

CEREDIGION COUNTY COUNCIL

REPORT TO:	Thriving Communities Overview and Scrutiny Committee
DATE:	22 June 2023
LOCATION:	Council Chamber, Penmorfa & Zoom
TITLE:	Coastal Erosion, Flooding and Climate Change
PURPOSE OF REPORT:	To provide an update on the development of Climate Change and Coastal Erosion / Flooding
REASON SCRUTINY HAVE REQUESTED THE INFORMATION	Monitoring of progress being made

Background:

Climate change means we may face more frequent or severe weather events like flooding, droughts, and storms. These events bring 'physical risks' that directly impact communities and have the potential to affect the economy.

Parts of Ceredigion's coastline are susceptible to coastal erosion and flooding, and some inland communities are at risk of fluvial flooding and loss of land from watercourses.

The impacts could be far reaching, with stakeholders facing life-threatening or life changing consequences, and the effects impacting on large sectors of the County/Council. In addition, failure to reduce the effects of climate change could have reputational, financial, and environmental consequences for the Council including in the form of financial penalties for failing to meet Welsh Government targets for carbon management and for biodiversity. Indirect impacts will include changes to the insects, pests and diseases which will colonise and affect our environment. As well as immediate impacts of these, the impacts on staff time and other costs dealing with these will be significant. Loss of canopy cover from Ash Dieback already has consequences for local microclimates and will exacerbate climate change impacts as well as contribute to them.

It is recognised that we must lead by example and do all we can to reduce future climate change and address and mitigate the risks associated with it. Policy initiatives and strategies to include for ecosystem resilience, biodiversity enhancements and flood reduction schemes must be developed and implemented if we are to succeed in reducing our carbon footprint and reducing the risk to our major infrastructure, assets, residents and communities and landscape.

Coastal Erosion and Flooding Responsibilities

Coastal erosion

Ceredigion County Council is a Coast Protection Authority under the Coast Protection Act 1949, and under that Act has permissive powers to order or carry out Coast Protection Works for the protection of land as it deems necessary.

The Flood and Coastal Management Act 2010 defines the roles and responsibilities of 'Risk Management Authorities'. In Wales these are NRW, all 22 Welsh local authorities (who act as Lead Local Flood Authorities), highway authorities and water and sewerage companies. There are other bodies that have a non-statutory role in FCERM, including private landowners and owners of infrastructure assets such as Network Rail and the National Trust.

National Strategy for Flood and Coastal Erosion Risk Management in Wales, <https://www.gov.wales/national-strategy-flood-and-coastal-erosion-risk-management-wales>

Under the Act, Welsh Ministers must develop, maintain, and apply a strategy for flood and coastal erosion risk management in Wales.

Coast and Fluvial Flooding

Under the Flood Risk Regulations 2009, Lead Local Flood Authorities (LLFAs) are required to identify and map hazards and risks associated with flooding. The Act also places a responsibility upon LLFAs to develop, maintain, apply, and monitor a strategy for local flood risk management.

<http://www.ceredigion.gov.uk/resident/coast-countryside/coastal-flood-risk-management/local-flood-risk-management>

The unitary local authorities in Wales have powers to manage local flood risk as Lead Local Flood Authorities, according to the Flood and Water Management Act 2010

Natural Resources Wales (NRW) are responsible for managing flood risk from main rivers and the sea. NRW can also undertake certain activities on ordinary watercourses to reduce risk, such as altering water levels and existing works. NRW also have a strategic oversight and general supervision role.

Shoreline Management Plan 2

In order to quantify the risk to our coastal communities, Ceredigion County Council, working alongside other Local Authorities developed the West of Wales Shoreline Management Plan (SMP2) <http://www.ceredigion.gov.uk/resident/coast-countryside/coastal-flood-risk-management/shoreline-management-plan-smp/>

SMP2 was completed in 2012 and it provides a large-scale assessment of the risks associated with coastal processes that result in both erosion and flooding and

presents a policy framework to reduce these risks to people and the developed, historic, and natural environment in a sustainable manner into the 22nd century.

