POWERFUEL

Portland energy recovery facility

Environmental statement

14

Summary tables

14 Summary tables

Introduction

14.1 This chapter summarises the findings of the EIA. A comprehensive assessment has been undertaken of the potential environmental effects arising from the proposed development. Where possible, measures have been incorporated into the development proposals to prevent or reduce the potential for adverse environmental effects. These primary mitigation measures are an integral part of the design and were taken into account in the impact assessments. The primary mitigation measures are summarised in table 14.1.

14.2 Measures to help mitigate adverse effects identified during the assessment process have also been proposed for some of the environmental topics. These secondary mitigation measures largely, but not exclusively, relate to potential effects during the construction phase and are summarised in table 14.2.

14.3 The residual effects, i.e. the significant effects remaining after mitigation, are summarised in table 14.3. The measures envisaged for monitoring adverse effects are set out in table 14.4.

Design description / detail	Environmental issue addressed / avoided / reduced
The built development has been carefully located and designed, particularly the taller elements, to minimise impacts on the surrounding area. Consideration has been given to the massing, height and scale of development, with the building stepping up in height from the water's edge at Balaclava Bay to Incline Road and the cliff face of East Weare. The design strategy of the buildings has been to occupy the smallest footprint in order to reduce, as far as is practicably possible, the building's mass while maintaining efficient operation. The main building will be an angular inscribed geometry to reflect the cliff face of East Weare and Incline Road. An angular design of the offices and use of the same materials as the plant visually amalgamates the buildings, creating a cohesive aesthetic. The main service yard, silos, chemical stores and transformer compound are located to the west of the site, where they are largely screened from public view by the buildings. The 80 m high stack will not break the skyline of the Isle of Portland, which is at approximately 130 m AOD. It lies at approximately the same level as the development at Fortuneswell and generally level with the base of the upper cliff face on the East Weare. The materials of the buildings have been chosen to reflect the vegetated cliffs of East Weare that form the backdrop. The buildings will be a combination of printed PVC mesh, with an image of the cliff face vegetation, and profiled metal cladding with horizontal banding comprising angled cleave lines in tones of grey to reflect the Portland stone cliff face. The roof will be a combination of fibre cement roof sheets and photovoltaic panels on the south facing slopes. These will be non-reflective.	Minimised visual effects on the surrounding area, including the AONB and WHS.
The stack height has been set at 80 m following detailed air quality modelling.	Minimised the potential for effects on human health or sensitive ecological receptors.
Three of the car parking spaces (10%) will be fitted with electric charging points to encourage the uptake of electric vehicles and the remaining spaces will be fitted with ducting to facilitate future installation of cabling and charging units as required.	Potential for reduced emissions from vehicles accessing the plant.
The proposals include a secure cycle store, which will provide storage for eight bicycles in the form of ground-mounted Sheffield stands.	Potential for reduction in use of cars to access the plant.
Surface water runoff on roads and hardstanding (including car parking and the service yard) will be collected by linear drainage channels and external gullies and will be routed via a swale and an oil bypass separator to provide treatment prior to discharging into the sea. Clean roof runoff will be discharged directly to the sea. The existing drainage outfalls into the sea will be used, with clean roof runoff discharging into Balaclava Bay to the east and treated runoff discharging into Portland Harbour to the north. The proposed surface water drainage system will be designed and maintained in accordance with CIRIA (2015) *C753: The SuDS Manual.*	Avoided the potential for effects on coastal water quality from site runoff.
To ensure all runoff from roads and hardstanding is routed via the proposed treatment systems prior to discharge, the drainage systems will be designed to accommodate the runoff from a 1-in-100 year storm, plus a 40% allowance for climate change. Any flows beyond this will be stored in the swale and open hardstanding areas before passing through the drainage network. The existing outfalls will be surveyed prior to construction and any defects will be remedied to ensure that they are in a suitable condition to serve the proposed development.	Avoided the potential for effects on coastal water quality from site runoff and for flooding of the site as a result of climate change.
The following measures have been incorporated into the lighting design to minimise the impacts on receptors: • The use of luminaires with very low or no upward distribution to minimise the contribution to 'sky glow'. Light will be tightly controlled and considered to avoid light spill • Selection of design criteria illumination levels to allow the safe operation of the facility at night • The use of lighting equipment at an appropriate scale will limit mounting heights of equipment to both reduce visibility from a distance at night and visibility of lighting equipment during the day	Minimised the potential for effects on bats and visual amenity from increased lighting.

