



NON-TECHNICAL SUMMARY

S1 CONTEXT

The historic town of Lyme Regis is situated on the coastline of West Dorset, on the border with Devon, located in a predominantly rural landscape. Large parts of the surrounding countryside are designated as an Area of Outstanding Natural Beauty (AONB), whilst sections of the adjacent coastline attract a number of other designations in recognition of its geological, floral and faunal interest. These include Sites of Special Scientific Interest (SSSI) including several Geological Conservation Review (GCR) Sites, a Special Area of Conservation (SAC) and its recently awarded status as a World Heritage Site.

Much of the conservation interest of the area is a function of the instability of many parts of the coastal cliffs and the rapid rates of erosion along the Dorset coast. The landslide complexes of Black Ven and The Spittles are continually expanding and evidence indicates that ground instability is extending towards Lyme Regis town via East Cliff, which lies immediately to the east of the town. Coastal processes are also responsible for the ongoing lowering of the foreshore which, in combination with direct wave attack on the existing seawalls, is undermining the coastal defences. A failure of the coastal defences would further destabilise active landsliding systems and could provide the trigger for the reactivation of pre-existing landslides that are relatively inactive at present, affecting the stability of the Meadows and Charmouth Road.

The proposed works, the extent of which are shown on Figures 5.1 and 5.1.1 to 5.1.3, are intended to strengthen the existing coastal defences while stabilising the coastal slopes from Church Cliff to East Cliff. The consequences of not undertaking the works could include the failure of the existing coastal defences which would result in the loss of properties and infrastructure. The proposed works will substantially reduce this risk in the foreseeable future.

Although studies have been undertaken over an over a much larger area, the proposed works would directly affect about 2ha of the coastal slopes and 0.5ha of the foreshore.

S2 PLANNING POLICY FRAMEWORK

It is a requirement of the planning process that the environmental impacts of the proposed works be assessed due to the sensitive coastal location and potential impacts upon historic structures. This non-technical summary summarises the Environmental Statement which has been prepared in response to this requirement and submitted with the planning application. Relevant planning policies underpinning this requirement are presented in the West Dorset Local Plan. The Local Plan was developed with reference to government guidance, statutory and non-statutory designations and a number of strategic policies and plans.



S3 THE PROPOSED DEVELOPMENT

S3.1 General

The proposed development is to ensure the continued integrity and performance of the coastal defences in the developed areas of Lyme Regis where property, infrastructure and the public are at risk.

A wide range of engineering solutions were considered in developing proposals that satisfy both the engineering and environmental objectives as well as being economically viable.

The proposed works could be considered as comprising three inter-related components: the strengthening/renewal of the existing coastal defence and foreshore works, the stabilisation of the coastal slopes immediately behind the sea defence works and the landscape and ecological mitigation works.

As part of an iterative process that involved considerable public participation and paid regard to the important environmental setting, landscape and ecological mitigation design options were developed for the reinstatement and subsequent management of the area affected by construction.

S3.2 Foreshore Works

The preferred foreshore works is the construction of a new gravity seawall immediately seaward and over the length of the existing deteriorated seawall. The top of the new seawall will provide a pedestrian, wheelchair and emergency access as well as occasional usage by authorised maintenance vehicles. Also, a rock apron will be provided to the seaward side of the new seawall to prevent wave scour from undermining the toe of the new seawall and reduce wave overtopping.

The coast protection is required to extend beyond the eastern limit of the existing defences to prevent erosion of the unprotected sea cliff, which would outflank the sea wall and be detrimental to the stability of the coastal slopes above. Construction of a limited length of imported rock armourstone revetment is proposed.

The scheme has taken account of predicted climate change and sea level rise.

S3.3 Slope Stabilisation Works

The coastal slopes have been divided into different landslide areas where different preferred schemes are combined to form the slope stabilisation works. The preferred scheme for the slope stabilisation works includes the following elements:

- counterfort and trench drains (excavated trenches filled with gravel to drain and strengthen the unstable slopes);

- concrete shear keys (trenches filled with no-fines concrete to drain and strengthen the unstable slopes);
- sub-horizontal drilled drains (bored drains drilled into the slope);
- piles (steel tubes inserted into the ground and filled with concrete/grout);
- soil nails (steel rods inserted and grouted into the ground);
- reinforced soil (recompacted soil reinforced with geomaterials); and
- new drainage works and improved existing drainage.

