



Barmouth North Promenade Outline Business Case

Initial Environmental Appraisal

CPF6486



Document Control Sheet

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	0.03	Draft revision following comments from project sponsor
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Reviews

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Approvals

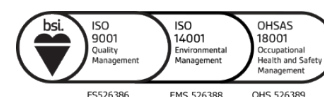
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Initial Environmental Appraisal

Client	Welsh Government / Gwynedd Council
Project number & name	CPF6486 – Barmouth North Prom OBC
Project manager	Owain Ellis Griffith
Project summary	Barmouth, and in particular, its north promenade is identified as being at risk of coastal flooding and erosion. Under the Welsh Government's Coastal Risk Management Programme (CRMP), an Outline Business Case (OBC) is being developed to investigate various options to manage the risk of coastal flooding along Barmouth North Promenade. The following short listed options, as identified in the OBC, are considered as part of this IEA: Option 1 – Betterment of existing defences. Includes Increasing height of primary and tertiary walls, refurbishing existing sheet piles, additional rock toe armour, and build out of shingle beach profile. Option 2 – Groynes and beach recharge. Construction of shore linked rock groynes to hold the placement of cobbles and larger materials to protect sea-wall and revetment. Option 3 – Managed realignment. New line of defence set back at the network rail line. Area directly behind sea-wall to be subject to erosion. All proposals mentioned above fall within the 'study area' as shown in Figure 1.
Anticipated construction date & duration (if known)	Dependant on selected option and funding.
Appraisal method	The environmental baseline information has been gathered via a desktop study using Map Gwynedd (Gwynedd Council's GIS and a site visit. A search was also obtained from the Local Environmental Records Centre (Cofnod) for a 1km radius around the proposals.

Environmental Topic	Observations	Recommendations
EIA Screening Requirement	Yes Coastal work to combat erosion and maritime works capable of altering the coast through the construction, for example, of dykes, moles, jetties, and other sea defence works, excluding maintenance and reconstruction of such works, are schedule 2 projects of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations, 2017 and therefore any project that arises from the investigation / process may require a screening opinion by the Local Planning Authority as to whether a statutory EIA would be required. Should a Marine licence be required under the Marine and Coastal Access Act 2009, the relevant EIA regulations for the purpose of a Marine Licence determination are 'Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended).	<u>Option 1</u> As the work includes increasing the height of the walls and introducing new rock armour, it is deemed beyond 'maintenance and reconstruction' therefore EIA screening will be required. Works such as the addition of rock toe armour and beach material is likely to take place within mean high water therefore a marine licence will be required. <u>Option 2</u> EIA screening and a Marine licence will be required as work will take place within mean high water. <u>Option 3.</u> Work of creating a new line of defence is likely to be deemed a Schedule 2 project under Town and Country Planning (EIA) Regulations therefore screening opinion from Local Planning Authority will be required.
Air Quality	No significant air quality impacts are considered likely due to the nature and scale of the proposals. However, construction generated dust and other aerial emissions could result in temporary nuisance during the construction phase. Mitigation measures should be implemented during periods of dry weather, particularly if works are in close proximity to residential properties or business premises.	All options: <u>Design:</u> Consider avoiding or minimising the need to generate construction dust and aerial emissions via the design.

	Relevant compliance obligations (if applicable): Environmental Protection Act 1990, Part III, Section 80	<u>Tendering:</u> Consider inviting tenderers to explain how they will work in a way which avoids or minimises the likelihood of construction dust being generated. <u>Construction:</u> Implement working practices that avoid or minimise aerial emissions. Dust suppression measures should be implemented if working in dry weather.
	There are no listed buildings in the study area itself. The following grade II listed buildings are located just to the east of the survey area: - Plas Mynach (grid ref: 260807 316611) - Porth Mynach (grid ref: 260804 316748) - Plas Mynach Lodge (grid ref: 260836 316732) These listed buildings, or their settings, are not likely to be affected by any of the proposals due to the distances between them and any of the proposed works. There are no other cultural heritage features in the vicinity of the study area. Relevant compliance obligations (if applicable): - Historic Environment (Wales) Act 2016 - The Planning (Listed Buildings and Conservation Areas) Act 1990	All options: <u>Design:</u> N/A <u>Tendering:</u> N/A <u>Construction:</u> N/A