Design description / detail	Environmental issue addressed / avoided / reduced
• Selection and positioning of equipment so that it is orientated towards the centre of the site where possible will limit the visibility of sources from outside the site and maintain the function of the lighting • The use of zero tilt and provision of accessories that will limit upward light spill, with the use of flat glass lanterns and back shields to further mitigate light spill beyond the intended areas • Application of a zoned lighting control will limit unnecessary lighting of areas outside operational hours	
Incinerator bottom ash (IBA) from the ERF will be recycled and used to make sustainable aggregates suitable for construction and road projects. It is intended that 100% of the IBA will be used for secondary aggregate production.	Reduced use of primary resources for aggregate production and avoided the need for landfill.
Air pollution control residues (APCr) generated by the ERF will be sent to a company in Avonmouth for treatment and used to create a lightweight, high quality, sustainable carbon negative aggregate that is used to make carbon negative building blocks, as well as in other construction material products. The APCr will be removed from the site in enclosed tankers.	Reduced use of primary resources for aggregate production and avoided the need for landfill.
Flue gases generated from the ERF combustion process will be cleaned before being released into the atmosphere to the appropriate standards required to protect human health and the environment. The flue gas treatment systems will be designed to comply with the requirements of the Waste Incineration Best Available Techniques reference document.	Minimised the potential for effects on human health and ecological receptors.
Emissions from the stack will be continuously monitored using a continuous emissions monitoring system (CEMS) for the following pollutants: particulates, sulphur dioxide, hydrogen chloride, carbon monoxide, nitrogen oxides, ammonia, and volatile organic compounds. In addition, periodic monitoring will be undertaken of pollutants that are not able to be monitored continuously, such as hydrogen fluoride, metals, and dioxins and furans.	Minimised the potential for effects on human health and ecological receptors.
All raw materials required for the ERF processes will be stored safely on site, in suitable tanks, silos or bunded areas as appropriate.	Minimised the potential for water and ground pollution.
The ERF will operate a detailed maintenance programme to ensure systems and equipment operate safely, effectively and reliably. The maintenance programme will aim to maintain and improve overall efficiency, reduce emergency repairs, reduce unscheduled equipment shutdowns and the duration of such shutdowns, decrease process faults or reduced performance due to equipment problems and extend the useful life of equipment, repairing and adapting it where necessary.	Minimised the potential for pollution events through good site management.
A number of spill procedures will be produced for each potential spillage event identified, including spillage of raw material inputs to the plant, ready use consumables, and waste material outputs. Suitable and sufficient equipment will be maintained on site, such as spill kits, in order to deal with the predicted scale of possible spillages of materials. Staff will receive training in the use of the spill kits and will regularly practise as part of the normal operation of the facility. Under all circumstances, priority will be given to the potential environmental and health and safety impacts of spillages. Engineering controls will be employed where these would reduce the potential for spillage (or minimise the impact of spillage), such as bunded areas for fuel storage above ground.	Minimised the potential for pollution events through good site management.
Procedures and training will be put in place for dealing with abnormal operating conditions. The ERF has been designed to avoid the need for regular shut downs, but if any incident endangers, or is likely to endanger, personnel, or there is a risk of serious damage to the facilities, or a complete power failure, an emergency shut down would be necessary. A standby generator will be present on site to support the safe shut down of the facilities at any time. A full set of procedures will be developed and implemented on site for an emergency shut down.	Minimised the potential for ground, water and air pollution and health and safety effects during emergencies.