SMPs were first produced nationwide in the early 2000s and the first review completed in 2012, which considered:

- Existing concerns
- The new risks associated with sea level rise
- What benefits defences provide against future flooding
- Whether we can continue to maintain defences
- How management of the coast and estuaries affect other interests

The risk of flooding and erosion is a significant threat affecting the coastline and communities along the Ceredigion coast, and SMP2 has identified integrated solutions which will achieve sustainable management of the coast into the future.

SMPs contribute to the greater understanding of the UK shoreline so as to develop a long-term policy framework for coastal management and management of coastal defences in a sustainable manner. Initially introduced to manage risk, the revised SMPs adopted a more holistic view and set out a vision for management of the coastline over the next 100 years

The West of Wales coastline was divided into twenty policy development zones, with 6 of these zones covering the Ceredigion coastline:

- PDZ5 – The Teifi Estuary
- PDZ6 – Aberporth to New Quay
- PDZ7 – New Quay to Ffos-y-ffin
- PDZ8 – Ffos-y-ffin to Llanrhystud
- PDZ9 – Llanrhystud to Sarn Cynfelin
- PDZ10 – Sarn Cynfelin to Tonfannau

An 'Intent of Management' was proposed for each section of coastline, and although SMP2 is a non-statutory document, it provides the framework which underpins the development within the coastal zone.

An example of the integrated and sustainable approach to coastal defence is at Borth, where the first two phases of the coastal defence scheme that have been constructed represent an adaptive approach to the defence of the village.

One of the outputs from SMP2 was the development of an 'Action Plan', which Ceredigion has very recently reported to WG on progress against, and an abridged version of the spreadsheet which was submitted is included as Appendix A.

Beach Monitoring

One of the main 'actions' from SMP2, and which is recorded in the Action Plan in relation to the Ceredigion coastline is that of coastal monitoring.

Ceredigion County Council (and before it Ceredigion District Council) has been collating some beach monitoring data since 1995. At that time, the beach profiles were collated by topographical survey, but since 2006 the information has been collated by means of LIDAR.

LIDAR (Light Detection and Ranging) is an airplane mounted system and surveying method that measures distances to a target by illuminating the target with a pulsed laser light and then measuring the reflected pulses with a sensor. Differences in laser return times and wavelengths can then be used to produce digital surveys of the land.

Survey data was historically used to inform an annual monitoring programme which summarised the changes in beach profile over a 12-month period. Since 2015, due to funding pressures, the annual report has not been commissioned, but the information collated remains invaluable in developing coastal defence schemes.

2017 was the twenty-second year that beach surveys have been undertaken along the coast, and as a result there is now a long time period over which data has been collated, and this has enabled the Council to identify long term trends of beach accretion and erosion when schemes are developed.

The 15 locations along the coastline at which Ceredigion County Council undertook monitoring at in 2017, are:

- Pen Yr Ergyd/Teifi Estuary
- Aberporth
- Tresaith
- Llangrannog
- New Quay Bay
- Llanina
- Aberaeron South Beach
- Aberaeron North Beach
- Aberarth
- Llansantffraed
- Llanrhystud
- Tan-y-Bwlch
- South Marine Terrace (Aberystwyth South)
- Victoria and Marine Terrace (Aberystwyth North)
- Borth to Ynyslas

The objective of the monitoring is to inform local coastal management practices and decisions. As each year of new data is added to the monitoring programme, long-term change and trends can be identified. As a result of this data, not only can the decision to intervene be better informed, but the question of how best to intervene can also be considered.

The designs of the coastal defence schemes at Aberaeron North Beach and Borth (Phases 1 and 2) were informed by data collated during the ongoing monitoring programme, and the data is now being used to assist with the design of coastal defence schemes at Aberystwyth and Aberaeron Harbour/South Beach.

The analysis of historical data during the development of SMP2, was used in developing the monitoring programme, so that an overall picture of beach evolution can be developed.

