Esso Petroleum Company Limited

REST OF BOWLING REMEDIATION WORKS

MARINE SCOTLAND CONSTRUCTION WORKS APPLICATION

METHOD STATEMENT

Discharge Pipe Removal

CLIENT	Esso Petroleum Company Limited – Ermyn Way, Leatherhead, Surrey, KT22 8UX, United Kingdom
CONTRACTOR	DEME Environmental Branch UK – Suite 37 Beaufort Court, Admirals Way, London, E14 9XL, United Kingdom

REVIEW AND APPROVAL RECORD OF CURRENT REVISION

CONTRACTOR

Action	Name	Function	Signature	Date
Approved by	Hendrik Nollet	Project Manager		2023-07-06
Reviewed by	Valerio Finco	Site Manager		2023-07-06
Prepared by	Joachim Tullii	Contract Manager		2023-07-06

CLIENT

Action	Name	Function	Signature	Date
Approved by				

REVISION STATUS

Rev. E	Rev. I	Date	Reason for issuing	Paragraphs / pages revised

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1 SCOPE

The present document is prepared by *DEME NV Environmental Branch UK*, Principal Contractor for the "Rest of Bowling Remediation Project", commissioned by *Esso Petroleum Company Ltd* at the Former Esso Terminal in Bowling.

This method statement describes the removal of the temporary discharge pipe installed by *DEME* in June 2022 which is used to discharge the water collected and treated on the storage and treatment staging areas and the groundwater collected at the excavation fronts.

The document has been prepared for approval by Marine Scotland, as part of the application for construction works.

2 SITE INFORMATION AND LAYOUT

Table 1– Site Details Summary

Site Address	Former Bowling Terminal Dumbarton Road Bowling Glasgow G60 5BP - Scotland *Located on the north bank of the River Clyde, approximately 0.3 km to the west of the village of Bowling and 4 km to the south east of Dumbarton, limited Westwards and Northwards by the railway and the A82 - Great Western Road.*
Site Ownership	Esso Petroleum Company Ltd
Surface	Esso ownership covers approximately 64 hectares *41 hectares is terrestrial, with the remainder, 23 hectares, comprising parts of the foreshore of the River Clyde and Milton Island.*
Main Contractor	DEME Environmental NV Haven 1025 – Scheldedijk 30 | 2070 Zwijndrecht | Belgium
Site Set up	<u>Welfare units</u> Located at site entrance, include site offices, canteen, dirty-clean units, and wheel wash <u>Engineered Storage and Treatment Platforms</u> Located in the Western side of the site, are used to carry out works and stockpile material to be sampled / treated (including screening and crushing operations). Site weighbridge installed in the proximity <u>Soil Wash and Stabilisation Plants</u> Located in the Western side of the site, represent the on-site treatment units <u>Water Treatment Plant</u> Located in the Western side of the site, receives runoff water from platforms and water coming from the excavation areas, to be processed prior discharge to the River Clyde

Figure 1 - Aerial view of the Site

A general overview of the Site layout is shown in Figure 2.

