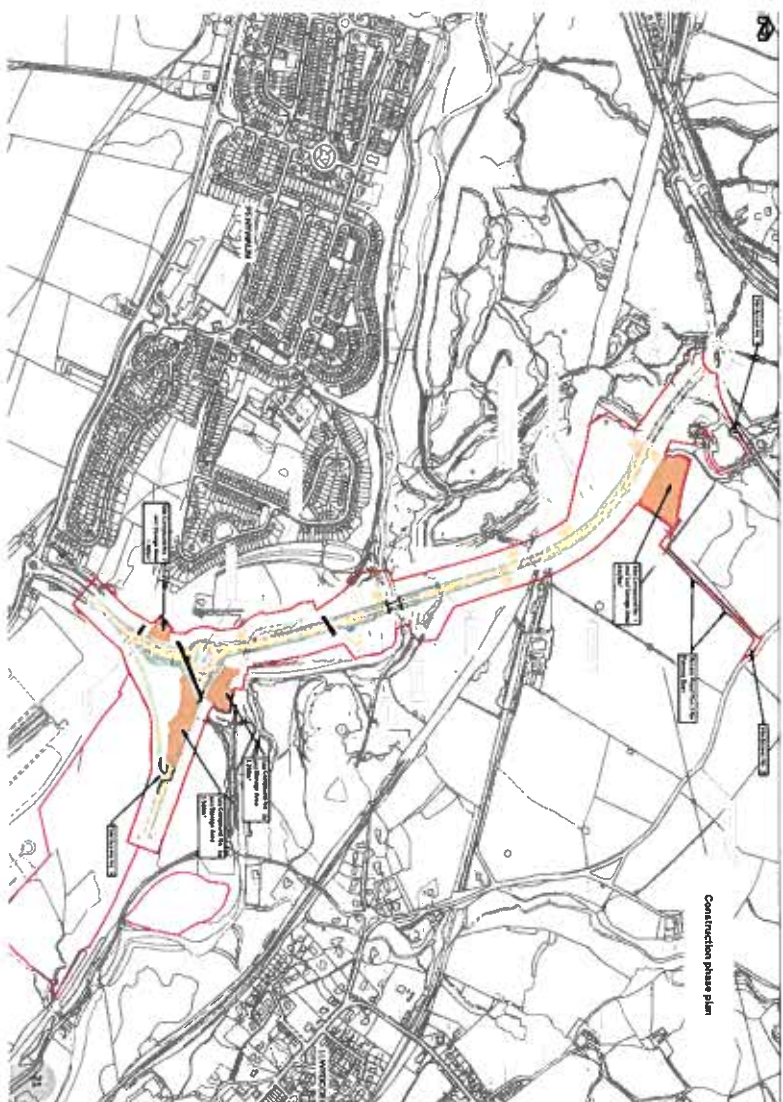
There will be no noticeable impacts from the Proposed Scheme on materials and waste during operation.

Mitigation

The Waste Hierarchy (prevent, re-use, recycle, recover, dispose) will be followed to ensure that waste being disposed of off site is minimal and prevention of waste and re-use of material is prioritised.

Implementation of the Construction Environmental Management Plan (CEMP) will include:

- Measures to control the management and temporary storage of materials during construction;
- Methods for the prevention and control of construction impacts (including dust, sprays and contamination);
- Identification of temporary construction traffic routes and the re-use of temporary materials; and
- Details of how environmental impacts will be addressed throughout the construction phase.



Noise and Vibration

The assessment of noise and vibration focusses on the impacts of unwanted sound (noise) and vibration effects from construction machinery and activities, and from traffic using the Proposed Scheme during operation. Data from the road traffic noise models were used to assess the likely changes in noise levels in the short and long term.

Environmental Effects

To assess the impacts from the Proposed Scheme, eight locations representative of the noise sensitive receptors in close proximity to the Proposed Scheme were selected.