Design description / detail	Environmental issue addressed / avoided / reduced
These will be published in an emergency plan. Appropriate drill and training exercises will be undertaken at regular intervals to ensure that all plant operatives are aware of, and are competent to identify and respond to, plant emergencies.	
The facility will be equipped with comprehensive fire protection and detection systems, which will comply with the requirements of the National Fire Protection Association's recommended practice for fire protection for electricity generating plants and high voltage direct current converter stations (NFPA 850). Automatic fire alarm detection will be provided throughout specified areas, as well as manual fire alarm 'break glass' call points. A sprinkler system will be used throughout the building. An underground fire main will encircle the ERF plant facilities, which will supply a number of fire hydrants and will spur off at strategic points to supply the water-based fire protection system.	Minimised the potential for pollution from fire suppression water and for health and safety effects in the event of a fire
The following dust and odour control measures are proposed: • Combustion air will be drawn from the waste reception area so that odours and airborne dust are drawn from the bunker into the boiler line, thus preventing their escape to atmosphere • External doors to the waste reception area will remain closed except for access and egress of vehicles and pedestrians • Waste feed hoppers will be designed to ensure that emissions of dust and odours are minimised. By ensuring that the hopper dimensions exceed those of the grab, the potential for stray RDF to accumulate on the floor and for dust and RDF to be blown from the hoppers will be minimised • Potential emissions of dust and fumes from the bottom ash discharger will be minimised by the quenching process and storage systems proposed • As part of ongoing occupational health protection, dust level checks will be carried out on a regular basis in operational areas of the facility where high dust levels may be present. This will provide an early warning of increasing dust levels, at which point action would be taken to reduce dust levels • Daily olfactory checks will be carried out around the perimeter of the site to check for odours • In the event of a plant shut down, which might result in RDF being held in the bunker for a period of time, fresh RDF will be used to cap older RDF in order to minimise odours	Minimised the potential for dust and odour generation.
The following noise control measures are proposed: • Most noisy plant items will be installed inside the ERF building rather than outside and equipped with noise insulation if necessary • The air-cooled condensers have been designed to reduce noise and tonal components • Vehicle and pedestrian doors will be kept closed when not in use to prevent noise egress • A sound attenuator will be fitted to the exhaust of the flue gas induced draft fans • Vehicle movements at night will be limited and plant will be regularly maintained • Mobile plant for the site will comply with the most up-to-date standards, including noise emissions. All mobile plant will be operated and maintained in accordance with the manufacturers' instructions. Mobile plant that does not comply with the agreed operating noise limits will be taken out of service until compliance is achieved • Noise level checks will be carried out on a regular basis in operational areas of the ERF where high noise levels may be present. Early warning of increasing noise levels will result in a noise reduction or mitigation programme	Minimised the potential for noise generation.

Design description / detail	Environmental issue addressed / avoided / reduced
The following pest control measures are proposed: • RDF will only be stored in the designated areas of the building and any spillage of RDF will be recovered in accordance with specific, time-limited procedures. This will reduce the potential for feeding patterns to be established by vermin and therefore discourage infestation • The design of the waste bunker for the ERF will ensure that the bunker is watertight and this will prevent access to the contained RDF by burrowing pests such as rats or squirrels • The bunker will be enclosed and internal, thereby reducing access to RDF for birds, and the waste reception area has been designed to eliminate roosting points for birds • Routine cleaning and good housekeeping will reduce the potential for the facility to provide an attractive environment for vermin and this will be implemented through the maintenance programme • If pests are identified, an action plan will be developed to eliminate or reduce the potential for nuisance to neighbours • Daily visual checks will be undertaken of the waste storage area and ERF tipping hall / waste bunker area, as well as the site generally. If pests are reported, appropriate measures will be taken and pest control specialists utilised where necessary • In addition to these measures, the tipping hall will be washed periodically and standard pest control methods will be implemented	Minimised the potential for health and hygiene issues and general nuisance.
The following litter control measures are proposed: • All vehicles carrying RDF into or IBA / APCr out of the ERF will be covered or sheeted, thereby ensuring the potential for litter to escape is minimised • The delivery and storage of all RDF within the main building further minimises the potential for wind-blown litter to occur • A daily check will also be made in key areas of the site (e.g. the tipping hall) to identify any build-up of RDF	Minimised the potential for nuisance.
Table 14.1: Primary mitigation measures	