Landscape¹	The study area lies within two Landscapes of Outstanding Historic Interest (LOHI), Mawddach and Ardudwy. Consultation with Gwynedd Archaeological Planning Service (GAPS) will be required regarding potential impacts on the LOHI, and whether an Assessment of the Significance of Impacts of Development on Historic Landscape (ASIDOHL) and any archaeological assessment will be required. No Tree Preservation Orders (TPO's) are present within the study area.	All options: <u>Design:</u> Consultation with GAPS required regarding potential impacts on Mawddach and Ardudwy LOHI and if any archaeological assessment will be required. <u>Tendering:</u> Inform tenderers of the LOHI and any associated measures that need to be put in place. <u>Construction:</u> Ensure contractors are aware of any measures that need to be put in place to protect cultural heritage features associated with the LOHI.
	Relevant compliance obligations (if applicable): • Historic Environment (Wales) Act 2016 • The Register of Landscape of Historic Interest in Wales	

¹ Include any TPOs that may be affected.

Biodiversity	Protected and Notable Species (e.g. European, National, Section 7 and LBAP)	A Cofnod (Local Environment Records Centre) search was carried out for a 1km radius of the study area. There were no Cofnod records of otter within 1km of the study area. However, otters are a feature of the Pen Llyn a'r Sarnau SAC which is directly west of the proposed works, and could be present within the area. Watercourses within the study area could provide suitable habitat for otter, although they are likely to prefer less disturbed areas. Option 3 is likely to involve work in or next to the watercourse just north of the café, therefore an ecological survey for otter should be carried out. There are no Cofnod records of bats within the study area itself, but several records within 1km. Culverts can provide suitable habitat for bats, an ecological survey would need to be conducted to determine if the culverts are suitable for bats (option 3). Areas of tussock ground, such as that next to the café, could provide suitable habitat for reptiles. Species such as adder, common lizard, common toad, grass snake and slow worm have all been recorded within 1km of the study area. Undisturbed, shingle beach habitat can provide suitable habitat for ground nesting	<u>Design:</u> Option 1: Conduct a reptile survey of the grassland habitat that could be affected by works to the tertiary wall. Option 3: Undertake a full protected species survey to identify habitat that may support such species. This should include survey for otters, water voles, reptiles, bats, and nesting birds. Consult with NRW if any protected species are likely to be disturbed. If so, a protected species licence may be required. <u>Tendering:</u> Inform tenderers of the presence of protected species if these are noted during any surveys, and advise with regards to any mitigation measures <u>Construction:</u> All options: If nesting birds are found on site during the bird-nesting season (March to August inclusive) a suitable buffer zone should be defined by a suitably qualified ecologist, and work should cease in that area until all broods have fledged. Option 3: Any vegetation clearance works required should be undertaken outside of the bird nesting season (March to August inclusive), otherwise a nesting bird check should be carried
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		birds. However, due to the built up nature of the area and amount of disturbance taking place, undisturbed areas suitable for nesting is likely to be very limited. Watercourses can provide suitable habitat for water voles. Works likely to affect the watercourse and riparian habitat should only take place following an ecological survey for water voles. There are no Cofnod records of water voles within 1km of the study area. There are no Cofnod records of badger within the study area, although there are records of badger within 1km. It is not considered that any of the options will affect any habitat suitable for badger.	out by a suitably qualified ecologist immediately before any vegetation clearance works commence. If any nesting birds are found, the clearance work shall be postponed until that nest is no longer in use, and this should be confirmed by an ecologist during a subsequent visit. All options: If any protected species are discovered on site during construction, all works should cease until further advice is sought from a suitably qualified ecologist.
	Protected and Notable Habitats (e.g. European, National, Section 7 and LBAP)	The study area comprises mainly of coastal intertidal habitat and built up areas, interspersed with small pockets of grassland. To the west of the sea wall, the habitat is intertidal and includes boulders and shingle. The sea wall, promenade and highway areas are considered to provide little, if any ecological value. The land in between the tertiary wall and the railway line is mostly built up with some sections of grassland and scrub which is considered of low ecological value. Two watercourses run through the study area (see figure 3). These are culverted in large	<u>Design:</u> Option 1 & 2: Further assessment will be required to understand the impact of any direct habitat loss on the SAC, and the impact that may be caused from sediment movement in the area. This will also need to consider composition of imported material for beach recharge. Option 3: Further assessment will be required to understand the impact of the realignment on the adjacent SAC sandflats habitat. Efforts should be made during the design stage to avoid or at least minimise the impact on the river bed and banks where works are close to the

