2. Description of the Moorside Project

2.1 Summary description of the Moorside Project

2.1.1 The Moorside Project comprises:

- the Moorside Development at the Moorside Site;
- development and other works at the Accommodation Sites; and
- development and other works at the Additional Sites in Cumbria.

2.1.2 The locations of the Moorside Project Sites (namely the Moorside Site, the Accommodation Sites and the Additional Sites) that comprise the Moorside Project are shown on **Figures 2.1a and 2.1b.**

2.1.3 The main elements of the Moorside Project are summarised below. The table also includes a column that indicates NuGen's aspirations for each of the Moorside Project Sites. As explained in the section entitled "The Benefits and Legacy that we want to Leave" of the "Our Proposals" document that forms part of this Stage Two Consultation , NuGen will work with local stakeholders and commercial partners with the aim of securing a lasting legacy (subject to securing the necessary consents from the local authority) at each of the Moorside Project Sites (especially the Accommodation Sites) so that buildings and infrastructure installed by NuGen for the construction of the Moorside Project are not lost but are re-used and retained.

Table 2.1 Main elements of the Moorside Project

Main elements of the Moorside Project	At NuGen peak construction (provided via the DCO)	At NuGen operation, (provided via the DCO)	Future aspirational opportunities for legacy (not part of the DCO application)
Moorside Site (MPS, MPS Associated Development and Moorside Site Railway)	The construction works & temporary works areas, and related local employment, supply chain and economic benefits.	The Moorside Power Station, with related employment, supply chain and economic benefits, and including rail facilities, visitors facilities, landscaping and areas for environmental measures.	Potential to re-use some construction infrastructure and facilities e.g. for Sellafield, and further recreational uses for landscaped areas.
Mirehouse Site (Associated Development to the MPS and Associated Development to the Corkickle to Mirehouse Railway)	Temporary workers (estimated 2,500 bed spaces at peak with a potential additional capacity of 1,000 should additional bed spaces be	Reduced accommodation buildings to support emergency planning and Moorside Site evacuation, highways	Land & buildings, including leisure and sports facilities for potential re-use/ development (subject to planning).

Main elements of the Moorside Project	At NuGen peak construction (provided via the DCO)	At NuGen operation, (provided via the DCO)	Future aspirational opportunities for legacy (not part of the DCO application)
	required to deliver the Moorside Project as described in this chapter), leisure and sports facilities, and rail/ coach facilities.	infrastructure, recreation facilities & landscaping including roads, pathways etc. and underground and over ground utilities.	
Corkickle Site (Associated Development to the MPS and Associated Development to the Corkickle to Mirehouse Railway)	Temporary workers (estimated 1,000 bed spaces at peak with a potential additional capacity of 500 should additional bed spaces be required to deliver the Moorside Project as described in this chapter) and rail / coach facilities.	Highways infrastructure, recreation & landscaping.	Land & buildings for potential re-use/ development (subject to planning).
Egremont Site	Temporary workers (estimated 500 bed spaces at peak with a potential additional capacity of 500 should additional bed spaces be required to deliver the Moorside Project as described in this chapter) & coach facilities.	Highways Infrastructure & landscaping.	Land & buildings for potential re-use/ development (subject to planning).
Highway Improvements	New / improved highways infrastructure including proposals for improvements close to the Moorside Site and A595/A66 between Workington, Whitehaven and the Moorside Site.	New/ improved highways infrastructure.	Use of new/ improved highways infrastructure.
Corkickle to Mirehouse Railway	New rail track between the Corkickle Site and Mirehouse Site for construction workers, new worker rail platform at Corkickle and new worker rail platform and new public passenger rail platform at a new Mirehouse Station, access road and car parking.	New rail track between the Corkickle Site and Mirehouse Site. New rail station at Mirehouse for operational workers and public passengers.	Use of new rail infrastructure.

Main elements of the Moorside Project	At NuGen peak construction (provided via the DCO)	At NuGen operation, (provided via the DCO)	Future aspirational opportunities for legacy (not part of the DCO application)
		New rail infrastructure at Corkickle Station.	
St. Bees Railway	New rail track.	New rail track.	Use of new rail track.

2.1.4 In addition, there is the potential for NuGen to utilise the Port of Workington for Sea/Rail/Road logistics facilities, for storage, consolidation and sequencing of deliveries, with the option for development of additional port side facilities if required. This could provide improvement Port operator facilities. This remains under consideration, and NuGen is in discussions with the Port of Workington.

2.1.5 Development of fresh water groundwater extraction facilities is also being considered by NuGen for its Freshwater Water Supply, with NuGen currently in discussions with utility providers.

2.2 The Moorside Site

2.2.1 The Moorside Site (**Figure 2.2**) comprises land which lies adjacent to the Sellafield Site, west of the settlement of Calder Bridge and to the south and west of the settlement of Beckermet. The settlement of Braystones lies outside the Moorside Site boundary. Beyond these settlements, existing built development within the Moorside Site is restricted to a number of farmsteads. The Cumbrian Coast Rail Line also passes through the Moorside Site. Existing land use comprises predominantly agricultural land. Development within the Moorside Site is currently anticipated to include areas of the floodplain of the River Ehen and limited areas of the foreshore and the inshore areas of the Irish Sea. Development in the floodplain and on the foreshore will include the cooling water tunnels of the Circulating Water System ("CWS"), that draw water from the Irish Sea, a beach landing facility and a Marine Off-Loading Facility ("MOLF"). There will also be a forebay partially within the floodplain holding water as part of the CWS. Existing tree coverage is limited, being mostly concentrated within the deciduous Nursery Wood, and localised areas of willow, scrub and shelter belts.

2.2.2 A disused railway embankment bisects the area. To the east of this embankment the topography is undulating and land use is dominated by agriculture, principally comprising improved pasture but also for livestock grazing with some limited areas of arable cropping. A limited number of hydrological features including small ponds and drainage ditches are also present. This part of the Moorside Site forms the Indicative Development Area within which the Moorside Development (which includes the Moorside Power Station) would be located (**Figure 2.3**). West of the railway embankment lies an expanse of flat, low-lying land at or close to sea level within the floodplain

of the River Ehen that extends north toward Braystones and east towards Beckermet. The southern part of the floodplain together with an area of foreshore also forms part of the Indicative Development Area. The remaining land within this western area comprises undulating agricultural land which is proposed to be used for environmental measures including (but not limited to) ecological mitigation relating to the Moorside Project. This land is termed the "Indicative Area for Environmental Measures" (**Figure 2.3**), and is land that will principally be used to provide for any environmental mitigation measures required as a result of the environmental impact assessment, including any necessary replacement common land and compensatory flood plain.

2.2.3 The current boundary of the Moorside Site is shown in relation to the Ordnance Survey 1:25,000 scale map on **Figure 2.2**. The Moorside Site boundary is shown as a solid red line. The boundary of the Moorside Site has been designed to include the anticipated land required to accommodate the temporary and permanent buildings (including the Moorside Power Station), earthworks and transport infrastructure which would be needed for the construction, operation and eventual decommissioning of the Moorside Power Station.

2.2.4 However, the Moorside Site boundary is expected to reduce as the design process evolves between Stage Two Consultation and submission of the DCO application, albeit that the final boundary of the Moorside Site will be dependent on the outcome of the environmental assessment work that is continuing, as well as consultee responses.

2.2.5 The Moorside Site is required for the Moorside Development and will host the construction, operation and decommissioning of the Moorside Power Station - which would comprise three AP1000 reactors with a nominal gross electrical capacity of up to 3.8 gigawatts (GW) nominal gross electrical capacity. This figure is subject to turbine technology choices which NuGen is currently considering and as a result, the generating capacity that is ultimately in the DCO application may be lower than this figure. NuGen has a secured Connection Agreement with National Grid to export up to 3.4GW of electricity to the grid and any increase in this figure would be subject to future agreement with National Grid.

2.2.6 The Moorside Development comprises (i) the Moorside Power Station; (ii) the MPS Associated Development; and (iii) the Moorside Site Railway.

2.2.7 The Moorside Power Station includes the following integral elements:

- The nuclear island (Shield building plus Auxiliary building (x3) which forms part of the Power Block):
  - Free-standing steel containment vessel;
  - Concrete shield building;
  - Auxiliary building;
  - All founded on integral base-mat which supports these buildings
- The turbine building (x3) (each building forms part of a Power Block):

- contains the turbine generator;
- The transformer area is located immediately adjacent to the turbine building.

- The annexe building (x3) (each building forms part of a Power Block):
  - Includes functions such as the health physics area;
  - Control support area;
  - Access control;
  - Personnel facilities (shower and locker rooms).
- The diesel generator building (x3) (part of a Power Block):
  - Houses two diesel generators and their associated heating, ventilation and air conditioning equipment.
- The radiological waste building (x3) (part of a Power Block):
  - Contains facilities for the handling and storage of plant wastes.
- Support Buildings;
- The Circulating Water Systems (CWS) and Service Water System (SWS);

2.2.8 The MPS Associated Development includes:

- the Heavy Haul Road;
- the Marine Off-loading Facility ('MOLF') and beach landing facility;
- the New Sellafield Access Road;
- the New Moorside Access Road;
- the River Ehen Floodplain Bridge;
- the Substation;
- all internal roads, limited car parking, vehicle storage, rest/service areas for outages (planned maintenance periods);
- all support buildings and offices necessary to the Moorside Power Station;
- all other development necessary for the Moorside Power Station, together with necessary ancillary works; and
- any works to provide environmental mitigation or compensation i.e. earthworks, landscaping, replacement habitats, environmental offsetting, common land replacement, flood plain compensation and Public Rights of Way (PROW) diversions and other amenity diversions.

2.2.9 The Moorside Site Railway includes development comprising:

- new stretches of approximately 5 km of railway including re-use of a disused branch providing access from the Cumbria Coast Line into the Moorside Site from the south, one or more spurs and sidings;

- a new rail spur to provide access from the north onto the previously disused railway referred to above, supported on a new viaduct over the River Ehen;
- a new construction and operational worker rail platform and platform canopy / buildings located within the Moorside Site close to the Moorside Power Station;
- an alternative option to the north access rail spur, viaduct and platform close to the MPS (in the event that this option proves unviable) or an additional option (as may be required for the first stages of the construction works) to the north access rail spur and viaduct and platform close to the MPS, being a new construction and operational worker rail platform and an enclosed walkway located at the end of the River Ehen Floodplain Bridge;
- a new manually controlled level crossing for use by NuGen (and not connected to any public highway) forming part of the proposed Heavy Haul Road from the MOLF into the Moorside Site for construction related purposes
- Associated Development including railway infrastructure resilience works, embankments, retaining walls, abutments and freight unloading facility; and
- other ancillary works necessary for the Moorside Site Railway.

2.2.10 In addition the existing level crossing north of Sellafield Station may be used for delivery purposes in the early construction stages. The extent of the rail spur, and the number of branches and sidings required within the Moorside Site has not yet been finalised.

2.2.11 The principal elements of the development within the Moorside Site are described in **Table 2.2**, below. A visitor centre which may include conferencing facilities and a viewing platform may also be provided on the Moorside Site. The locations of areas to be used for construction and laydown, during the construction period are shown on **Figure 2.4a,** with the locations of operational structure locations shown on **Figure 2.4b**.

Table 2.2 Proposed Development within the Moorside Site

Element	Description
Phases of Development: Construction, Commissioning and demolition/restoration. In practice, many of these following phases will overlap	
Early site preparation	This is likely to include: ■ species translocation and habitat creation; ■ site and species fencing, including of the construction site; ■ the preparation of site compounds and site utilities;

Element	Description
	■ the preparation of replacement common land; ■ the preparation of any flood plain compensation land; ■ the preparation for PROW and other amenity diversions; and ■ the removal or redirection of utilities such as the current 132kV lines and access roads
Pre-Construction	This phase would involve the building of a variety of plants and facilities that would facilitate the building and commissioning of the Moorside Development (i.e. possible modular build plants, concrete batching plants, workshops etc.) This phase of the project would use the laydown areas for the storage of materials. The cofferdams for the offshore infrastructure would be built and the transport infrastructure such as the rail sidings and MOLF would be constructed and completed. Early works would start on the Accommodation Sites, the Corkickle to Mirehouse Railway, the St Bees Railway and the Highway Improvements. This phase will also see the Moorside Site connected to, or generating its own, utilities (such as its own diesel generators, connection to local sewage systems and communications services).
Excavation of Power Blocks and Circulating Water System	This phase would involve the creation of cofferdams to dry areas of the Moorside Site, installation of ground water pumping and equipment sized to move 15 million m3 (approximately 30 million tonnes) of soil, drift and rock. The purpose of this phase is to form the Power Block platform and commence construction of the CWS (including tunnelling and the forebay) to generate the landform for the construction phase.
Construction	The building of the Moorside Power Station and facilities. It is this phase which is expected to see the highest workforce requirement and materials movement.
Commissioning	This phase concentrates on ensuring the build has been completed to specifications set by the designers and regulators and will be completed by specialised and trained workforce. This phase would see the introduction of nuclear fuel and the equipment tested in a more intense way than it would be expected to do so in operations, so for instance the backup diesel generators would be tested for periods of time long in excess of expected operational conditions. This phase would also see the first export of electricity to the grid.
Demolition and restoration	Many parts of the Moorside Site (and the Accommodation Sites) used in the construction phase are not required for operation and these building and facilities would be demolished and the land restored i.e. the construction laydown areas would be re profiled to a more natural landform and landscaped (subject to NuGen's position on legacy as outlined above in paragraph 2.1.3). Other areas would form the site of the buildings set out below.
Welfare and management facilities	Throughout these phases, welfare buildings, including the facilities for construction workers to shelter in the event of a Sellafield emergency, offices and support services and utilities would be required on the Moorside Project Sites. These would change in size and extent dependent on the stage of the Moorside Project.

Element	Description
Moorside Power Station	
Moorside Power Station	The Moorside Power Station comprises all the elements of the development directly related to the generation of nuclear energy and the conversion of that energy into electricity. The Moorside Power Station would be located on an excavated area providing a seismically stable platform for the Power Blocks and ancillary buildings at an elevation of +20m Above Ordnance Datum (AOD) at platform level. The Moorside Power Station would include three "Power Blocks" (i.e. each containing one AP1000 nuclear reactor).
Shield Building (x 3)	The shield building, which forms part of the Power Block, is the cylindrical reinforced concrete structure that surrounds the containment vessel and nuclear reactor. The primary function of this building is to shield the containment vessel and the radioactive systems and components within. The containment vessel shields the reactor from external hazards. Each shield building is currently expected to be up to 70m tall (from the platform level), up to 280m in length and up to 44m in diameter.
Auxiliary Building (x 3)	Each auxiliary building, which forms part of the Power Block, houses and protects safety-related equipment located outside the shield building, including the main control room. Each building also provides handling and storage areas and is currently expected to be up to 78 m long, 36 m wide and 25 m tall (from the platform level).
Turbine Building (x 3)	Each turbine building, which forms part of the Power Block, houses the main turbine generator and associated systems for each reactor. It provides weather protection for the major turbine generator components. Each building is currently expected to be up to 110 m long, 65 m wide and up to 55 m tall (from the platform level).
Annex Building (x 3)	Each annex building, which forms part of the Power Block, houses service facilities and provides access to the containment area. Each building is currently expected to be up to 130 m long, 35 m wide and 30 m tall (from the platform level).
Other Built Elements	A number of smaller support buildings form part of each of the Power Blocks. The largest of these would be the radiological waste buildings, each of which is currently expected to be up to 55 m long, 25 m wide and 15 m tall. In addition, there would be facilities for the storage of low and intermediate level waste and dry spent fuel.
Support Buildings	Approximately 10 support buildings would house a range of administration, medical, storage, centralised fire support, maintenance and security facilities. The tallest of the support buildings would be the administration building. This building may be up to eight storeys tall and is currently expected to be up to 50 m long and 42 m wide. Additionally there would be an Outage Maintenance building specifically to cater for the needs of the outage crews. This building may typically operate for approximately 2 months a year.
Interim Low level Waste(ILW) Store	An interim ILW Store will be constructed on the Moorside Site, for operational ILW arisings requiring interim storage pending consignment to a Geological Disposal Facility (GDF). The ILW Store will be constructed in

Element	Description
	3 phases, each module with capacity for ILW arising from 20 years of operations. The first module will be built during the Moorside Site construction phase, such that it is available for ILW arisings from Unit 1. Subsequent phases will be constructed at operational year 20 and operational year 40. The ILW Store will have a length of up to 130 m (assuming all 3 modules are constructed), a width of up to 25 m and height of up to 15 m. The facility will have a design life of at least 100 years and will be one of the last facilities to be removed from the site.
Interim Spent Nuclear Fuel Store	An above ground Spent Nuclear Fuel Dry Storage System will be developed at the Moorside Site, for the interim dry storage of Spent Nuclear Fuel pending consignment to the Geological Disposal Facility (GDF). It is assumed that an overbuilding will be constructed for the Spent Nuclear Fuel Dry Storage system, with a length of up to 270 m, width of up to 65 m and height of up to 25 m. The system and overbuilding will have a design life of at least 100 years and will be one of the last facilities to be removed from the site.
Training and Simulator Building	The building will house all training facilities, the control room simulator and Rig mock-up hall (facilities to allow training). It is anticipated that the building is likely to be 2 storeys in height.
Circulating Water System	
Circulating Water System (CWS)	The Circulating Water System (CWS) would draw water from the Irish Sea, which would then be used to cool the steam in the condenser before being returned to the sea. The CWS could also be used to intake and discharge water for the Service Water System (SWS). Options for sourcing water for the SWS are still under consideration. It is considered at this time that sediment drawn in with the intake water could be discharged back into the marine environment through the CWS outfall tunnels/structures.
Forebay	The Forebay would allow for the balancing and conditioning of intake cooling water taken from the Irish Sea. Sediment would be removed prior to circulation of the water around the cooling circuit by settlement. The Forebay would be located partially within the flood plain of the River Ehen (the need to compensate for loss of functional floodplain is currently being modelled). At present, it is anticipated that the Forebay would be up to 300 m long and 300 m wide. Environmental measures/infrastructure would be included to enable the conservation and management of fish and other fauna.
Pump House	The pumps required to circulate water through the condenser cooling circuit would be housed in a building to the immediate north-east of the Forebay. The building dimensions would be up to 200 m long, 40 m wide and 50 m high.
Other Elements (including off-shore tunnels)	The CWS would include intake tunnels to draw water from the Irish Sea, onshore pipes to circulate water around the Power Blocks and the water would be returned to the Irish Sea through discharge tunnels. Discharges will be regulated by the environmental permit. At this time, it is anticipated that the tunnels would not extend beyond 4 km from the high water mark. In addition to onshore piping and intake and outfall structures, a fish recovery and return system via pipes to the sea will be provided.