No construction is proposed during night time hours and so no assessment of night time impacts has occurred.

Construction

Not all the noise receptors will be impacted by construction noise all the time. At different phases of construction commencement (e.g. site clearance and set up of compounds, to construction of the culverts, bridges and underpasses) different receptors will be impacted.

Gamllyn Isaf Barn could be impacted by the vibrations from HGVs using the maintenance road during construction, but this will not cause any structural damage.

Gamllyn Isaf Barn and Cottage could be impacted by the compaction works during the embankment construction phase.

A small number of properties may experience a vibration impact during piling activities for construction, however this is likely to be imperceptible.

Operation

Without the implementation of mitigation, 61 residential properties will experience a major increase in noise levels as a result of traffic from the Proposed Scheme, 128 properties will experience a moderate increase in noise and 127 will experience a minor increase.

Mitigation

Construction

Specific noise mitigation will be included in the Construction Environmental Management Plan (CEMP).

Noise barriers will be used during construction activities to reduce impact on sensitive receptors.

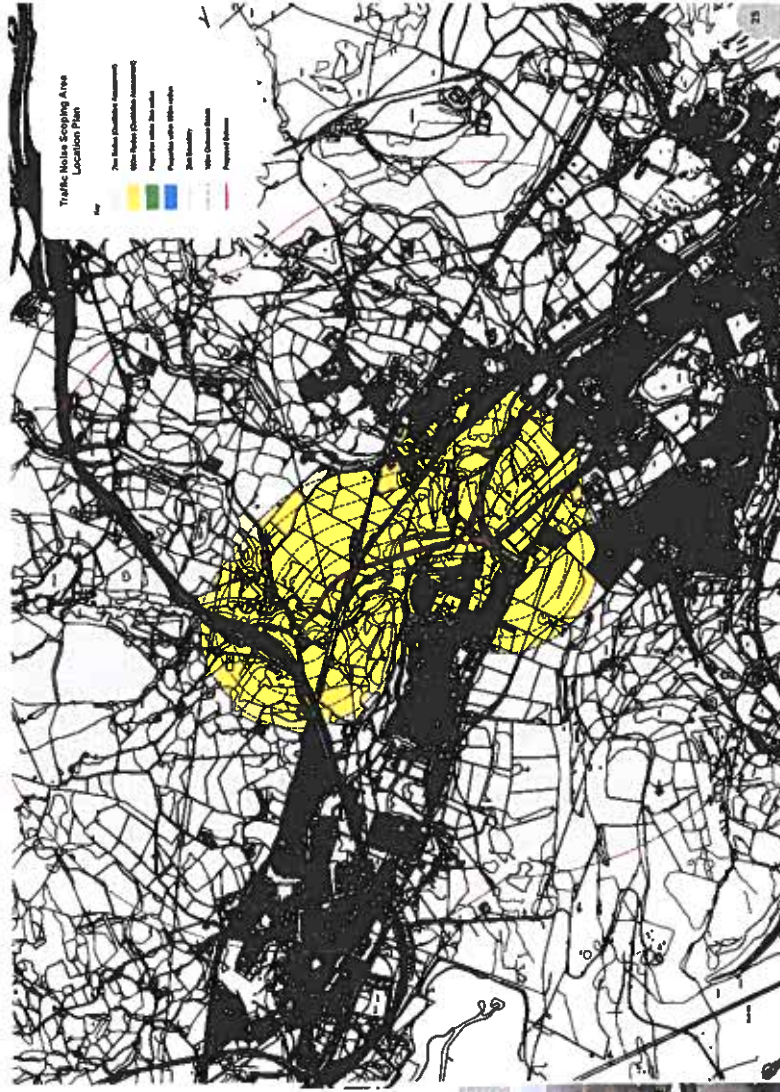
Compaction plant with lower potential to generate ground borne vibration will be considered for use next to Gamllyn Isaf Barn to reduce vibration impacts.