		sections within this area. The watercourse furthest north within the study area does have some un-culverted parts, to the north of the café, therefore does provide some river and river corridor habitat. Rivers are a Welsh Priority Habitat and River Corridors have a Gwynedd Council Biodiversity Habitat Action Plan. Shingle beaches tend to contain strandline habitat which is a Gwynedd Local Biodiversity Action Plan habitat. However, due to coastal squeeze associated with such sea defence areas, such habitats are unlikely to establish along this part of the beach. Strandline habitat could be present to the north and south of the study area. There are no mature trees present in the areas where works are likely to take place. Option 1: Under this option, work is mostly concentrated on the beachfront and likely to affect the intertidal shingle beach habitat. Some work will take place further inland on the tertiary wall, where some grassland could be affected. Option 2: Under this option, work will only take place in the intertidal habitat to the west of the sea wall. This option may result in direct habitat loss from the SAC and this will need to be considered during HRA process.	watercourse. <u>Tendering:</u> Request that contractors submit a Construction Environmental Management Plan (CEMP) for approval, which should detail how they will be implementing good working practices to safeguard the environment. Consider inviting tenderers to explain how they will plan the work to avoid or minimise adverse impacts on the water environment. <u>Construction:</u> Works should be carried out in accordance with pollution prevention guidelines GPP5 '<i>Works or maintenance in or near water</i>'.
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		The introduction of new sediment onto the beach could also have an impact on SAC habitat. (awaiting further details following ABPmer study) Option 3: If rock groynes are required as part of this option then this would lead to habitat loss on beachfront and possibly within the SAC. Construction of new defence would take place to the west of the railway line and is likely to impact some grassland habitat and watercourse between the sea wall and railway.	
		Relevant compliance obligations (if applicable): • Relevant compliance obligations (if applicable): • The Conservation of Habitats and Species Regulations 2017 • The Wildlife and Countryside Act 1981. • The Environment (Wales) Act 2016	

Nature Conservation Sites	International Sites²	The study area is located within 2km of the following European sites (see figure 2): • Pen Llyn â'r Sarnau SAC. Located on the mean low water mark immediately west of the study area. Mudflats and Sandflats are a feature of the site, with the whole of the North Prom frontage being directly adjacent to the Sandflat feature. Other features of the SAC nearby (within 2km) include estuaries, reefs and Atlantic salt meadow. Otter is also a species feature of this SAC. • Meirionydd Oakwoods and Bat Sites SAC. Located approx. 208m east of study area. Lesser Horseshoe bat is a species feature of this SAC and is considered highly mobile. In addition to Pen Llyn a'r Sarnau SAC, the study area is within 25km of the following site which has otter as a qualifying feature: • Afon Eden – Cors Goch Trawsfynydd. Approx 11.6km east of study area. Other than Meirionydd Oakwoods and Bat Sites SAC, the proposals are not within 30km of any other sites that have lesser horseshoe bats as a qualifying feature.	<u>Design:</u> All options will require a Test of Likely Significant Effects to be completed for the Pen Llyn a'r Sarnau SAC, Meirionydd Oakwoods and bat sites SAC, and Afon Eden – Cors Goch Trawsfynydd SAC. NRW will need to be consulted. The scheme design should look to minimise impact on local wildlife sites or the impact will need to be successfully mitigated in liaison with Gwynedd Council's biodiversity unit. <u>Tendering:</u> Inform tenderers about the locations of the protected sites within close proximity to the proposals, and any specific mitigation measures required. Request tenderers to compile a Construction Environmental Management Plan (CEMP) demonstrating how the mitigation measures will be managed and implemented on site. <u>Construction:</u> To ensure protection of adjacent protected sites, works should be carried out in accordance with pollution prevention guidelines GPP5 '<i>Works or maintenance in or near water</i>'. Monitor and review performance against the
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² Natura 2000 and Ramsar sites within 2km of the proposal, and 25km and 30km respectively for Otters and Lesser Horseshoe Bats (if these species are likely to be affected)