S3.4 Landscape and Ecological Mitigation

The preferred landscape and ecological mitigation design has been developed in light of the proposed foreshore and slope stabilisation works. The aim of the landscape design is to reinstate the mosaic of habitats and to maintain the sharp transition in character at Church Cliff jetty, between the intensely urban, historic town to the west and the undeveloped and largely untamed coast to the east.

The mitigation measures that would contribute to this goal would be:

- the retention or replanting of some trees and scrub along the cliff tops;
- restoration of the vegetated slopes at Church Cliff with appropriate planting;
- allowing the vegetation on the stabilised East Cliff slopes to naturally re-colonise using the existing seed-bank in the site's soils;
- creating wetland areas within East Cliff;
- providing post-construction management of the slopes to develop the required range of habitat mosaics;
- ensuring that the seawall design is simple and rugged, avoiding inappropriate surface decoration or colourings in the concrete;
- ensuring that only essential street furniture, such as railings or seats, is incorporated and that it is of simple, robust design, suitable for its rural setting; and
- avoiding the introduction of lighting east of Church Cliff jetty.

S4 CONSTRUCTION METHOD STATEMENT

The site working area will comprise the area of the coastal slopes to be stabilised along with a foreshore strip of sufficient width for the coastal protection works.

The delivery of armourstone and some fill material to the proposed foreshore works would be by sea. Delivery of other foreshore works materials (concrete, shuttering etc.) would be by road via Charmouth Road, Cobb Gate and along the length of the Phase I works. The materials and plant for the lower sections of the coastal slope works would also be brought in this way. Haul roads will be constructed to form access from the Charmouth Road car park to East Cliff and Church Cliff within the site.

Piles would be used to secure some areas of the slopes in East Cliff, Church Cliff and Allotment areas. These would be inserted into pre-drilled

boreholes obviating the need for noisier percussion piling techniques. Excavated material will be re-used where feasible to reduce waste spoil and cost. Also, soil nailing would be used in areas of steep slopes.

A proposed construction period of about 24 months is anticipated. It is not envisaged that night time working would be required, although such works may be required occasionally in response to tidal conditions and special circumstances.

S5 GEOLOGY AND GEOMORPHOLOGY

The geological and geomorphological setting of Lyme Regis and the site of the proposed Phase IV works is important both nationally and internationally. This importance is recognised both in statutory designations and as a World Heritage Site.

The coastal cliffs in the Lyme Regis area are some of the most dynamic landforms in Britain due to a combination of marine erosion and active landsliding. The complex of cliffs and benches provides excellent examples of beach ramparts formed from the boulder content of landslides. Thus the area is of considerable importance to coastal geomorphology in terms of the classic coastal landforms and for studying the interrelated processes of landsliding, cliff denudation and beach formation.

Ground instability, principally landslides and slope movement, has led to damage of property and infrastructure and has raised safety concerns at a number of locations in the area. The coastal slopes between Church Cliff and East Cliff comprise a number of landslide systems that have undergone, and will continue to undergo, repeated phases of reactivation. Although the construction of the existing seawalls has prevented further cliff recession due to toe erosion, the slopes continue to be affected by instability or slope degradation because they had been over-steepened by marine erosion prior to protection.

The proposed engineering works will therefore have a significant and deliberate impact on the geomorphological processes operating in the immediate area. However, the works are required to protect properties, infrastructure and public safety. The construction work will expose geological strata and fossils for study and interpretation facilities will be included in the scheme.

S6 COASTAL PROCESSES

Lyme Bay acts as a store of sand and shingle which are supplied from the eroding cliffs along the adjacent coastline, by sediment transported from rivers and from the offshore seabed and moved onshore by wave energy. The beach material is then redistributed along the shoreline by waves in the process of longshore drift, unless prevented from doing so by either natural or engineered barriers, such as the Cobb. The progressive construction of the coastal defences since the 1750's has significantly modified the coastal

and natural landslide processes and the form of the shoreline since their construction.

