



Towy Valley Cycleway Eastern

NON TECHNICAL SUMMARY





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TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70041839

OUR REF. NO. NTS

DATE: SEPTEMBER 2022

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Date	23/09/2022			
Prepared by	Various			
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1 INTRODUCTION

- 1.1.1. Carmarthenshire County Council (CCC) is seeking planning permission for the construction of a new shared pedestrian path between Llandelio in the east and Nantgaredig in the west. The path is proposed to be constructed mainly along the disused railway line which runs from Carmarthen to Llandeilo. However, there are sections of the path which are proposed to be offline to avoid land or other constraints. The path will cross both the river Cothi and river Tywi and will be 15.3km long, of which approximately 7.33km will be situated on the track bed of the former railway line and approximately 7.70km of new path partially bisecting existing public rights of way.
- 1.1.2. The Tywi Valley Path scheme (herein referred to as 'the Proposed Development') will comprise the development of a shared use cycleway (and other non-motorised facilities where considered necessary) along the route of the disused railway line from Abergwili (just east of Carmarthen) to Ffairfach (to the south of Llandeilo).
- 1.1.3. The Proposed Development has been developed to improve commuting and in particular the tourism potential of the valley, and aims to have a significant economic benefit to Carmarthenshire and South Wales. It is anticipated that new users to the path will increase expenditure on local facilities and attractions, which will increase and enhance the local economy.
- 1.1.4. This document is the Non-Technical Summary (NTS) of the Environmental Statement (ES) Volume 2 which has been prepared by WSP on behalf of CCC in accordance with Schedule 2, Part 10(f) (infrastructure project, construction of roads) of the EIA Regulations (Wales) 2017. The Proposed Development is located adjacent to the River Tywi SAC and SSSI, and crosses the SAC. Given the sensitivity of these designations, an EIA Screening Opinion request was submitted to CCC Planning Department and a screening opinion was received on 24 November 2017. CCC Planning Department adopted a Screening Opinion that the development comprises 'EIA Development' and as such an ES would be required to support a planning application for the Proposed Development. The purpose of this NTS is to provide:
- 1.1.5. A description of the Proposed Development;
- 1.1.6. A description of the reasonable alternatives studied by the Applicant;
- 1.1.7. An overview of the EIA methodology;
- 1.1.8. A summary of the environmental baseline;
- 1.1.9. An outline of the mitigation identified to avoid or reduce any potential adverse effects; and
- 1.1.10. A summary of the likely significant effects after mitigation.
- 1.1.11. The ES is provided in four volumes for ease of reference:
- **Volume 1 – Non-Technical summary (this document);**
 - **Volume 2 – Main Text;**
 - **Volume 3 – Figures; and**
 - **Volume 4 – Technical Appendices.**

Volume 2 (Main Text) contains the following chapters:

- Chapter 1 – Introduction
- Chapter 2 – Description of the Study Area and Surrounds

- Chapter 3 – Description of the Proposed Development
- Chapter 4 – Consideration of Alternatives
- Chapter 5 – Approach to EIA
- Chapter 6 – Landscape and Visual
- Chapter 7 – Historic Environment
- Chapter 8 – Biodiversity
- Chapter 9 – Water Environment and Flood Risk
- Chapter 10 – Ground Conditions and Contamination
- Chapter 11 – Population and Human Health
- Chapter 12 – Materials and Waste
- Chapter 13 – Cumulative Effects
- Chapter 14 – Summary of the ES

Volume 4 (Technical Appendices) contains the following reports:

- Detailed Arboriculture Report
- Outline Construction Environmental Management Plan (CEMP)
- EIA Screening Request
- EIA Screening Response
- EIA Scoping Report
- EIA Scoping Response
- EIA Comments on the Scoping Responses
- Heritage Desk Based Assessment
- Biodiversity Net Gain Report
- Flood Consequence Assessment
- Water Framework Directive
- Habitat Regulations Screening Assessment
- Appropriate Assessment
- Otter Report
- Preliminary Ecology Report
- Bat Report
- Bryophyte Report
- Materials and Waste Legislation Framework

2 DESCRIPTION OF THE STUDY AREA AND SURROUNDS

- 2.1.1. The proposed path primarily follows the route of the former Carmarthen-Llandeilo railway line; the railway line follows the flat flood plain of the River Tywi. Generally, the route lies on low embankment, but at a few locations it also passes at grade and within cutting where mounds of superficial soils protrude through the alluvium of the flood plain. The proposal the subject of the planning application and Environmental Statement is for a route of approximately 15.3km.
- 2.1.2. The eastern phase of the proposed path is located in the lower Tywi Valley; the site comprises primarily of a rural river valley landscape, the land being predominantly pasture land on the flood plains of the River Tywi. The Tywi Valley is wide with the river flowing in an east to west direction. The main land uses are comprised of agricultural pastureland, watercourses, small residential settlements, woodland, along with various roads and tracks.
- 2.1.3. The Site follows the flat flood plain of the River Tywi. The river is designated as a main river under the jurisdiction of Natural Resources Wales (NRW) and also holds a number of important environmental designations including both SAC and SSSI status. North of the River Tywi to the west of the town of Llandeilo is the Dinefwr Estate SSSI and Grade I Registered Historic Park of Plas Dinefwr.
- 2.1.4. Available historic mapping shows that the floodplain of the River Tywi within the site has remained in its current use as green space which supports agricultural activities (mostly dairy farming). The former railway was constructed during the 19th century.
- 2.1.5. Topography
- 2.1.6. The topography of the region is a typical wide flat river valley bottom, that contains a meandering river, circa 10m (AOD). The hills on either side typically reach heights of circa 150m on the north side and 200m on the south side of the valley.
- 2.1.7. Landscape and Visual
- 2.1.8. The study area lies predominantly within National Landscape Character Area (NLCA) 41 Tywi Valley. Brecon Beacons National Park lies to the immediate south east of the valley at the eastern extremity of the scheme.
- 2.1.9. The valley has a significant number of mature hedgerow trees within the well managed flailed hedgerows and also mature field trees. The dismantled railway line is well vegetated along much of its length, with several linear belts of woodland and scrub apparent with the railway track itself being a gravel track.
- 2.1.10. Historic Environment
- 2.1.11. The Site lies within the Tywi Valley Historic Landscape which comprises eight Historic Landscape Character Areas. Within the Study Area, 15 Scheduled Monuments are present, two Grade I and seven Grade II* Listed Buildings, 68 Grade II Listed Buildings are also present and two conservation areas.
- 2.1.12. Biodiversity
- 2.1.13. The Study Area consisted mainly of poor semi-improved grasslands and improved grassland. Several areas of broadleaved semi-natural woodland, marshy grassland and standing water were

also recorded. The disused railway corridor typically comprised bare ground, scattered trees, woodland and dense scrub. The Rivers Tywi and Cothi both intersect the Study Area at several points. Hedgerows bisect the Study Area and included both species-rich and species-poor examples.