Potential effect	Mitigation	Implementation
	Air quality	
--	No mitigation is required.	--
	Carbon balance and greenhouse gas emissions	
No significant adverse effects predicted	As the proposed development will lead to a net carbon benefit compared to the baseline, mitigation is not required. However, the carbon assessment is based on assumptions about the waste composition, the plant performance and the emissions avoided by exporting electricity and heat. Once the Portland ERF is operating, it will be possible to carry out a more accurate assessment of the net greenhouse gas emissions each year, taking account of the actual waste that is processed, the actual power exported for shore power and to the national grid, the actual heat exported and the carbon emissions associated with grid electricity. Powerfuel Portland Limited suggests that a methodology for carrying out an annual greenhouse gas assessment should be agreed with the planning authority. If the results of this methodology show that the plant has released more greenhouse gas emissions than have been displaced through export of electricity and heat and avoidance of landfill, then Powerfuel Portland Limited is committed to using verified carbon offsets to ensure that the process operations are 'net zero' over the lifetime of the plant. This will further increase the net benefit of the proposed ERF.	Powerfuel Portland Limited
	Community, health and economic effects	
No significant adverse effects predicted	In addition to the measures that are integral to the design and management of the plant, as set out in table 14.1, the health impact assessment (HIA) recommends the following mitigation measures are put in place: • To address any potential concerns about the impact of additional traffic movements associated with the construction of the proposed plant, it may be beneficial to communicate the findings of the air quality assessment and human health risk assessment • The framework construction environmental management plan (CEMP) should be subject to early and ongoing dialogue with the council, key stakeholders and the broader community, to ensure they have full visibility of what is being proposed and can input accordingly • The recommendations of the HIA and mitigation set out in the ES should be clearly communicated to the construction contractor and embedded in the CEMP • Adherence to the CEMP should be closely monitored and the subject of ongoing engagement with the council and the community • Communication with local residents will be critical to ensuring they are fully briefed in advance of any scheduled activity and an active dialogue and dissemination of information regarding construction activities is recommended throughout the construction period. This should seek to use existing community communication channels and be augmented by information on the developer or project-specific website • To reduce potential disruption to local residents, reduce potential emissions to air and to enhance the safety and wellbeing of, in particular, vulnerable local residents, a traffic management plan should be developed. This should be the subject of engagement with the council and key stakeholders, such as public transport operators in the area, as well as the broader community. This should make provision for clear scheduling of traffic movements, which can be communicated with residents, in accordance with the constraints set out in the project profile in the HIA. The traffic management plan should also include appropriate standards or training around road safety, required for the breadth of the supply chain / contractors • A community complaints procedure should be implemented and communicated to all stakeholders, including the steps that will be taken once a complaint is received and the timescale in which a response and resolution can be expected	Construction contractor and ERF operator

Potential effect	Mitigation	Implementation
	• To maximise the socio-economic opportunities, and associated benefits to health and wellbeing, local procurement of services and goods for construction activity should be considered where possible and appropriate • The traffic management plan should be extended and refined to cover the operational phase of the proposed project and adjusted accordingly to reflect traffic movements anticipated during this period • Engagement and communication with stakeholders, in particular the council and community, will remain critical and there should be ongoing provision of contact points and a complaints procedure to address issues or concerns from local residents • As with the construction phase, to maximise the socio-economic opportunities and associated benefits to health and wellbeing, local procurement of services and goods should be considered where possible and appropriate	
Cultural heritage		
Accidental damage to adjacent listed structures during construction	The standard construction measures proposed to avoid potential effects on heritage assets during construction are outlined in the framework CEMP in technical appendix C. Measures are included to avoid the potential for accidental damage to the adjacent listed structures, particularly the commemorative datestone at the end of the upper level of the breakwater, which is surrounded by a crash barrier, either by collision by construction vehicles or by excavation.	Construction contractor
Ground conditions and water quality		
Effects on human health and the water environment from mobilisation of contamination during construction	Further ground investigation works will be undertaken ahead of construction to provide additional information on ground contamination conditions at the site, which will be used to refine the risk assessment and, if necessary, produce a remediation strategy that will be implemented during construction. These works will include trial pits and boreholes, soil and water sampling for laboratory testing, groundwater and gas monitoring.	Powerfuel Portland Limited
	To protect sensitive receptors during construction, measures will be put in place through a framework CEMP, as set out in technical appendix C. These will include the following: • Systematic excavation of made ground in areas of the site subject to historic development, to remove obstructions such as old foundations and known contamination sources • Dust suppression measures and use of appropriate site controls, abatement measures and monitoring • Observation of excavated materials by appropriately trained and qualified staff to identify suspected asbestos and implementation of measures to manage suspect material • Appropriate health and safety briefings for contractors on the types of contaminants known to exist on site and the possibility of unexpected contamination • Implementation of procedures for use in the event that unexpected contamination is encountered • Provision of personal protective equipment for contractors, appropriate for the contamination expected • Sequencing of earthworks to minimise the amount of soil exposed at any one time • During piling activities, an appropriate piling method will be selected that will reduce the risk of cross-contamination from made ground into the underlying groundwater	Construction contractor
	Material will be replaced to achieve the required development levels and in accordance with an agreed geotechnical and chemical specification. As part of any future remediation implementation plan, materials re-used criteria will be developed to protect human	Construction contractor