Best practice methods will be used throughout construction to minimise any noise and vibration impacts.

Operation

The Proposed Scheme has been designed to incorporate mitigation measures for noise, such as the use of earth banks and permanent noise barriers.

With mitigation measures in place it is estimated that approximately 91% of all properties will have a negligible increase in noise levels from traffic use from the Proposed Scheme.



Agricultural Land Holdings

The assessment of Agricultural Land Holdings focusses on the impact of the Proposed Scheme on land used for farming and its associated infrastructure such as fields, livestock and machinery buildings, and access tracks.

Environmental Effects

Without mitigation, the majority of construction effects are caused by a reduction in land available for farming, severance of land from access and buildings, and potential damage to soil and grassland. Other effects include a disruption to the movements of livestock, machinery and vehicles, and increased journey times on local roads, reducing the efficiency and income of farming businesses.

During operation there will be permanent severance and loss of land where the Proposed Scheme cuts through farm holdings preventing access and movements of livestock and machinery.

Mitigation

Temporary access tracks will be built into the Proposed Scheme for some areas to reduce the impact of severance.

To minimise the impact of soil damage, disruption to agricultural businesses and excessive land use/disturbance, a Construction Environmental Management Plan (CEMP) should be prepared which includes:

- Soil management and storage;
- Data management methods;
- Identification of access points;
- The retention of livestock, fences, walls and other barriers;
- Noise management measures; and
- The provision of temporary livestock handling facilities and access tracks as required.

Landscape mitigation will be designed to maximise the return of land to agricultural use where possible and when not required for ecological, landscape or visual mitigation.

The majority of mitigation for Agricultural Land Holdings is embedded within the design of the Proposed Scheme



Walkers, Cyclists and Horse Riders

The assessment of effects on Walkers, Cyclists and Horse Riders (WCH) considers how the Proposed Scheme changes the availability of access to routes such as Public Rights of Way (PROWs), cycle routes, and other paths.

Environmental Effects

Construction

During construction seven routes will be affected by closure and the need for diversions. These include:

- The temporary closure of three routes while alternative accesses are constructed (labelled 1, 4 and 5 on the plan);
- The permanent closure of two routes (labelled 2 and 3) as no access through the Proposed Scheme site is viable; and
- Minor disruption to WCH at two locations (labelled 6 and 7) during construction works.

Overall there would be a Large impact on WCH during the construction of the Proposed Scheme due to closure and diversions of footpaths and cycleways.

Operation

During operation, access across the A4059 between Penywaun and Aberdare Cemetery will be improved due to introduction of the new pedestrian island and lighting.

The Tir Mawr Adden Hir, Lwydosed SSSI will

remain accessible from the north and north-east sides, but users coming from the west side of the Proposed Scheme will no longer have a direct route from Penywaun. This will be a Large impact. NCN Route 46 and the PROWs north and south of the Afon Cynon will only experience slight effects as they are diverted through underpasses designed into the Proposed Scheme.

Mitigation

Where PROWs, NCNs and footpaths are severed the Proposed Scheme has, where possible, included underpasses to maintain access. Where severance of routes is unavoidable consultation will take place with users to identify potential alternatives and improvements to the WCH network.

Traffic management measures are to be planned and implemented to ensure the safety of WCH users during both construction and operation phases.



Private Property, Community Land and Development Land

The assessment focuses on land use, accessibility and severance to Private Property, Community Land (common land, village greens, open space, allotments, sports pitches, etc.) and Development Land (land allocated for development by the local authority, or subject to planning applications) assets.