		Option 1: The impacts associated with this option would be mainly concentrated on the seaward side of the prom structure. While the landward side of the prom structure would see some construction work. The creation of a rock revetment would involve the direct loss of beach habitat directly adjacent to the Pen Llyn ar Sarnnau SAC. Watercourses provide a potential pollution pathway between the proposed work area and the SAC. Culverts in the area behind the sea wall may offer potential bat roosting habitat. A full assessment of any direct or indirect impacts on SAC features would be required as part of a Habitat Regulations Assessment (HRA) for the option. Option 2: Rock groynes are likely to be partly placed within then Pen Llyn ar Sarnnau SAC, leading to some direct habitat loss from the sandflats feature. The HRA process would need to fully assess the impact of the direct habitat loss and the effect of the groynes on sediment movement within the area. The impact of the introduction of new sediment into the area would needed to be understood. The sediment type, grain size and origin would be key considerations. Option 3: The re-alignment option would lead to a change in the existing conditions within the adjacent Pen Llyn ar Sarnnau SAC. Whilst these changes would need to be fully	CEMP.
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		understood as part of the HRA, they could potentially be deemed to be of conservation benefit to the SAC through the creation of a more natural bay feature and associated intertidal habitats. The stream to the north of the café, providing potential otter habitat, could be impacted by these proposals. As with option 1, culverts in the area behind the sea wall which may offer suitable bat habitat, could be affected. The options proposed could have adverse effects on the features of the Pen Llyn a'r Sarnau SAC, Meirionydd Oakwoods and Bat Sites SAC, and Afon Eden SAC, therefore a Test of Likely Significant Effects in line with Habitat Regulations Assessment should be carried out.	
	National Sites ³	The only national site within 500m of the study area is Barmouth Hillside SSSI which is located 200m east of the study area. This site is designated for its geological features. It is unlikely that any of the options considered will impact this SSSI, as any potential construction work is over 350m from the SSSI, and there are no potential pollution pathways present.	

³ Nationally designated sites within 500m of the proposal, extending to 2km dependant on features of interest *i.e.* wetlands

		No further assent or consent in relation to this site will be required.	
	Local Sites (within 500m)	Wern Mynach Local Wildlife Site is located partially within the study area (see figure 2). The following Local Wildlife Sites are also within 500m of the study area: • Ceilwart Ganol. 40m east. • Ffridd y graig & south to Garn. 341m north east. Wern y Mynach LWS is designated for its wet woodland and marshy grassland habitat. Although Wern y Mynach LWS is located partially within the study area, none of the options considered indicate that construction works will take place in close proximity to this site. All three sites are fluvially connected to the proposals, but are all positioned upstream of proposed construction work. Therefore it is unlikely that any of the proposed options will impact on Local Wildlife Sites. Local Wildlife Sites are a material consideration of the planning consenting process. Potential impacts on these sites should be minimised and mitigated against, to protect and enhance the habitats they contain.	

		There is an Ancient Semi Natural Woodland (ASNW) approx. 200m east of the study area. This shares a similar footprint as the SSSI noted above. It is not anticipated that any of the options considered will impact the ASNW.	
	Relevant compliance obligations (if applicable):	• The Conservation of Habitats and Species Regulations 2017 • The Wildlife and Countryside Act 1981. • The Countryside and Rights of Way Act 2000.	
Invasive Non-Native Species⁴	There is a cofnod record of the Schedule 9 Invasive non-native species Japanese Knotweed being present immediately west of the railway line, in the vicinity of the café building. Work in this area is only likely to take place under option 3. Other schedule 9 invasive species records within 1km include Japanese Rose, Montbretia, Rhododendron Ponticum, and Himalayan Cotoneaster. An invasive species survey should take place to establish the range and location of any Schedule 9 invasive species in the vicinity of the works. The findings, along with any management recommendations should form part of the Construction Environmental Management Plan (CEMP).		<u>Design:</u> Undertake invasive species survey of the proposed work area. If invasive species are present, a biosecurity Risk Assessment / Method Statement should be prepared to ensure that Schedule 9 invasive species are not spread within or between sites.
	Relevant compliance obligations (if applicable):	• The Wildlife and Countryside Act 1981, Schedule 9.	<u>Tendering:</u> Tenderers must be informed if their construction methodology needs to comply with Biosecurity Risk Assessment / Method Statement. <u>Construction:</u> Should any INNS need to be removed, best practice should be followed and the INNS should be dealt with using appropriate techniques. All materials that could be contaminated with schedule 9 invasive plant species should be re-used within the same part of site, or disposed of