2.1.14. Water Environment

2.1.15. Much of the Proposed Development is located parallel to the River Tywi (River Tywi), with the majority of the route proposed to be set back a minimum of 8m from the top of the River Tywi thereby affording a suitable buffer for maintenance and biodiversity purposes.

2.1.16. The River Tywi is a Main River and one of the two longest rivers flowing entirely within Wales. Two other Main Rivers flow into the River Tywi within the proximity of the Proposed Development; these are the River Cothi and the River Dulais. As Main Rivers they are under the jurisdiction of Natural Resources Wales (NRW) who has the powers to maintain them. A number of Ordinary Watercourses are also located in the Study Area and are tributaries of the River Tywi, among them the River Ffynnant, Nant Cellyn, the River Gwynon, the River Myddyfi, the Nant Gurrey-fach and the River Dulais.

2.1.17. Ground Conditions

2.1.18. The Site is underlain by varying geology along its length however the geology generally comprises bedrock of mudstone and superficial alluvial / glaciofluvial / river terrace / till deposits of sand, silt, clay and gravel.

2.1.19.

3 DESCRIPTION OF THE PROPOSED DEVELOPMENT

3.1 THE PROPOSED DEVELOPMENT

- 3.1.1. The Proposed Development comprises a new cycle and pedestrian path 14.9km long, which is predominantly 3m wide and primarily follows the route of the former Carmarthen to Llandeilo railway line. It includes two new pedestrian and cyclist river bridges, and will primarily follow the route of the former Carmarthen to Llandeilo railway between Nantgaredig and Ffairfach. Generally, the route lies on a low embankment, however, at some locations it passes at grade and within a cutting where mounds of superficial soils protrude through the alluvium of the flood plain. In addition to the former railway the path will utilise substantial lengths of existing public rights of way and the embankments constructed for the former railway.
- 3.1.2. The proposed path will be unsegregated and comprise of a 3m wide hard surfaced path with 1m verge either side, adapted locally, where required, to suit constraints on site. It is assumed the excavation of the path will be relatively shallow given that the path will only be used by pedestrians and cyclists and will be of a standard detail. The expected excavation depth is a maximum of 300mm in fields and 250mm on the railway embankment. Gradients along the path will not exceed 5%, with the exception of one location which will be slightly steeper at 5.7%. It is not proposed to raise any ground levels so finished levels will be as existing. Finished levels will be at grade consequently no raising of ground levels will be required. Boundary treatments are intended to comprise of fences of stranded wire on wooden post in most areas, however these will be agreed, where necessary, with adjacent landowners. Barriers and gates will be incorporated at key locations to manage access and cattle grids will be incorporated as necessary. The path will require three new river crossings; a major crossing over the river Cothi on the trajectory of the former railway, and another major crossing over the Tywi away from the route of the former railway. The third is a more minor river crossing over the Gwynon.
- 3.1.3. Features of the footpath comprise
- 3.1.4. There are 13 proposed structures within the scheme. None of the structures are located within the boundary of the River Tywi SAC and SSSI. The operational design life of the large bridges is estimated at 120 years, and smaller bridges estimated at 15 years;
- 3.1.5. Nine of the 13 proposed structures will have earthwork access ramps provided at each end of the bridge to cater for disabled access;
- 3.1.6. Existing culverts will be retained. When existing bridge decks are encountered the proposals are to construct new structures. Bank seats will be installed set back from the culvert and new decks set on the bank seat which then over span each existing culvert;
- 3.1.7. Fencing, gates and other forms of barriers will be installed during the construction phase, where appropriate and as agreed with the land owners;
- 3.1.8. Flood warning signs will be strategically placed along the length of the route.
- 3.1.9. There are a variety of both permanent and temporary access routes to the Proposed Development, as well as identified crossing points located along the scheme. These can be seen on Figure 3.1 (Volume III).

CONSTRUCTION PROGRAMME

- 3.1.10. The construction is likely to take approximately 18 months to complete and the construction dates are to be confirmed at a later date.
- 3.1.11. The construction programme takes into account a number of constraints, including traffic management, and environmental considerations.

4 CONSIDERATION OF ALTERNATIVES

- 4.1.1. This section outlines the main alternatives to the Proposed Scheme that have been considered together with the principal reasons for proceeding with the current planning application.
- 4.1.2. The alternative that was considered to the current scheme includes the installation of a cycle lane along the existing highway (A40/B4300) as has been completed for part of the route from Carmarthen. It has however been ruled out as a suitable option due to safety reasons for the rest of the scheme.
- 4.1.3. In total, eight options were considered:
- 4.1.4. Provide a cycle lane along A40;
- 4.1.5. Provide shared use path along A40 between White Mill and Llandeilo;
- 4.1.6. Undertake partial online/offline improvements along A40 corridor using minor roads where possible and shared use paths on A40 where necessary;
- 4.1.7. Improve existing rights of way along A40 corridor and create new linkages;
- 4.1.8. Create new right of way along River Tywi;
- 4.1.9. Create a right of way along dismantled railway;
- 4.1.10. Provide cycle lane along B4300;
- 4.1.11. Provide shared use path along B4300 between Carmarthen and Ffairfach; and
- 4.1.12. Undertake partial online/offline improvements along B4300 corridor using minor roads where possible and shared use paths on B4300 where necessary.
- 4.1.13. Through consultation with CCC and key stakeholders, the above options were assessed and key issues, such as road safety and connectivity, as well as key opportunities, such as promoting active travel and access to community facilities were identified in the production of a WelTAG Planning and Stage 1 Report. This report identified seven Transport Planning Objectives (TPOs) which were then assessed against the issues and opportunities related to each option. As part of the WelTAG Stage 1 Report, potential solutions that have the potential to address all, or part of the TPOs and improve connectivity between communities north and south of the River Tywi were identified for each option.
- 4.1.14. The option recommended to be taken forward for further development (as listed above) was 'create a new right of way along the dismantled railway' as it offers the greatest overall benefits against the Welsh Impact Areas and Transport Planning Objectives. Various alternatives of this option were then taken forward and subjected to a detailed WelTAG Stage 2 Appraisal. Additional alternatives to the current design include the adjustments to the route due to reasons such as habitat and flooding implications. The final design of the Proposed Development has therefore taken into account a number of environmental constraints and where applicable integrated them into the design.
- 4.1.15. The 'do nothing' scenario, whereby the Site remains as is currently, was also assessed as part of the consideration of alternative options to the Proposed Development.
- 4.1.16. Further information is reported in Chapter 4: Consideration of Alternatives (Volume II of the ES).

