THE COAL AUTHORITY

Michael Pipeline Construction

Works Information

A temporary outfall pipeline is required for a mine water pumping test at the former Michael Colliery at East Wemyss in Fife to convey water from No.2 shaft to a discharge point 25m beyond the mean low water spring (MLWS) in the Firth of Forth. The pumping test is anticipated to last up to 12 months. Pipeline Design drawings are provided in Appendix A and site information in Appendix B.

A brief description of the site and the proposed site works required to construct the pipeline are provided below.

Site Location and Surroundings

The former Michael Colliery site (Grid Reference: 333620, 696190) is a restored coal pit located at the south-western edge of the village of East Wemyss, approximately 4.5 km north-east of Kirkcaldy (Figure 1). The site is situated immediately adjacent to the Firth of Forth, the site topography sloping gently towards the coast at an elevation of between 8-13 mAOD. Low cliffs (5-8m high) mark the boundary of the south-eastern side of the site and are believed to be experiencing coastal erosion. To the immediate north the site slopes steeply up to Randolph Street. Pasture fields surround the site further to the north and to the west.

A site walkover confirmed that there is a flat area of grassland between the shafts and the coastline. The land slopes gently to the south-west, narrowing considerably between the coastline to the south-east and steeply rising ground which forms the north-west side of the site. An oval shaped copse of immature trees is situated in the middle of the site. Behind the shafts the ground rises steeply with bedrock exposed directly behind the shafts. Cliffs exist along much of the south-east boundary being approximately 5-6m in height along the central and north-east boundary, reducing to less than 1m at the south-western end. The cliffs comprise a mix of material deposited as a result of the mining activities and there is evidence of coastal erosion, particularly along the central and northern sections of the site boundary adjacent to the coastline. A lot of debris from the former mining operations can be seen on the foreshore. A small headland protrudes into the Firth of Forth, the remains of material that previously protruded up to 240m into the Forth.

The two remaining shafts have been capped by concrete plinths which appear to be in good condition externally but the condition below the cap is unknown. What appear to be removable covers to allow access have been incorporated into the concrete cap of Shaft No.2. Such covers are not present in the cap of Shaft No.3.

The main working area for construction of the temporary pipeline will be from Shaft No.2, with a pipeline running behind the small copse of trees in an approximate southerly direction before turning and following a south-easterly direction across the coastal footpath, over a small cliff and across the foreshore (Figure 2). The pipe will be extended 25m below MLWS. There is a further shaft, Shaft No 1, approximately 20m to the north east of Shaft 2 which is indicated on Coal Authority records as being filled and capped although the exact details of this treatment is not known. Construction traffic should be directed away from running across this shaft.

Figure 3 shows the environmental designations within the vicinity of the site. Much of the intertidal area adjacent to the site is classified as a Special Protection Area (SPA) under the European Wild Birds Directive and also designated as a Ramsar Wetland of International Importance. The SPA was classified to give greater protection to the internationally important numbers of waders and wildfowl which visit the area during winter and on migration. The beach and coastal area that runs along the south-east boundary of the site are also within the Firth of Forth SSSI which has been designated for its various species of breeding and non-breeding birds, as well as for geology, palaeontology, and other scientific interests; however, at this location it has been designated for the same species that are covered by the SPA designation. Consequently the foreshore and intertidal zone is a protected area and there are likely to be restrictions in place which will affect any proposed works. The works will need to consider and minimise the impact they will have on this environmentally sensitive area during construction of the pipeline and restoration following completion of the pumping test.

Land Ownership

The majority of land on which the site is located is owned by Wemyss Estates. The Coal Authority has arranged a lease agreement with the Estate for the area shown in Figure 4. The total area of the leased site is approximately 7 hectares.

The Crown Estate own the foreshore over which the pipeline will run to the Firth of Forth. Permission has been granted by the Estate to carry out the works (Crown Licence No. FI-35-11).

Access

East Wemyss lies approximately half way along the A955 which links the towns of Kirkcaldy to the west, and Leven to the east. Access to the site from the A955 at East Wemyss is via East Brae Road and Main Street and finally along Back Dykes Lane which runs along the side of the Firth of Forth coast, ending at the north-eastern edge of the Michael site. Back Dykes Lane passes a scrap yard and boat storage yard and is approximately 3-4m wide, although there is scope to widen if necessary. There is a locked barrier at the end of this unmade track. A key is held by Severn Trent Services and a copy can be obtained in advance of the start date.