Unless action is taken the beaches and foreshore at Church Cliff and East Cliff are likely to continue to decline as a result of the limited supply of sediment and the rise in sea level and storminess due to climate change.

The potential impacts of the proposed works on the coastal slopes relate mainly to the geological and geomorphological interests of the area. Stabilisation of the slope will reduce sediment input onto the foreshore. However the sediment input from the vegetated cliffs above Church Cliff is negligible and from the more active East Cliff is relatively small. The preferred scheme is considered to have a negligible effect on the sediment budget and coastal process as most of the material from East Cliff is fine grained and therefore will not be retained on the beaches. The input of resistant granular material is relatively low and therefore the impact of slope stabilisation on the coastal processes outside the scheme area is not considered to be significant.

The coastal processes for the Church Cliff and East Cliff areas will remain unchanged and cliffs beyond the coastal defences, to the east of the proposed 60m revetment extension, will continue to erode and recede. However, it is considered that the preferred coast protection scheme will have no or negligible effects on the coastal processes, both in front of the protected Church Cliff and East Cliff areas and adjacent areas including Town Beach to the west and the coastline east of the Phase IV area including the foreshore areas in front of Black Ven and Charmouth.

S7 ECOLOGY

The study area is located in an area of considerable ecological conservation interest. The majority of the Phase IV study area is covered by statutory nature conservation designations. The important ecological elements of the West Dorset Coast Site of Special Scientific Interest (SSSI), designated principally for geology, are the assemblages of scarce invertebrates, especially those associated with the micro-habitat and climatic conditions found on south-facing soft cliffs along the south coast of England. The Meadows include lowland meadows and flush vegetation in fields surrounded by ancient, species-rich hedgerows. A range of intertidal habitats and species also occur, most importantly *Sabellaria alveolata* reefs, which are formed on Broad Ledge.

The coastal cliffs are an example of the important European habitat, Vegetated sea cliffs of the Atlantic and Baltic coasts, and hence the SSSI is a component of the Sidmouth to West Bay Special Area of Conservation (SAC). The soft cliffs are also an example of the UK Biodiversity Action Plan (BAP) habitat, Maritime Soft Cliffs.

The habitats associated with the coastal cliffs and further inland across the Meadows support protected species, including the Dormouse in hedges and potentially in scrub, and four species of reptile.

The nature of the proposals will ultimately result in ecological impacts associated with the construction phase, including vegetation clearance and soil stripping, but these elements will be mitigated, for example by translocation of protected species and the recreation of habitat conditions as part of the proposals in order to retain the mosaic of vegetation types and the invertebrates and reptiles they support.

An important element of the proposals which cannot readily be mitigated, since it is in direct conflict with the very nature of the scheme, is the loss of cliff mobility and the extent of unprotected coastal cliff. Although much of the coastal cliff is already partially restrained by the existing seawall, the proposals will ensure greater cliff stability for at least 60 years, and will extend the existing defences further east.

In the preparation of information for an appropriate assessment of the effects of the scheme on the SAC, as required under the Habitats Regulations 1994 (as amended), it is concluded that the scheme will have an adverse effect on the integrity of the Vegetated sea cliff habitat. However, the tests against alternatives and overriding public interest lead to the outcome that the scheme would be acceptable as long as compensation is provided. This will include interpretation facilities.

S8 LANDSCAPE, TOWNSCAPE AND VISUAL ASSESSMENT

The area affected by the works occupies the undeveloped coastal slopes to the east of Lyme Regis, as far as the active landslip at The Spittles. It forms part of a dramatic coastal landscape which is in AONB, Heritage Coast and is part of the World Heritage Site.

On the unstable cliffs there is a complex pattern of vegetation comprising dense thickets of trees and scrub, more open wildflower grasslands and bare soil. Trees and dense scrub have colonised along the crests of Church Cliff and East Cliff, providing shelter, enclosure and screening for nearby properties. This 'untamed coast' provides a sharp contrast to the historic town centre and this 'natural' setting is a highly valued aspect of the town.

The proposed development would require most of the vegetation to be stripped from Church Cliff and East Cliff. However, the landform will remain broadly the same as at present and the proposed planting and natural recolonisation would restore the landscape character and reinstate the existing setting of Lyme Regis.

