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A40 PENBLEWIN TO REDSTONE CROSS IMPROVEMENTS ENVIRONMENTAL STATEMENT: NON TECHNICAL SUMMARY July 2020



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The Welsh Ministers are responsible for trunk roads in Wales. The A40 west of St Clears provides a key trunk road link between south-east Wales and Haverfordwest, which is a gateway town to the ports of Milford Haven and Fishguard, as well as the tourist economy of central and north Pembrokeshire.

There is currently limited safe overtaking provision on the A40 between Haverfordwest and St Clears, which causes unreliable journey times and driver frustration, especially in busy summer months.

After considering a range of potential options, the Welsh Ministers propose a new section of A40 Trunk Road over a length of 1.76km to the south of the existing A40 trunk road between Penblewin Roundabout and Redstone Cross. The redundant sections of existing A40 road between Penblewin Roundabout and Redstone Cross would be reclassified and cease to be a trunk road, with ownership reverting to the local highway authority.

The proposed Scheme is named the A40 Penblewin to Redstone Cross Improvements (referred to hereafter as the “Scheme”). The Scheme location is shown in Figure 1.

The Scheme proposals were subject to Environmental Impact Assessment (EIA), in accordance with European Directive 2011/92/ EU, as amended by Directive 2014/52/EU (collectively referred to as the EIA Directive).

The latter is transcribed into UK law through the Highways Act 1980 (as amended) and the Environmental Impact Assessment (Miscellaneous Amendments Relating to Harbours, Highways and Transport) Regulations 2017, which came into effect on 5 December 2017.

Accordingly, an Environmental Statement (ES), was prepared, identifying the main environmental effects of the Scheme and describing proposed measures to avoid, remedy or reduce effects and provide environmental enhancement where practicable.

The ES ensures that all those with an interest in the Scheme, including the public, understand the proposals and are given an opportunity to express an opinion on them before the Welsh Ministers decide whether to confirm the draft Statutory Orders for the Scheme.

This document is the ES Non-Technical Summary (the “NTS”), which describes the environmental aspects of the Scheme and provides an overview of the findings of the EIA process in non-technical language.

A Scheme Assessment Report (the “SAR”) is available which describes the non-environmental aspects in plain language. This NTS should be read alongside the SAR.

The ES was published on 15 July 2020, alongside the Scheme draft Statutory Orders. The Scheme draft Statutory Orders are listed in the SAR.