		using appropriate, widely accepted methodology. Areas adjacent to the scheme containing INNS should be marked out and avoided by personnel and machines.
Geology and Soils	As noted above, Barmouth Hillside SSSI is designated for its nationally important geological features, but is not likely to be affected by any of the proposals. No other geological features are present in the vicinity of the study area.	<u>Design:</u> N/A <u>Tendering:</u> N/A <u>Construction:</u> N/A
	Relevant compliance obligations (if applicable): • The Wildlife and Countryside Act 1981.	
Materials (including Life Cycle considerations)	Any materials generated through construction activities should be incorporated in to the scheme if possible. All materials required to be imported should be sourced as locally as possible to reduce travelling distances. Building waste and excavated waste materials should be disposed of in accordance with relevant waste regulations. Any contaminated land/materials encountered need to be dealt with appropriately or removed to a suitably permitted facility. Similarly any excavated material potentially contaminated with invasive species need to be dealt with appropriately in line with best practice.	<u>Design:</u> Consider ways of minimising waste within the design process, implementing the waste hierarchy. <u>Tendering:</u> Consider inviting tenderers to explain how they will seek to re-use site-won materials within the scheme. <u>Construction:</u> Waste excavation materials and building waste should be disposed of at a suitably permitted facility, using registered waste carriers. Duty of care waste transfer notes need to be kept and retained for two years.
	Relevant compliance obligations (if applicable): • Environmental Protection Act 1990 • Waste (England and Wales) Regulations 2011 • Environmental Permitting (England and Wales) Regulations 2016	

⁴ Those listed on Schedule 9 of the Wildlife and Countryside Act 1981, as amended.

Noise and Vibration	It is likely that the proposed work would result in an increase in noise and vibration levels above existing due to the presence of plant machinery, however, due to the nature of the proposed work it is considered that these increases would be minimal and temporary. There are residential properties in close proximity to some works, contract requirements should be in place to manage noise and vibration disturbance when working in close proximity to residential properties.	<u>Design:</u> Consider whether construction noise and vibration can be avoided or minimised as part of the design. <u>Tendering:</u> Specify noise and vibration limits, particularly in areas adjacent to residential properties. <u>Construction:</u> Contractor should work considerately and within agreed noise and vibration limits, as the works are close to residential properties.
	Relevant compliance obligations (if applicable): • Environmental Protection Act 1990. Part III	

<i>People and communities⁵</i>	All options will involve work along the promenade and beachfront area between Heol Idris to the South and the Car Park to the North, which is approx. 1.1km in length. Option 1: Construction work will be concentrated on the sea-wall and beachfront area. There is likely to be some disruption to vehicle users and pedestrians along the promenade and marine parade highway during construction phase. Sections of the beach will also need to be cordoned off during construction. Option 2: Works will be concentrated on the seaward side of the promenade wall therefore is only likely to affect beach users. Sections of the beach will need cordoning off during construction phase. Beach recharge particle size needs to be carefully considered against amenity value and walking along the beach. Option 3: Existing sections of the promenade and marine parade highway are likely to become unsafe over time due to erosion and therefore will eventually be closed off to the public. The Car parking facilities, skatepark and café will also be lost as a result. (Car park and Skatepark area is designated as a protected open spaces / play area in the Gwynedd and Anglesey Joint Local Development Plan). Realignment of the flood defence will increase the risk of tidal and overtopping flooding to the railway line, and the caravan park situated to the west of it. The area is popular with tourist and visitors therefore works should be planned to minimise disruption during peak tourist season and school holidays.	<u>Design:</u> Consult local residents and businesses at an early stage. <u>Tendering:</u> Consider inviting tenderers to explain how they will schedule the works to avoid or minimise disruption to road users, residents and businesses. <u>Construction:</u> An efficient TM system, and appropriate diversions for pedestrians should be in place to minimise disruption.
	Relevant compliance obligations (if applicable): • The New Roads and Street Works Act 1991, as amended. • Construction (Design and Management) Regulations 2015.	