Above the unstable cliffs is the Charmouth Road car park, the Lyme Regis Football Club's ground and allotments. Parts of the car park and allotments will be affected by construction but will be fully reinstated.

To the north and east lie the Meadows, with dense hedgerows containing many trees. This landscape will be unaffected by the scheme.

There will be no post-construction impacts on the townscape adjoining the scheme.

Impacts on nearby public views will be restricted to Charmouth Road and the car park, Gun Cliff Walk, Church Cliff Jetty, the foreshore and inshore waters. These views will be most affected during construction. Views from Marine Parade and the Cobb will be unaffected. Views from some nearby residential properties will be affected in the short term, but the properties will benefit from greater land stability.

Public access along the sea wall, foreshore access steps for escape at high tide, the inclusion of a path from Charmouth Road car park to the sea wall and a picnic/viewing area south of the car park will all provide recreational benefits and improved access to sea views for all.

S9 ARCHITECTURE AND HISTORIC HERITAGE

Much of the centre of Lyme Regis is within the Lyme Regis Conservation Area. These are areas of “Special Architectural or Historical interest, the character or appearance of which it is desirable to preserve or protect”. It also covers Church Street, the landward end of East Cliff Lane, Church Cliffs and the immediate foreshore. St Michael’s Parish Church is a grade I listed structure (which includes the grave of Mary Anning). These are all likely to be under threat from unrestrained coastal erosion.

There are several archaeological sites in the vicinity of Timber Hill and the Spittles which include the remains of the Coastal Defence Battery and the London to Exeter Road, however there are none within the works area. Due to the coastal erosion and landslips the sites are in danger of being lost.

There is no doubt that a substantial part of the town’s architectural heritage is at risk from land instability related to coastal erosion. The proposed development would therefore preserve the architectural heritage features and would not have any direct damaging effects.

S10 TRAFFIC AND TRANSPORTATION

The A3052, Charmouth Road is an important transport link and a main component of the highway infrastructure for Lyme Regis. The road provides a direct route into the centre of Lyme Regis from the east and is an important through route for buses.

The loss of Charmouth Road due to coastal instability would result in significant detriment to the town of Lyme Regis. The whole eastern flank of the town would be adversely affected through loss of access to property and the need to set up long diversion routes and also to restrict the use of residential roads by through-traffic. The road also carries much of the important services including electricity, gas and water that supply significant areas of the town which would have to be re-routed if severed by land instability.

The proposed development would substantially reduce the risk of loss of sections of the Charmouth Road, its infrastructure and access to the properties and town, in the medium to long-term.



S11 CONSTRUCTION IMPACTS

A number of other environmental impacts, which will arise as a direct consequence of the construction activities associated with the proposed development, were identified and evaluated. These include short-term impacts upon water quality, material assets, social-economic effects, boating and fishing, recreation and amenity value, air quality, noise and vibration, transport and traffic generation, light pollution, and health and safety.

S12 CONCLUSION

The impacts of the proposed development are positive in terms of increasing the security of the coast defences at Lyme Regis and protecting the eastern side of the town from damage by ground movement.

Over the long-term the most noticeable changes would be the more accessible and safer seawall and the rock armour revetment on the shoreline. The vegetation of the coastal slopes will regenerate in time, with negligible long-term effect on the setting of Lyme Regis.

The principal considerations in terms of sustainability are those concerned with the quality of life and environmental resources. The development would protect the established characteristics and qualities of the eastern side of Lyme Regis, together with the resources represented by the buildings, infrastructure and social and recreational facilities that make up this part of the town.

The principal environmental resource, the coast to the east of the urban area, would be significantly affected during and for a short time after construction, but thereafter the landscape would be encouraged to regenerate and in time would recover much of its present vegetated character. Adverse effects on the geological interest of the World Heritage Site would be offset by the opportunities presented to facilitate further study.

Some mitigation of the effects on nature conservation interests are possible and are proposed, but continued stabilisation of the coastal slope by the seawall would limit for the foreseeable future, the westward spread of coastal erosion and landslide instability. In assessing sustainability, this adverse effect must be weighed against the other, predominantly beneficial effects. On balance, it is considered that the proposals would meet the Government's sustainable development objectives.