Element	Description
Earthworks	
Earthworks	It is estimated that approximately 15 million m³ (approximately 30 million tonnes) of soils, glacial drift and rock would be excavated from within the Moorside Site to facilitate the construction of the Power Blocks and other structures listed in this table. This excavated material would be placed in several storage areas and be compacted to reduce its storage volume. Following compaction, it is estimated that approximately 2.0 million m³ would be used for platform filling for the Power Blocks and 2.0 million m³ would be used for capping and raising land to the south west of the Moorside Power Station to allow it to be used for temporary laydown storage and fabrication/assembly buildings during construction (the raised land would be permanent). A further approximately 11.0 million m³ would be used to create two mounded areas to the northeast of the Moorside Power Station. During the construction period, these mounds would be shaped to accommodate temporary laydown areas on plateaux sheltered by raised outer bunds. Once no longer required, the laydown areas would be removed and the upper sections of the mounds re-profiled to create a more natural permanent form. The permanent outer slopes of these mounds would also be landscaped after formation during the construction phase to create a restored external appearance at an early stage. All impacts of the deposition of earth into the northeast and southern mounded areas are being assessed. This includes assessment in this PEIR of impacts on Nursery Wood (ancient woodland) within the northeast mounded area. However, at this pre-application stage, NuGen continues to refine its designs and proposals to reduce any significant adverse impacts of the Moorside Project. Since there would be a significant impact from these earthworks on Nursery Wood, NuGen is actively considering potential earthworks solutions within the Moorside Site to minimise significant adverse effects on the ancient woodland at Nursery Wood. Existing utilities under the Moorside Site will be diverted or decommissioned.
Land to the South of the Moorside Power Station	2.0 million m³ of the material excavated would be used for capping and raising land up to +30 m (AOD) at the south west of the Moorside Power Station, bordered by Sellafield to the south and the coast to the west. This land would be used for the concrete batching plant, temporary laydown and fabrication/ assembly buildings during construction. Following the construction phase, the mounds would be retained and seeded to provide grass land.
Landscaping mounds to the northeast of the Moorside Power Station	The majority of the material excavated to allow for the construction of the Moorside Power Station would be accommodated through the creation of two mounded areas to the northeast of the Moorside Power Station which would also be used for laydown and storage during construction. These mounds would be located to both the east and the west of the existing Sellafield access road (C4037) from the A595. During construction the outer, north and west facing slopes of these mounds would incorporate gentle slopes in keeping with local landscape

Element	Description
	character. Inner slopes, facing the Moorside Power Station, would be steeper and more engineered to reflect their industrial setting. The maximum elevation of the western mound to the north of the Moorside Power Station is currently estimated to be less than 75 m AOD post construction, whilst the eastern mound is estimated to be less than 70 m AOD at its highest point. These mounds would also provide, in part, a screening function to the nearby settlement of Beckermet and would also be used for the provision of ecological mitigation. Following completion of the construction works the mounds will be re-profiled to include areas for habitat enhancement, recreation and public open space. The maximum heights stated above will not be exceeded and the mounds will still provide screening. The finished form of the mounds has not been finalised. There will also be a Visitor's Centre which will include conferencing facilities located within the mounds. The precise location of this building has not yet been finalised. For the purpose of this PEIR this potential solution has been assessed. However, as referred to above, NuGen is actively considering other potential earthworks solutions within the Moorside Site to minimise significant adverse effects and therefore these two mounded areas to the northwest of the Moorside Power Station are subject to on-going assessment and consultation.
Transport Infrastructure	
Transport Infrastructure	A range of on-site transport infrastructure is required to enable the movement of people, materials, plant and equipment in and out of the Moorside Site. Only those infrastructure elements located within the Moorside Site boundary are described below.
New Sellafield Access Road	The existing C4037 access road into the Sellafield Site would be retained or decommissioned and diverted; indicative options for any diverted route are shown on **Figure 2.4a and b**. A new road junction to the A595 would be necessary to serve a diverted new Sellafield Access Road and would permit separate access to the Sellafield Site and potentially the Moorside Site. In any event, public highway access to Sellafield Station would be preserved at all times. Potential options for the re-aligned A595, one south and one north of the A595 are discussed in the Consultation Document.
New Moorside Access Road	A new access road from the Moorside Site to the north end of the existing C4037, to provide access to the A595, would be constructed on land to the south of Beckermet, running in an east-to-west direction.
Marine Off-loading Facility (MOLF)	A MOLF is required to deliver goods and materials, components and modules to the Moorside Site during construction, operation and decommissioning. It would also be used to service the offshore construction of the CWS and to provide access to offshore works. It is envisaged that the structure would be a pier type structure, which would allow water to pass beneath the suspended concrete deck. It would have the capability of accepting deliveries by barges which would be moored to berths closest to the shore, as well as accepting roll-on roll-off, lift-on

Element	Description
	lift-off and barge vessels to berths furthest from the shore. The MOLF would be protected from wave action through the provision of breakwaters. Separate from the MOLF, an early beach landing facility, including a solid concrete offloading berth, may be required for certain materials and equipment. Once the MPS becomes fully operational, it is it is anticipated that the MOLF could be reduced in size. It is unlikely that during maintenance there would be a need for construction sized modules to be brought to site however, a reduced size MOLF would still allow deliveries of large loads needed during the operation of the MPS. NuGen anticipates that in order to control various activities in and around the MOLF, such as precluding vessels and others from accessing certain areas (preventing diving, surfing and sailing boats for example), NuGen will need to establish a Harbour Authority. NuGen currently proposes to apply for a Harbour Empowerment Order with its application for a DCO. The proposed extent of any Harbour Authority powers are shown on **Figure 2.5.**
Heavy Haul Road	The Heavy Haul Road is required to connect the MOLF to the Power Blocks' construction area. It is expected to be approximately 40 m wide extending from the River Ehen Floodplain Bridge, see below, passing across the railway via a level crossing to the east of the Power Block locations and terminating just before the footprint of the Power Blocks.
River Ehen Floodplain Bridge	A bridge would be required across the River Ehen floodplain to carry the Heavy Haul Road with an option of an enclosed walkway for personnel. It is currently envisaged that the bridge structure would comprise of piled supports over the main river. The bridge would be flanked by limited earth embankments adjacent to the existing railway embankment to the west and the Power Blocks' development platform to the east. The earth embankments would tie in to the existing railway embankment at approximately +9 m AOD, and the Power Blocks' development platform at +20 m AOD. The width of the river channel crossing between the bridge piers is currently unknown. No bridge piers are currently expected in the river but localised works may be required to ensure the integrity of the bridge and river structure.
New Rail Infrastructure	New rail facilities are required for the transportation of construction materials, plant, equipment and the workforce (during both construction, operation and decommissioning) to the Moorside Site. It is currently envisaged that a worker passenger station would be constructed within the site and close to the Moorside Power Station. In addition the development will comprise the option to construct another worker platform at the end of the River Ehen Floodplain Bridge, adjacent to the existing Cumbrian Coast Line. This may also include railway infrastructure resilience works within the Moorside Site. Materials, plant and equipment would be delivered to site from a separate spur, extending from the existing Cumbrian Coast Line near to the existing Sellafield outfall pipe bridge, to the south of the Moorside Site. This new rail spur would then ascend up to the Moorside Power Station development platform level.

Element	Description
	NuGen is currently considering the option of a possible additional spur from the north of the Moorside Site. The number and extent of the rail spur branches has not yet been finalised.
Potential Realignment of Nursery Road	The majority of the existing part of Nursery Road between the north-eastern edge of Beckermet and the A595 would be removed due to the potential placement of the excavated material within the northeastern landscaping mounds. This PEIR has assessed the loss of Nursery Road. However NuGen is currently investigating an option to provide an alternative connection to the A595. In either option access to properties on Nursery Road will be retained.
Other Associated Development	
Internal Roads and Car Parks	During the construction phase, it is anticipated that there would be up to 200 car parking spaces for blue badge parking and essential safety and security staff, plus 100 spaces for visitors. This provision would change to 300 spaces during operation, where 100 would be allocated for blue badge parking and essential safety and security staff, with the remainder would for visitors, contract staff and deliveries. An additional 300 spaces would be provided just for temporary usage for outage contractors. A network of new internal roads would be provided to enable vehicle access around the Moorside Site. The layout of the road systems for construction and operations are likely to be different.
Substation and Switchyard	The substation and switchyard are required to allow the electricity generated by the Moorside Power Station to be exported to the national electricity transmission system and would be located to the north of the Power Blocks. The switchyard dimensions are to be confirmed. The Substation could be closer to the outer boundary of the Moorside Site or closer to the middle of the Moorside Site. Locating it closer to the outer boundary nearer Beckermet, may enable it to take up a smaller area of land and be constructed at a lower level. The location closer to the middle of the Moorside Site may require it to be constructed at a higher level and would cover a larger area of the Moorside Site.
Surface water and sewer drainage system	Surface water management will be via swales and attenuation ponds with a discharge to the river or sea dependent on the construction or operational phase of the project. Options on grey and black water management are not confirmed but are likely to be a combination of on-site package treatment and offsite treatment. In both cases, on-site infrastructure will be required. Environmental permit controls will apply to regulate surface water runoff and discharge activities such as treated effluents
Utilities	
Freshwater Supply	A source of freshwater is required for the operation of the Moorside Power Station. The supply of freshwater for plant and for staff facilities, including potable water, is expected to be provided from local water providers with whom discussions are being held. In addition, NuGen is assessing the impacts and feasibility of sinking its own water supply

Element	Description
	boreholes in case these are necessary and is also in discussion with the Nuclear Decommissioning Authority / Sellafield in order to identify whether they can provide the necessary water supplies.
Public Rights of Way and other amenity routes	It is acknowledged that various public rights of way and other amenity routes exist over the Moorside Site. NuGen is currently assessing the impact of the Moorside Project on these rights of way and other amenity routes and potential diversions. Information on proposed diversions can be found in **Chapter 9** of this PEIR.

[NOTE: (1) Dimensions and descriptions are subject to on-going iterative designs and environmental assessment. Finalised dimensions and descriptions will be in the ES submitted with the DCO application in 2017. (2) Early works and the construction phase are provided as indicative phases only, finalised details will be described in the DCO application in 2017]

Moorside Power Station - AP1000 reactor

2.2.12 The AP1000 design is currently being assessed by the UK regulators, the Office for Nuclear Regulation (ONR) and the Environment Agency (EA), through the Generic Design Assessment (GDA) process. The assessment is to ensure that the AP1000 design meets the high standards of safety, security, environmental protection and waste management requirements before it can be built and operated in the UK.

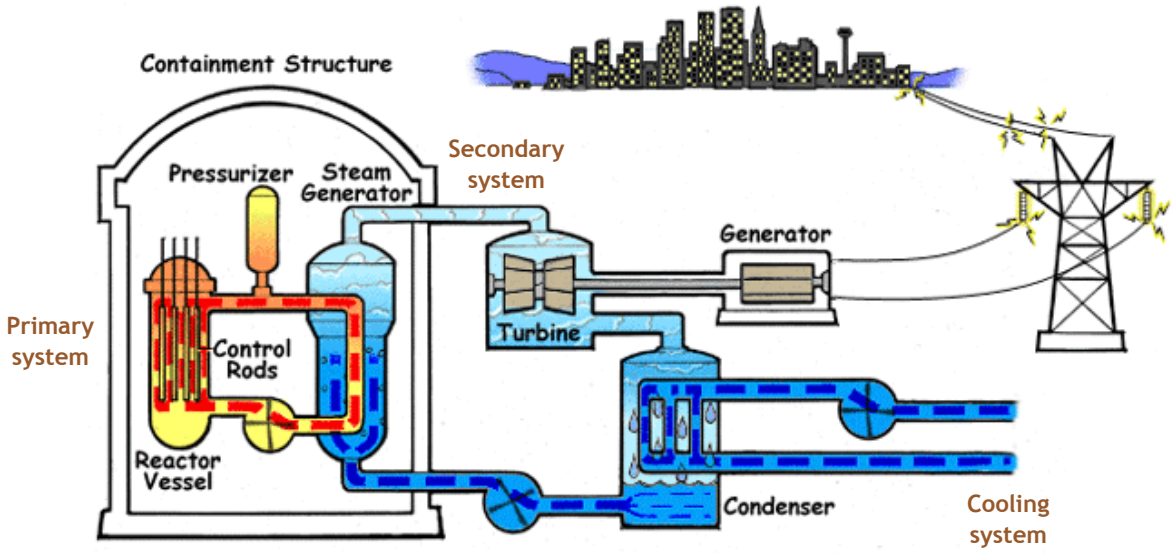
2.2.13 The AP1000 design evolved from earlier reactor designs from Westinghouse Electric Company (WEC) with the objectives of creating a safer Nuclear Power Plant (NPP) with costs, radiation exposures, and radioactive discharges as low as reasonably practicable. The resulting AP1000 design features innovative passive safety systems that use natural forces – such as gravity, convection and natural circulation – to automatically shut down the reactor and maintain a safe condition in the highly unlikely event of an accident.

2.2.14 The AP1000 will be built using modular construction techniques, allowing tasks that were traditionally performed in sequence to be completed in parallel – an approach that is designed to save time and money during construction while enhancing quality control of all materials.

2.2.15 In simple terms the AP1000 can be described as a reactor power and conversion system, which comprises a single reactor pressure vessel, two steam generators, and four reactor coolant pumps for converting reactor thermal energy into steam. A single high-pressure turbine and three low pressure turbines then drive a single electric generator.

2.2.16 The AP1000 is an advanced design of Pressurised Water Reactor (PWR). Like all PWR's, the AP1000 is comprised of three generally independent closed cycles or loops; these are the primary system, secondary system and cooling system (see **Figure 2.6**).