5 APPROACH TO EIA

5.1 OBJECTIVES OF THE EIA

5.1.1. The Key objectives of the EIA are as follows:

- Set the legal framework;
- Document the consultation process;
- Establish baseline environmental conditions at the Site and within the surrounding area;
- Identify, predict and assess the significant of environmental effects associated with the Proposed Development: positive and negative; permanent and temporary; direct and indirect and short / medium / long term.
- Identify, predict and qualitatively assess the cumulative effects of the Proposed Development including those associated with the other identified committed developments; and
- Identify suitable mitigation, enhancement and monitoring measures to prevent, reduce or offset significant negative/or enhance and improve positive environmental effects and identify the residual effects following the implementation of these measures.

5.2 EIA SCREENING (REGULATION 5)

5.2.1. The Proposed Development is considered to fall under Schedule 2, Part 10(f) (infrastructure project, construction of roads) of the EIA Regulations 2017. With regard to the criteria set out in Schedule 3 of the EIA Regulations 2017 and following consultation with internal consultees, CCC Planning Department adopted a Screening Opinion that the development comprises 'EIA Development' and as such an Environmental Statement (ES) would be required to support a planning application for the Proposed Development. Please see Volume IV Appendix 5.1 for a copy of the screening request, and Appendix 5.2 for a copy of the screening opinion.

5.3 EIA SCOPING (REGULATION 14)

5.3.1. An EIA Scoping Report (Volume IV Appendix 5.3) was submitted to CCC Planning Department on 5th May 2018 to support a formal request for a Scoping Opinion from CCC Planning Department, and to agree the scope of the EIA, both in terms of environmental topics and likely significant environmental effects that require consideration. The Report also sought agreement on the approach and information to be contained within the ES.

5.3.2. The Scoping Opinion (Volume IV Appendix 5.4) was received by the Applicant from planning advisory department of CCC on the 16 November 2018 after which further additional requirements were outlined for the ES as shown below:

- Biodiversity Net Gain (Ecological Enhancement) Chapter; and
- Updated hydrology model and Flood Consequence Assessment.

5.3.3. Detailed responses to the Scoping Opinion can be found in Volume IV Appendix 5.5.

5.4 SCOPE OF THE ES

5.4.1. The EIA Scoping Report (Volume IV Appendix 5.3) outlined that the Proposed Development has the potential to result in likely significant effects on the environment associated with the following topic areas or elements:

- Landscape and Visual (Chapter 6);
- Historical Environment (Chapter 7);
- Biodiversity (Chapter 8);
- Water Environment and Flood Risk (Chapter 9);
- Geology and Soils (Chapter 10);
- People and Communities (Chapter 11);
- Materials and Waste (Chapter 12); and
- Cumulative Effects (Chapters 13).

5.4.2. Several topics or elements have been scoped out of the EIA and are therefore not reported in the ES. These include: Traffic and Transport; Noise and Vibration; Climate Change; Risk of Major Accidents or Disasters, Air Quality, and elements of Human Health, Ecology, Materials and Waste and Water.

5.5 CONSULTATION

- 5.5.1. In addition to the formal consultation undertaken in conjunction with the scoping process, technical and public consultation has been undertaken.
- 5.5.2. As part of the EIA process, technical consultation with a range of statutory and non-statutory consultees has been ongoing. Details of the technical consultation undertaken for each topic area is provided in the respective Technical Chapters 6 – 13 (Volume II of the ES).
- 5.5.3. A Pre Application Consultation Report will be developed and submitted with the planning application summarising the issues raised during the consultation process, whether they have been addressed and how they have been addressed.

APPROACH TO THE ASSESSMENT OF THE PROPOSED DEVELOPMENT

- 5.5.4. The Proposed Development has been assessed against the description and supporting plans as detailed in Chapter 3: Description of the Proposed Development (Volume II of the ES). The maximum extent of the Proposed Development has been assessed as the worst-case situation.
- 5.5.5. The initial assessment takes primary (embedded) mitigation into account in determining potential significant effects. Proposed mitigation measures (secondary and tertiary) and/or monitoring arrangements is then set out. An assessment of residual effects, during the construction and operational phases, taking account of all mitigation (primary, secondary and tertiary) is then undertaken. The findings are reported within Technical Chapters 6 – 13 (Volume II of the ES).

6 LANDSCAPE AND VISUAL

6.1 BASELINE

LANDSCAPE CHARACTER

- 6.1.1. Key features identified in the vicinity of the Proposed Development for the landscape character assessment included landscape designations, for example the Towy Valley historic landscape and Special Landscape Area (SLA), and Brecon Beacons National Park, national landscape character areas, and local landscape features such as vegetation, nearby settlements and Public Rights of Way ('PRoW'). The valley is considered to be generally tranquil away from main roads and is identified as having only slight night-time light pollution.

VISUAL AMENITY

- 6.1.2. Based on the likely extent of the visibility of the Proposed Development, desk based and field surveys identified a range of visual receptors including:
- Residential receptors;
 - Recreational and visitor receptors;
 - Commercial receptors; and
 - Educational receptors.
- 6.1.3. A number of representative viewpoints were agreed with the local authorities. Photographs have been taken at these locations to illustrate key and important views.