Potential effect	Mitigation	Implementation
	health and controlled waters. These will be agreed with Dorset Council and the Environment Agency. Only soils that have been validated as meeting the required re-use criteria will be used in the earthworks.	
Risk to human health from UXO during construction	All excavations will be supervised by an explosive ordnance clearance engineer, who will assess any suspect items encountered. An intrusive magnetometer survey will be undertaken at each proposed pile location to clear pile positions of UXO.	Construction contractor
Risk to human health from ground gases post-construction	Further ground investigations and risk assessment will be undertaken to characterise the ground gas risk prior to development. If required, a scheme of ground gas protection will be incorporated into any remediation implementation plan and the new buildings will incorporate measures to prevent ingress of gases into confined spaces where necessary. The design will follow UK good practice (BS 8485:2015 *Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings.*	Construction contractor and Powerfuel Portland Limited
Effects on water quality from pollution during construction	A framework CEMP has been prepared that will be agreed with the Environment Agency and Dorset Council. This will ensure that industry standard practice working methods and mitigation measures set out in the Environment Agency's guidance for pollution prevention are implemented, including measures outlined in the following documents: • CIRIA, 2002, SP156: *Control of water pollution from construction sites – guide to good practice* • CIRIA, 2001, C532: *Control of water pollution from construction sites – guidance for consultants and contractors* • CIRIA, 2010, C692: *Environmental good practice on-site* • CIRIA, 2016, C750: *Groundwater control: design and practice (second edition)*	Construction contractor
	Measures set out in the framework CEMP to prevent impacts on coastal water and groundwater quality include the following: • Appropriate consents for the storage and use of controlled substances will need to be obtained, for example under the Oil Storage Regulations and the Environmental Permitting Regulations • Temporary drainage facilities will be put in place to control discharge of water from the site, ensuring the suitable treatment of surface water discharges from the site during the construction phase • Water and sediment will be managed across the site and provisions put in place to minimise the likelihood of runoff, for example the use of sedimats or check-dams to offer filtration • Earthworks will be sequenced to minimise the amount of soil exposed at any one time. This will reduce the exposure of soils during removal of the existing hardstanding and reduce the potential for leaching and infiltration into groundwater • Spill kits will be kept on-site, appropriate to the types of material being stored. Emergency spillage response procedures will be developed and incorporated into the CEMP • Surface water discharges to controlled waters will require Environment Agency consent • Containment of spillage to capture or treat wastewaters will be provided where necessary • The management of earthworks and stockpiles will be detailed to prevent releases of runoff, and appropriate measures will be put in place for dealing with any unexpected contamination encountered. This will include appropriate bunding and drainage measures and positioning to limit any impact of surface runoff in the event of extreme rainfall • A requirement for a suitable construction traffic management plan will be included to minimise the risk of accidents and related spillages	Construction contractor