Figure 2.6 AP1000 simplified diagram



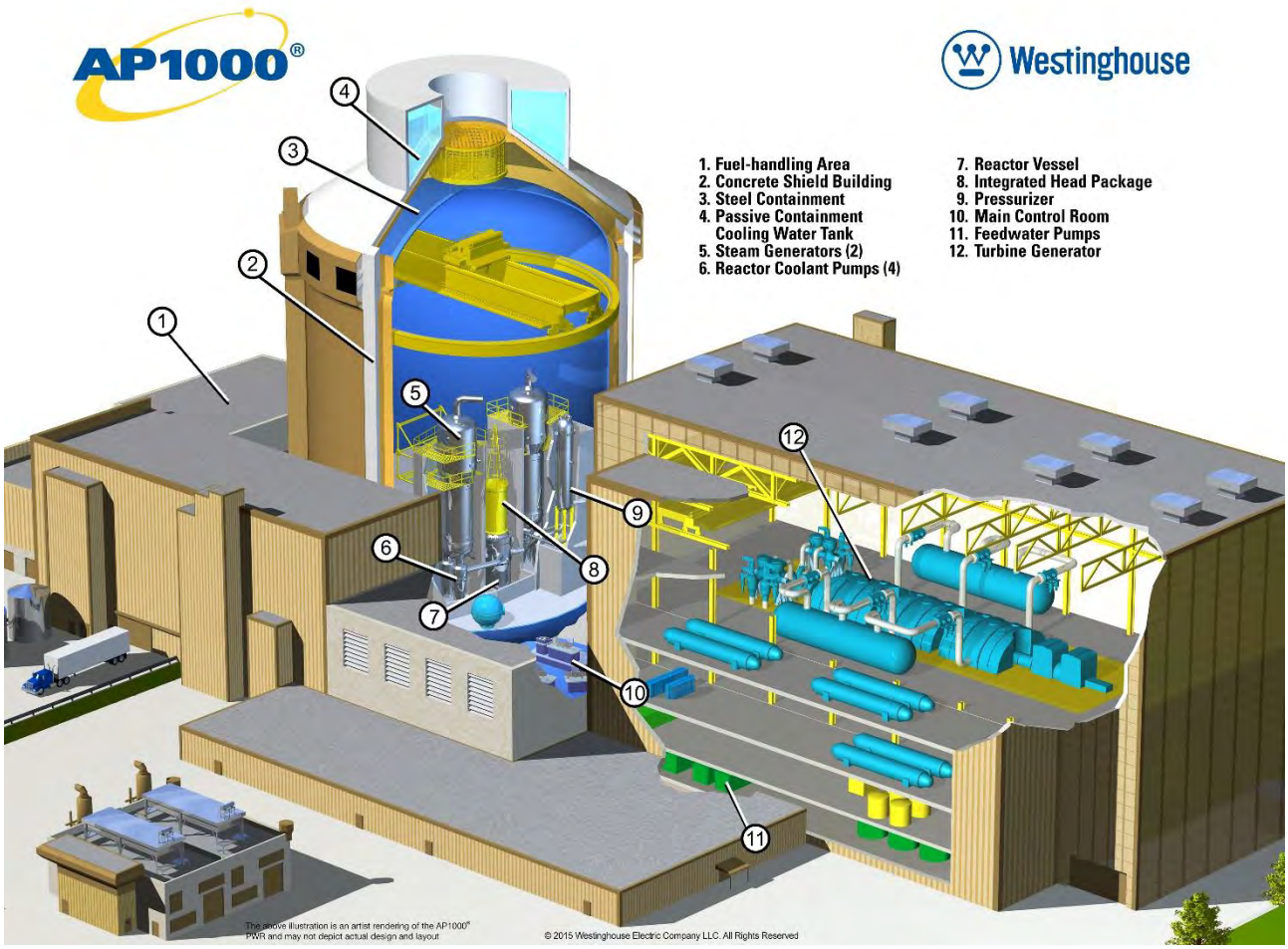
2.2.17 The primary system is a closed system, which comprises a reactor vessel, reactor coolant pump, steam generator and pressuriser. The primary system is the heat source consisting of a nuclear fuel core positioned within a reactor vessel where the energy resulting from the controlled fission reaction is transformed into heat in the coolant-moderator (water is both the coolant and moderator in the reactor vessel of a PWR). The heated reactor coolant is pumped to the steam generator where the heat is transferred to the secondary system through a number of steam generator tubes. The reactor coolant then returns back to the reactor vessel to continue the process. A pressuriser connected to the system maintains a pressure above the saturation pressure so that bulk boiling of the coolant does not occur.

2.2.18 The secondary system is a closed system independent of the primary system. The secondary system is the heat utilisation circuit where dry steam produced in the steam generator flows to a turbine-generator where it is expanded to convert thermal energy into mechanical energy and hence electrical energy. The expanded steam exhausts to a condenser where the latent heat of vaporisation is transferred to the cooling system and the steam is condensed back to water. This condensate is pumped back to the steam generator to repeat the steam cycle.

2.2.19 The cooling system is independent of the primary and secondary systems. The cooling system is the heat rejection loop where the latent heat of vaporisation, from the secondary system, is rejected to the environment through the condenser cooling water and released the sea.

2.2.20 The AP1000 design is based on five main building structures which contain the three systems listed above: nuclear island (which includes the containment building, shield building, auxiliary building), turbine building, annex building, diesel generator building and radwaste building. These are shown in **Figure 2.7**.

Figure 2.7 Indicative appearance of an AP1000 reactor



Emergency Preparedness - Moorside Site

2.2.21 The Cumbria County Council Off-Site Emergency Plan for Sellafield Site which is set to come into force in September 2016, extends a 360° zone of an approximate 6 km radius around the Sellafield Site. Within this zone, the immediate response to a Sellafield off site nuclear emergency will be for people to take shelter. Within the 6 km zone, there will exist an inner 2 km zone, within which all must evacuate when instructed to do so by the emergency services as the immediate response. NuGen understand that no final decision has been made regarding this evacuation procedure as it is still under discussion with Office Nuclear Regulations (ONR), Site Operator, Public Health England and Cumbria County Council to reach an agreed position prior to amending the existing emergency plan.

2.2.22 However, at this moment in time, prior to the evacuation command, staff, as per the requirement to the general public, would be required to shelter. Welfare facilities on the Moorside Site will be provided of a size to permit this shelter and these facilities would include external communication channels to allow access to media broadcasts for updates as the situation progresses. Moorside staff receive no special category within the Cumbria County Council

Sellafield Off-Site Emergency Plan, and NuGen emergency planning is cognisant of the fact that Moorside staff will always be classed as members of the general public both during construction and indeed once the MPS is operational in the event of a Sellafield Off Site Nuclear Emergency being declared. Likewise, Sellafield workers on the Sellafield Site will always be classed as members the general public in the event of the MPS declaring an Off Site Nuclear Emergency once arrangements under REPPIR are in place.

2.2.23 NuGen's evacuation strategy during construction and operation phases of the Moorside Development is predicated on those transport arrangements already envisaged; primary evacuation by rail and secondary evacuation by road with the use of coaches. The assessment of the evacuation procedures will be included within the **Chapter 4** (Transport) of the ES.

2.2.24 As the project matures and construction nears the operation of nuclear reactors at the Moorside Site, NuGen would be required to have detailed plans for on-site nuclear events, and contribute to the Cumbria County Council plans for complimentary planning across the Moorside and Sellafield facilities. At the point the Nuclear Site Licence is granted, NuGen would have its own Emergency Plan and onsite/offsite facilities (any offsite facilities will be at the Mirehouse site) to ensure efficient and effective compliance with the agreed plan.

2.2.25 The basis of the evacuation arrangements in NuGen's Emergency Plan is the retention, throughout the construction and operational phases of four alternative evacuation scenarios. All scenarios will need to be retained as potentially available at all times, unless rendered unavailable for evacuation by the nature of the emergency. It is essential that a number of evacuation options are retained as available such that NuGen's emergency preparedness plans are resilient in the face of various emergencies.

2.2.26 The scenarios that will be made available are set out as follows:

- Construction Phase – Scenario 1 - No rail available for evacuation:

    1. In a Moorside Site emergency personnel will initially take shelter in on site (Moorside Site) buildings.
    2. In the event of a Sellafield Site emergency Moorside personnel will initially take shelter in on site (Moorside Site) buildings.
    3. The total population on the Moorside Site during construction will be approximately 2400.
    4. In an emergency not all personnel would be evacuated with skeleton safety personnel remaining (approximately 100) leaving a maximum of approximately 2300 to evacuate.
    5. Site evacuation will primarily be based around the use of road (using coaches) to evacuate via the A595 in a Northerly direction (approx. 46 coaches total).

6. Site evacuation by road will be carried out in a structured and sequenced manner i.e. not all 2300 would be evacuated at once with circa 200 personnel at a time (4 coaches).

- Construction Phase – Scenario 2 - Rail available for evacuation:

1. In a Moorside Site emergency personnel will initially take shelter in on site (Moorside Site) buildings.
2. In the event of a Sellafield Site emergency Moorside personnel will initially take shelter in on site (Moorside Site) buildings.
3. The total population on the Moorside Site during construction will be approximately 2400.
4. In an emergency not all personnel would be evacuated with skeleton safety personnel remaining (approximately 100) leaving a maximum of approximately 2300 to evacuate.
5. Site evacuation will primarily be based around the use of rail with the assumption that a train is permanently parked in a siding on the Moorside Site and drivers are available.
6. In the event that evacuation by rail is unavailable coaches will be available immediately to evacuate via the A595 in a Northerly direction (approximately 46 coaches total).
7. Site evacuation by rail will be carried out utilising 8 car trains (800 capacity). This would take 3 trips or two trips with associated coaches for the remaining personnel after 2 trips (two train trips = 1600 plus 700 via coach (approx. 14 coaches).

- Operational phase – Scenario 1 – Rail available for evacuation:

1. In a Moorside Site emergency personnel will initially take shelter in on site (Moorside Site) buildings.
2. In the event of a Sellafield Site emergency Moorside personnel will initially take shelter in on site (Moorside Site) buildings.
3. The total population on the Moorside Site during operations will be approximately 1000 (inclusive of operations and refuelling personnel).
4. In an emergency not all personnel would be evacuated with skeleton operational / safety personnel remaining (approximately 100) leaving a maximum of approximately 900 to evacuate.
5. Site evacuation will primarily be based around the use of rail with the assumption that a train is permanently parked in a siding on the Moorside Site and drivers are available.
6. In the event that evacuation by rail is unavailable coaches will be available immediately to evacuate via the A595 in a Northerly direction (approx. 18 coaches total).

7. Site evacuation by rail will be carried out utilising 8 car trains (800 capacity). The remaining 100 personnel would be evacuated by coach (2 coaches).

- Operational phase – Scenario 2 – No rail available for evacuation:

1. In a Moorside Site emergency personnel will initially take shelter in on site (Moorside Site) buildings.
2. In the event of a Sellafield Site emergency Moorside personnel will initially take shelter in on site (Moorside Site) buildings.
3. The total population on the Moorside Site during operations will be approximately 1000 (inclusive of operations and refuelling personnel).
4. In an emergency not all personnel would be evacuated with skeleton operational / safety personnel remaining (approximately 100) leaving a maximum of approximately 900 to evacuate.
5. Site evacuation will primarily be based around the use of road (using coaches) to evacuate via the A595 in a Northerly direction (approx. 18 coaches total).
6. Site evacuation by road will be carried out in a structured and sequenced manner i.e. not all 900 would be evacuated at once with circa 200 personnel at a time (4 coaches).

2.2.27 Rail is therefore important in evacuation planning. The new worker platforms, rail spurs and passing loops will therefore enable NuGen to store the Charter Trains off the existing Cumbrian Coast Line when they are not in service. During the construction phase (when the peak number of workers would be on site) it is currently anticipated that when not in use, one of the Charter Trains would be retained on the Moorside Site, whilst a second train would be located at either of the newly constructed platforms at Mirehouse or Corkickle and could be dispatched to site within 15 minutes of the alarm being raised (with drivers always on standby).

2.2.28 As the first group of workers are being evacuated the second train would be dispatched. The two trains would pass each other at the newly constructed St Bees Loop. The first train will then return to the Moorside Site to collect the third group of workers.

2.2.29 Under legislation, Network Rail has various powers in the event of an emergency. Discussions are underway with Network Rail and with the operator Direct Rail Services accordingly. Train drivers who currently transport spent fuel rods along the route are suitably qualified to drive trains in such circumstances and are issued with protective clothing and equipment, as necessary NuGen would ensure that sufficient trained drivers and/or other personnel essential to evacuation processes were always on site in sufficient numbers.

2.2.30 As part of the Mirehouse Site proposals, a sports hall would be located near to the new station along with a number of other facilities management buildings.

It is considered that these buildings could be used as the reception buildings for workers who alight from the trains after evacuations.

2.2.31 It is also proposed that several coaches be retained on the Moorside Site (most likely those that have delivered workers to the Moorside Site from the Egremont Site). Each coach could transport approximately 50 workers, meaning several hundred workers could be removed by road. It is anticipated that these workers would be taken to the Mirehouse Site as part of the evacuation procedure.

2.3 The Accommodation Sites and the Additional Sites

2.3.1 The Moorside Project will also include development at a number of sites that are located beyond the boundary of the Moorside Site itself. Development within the Accommodation Sites and the Additional Sites proposed to be consented within the DCO will provide infrastructure and facilities needed to support the construction of the Moorside Development, with some also containing infrastructure and facilities to support the operational phase of the Moorside Power Station.

2.3.2 It is estimated that the peak construction workforce will be approximately 6,500. It is assumed that 2,500 workers (**Chapter 10, Socio economics**) will be resident in the local community. This comprises 1,000 workers drawn from the existing Cumbrian population and 1,500 originating outside the county but who have chosen to find their own accommodation locally. Therefore, NuGen has estimated that it needs to provide accommodation for approximately 4,000 workers.

2.3.3 NuGen has identified three sites that together could provide all the required number of bed spaces. In addition, should NuGen need to provide more than 4,000 bed spaces out of the 6,500 required, or if any of those three sites do not deliver their proposed number of bed spaces, then the sites identified by NuGen have the potential ability to increase in capacity as outlined below:

2.3.4 As currently proposed, the Accommodation Sites comprise of the following:

- The Corkickle Development – Associated Development to the MPS including construction worker accommodation and facilities for an estimated 1,000 workers (but with capacity to increase the number of bed spaces by 500 to an estimated 1,500) at the Corkickle Site;
- The Mirehouse Development - Associated Development to the MPS including construction worker accommodation and facilities for an estimated 2,500 workers (but with capacity to increase the number of bed spaces by 1,000 to an estimated 3,500 workers) at the Mirehouse Site;
- The Egremont Development - Associated Development including construction worker accommodation and facilities for an estimated 500 workers (but with capacity to increase the number of bed spaces by 500 to an estimated 1,000) at the Egremont Site.

2.3.5 As currently proposed, the Additional Sites comprise of the following:

- St. Bees Railway – Development at the St Bees Railway Site comprising a new rail track 'loop' approximately 500 m in length enabling NuGen charter and freight trains to operate alongside scheduled trains without interruption;
- Corkickle to Mirehouse Railway - Development at the Corkickle to Mirehouse Railway Site comprising a new rail track 'loop' approximately 3.2 km in length enabling NuGen charter and freight trains to operate alongside scheduled trains without interruption, together with new rail platform at Corkickle and a new rail platform at Mirehouse;
- Highway Improvements. The transport modelling is currently at a preliminary stage and this has indicated that improvements may be required at the following locations. It should be noted that some of these junctions may not be required by the time the project design is complete.

  1. A66/A595 Roundabout, Cockermouth
  2. A66 Ramsay Brow, Workington
  3. A596 Hall Brow, Workington
  4. A595 Parton Junctions
  5a. Coach Road/Station Road
  5b. Coach Road/B5345
  6. A595/A5094 Inkerman Terrace/B5295 Ribton Moorside, Whitehaven
  7. A595/Homewood Road Roundabout, Whitehaven
  8. A595/Moor Row
  9. A595/The Crescent, Thornhill

2.3.6 In addition to the above sites, there will be a requirement for a Freshwater Water Supply to the Moorside Site. The precise route of this supply is currently being developed. As the Freshwater Water Supply remains under consideration and is subject to discussions with local water providers, this PEIR does not include an assessment of the potential likely significant environmental effects of the Freshwater Water Supply. There is also the potential for development at the Port of Workington Site (**Figure 2.8**) (the Port of Workington Development), which could be carried out either by the Port of Workington or NuGen. NuGen is currently in discussions with the Port of Workington in this regard. Given these uncertainties, this PEIR does not include an assessment of the potential likely significant environmental effects of the potential Port of Workington Development.

Corkickle Site

2.3.7 The Corkickle Site is located adjacent to Corkickle Station in Whitehaven, approximately 1 km south of the town centre and 11 km north of the Moorside Site. The Corkickle Site is approximately 20 ha in area. The location of the Corkickle Site relative to all of the other Moorside Project Sites is shown on

Figure 2.1a and 2.1b and the site boundary is shown in its local context on **Figure 2.9**.