Back Dyke Lane leads onto a concrete track which slopes upward towards the cliff edge. Part of this track is now fenced off due to safety concerns over instability of the cliff from coastal erosion so a new track has been excavated leading on to the flat grassed area of the. The site is open to the public who have access via the Fife Coastal Path which runs in a NE-SW direction through the site. The concrete capped mine shafts are reached via tracks that lead from the coastal path and can also be accessed by the public, although access to monitor the shaft water or gas levels is restricted by high, metal palisade fencing. Photos of the site and shafts are shown on Figure 5.

The small area of the land affected by the proposed works is not considered to occupy a key location when considering a loss of recreational grassland. The Fife Coastal Path runs through the site and provision will need to be made to ensure that access along this path remains both during construction of the pipeline and during operation of the pumping test. Discussions have been held with Fife Coast and Countryside trust who manage the Fife Coastal path and they require details of how the interaction between the public and construction traffic is to be managed so they can add it to their website. If the path needs to be diverted while the pipeline is being lain, clear diversion routes for pedestrians should be established by the Contractor if deemed necessary.

Description of Works

The following is a brief description of the works for general information only and should be read in conjunction with the Tender Drawings listed in the relevant section below. It is not intended to be exhaustive and should not be used in isolation for pricing purposes.

Borehole Headworks Compound

The Borehole Headworks Compound is to be arranged around the existing Coal Authority Shaft No.2. The headworks design is based on the standard Coal Authority arrangement for shaft abstraction and the compound needs to

- accommodate the temporary features i.e. pipework, kiosk and slabs,
- accommodate the installation of a generator,
- enable full vehicular access for maintenance vehicles and plant.

The works/specification are set out in the IWS document “IWP 90077” dated 29 September 2014 that is already in JNB’s possession.

Works by Others

Scottish Power have quoted to design and install a new power supply from its existing electricity sub-station on Randolph Street to the proposed Pump Control Kiosk in the

Headworks Compound. The pumping test will start with power supplied by generators but if it is cost effective to install a permanent supply then this will be the subject of future discussion/instruction. Details of Scottish Power's quotation, proposed works and specification has been uploaded to BIW Conject. This is in the process of being upgraded to obtain an increase in the supply capcity.

The Coal Authority Project Manager will coordinate the programme interface between J N Bentley and Scottish Power.

Discharge Pipeline

Provisional vertical / horizontal alignments and specification of the discharge pipe have been provided on Drawings MMD – 364254-C-DR-00-XX-0001 Plan & Section, MMD – 364254-C-DR-00-XX-0002 Shaft Top, MMD – 364254-C-DR-00-XX-0003 Standard Details provided in Appendix A. .

Any contractor's design variations should be based on the following Design Parameters:

- Nominal bore 300mm
- Minimum design flow 25l/s
- Anticipated operating flow 25-100/s
- Maximum design flow 100l/s
- Minimum discharge velocity 1m/s
- Maximum discharge velocity 3m/s
- All pipework to be de-beaded internally and externally
- No fixtures or fittings should cause intrusions into the pipe that may adversely affect flows or maintenance

In any case, the Contractor must provide details and calculations as listed in the Contractor's Design section below.

The discharge pipework can be considered in two sections:

Section 1 – From borehole headworks to top of cliff

- Approximately 140m length of 300mm ID gravity drain laid in trench with nominal 1.0m of cover at a nominal constant falling gradient of 1 in 40.
- First 75m to be buried in a straight line to the south of the shaft adjacent to the copse of trees, the next 65m to form a bend around the copse to the top of the cliff.
- At the top of the cliff the gravity pipe runs into a concrete inspection manhole chamber.

Section 2 – From top of cliff, down cliff face and across foreshore to outfall point

- Section 2 will be connected to Section 1 at the manhole inspection chamber to continue the discharge route from the headworks to the outfall.
- 300mm nominal bore HDPE pipe will be used from the inspection chamber to the outfall fitted with a Tideflex valve.
- From the manhole inspection chamber the pipe will be buried over and down the cliff to a few meters beyond the MHWS. Across the foreshore the pipe will be laid above ground.
- Appropriate protection should be provided to reduce the risk of the pile line being moved during storm events. This will be provided by a quantity of rock armour (currently max 1200tonnes) or concrete kennels placed over the pipeline to provide protection.

Outfall

A provisional design of the outfall (with Tideflex Valve) is illustrated on Drawing No. MMD – 364254-C-DR-00-XX-0003 Standard Details.