6.2 POTENTIAL IMPACTS

- 6.2.1. The Landscape and Visual Amenity assessment considered the potential impacts associated with the Proposed Development during construction and operation on landscape character and visual amenity. This included:
- General construction activities, for example the movement of construction machinery, the presence of site compounds and parking on site, material stockpiles and the presence of temporary lighting, signage and fencing;
 - Vegetation clearance and loss;
 - Vehicles moving to and from the site
 - The installation and subsequent usage of the cycleways, the prefabricated bridges and associated infrastructure;
 - Changes to local landscape character, including the introduction of new bridges and hard surfacing that could erode the rural landscape character and local tranquillity.

6.3 PROPOSED MITIGATION

- 6.3.1. Mitigation measures for landscape and visual receptors have been embedded into the design. These measures include:
- The design of the Proposed Development; and
 - Planting, to mitigate for the loss of sections of linear tree belts and individual trees and to reduce the visual impact of the structures on sensitive visual receptors and help 'anchor' them to the immediate rural setting.

- 6.3.2. General mitigation includes minimising the impact on landscape features by limiting the amount of existing woodland, trees and scrub to be removed.

6.4 RESIDUAL IMPACTS

- 6.4.1. The assessment of the Proposed Development on landscape and visual amenity concluded that:
- Tywi Valley NLCA and Tywi Valley floodplain LANDMAP visual and sensory aspect area: significant adverse effects on the landscape character are predicted during the construction phase but this is limited to within approximately 1km of the Proposed Development. It is considered that these effects will reduce from significant in Year 1 of the Proposed Development to non-significant by Year 15 as any proposed mitigation planting would have matured by this stage.
- 6.4.2. Any other significant effects on the landscape and visual amenity are expected to be minimised by mitigation measures.

7 HERITAGE AND ARCHAEOLOGY

7.1 BASELINE

- 7.1.1. The Scheme lies within a rich historic environment, with evidence of activity dating from the Prehistoric Period to modern times, and Historic mapping indicates that besides the Llanelly Railway, very little change has occurred in the area. There is a lack of major infrastructure such as modern housing developments within the area. Therefore, there are few factors which would affect the survival of any archaeological remains dating from the Prehistoric to the Post-medieval period.
- 7.1.2. The Scheme has the potential to impact above and below ground heritage / remains assets with effects on the following structures:
- Maes y Crug Scheduled Monument (CM328);
 - Ffairfach Standing Stone Scheduled Monument (CM325);
 - Site of Abercothy Cottage (HER21266);
 - Bridges, Abutments and Culverts over water courses and
 - Unknown buried historic assets.
- 7.1.3. It is considered that the assets listed above are likely to be subject to either a potential physical impact from the Proposed Development or an impact resulting from harm to their settings.

7.2 POTENTIAL IMPACTS

- 7.2.1. The potential impacts on Heritage and Archaeology assessment include:
- Loss of or disturbance to below ground archaeological remains
 - Physical impacts to above ground historic assets during the construction phase
 - Change to the setting of designated and non-designated historic assets during the construction phase
 - Changes to the setting of designated and non-designated historic assets during the operational phase

7.3 PROPOSED MITIGATION

- 7.3.1. The approach to mitigation to below ground archaeological remains discovering during the construction phase depends on the level of risk identified in certain areas. The site of Abercothy cottage is the only non-designated historic asset anticipated to be physically impacted by the Proposed Development. Depending on the results, mitigation measures in the form of an archaeological watching brief will take place in order to record any remains associated with the asset. Although rare, in the unlikely event that archaeological remains of very high (national) significance are identified, there may be a requirement, where practicable, for their preservation in the original location in which it was deposited. It is also advised a Level One Type Building Investigation take place for the existing masonry abutments, which will include a detailed photographic and written record. A Construction Traffic Management Plan and Construction Environmental Management Plan will also be implemented to mitigate any temporary impacts on the setting of designated and non-designated historic assets.

7.4 RESIDUAL EFFECTS

- 7.4.1. The assessment process identified that the Proposed Development would result in the removal of archaeological remains associated with the site of Abercothi (HER21266) during the construction phase. The moderate negative effects of the removal of the asset could be offset following an archaeological watching brief. The adverse effect would not be offset entirely, as preservation by record cannot replace the loss of a historic asset.

8 BIODIVERSITY

8.1 BASELINE

- 8.1.1. A total of 11 statutory designated conservation sites were identified within 2km of the Proposed Development. The River Towy SSSI and the River Towy SAC are located within the boundary of the Proposed Development. Eight non-statutory designated conservation sites were identified within 2km of the Proposed Development. The Study Area consisted mainly of poor semi-improved grasslands and improved grassland. Several areas of broadleaved semi-natural woodland, marshy grassland and standing water were also recorded.
- 8.1.2. The disused railway corridor typically comprised bare ground, scattered trees, woodland and dense scrub. The Rivers Towy and Cothi both intersect the Study Area at several points. Hedgerows bisect the Study Area and included both species-rich and species-poor examples.
- 8.1.3. Five habitats were recorded within the Study Area that qualify / potentially qualify as priority habitats within the UK Biodiversity Action Plan (BAP)¹ / Section 7 of the Environment (Wales) Act 2016² (hereafter referred to as Priority Habitats). These were:
- Running water, present in the form of the River Towy, River Cothi and several smaller streams and drains;
 - Ponds, present in the form of numerous backwaters on the River Towy floodplain;
 - Hedgerows segregating the farmland throughout the Study Area;
 - Floodplain Grazing Marsh, present in two areas at Bremenda Uchaf and around Riverbed Wood; and
 - Lowland woodland, present in the form of several blocks of varying size and composition.
- 8.1.4. In addition, the desk study and field surveys also identified the potential presence of a range of protected and notable species within the Study Area, including:
- Badger;
 - Otter;
 - Bats (nine species including lesser horseshoe *Rhinolophus hipposideros* and greater horseshoe bat *Rhinolophus ferrumequinum*);
 - Dormouse;
 - Birds;
 - Reptiles;
 - Amphibians;
 - Fish;
 - Invertebrates; and

¹ UK Biodiversity Action Plan (BAP) list of Priority habitats. Available online at <http://jncc.defra.gov.uk/page-5706>. [Accessed 13/02/2018]

² Her Majesty's Stationary Office (HMSO) (2016) Environment (Wales) Act 2016. Available online at <http://www.legislation.gov.uk/anaw/2016/3/introduction>. [Accessed 13/02/2018]

- Protected flora species (including bryophytes).