2.3.8 The Corkickle Site currently comprises a mixture of industrial units; telecommunications masts; scrubland; a railway line and public passenger railway station; the culverted Pow Beck; and recreational facilities. A Sustrans cycle route runs along the eastern side of the Corkickle Site, adjacent to the railway line. Road access is currently provided into the Corkickle Site from the north via Coach Road. A bowling club, Whitehaven Rugby Club and Whitehaven Football club, together with an adjacent sports field and playing fields, are located within the centre of the Corkickle Site, but outside of the proposed site boundary and do not form part of the Corkickle Development. As illustrated in **Figure 2.9**, a narrow section of land located between the Rugby Club and sports field is required to provide access to the proposed new rail platform.

2.3.9 It is proposed that the Corkickle Site would comprise construction worker accommodation and facilities for an estimated 1,000 occupants; up to three facilities management buildings; new egress and access roads; up to 295 car parking spaces and a coach interchange facility. The Corkickle Site has the reserve capacity to potentially accommodate a further 500 temporary bed spaces, providing an estimated 1,500 bed spaces in total, if other identified and assumed accommodation was not forthcoming. The development would include green spaces, landscaping and ecological mitigation. Further details of these elements are provided in **Table 2.3** and an indicative layout of the proposed development at the Corkickle Site is shown on **Figure 2.10**.

2.3.10 The current site boundary of the Corkickle Site may be refined as the design process evolves between Stage Two Consultation and submission of the DCO application, although it is accepted that the final boundary of the Corkickle Site is dependent on the outcome of the environmental assessment work that is continuing, as well as consultee responses.

Mirehouse Site

2.3.11 The Mirehouse Site is located on land to the immediate south of the urban edge of Whitehaven and is approximately 67 ha in area. The Mirehouse Site lies ~9 km to the north of the Moorside Site. The location of the Mirehouse Site relative to all of the other Moorside Project Sites is shown on **Figure 2.1a and 2.1b** and the site boundary is shown in its local context on **Figure 2.11**.

2.3.12 The Mirehouse Site currently comprises farmland of mixed use; farm buildings; a small number of residential dwellings; a former drift mine; parcels of woodland; a number of small watercourses; and the Cumbrian Coast Line passes through the northwestern part of the site. A Sustrans cycle route runs through the centre of the Mirehouse Site along the route of a former railway line. Road access is currently provided into the site from the north via Mirehouse Road and from the east via the A595.

2.3.13 It is proposed that the Mirehouse Site would comprise construction worker accommodation and facilities for an estimated 2,500 occupants. The

Mirehouse Site has the reserve capacity to potentially accommodate a further 1,000 temporary bed spaces providing an estimated 3,500 occupants in total, if other identified and assumed accommodation was not forthcoming. It would also include car parking facilities (with up to 809 car parking spaces); a shuttle coach interchange; up to four facilities management buildings – one of which could provide evening entertainment facilities; new egress and access roads, sports pitches and amenity spaces. The development would include green spaces, landscaping and ecological mitigation. Further details of these elements are provided in **Table 2.3** and an indicative layout of the proposed development at the Mirehouse Site is shown on **Figure 2.12**. Some of the facilities building would be permanent used as part of the Moorside emergency plans during construction and the operational phase of the Moorside Power Station Project.

2.3.14 The current site boundary of the Mirehouse Site may be refined as the design process evolves between Stage Two Consultation and submission of the DCO application, although it is accepted that the final boundary of the Mirehouse Site is dependent on the outcome of the environmental assessment work that is continuing as well as consultee responses.

Egremont Site

2.3.15 The Egremont Site is located on land to the south of Egremont and is 16 ha in area. The Egremont Site is 3 km to the north of Moorside Site. The location of this site relative to all of the other Moorside Project Sites is shown on **Figure 2.1a and 2.1b** and the Egremont Site boundary is shown in its local context on **Figure 2.13.**

2.3.16 The Egremont Site currently comprises mixed use farmland; minor watercourses; and a former railway line. A Public Right of Way ('PRoW') runs inside the western boundary of the Egremont Site. A Sustrans cycle route runs along the eastern edge of the Egremont Site, with the River Ehen to the west of the Egremont Site. Road access is currently provided into the Egremont Site from the north via the main access road from the A595 into Egremont.

2.3.17 It is proposed that the Egremont Site would comprise construction worker accommodation and facilities for an estimated 500 workers; up to two facilities management buildings; up to 218 car parking spaces; a coach interchange; a potential new cycleway connection into Sustrans route 72 and new egress and access roads. The Egremont Site has the reserve capacity to potentially accommodate a further 500 temporary bed spaces, providing an estimated 1,000 occupants in total, if other identified and assumed accommodation was not forthcoming. The development would include green spaces, landscaping and ecological mitigation.

2.3.18 Further details of these elements are provided in **Table 2.3** and an indicative layout of the proposed development at the Egremont Site is shown on **Figure 2.14.**

2.3.19 The current site boundary of the Egremont Site may be refined as the design process evolves between Stage Two Consultation and submission of the DCO

application, although it is accepted that the final boundary of the Egremont Site is dependent on the outcome of the environmental assessment work that is continuing as well as consultee responses.

Table 2.3 Proposed development within the Accommodation Sites

Element	Corkickle	Mirehouse	Egremont
Construction Worker Accommodation	Estimated peak 1,000 occupants, housed in (approximately) 14 units. With the ability to increase to 1500 as explained above (by increasing the number of floors on the 14 units)	Estimated peak 2,500 (with the ability to increase to 3,500 as explained above) occupants (Approximately 35 units for 2,500 or 49 units for 3,500)	Estimated peak 500 occupants with the ability to increase to 1,000 as explained above (Approximately 8 units for 500 or 14 units for 1,000)
	The accommodation units are currently being designed, but potentially may include steel frame, pre-fabricated modular structures comprising a maximum of four storeys. NuGen is currently considering the need for a proportion of the accommodation blocks and their associated buildings at any of the Corkickle Site, Mirehouse Site and Egremont Site to be permanent structures for the operational phase (such as to support outages). This remains under active consideration, although there will be a requirement for permanent buildings at Mirehouse to support emergency planning and Moorside Site evacuation.		
Facilities Management Building	Up to 3 buildings	Up to 4 buildings	Up to 2 buildings
	Facilities management (FM) buildings would most likely include a canteen, security, television rooms, internet facilities, laundry, medical room, space for plant, heating, services, storage and leisure/recreational facilities including gym/fitness areas and places for evening entertainment. Building sizes would vary, but the largest of the FM buildings would likely have a footprint of up to 3000 m^2 with a maximum height of approximately 12 m. NuGen is currently considering the need for a proportion of the accommodation blocks and their associated buildings at any of the Corkickle Site, Mirehouse Site and Egremont Site to be permanent structures for the operational phase (such as to support outages). This remains under active consideration, although there will be a requirement for permanent buildings at Mirehouse to support emergency planning and Moorside Site evacuation.		
New Egress and Access Roads and Internal Access Roads	The indicative routes of the new egress and access roads required at each of the Corkickle Site, Mirehouse Site and Egremont Site are shown on the **Figures 2.10, 2.12 and 2.14**.		
Vehicle Parking	Up to 295 car parking spaces comprising of: 200 spaces for accommodation residents (1 for every 5 workers)	Up to 809 car parking spaces 750 spaces for accommodation residents (1 for every 3.4 workers)	Up to 218 car parking spaces comprising of: 165 spaces for accommodation residents (1 for every 3 workers)

Element	Corkickle	Mirehouse	Egremont
	Up to 10 disabled spaces 5 short-term/delivery spaces OPTION: 80 parking spaces near to station which could be made available to NuGen and public 50 bicycle spaces The permanence of all or any of this parking will depend on the outcome of the requirements for this site during the operational phase of the Moorside Power Station	Up to 25 disabled spaces Up to 10 short-term/delivery spaces OPTION: Up to 24 spaces at proposed public rail platform 100 bicycle spaces The permanence of all or any of this parking will depend on the outcome of the requirements for this site during the operational phase of the Moorside Power Station	Up to 8 disabled spaces Up to 5 short-term/delivery spaces OPTION: Up to 40 spaces available for possible park and cycle or onward trips to Visitor Centre at Main Site 50 bicycle spaces The permanence of all or any of this parking will depend on the outcome of the requirements for this site during the operational phase of the Moorside Power Station
Shuttle Coach Facilities	1 facility	1 facility	1 facility
	The shuttle coach facility would comprise a parking area measuring up to 1000 m² providing dedicated parking bays for up to 8 shuttle coaches at Mirehouse and Egremont. A facility with up to 6 coach parking spaces would be provided at Corkickle, in addition to manoeuvring space. The associated coach terminus building is expected to be up to 5 m high. The building would include seated waiting areas, welfare facilities and a security check point. Parking/queuing/manoeuvring areas would be provided around/adjacent to the terminus buildings that would provide capacity for up to 8 coaches. It also anticipated additional coach laybys could be provided along the roads within the Mirehouse Site. The coach interchange facilities at Corkickle and Mirehouse will be provided for resilience, so that in the event that the railway is unavailable, NuGen is able to transport its workers to the Moorside Site with minimal disruption. Each of the three interchanges will be available to workers using the NuGen 'inter-site' coach shuttle throughout each day. The permanence of all or any of this parking will depend on the outcome of the requirements for each of the Corkickle Site, Mirehouse Site and Egremont Site during the operational phase of the Moorside Power Station.		
Sports Pitches	n/a	1 facility	n/a
	It is proposed that a recreation zone would be developed at Mirehouse. This zone is likely to comprise a full size football pitch; changing facilities; and floodlighting. The footprint of the related changing facilities is estimated to measure up to 250 m² and be a maximum height of up to 5m. It is intended		

Element	Corkickle	Mirehouse	Egremont
	that the facilities would be available to both workers and the general public during the construction and operational phase of the Moorside Power Station.		
New Footpaths and Cycleway	Where new or amended/diverted footpaths and cycle ways are required within each of the Corkickle Site, Mirehouse Site and Egremont Site, these will be included in the design. These new or amended/diverted rights of way would remain in place for as long as there is development on these sites, and so are linked to the consideration of the requirements for each of these sites during the operational phase of the Moorside Power Station.		
Landscaping and Biodiversity Improvements	Elements of soft and hard landscaping will be developed throughout each of the Corkickle Site, Mirehouse Site and Egremont Site, for the benefit of amenity and biodiversity. New surface water attenuation ponds swales along with hard and soft landscaping areas will be created at the Mirehouse Site and Egremont Site, providing both functional and amenity spaces. At the Corkickle Site the culverted Pow Beck Stream will become an open stream/watercourse and form part of a new linear park, comprising of hard of soft landscaping and low level lighting. It is likely that such features would be permanent.		
Other Ancillary Development	Other development at each of the Corkickle Site, Mirehouse Site and Egremont Site would comprise of site signage, fencing, low level lighting around the accommodation units, CCTV poles/cameras and security lighting located near to access points and car parks.		

[NOTE: (1) Dimensions and descriptions are subject to on-going iterative designs and environmental assessment. Finalised dimensions and descriptions will be in the ES submitted with the DCO application in 2017]

Corkickle to Mirehouse Railway

2.3.20 The proposed Corkickle to Mirehouse Railway would provide a 'loop' comprising of a new section of rail track laid alongside the existing track between Corkickle and Mirehouse. The new track would be approximately 3.2 km in length, 1.2 m in width and would be located approximately 1.8 m to the east of the existing track.

2.3.21 The Corkickle to Mirehouse Railway is proposed to be used both during construction and operation of the Moorside Power Station.

2.3.22 The new track would run alongside the existing railway and would be constructed entirely within existing railway land. It would provide enhanced capacity improving the Cumbria Coast Line in line with national policy and enabling dedicated NuGen charter trains to operate alongside existing scheduled services. The new track would also be used as sidings that would enable NuGen freight trains to be held before being released down to the Moorside Site.

2.3.23 The new track would connect into the existing rail track near to the tunnel at Corkickle, re-joining the existing single track immediately south of the proposed new station at Mirehouse. Additional links along the new track would also provide connections back onto the main line to enable a Moorside Project

charter train travelling south from Corkickle to re-join the existing line if there was a blockage or delay at, for example, the new Mirehouse station and, similarly, for charter trains heading north from the Moorside Site to access the new Corkickle platform should there be a blockage or delay at the Mirehouse platform.

2.3.24 NuGen anticipates that each dedicated charter train could transport up to 800 Moorside workers at any one time. It is currently anticipated that the loading of up to 800 workers would take approximately 8 and 10 minutes. The Corkickle to Mirehouse Railway therefore enables NuGen to safely load its workers onto the train without potentially delaying any existing freight or passenger services using the operational rail line.

Corkickle Worker Rail Platform

2.3.25 A dedicated new Moorside worker rail platform is proposed at the northern end of the Corkickle to Mirehouse Railway, adjacent to the Corkickle Site, to be used by construction and operational workers travelling from the Corkickle Site to the Moorside Site.

2.3.26 The new worker platform would be approximately 240 m long, 7 m wide and 1.1 m high. It is proposed that the entire length and breadth of the platform would be enclosed by a secure structure measuring up to 3.5m in height.

2.3.27 Access to the platform would be obtained via security turnstiles. It is anticipated that turnstiles would be provided along the length of the platform - turnstiles at the northern end would provide access to workers boarding a train, with further turnstiles at the southern end used by those disembarking.

2.3.28 It is also proposed that a structure measuring up 1,650 m^2 and up to 3.5 m in height would be located adjacent to the proposed platform. The structure would be used as a shelter/holding area to avoid crushing as workers enter the platform. This building may include other facilities such as toilets.

2.3.29 Two platform options are being considered, the first would involve the construction of the platform immediately south of the existing Corkickle railway station on the western side of the rail track. Workers could access the platform from within the Corkickle Site, via a footpath or use the proposed new access from Coach Road.

2.3.30 The second option would comprise of a new worker rail platform on the eastern side of the existing rail line. The second option would require the construction of two platform bridges which could measure up to 7 m high and 2.5 m wide. The bridges would span across the railway track and connect to the enclosed platform structure.

2.3.31 An alternative access is being considered for the second option which could potentially involve a new vehicle and/or pedestrian access from Calder Avenue through the existing area of vegetation. Under both options public use of the existing Corkickle station would be maintained.

2.3.32 NuGen's preferred option is to locate the platform on the eastern side of the existing railway line (the second option). This would avoid the need for

Moorside trains to cross the existing railway line and join the loop (which is proposed to run along the eastern side of the existing track) and would provide platforms on either side of the newly created track.

Mirehouse Worker Rail Platform

2.3.33 A dedicated Moorside worker rail platform is proposed at the southern end of the Corkickle to Mirehouse Railway, adjacent to the Mirehouse Site to be used by construction and operational workers travelling from the Mirehouse Site to the Moorside Site. The design and construction of the platform would be similar to that provided at Corkickle: approximately 240 m long, 7 m wide and 1.1 m high, with the entire length and breadth of the platform enclosed by a secure structure measuring up to 3.5 m in height. Access to the platform would be obtained via security turnstiles as at Corkickle. Again, a structure measuring up 1,650 m^2 and up to 3.5 m in height would be located adjacent to the proposed platform to be used as a shelter/ holding area to avoid crushing as workers enter the platform. This building may include other facilities such as toilets.

2.3.34 The rail platform is proposed to be located on the eastern side of the existing railway line. Vehicular access to the platform would be provided from a newly created access road passing through the Mirehouse Site.

2.3.35 NuGen is also investigating the potential to provide a public passenger platform on the western side of the existing rail line. The platform would measure up to 80 m long, 5m wide and 1.1 m high. Car parking for up to 16 vehicles along with 8 disable spaces could be provided. The potential for a public passenger platform is still being explored with Network Rail and the Franchise Operator. Any platform provided on the western side would be available to the public using the scheduled service. No scheduled trains would stop at the Mirehouse Worker Platform as this would only be available to NuGen workers and charter trains.

2.3.36 The proposed site boundary of the Corkickle to Mirehouse Railway Site is shown on **Figure 2.15**.

St. Bees Railway

2.3.37 A passing loop already exists on the section of the rail line at St Bees. The loop begins approximately 100m north of St Bees railway station and extends approximately 200m south.

2.3.38 NuGen proposes to extend the loop further south by approximately 285m in length, thus creating a loop measuring approximately 485m in total. This extended loop is required to ensure that one NuGen charter train is able to stop within the extended loop, whilst another NuGen charter train or scheduled train passes through St Bees (travelling either north or south). The extension would ensure that the train waiting within the loop would not block the B5345 road which runs through the village and across the railway line, as is the case with the current loop. The trains could be held in the extended loop

section south of the B5345 whilst waiting for the passing train to arrive at St Bees.