Potential effect	Mitigation	Implementation
	• A commitment will be made to regular inspection throughout the construction programme and following completion, as agreed with Dorset Council	
	Landscape, seascape and visual effects	
--	As this is a full application, no additional secondary mitigation is proposed.	--
	Natural heritage	
Pollution of marine designated sites during construction	The framework CEMP in technical appendix C sets out how industry standard practice working methods and mitigation measures set out in the Environment Agency's Pollution Prevention Guidelines (withdrawn) and Guidance for Pollution Prevention will be implemented. These include details of the management of water and sediment across the site and provisions to minimise the likelihood of runoff, provide containment of spillage and capture or treat wastewaters where necessary.	Construction contractor
Effects on designated sites from dust deposition during construction	Dust suppression measures that will be implemented on site are also covered the CEMP. These include the locating of dust causing activities as far away from the Isle of Portland SSSI boundary as possible, erecting solid screens or barriers along the boundary of the site adjacent to the SSSI, covering stockpiles of earth, imposition of a site speed limit, damping down stockpiles and dusty areas as appropriate, use of enclosed chutes and conveyors, covering skips and minimising drop heights, the use of water-assisted dust sweepers along trackout routes and the use of wheel-washers.	Construction contractor
Effects on marine designated sites from the introduction or spread of invasive non-native species	All relevant standards and protocols will be followed by ships associated with the proposed development, including Maritime and Coastguard Agency's guidance on the control and management of ballast water to reduce the risk of the introduction or spread of invasive non-native species.	Shipping operators
Loss of on-site habitats	Creation of new habitats on site, as follows: • 0.064 ha of bare sand / shingle / pebble / boulder habitat, planted with coastal / maritime species including Dorset notables found on site. This also provides black redstart foraging habitat. Bare sand patches will be managed for burrowing invertebretes • 0.062 ha of mosaic habitats to be created with translocated material from the existing site, oversown and plug planted with a seed mix of existing site species and Dorset notables, which will provide black redstart foraging habitat and habitat for invertebrates • 0.14 ha of colonised hardstanding (gabion walls), to be planted with species including the nationally scarce maidenhead fern found on site in appropriate areas and then maritime and drought tolerant natives in exposed areas, which will provide black redstart foraging habitat and habitat for invertebrates	Powerfuel Portland Limited
Harm to breeding birds during construction	To prevent the disturbance of nesting birds, the following methods for site clearance will be employed: • Vegetation should be removed outside the bird breeding season, between October and February, or • Vegetation can be removed during the bird breeding season if preceded by a nesting bird check by a suitably experienced ecologist. Any nests that are recorded must be left with a 5 m exclusion zone around them until all of the chicks have fledged. For some species, this may be up to five weeks	Construction contractor
	Traffic and transport	
	A neighbourhood coordinator will be appointed by the contractor so that residents have a known point of contact with whom to raise any particular issues, such as deliveries or specific access requirements.	Construction contractor

Potential effect	Mitigation	Implementation
Generation of traffic during construction	As set out in the framework CEMP in technical appendix C, contractors will be required to implement a construction traffic management plan, which includes details of the following: • Access arrangements for workers and HGVs • Routeing restrictions and delivery arrangements • Vehicle sizes required and schedule of use • Traffic management • Parking and loading arrangements • Proposed working hours	Construction contractor
	Construction delivery trips will be spread throughout the day, occurring at times allocated through a project delivery management procedure. This will provide adequate controls, sometimes contractually, to enable the site manager to effectively schedule deliveries to the site to minimise the impact on the local and wider road networks.	Construction contractor
	The project will be registered with the Considerate Constructors Scheme, which will continuously monitor the impact of the development on its neighbours and allow refinements and improvements to be made throughout the construction period	Construction contractor
	All loads defined as abnormal by the Department for Transport will be transported by a competent haulier with experience of transporting large or dangerous loads. Normal operating procedures for dealing with large loads will be followed. Prior notice will be given to all police forces operating within the area the load will pass through. In addition, all abnormal loads will be accompanied by at least one escort vehicle with a trained driver.	Construction contractor
Generation of traffic post-construction	A framework travel plan has been developed to establish the principles for minimising single occupancy car use by employees accessing the site. A full travel plan will be completed upon occupation of the proposed development. The framework travel plan sets out a number of measures to promote more sustainable alternatives to the car, including walking, cycling, public transport and car sharing. These include the provision of travel packs to employees, a green travel noticeboard / website and the potential for a bicycle user group. Sufficient secure, covered cycle parking will be provided for staff, together with shower and changing facilities.	ERF operator
Waste		
--	No mitigation is required.	--
Dorset and East Devon Coast World Heritage Site		
--	As this is a full application, no additional secondary mitigation is proposed.	--