8.2 POTENTIAL IMPACTS

8.2.1. The likely significant effects of the Proposed Development on biodiversity to be assessed include:

8.2.2. Construction Phase:

- Habitat loss to priority habitats (woodlands and hedgerows, including Ancient Woodland);
- Habitat loss or reduction of a small population of the Nationally Scarce hornwort *Phaeoceros carolinianus*;
- Noise, vibration and visual disturbance (e.g. from piling) to the River Towy SAC/SSSI;
- Habitat degradation from pollution and contamination incidents to the River Towy SAC/SSSI;
- Habitat degradation from the release of dust during construction to the River Towy SAC/SSSI;
- Habitat fragmentation from the severance of hedgerows; and
- Noise, vibration and visual disturbance (e.g. from piling) to birds

8.2.3. Operation Phase:

- Disturbance and interference by humans and dogs on the qualifying interests of the River Towy SAC/SSSI and other protected species.

8.3 MITIGATION

8.3.1. A suite of mitigation measures will be employed during works to reduce and avoid impacts resulting from the Proposed Development. Site-specific mitigation in relation to features such as watercourses, otter, bats, trees, bryophyte, birds, and other habitats has been proposed. Generic mitigation measures are summarised below.

8.3.2. Prior to construction starting, a pre-construction survey will be carried out. This will check that conditions at the Proposed Development have not changed, and that no additional ecological receptors require consideration. Method Statements will also be implemented to mitigate for any species and habitats not listed as important ecological features. This will include provision of a Tool Box Talk to contractors prior to the start of works to emphasise the biodiversity issues associated with the site and highlight locations of higher risk for these species and regarding. Vegetation clearance works should be carried out in a staged manner in order to make habitats less suitable for small mammals, amphibians and reptiles. In addition, an Environmental Clerk of Works will be appointed to oversee the implementation of any measures and will have the power to stop work and change site practises, as required.

8.3.3. In order to mitigate for any impacts to the River Towy SAC and SSSI from the construction period a CEMP will be implemented alongside detailed Method Statements for each stage of the construction programme. In addition, CIRIA C741 - Environmental Good Practice on Site will also be implemented on site to minimise impacts to projected species and habitats.

8.4 RESIDUAL EFFECTS

8.4.1. The Proposed Development will result in direct impacts to the River Towy SAC / SSSI through disturbance to primary reasons for designation (otters and fish). Without appropriate mitigation, indirect impacts, particularly from the risk of pollution events, could occur. The embedded mitigation used in the design of the footbridge, combined with the mitigation measures to be employed for the



protection of species using the River Towy SAC / SSSI and its qualifying features will result in negligible residual impacts.

9 WATER ENVIRONMENT AND FLOOD RISK

9.1 BASELINE

- 9.1.1. A number of watercourses, watercourse crossings and works within close proximity have been identified within the study area. The watercourses within the footprint of the Proposed Development form part of the Carmarthen Bay and Gower WFD Management Catchment for which a Water Framework Assessment has been undertaken. A significant proportion of the Proposed Development is located within Flood Zone 2 and 3 on NRW's Flood Map for Planning, however, the FCA undertaken concludes that the risk from surface water flooding is very limited.

9.2 POTENTIAL IMPACTS

- 9.2.1. The potential impacts on the Water Environment assessment include:
- Increased sedimentation caused by surface water runoff from areas of bare earth, construction materials such as aggregate, and stockpiles of topsoil
 - Increased pollution risks from spillage of fuels and other harmful substances that may migrate to surface water features and groundwater receptors
 - Impacts to the hydromorphological quality of watercourses associated with works within or in close proximity to watercourses such as the installation and alteration of culverts, bridges and outfalls, including longer-term changes associated with sediment deposition
 - Flood risk to users of the Proposed Development
 - Increased flood risk to people and property associated with loss of fluvial floodplain storage from temporary works and the Proposed Development
 - Increased flood risk to people and property associated with changes to flood flow conveyance or crossing & culverting of watercourses
 - Increased rates and volumes of surface water runoff from an increase in impermeable area or changes to the existing drainage regime leading to a potential increase in flood risk
 - Permanent impacts to catchment hydrology caused by the introduction of a barrier to natural overland flow (where the path alignment is proposed to be raised)

9.3 PROPOSED MITIGATION

- 9.3.1. The implementation of a robust Construction Environmental Management Plan (CEMP) and supporting method statements will be essential for the mitigation of risks to the water environment during construction. The CEMP would set out how construction activities would be undertaken in accordance with appropriate good practice guidance, such as CIRIA's Control of Water Pollution from Construction Sites (C532). Although withdrawn, the Pollution Prevention Guidelines discussed in Section 9.2 also provide relevant recommendations. Regular inspection of control and treatment measures should be undertaken to ensure they are working effectively.
- 9.3.2. Potential impacts to the water environment during construction will also be largely mitigated through the reuse of the existing disused railway line and the construction of replacement structures that overspan existing structures thereby allowing the existing structures to remain in-situ, reducing the construction programme and minimising works in river channels that could lead to high sediment loading in watercourses and surface water runoff.

- 9.3.3. Mitigation for the operational phase of the Proposed Development is embedded into the design of the Proposed Development and its associated structures.

RESIDUAL

- 9.3.4. There remains a direct and temporary residual effect on the River Towy and the River Cothi of moderate to large significance due to the proximity of the works to the river channel. However, this would be a temporary effect during the construction phase and is not considered to pose long term impact once the works adjacent to the watercourses are complete, assuming robust and appropriate mitigation is installed that reduces the risk of sediment entering the watercourses. However, there are no significant residual effects predicted assuming the appropriate implementation of mitigation measures. The residual effects remain the same as those assessed above.