2.3.39 The extended loop would provide sufficient passing space to allow a Moorside Project charter train (anticipated to be up to 240m long) or Moorside Project freight train to move off the main line and allow other trains to pass by without interruption.

2.3.40 The new track would measure 1.2 m in width and would be located approximately 1.8 m to the east of the existing track. An area of land to the south west of St Bees station has been identified for use as a construction compound and lay down area.

2.3.41 The proposed site boundary of the St. Bees Railway is shown on **Figure 2.16**.

Highways Improvements

2.3.42 NuGen has considered the existing conditions on the road network which may be affected by development activities related to the Moorside Project and reviewed the baseline conditions against the preliminary environmental effects to identify locations where mitigation may be required.

2.3.43 The West Cumbria Transport Model (WCTM) and the A595 Micro-Simulation Model have been used to provide an initial test of the Moorside Project's transport requirements and assumed vehicle routings in order to provide an understanding of locations on the road network which could be affected by changes in traffic flows related to the Moorside Project. Further iterations of predictive modelling will be required to fully test the implications of the Moorside Project on the highway network, and the modelling outputs will inform the assessment of the effects of the Moorside Project at specific times during the construction and operation phases, through a series of realistic worst case scenario and sensitivity tests. This is discussed further in **Chapter 4** on Transport.

2.3.44 Those locations most likely to be affected based on the current understanding of the Moorside Project requirements and the findings from the initial predictive modelling have been subject to a mitigation scheme appraisal which has progressed at the current time to a concept design stage. Concept designs for 10 locations (note that Coach Road has two highway improvements) have been prepared. **Table 2.4** below provides a summary of the locations and the potential concept design solutions. The sites of the proposed Highway Improvements are shown in **Figures 2.17 to 2.26**.

Table 2.4 Proposed Highway Improvements

No.	Location	Concept Design Details
1	A66/A595 Roundabout, Cockermouth	The provision of additional capacity at the roundabout to accommodate additional movements. This could take the form of localised widening and/or part time signalisation.

No.	Location	Concept Design Details
2	A66 Ramsay Brow, Workington	Widening of the A66 approach at the junction to enable longer length vehicles such as HGVs to turn right towards the Port of Workington.
3	A596 Hall Brow, Workington	Localised widening of the carriageway to provide on-street parking for residents of the properties along this section of the road and to enable two way flows past the parked vehicles.
4	A595 Parton Junctions	The provision of right turn pockets to enable movements into the local access roads from the A595.
5a	Coach Road / Station Road	A change in priority at the eastern end with Coach Road being the main route and Station Road a side arm.
5b	Coach Road/ B5345	The junction will be widened to provide two approach lanes to separate vehicles turning left and right.
6	A595/ A5094 Inkerman Terrace/B5295 Ribton Moorside, Whitehaven	The provision of additional capacity at the junction and two southbound lanes on the A595 to remove the requirement for vehicles to switch lanes in-between the signals.
7	A595 Homewood Road Roundabout, Whitehaven	The provision of additional capacity at the junction, with all movements to be supported.
8	A595/ Moor Row	The provision of a right turn pocket to support movements to Moor Row.
9	A595/ The Crescent, Thornhill	The provision of a right turn pocket to support movements to Thornhill. This junction may benefit from becoming signalised.

2.3.45 Consultation with the key stakeholders (Cumbria County Council and Highways England), has taken place to further understand the known access or egress constraints, and safety or capacity issues at specific locations that could potentially be affected as a result of the Moorside Project. This consultation feedback has been taken into consideration to further inform the concept designs.

2.3.46 NuGen is also reviewing the signal timings at the junction to Vale View from the A595 to determine if they can be adjusted to reduce the existing impacts at Egremont.

2.3.47 It is possible that further locations may be required to be assessed as the predictive modelling progresses. For example, in addition to the potential improvements listed above, changes to the existing Blackbeck Roundabout and the A595 from the roundabout southwards to Calder Bridge are subject to ongoing assessment in order to identify a suitable alternative route to Sellafield Station resulting from the proposed closure of the existing highway.

Port of Workington

2.3.48 The Port of Workington is located north of the town of Workington at the mouth of the River Derwent. Workington is located approximately 30 km to the north of the Moorside Site. The Port is accessible by road, rail and sea, providing a multi-modal range of logistics opportunities. As such, NuGen anticipates that the Port could play a role in the delivery of NuGen's Transport Strategy.

2.3.49 Whilst the majority of sea-borne freight would be large plant and equipment, that would be delivered direct to the Moorside Site (via the MOLF), NuGen considers that the Port provides a potential opportunity for smaller vessels/barges of aggregates and construction materials to arrive into the Port. This material could be off-loaded and held at the Port prior to onward transportation, either by road (outside of peak hours) or by rail, to the Moorside Site. The Port of Workington could also be used as a sequencing / transhipment centre for materials arriving by rail and road to be shipped on to the Moorside Site via the MOLF or transported from the Port to the Moorside Site by rail.

2.3.50 Further feasibility work is required to determine the extent of any uses required at the Port (to date the assessment work has assumed that the Port is not to be utilised). Should the Port be utilised, at this stage NuGen anticipates that operations and potential development works could comprise of (which could be carried out either by the Port of Workington or by NuGen):

- Use of (and potential alterations to) the land and buildings located at the water side;
- Use of existing and construction of new rail sidings enabling rail access from both the north and the south, and related facilities;
- Replacement of the road bridge providing access into the port, with a widened and strengthened new structure to also afford enhanced rail freight access;
- Use of land within or adjacent to Port to provide for lay-down / storage;
- Use of/construction of a dedicated storage/sequencing centre and associated laydown area; and
- Use of the fuel tank farm to store fuel for construction equipment.

2.4 Transport proposals

Transport strategy

2.4.1 The Moorside Project would involve the movement of a significant number of workers and materials throughout the construction of the Moorside Development (which includes the Moorside Power Station). Once the Moorside Power Station is operational, and during maintenance periods, there would also be a requirement to transport workers and materials on a daily basis.

2.4.2 In developing the Transport Strategy, NuGen has taken account of the characteristics of the workforce and freight movements as well as the existing limitations of the local transport infrastructure.

2.4.3 The sections below provide the over-arching objectives of the Transport Strategy for both the transportation of workers and materials to and from the Moorside Site. A copy of the Draft Transport Strategy is provided and provides further details on the objectives outline below.

2.4.4 The key elements of the Transport Strategy for **construction workers** at the Moorside Site are:

- Provide limited parking at the Moorside Site and for key personnel only;
- Provide limited parking within the Accommodation Sites (the Corkickle Site, the Mirehouse Site and the Egremont Site), supplemented by alternative and sustainable transport options;
- Intercept a proportion of workers travelling to accommodation at the Corkickle Site, the Mirehouse Site, and the Egremont Site at Penrith and Carlisle railway stations by providing regular dedicated coach shuttles and encouraging the use of existing scheduled rail services;
- Provide a dedicated Moorside Site charter train transporting workers from the Corkickle Site and Mirehouse Site directly into the Moorside Site with a journey time of approximately 15 minutes;
- Provide coaches to transport workers from the Egremont Site to the Moorside Site – with potential additional collection points by coach / bus from outlying settlements with no rail access. Coach pick up at the Corkickle Site and Mirehouse Site would also be provided as a resilience measure in the event of issues on the railway to transport workers who normally use the railway to gain access to the Moorside Site;
- Consider the potential for enhancements to key rail hubs between Barrow and Carlisle, including Whitehaven, Workington and Millom, to encourage greater use of the scheduled service (workers to disembark at Sellafield station for coach / mini-bus shuttle transfer into the Moorside Site);
- Encourage cycling through the enhancement of existing, and creation of new, cycling routes – including linking the Corkickle Site, the Mirehouse Site and the Egremont Site to existing or new cycle routes leading to the Moorside Site;
- Development of a comprehensive and deliverable Travel Plan encouraging the use of sustainable transport; and
- Enhancement of highway junctions to alleviate any identified residual road impacts.

2.4.5 The key elements of the Transport Strategy for **freight and materials** are:

- The re-use of as much of the excavated materials on-site as reasonably practicable so as to minimise any off-site movements;

- Seek to develop rail freight accessibility at the Moorside Site at the earliest possible opportunity;
- Utilise a MOLF for delivery of large plant and equipment and for other materials and the use of a beach landing facility for deliveries to the Moorside Site prior to the Moorside Project Railway or MOLF access becoming available;
- Encourage direct to or off-site storage facility site rail transport from point of origin for UK supply chain;
- Consider the potential for provision of off-site storage and sequencing to site using Port of Workington for barge, rail and off-peak road transfers; and consider the potential for Carlisle for off-site storage and sequencing by rail;
- Regulate traffic flow by using project wide delivery management system and providing off-peak deliveries, when delivery by rail is not feasible; and
- Undertake appropriate improvements to strategic highway network where transport assessment identifies a need for mitigation.

2.4.6 The key elements of the Transport Strategy for **the operational period** are:

- Provide limited parking at the Moorside Site and for key personnel only; Utilise the improved scheduled rail service between Barrow and Carlisle (workers to disembark at Sellafield station for coach shuttle transfer into the Moorside Site);
- Provide direct bus services from non-rail linked locations where clusters of workers are anticipated e.g. Cockermouth;
- Implement a Staff Travel Plan encouraging the use of sustainable transport, walking and cycling; and
- Encourage direct to site (or off-site storage facility) for rail transport from point of origin for UK supply chain.

Rail Strategy

2.4.7 The Rail Strategy will form a key element of the over-arching Transport Strategy for moving the construction workforce between the Moorside Site and the Accommodation Sites (particularly the Corkickle Site and the Mirehouse Site) during working hours, as well as potentially providing sustainable transport outside of working hours.

2.4.8 The Rail Strategy is also important for when the Moorside Power Station is operational. The National Networks National Policy Statement (NN NPS) identifies that there is a critical need to improve the national networks to address crowding on the railways to provide safe, expeditious and resilient networks that better support social and economic activity; and to provide a transport network that is capable of stimulating and supporting economic growth.

2.4.9 NuGen's Rail Strategy has therefore been developed in line with national need to enhance the Cumbria Coast Line, ensuring that the rail network does not deteriorate but rather provides enhanced capacity for the existing services and actually has the potential to improve and ease congestion.

Marine Strategy

2.4.10 The transport strategy is to minimise use of the existing road network and to maximise use of rail and sea for freight and equipment wherever possible. The Marine Strategy will therefore seek to utilise the MOLF for the delivery of large nuclear plant, equipment and materials, as well as allowing other construction materials to be delivered direct to the Moorside Site if required. The provision of the MOLF enables a multi-modal transportation of materials and provides resilience for both rail and road transport should other modes of transport be unavailable. The MOLF is provided with resilience in that the MOLF will be protected against weather by breakwaters which will permit use of the MOLF during an increased range of weather conditions. Prior to the MOLF being operational, a beach landing facility will be constructed for the delivery of early construction equipment and materials.

2.4.11 The development and, potential use of, the Port of Workington provides the opportunity (albeit NuGen's strategy is not predicated on its use) for sea-borne materials to be delivered into the Port and dispatched to the Moorside Site when required – either by sea, rail or road.

2.4.12 Large equipment is likely to comprise components of the Power Blocks and some balance of plant equipment. This equipment is primarily manufactured off-shore and shipped to the UK via large blue water vessels. This equipment could be discharged at a large port and stored in a secure laydown area. As required, the equipment would then be loaded into a barge for final transport to the MOLF at the Moorside Site.

2.4.13 The Marine Strategy also provides a backup and resilience to the Rail Strategy whereby if the rail system is non-operational for any reason, material can be loaded to barge and transported via the MOLF. For this purpose, the MOLF will be supplied with breakwaters to enable the MOLF to be operated during an increased range of weather conditions.

Road Strategy

2.4.14 Whilst the focus of NuGen's Transport Strategy is to transport as many workers as possible by rail and as many construction materials by rail and sea, there will necessarily be a requirement for some road based movements.

2.4.15 The Road Strategy comprises of the following elements:

- Car Parking Strategy;
- Bus/ Coach Strategy;
- Private Car Use Strategy; and
- Consolidation of freight

2.4.16 The approach to car parking is a key element of the Transport Strategy. In order to discourage the use of private vehicles as effectively as possible, a restricted car parking allowance would be provided at both the Moorside Site and the Accommodation Sites, whilst alternative and sustainable transport options will be provided.

2.4.17 The Bus/Coach Strategy would form an important part of the over-arching Transport Strategy for moving the workforce between the Moorside Site and the Accommodation Sites during working hours, as well as providing sustainable transport outside of working hours. The Bus/Coach Strategy comprises of the following elements.

- Dedicated coach service to collect workers arriving into Penrith and Carlisle Railway Station;
- Direct to site coach service collecting at main (non-rail linked) settlements;
- Direct to site coach service from the Egremont Site; and
- Moorside Site (leisure time) worker shuttle service.

2.4.18 It is important to state that at this stage of the Moorside Project, any bus/coach routes, collections points and frequency of collections are not determined. However, it has been assumed that workers, who cannot easily access the Moorside Site charter train or schedule train, would be provided with a frequent bus/ coach service.

2.4.19 As the Moorside Project develops and the profile of those workers likely to live outside of the Accommodation Sites is better understood, the extent of the bus services will be clearly defined.

2.4.20 The Private Car Use Strategy would include measures to ensure that any workers, who are allocated with a car parking space, would be unable to gain access to their car during their working shift. Workers would only have use of their private vehicles during leisure time

2.4.21 As outlined above, NuGen will seek to consolidate freight movements through various measures, such as the use of local sequencing centres, and the implementation of a Delivery Management System.

2.5 Waste management

2.5.1 The key legal and policy documents for radioactive and non-radioactive waste management in England relevant to the Moorside Project are as follows:

- Waste Framework Directive (WFD) – general framework for management of non-radioactive waste across the EU. This was revised in 2008 with Directive 2008/98/EC (rWFD).
- Waste (England and Wales) Regulations 2011 (as amended) – Transposes the rWFD into UK legislation. Requirement to ‘take all measures available to it as are reasonable in the circumstances’.

- Section 34 of Environmental Protection Act 1990 and the statutory guidance waste duty of care code of practice March 2016 – legal framework for duty of care for waste. Legal responsibility to ensure produce, store, transport and dispose of waste without causing harm to the environment.
- Waste Hierarchy – A waste management ranking system contained in Article 4 of the WFD and implemented through Waste (England and Wales) Regulations 2011.
- CL:AIRE The Definition of Waste: Development Industry Code of Practice (CoP) – Regulatory approved framework to determine whether excavated materials from construction sites are classed as waste. Production of a materials management plan (MMP).
- Waste Management Plan for England – 2007 Defra published Waste Strategy for England to increase resource efficiency and reduce waste arisings.
- National Policy Planning for Waste (2014) sets out detailed planning policies on waste that should be considered by local and regional planning authorities.
- Radioactive Waste – Classification in the UK based upon UK regulatory guidance. The key policies which apply to the Moorside Project include:
- Policy for the Long Term Management of Solid Low Level Radioactive Waste in the United Kingdom (March 2007).
- UK Strategy for Radioactive Discharges 2009 and the UK Strategy for radioactive discharges 2009 to 2030.
- UK Strategy for the Management of Solid Low Level Waste from the Nuclear Industry February 2016.
- White Paper Implementing Geological Disposal 2014.
- Environmental Permitting Guidance: Radioactive Substances Regulations for the Environmental Permitting (England and Wales) Regulations 2010 (September 2011).
- Radioactive Substances Regulation (RSR): Environmental Principles (RSR 1) dated 1 April 2010.
- The decommissioning of nuclear facilities dated 21 October 2013.
- Joint Guidance from the ONR, the EA, SEPA and NRW to nuclear licensees on "the management of higher activity radioactive waste on nuclear licensed sites" dated February 2015.
- NuGen intends to manage waste through the development of an integrated waste strategy, site waste management plans and applying a sustainable approach to all waste management activities. The NuGen Sustainability policy is available on the NuGen website (http://www.nugeneration.com/).

- NuGen will develop an Integrated Waste Strategy (IWS) which will consider the requirements of current legislation, government policies and national strategies. It will cover all phases of development of the Moorside Site and will be consistent with the guidance provided by the Nuclear Decommissioning Authority (NDA) along with waste strategy development principles identified in Defra and DECC guidance.