Table 14.2: Secondary mitigation measures

Significant residual effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
Air quality						
None	--	--	--	--	--	--
Carbon balance and greenhouse gas emissions						
Net carbon benefit of between 21,912 and 42,378 tonnes CO_2e per year, based on grid offset only and grid offset, heat provision and shore power provision respectively, compared to the baseline of sending waste to landfill	N/A	N/A	Beneficial	Long-term	Significant	Reasonable
Community, health and economic effects						
Creation of employment in the Weymouth and Portland area post-construction	High	Small	Beneficial	Long-term	Moderate	Reasonable
Reduction of the need for investment in power infrastructure	Medium	Medium	Beneficial	Medium-term	Moderate	Reasonable
Benefits to Portland Port and supply chain businesses as a result of the provision of shore power	Medium	Medium	Beneficial	Long-term	Moderate	Reasonable
Benefits through reduced costs to Dorset Council as a result of more cost-effective waste management	Medium	Medium	Beneficial	Long-term	Moderate	Uncertain
Economic savings associated with reduced carbon emissions	High	Medium (level 1 area) Small (level 2 area)	Beneficial	Long-term	Substantial (level 1 area) Moderate (level 2 area)	Reasonable
Cultural heritage						
Effects on the breakwater and former dock office (LB8, 9) because of changes to the setting	High	Small	Adverse	Long-term	Moderate	Reasonable
Effects on the East Weare batteries (LB10, SMDO781) because of changes to the setting	High	Negligible to small	Adverse	Long-term	Slight to moderate	Reasonable
Effects on the Verne Citadel (LB14, grade II*, LB15, LB23, grade II*, SMDO780) and the internal buildings (LB19, grade II*, LB16-17, 20-22) because of changes to the setting	High	Negligible to small	Adverse	Long-term	Slight to moderate	Reasonable
Effects on Portland Castle (LB1, grade I, LB3, grade II*, SM1015326) and the 19th century house (LB2, grade II*) because of changes to the setting	High	Negligible to small	Adverse	Long -term	Slight to moderate	Reasonable
Ground conditions and water quality						
None	--	--	--	--	--	--
Landscape, seascape and visual effects						

Significant residual effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
Change to views from Portland Port and breakwaters, including the Sailing Academy and Portland Marina and Portland Harbour during construction	Medium	Medium	Adverse	Short term	Moderate	Reasonable
Change to views from Portland Port and breakwaters, including the Sailing Academy and Portland Marina and Portland Harbour post-construction	Medium	Medium	Adverse	Long term	Moderate	Reasonable
Change to views from public rights of way S3/68, S3/70, S3/72 and S3/81 during construction	Medium	Medium	Adverse	Short term	Moderate	Reasonable
Change to views from public rights of way S3/68, S3/70, S3/72 and S3/81 post-construction	Medium	Medium	Adverse	Long term	Moderate	Reasonable
Change to views from Sandsfoot Castle, Park and Garden during construction	High to medium	Small	Adverse	Long term	Moderate to slight	Reasonable
Change to views from Sandsfoot Castle, Park and Garden post-construction	High to medium	Medium	Adverse	Long term	Moderate	Reasonable
Change to views from Nothe Fort post-construction	High to medium	Small	Adverse	Long term	Moderate to slight	Reasonable
Natural heritage						
None	--	--	--	--	--	--
Traffic and transport						
None	--	--	--	--	--	--
Waste						
Increase in Dorset's residual waste management capacity	High	Large	Beneficial	Long term	Substantial	Uncertain
Increase in the South West's RDF management capacity	High	Large	Beneficial	Long term	Substantial	Uncertain
Dorset and East Devon Coast World Heritage Site						
Change to OUV because of the change to the experiential and functional value of part of the setting of the WHS during construction	High	Negligible to small	Adverse	Short term	Slight to moderate	Reasonable
Change to OUV because of the change to the experiential and functional value of part of the setting of the WHS post-construction	High	Small	Adverse	Long term	Moderate	Reasonable

Table 14.3: Significant residual effects

Adverse effect	Proposed monitoring measure	Responsibility for monitoring
Need to meet appropriate emissions standards required to protect human health and the environment	Comprehensive monitoring of emissions will be undertaken at the ERF in line with its environmental permit. No additional monitoring is required beyond that embedded into the design and required by legislation.	Environment Agency in line with the environmental permit
Potential for effects on human health and the water environment from mobilisation of contamination during construction	Appropriate monitoring of dust levels and observation of excavated materials by appropriately trained and qualified staff to identify suspected asbestos.	Construction contractor
Pollution of groundwater and coastal water during construction	Regular inspection throughout the construction programme and following completion, as agreed with Dorset Council.	Construction contractor
Loss of on-site habitats	All mitigation and enhancement habitat will be included in a landscape and ecological management plan (LEMP) for the site, which will specify the long-term management strategy for the proposed habitats, to ensure they reach their target condition and are maintained at that condition. It is anticipated that the LEMP would be secured through a planning condition.	Powerfuel Portland Limited
Increased traffic generation post-construction (mitigated through travel plan)	The travel plan will be monitored using travel surveys and remedial measures will be put in place if required.	Travel plan coordinator

Table 14.4: Proposed monitoring measures