10 GROUND CONDITIONS AND CONTAMINATION

10.1 BASELINE

- 10.1.1. The Proposed Development route predominantly follows Carmarthen – Llandeilo railway line (including cuttings, embankments and stations), with two depots, a garage, a sewage works and a livestock market also noted within the vicinity of the Proposed Development.
- 10.1.2. A small area of the Proposed Development is classified as Subgrade 3a Best and Most Versatile (BMV) agricultural land. The ALC System classifies land into five grades, with Grade 3 subdivided into Subgrades 3a and 3b. The BMV agricultural land is defined as Grades 1, 2 and subgrade 3a.
- 10.1.3. The Proposed Development passes a variety of geologies. The superficial (upper) geology includes Alluvium, Alluvial Fan Deposits, River Terrace and Glacial Till. These geologies are considered to have low permeability which means water cannot easily move through these layers. The bedrock geology (lower) consists of Mudstone Units and Limestone Units. These geologies have different abilities to store and transport groundwater. The Site is also located in a Natural Resource Wales Drinking Protection Area. There are also some nearby groundwater abstractions (wells).
- 10.1.4. There are some potential sources of contamination along the proposed route of the Scheme. The underlying geology has been identified as being a source of radon gas. As a large proportion of the Proposed Development was formally used as a railway including embankments, large lengths of the proposed route are likely to be directly underlain by Made Ground, which could be a potential source of contamination.

10.2 POTENTIAL IMPACTS

- 10.2.1. The potential impacts on ground conditions assessed relate to:
- Disturbance of contaminated ground and / or uncontrolled chemical discharge / spillages to controlled water bodies;
 - Disturbance of contaminated ground resulting in harm to human health as well as release of contaminated soil / dust to the surrounding environment;
 - Potential exposure to hazardous ground gas in confined spaces, as well as ingress into neighbouring properties;
 - Potential for ground instability and potential effects on construction workers;
 - Loss of best and most versatile agricultural land

10.3 PROPOSED MITIGATION

- 10.3.1. Overall, the majority of the proposed mitigation measures will be outlined in the outline Construction Environmental Management Plan (CEMP). For example, these measures include:
- Adherence to pollution prevention guidance and best practice;
 - A watching brief to identify unexpected contamination when excavating areas of potential risk;
 - Good working practices such as sealing and covering stockpiles of contaminated soils and safe discharge of water from excavations; and
 - Appropriate provision of hygiene and welfare facilities and protective clothing for construction workers.

- Other mitigation measures include carrying out ground investigation works to monitor ground gas levels. Design mitigation and mitigation measures implemented during the construction phase are expected to reduce any potential operational impacts.

10.4 RESIDUAL IMPACTS

- 10.4.1. The assessment process identified that there would be no significant long term residual effects on ground conditions as a result of the construction and operation of the Proposed Development.

11 POPULATION AND HUMAN HEALTH

11.1 BASELINE

11.1.1. There are a number of receptors what could be affected by the Proposed Development. These comprise:

- there are a number of residential properties located within the 500m Study Area and road crossings which provide direct access to a number of private properties.
- several farm holdings and associated buildings which are mainly farming dairy cattle, beef cattle, and sheep, with a small number of equine units within 500m Study Area. The Proposed Development passes through agricultural land, the majority of which has been classified by the Predictive Agricultural Land Classification (ALC) map for Wales as Subgrade 3a Best and Most Versatile (BMV) agricultural land.
- There are also a number of PROW and pedestrian routes along the railway corridor within the adjacent villages which transverse the agricultural fields and converge with the main roads to the north and south of the River Towy. There are several PROW which cross or run adjacent to the Proposed Development. National Cycle Route 47 runs close to the western extent of the scheme, along the B4300 as far east as the village of Llanarthne before turning south towards the National Botanical Gardens of Wales.
- The human health assessment has identified receptors likely to be impacted by the proposed development as residences, businesses, users of PROW.

11.2 POTENTIAL IMPACTS

11.2.1. The likely significant effects which were scoped in for assessment within the ES are outlined below.

CONSTRUCTION

- Minor short term disruption to access of Private Properties – however access will be maintained throughout the construction phase and the Contractor will notify residents in advance of any activities that may impact upon their access arrangements.
- Although there will be Minor short term disruption to access to some farm premises and agricultural land during construction, access will be maintained throughout this phase and the Contractor will engage with farm operators prior to any activities impacting on their access taking place.
- During the construction phase, six Public Rights of Way (PROW 41/2, 41/6, 41/13, 31/27, 42/1 and 44/3) will be temporarily closed and diverted for the duration of the construction of that section of path. The proposed diversions have been designed to minimise disruption in terms of extra distance and journey time. The diverted PROWs will be reinstated following construction of the path, whilst access will be maintained to all other PROWs during the construction phase. No bridleways will be affected.
- During the construction phase anyone using the PROWs will experience some reduction in their amenity, primarily in terms of noise and visual disturbance, due to the presence of plant and machinery during the construction activities and site preparation. The potential loss of amenity and the temporary diversion of PROWs during the construction phase may temporarily affect some people's ability or desire to use the routes for recreational activities, and therefore, possibly reduce social contract, social cohesion, and physical activity which could lead to adverse effects

on human health. However, once the path has been constructed and diverted PROWs reinstated, it is suggested the Scheme will have a beneficial impact upon human health and wellbeing.

OPERATION

- Potential local economic benefits as the Proposed Scheme will attract additional tourists and visitors to the area who will take advantage of local hospitality, other visitor attractions and retail opportunities e.g. hotels, cafes and shops.
- Beneficial impacts on the health and wellbeing of walkers and cyclists due to the Proposed Scheme providing an additional publicly accessible route; providing an improved recreational experience for local users travelling short distance, and those users travelling longer distances.

11.3 PROPOSED MITIGATION

- 11.3.1. A number of mitigation measures are proposed to maintain access including diversion of affected PROW and traffic management to minimise disruption to businesses, residences and community facilities comprising:
- Ensure that temporary diversions to provide the same or improved standard of pathway;
 - Incorporate effective rationalisation between routes and safe crossing points;
 - Existing types of access to PROW should be retained, for example, by not introducing new barriers such as stiles and kissing gates which may restrict certain users; and
 - The provision of clear directions for any alternative routes.
- 11.3.2. Once a contractor is appointed for construction, consultation with affected receptors will be important to further minimising impacts, for example through avoiding key periods through the construction programme.
- 11.3.3. The construction of the Proposed Development will be undertaken in phases, with temporary traffic management measures, including the diversion of affected footpaths, to minimise disruption and maintain access to local businesses, residents, and community facilities. Following construction, all existing footpaths and cycle routes and greenspaces will be reinstated.
- 11.3.4. There will be a programme of community liaison and Stakeholder/community engagement event the aim to promote awareness of the improvements the scheme is hoping to make and minimise impacts on sensitive receptors by ensuring the public have notice and are aware of diversions and closures that may affect them.
- 11.3.5. There are no construction mitigation measures required or proposed for Population and Human Health in relation to private property and housing; development land and businesses; and agricultural land holdings.