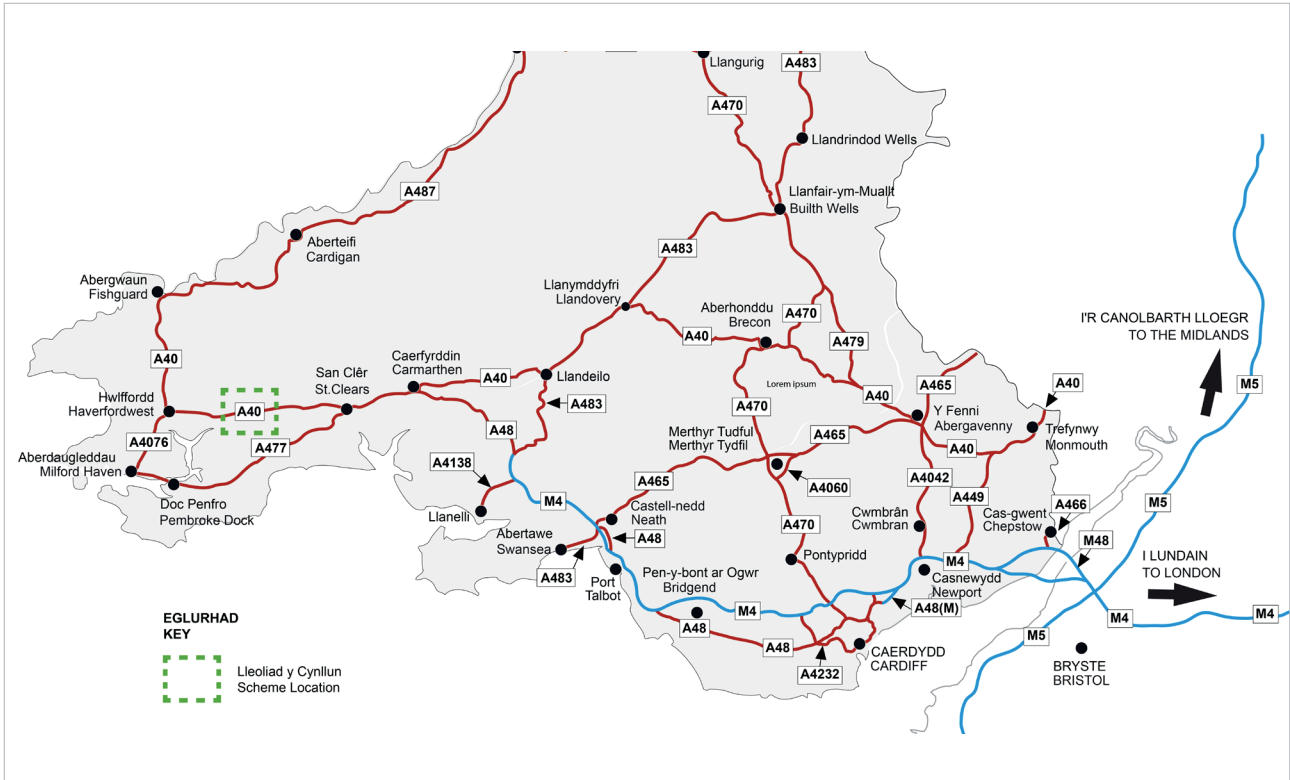


Figure 1: Scheme location

The A40 is a route of national and international strategic importance, forming part of the Trans-European Transport Network (TEN-T). At a regional and local level, it serves: the county town of Haverfordwest, the tourist economy of central and north Pembrokeshire, the port of Fishguard and the industrial town of Milford Haven to the south.

Despite this, the section of the A40 between St Clears and Haverfordwest is a relatively poor-quality route. It has previously been described within the National Trunk Road Forward Programme as “one of the lowest standard sections of the Trans-European Road Network in the United Kingdom”.

A Welsh Transport Appraisal Guidance (WelTAG) study identified problems to be addressed on the A40 along the Penblewin to Redstone Cross corridor, which comprised a range of actual and perceived problems:

1. The A40 Redstone Cross Junction is below modern design standards. Poor visibility and substandard junction layout can lead to severe road accidents.
2. Limited overtaking opportunities lead to poor journey time reliability and driver frustration.
3. Occasional convoys of heavy goods vehicles from the ferry ports and slow-moving agricultural vehicles contribute to periods of platooning and journey time unreliability, which is exacerbated with limited overtaking opportunities.
4. Seasonal spikes in traffic volumes along the A40 especially during the summer months leads to slow moving traffic causing journey time unreliability, which is exacerbated with limited overtaking opportunities.
5. There are many side road junctions and direct accesses to properties and agricultural fields off the A40, which contribute to operational problems along the road.
6. A mix of traffic types use the road, contributing to journey time unreliability and driver frustration, risky manoeuvres and collision incidents.
7. A lack of strategic public transport connectivity in Pembrokeshire generally means there is a dependence on the private car for inter-urban connections.



Figure 2: The A40 at Redstone Cross Junction looking west

These proposals support the direction and policy objectives of the Welsh Government as set out in its Programme for Government ‘Taking Wales Forward’ (2016), National Strategy ‘Prosperity for All’ (2017), the ‘National Transport Finance Plan’ (2019) and ‘Finance Plan’ (2015), the ‘Wales Transport Strategy 2008’ and ‘Planning Policy Wales’ (2018).

A wide range of legislation and policy documents were considered as part of the Scheme development work, including the Well-being and Future Generations Act (Wales) 2015, Environmental Act 2016, Active Travel (Wales) Act 2013 and relevant Local Development Plans. Chapter 5 of the ES reports on all legislation and policy taken into account during Scheme development.

Eight specific Objectives were agreed as part of the Welsh Transport Planning and Appraisal (WeITAG) Review Group. They are:

O1	To enhance network resilience and improve accessibility along the east-west transport corridor to key employment, community and tourism destinations.
O2	To improve prosperity and provide better access to the county town of Haverfordwest, the Haven Enterprise Zone and the West Wales ports at Fishguard, Milford Haven and Pembroke Dock.
O3	To reduce community severance and provide health and amenity benefits.
O4	To improve the Redstone Cross Junction safety (including perceived safety) and reduce the number and severity of collisions.
O5	To promote active travel by cycling, horse riding and walking to provide opportunities for healthy lifestyles.
O6	To deliver a Scheme that promotes social inclusion and integrates with the local transport network to better connect local communities to key transport hubs.
O7	Deliver a project that is sustainable in a globally responsible Wales, taking steps to reduce or offset waste and carbon.
O8	Give due consideration to the impact of transport on the environment and provide enhancement when practicable.

The Scheme was designed to meet the project objectives by providing overtaking opportunities with a '2+1' carriageway (two lanes in one direction to allow overtaking, and one lane in the opposite direction). This highway cross-section provides a 1km overtaking opportunity in the westbound direction. The Scheme is described from west to east, starting at Sodston Lodge in the west and proceeding towards Penblewin Roundabout in the east. The Scheme is illustrated in the Figure located at the back of this document.

A40 Mainline

The Scheme would commence approximately 550m west of Redstone Cross where the existing ascending A40 passes the property known as Sodston Lodge. A new attenuation pond/basin (Pond A) would be provided south of the A40 and north-east of the property known as Jacob's Park.

Travelling east, the Scheme would leave the line of the existing A40 at Sodston Lodge along a single lane section which moves further to the south on its approach to the existing B4313 Redstone Road. The A40 would then begin to descend on a gentle gradient. The single lane section would widen to a westbound 2+1 overtaking section. To the north side of the Scheme would be properties at Redstone Cross and to the south the Blaenmarlais Care Home. The B4313 Redstone Road would cross the A40 on a proposed overbridge.