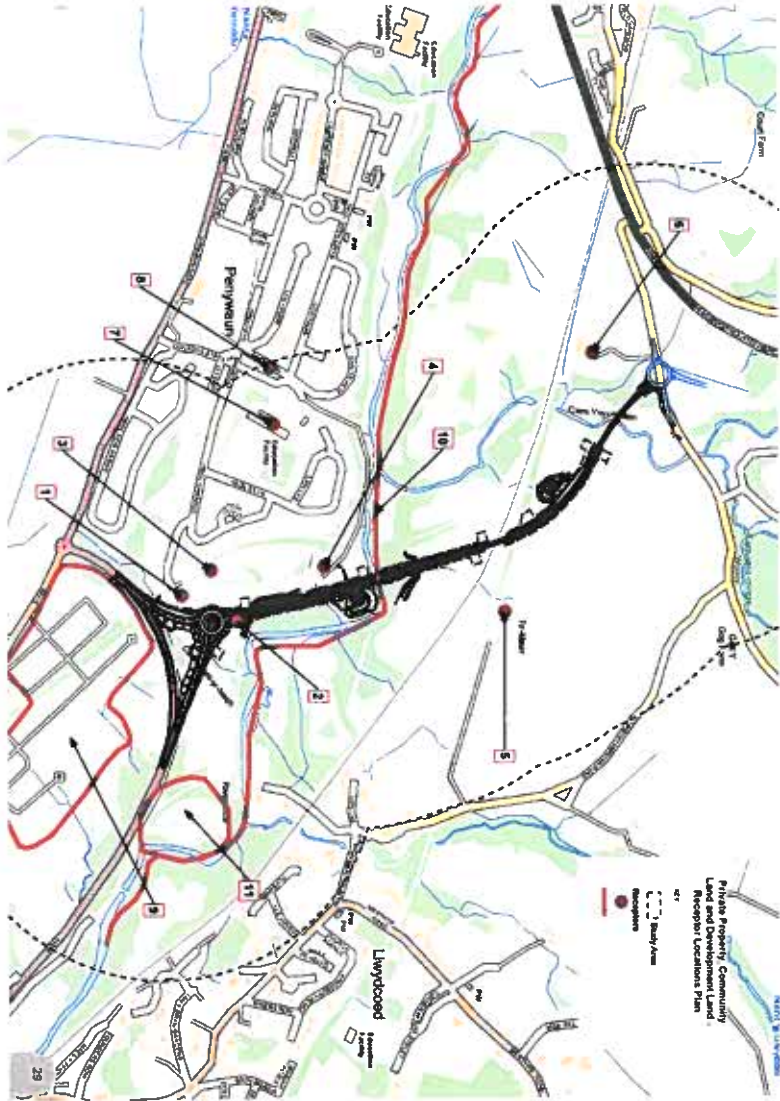
Environmental Effects

The Proposed Scheme will lead to the permanent loss/damage to outbuildings and surrounding land at Oaktree House and Bromall Terrace (labelled 1 and 2 on the plan). There will also be permanent partial loss/damage to surrounding land at Brynawel Burghow, Gamlyn Isaf Farm, Barn and Cottage and Dere Valley Pony Club (labelled 3, 4 and 11 respectively). There will be a temporary severance of access to Gamlyn Isaf Farm, Barn and Cottage, partial loss of access to Alyn Cynon (labelled 10) and a temporary loss of an access to Aberdare Cemetery (labelled 8).

During operation, access to Aberdare Cemetery will be improved with a pedestrian refuge island and lighting. No impacts are anticipated to Te Mawr Farm, Gelli-law Farm, Pen-y-waun Primary School or Gwladys Street Play area (labelled 5, 6, 7 and 8 respectively) during construction or operation.

Mitigation

Temporary access to Gamlyn Isaf Farm Barn and Cottage will be provided from the west along an existing footpath and existing gates removed to provide vehicular access. Consultation should be undertaken with the relevant landowners prior to construction to inform users of the impact. Mitigation is also discussed within the Walkers, Cyclist and Horse Riders chapter, and therefore no other mitigation is required for this assessment.



Human Health

Human Health assesses health profile(s) of affected communities and health detriments likely to be affected by the Proposed Scheme. This includes environmental conditions relevant to human health, such as air quality and landscape amenity, as well as accessibility communities have to land, assets and employment.