⁵ e.g. effects on all travellers, community severance and community and private assets.

Road Drainage and the Water Environment	There are two ordinary watercourse that flow through the study area. Both flow from east to west (see figure 3). If any in-channel works are required in either of these ordinary watercourses, ordinary watercourse consent will need to be obtained from the Lead Local Flood Authority (LLFA). Large parts of the study area are within a flood zone (see figure), therefore a Flood Consequence Assessment may be required. NRW should be consulted. Best practice should be adhered to throughout construction phase, in line with pollution prevention guidelines, to ensure there are no adverse impacts on the local water environment.	<u>Design:</u> Gwynedd Council as LLFA should be consulted if there is a need for Ordinary Watercourse Consent. <u>Tendering:</u> Consider inviting tenderers to explain how they will plan the work to avoid or minimise adverse impacts on the water environment. <u>Construction:</u> All construction work should be carried out in accordance with GPP5, along with any other requirements associated with an Ordinary Watercourse Consent.
	Relevant compliance obligations (if applicable): • The Environmental Permitting (England and Wales) Regulations 2016 • The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003. • The Flood and Water Management Act 2010. • PPG6 <i>Working at Construction and Demolition sites</i>. • GPP5 <i>'Works or maintenance in or near water'</i>.	

<i>Cumulative Effects</i>	The Gwynedd and Anglesey Joint Local Development Plan includes the following allocated development located within the study area, which could generate cumulative effects with the scheme should any of them be carried out at the same time: • SP705 – Tir ger Tai'r Heli, 1.1ha (employment) • SP745 – Land adj 16 Heol y Llan 0.1ha (housing) There are no proposed works currently known of which would generate impacts in combination with the proposals	<u>Design:</u> Consider and assess any cumulative effects associated with other developments in the area, if information is available at the time. <u>Tendering:</u> N/A <u>Construction:</u> Should any of the proposals occur at the same time, the main contractors of each scheme should aim to co-ordinate their programmes so as to minimise disruption within the local area.
<i>Summary of recommendations</i>	<i>Design stage:</i> <u>EIA Screening:</u> • Option1: As the work includes increasing the height of the walls and introducing new rock armour, it is deemed beyond 'maintenance and reconstruction' therefore EIA screening will be required Works such as the addition of rock toe armour and beach material is likely to take place within mean high water therefore a marine licence will be required. • Option 2: EIA screening and Marine licence will be required as work will take place within mean high water. • Option 3: Work of creating a new line of defence is likely to be deemed a schedule 2 project under Town and Country Planning (EIA) Regulations therefore screening opinion from Local Planning Authority will be required. • Consider avoiding or minimising the need to generate construction dust and aerial emissions via the design. • Consultation with GAPS required regarding potential impacts on Mawddach and Ardudwy LOHI and if any archaeological assessment will be required.	<i>Responsibility (Client, Designer, Contractor):</i> • Client / Designer

- Option 1: Conduct a reptile survey of the grassland habitat that could be affected by works to the tertiary wall.
- Option 3: Undertake protected species survey to identify habitat that may support such species. This should include survey for otters, water voles, reptiles, bats, and nesting birds.
- Consult with NRW if any protected species are likely to be disturbed. If so, a protected species licence may be required.
- Option 1 & 2: Further assessment will be required to understand the impact of any direct habitat loss on the SAC, and the impact that may be caused from sediment movement in the area. This will also need to consider composition of imported material for beach recharge.
- Option 3: Further assessment will be required to understand the impact of the realignment on the adjacent SAC sandflats habitat.
- Efforts should be made during the design stage to avoid or at least minimise the impact on the river bed and banks where works are close to the watercourse.
- All options will require a Test of Likely Significant Effects to be completed for the Pen Llyn a'r Sarnau SAC, Meirionydd Oakwoods and bat sites SAC, and Afon Eden – Cors Goch Trawsfynydd SAC. NRW will need to be consulted.
- The scheme design should look to minimise impact on local wildlife sites or the impact will need to be successfully mitigated in liaison with Gwynedd Council's biodiversity unit.
- Undertake invasive species survey of the proposed work area.
- If invasive species are present, a biosecurity Risk Assessment / Method Statement should be prepared to ensure that Schedule 9 invasive species are not spread within or between sites.
- Consider ways of minimising waste within the design process, implementing the waste hierarchy.
- Consider whether construction noise and vibration can be avoided or minimised as part of the design.
- Consult local residents and businesses at an early stage.