Human Health

- Although the Proposed Scheme will have a beneficial impact on human health once operational it is accepted that it may have some minor negative impacts during the construction phase. To ensure adverse effects on human health are reduced as far as possible during the construction stage of the Proposed Scheme a Construction Environmental Management Plan will be prepared which will identify any mitigation measures required to limit the impacts of construction on human health and the environment in general.

- There are no operational mitigation measures required or proposed for Population and Human Health in relation to private property and housing, development land and businesses, agricultural land holdings, walkers cyclists, and human health.

11.4 RESIDUAL EFFECTS

11.4.1. There are several impacts anticipated during the construction phase. These include:

- Temporary disruption on private property and agricultural land (slight adverse, not significant)
- Temporary diversions during construction for users of PRow, walkers, and cyclists (slight adverse, not significant)

HUMAN HEALTH

11.4.2. Potential increases in noise, loss of visual and landscape amenity, and the temporary diversion of some PRow may affect people's ability or desire to use the routes for recreational activities, and may reduce social contact, social cohesion, and physical activity. These could lead to adverse effects on human health for users (neutral, not significant). All other residual human health effects of the Proposed Development are considered to be not significant.

OPERATION PHASE

- 11.4.3. There is no disruption to private properties, agricultural land holdings, and human health anticipated as a result of the Proposed Development during the operational phase, as all works would be completed.
- 11.4.4. There may be beneficial impacts on businesses and walkers due to the improved provisions of PRow in the area.

12 MATERIALS AND WASTE

12.1 BASELINE

- 12.1.1. The current assets within the Proposed Development footprint comprise the disused Carmarthen to Llandeilo railway line, with adjacent fields and meadows. The operation and maintenance of land within the Proposed Development boundary currently consumes minimal construction material resources for the maintenance of existing tracks and PRowS, therefore the consumption of construction and other material resources within the Proposed Development footprint is therefore deemed minimal. The availability of materials recovery infrastructure in Wales, suggests that there is strong potential to divert site arisings from landfill generated by the Proposed Development.
- 12.1.2. Anticipated wastes may include small quantities of timber and fencing wastes, litter, and vegetation arisings. The anticipated impacts of disposing of any waste generated are deemed minimal in the context of available regional capacity. Baseline data indicates that in the absence of future provision, landfill capacity will become an increasingly sensitive receptor throughout the duration of the construction phase. The data show that at the current rate, and in the absence of future provision, landfill capacity in Wales would elapse in 2023.

12.2 POTENTIAL IMPACTS

- 12.2.1. The potential construction impacts on Materials and Waste assessment include:
- The consumption of natural and non-renewable material resources will result in their permanent depletion and hence the degradation of the natural environment. A reduction in impacts may be achieved through the use of materials from recycled, secondary or renewable sources (as well as products offering other sustainability benefits), and arisings recovered from site.
 - A reduction in landfill void capacity from the production and disposal of waste, causing degradation of the natural environment
- 12.2.2. No significant effects are considered likely during the operation phase and hence will not be considered within the Materials and Waste assessment.

12.3 MITIGATION

- 12.3.1. The above-mentioned potential construction impacts will be mitigated as far as is reasonable using measures incorporated within:
- a Site Waste Management Plan (SWMP) which will be prepared for the proposed Scheme. The SWMP will set out appropriate waste management measures and responsibilities; and
 - A Construction Environmental Management Plan which will identify any mitigation measures required to limit impacts and amount of waste generated by the Proposed Scheme
- 12.3.2. Additional industry standard best practice construction methods in relation to materials and waste will also be considered.

12.4 RESIDUAL EFFECTS

- 12.4.1. Due to the very limited availability of suitable land fill capacity in Wales, potential moderate effect may arise in relation to the Proposed Scheme's waste being required to be disposed of outside of Wales.



The SWMP will take this consideration into account.

13 CUMULATIVE EFFECTS

- 13.1.1. When considered in isolation, the environmental effects of a single activity on a single receptor may not be significant. However, when individual effects are considered in combination with other effects (significant or not significant) in the same area, occurring at the same time, the resulting cumulative effect may be significant.
- 13.1.2. There are two types of cumulative effects which are considered as part of the EIA process:
- Inter-project effects: Also referred to as 'cumulative effects' (PINS, 2019). The interaction and combination of environmental effects of the Proposed Development with other developments and activities affecting the same receptor; and
 - Intra-project effects: Also referred to as 'interrelationships between topics' (PINS, 2019). The interaction and combination of environmental effects, and indirect effects of the Proposed Development affecting the same receptor, either within the site or in the local area.

13.2 EFFECT INTERACTIONS

- 13.2.1. The assessment of effect interactions effects considers the potential impact on receptors occurring as a result of interrelationships between different impacts arising from the construction, operation and maintenance of the Proposed Scheme.
- 13.2.2. A number of intra-project effects have been identified for both receptors, however, the interrelationship of effects on these receptors are not considered to result in an additive or synergistic effect, that would alter the conclusions made in the environmental topic chapter assessments. Therefore, no significant intra-project effects are anticipated.

13.3 IN COMBINATION EFFECTS

- 13.3.1. The effect interactions have been assessed as follows:
- Stage 1: Establishing the zone of influence for the environmental topics and producing a long list of other developments which are upcoming within those zones of influence;
 - Stage 2: Reviewing whether there is the potential for cumulative effects based on the nature, scale and temporal overlap with the development (establishing a 'shortlist');
 - Stage 3: Gathering information on the developments which are remaining following Stage 2; and
 - Stage 4: Assessment of potential cumulative effects and mitigation required to reduce the significance of effect.