East of the proposed overbridge, the A40 would continue the gentle left-hand curve to cross a small watercourse north of Blaenmarlais Care Home. Here the Scheme would gradually transfer from cutting to embankment to cross lower-lying land occupied by woodland. Whilst on embankment, the road would continue eastwards crossing two minor watercourses. An underpass would be introduced south-east of Blackmoor Hill Farm, this would be utilised as a farm underpass and provide access to a new attenuation pond/basin (Pond B).

At Penblewin, the Scheme would re-join the A40 trunk road at the enlarged roundabout previously proposed for the Llanddewi Velfrey to Penblewin Improvements scheme. The enlarged roundabout would extend further north and west than the existing and would serve the A40 trunk road, the A478 and the trunk road link to the Penblewin Rest Area. In addition, a sixth arm would be required for a new short link to the detrunked A40 west to Redstone Cross.

Redstone Cross Junction

A new junction and highway link would be provided between the A40 trunk road and the B4313 Redstone Road. This would be located east of Sodston's Lodge and south of the existing Redstone Cross Junction. This link (shown in Figure 3) would allow access and egress to traffic travelling towards or from Haverfordwest only. The link road would not be accessible from the proposed westbound A40. Instead, traffic travelling westbound along the A40 and heading to the north of Narberth and the Rushacre Enterprise Park will be directed to use the existing A40 via the north western arm of the Penblewin roundabout.



Figure 3: New Redstone Road layout (looking north west)



Figure 4: The existing A40 trunk road, looking east

If the Welsh Ministers confirm the Orders, construction could start in Autumn 2021 and the Scheme will be open in late 2022. The start of construction could be affected by Statutory procedures, weather conditions or unforeseen engineering conditions experienced on site. Following the construction phase, there would be five years of landscape maintenance aftercare.

Construction working hours would normally be 0700 to 1900 hours (Monday to Friday), and 0700 to 1700 hours on Saturdays. In certain circumstances, specific works may have to be undertaken outside these hours with some night working required. Temporary traffic management would be necessary where the Scheme meets existing roads.

Phasing of Construction

The sequence of works during construction of the Scheme will typically commence in the following order:

Phase 1

- Temporary fencing of the construction corridor;
- Archaeological investigations;
- Vegetation site clearance;
- Site Clearance; and
- Diversion or protection of utilities.

Phase 2

- Excavation of cuttings and balancing ponds;
- Construction of embankments and the structures e.g. bridge and culverts;
- Construction of the new carriageway;
- Installation of lighting columns, road signs, safety barrier and further fencing; and
- Landscape planting and accommodation works, including new field accesses.

What will happen to the old road?

The existing road would be detrunked and responsibility passed from the Welsh Ministers to Pembrokeshire County Council.

The detrunked road would serve local traffic travelling to Redstone Road / the north of Narberth, and Bethesda. Options for the inclusion of a segregated walking / cycling route have been developed. The final proposals will be discussed and agreed with Pembrokeshire County Council during the next stage of the project.

In January 2019, Arup (supported by RML), began investigating the problems and developed potential effective solutions to address the transport related problems along the A40 between Penblewin Roundabout and Redstone Cross for the Welsh Government.

Through a WeITAG Stage 1 process, a long list of options were sifted and a short list of options identified. A single northern and southern alignment were selected and alternative junction arrangements for Redstone Cross were considered. The Options selected for further development for the previous list were: Option 1A, Option 1B (shown in Figure 5) and Option 2A. Subsequently a new Option 2B was added to those previously shown and was made public at a further exhibition (Options 2A & 2B shown in Figure 6).

During a period of public consultation, July to September 2019, there was clear public support for Option 2B, along with support for Active Travel measures to be included in the detrunking proposals.

Following the Public Consultation, Welsh Government published a Preferred Route in December 2019. A Public Information Exhibition was then held shortly after to explain to the public the developing proposals and to listen to the public's feedback, which has been incorporated where possible.

Stakeholder organisations including Cadw, Dyfed Archaeological Trust (DAT), Natural Resources Wales (NRW), Pembrokeshire County Council (PCC) and other Welsh Government departments, were consulted or have provided information. Their views were taken into account as the Scheme was developed. The statutory organisations attended Environmental Liaison Group Meetings (ELG) and will continue to meet throughout the development of the Scheme.

Local residents and business owners attended public exhibitions in Narberth and met with the project team. Commercial, industrial, business operators and some interest groups were informally consulted. All of the land owners affected by the requirement for land, or by changes to access roads, have also been invited to complete a questionnaire relating to existing land uses.



Figure 5: Options 1A and 1B



Figure 6: Options 2A and 2B

The assessment of significant effects has been undertaken for each of the 13 topic areas, a summary of the assessment is presented below. Each topic assessment is based upon assessment criteria derived from recommended legislation and guidance for their respective topic.