Environmental Effects

Construction

During construction, a number of activities could reduce the amenities and negatively impact human health of the local area. These include:

- removal of existing vegetation;
- use of construction lighting;
- production of noise from machinery and vehicles; and
- severance of the Cynon River Valley Park.

No impacts are anticipated to Aberdare West/ Llywyddoed 3, Penywaun 1 and Hirwaun 1 (labelled 2, 3 and 6 respectively).

Operation

During operation, the main negative impact will be on the visual amenity of the areas/ Lower Super Output Areas (LSOAs) Aberdare West/ Llywyddoed 2, Penywaun 2, Brynawel Bungalow, Gwyn Isaf Farm, Barn and Cottage, Tir-Mawr and Gelli-lawr due to the new road infrastructure (carrisageway, lighting, visibility of vehicles and noise of road traffic) which can have a negative effect on human health.

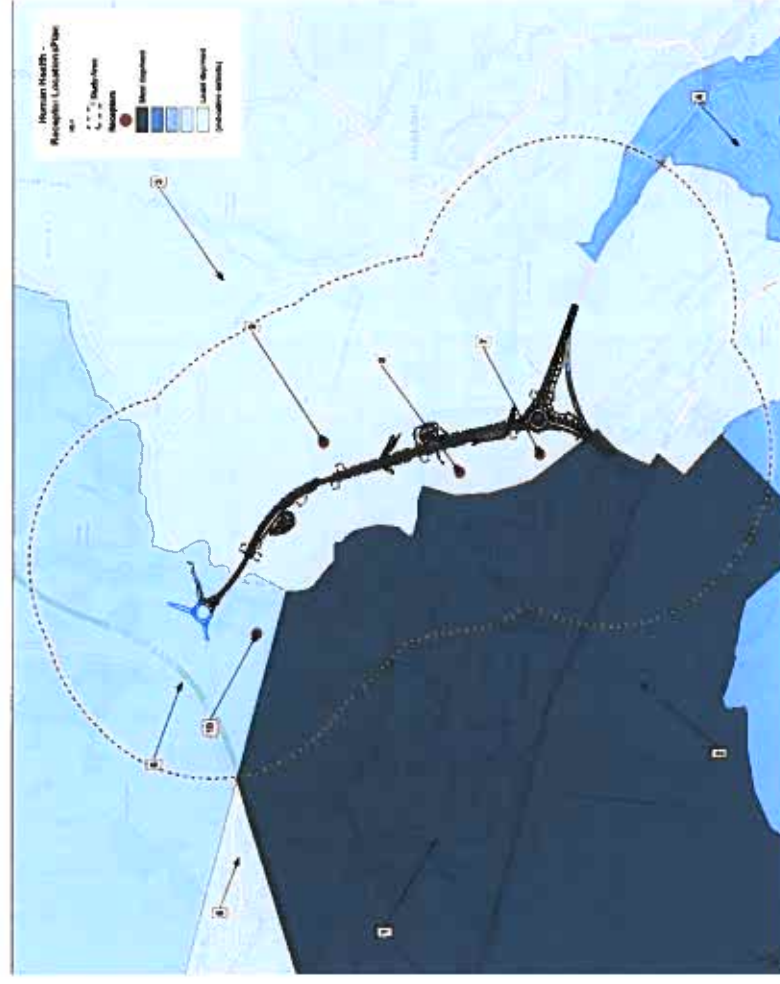
However, it is anticipated that there will be reduced traffic flows along the A4059 Hirwaun Road in Penywaun which will improve air quality in the area.

Mitigation

Mitigation for human health impacts has been included within other chapters.

- Visual Impacts;
- Noise and Vibration; and
- Landscape Character.

Therefore, no additional mitigation has been recommended from this assessment.