As preferred construction methods within the marine environment vary, the Contractor may propose an alternative design to that provided in this Contract Data. In this case the Contractor must submit details and calculations for any proposed variations of the provisional design to the CA for approval. Any Contractor design variations should be based on the following Design Parameters:

- Be of a suitable mass to reduce the risk of movement from wave action.
- Achieve a minimum discharge velocity of 1.0m/sec
- allow pigging / rodding through to an open pipe end,

Miscellaneous

A Coal Authority scheme information board shall be installed at the highway access point from Back Dykes Lane and adjacent to the works site.

Some shrubs and trees may need to be removed to create vehicular access into the compound. If possible, these shrubs should be replanted for re-use when reinstating the site following construction of the compound.

All earthworks shall be reinstated with the original topsoil and allowed to naturally re-vegetate with native grasses and flowers.

Constraints

- Construction works shall be provisionally restricted to 08:00 – 18:00 Monday to Friday and 08:00 – 13:00 on Saturdays. Working outside these hours and on Bank Holidays will require prior agreement with the Coal Authority, who will need to seek authorisation from the Fife Council. The earliest warning of any request to work outside the stipulated hours should be given to the Coal Authority Project Manager to facilitate the required agreements.
- The Marine Licence from Marine Scotland contains conditions that could constrain construction proposals. A copy of the licence has been provided in Appendix ?.
- Site specific hazards are shown on Figure 6. Note that these are not hazards associated with the pipeline design. These will be provided as a separate Design Risk Information document.
- No planning constraints have been imposed by Fife Council on the proposed works.
- The Fife Coastal footpath will need to remain open throughout the duration of the works.
- The foreshore is designated as a SPA, Ramsar and SSSI. Consequently measures will need to be in place to ensure no/minimal impact to this area.

Specification

The Specification comprises of three parts as follows:

Part 1 - The "Civil Engineering Specification for the Water Industry", 6th Edition (CESWI), published by the UK Water Industry Research Ltd in June 2004, augmented by the Supplementary Clauses, (Available for purchase from Water & Environment Bookshop (www.webookshop.com)).

Part 2 - The Coal Authority Environmental Projects Standard Specification (CAEPSS) latest version (as issued with the Confluence Construction Works and Services Framework Contract, and available on BIW)

Part 3 - The Supplementary Specification - Not required for this contract

Health and Safety

- The Pre-construction Information required under CDM Regulations 2015 is supplied via BIW Conject

- A Construction Health and Safety Plan should be provided by the Contractor for agreement with the Coal Authority Project Manager prior to any construction works commencing.

Contractor's design

Discharge pipe

The Contractor shall provide specifications, details and calculations to confirm suitability of the proposed method and plant to install the specified or alternative pipe design.

Details should include:

- Pipe specification: material, outer diameter, SDR, yield stress
- Pipeline fabrication – proposals to fabricate and transport pipe to insertion point
- Pipeline installation, particularly over the cliff down to the foreshore and out beyond the MLWS.

The Contractor shall submit the above specifications, details and calculations for acceptance or otherwise by the Coal Authority and relevant Statutory Authorities.

Outfall

As preferred construction techniques and plant used to carry out works in the marine environment vary, the Contractor shall provide specifications, details and calculations to confirm suitability of the proposed plant and method to install the specified outfall.

The Contractor may propose an alternative design to that provided in this Contract Data. In this case the Contractor must submit details and calculations for any proposed variations of the provisional design to the CA for acceptance

The Contractor should note that significant redesign of the outfall and its protection structure may result in delays to the construction programme whilst the proposed alternative design(s) are assessed by the Marine Scotland for compliance with conditions of the Marine Licence.

Working with the Employer and Others

Liaison may be required with the following parties during the construction works:

- The Coal Authority – Kevin Boal (Project Manager)
- The Coal Authority – Stephen Woolfe (CDM-C)
- The NEC PM / Supervisor – Kevin Boal

Contact details for the above parties will be confirmed prior to the agreed contract start date.

The Coal Authority Project Manager will coordinate initial contact with the following parties as and when requested by the Contractor:

- Scottish Power - Installation of power supply
- Wemyss Estate - land owner
- Crown Estate - land owner
- SEPA - Environmental Permit
- Marine Scotland - Marine Licence
- Scottish Heritage - work impacting on SSSI / SAC
- Forth Ports Limited - Forth Ports Licence

Permits and Licences

The following permit and licences have been received by the Coal Authority in relation to the works. Copies are supplied in Appendix C.

- SEPA – CAR Licence (for abstraction and discharge of mine water).
- Marine Scotland – Marine Licence.
- Forth Ports Limited – Forth Ports Licence

The Marine Licence may contain conditions that could constrain construction proposals. The Contractor must check the Licences and Permit against his proposed method of works..