13.4 EFFECT INTERACTIONS

- 13.4.1. The assessment of effect interactions effects considers the potential impact on receptors occurring as a result of interrelationships between different impacts arising from the construction, operation and maintenance of the Proposed Scheme.
- 13.4.2. A number of intra-project effects have been identified for both receptors, however, the interrelationship of effects on these receptors are not considered to result in an additive or synergistic effect, that would alter the conclusions made in the environmental topic chapter assessments. Therefore, no significant intra-project effects are anticipated

13.5 POTENTIAL IMPACTS

EFFECT INTERACTIONS

13.5.1. During construction there is potential for the following non-significant effect interactions:

- Temporary non-significant landscape and visual and population impacts on local residents and users of PRoW as a result of the works associated with the Proposed Scheme and the temporary diversion of existing PRoW routes. The assessment has concluded that the effects on these receptors would be not significant since none of these would experience effects greater than the largest single residual effect.
- Non-significant water and biodiversity impacts to the River Towy SAC/SSSI as a result of the increased pollution risks from leaks and spillages. The robust and appropriate mitigation measures to be employed as part of the CEMP will significantly reduce the likelihood of a spillage occurring or harmful substances migrating to waterbodies and therefore this cumulative effect on the River Towy is considered unlikely to be significant.

13.5.2. During operation there is potential for the following non-significant effect interactions:

- Non-significant visual and population impacts on users of the new publicly accessible shared route. Once completed, the Proposed Scheme will deliver enhanced connectivity with the surrounding area, improving the amenity value for the users of the routes as well as provide a greater variety of choices that integrate with nearby existing routes. The new path provisions will also route users away from vehicular traffic on the main roads. This has the potential to result in a slight beneficial (non-significant), long-term effect during the operational phase of the Proposed Scheme.

13.5.3. No significant cumulative effect interactions have been identified and therefore it is considered that there is no additional mitigation required above what is described in **Chapter 3: Description of the Proposed Scheme** and Technical Chapters 6 – 12.

IN COMBINATION EFFECTS

13.5.4. A Zone of Influence (ZOI) was established to provide a study area for in-combination effects. This was based on a 5km study area for the Proposed Scheme. Following this, a search of CCC's planning portal aimed to identify any large scale, major planning applications within the temporal and spatial ZOI which have the potential to contribute to in-combination cumulative effects. Search criteria used to identify these types of developments included:

- Developments which have the potential to require statutory EIA, such as EIA Screening Opinion and Scoping Opinion submissions;
- Developments that are of a suitable equivalent (i.e applications for residential developments of 10 or more homes, industrial, commercial or retail based applications over 500sqm and significant infrastructure based applications); and
- Developments of National Significance (DNS).

13.5.5. Three projects were taken forward to the assessment:

- Towy Valley Cycleway between Nantagaredig and Whitemill, Carmarthen - Phase 1 of the Towy Valley Cycleway;

- Llandeilo Bypass (A483); and
- Cilyrychen Quarry, Llandybie, Ammanford

TOWY VALLEY CYCLEWAY BETWEEN NANTAGAREDIG AND WHITEMILL, CARMARTHEN - PHASE 1 OF THE TOWY VALLEY CYCLEWAY

- 13.5.6. The Towy Valley Cycleway is located directly west of the Proposed Scheme and forms the first phase of the wider Towy Valley Cycleway. Planning permission for this development has been granted and an EIA was not deemed necessary for the planning application. Currently, it is not known when construction for this development will begin and consequently construction may occur at the same time as the Proposed Scheme (eastern leg). Given the proximity of the two schemes, there remains potential for cumulative noise, air quality and visual impacts during the construction phases, which without appropriate mitigation could result in a significant cumulative effect on nearby sensitive receptors, such as nearby residential dwellings and users of nearby PRow close to Nantgaredig, where the two schemes meet. However, both the Towy Valley Cycleway western leg and Proposed Scheme will be constructed in accordance with their own Construction Environmental Management Plan (CEMP) which will set out robust mitigation measures to ensure that any adverse construction impacts are minimised for both sites. Additionally, it remains likely that the works involved in both schemes will be phased, avoiding the magnitude and severity of any potential cumulative effects. To further mitigate the risk of cumulative impacts during construction, there is also the opportunity to share resources such as construction materials and machinery if construction phases of the two schemes occur simultaneously. With the implementation of CEMPs for both schemes, it is not anticipated that there will be any significant in-combination effects between the western and eastern phases of the Towy Valley Cycleway. The operational phase of the two schemes will likely result in cumulative beneficial effects for users of the cycleway, improving connectivity between the settlements of Whitemill and Llandeilo.

LLANDEILO BYPASS (A483)

- 13.5.7. The proposed Llandeilo Bypass comprises the construction of a new road that runs parallel to the existing A483 from Ffairfach to the north of Llandeilo. The scheme is currently in an optioneering phase, and a finalised design is not currently publicly available. As a result, it is not expected to be constructed until after the Proposed Scheme is completed. It is therefore considered unlikely that there will be any significant cumulative impacts during the construction phases.
- 13.5.8. Due to the current stage of the bypass project, it is not currently possible to confidently assess the likelihood of potential cumulative operational impacts between the bypass and the Proposed Scheme.

CILYRYCHEN QUARRY, LLANDYBIE, AMMANFORD

- 13.5.9. The above proposed development involves the construction and operation of an inert waste recycling facility, waste processing and associated works to include the construction of a screening bund at Cilyrychen Quarry, Llandeilo Road Industrial Estate, Llandybie, Ammanford, SA18 3JG. The proposed development site is located approximately 4.3km south of the Proposed Scheme, at its closest point.
- 13.5.10. The proposed development is currently awaiting a decision and therefore currently there remains the potential for these works and those of the Proposed Scheme to have an overlapping construction phase. As a result, there is potential for cumulative landscape and visual impacts to receptors

impacted by both schemes if construction was to occur simultaneously. However, a review of the planning statement and various environmental assessments for the proposed development conclude that although elements of the proposed development will result in some adverse visual effects, these will in general be of brief duration with the impact on most receptors being 'negligible'. During the operational phase, it is anticipated that some receptors will see a 'beneficial' effect as mitigation measures, such as the bund, become established, reducing the likelihood for any significant cumulative impacts between the two schemes during operation. The negligible magnitude of these visual impacts, coupled with the significant separation distance between the development and Proposed Scheme means that it is considered highly likely that any in-combination effects will not be significant.

13.6 MITIGATION

- 13.6.1. It has been concluded that no significant cumulative impacts have been identified as a result of the Proposed Scheme or as a result of the Proposed Scheme in combination with the other identified shortlisted committed developments.
- 13.6.2. No additional mitigation beyond that proposed in the ES and in the environmental documents of all committed developments assessed within this chapter has been recommended.



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