Road Drainage and the Water Environment

The Proposed Scheme crosses over the Alon Cynon and one of its tributaries, the Nant Hir. The Proposed Scheme will also impact other minor watercourses. This assessment focuses on the impacts to water quality, flood risk, geomorphology and land drainage.

Environmental Effects

Construction

Without mitigation, sediment, soil, dust and liquid pollutants entering the water courses during the construction phase would cause large negative impacts on water quality, affecting the aquatic ecology and habitats. This can be caused by:

- earthworks disturbing soils and releasing sediment to watercourses;
 - excavations disturbing existing/aesthetic contaminated land, releasing contaminants to watercourses and aquatic ecology;
 - movement of construction plant on and off-site and across river channels, releasing dust, and
 - diversion of the watercourse via a pipe that could prevent natural processes of erosion, transport and deposition of sediments
- Fish and their habitats are likely to be disturbed through:
- vibration from piling and other intrusive construction activities;
 - clearance of vegetation and trees along the river that support the river habitat;

Operation

Without mitigation, the permanent diversion of the Tŷ Mawr tributary would lead to permanent loss of the natural geomorphology of the watercourse and increase flow. This could lead to increased erosion within the new channel and also increase sediment deposition downstream within the Alon Cynon, causing habitat degradation.

Without mitigation there is expected to be a permanent increase in surface water run-off. Spillages of pollutants could enter watercourses through the surface water run-off, impacting on ecology. Flow dynamics and fluvial flooding. Increased shading caused by the structures of the Proposed Scheme will decrease sunlight within the channel, reducing in-channel vegetation and degrading habitats. It will also prevent growth of vegetation and trees on channel banks which will reduce bank stability leading to increased erosion. Introduction of hard materials for culverts and structures will reduce the availability of natural habitat for species and alter the flow of the watercourses.