2.5.2 NuGen has developed and implemented a project wide Site Resources and Waste Management Plan (SRWMP) to demonstrate a consistent approach to managing the excavated material and waste across the individual construction sites. The current document covers the Site Characterisation stage of the Moorside Project but will be reviewed and updated throughout each phase of the works to ensure it stays suitable and relevant.

2.5.3 As part of its application of the waste hierarchy (waste prevention, preparing for reuse, recycling, other recovery, disposal) and in accordance with industry best practice, NuGen will implement a policy of waste prevention, minimisation and segregation at the point of production, as far as practicable. Good waste segregation will be used as a precursor to good management of both conventional and radiological wastes, so that treatment options are not precluded through collection and storage methodologies. Solid radiological wastes will be segregated at all times from conventional wastes, in order to minimise total arisings. Radiological wastes will be further segregated on the basis of treatment route, contamination level and form in order to ensure that the appropriate routing occurs.

2.5.4 NuGen will apply the Waste Hierarchy principles to every waste stream generated during the construction and operation at the Site. During construction NuGen and its Contractors will use the SWRMP and a Waste Tool underpinned by the Integrated Waste Strategy to monitor and track all the waste arisings. NuGen will be setting sustainability targets for Waste Management and Resource use for the project. These targets will be based on beneficial reuse on site, recycling off-site and for the use of materials with recycled content/materials from sustainable sources.

2.5.5 During Operations, auditing and monitoring of waste generation will be implemented to manage wastes in a sustainable manner and in accordance with the best available techniques. It is anticipated that companywide KPIs and/or targets for waste management would be set internally by NuGen and would be contained in NuGen's Corporate Sustainability Report.

2.5.6 NuGen will be applying the proximity principle when having to take waste materials off site for reuse, recycling, other treatment, and, in the last case, disposal. The proximity principle aims to treat and/or dispose of wastes in reasonable proximity to their point of generation to minimise the environmental impact and cost of waste transport.

2.5.7 In addition as an on-going commitment to sustainability, NuGen will be working to keep up with the latest research on advancing technologies and applications to:

- Avoid the creation of waste;

- Minimise the amount of waste generated; and
- Increase reuse and recycling.

Construction phase

2.5.8 The proposed activities for the construction period will vary dependent on the location and need for some buildings to be completed prior to others. On the main site there is the need for the MOLF and railway spurs to be constructed before the construction of the power station can commence resulting in overlap between construction and operation phases.

Table 2.5 Construction phase waste arisings

	Waste Type	Description
Conventional Wastes	Excavated Material	It is currently estimated that earthworks will generate approximately 15 million m^3 of soil and rock that has been excavated to allow for the construction of power blocks and other related structures. Excavated materials generated through the construction phase may not be classified as waste where it meets the definition within the revised WFD. Earthworks undertaken by or on behalf of NuGen will be designed and implemented to promote the reuse of all soils onsite in accordance with the current regulatory framework and in accordance with CL: AIRE CoCP.
	Infrastructure Waste	Use of trackways/internal roads will minimise vehicle damage to land and reduce risk of mud being tracked onto public highways.
	Welfare Facility Waste	Waste will include a range of materials such as paper, packaging materials, food and office consumables. Minimise residual waste through recycling containers for packaging and other wastes. Food waste generated at canteen facilities will be kept separate from other office waste to enable recycling of the waste stream. Will go for off-site treatment via composting or anaerobic digestion. The Moorside Site will not be served by foul sewers and is a distance from the nearest foul sewer links. During pre-construction and construction phases site compound will be equipped with suitable staff welfare facilities which will discharge into septic tanks to be emptied periodically by tankers.
	Construction material wastage	During construction various forms of waste will be generated from material wastage associated with a number of construction activities. The key streams which are likely to incur wastage includes concrete shuttering, metal, brick and stone, timber, plastic and earthworks. Opportunities to prevent and minimise wastes will be proactively explored through the SWMP as well as opportunities to reuse construction material waste both onsite and offsite.
	Vegetation from site Clearance	Management of organics waste from clearance of vegetation includes recycling green waste into compost. Where possible trees would be chipped and used as mulch.

	Waste Type	Description
	Hazardous Wastes	Where existing asbestos or asbestos containing materials are encountered during construction works this will be segregated and handled in accordance with HSE and Environment Agency guidance. Operation and maintenance of plant and equipment during construction and pre-construction will give rise to liquids and sludges classified as hazardous waste these will be segregated at the place of production and stored in appropriate labelled and bunded containers.
	Surface Water	Site drainage will control storm water at the main sites and AD sites. To prevent uncontrolled run off, site drainage ditches will be cut to capture surface water. Roads and hardstanding will be equipped with sealed drainage systems which will discharge into the wider site drainage via grit chambers and coalescing oil interceptors. SuDS will be installed and utilised during construction.
	Concrete Washout	Washout and cleaning of contaminated items will take place in designated areas on a sealed surface, with wash waters diverted to blind tanks to minimise offsite contamination.
Radioactive Waste	Contaminated Groundwater	All extracted groundwater where above background levels of radioactivity is detected will be diverted to the on-site water treatment facility.
	Marine Sediments	Some marine sediment will be generated from activities such as marine dredging and construction. These marine sediments may contain radioactivity which has been lawfully disposed of from other operator's discharges. It is intended these sediments will remain in the marine environment or be taken to a suitable off-shore disposal location if required.

Operational phase

2.5.9 The operational phase will include the commissioning period for each of the reactors. During the reactor commissioning phase, NuGen will have operational control of parts of the Moorside Power Station. Once NuGen commences operational control of parts of the site, it will take on the responsibility for waste management within the areas under its control. Anticipated wastes arising from the operational facility are summarised in the table below.

Table 2.6 Operational phase waste arisings

	Waste Type	Description
Conventional Wastes	Solid and Aqueous Wastes	Waste generated during operational phase will typically consist of liquid effluents; maintenance wastes; bio-wastes; office type wastes; plant and equipment related wastes.
	Marine Sediments	Design assumption is that cooling water will be supplied by seawater abstracted from, and returned to the Irish sea. Sediment retained within the forebay will require periodic removal and disposal in order to maintain forebay capacity and function. The currently preferred option for the treatment of this sediment is for it to be remobilised within the cooling water outflow and returned to the Irish Sea.

Decommissioning phase

2.5.10 The Funded Decommissioning Programme (FDP) will include a Decommissioning and Waste Management Plan (DWMP) detailing the radioactive wastes arising from the decommissioning and cleaning up of the site and how these will be managed during the decommissioning phase. There will be some gaseous and liquid radioactive wastes produced by the decommissioning processes. The radioactive wastes are detailed in the RSA environmental permit application. Solid radioactive wastes will sorted, segregated and treated and sent off for final treatment and disposal as summarised in the NuGen IWS and briefly summarised in the table above.

Table 2.7 Decommissioning phase waste arisings

	High Level Waste	Only high level waste (HLW) generated operationally by the facility will be spent fuel from the AP1000. UK government strategy for HLW is to deposit materials into a suitably designed and constructed deep Geological Disposal Facility (GDF).
Radioactive Waste	Spent Nuclear Fuel	No reprocessing of spent fuel from the Moorside NNP will be undertaken, instead following appropriate storage and packaging and encapsulation, it will be disposed of within the proposed GDF. The GDA specifies that spent fuel should be removed from the reactor every 18 months. Spent fuel will be removed from the reactor and transferred to the cooling pond within each reactor unit and after some time it will then be moved to a central dry store on site pending off site disposal.
	Intermediate Level Waste	The main site will be equipped with a centralised ILW store, shared by the three reactor units, although each reactor unit will include an area treatment of ILW generated within it. Treated ILW will be stored onsite in the ILW store, prior to eventual transfer offsite to the GDF or other suitable disposal site. Some ILW will be packaged and stored so that over time radioactive decay will allow it to be treated as LLW at the point of disposal.

	High Level Waste	**Only high level waste (HLW) generated operationally by the facility will be spent fuel from the AP1000. UK government strategy for HLW is to deposit materials into a suitably designed and constructed deep Geological Disposal Facility (GDF).**
	Solid Low Level and Very Low Level Waste	LLW and VLLW arising from reactor units will be handled within the radwaste building at each reactor unit using the Solid Radioactive Waste System (WSS). Solid LLW and VLLW will be controlled in accordance with the waste hierarchy and ensuring the application of BAT. Solid LLW and VLLW will be subject to characterisation and segregation by waste type and level of radioactivity present. Waste segregation will include identifying wastes which are suitable for decontamination, or which are contaminated below the level where specific regulatory requirements are applicable, and ensuring these wastes are routed to an appropriate conventional waste treatment route. A variety of LLW and VLLW will be produced through the operational lifespan of the facility. Proposed disposal routes include transfer to LLWR or other off-site waste management company and off-site thermal treatment. There will be no on-site disposal of solid LLW or VLLW at the facility.
	Liquid Low Level and Very Low Level Waste	Liquid LLW generated within the reactor units will be handled by the Liquid Radioactive Waste System (WLS) within each reactor unit. The WLS is the only source of operational radioactive aqueous emissions from the facility. The WLS is designed to control, collect, treat, store, and release liquid aqueous radioactive waste generated. All liquid wastes will be generated, controlled and discharged in accordance with the principles of BAT and will also be ALARA.
	Gaseous Low Level and Very Low Level Waste	The gaseous radioactive effluent for the facility will emanate from each reactor unit and the centralised ILW store. For the reactor units will discharge from a single ventilation stack on each reactor unit containment building. There are two sources of gaseous radioactive waste on each reactor unit, the Gaseous Radioactive Waste System (WGS) and the Radioactive Ventilation Systems. There is an additional minor stack associated with the centralised ILW store. The gaseous emissions will be subject to appropriate abatement including various types of filtration and delay beds. All gaseous wastes will be generated, controlled and discharged in accordance with the principles of BAT and will also be ALARA.
	Laundry	It is intended to minimise waste production through the use of washable overalls and gloves at the site rather than utilisation of single use disposal items where appropriate. It is proposed to utilise an offsite laundry for the Moorside facility, rather than operate an in house unit. Therefore, there will be no requirement for NuGen to manage potentially active arisings from laundry operations. Where such laundry items are damaged and require replacement, the damaged items will be assessed for contamination as LLW, and routed for disposal accordingly.

2.6 Development programme and phasing

Overview

2.6.1 Broadly, the Moorside Project can be divided into four phases, however there is practical overlap (and overlap between the construction and operation phases of each Moorside Project Site - e.g. an Accommodation Site would be operational (i.e. occupied) during the construction phase of the Moorside Site). The phases are summarised below with further details provided in **Table 2.8**.

Development of management arrangements phase

2.6.2 Phase during which NuGen prepares and applies for the permits and licenses required to construct the Moorside Power Station and safely manage the required site investigations and surveys necessary to underpin these permits and licenses and for future project phases.

Construction phase

2.6.3 Includes early site preparation, main construction activities and removal of construction facilities at the end of the construction phase.

2.6.4 Early site preparation could include the following:

- species translocation and habitat creation;
- site and species fencing;
- the preparation of site compounds and site utilities;
- the preparation of replacement common land;
- the preparation of any flood plain compensation land;
- the preparation for PROW and other amenity diversions; and
- the removal or redirection of utilities such as the current 132kV lines and access roads

2.6.5 The activities shown above could take place during the first two years of the construction phase. NuGen is currently considering applying for planning permission for these activities under the Town and Country planning act 1990. Accordingly, these activities may commence before any DCO is made. However, in the event that planning permission is not granted or NuGen does not implement the planning permission or permissions, then these activities will also be included in the DCO application and they would then take place as the first activities under the DCO.

Commissioning/Operation phase

2.6.6 Includes commissioning and on-going scheduled outage/maintenance activities.

2.6.7 The programme shown in **Figure 2.27** does not detail a programme after year 15. After this time the Moorside Power Station would be operational for approximately 60 years plus any possible extensions. During this operational period, there will be periodic outages and maintenance periods and building refurbishment until a time when decommissioning will commence.

Decommissioning

2.6.8 Decommissioning of the MPS is expected to last for approximately 15 years and will be subject to its own EIA pursuant to the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (or such process as is applicable at the time of decommissioning).

Table 2.8 Phasing for permitting consenting and licencing

Development of Management Arrangements (including Pre-Construction)	
Phase during which NuGen will develop its management arrangements for the development of the permits and licenses required to construct the Moorside Power Station and safely manage the required site investigations and surveys necessary to underpin these permits and licenses and for future project phases.	
1	Site Characterisation investigations and studies including geological surveys, onshore and offshore environmental investigations to underpin the site layout and provide justification of the suitability of the site for three AP1000 Nuclear Power Plant (NPP) units.
2	Knowledge transfer from the responsible designers to NuGen to develop personnel competency and enhance NuGen's Intelligent Customer capability.
3	Oversight of Generic Design Assessment (GDA), including GDA Issues, to ensure adequate capability to take ownership of the GDA pre-construction safety case for the AP1000 NPP design and to commence activity on closing out GDA Assessment Findings.
4	Manage site-specific configuration of the generic AP1000 NPP design, specify the safety and environmental functional requirements for the site-specific design and review and approve design proposals.
5	Development and submission of the applications for operational environmental permits, consents, Nuclear Site License (NSL) and Development Consent Order (DCO) to cover construction and operation of the Moorside Power Station.
6	Development of the Moorside Power Station Safety Case and Site Wide Environment Case including assessment of the site-specific external risks and hazards to the Moorside Site.
7	Development of site safety, environmental and security arrangements including emergency planning and preparedness, waste management and appropriate determination and marking of NSL and permit boundaries.
Construction	
Phase during which NuGen will procure, manufacture, construct and install the necessary plant at the Moorside Site. This phase will commence following approval by NuGen's shareholders, which includes having all necessary environmental permits, consents, NSL and DCO in place to cover construction and operation.	

1	Continued development of the Moorside Power Station management arrangements including ensuring that the management arrangements, Site Wide Environment Case, BAT Case and Integrated Waste Strategy (IWS) are maintained live within the NuGen Integrated Management System (IMS) and the development of the underpinning Operating Instructions.
2	Continued development of the Moorside Power Station Safety Case for all construction activities which impact on nuclear safety, environmental and security.
3	Site clearance and construction related infrastructure works including erection of security fences, construction of surface water management systems, construction of temporary site accommodation, plant assembly buildings and laydown areas. Some or all of this work may be applied for under a Town and Country Planning Act applications and carried out before the DCO is made. However the DCO will also include these works.
4	Procurement of nuclear safety related structure and components which have long lead times for manufacturing requiring adequate arrangements for quality assurance through manufacturing surveillance and inspection to ensure the design standard and requirements are met. Likely that these will require regulatory consent to procure.
5	First pouring of concrete having significance to nuclear safety (First Nuclear Concrete) which will require ONR consent to commence.
6	Construction/installation of all permanent facilities required for the Moorside Power Station including 3 AP1000 NPPs with turbine halls and electrical systems, ancillary buildings and plant, fuel and waste stores, circulating water system, electricity transmission infrastructure, and provision of temporary facilities to enable construction all of which involve conventional construction site hazards.
7	Execution of the pre-operational baseline environmental monitoring programme two years prior to the arrival of new nuclear fuel on the site.
Commissioning/Operation	
Phase during which NuGen will commission installed plant components and systems to confirm readiness for operation, by verifying that design assumptions and safety, environmental and security criteria are met. Activity will include both non-active commissioning and radioactive commissioning. More detailed activities and hazards associated with this project phase will be defined in more detail as the project develops.	
1	Arrival of plant radioactive sources and new nuclear fuel. Prior approval from ONR and EA will be in place in order to commence this phase under the NSL and the RSA EPR10 permit.
2.	Electricity generated and exported to the national grid.
3.	NuGen will operate, maintain, monitor and test the Moorside Power Station including the generation, treatment, processing, keeping, storing, accumulating and disposal/discharging of spent fuel and liquid, gaseous and solid radioactive waste throughout this phase in accordance with the requirements of ONR and EA and the conditions of the NSL and RSA EPR10 permit.
Decommissioning	
Phase during which NuGen will condition and package solid radioactive wastes and transfer wastes to the on-site ILW and spent fuel interim stores and decommission, dismantle, decontaminate and remove plant that has ceased operation. Any final remediation of the site will be undertaken. Spent nuclear fuel and intermediate level waste is likely to still be stored on the Moorside Site pending availability of the national geological disposal facility. More detailed activities and hazards associated	

with this project phase will be defined in more detail as the project develops. NSL and environmental permits will be surrendered at the end of this phase.