Following the establishment of the Wales Monitoring Coastal Centre (WCMC) in 2018, the responsibility (and therefore WG funding) for collating coastal monitoring information has fallen to the WCMC, and Ceredigion County Council is no longer able to apply for grant funding from Welsh Government towards the collation of LIDAR information to support its coastal monitoring programme.

The Wales Coastal Monitoring Centre (WCMC) continue to survey the defended coastline on behalf of CCC, and their use of technology is increasing the volume and accuracy of data than can be captured. WCMC is also looking to work in partnership with the Department of Architecture and Civil Engineering – University of Bath, who are looking to install a permanent laser scanner at Borth for a 12 month period as part of a submission for the recently announced £3m Natural Environment Research Council (NERC) Highlight Topic on Gravel Beaches which will assist with monitoring the movement of the gravel beach as part of the Borth Coastal Defence to establish a future operational and maintenance programme.

The following schemes are supported by Welsh Government grants aiming at managing flood risk within identified communities with historical property flooding incidents. All WG FCERM Grant funded schemes are reported to WG Flooding and Coastal Risk Team on a Quarterly basis with progress updates and financial claims

Llandre Village Flood Alleviation

Total Grant Value awarded - £55k
Grant Expiry Date – 30/06/2023

Atkins were appointed consultants [date] to undertake an Outline Business Case assessment of the flooding issues that have been reported to the north of the village. The discharge path from the catchment flows into two brick-built attenuation ponds that release surface water through a siphon underneath the Cambrian Railway line in into the watercourse.

Atkins to date have modelled the flows of surface water and are awaiting survey data from Network Rail to be able to complete the OBC work.

Risks – information from NR will not be received in time to be able to complete the assessment. WG have been updated on progress through Quarterly Reports and Variation Forms are available for scheme that will need additional time/funds to complete.

Mitigation – Additional Variation request to WG to allow consultant to complete the OBC

Expected Outcomes – Understanding of flood flow mechanisms and size of attenuation required to manage flows to prevent property flooding. FBC to construct any infrastructure to manage excessive flood risk

Borth Leat

Total Grant Value awarded - £50k

Grant Expiry Date – 31/03/2024

Amey Ltd were appointed in September 2022 to undertake an Outline Business case to assess the drainage and flooding mechanisms of the various drainage leats that manage surface water from catchments that flow from Upper Borth. A start up meeting and scope agreement has been undertaken with Amey Ltd, however, progress has not been forthcoming despite Officer requests for updates and a decision to terminate the contract has been made and reported to WG. The poor performance of Amey will be reported to procurement using the Framework Contract KPI procedure. A grant variation has been approved by WG to continue the OBC project into 2024 with an alternative consultant. Any work carried out by Amey Ltd will be retrieved and passed to the new consultant once appointed.

Risks – Delay in appointment to enable delivery prior to the grant deadline.

Mitigation – Additional Variation request to WG to allow consultant to complete the OBC

Expected Outcomes – Understanding of flood flow mechanisms in Borth and where the leats have been constructed over, any collapsed sections and the impacts that these may have on flooding to the lower part of Borth from the land (not sea)

Capel Bangor

Total Grant Value awarded - £80k

Grant Expiry Date – 30/06/2023

WSP have been appointed to undertake a review of the Preliminary Assessment Report that was undertaken in 2015 following the 2012 floods to bring it in line with revised WG project assessment requirements and update the data. The OBC that is being carried out has completed the modelling and requires NRW to review and appraise the modelling before design solutions can be progressed for recommendation. The model has been with NRW since Q3 22-23, and no further progress can be made until this has been reviewed.

Risks – Continued delay from NRW.

Mitigation – Additional Variation request to WG to allow consultant to complete the OBC

Expected Outcomes – Revised solutions including a Natural Flood Risk Management scheme are expected to take forward to FBC.