DESIGN AND MITIGATION

Mitigation measures identified through the assessment process have been integrated into the design of the Scheme to design out adverse effects where possible.

Construction

During construction, most of the Scheme's potential adverse impacts will be avoided or mitigated by the implementation of industry standard practice and control measures, which will be detailed within a plan used by contractors, typically known as a Construction Environmental Management Plan (CEMP). An early draft of this document has already been developed on behalf of the Welsh Government, which is known as the Pre-CEMP. The Pre-CEMP is included within the ES.

Operation

When designing the Scheme, the first preference in mitigating any impact is to seek engineering design measures to entirely avoid or eliminate the impact, for instance through changes to the Scheme layout. Where avoidance of an impact is not possible, or is only partly effective, further mitigation measures may be required. Examples include planting trees to screen views and providing crossing points for wildlife.

ASSESSMENT OF EFFECTS

The following sections provide a summary of the assessment of likely significant environmental effects as a result of the Scheme on an environmental topic basis.

Geology and soils

An assessment of geology and soils has been undertaken, taking into account geology, geological features, mineral resources and land contamination. There are two known quarries within the Scheme area, therefore there is the potential for unknown historical quarrying and infilled land to be encountered which could be a source of contamination. Ground investigations on site have identified a slight risk of land contamination.

Construction

The assessment has considered impacts associated on the underlying geology by earthworks, removal of material and building of structures. The effect on mineral resources was also considered. The potential impact of construction works on controlled waters and contamination impacting human health has been assessed. No significant effects are anticipated to affect geology in the Scheme area as all effects have been classed as neutral or slight adverse.

Operation

All effects were assessed as neutral or slight adverse meaning no significant effects were identified and no additional mitigation, aside from in-built mitigation, required. The assessment found that a neutral / slight beneficial effect could occur through rock exposures formed by cuttings along the Scheme, therefore providing areas of geological interest.

Road Drainage and the Water Environment

The water environment for the Scheme consists of surface watercourses including a number of unnamed tributaries and ponds, the underlying groundwater and associated groundwater dependant features. An assessment of the potential effects of the Scheme upon the water environment which considered effects upon water quality, water quantity and flood risk was undertaken.

Construction

The assessment of effects during construction found a significant effect will potentially occur on groundwater quality and was assessed as moderate adverse. To mitigate this, standard best practice construction techniques outlined in the Pre-CEMP will be implemented. No other effects were deemed significant.

Operation

The operational assessment has identified a neutral effect on the water environment. Mitigation measures included as part of the design will be in accordance with best practice guidelines for the design of outfalls and culverts will be implemented for all structures.

Nature Conservation (Biodiversity)

The assessment considers the following nature conservation and biodiversity interests:

- Protected sites;
- Habitats; and
- Species of fauna and flora.

Construction

During construction, the significance of effect on woodlands is assessed as moderate adverse and for hedgerows slight adverse, due to the fragmentation of green corridors and habitats. Following mitigation, the significance of effects on foraging bats is predicted to be moderate adverse, for internationally important species, to slight adverse, for locally important species. Following mitigation, the significance of effects on watercourses, dormice, otter, barn owl and spotted flycatcher, will be slight adverse. Effects on other species including breeding birds, badgers, reptiles, amphibians and some other mammals has been assessed as neutral. No significant effects are predicted for protected sites.

Operation

During operation, once planting matures the significance of effect on deciduous woodland, watercourses and hedgerows will be of neutral significance over time. The creation of 6ha of species-rich grassland will lead to a slight beneficial effect for this habitat. The inclusion of wildlife crossings and culverts will reduce the significance of effect for the internationally important bat assemblage and a neutral significance of effect for the locally important assemblage of bats. The residual effect on barn owls is slight adverse due to the risk of collisions on the road. Other measures including habitat creation, mammal fencing and ledges will result in the removal of negative effects on otter, badger, reptiles and amphibians. No significant effects are predicted for protected sites.

Landscape and Visual Effects

The Scheme occupies part of a prominent ridge and plateau with steep scarp slopes that surround the head of the Afon Marlais and Lampeter Vale. The ridge and plateau are dissected by steep-sided valleys that drain into both Taf and Cleddau rivers. The surrounding area has an undulating topography with numerous river valleys, often with wooded slopes. Pembrokeshire hedge-banks, hedgerows with trees and blocks of woodland cross the landscape and a network of narrow lanes connects villages, single dwellings and rural settlements.

There are a number of important designated sites within close proximity to the Scheme area including the Pembrokeshire Coast National Park and Blackaldern Registered Historic Park and Garden.

Construction

This assessment concludes that during construction and in the first year after construction is complete, the Scheme will have a slight adverse effect upon three landscape character areas of Narberth, Llanddewi Velfrey Ridge and Lampeter Velfrey Slopes. This effect will be reduced as the proposed landscape mitigation measures become established.

The impact on views from Sodston House Lodge, Blaenmarlais, Blaenffynnon and Penblewin will be adverse during construction and in year 1 of the Scheme.

The visual impact assessment of 190 residential properties predicts that there will be an initial significant adverse impact on 11 properties during construction.