Construction

2.6.9 The construction of some key elements of the Moorside Project are described below as examples of construction activities. Full details will be covered in the ES.

MOLF

2.6.10 The MOLF (see **Figure 2.28**) will be founded on steel piles. The piling grid for the structure will consist of rows of four piles driven to create piers on which the structure is founded. It is estimated that there will be between 100-200 piers, made up of approximately 500-1000 piles. Piles will typically be tubular steel piles (potentially filled with concrete) or concrete pre-cast piles.

2.6.11 The finalised details for pile diameter and depth will be determined fully after detailed offshore investigation however it is currently the assumed diameter is 1100 mm and pile depths are likely to extend to depths of several tens of metres.

2.6.12 The piles will be partially or fully driven by a percussive hydraulic pile hammer (a vibro-hammer may also be used although this is less likely due to its efficiency). The pile hammer will be suspended from a crane fitted with a boom in the region of 50-60 m. The piers will be constructed with a spacing of 15-30m with each pier linked together by concrete beams to form the base of the MOLF deck.

2.6.13 The piles could be driven from the land, or marine, side depending on their location. If constructed from the marine side, a crane on a jack-up barge (supported by a number of vessels) will be positioned adjacent to the edge of the MOLF.

2.6.14 After each row of piles is in place, they are capped and the working platform will move forward to the next position. The deck of the MOLF will be completed following using steel and concrete poured in-situ. The process will continue until the MOLF is complete.

2.6.15 Two breakwaters are proposed to shelter the MOLF from heavy seas.

2.6.16 An inner breakwater will be constructed using either rock from on site; or more likely imported material. The following three methodologies for constructing rock-filled breakwaters are possible:

- Land-based construction. Using a crawler crane with slings and rock grapple to drop material into place. Also combined with forward dumping by dump trucks.
- Sea-borne construction by split-barges. Typically rubble would be loaded from the land onto either a self-propelled split barge or split barge with tug. The barge would then move to the breakwater construction area and

then release the load downwards vertically through the water column prior to moving back to the berthing point for reloading.

- Sea-borne construction with fall-pipes by barges. As above the barge would be loaded in the same manner however material would be directed via the fall pipe directly to the sea-bed.

2.6.17 For the outer breakwater: The sea bed will be prepared for the installation of caissons and this will require a limited amount of dredging. The dredged material will then be disposed of at an appropriate offshore disposal location. Caissons will be pre-fabricated and floated via barge to their location where they will be sank. Appropriate levels of scour protection will be provided if necessary in the form of tetrapods or similar.

Earthworks mounds

2.6.18 The mounds will be formed using a number of excavators to excavate the platforms, then transporting the material via dump trucks to the mound locations via haul roads.

2.6.19 Topsoil stripped will be stored in temporary mounds prior to be being placed on slopes. The mounds will be graded and compacted with seeding to be provided straight away wherever possible.

2.6.20 The construction of the earthwork mounds will take several years. The mounds will be formed to ensure structural integrity and from the slopes facing Beckermet first. These slopes will be landscaped as early as possible to reduce visual impacts. The mounds will be topped with a bund to provided light, dust and noise mitigation.

CWS

2.6.21 The CWS intake and outtake tunnel construction will be influenced by the results of ongoing ground investigation, though the anticipated methodologies of tunnelling are listed below.

- Single Shield Tunnel Boring Machine (TBM). A Single Shield TBM consists of a rotating cutter head equipped with disc cutters at the face of the tunnel. Buckets are installed at the cutter head to take up the excavated material; the excavated material falls onto the machine belt and is removed on belt conveyors or transport vehicles. Water jets are used to cool the cutting tools and reduce dust formation. The tunnels are lined to provide the tunnel.
- Double Shield TBM (Telescopic TBM). Double Shield TBM's consist of two main components including a front shield with a cutter head, main bearing and drive, and a gripper shield with gripping unit thrust cylinders and tail skin. The two components are designed to allow continuous installation of segmental lining during drilling.
- EPM (Earth Pressure Balance Shield). EBP Shields turn the excavated material into a soil paste that is used as a support medium. A rotating

cutting wheel is pressed onto the cutting face and excavates the material. The soil enters the excavation chamber where it mixes with the soil paste already there. The bulkhead transfers the pressure of the thrust cylinders to the soil paste and the pressurised soil paste supports the excavated tunnel walls. A screw conveyor transports the excavated material from the base of the excavation chamber onto a belt conveyor for removal.

- Mix shields. Mix shields are specialised in tunnelling through complex ground conditions with high water pressures and large diameters. Due to the tunnel face support provided by an automatically controlled air cushion, sudden pressure and volume fluctuations can be balanced.

2.6.22 At the seaward end of the intake tunnels there will be a number of seawater intake structures designed to control velocity and minimise the ingress of detritus, sediments and biological material. The construction of this will require an area of several hectares. The area will likely utilise a number of caisson or cofferdam structures at the end of the tunnel shaft with the outfall being constructed using a number of in-situ and pre-cast elements. Localised dredging and grouting are likely to be required.

2.6.23 At the shore end, the intake tunnels will enter a forebay structure via a shaft. The method of construction for the shaft will be determined by the findings of ongoing ground investigation work. The forebay will be constructed using reinforced concrete cast in situ.

Hours of working

2.6.24 The table below presents the proposed hours of working for the construction phase of the Moorside Site, the Accommodation Sites, the Corkickle and Mirehouse Railway Site and the St. Bees Railway Site.

Table 2.9 Summary of proposed hours of working at each construction site (excluding the Highway Improvement sites)

Construction Activity	Moorside	Corkickle	Mirehouse	Egremont	Corkickle to Mirehouse Railway	St Bees Railway
Main earthworks & materials management	24h x 7d	0700-1900 (0800-1300)*	0700-1900 (0800-1300)*	0700-1900 (0800-1300)*	24h x 7d	24h x 7d
Main civils operations	24h x 7d	0700-1800 (0800-1300)*	0700-1800 (0800-1300)*	0700-1800 (0800-1300)*	24h x 7d	24h x 7d

*Working hours in brackets refer to Weekends. There will be no working on Public or Bank Holidays, other for essential maintenance or with prior written approval.

Key Information

2.6.25 Key information on the Accommodation Sites and Additional Sites during the construction period of the MPS is provided below in **Table 2.10**.

Table 2.10 MPS construction phase: summary of key information of the Accommodation Sites and Additional Sites

Parameter	Corkickle Site	Mirehouse Site	Corkickle to Mirehouse Railway Site	St Bees Railway Site	Egremont Site
Accommodation Sites and Additional Sites Construction Period					
Site area (approx.)	24 ha	67 ha	12 ha	3 ha	16 ha
Site access location	Access to the site during construction would be provided by existing access points on Coach Road.	Access to the site during construction is anticipated to be provided initially via the existing farmhouse access or an alternative access point on Mirehouse Road. The section of the site west of the railway line would be accessed via the existing farm track. As works progress, direct access from the A595 is being considered and would be provided from a newly created junction.	Access would be provided via Coach Road and through the Corkickle Site. A secondary access may also be provided from the Coach Road junction.	Access to the site would be provided by Station Road.	Access would be provided via the existing garage access on Vale View. A separate access further west on Vale View is being considered for later construction phases.
Site preparation works	Access/egress, site wide access, establishment of compounds, diversion/installation of new services, soil stripping.	Access/egress, site wide access, establishment of compounds, diversion/installation of new services, soil stripping.	Access/egress, site wide access, establishment of compounds, diversion/installation of new services.	Access/egress, establishment of compounds, diversion/installation of new services.	Access/egress, site wide access, establishment of compounds, diversion/installation of new services, soil stripping.

Parameter	Corkickle Site	Mirehouse Site	Corkickle to Mirehouse Railway Site	St Bees Railway Site	Egremont Site
Utility requirements	All main services required		Electricity connection		All main services required
Earthworks handling	All soil resources to be retained on site where possible and used for temporary or permanent mounding or future reinstatement of land				
Estimated workforce	50-200	50-200	25-50	10 – 30	50-150
Sites in use (i.e. accommodation being utilised, rail infrastructure utilised) during the construction period of the Moorside Power Station					
Site access location	Access would be provided from existing or enhanced access points on Coach Road. Access to the northern parcel would be provided from Preston Street. NuGen is also considering the potential for a secondary access from the south via Meadow road and a potential access from Meadow View.	Access to land east of the railway line would be provided via a new access off the A595. NuGen is also considering additional/alternative access points on Mirehouse Road. Emergency access would be provided from Mirehouse Road, near to the existing railway bridge. Access to the development west of the railway line would be provided via a new access linking to the existing farm track.	Emergency/maintenance access would be coordinated with Network Rail.	Emergency/maintenance access would be coordinated with Network Rail.	Access via the existing entrance on Vale View or via a new access further west on Vale View.
Estimate workforce	At peak occupancy: Up to 50 staff for FM buildings and site management.	At peak occupancy: Up to 50-75 staff for FM buildings and site management.	N/A	N/A	At peak occupancy: Up to 20 staff for FM buildings and site management.

Parameter	Corkickle Site	Mirehouse Site	Corkickle to Mirehouse Railway Site	St Bees Railway Site	Egremont Site
No. of residents	Estimated at 1000, with the ability to increase to 1500	Estimated at 2500, with the ability to increase to 3,500	N/A	N/A	Estimated at 500, with the ability to increase to 1000

Operations

2.6.26 The reactors comprising the MPS are expected to be operational for approximately 60 years. During this time operation and maintenance activities will be carried out to support electricity production.

2.6.27 A summary of the process of electricity generation for the AP1000 is included in **Section 2.2**, whilst the function and details of relevant pieces of infrastructure needed for the operational phase are detailed in **Table 2.2.**

2.6.28 Activities supporting the operation of the MPS have been assessed in this PEI and will be further assessed in the ES. In addition, a number of Environmental Permits will be required to carry out certain activities associated with operations.

2.6.29 During the 60 year operational life MPS will undergo both refuelling and maintenance shutdowns (known as outages) at regular intervals but of varying lengths. Refuelling outages will focus on removal of spent fuel from the reactor and transfer to the cooling pond within each reactor unit whilst maintenance outages will focus on inspections, repairs and replacement.

2.6.30 During its operational lifetime it will be necessary to replace various components of the MPS, a number of which will involve delivery to site via sea.

Decommissioning

2.6.31 Decommissioning activities will be carried out in accordance with all applicable legislation, regulatory requirements, and national policy.

Moorside Site: Moorside Power Station

2.6.32 The expected operating life of the three reactors comprising the Moorside Power Station is approximately 60 years. Decommissioning will start immediately after the last unit ceases generating electricity and is likely to require specific structures to be built to accommodate the decommissioning works. NuGen expects decommissioning and dismantling operations to begin in the late 2080s and to take around 15 years to complete. At that stage, an interim end state will be achieved. However, the interim Intermediate Level Waste (ILW) store and the Spent Fuel storage facility will remain on the site, under institutional control, until these materials can be transported to a Geological Disposal Facility (GDF). The current working assumption is that this activity will not commence until around 2150, although that date may change. Once all the ILW and Spent Fuel has been transported to the GDF, the ILW and Spent Fuel stores will be decommissioned and dismantled and removed from the Moorside Site. At that stage a final end state will be achieved. Decommissioning of the Moorside Power Station will be subject to a separate consultation and consenting process, including a discrete Environmental Impact Assessment (EIA) for all planned decommissioning activities which will be prepared in accordance with the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (or the appropriate

legislation at the time). As such, the decommissioning of the Moorside Power Station will be considered a high level only in the Environmental Statement that will accompany the application for a DCO in 2017.

2.6.33 In addition to the EIA that will be undertaken at the time of decommissioning pursuant to the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999, NuGen will, amongst other activities: formulate, and submit to the Secretary of State for Energy and Climate Change for approval, a Funded Decommissioning Programme (FDP) and associated documents, in accordance with Chapter 1 of Part 3 of the Energy Act 2008, to ensure that NuGen will have secure financing arrangements in place to meet the full costs of decommissioning the Moorside Power Station and its share of waste management and disposal costs.

2.6.34 The FDP which includes a Decommissioning and Waste Management Plan (DWMP), will set out the end states definition of the Moorside Site. The end states will be agreed with the nuclear regulators and the local authorities. An interim end state will arise after all buildings and other facilities, except for the interim Intermediate Level Waste (ILW) store and the interim spent fuel storage facility, have been removed. The interim ILW store and spent fuel storage facility will remain under institutional control (by Office for Nuclear Regulation (ONR) and the Environment Agency (EA) until all their contents have been transported to a Geological Disposal Facility (GDF) and the buildings decommissioned and removed. At that stage a final end state will be achieved.

2.6.35 Decommissioning and dismantling activities will include:

- De-fuelling the reactors for the last time and transfer of spent fuel to the spent fuel ponds and subsequently to the interim spent fuel storage facility;
- Conditioning and packaging ILW operational and decommissioning wastes;
- Transfer of packaged ILW to interim store pending final disposal;
- Transfer of low level and very low level wastes (LLW and VLLW) to service providers, or to the Low Level Waste Repository (LLWR);
- Removal of all buildings apart from the interim stores for ILW and spent fuel;
- Removal of all non-essential infrastructure. The Heavy Haul Road and MOLF may be retained for transport of ILW and spent fuel to the GDF before being removed;
- Remediation of the Moorside Site to agreed end states; and
- De-licensing.

2.6.36 The environmental impacts from decommissioning are likely to include noise, vibration, lighting, dust, vehicle movements. These will arise from decommissioning and dismantling activities, and waste transfers.

2.6.37 The decommissioning activities referred to above can only be assessed at a high level given they will be carried out in more than 70 years' time and will be subject to their own assessment as set out above.

Accommodation Sites

2.6.38 The majority of development at the Accommodation Sites would be required only during the construction phase of the Moorside Project. It is likely, therefore, that the Accommodation Sites will each be subject to a requirement in the Development Consent Order for the development to be demolished and the site restored. Pursuant to these requirements, decommissioning of the Accommodation Sites would comprise retention, demolition, and removal and site restoration activities as set out below.

Mirehouse Site

2.6.39 Retention of permanent development at the Mirehouse Site which is necessary to support the operational phase of the Moorside Power Station is likely to include:

- Up to three accommodation buildings to accommodate additional workers required at times of planned power station outages for maintenance purposes;
- A leisure/recreation/sports hall building for the use of the above workers and to provide an evacuation holding and processing building in the event that the Moorside Power Station requires to be evacuated;
- All roads, foot and cycle paths, car, cycle and coach and other parking areas and bus stops and related infrastructure which would be necessary both to serve the above facilities and to serve any ongoing operational staff to obtain access to and egress from Mirehouse Station; and
- All below and any functioning above ground services, utilities, drainage, telecommunications and related infrastructure, and all landscaping including planting and bunds.

2.6.40 As part of demolitions on and the restoration of the site:

- The demolition of accommodation and other buildings no longer required for the construction or operation of the Moorside Power Station with the site of any demolished buildings restored to a grassed and level surface;
- All below and any functioning above ground services, utilities, drainage, telecommunications and related infrastructure, all roads, foot and cycle paths, car, cycle and coach and other parking areas and bus stops and related infrastructure, and all landscaping including planting, footpaths and bunds (except where their removal is necessary to facilitate building demolition) would be retained in situ consistent with the restoration state of the land, given that its removal would be unduly and unnecessarily environmentally intrusive; and

2.6.41 The decommissioning of these works is considered in this PEIR and will be assessed and reported on in the ES that will accompany the application for a DCO in 2017.

Corkickle Site

2.6.42 Retention of permanent development at the Corkickle Site necessary to support the operational phase of the Moorside Power Station likely to include:

- All roads, foot and cycle paths, car, cycle and coach and other parking areas and bus stops and related infrastructure, necessary for passengers to obtain access to and egress from Corkickle Station; and
- All below and any functioning above ground services, utilities, drainage, telecommunications and related infrastructure and all landscaping including planting, footpaths and bunds (except where their removal is necessary to facilitate building demolition) which forms part of the roads, foot and cycle paths necessary for passengers to obtain access to and egress from Corkickle Station.

2.6.43 As part of demolitions on and the restoration of the site:

- The demolition of accommodation and other buildings no longer required for the construction and operation of the Moorside Power Station, with the site of any demolished buildings restored to a grassed and level surface; and
- All below and any functioning above ground services, utilities, drainage, telecommunications and related infrastructure, all roads, foot and cycle paths, car, cycle and coach and other parking areas and bus stops and related infrastructure, and all landscaping including planting, footpaths and bunds (except where their removal is necessary to facilitate building demolition) would be retained in situ consistent with the restoration state of the land, given that its removal would be unduly and unnecessarily environmentally intrusive.