Tal y Bont

Total Grant Value awarded - £80k

Grant Expiry Date – 30/06/2023

WSP have been appointed to undertake a review of the Preliminary Assessment Report that was undertaken in 2015 following the 2012 floods to bring it in line with revised WG project assessment requirements and update the data. The OBC that is being carried out has completed the modelling and requires NRW to review and appraise the modelling before design solutions can be progressed for recommendation. The model has been with NRW since Q3 22-23, and no further progress can be made until this has been reviewed.

Risks – Continued delay from NRW.

Mitigation – Additional Variation request to WG to allow consultant to complete the OBC

Expected Outcomes – Revised solutions including a Natural Flood Risk Management scheme are expected to take forward to FBC.

The Marine Licence has been received in relation to the Aberaeron CDS and planning permission and contractor appointment are expected in mid-2023. Business cases are being developed for the potential schemes at Aberystwyth, Borth and Llangrannog.

Latest updates - Coastal

Aberaeron Coastal defence Scheme

- Planning permission approved.
- Tender assessment process complete
- Continue to update FBC report.
- Finalising construction documents and drawings.
- Otter survey complete
- NRW FRAP consents received.
- SUDS consent received.

Aberystwyth Coastal Defence Scheme

- Ecological Assessment (desk-based study) – 100% complete.
- Geomorphology (desk-based study) - 50% complete.
- Breakwater optioneering – 50% complete.
- Geotechnical (desk-based study) – 80% complete.
- Landscape Assessment – 60% complete.
- Numerical modelling of shortlisted breakwaters – 25% complete.

Borth Coastal Defence Scheme – Phase 1 & 2

A coastal performance review and the preparation of a potential on-going Management Plan of the area at the southern end of the Phase 2 works are necessary. In the design, it was recognised that there might be a need for some ongoing management of sediment, with the potential for local recycling of sediment to adjust the level of protection in response to natural coastal processes.

Overall, the scheme is performing as designed/expected, but there are individual locations of concern that warrant further investigation and consideration as part of the monitoring programme.

Consultants involved with the SMP 1 and the design of Borth Phase 1 and 2 designs, supplied with all necessary data via the West Wales Coastal Group and the Welsh Monitoring Centre, are commissioned to undertake the following work as part of the on-ongoing management plan,

- Review of management criteria
- Beach Behaviour
- Protection Review
- Management Review

Borth Coastal Defence Scheme – Phase 3

- NRW are currently working on their own OBC for the Dyfi and the Leri.
- As a result of the above CCC have suspended their own OBC until NRW have caught up.
- CCC officers continue to attend progress meetings with officers from NRW and their consultants.
- It has become evident following meetings with the NRW and their consultants that their own OBC on the Dyfi and Leri will not be completed by the 30th March 2023 and may continue into 2024. CCC are pursuing NRW to accelerate the completion.
- CCC will continue working closely with both the NRW and their consultants regarding both OBC's.
- **RISK.** The programme is being dictated by NRW's progress on their OBC.

Llangrannog Coastal Defence Scheme

- Discussions with CCC's consultant in regard to the public consultation have been concluded.
- Work has begun on planning for the public consultation June'23

Project Management:

A Project Manager was appointed on 1 January 2019 for the duration of the development and construction of both schemes, and his role is to coordinate the daily activities to ensure that the overall project requirements for both schemes are met.

The Project Manager reports directly to the Corporate Manager Highways Services and will lead a Project Team which will comprise of the consultant for each scheme together with the Corporate Lead Officer and will meet monthly.

As the projects move towards engagement and consultation with local communities and stakeholders, further groups of sub-teams may need to be established to progress individual elements of the schemes, which will need to be approved by a Project Board.

The appointment of a replacement Project Manager is imminent due to retirement of the current postholder with the recruitment process ongoing.

Latest Updates – Fluvial

Highmead Terrace / Llanybydder & Llandysul / Pont Tyweli

Ceredigion and Carmarthenshire, as lead authority, have been, and continue to develop the OBC and FBC with WG grant funding required for specialist consultancy work. Both Authorities have worked with and on behalf of NRW on this development. NRW are responsible for managing flood risk from main rivers and the sea.