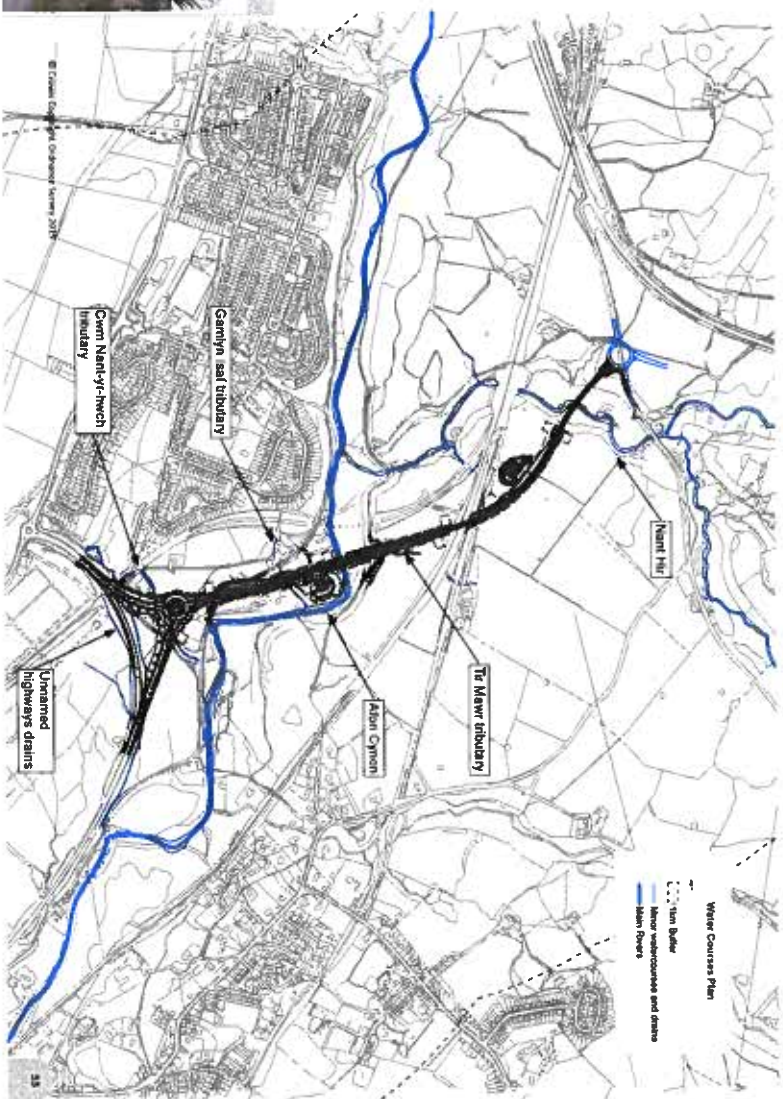
Mitigation

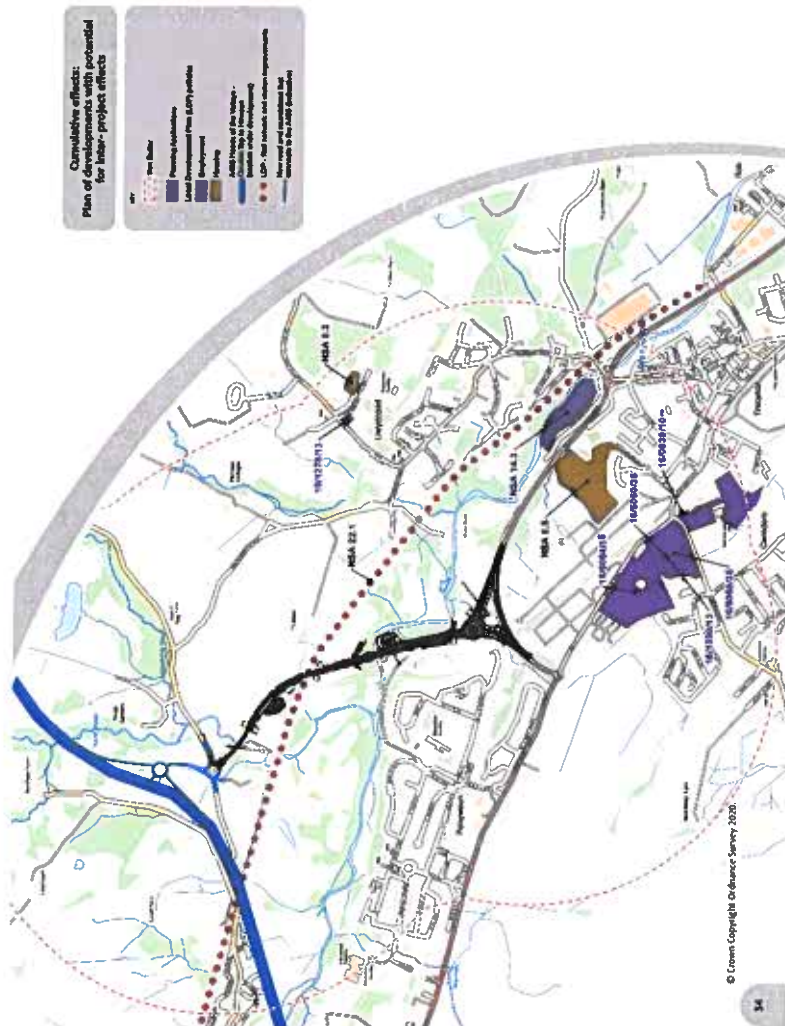
During construction, methods for management of construction impacts will be included in the Construction Environmental Management Plan (CEMP) and best practice guidance, including

Industry approved methods, will be followed throughout. Storage of material and equipment will be kept outside of the floodplain and surface water flow routes. Excavated material should be covered during periods of heavy rainfall to reduce sediment entering watercourses. The Proposed Scheme landscape design includes mitigation to reducing shading caused by structures through retaining tree removal and replacement planting where required to reduce habitat loss and increase bank stability.