	• Gwynedd Council as LLFA should be consulted if there is a need for Ordinary Watercourse Consent. • Consider and assess any cumulative effects associated with other developments in the area, if information is available at the time.	
	<i>Tendering stage:</i> • Consider inviting tenderers to explain how they will work in a way which avoids or minimises the likelihood of construction dust being generated. • Inform tenderers of the LOHI and any associated measures that need to be put in place. • Inform tenderers of the presence of protected species if these are noted during any surveys, and advise with regards to any mitigation measures • Request that contractors submits a Construction Environmental Management Plan (CEMP) for approval, which should detail how they will be implementing good working practices to safeguard the environment, detailing what mitigation measures will be in place. • Consider inviting tenderers to explain how they will plan the work to avoid or minimise adverse impacts on the water environment. • Inform tenderers about the locations of the protected sites within close proximity to the proposals, and any specific mitigation measures required. • Tenderers must be informed if their construction methodology needs to comply with Biosecurity Risk Assessment / Method Statement. • Consider inviting tenderers to explain how they will seek to re-use site-won materials within the scheme. • Specify noise and vibration limits, particularly in areas adjacent to residential properties. • Consider inviting tenderers to explain how they will schedule the works to avoid or minimise disruption to road users, residents and businesses.	<i>Responsibility (Client, Designer, Contractor):</i> • Client / Designer

	Consider inviting tenderers to explain how they will plan the work to avoid or minimise adverse impacts on the water environment.	
	<i>Construction stage:</i> - Implement working practices that avoid or minimise aerial emissions. Dust suppression measures should be implemented if working in dry weather. - Ensure contractors are aware of any measures that need to be put in place to protect cultural heritage features associated with the LOHI. - All options: If nesting birds are found on site during the bird-nesting season (March to August inclusive) a suitable buffer zone should be defined by a suitably qualified ecologist, and work should cease in that area until all broods have fledged. - Option 3: Any vegetation clearance works required should be undertaken outside of the bird nesting season (March to August inclusive), otherwise a nesting bird check should be carried out by a suitably qualified ecologist immediately before any vegetation clearance works commence. If any nesting birds are found, the clearance work shall be postponed until that nest is no longer in use, and this should be confirmed by an ecologist during a subsequent visit. - All options: If any protected species are discovered on site during construction, all works should cease until further advice is sought from a suitably qualified ecologist. - Works should be carried out in accordance with pollution prevention guidelines GPP5 'Works or maintenance in or near water'. - To ensure protection of adjacent protected sites, works should be carried out in accordance with pollution prevention guidelines GPP5 'Works or maintenance in or near water'. - Monitor and review performance against the CEMP. - Should any INNS need to be removed, best practice should be followed and the INNS should be dealt with using appropriate techniques.	<i>Responsibility (Client, Designer, Contractor):</i> Contractor

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| | <ul style="list-style-type: none">• All materials that could be contaminated with schedule 9 invasive plant species should be re-used within the same part of site, or disposed of using appropriate, widely accepted methodology.• Areas adjacent to the scheme containing INNS should be marked out and avoided by personnel and machines.• Waste excavation materials and building waste should be disposed of at a suitably permitted facility, using registered waste carriers. Duty of care waste transfer notes need to be kept and retained for two years.• Contractor should work considerately and within agreed noise and vibration limits, as the works are close to residential properties.• An efficient TM system, and appropriate diversions for pedestrians should be in place to minimise disruption.• All construction work should be carried out in accordance with GPP5, along with any other requirements associated with an Ordinary Watercourse Consent.• Should any of the proposals occur at the same time, the main contractors of each scheme should aim to co-ordinate their programmes so as to minimise disruption within the local area. | |
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Appendix 1: Figures.