WG have now confirmed that they will provide further grant fund for the FBC stage. With regards to timelines, it is advised that the FBC will be completed by the end of March 2024.

RISK. The FBC does not automatically translate to construction and that NRW will be the lead authority following this stage.

Flood & Coastal Erosion

Coastal Erosion and Flood Incidents have been identified on the Corporate Risk Register as one of the major risks facing our residents, communities, and major infrastructure in the face of climate change and the predicted increase in storm events.

Ceredigion County Council is a Coast Protection Authority under the Coast Protection Act 1949, and under that Act has permissive powers to order or carry out Coast Protection Works for the protection of land as it deems necessary.

As a Coast Protection Authority, the Council manages and maintains over 12km of artificial coastal defences (sea walls, breakwaters, groynes, rock revetments etc.) that protect many of our coastal communities and Council-owned infrastructure. This includes structures such as the promenade at Aberystwyth, the Piers at New Quay and Aberaeron, and various sea walls along the Ceredigion coast.

The remaining 84km of coastline is privately owned, and private landowners are responsible for protecting their own property from erosion and flooding. The Council has no responsibility for the Coastal Defence of private property.

Ceredigion County Council works with the Welsh Government to reduce the risk to people and the developed and natural environment from flooding and coastal erosion, and has in recent years undertaken major coastal defence schemes at Aberaeron North Beach and Borth

The Council is also currently developing further coastal defence schemes for the Aberystwyth frontage, the Harbour/South Beach area at Aberaeron, Borth/Ynyslas (Phase 3) and Llangrannog.

Carbon Management and Climate Change – Net Zero

The Regional Energy Strategy Action Plan is now complete and awaiting sign-off through the relevant political process (GMW Board and Cabinet). ESC (Energy Systems Catapult) has been appointed to deliver the Local Area Energy Plans (LAEPs) for Ceredigion and Powys and the first stakeholder engagement workshop for the Ceredigion LAEP will be held in January.

A Regional Energy Officer has been appointed to help deliver on the LAEP process and will also be able to provide some support for Ceredigion in delivering some schemes that will contribute to our Net-Zero ambition.

The ULEV Strategy adopted and published on Council website under 'Strategies and Plans' on the Council's website.

<http://www.ceredigion.gov.uk/media/12211/ulev-strategy-and-action-plan-2022.pdf>

Delivery of Phase 2 of public EV chargepoint programme is complete. The new charge-points form part of the <https://www.dragoncharging.co.uk/>

Depot charging (£300k - WLGA), we have applied for and received quotations for the Depot grid connections, and we are also awaiting a report from APSE to investigate the depot layouts, to ensure that they meet our future requirements in terms of EV charging infrastructure.

Additional resources will be required going forward to further develop an inclusive strategy for fleet replacement with the aim of replacing the existing fleet with a ULEV fleet whether it be electric, hydrogen or a combination. The move will also require significant infrastructure amendments/improvements to the facilities required for this transition, including training.

Grant applications prepared and submitted for funding of Phase 3 public EV charging programme in FY2023/24 - Welsh Government ULEVTF (£350k) and UK Government OZEV for ORCS grant (£60k). Currently awaiting outcome of applications.

Grant award letter received from WG (18/05/23) outlines funding made available, key headline facts are as follows.

- 2023-24 Application (£350k) reduced, award is £297,500 (15% reduction)
- 2024-25 new grant funding awarded, £370k
- No match funding towards the proposed ORCS funding application as per previous years
- CCC will be required to supplement the OZEV ORCS grant funding to supplement the WG ULEVTF then CCC may need to be asked to provide

match funding – an application for the OZEV ORCS grant funding may therefore require a financial commitment of £40k based on the intended application value

- Elements of CCC's intended programme/ items of expenditure for 2023-24 have been removed and placed it in the 2024-24 funding instead, e.g., commissioning of consultancy support and employment of a Project Manager. CCC will actively engage WG on this matter

Net Zero Action Plan

The Net Zero Action Plan update was submitted to Scrutiny Committee in October 2022 and presented to Cabinet in early January 2023.