On the Nant Hir, flows will be reduced within the original channel to reduce erosion at the downstream bend. This will also create a backwater channel which will have biodiversity benefits.

The permanent diversion of the Tŷ Mawr tributary will be designed to be like the existing channel to improve its condition, and new habitats will be created to increase habitat diversity. The loss of channel within the SSI will also be minimised. Pools will be dug into the base of the slopes to dissipate energy and increase biodiversity. The use of a SuDS drainage network with attenuation ponds located along the route will prevent contaminants from entering the groundwater/watercourses.





Cumulative Effects

Impacts from a combination of the Proposed Scheme and other developments in the local area (shown on the plan to the left), such as the Heads of the Valley Dualing Scheme, include:

- Additional loss of land from the Tir Mawr a Dderi Hir, Llywydded Site of Special Scientific Interest, potentially impacting Marsh fritillary butterfly populations; and
- Increased land loss, noise and Public Right of Way (PROW) severance.

Cumulative environment effects within the Proposed Scheme

The cumulative effects chapter of the ES brings together all impacts from the Proposed Scheme, identified on a sensitive receptor across all the environmental topics. These are stated below.

Construction

Construction noise, restricted/impaired accessibility, changed landscape character and reduced visual amenity will cumulatively impact users of the Cynon River Valley (walkers and cyclists) due to:

- Construction traffic and machinery;
- Severance and loss of woodland, hedgerows and grassland;

- Diversion of PROWs;
- Severance of the SSSI; and
- Increased lighting at night.

Changes to the landscape and reduction in visual amenity are considered to be cumulative impacts on the Aberdare Cemetery due to:

- Presence of construction traffic in a currently tranquil area;
- Loss of woodland; and
- Increased lighting at night.

Changes to the landscape, reduction of visual amenity and disruption to accessibility for residents are considered to be cumulative impacts upon Penywaun due to:

- Removal of existing vegetation;
- Construction works and lighting; and
- Severance of the PROW between Hwaun Road and Aberdare Cemetery during construction.

Changes to the landscape and a reduction in visual amenity are considered to be cumulative impacts on the Llywydded settlement due to:

- The construction compound being built in the rural landscape;
- Severance of the mosaic field patterns;
- Loss of woodland, hedgerows and vegetation; and
- Increased lighting at night.

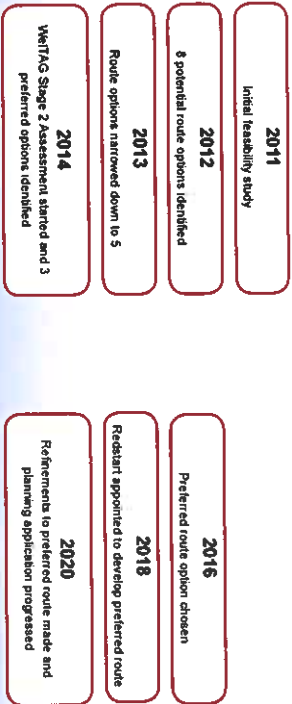
Operation

During operation, only the Cynon River Valley will have permanent cumulative effects through the changed landscape character and reduced visual amenity of the area to users of this valley (walkers and cyclists).

Mitigation

Mitigation has not been incorporated into the Proposed Scheme at this stage as not all the effects are fully clear. Mitigation for individual effects are found in the relevant chapter topics, and will be further developed following the PAC process.

Progress so far



Subject to Pre-Application

Autum 2020
Autumn 2020 – ongoing design of the Proposed Scheme, site surveys and assessments

Typical roundabout

What happens next

Subject to planning approval



Please note that the programme at present is dependent on several contributing factors, particularly the A465 Heads of the Valleys programme. Should that programme face delays then that may impact this programme. Additionally, there may be delays due to further ground investigation, statutory undertaker requirements, planning requirements, ecology requirements and land negotiations.

WerrAG Bridge