Operation

For the Landscape Character Area of Narberth Rural there will be a large negative impact during construction and year 1. By year 15 this will be reduced to slight negative. For the whole study area, the impact by year 15 would be neutral.

By year 15 these negative effects will be moderated by the development of landscape mitigation which includes false cuttings, Pembrokeshire banks, extensive tree and shrub planting. Some vertical noise barriers are also proposed, and these will assist in screening views of traffic.

The visual impact assessment shows an adverse impact on 4 residential properties by year 15.

Archaeology and Cultural Heritage

A number of heritage features have been identified within the 3km study area including Scheduled Ancient Monuments, Listed Buildings, field systems and bridges. Geophysical surveys also identified a number of areas that could potentially contain buried archaeology.

Construction

The construction effects on the heritage assets within the study area have been identified as neutral. The exceptions are the Toll road between St Clears and Canaston Bridge, circular features, a Lane on the Tithe Map and Blaen Marlais house and barn which are classed as having a neutral or slight significance of effect, the field system and circular cropmark which are identified as having a slight effect and a standing building which is identified as having a slight or moderate significance of effect.

There is also a high possibility that intrusive works on the Scheme may uncover previously unrecognised archaeological deposits. As a mitigation measure, an archaeological evaluation programme is planned which will involve recording existing archaeological remains and trenching.

Operation

No significant effects have been identified for the setting of designated historical assets during the operation of the Scheme. The Redstone Cross Barrow Group will experience an improvement as the main road will move further away from the barrows. The vast majority of designated sites (scheduled ancient monuments and listed buildings) identified in the 3km buffer zone will have no views of the Scheme when it is operational, due to hills and increasing distance.

Community and Private Assets (excluding agriculture)

The assessment of community and private assets includes effects on community facilities, including: doctor surgeries, hospitals, aged people homes, schools, shops, post offices, places of worship, parks, play areas and other public open space and sports centres. It also assesses effects on private and commercial assets, including private property and associated land take, commercial property and development land.

Construction

The potential effects for the construction phase will be temporary. Throughout construction of the Scheme, nuisance from access restrictions, noise, dust and vibration will be mitigated as best as possible through measures outlined in the CEMP. In addition, temporary traffic management will be used wherever necessary to maintain access to communities. The Blaenmarlais Care Home, residential receptors and a commercial property will experience minor adverse effects including noise, dust and vibration and journey impacts for visitors to the care home caused by traffic management.

Operation

During operation, there will be beneficial impacts on the care home and residential receptors due to the provision of a shared use footway / cycleway and separation from the A40 traffic. For other residential properties, there will be a positive effect, assessed from neutral to moderate beneficial, from moving the A40 trunk road further away through reduced noise and vibration and improved air quality. Walking and cycling access to and from Narberth will be improved for residential properties located to the north of the existing A40 as the need to cross the A40 trunk road at grade will be removed.



Figure 7: Area of the Scheduled Ancient Monument (north of existing A40)

Community and Private Assets: Agriculture

The assessment examined the potential effects on agricultural land resources and farm businesses. In assessing land resources the agricultural land was measured on a scale according to its quality and therefore its sensitivity to effects. The assessment of farm businesses considered the physical effects, including land loss, severance, the potential effects on the movement of livestock, field accesses, drainage and the use of farm buildings, as well as the longer term consideration of whether the land could continue to be of beneficial agricultural use.

Construction

There are five farms affected by the permanent land acquisition for the Scheme. Some land would be required on a temporary basis for construction, which would be returned to the owners upon completion of the Scheme. In terms of severance, access to the land during construction is expected to be capable of being maintained, with the exception of one field. Good construction practices will be undertaken to ensure no agricultural weeds or diseases are spread between farms. Mitigation measures include reducing the impact of crop loss by giving advance warning to enable farmers to plan ahead for the year. Timing the start of sections of work to start just after harvest and monitoring the drainage of the fields will be implemented. In the event that water supplies are affected, temporary or permanent solutions will be offered to the owners affected. All effects are classed as being moderate adverse and therefore significant.

Operation

12.8 hectares of agricultural land and associated woodland will be lost permanently to the Scheme. This cannot be mitigated however can be compensated. A further 0.8 hectare will be re-contoured and returned to agricultural use post-construction. The land required is not considered of the best and most versatile quality and therefore the effects are considered to be as minor adverse and not significant.



Figure 8: View and agricultural land to the south-west (Blackmoor Hill Farm to the right)

Air Quality

A detailed air quality assessment was undertaken to establish the potential effects of the Scheme on local and regional air quality. Annual mean levels of nitrogen dioxide and particulate matter (PM10) were measured near to multiple sensitive receptors, such as schools and houses, and were then compared to the predicted levels they will change to if the Scheme were built and traffic consequently altered.