Programme

- Prior to erecting fencing for the site compound, all proposed fence lines shall be agreed with the *Project Manager*.
- An as-built survey shall be completed and provided to the *Project Manager* a minimum of 1 week prior to completion of the construction works.

Tests

A flow test shall be undertaken when construction of the pipeline has been completed. The test should be completed prior to the infilling of the trench in which the pipeline has been laid. This will enable any leaks to be identified as well as ensuring that there any other issues with the headworks and pipeline can be more easily identified and resolved.

Drawings and Information

MMD – 364254-C-DR-00-XX-0001 Plan & Section

MMD – 364254-C-DR-00-XX-0002 Shaft Top

MMD – 364254-C-DR-00-XX-0003 Standard Details

364254 – MMF110 – Designers hazard elimination and management record

Coal Authority Standard Detail Drawings relevant to this contract are:

ENV-71A - Site Signage and Lifebuoy Details

ENV-74A - Access Track, Footpath and Footbridge Details

ENV-75 - Drawpit Chamber and Duct Details

ENV-76 - Trench Details

Drawings and Information

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ENV-75 - Drawpit Chamber and Duct Details

ENV-76 - Trench Details

Appendix A – Pipeline Design Drawings

MMD – 364254-C-DR-00-XX-0001 Plan & Section

MMD – 364254-C-DR-00-XX-0002 Shaft Top

MMD – 364254-C-DR-00-XX-0003 Standard Details

Appendix B - Site Information

Existing Services

Statutory utility service plans indicate that there are no known services within or adjacent to the working area.

Existing services information is provided in the following report on BIW Conject:

- Michael Fife – Utilities Search.

Updated services information shall be provided prior to the agreed contract start date.

There is a possibility that uncharted, abandoned cables, mains and or pipes that serviced the former colliery may be exposed within excavations. A CAT scan should always be carried out prior to any excavation works.

Existing Structures

There are no above-ground structures in the vicinity of the proposed working area other than the capped shafts. The footprint of the former colliery buildings and infrastructure were, however, located across much of the working area and there may be the remnants of foundations, building rubble and abandoned services etc. that remain buried and which may be exposed during excavation works.

With the exception of the shaft to be pumped from (Shaft No. 2) all other old mine shafts are located outside the working area, and are not considered to pose a hazard to the Contractor or the public. . There is a further shaft, Shaft No 1, approximately 20m to the north east of Shaft 2 which is indicated on Coal Authority records as being filled and capped although the exact details of this treatment is not known. Construction traffic should be directed away from running across this shaft.

There are copses of trees and shrubs within and in close proximity to the working area.

Hazardous Materials

There are no known hazardous materials at the site although the possibility of encountering hazardous materials within the colliery spoil during the works cannot be ruled out. No ground investigation has been undertaken at the site.

Mining Information

There is no evidence of shallow mine workings at the site with former mining operations associated with the extraction of deep coal seams.

Mine Water Information

Mine water information is available within the Coal Authority Michael Feasibility Report held on BIW Conject.

Environmental Constraints

Much of the intertidal area adjacent to the main site and over which the pipeline will run is classified as a Special Protection Area (SPA) under the European Wild Birds Directive and also designated as a Ramsar Wetland of International Importance. The SPA was classified to give greater protection to the internationally important numbers of waders and wildfowl which visit the area during winter and on migration. The beach and coastal area that runs along the south-east boundary of the site are also within the Firth of Forth SSSI which has been designated for its various species of breeding and non-breeding birds, as well as for geology, palaeontology, and other scientific interests; however, at this location it has been designated for the same species that are covered by the SPA designation. Consequently the foreshore and intertidal zone is a protected area and there are likely to be restrictions in place which will affect any proposed works. The works will need to consider and minimise the impact they will have on this environmentally sensitive area during construction of the pipeline and restoration following completion of the pumping test.

Scottish Natural Heritage, SEPA and Marine Scotland have been consulted regarding these designations as part of the licence applications. Scottish Natural Heritage wish to see a copy of the proposed construction method statement to ensure that the works will minimise the impact they have on the foreshore here.

Archaeological Constraints

An archaeological assessment was carried out for the site as part of the Feasibility Study. The Feasibility report is available on BIW Conject for information:

- Michael Draft Feasibility Report

The report identified no scheduled monuments on the site or on the foreshore adjacent to the site. However, a number of Bronze Age caves with carvings are situated a few hundred metres to the north east of the site. Two caves which were located within the site area have since been infilled as part of the historic mine works.

As the working area is relatively small, the excavations for the pipeline shallow and previous ground disturbance high, no site specific archaeological constraints as part of these works are anticipated.