2.6.44 The decommissioning of these works is considered in this PEIR and will be assessed and reported on in the ES that will accompany the application for a DCO in 2017.

Egremont Site

2.6.45 Retention of permanent development at the Egremont Site necessary to support the operational phase of the Moorside Power Station likely to include:

- All hardstandings and parking areas and support buildings necessary to support the permanent passenger and freight transport interchange facility at Egremont; and
- All roads, foot and cycle paths car, cycle and coach and other parking areas and bus stops and related infrastructure, all below and any functioning above ground services, utilities, drainage, telecommunications and related infrastructure, and all landscaping including planting,

footpaths and bunds which form part of the above operational phase facilities.

2.6.46 As part of demolitions on and the restoration of the site:

- The demolition of accommodation and other buildings no longer required for the construction of the Moorside Power Station, with the site of any demolished buildings restored to a grassed and level surface; and
- All below and any functioning above ground services, utilities, drainage, telecommunications and related infrastructure, all roads, foot and cycle paths, car, cycle and coach and other parking areas and bus stops and related infrastructure, and all landscaping including planting, footpaths and bunds (except where their removal is necessary to facilitate building demolition) would be retained in situ consistent with the restoration state of the land, given that its removal would be unduly and unnecessarily environmentally intrusive.

2.6.47 The decommissioning of these works is considered in this PEIR and will be assessed and reported on in the ES that will accompany the application for a DCO in 2017.

Highway Improvements

2.6.48 The Highway Improvements are permanent development since the improvements are all required in the operational phase of the Moorside Power Station to facilitate deliveries to the Moorside Site including abnormal indivisible loads and as part of the highway network infrastructure required for operational workers and at times of evacuation of the Moorside Power Station.

The Moorside Project Railway

2.6.49 The Moorside Project Railway is permanent development required during the operational phase of the Moorside Power Station and is anticipated to be a Nationally Significant Infrastructure Project in its own right.

2.6.50 Some station buildings at Mirehouse and Corkickle may not be required to serve the railway or the operational phase of the Moorside Power Station and will be demolished with the site of any demolished buildings restored to a grassed and level surface.

2.7 Project design evolution

The Moorside Power Station

2.7.1 The vision for the Moorside Power Station derives from a series of strategic design moves which were initially led by facility processes or site civil engineering requirements, followed by site constraints to guide the position of the nuclear island first, then of a main platform for the Power Blocks, ancillary buildings, associated construction assembly and some laydown areas. These constraints include site characteristics, land availability, data from

geotechnical investigations (fault location and bedrock level), Sellafield boundaries and the position of the Lower Church Moss SSSI and the scheduled monument crosses at Beckermet church.

2.7.2 Following this, the need to achieve a net amount of excavation which ensures that all material is retained on site reduced the options for the nuclear island configuration to either three reactor units 'in-line' or in an 'L shape'. The functional layout of an 'in-line' configuration with a north-south orientation of parallel Power Blocks was selected as the preferred option as this layout gave a simple design that would not cause confusion in the event of an emergency to operators, protected the SSSI and the Scheduled Monuments at Beckermet church, provided a layout with most of the development away from the village of Beckermet, and positioned the Power Blocks on sound bedrock and utilised the land available without impinging on Sellafield activities see **Figure 2.4b.**

2.7.3 NuGen has also made a commitment to optimise the amount of construction and operational personnel travelling to site by rail, combined with a sea and rail strategy for the delivery of bulk material and component handling, and this introduced adjustments to the perimeter of the Moorside Site and access routes across it.

2.7.4 The proximity of the National Grid Electricity Transmission (NGET) Switchyard and overhead power line routing has been factored into the siting of support buildings north of the main entrance, and laydown space provided for operation and outage, including parking. Finally the location and configuration of the forebay, MOLF and rail infrastructure works partly in the flood plain have been determined by construction logics and operational requirements.

2.7.5 The works associated with the construction of the Moorside Power Station result in the production of large volumes of excavated materials (approximately 15 million cubic metres). The proposals described in this PEIR include the retention of this excavated material on the Moorside Site in mounds, predominantly to the northwest of the proposed Moorside Power Station (these mounds would be located to both the east and the west of the existing Sellafield access road (C4037) from the A595). The mounds during construction are necessary to provide laydown area during the construction period prior to re-landscaping once construction has finished. It should be noted that NuGen is actively considering potential earthworks solutions within the Moorside Site to minimise significant adverse effects and therefore these two mounded areas to the northwest of the Moorside Power Station are subject to on-going assessment and consultation. In the current proposals, the mounds would be reprofiled at the end of the construction phase.

2.7.6 The aim of the landscape and visual requirements of the interim (construction) and final (operational phase) mounds are primarily as follows:

- the retention during the operational period of key long distance views to the Lake District summits and high fells currently available to some local residents in Beckermet;
- the maintenance of outer slopes (specifically on the more sensitive northern and western flanks) that strongly reflect the existing landscape

character in terms of slope profile utilising parameters derived from slope analysis exercises;

- avoiding the potential for interim or final mounds to be considered overbearing with regard to proximity to residential properties and/or final height; and
- avoiding the potential for activities and associated lighting located on the laydown area platforms during the construction period to result in unacceptable levels of effect on the visual amenity of local residents.

2.7.7 The area around the Moorside Power Station has a number of constraints with respect to areas that are available for excavated earth management and the development of landscaped areas:

2.7.8 To the south and east of the Moorside Site is the Sellafield Site. The southern, western and north-western part of the Moorside Site is constrained by the Ehen floodplain. This area is not considered suitable for earthwork retention as the flood plain is active; it is doubtful that reducing the area of functional floodplain for landscaping purposed would meet the requirements for sequential and exception tests in the flood risk assessment.

2.7.9 Beckermet village is to the north, with some of the properties containing long distance views to the Lake District summits (and also Sellafield).

2.7.10 To the north of the A595 the western extent of the Lake District National Park is present and runs north at Calder Bridge. In addition there are several properties in this area. The possibility of extending landscaping areas to the north of the A595 towards the National Park has been discounted due to proximity to the National Park and existing properties limiting potential space for material.

Accommodation Sites

2.7.11 As set out within the Stage One Consultation Document, (published on NuGen's website – http://www.nugeneration.com/have_your_say.html), NuGen applied a set of 'Principal Search Criteria' in order to identify a number of 'Search Areas' where potential worker accommodation could be provided. The Principal Search Criteria were:

- For larger accommodation sites - proximity to an existing rail station or a railway line with the potential for a new rail station;
- For smaller accommodation sites– settlements with proximity to the main road routes and limited travel times for coach transfers to the Moorside Site;
- In, or adjacent to, a town or service centre to provide access to facilities and support the local economy;
- Proximity to the Moorside Site, to minimise travel times, and risks of delays for the workforce during the construction phase; and

- Avoidance of key, known environmental constraints and minimisation of adverse effects on local communities whilst maximising potential benefits to those communities.

2.7.12 The application of these criteria resulted in the identification of four locations (Corkickle, Mirehouse, Egremont and Cleator Moor) capable of providing the land required to develop the temporary worker accommodation.

2.7.13 Since the Stage One Consultation ended, NuGen has undertaken further analysis of each of the four Search Areas in order to identify the most appropriate location within each area for development.

2.7.14 The analysis began with a review of both planning policy constraints (e.g. protected greenspace) and physical constraints (e.g. flood plain). Each of these constraints was plotted onto a GIS (Geographic Information System) base which enabled NuGen to create a series of 'Constraints and Opportunities' plans.

2.7.15 The starting principle was to try and avoid, where possible, development being located within any 'constraint' areas, and focusing on the 'opportunity' areas.

2.7.16 Once the opportunity areas had been identified, NuGen produced a series of illustrative 'proving plans' to determine the amount of worker accommodation and other associated infrastructure that could potentially be provided within each of these opportunity areas.

2.7.17 In addition to the mapping of constraints and opportunities within each Search Area, NuGen also had regard to the comments provided by local residents and stakeholders during the Stage One Consultation (see the Stage One Consultation Feedback Report on the NuGen Website)

2.7.18 A series of workshops were also held during October and November 2015 with locally elected representatives for each area, along with Officers from Cumbria County Council and Copeland Borough Council, (as the four Areas are within Copeland's administrative area) who were invited to review the Constraints and Opportunities plans and provide comments on any local issues, concerns and potential opportunities.

2.7.19 This ongoing consultation and analysis of each area resulted in the refinement of each of the Area boundaries and has enabled NuGen to develop a series of 'Concept Masterplans' (see **Figures 2.29, 2.30 and 2.31**) which provided an indication of the likely development areas.

2.7.20 It is worth noting that whilst several of the original area boundaries have been significantly reduced as part of the design evolution work, parts of the original Corkickle Search Area boundary have been extended to take in additional parcels of land to aid in efficiency of design and operability. The current concept layout has not resulted in the loss of any residential properties.

2.7.21 In addition to the Concept Masterplans, NuGen also produced an 'Indicative Illustrative Layout' for each site (see **Figures 2.10, 2.12 and 2.14**) to help provide an indication of how each site could be laid out, the types of buildings

and infrastructure that could be provided and the potential relationship with the surrounding uses.

2.7.22 Through ongoing discussions with local stakeholders and analysis of feedback provided during Stage Two, NuGen will continue to develop more detailed Masterplans for each site as part of the DCO submission.

2.7.23 A brief commentary explaining how NuGen arrived at the current site boundaries and concept masterplans for each site is provided below

Corkickle Site

2.7.24 The Corkickle Search Area (AD Site A) from Stage One Consultation is shown in **Figure 2.32**. A key feature of this Area was the Whitehaven Rugby League Club ground and Football Clubs, training ground and artificial surface football pitch. These sports pitches, together with the recreation ground, bowling greens and public green space provide a green space, sport and leisure facilities for the local community. NuGen has sought to retain these facilities and has excluded these from the Stage Two Consultation Corkickle Site boundary. However, it should be stated that the proposed development provides an opportunity to enhance access and connectivity of these facilities for both the Moorside construction workforce and the wider community.

2.7.25 To ensure that a significant proportion of the construction workforce is transported to the Moorside Site by train, a dedicated worker platform is proposed to serve the Corkickle Site via the Corkickle to Mirehouse Railway. The platform will be located adjacent to the exiting Corkickle Station and access to it would be provided from within the Corkickle Site.

2.7.26 The platform represents the 'anchor' for the Site and the approach taken by NuGen was to build out the development from the new platform (avoiding environmental and physical constraints wherever possible) to ensure the station is easily accessible by the workforce.

2.7.27 A path running between the Rugby Club and Football Club is proposed to provide workers with a direct access to the new rail platform as well as connecting into the existing Sustrans Route 72, providing the opportunity for workers to cycle to the Moorside Site.

2.7.28 Newly created vehicle access/egress points are proposed both north and south of Coach Road, with potential for the internal spine road to extend south through the Corkickle Site and provide an alternative access/egress point onto Meadow Road.

2.7.29 To help alleviate potential flooding and provide additional amenity space, it is proposed that the currently culverted Pow Beck would become an open watercourse and a new landscaped linear park be created along the route.

2.7.30 In summary, the emerging concept design has sought to:

- Ensure the retention of the existing sports and recreation areas;
- Avoid built development within areas of flood risk;

- Improve existing and create new pedestrian / cycle routes to the new rail platform and seek to enhance connectivity to town centre;
- Create new 'linear park' along the Pow Beck.

Mirehouse Site

2.7.31 The Mirehouse Search Area (AD Site B) from Stage One Consultation is shown in **Figure 2.32** and originally comprised of a significant amount of land on both the western and eastern side of the A595.

2.7.32 Much like the Stage Two Consultation for the Corkickle Site, a key design principle of the Stage Two Consultation Mirehouse Site is to ensure it supports and delivers the Transport Strategy objective of transporting a significant proportion of the construction workforce to the Moorside Site by rail. The approach is therefore to develop the Mirehouse Site around the newly proposed worker rail platform described within the proposed Corkickle to Mirehouse Railway, with worker accommodation and other infrastructure clustered around the site to encourage workers to walk to the platform on a daily basis.

2.7.33 To help encourage integration with the adjacent residential area of Mirehouse, it is proposed that the northern edge of the site would comprise of green spaces that seek to draw existing Mirehouse residents into the site. A sports and recreation area is also proposed at the northern boundary of the site near to the Sustrans Route 72.

2.7.34 Additional connectivity into the Sustrans Route 72 will also be provided to encourage cycling, both to the Moorside Site and also into the town centre of Whitehaven.

2.7.35 In summary, the emerging concept design has sought to:

- Focus development around the newly constructed rail platform;
- Provide a new vehicular access/egress onto the A595 with a potential link to West Lakes Science Park;
- Provide a layout which seeks to encourage integration with the existing residential community;
- Provide connectivity to the existing Mirehouse residential area;
- Avoid locating buildings within the priority habitat and along the route of the existing gas pipeline;
- Avoid current developments

Egremont Site

2.7.36 The Stage One Consultation Egremont Search Area comprised of three separate parcels of land comprising Egremont East/North (AD Site E), Egremont Gully Flats (AD Site F) and Egremont East/South (AD Site G) – see **Figure 2.32.**

2.7.37 The Egremont East/North Search Area (AD Site E) comprised predominantly pastoral fields and perimeter woodland / scrub. The key constraints are associated with very poor access (into the northern field), the steeply sloping topography and general land form and an area of priority habitat located within the western portion of the site.

2.7.38 Taking account of the constraints, the only potentially suitable area for development would be a small area within the eastern portion of the site. The area of land available equates to less than 1ha and would be unlikely to provide for more than 100 temporary bed spaces. The lack of available space coupled with the poor access and restricted width of the road leading to the site, led to the decision not to progress this area for development.

2.7.39 The Stage One Consultation Egremont South/East Search Area (AD Site F) was strongly rural and open in character. It includes the small settlement of Scurgill and extends towards the village of Thornhill to the south.

2.7.40 Its open character, associated with rising landform and limited vegetation, is considered to be the key constraint to development. It would be difficult to incorporate development within this area as the landscape affords little opportunity for development without resulting in potential harm. In addition to the open and rural nature, access to the site would need to be located immediately adjacent to a number of residential properties.

2.7.41 Connectivity to the town centre would also be difficult, with workers needing to cross a major roundabout on the A595, before walking several hundred metres into the centre. This area also received a large number of adverse comments during the Stage One Consultation. The above reasons meant that the decision was made not to progress this area for development

2.7.42 It was considered that the eastern portion of AD Site G was the most appropriate location for the following reasons:

- The site is less visually sensitive;
- Views can be screened as a result of the existing topography;
- There are a number of existing industrial units within this portion of the site;
- The site, including access routes would not be located immediately adjacent to a number of dwellings;
- Access to the site and to the A595 is more suitable for cars and coaches;
- Connectivity to the town is greater; and
- There is an opportunity to re-open the old mineral line as a cycle route that could lead directly to Moorside Site.

2.7.43 The emerging concept design for the Stage Two Consultation Egremont Site has sought to:

- Contain development within the valley area east of the River Ehen;

- Avoid locating buildings within the flood plain;
- Provide new/enhanced vehicular access; and
- Seek to enhance connectivity to the town centre.

Consideration of Cleator Moor and Millom as accommodation sites

2.7.44 Having regard to NuGen's Transport Strategy, with the focus on rail, and having regard to the responses received from the Stage One Consultation, NuGen considered reducing the scale of development at Cleator Moor to approximately 250 units (from up to 1000 units). NuGen has discounted this option, as 250 units provides too small a contribution to housing NuGen's temporary workforce, is less economic and appropriate for facilities management as a separate small accommodation centre, and is less consistent with the Transport Strategy and the focus on rail.

2.7.45 NuGen's proposal is therefore not to continue with Cleator Moor as a site for temporary workers' accommodation as the accommodation provided at the other 3 locations (in total 4,000 bed spaces) is sufficient provision.

2.7.46 NuGen also considered, having regard to Stage One Consultation responses, the potential for temporary worker's accommodation at Millom. Having considered this site, NuGen's conclusion is that it is difficult to identify a suitable area of land adjacent to the railway station and for a sufficient critical mass of development to justify an additional charter shuttle train service, as the journey and turnaround times would preclude the use of the shuttle trains planned for Whitehaven (Corkickle and Mirehouse) to the Moorside Site. As the section of A595 between Millom and the Moorside Site is less suitable for travel by coach (given the limited visibility and various tight turns), along with the fact that the journey takes 45 minutes, it was concluded that a temporary worker accommodation site served by a coach would not be appropriate.