Construction

No exceedances of the air quality objectives are predicted with or without the Scheme in any of the scenarios assessed. There is only one receptor location predicted to have a minor adverse impact, which is Blaenmarlais Care Home. All other receptors are predicted to have either a negligible, minor beneficial, moderate or major beneficial impact. The impact of any dust-emitting activities can be greatly reduced by applying best practice construction mitigation, such as regular monitoring of site activities and location of machinery and dust causing activities away from receptors where possible.

Operation

The Scheme will move the main A40 traffic away from the existing road alignment. This will provide a slight beneficial effect on air quality for receptors on the existing alignment of the A40. There is a minor adverse impact predicted where the road moves closer to receptors. No mitigation measures are required.

Noise and Vibration

A noise and vibration assessment was undertaken to determine the significance of temporary and permanent effects of noise and vibration during the construction and operation phases. The dominant noise source is road traffic from the existing A40.

Construction

The noise assessment identified that significant effects will be experienced at four of the receptor locations during construction. Appropriate mitigation to reduce these effects will be implemented through the CEMP. The assessment of vibration effects due to all construction activities are reported as not significant at all receptors.

Operation

For properties where the realigned A40 is closer than the existing A40, adverse significant effects have been avoided by the inclusion of landscape/noise mitigation (landscaped bunds) between the Scheme and the properties.

All Travellers

The assessment of all travellers includes vehicle travellers and walkers, cyclists and horse-riders (WCHR). The potential effects are considered on Public Rights of Way, Cycle routes and other WCHR routes, public highways, overbridges and underbridges, public transport and bus stops, community severance, driver stress and detrunking.

Within the study area, the presence of PRow is sparse with only two links available to WCHR. A footpath runs north-south following agricultural land boundaries and currently terminates on the existing A40 east of Blackmoor Hill Farm. Access to the footpath via the A40 is currently unattractive, with no pedestrian footways in an eastbound or westbound direction, providing no wider connectivity.

A bridleway runs west-east to the south of the Scheme between the A478 and B4313. The route is clearly signed at both intersections.

Construction

During construction, the assessment identified that there will be minor adverse effects due to temporary disruption to services and journeys caused by the overbridge construction, traffic management and diversions. A slight adverse effect is considered on driver stress due to traffic management and construction. Construction traffic management will be implemented as part of the CEMP.

All mitigation for all travellers in the Scheme is embedded into the design, such as the creation of the new overbridge.

Operation

The assessment predicts a moderate beneficial effect on local road connectivity due to the provision of an overbridge, which is considered significant. Other slight beneficial effects include connectivity improvements through linkages onto the detrunked A40 and overbridge, over the A40 road itself and across the A40 via the overbridge, improved road conditions reducing driver stress and an improved WCHR route along the detrunked A40.

Materials

The construction of the Scheme will require the use of material resources and the generation and management of waste. The assessment has taken into account the types and quantities of materials and waste associated with the construction and operation of the Scheme, their storage and the management of the waste streams.

Construction

During construction, the use of capping and subbase construction is considered a neutral or slight significance due to the availability of local sources. For waste, the significance of effect has been assessed as neutral or slight adverse as the waste will be reused where possible. The Site Waste Management Plan outlines the mitigation measures which include the use of best practice construction techniques and adherence to the waste hierarchy.



Figure 9: Views towards the Preseli mountains (north of the A40)

Operation

During the operational phase, there are not anticipated to be any significant effects associated with material resources or the generation of waste. Ongoing maintenance of the Scheme will be undertaken in line with best practice and the principles of the waste hierarchy.

Population and Human Health

The population and human health assessment examines how the Scheme may influence public health and wellbeing in the areas surrounding the Scheme and includes the distribution of impacts within different social groups where possible.

Construction

The assessment has identified that there will be minor adverse health effects as a result of construction noise, air quality for vulnerable groups such as children, older people and the long-term sick. Construction activities could make active travel a less desirable option during this time. Accessibility is not considered to be affected. These effects are only likely to persist for the duration of construction and are therefore temporary. In order to mitigate these effects, there would be effective community liaison throughout construction, and works would be carried out in accordance with the CEMP to minimise construction impacts.

Operation

During operation, minor beneficial health effects have been identified for improved access to open space and nature. Improved PRow connectivity will improve participation in active travel and improved access to work as a result of an improved road network and the corresponding reduced congestion.

Climate Change

Three assessments were carried out for the Climate Change chapter:

- a greenhouse gas (GHG) emissions assessment, which quantifies the potential impact of GHGs on the Scheme and identifies mitigation;
- a climate change resilience (CCR) assessment, which evaluates the effectiveness and feasibility of adaptation measures integrated into the Scheme; and
- an in-combination climate change impact (ICCI) assessment, which evaluates the combined effect of the Scheme and potential climate change impacts on the environment during construction and operation.



Figure 10: Redstone Cross Junction (looking south-east)

Construction

The GHG assessment identified that the emissions generated during the construction phase will account for 1.1% of the total emissions predicted over the 60-year appraisal period. The main sources of the increase in carbon emissions are those within the construction materials and emissions from plant and transport on site. Mitigation measures shall include using local suppliers of resources and materials. This will minimise the journey distances to the Scheme, therefore reducing the carbon impact required to transport materials to site. The ICCI assessment concluded that sufficient mitigation measures are already outlined in the Pre-CEMP. These measures include ensuring resilience to extreme weather events and providing sufficient site drainage.