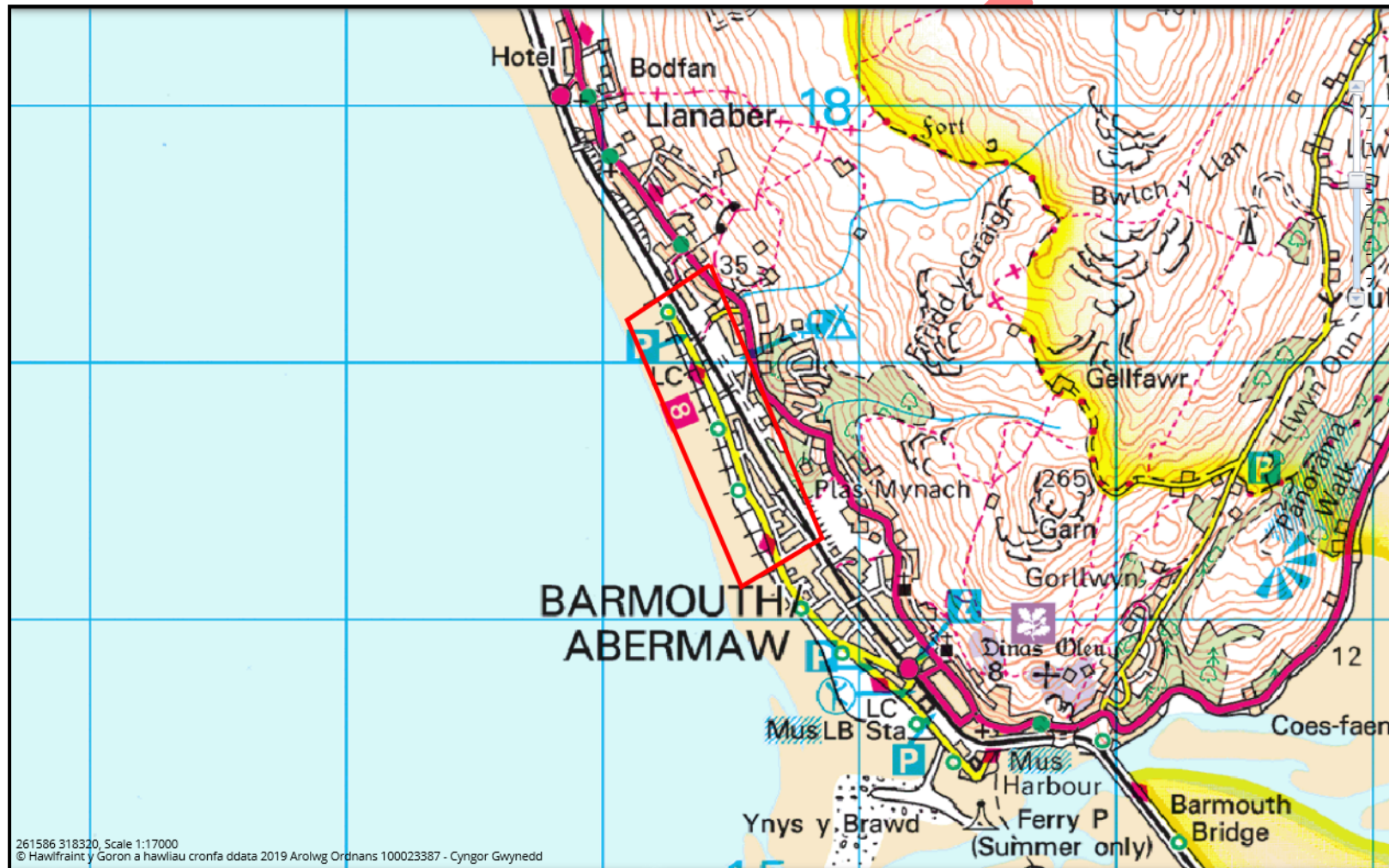


Figure 1. Showing the general area of the proposals which forms the study area used in this IEA. Key: Red line = study area. Source: MapGwynedd.



Figure 2: Showing nature conservation sites in relation to the study area. Key: Red line = study area. Brown shading = Special Area of Conservation (SAC). Grey Shading = Site of Special Scientific Interest (SSSI). Green Shading = Local Wildlife Site (LWS). Source: MapGwynedd.