<https://council.ceredigion.gov.uk/ieListDocuments.aspx?CId=148&MId=291&Ver=4&LLL=0>

Operational emissions, as outlined in the Carbon Management Plan have been calculated and equate to a cumulative 20.48% reduction against a 15% target (2017/18 to 2021/22). This is despite an increase of 11% in 2021/22, when compared with the previous year – this was the expected trend as things get back to 'normal' following the pandemic.

WG Emission reporting, was completed in September. This calculated the Council's overall emissions footprint and includes a much wider scope of emissions, which include waste, transport, and procurement emissions, not included within the scope of the Carbon management Plan. When we consider this wider scope of emissions, our footprint increases to 45,723t T/CO2 per annum – procurement emissions and waste account for 76% of these emissions.

Energy costs have risen significantly with electricity up by about 70% and Gas approximately 300% which is going to have a budgetary pressure across all service areas.

Active travel

Approved Active Travel Network Maps (ATNMs) published on County Council website. Delivery of Active Travel Fund programme in FY2022/23 for scheme development and minor works (£500k) and scheme development for Llanrhystud safe community link funded from Welsh Government SRIC grant (£40k).

Applications prepared and submitted for Welsh government grant funding in FY2023/24 including ATF Core Grant (£0.5M); Plas Gogerddan to Waunfawr Phase 1 (£1.5M); £50k SRICS for continued scheme development in Llanrhystud. Notification of grant award of £50k for Llanrhystud SRICS but currently awaiting notice of outcome of other grant applications.

As previously reported, application to UK Government for 'Cylch y Cardi Trail' (Ystwyth Trail - (Aberystwyth to Tregaron) and Aeron Trail - (Aberaeron to Felinfach) upgrade and new sections was unfortunately unsuccessful. Successful delivery of first two phases of Ceredigion public and depots EV charging project in FY2022/24 (Welsh and UK Government and WLGA grant funding) and currently awaiting outcome of grant applications for FY2023/24.

The Conservation Team have brought £1.6M of funding into the County since 2019, with an additional £50k recently secured, which includes CCC run projects and projects run by third parties.

The post of Asset Development Service Manager to lead on the management and development of Ceredigion County Council’s natural and commercial assets has just been advertised, and the role is expected to include looking at the assets to minimise CCC’s contribution to climate change, climate change induced biodiversity impacts and direct biodiversity impacts as well as CCC’s contribution to mitigation of impacts and biodiversity enhancement.

	<p>Has an Integrated Impact Assessment been completed? If, not, please state why</p>	<p>Project specific Report is to provide update on scheme development</p>
	<p>Summary:</p>	
	<p>Long term:</p>	<p>The work seeks to secure the long-term viability of our coastal communities</p>
	<p>Integration:</p>	<p>The schemes will seek to improve the economic activity and development opportunities, which will enhance and maintain the environment for residents and visitors.</p>
<p>Wellbeing of Future Generations:</p>	<p>Collaboration:</p>	<p>Working with others including other local authorities, the private sector, and Welsh Government to achieve aims, objectives and targets.</p>
	<p>Involvement:</p>	<p>Engaging with, and informing, the public in positive behaviours and attitudes. Full consultation will be undertaken at the appropriate development stages of the schemes.</p>
	<p>Prevention:</p>	<p>Working to reduce coastal erosion and flood damage to our coastal communities.</p>
<p>Recommendation(s):</p>	<p>To note the progress being made in relation to the development of Fluvial and Coastal Defence Schemes, and mitigation to address the risks posed by Climate Change.</p>	
<p>Reasons for decision:</p>	<p>N/A</p>	

Contact Name

Phil Jones

Designation

Manager – Highway Services,
Highways and Environmental Services

Date of Report:

22 May 2023