Operation

The GHG assessment identified that emissions from vehicles using the road will account for the vast majority of emissions over the project life (99%). The carbon impacts associated with replacement of the road surface during maintenance are estimated at 0.97ktCO₂e over the 60-year project life.

The CCR assessment highlighted that, whilst most of the near term risks are classed as 'low' or 'very low' risk, two risks associated with flooding caused by extreme rainfall events are classed as 'medium' risk, though not significant, in the longer term. No risks identified in the ICCI assessment were classed as significant.

Cumulative Effects

An assessment of cumulative effects is required due to the potential for separate effects of more than one project to incur a significant effect on receptors. This includes the potential effect associated with the construction and operation of the proposed A40 Llanddewi Velfrey to Penblewin scheme to be constructed over a similar period time. Two principal types of cumulative effects are considered:

- interrelationships between effects generated by the Scheme, and
- the interaction of effects of the Scheme with other developments.

For the impact of interrelationships, the assessment identifies a 'modest' effect, based on the extent and complexity of the receptors.

For the impact of in combination, a total of nine 'short listed' projects were identified and these included a range of land uses, with residential and the separate A40 scheme. The concurrent A40 scheme represents most potential for a significant in-combination impact, with majority of receptors likely to be affected.

Any person or organisation can now support or object to the draft Statutory Orders, suggest alternatives to the draft Statutory Orders, or comment on the Environmental Statement and/or the Statement to Inform an Appropriate Assessment.

Depending on the nature and number of any objections and comments received to the published draft Statutory Orders, a Public Local Inquiry may be held before an independent Inspector.

If a Public Local Inquiry is to be held, all those who have responded would normally be notified within four weeks of the end of the objection period and the Inquiry held within 22 weeks of that notification. Full details of the Public Local Inquiry would be confirmed and notices would appear in the local press.

All correspondence would be copied to the Inspector and kept in the Inquiry Library which would be available to the public. Publicity would be given to any feasible alternative proposal received within a time limit to be specified within the Public Inquiry Notice.

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The Welsh Government's Programme is:

Activity	Key Dates	What Does this Mean?
Publication of Draft Orders and an Environmental Statement	June 2020	These will set out the land that would be required to build the Scheme and the environmental mitigation work that would be involved. It would detail local accesses and provision of Private Means of Access. The public will then have the opportunity to formally object or support the Scheme or suggest an alternative.
Potential Public Inquiry	Late 2020 / Early 2021	If a Public Inquiry is required, an independent Inspector would hear evidence, in front of the public, from interested parties and stakeholders. The Inspector would make a recommendation to the Welsh Ministers on how to proceed.
Welsh Ministers Decision to Make the Orders	Spring 2021	The Welsh Ministers would decide whether to make Statutory Orders to go ahead with the construction of the project.
Appoint Design & Build (D&B) Contractor subject to Welsh Ministers decision	Summer 2021	The Contractor who will undertake the detailed design and build would be appointed by the Welsh Government.
Commence Construction on Site	Autumn 2021	Works to build the new section of trunk road would start.
A40 Improvements Open	Late 2022	The improved section of road would open.

All available documents and information can be viewed on the project website:

<https://gov.wales/a40-penblewin-redstone-cross-improvements-overview>

Hard Copies of the draft Orders, accompanying plans and map, the ES, the NTS, Determination Notice and the Stage 3 Scheme Assessment Report, may be inspected free of charge at the deposit point listed below.

Please note that, due to Covid-19 social distancing restrictions, the documents deposited at the Queen's Hall can only be viewed by prior appointment. To arrange to view the documents, please contact the Scheme Public Liaison Officer.

Public Liaison Officer:

Martin Gallimore

Tel: 07923 887119

Email: a40enquiries@arup.com

Deposit Point:

Queen's Hall

44 High Street

Narberth

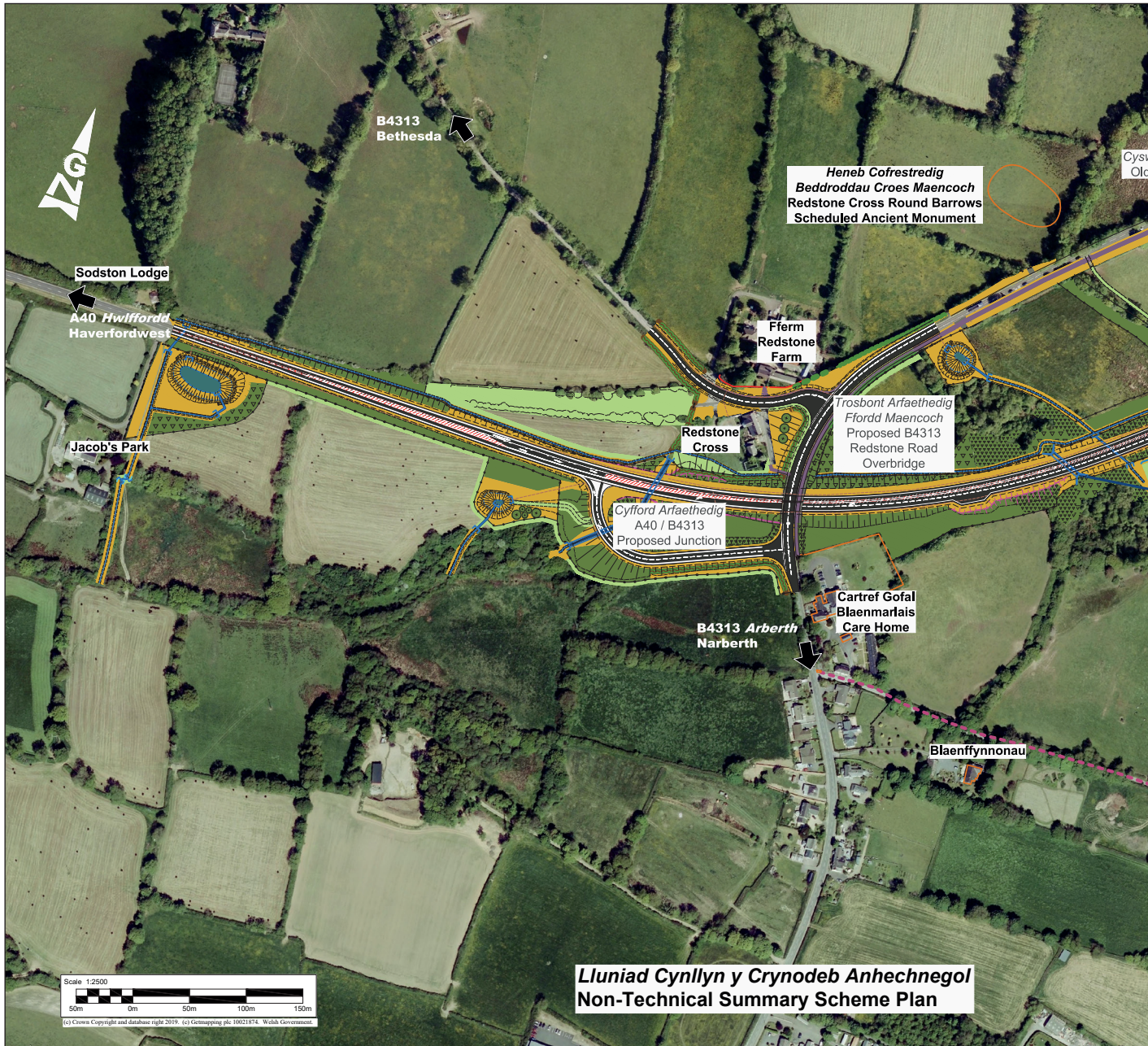
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Additional copies of the published information may be obtained from the Welsh Government.

Should you wish to support or object to the draft Statutory Orders, put forward an alternative proposal, or comment on the Environmental Statement, you should write to the Welsh Government at the address below, quoting reference number qA1397254.

**Orders Branch,
Transport,
Department for Economic Infrastructure,
Welsh Government,
Cathays Park,
Cardiff, CF10 3NQ**

All responses should be sent to arrive at the Welsh Government no later than 28 August 2020.



Landscape Elements (LE)

- LE1 Grassland**
 - LE1.3 Species rich grassland
 - LE1.6 Open grassland
- LE2 Native Planting**
 - LE2.1 Woodland
 - LE2.2/2.6 Woodland edge/Shrubs
 - LE2.4 Linear belts trees & shrubs
 - LE2.7 Scattered trees and shrubs
- LE4 Hedges**
 - LE4.2 Native species hedges
 - LE4.3 Native species hedgerows
 - LE4.4 Hedgerows with trees
- LE5 Trees**
 - LE5.1 Individual trees

LE6 Wetlands

- LE6.2 Banks and ditches
- LE6.4 Marsh and wet grassland

LE7 Hard Landscape Features

- LE7.1 Earthworks**
 - LE7.11 Shallow gradient
 - Earthworks cutting
 - Earthworks embankment
- LE7.2 Structures**
 - LE7.21 Culvert headwall
- LE7.3 Barriers and Fences**
 - LE7.31 Access gates
 - LE7.32 Stock-proof fence
 - LE7.33 Pembrokeshire hedge-bank

LE7.4 Pavement Surfaces

- LE7.41 New road
- LE7.42 Route for cyclists, equestrians and pedestrians
- LE7.43 Other hard surfaces

Environmental Elements (E)

- E1 Noise**
 - E1.1 Noise barrier
 - E1.2 Noise-reducing earthwork
- E2 Water**
 - E2.11 Culverts
- E3 Nature Conservation and Biodiversity**
 - E3.21 Wildlife barrier
 - E3.22 Wildlife crossing
- P4 Land use**
 - P4.4 Public Right of Way