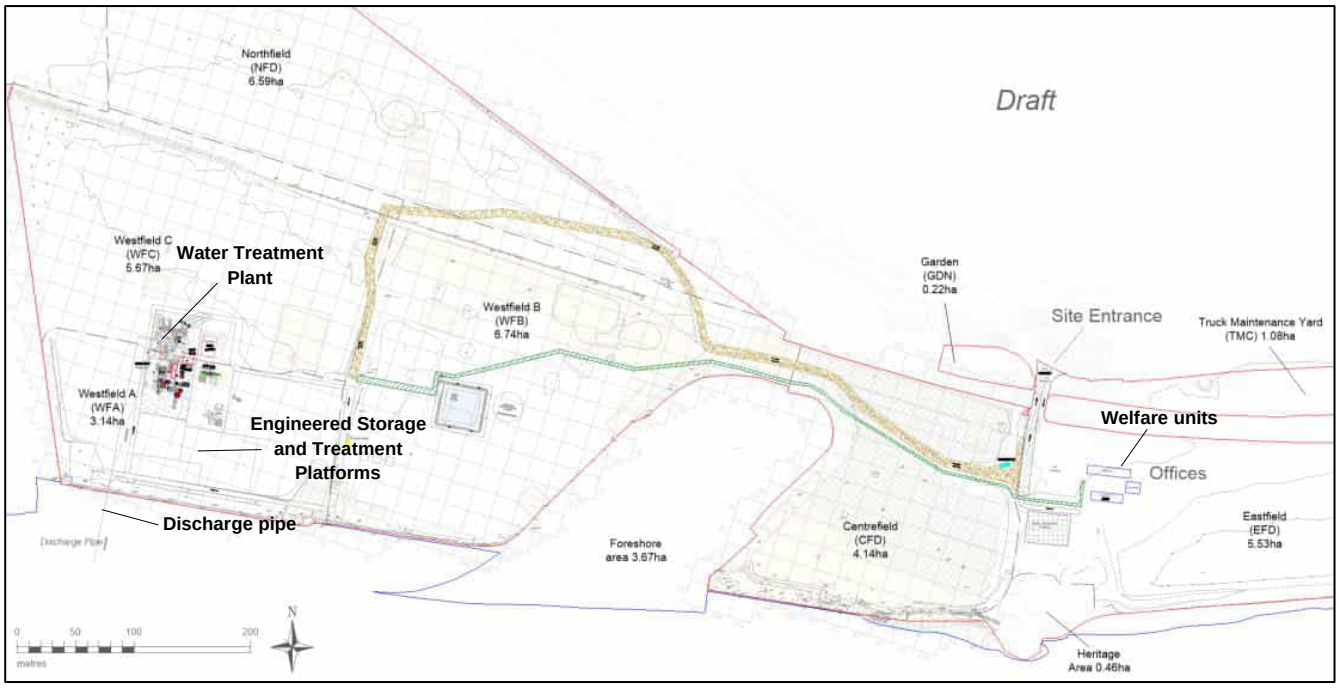

Figure 2 - Contractor Site Layout

The water treatment plant is located on the NW corner of the treatment and storage platform installed in the western portion of the site. The discharge pipe runs parallel to the platform towards the river and extends ca. 60m offshore, perpendicularly to the existing quaywall (see **Project Drawings**).

The discharge pipe has been installed in June 2022 (Figure 3) and used to discharge treated water in the River Clyde.

Figure 3 – Installation of the Temporary Discharge Pipe at Bowling (June 2022)

Figure 4 Temporary Discharge Pipe location - onshore section (green line), offshore section (blue line) and marker buoy (highlighted in yellow)

3 EQUIPMENT AND MATERIALS

EQUIPMENT

Onshore: Wheeled Excavator JCB JS160 *or similar*

Figure 5 Offshore section lifted by Excavator JCB JS160 during positioning of the pipe on river bed

Figure 6 – Excavator JCB JS160

Offshore: Multi-Role Vessel “Mary M” and auxiliary boat *or similar*

Figure 7 - Multi-Role Vessel “Mary M” and auxiliary boat used to install the discharge pipe at Bowling (June 2022)

The excavator is permanently on site, available to execute the works.The selected multicat is locally hired.

MATERIALS

The discharge pipe installed is a 200mm (internal dia.) PE100 SDR17 PE pipe, capable to withstand a pressure of 10 bar. The pipe extend on shore for 170m and in the river for ca. 60m, in order to reach the depth of ca. 4m, in the transition area from shallow to deep water, at a distance of ca. 40m from the navigational channel.

For the sinking and ballasting of the pipe, concrete moulds have been used be used to ensure stability of the pipe on the bottom of the channel (Figure 8).

Figure 8 –Ballast concrete unit attached to the discharge pipe

4 METHODOLOGY

The water treatment plant will be turned off and the pressure in the discharge pipe will be released before starting the dismantling. The offshore section will be detached from the onshore section to allow the river section to be handled separately from the rest. The flange visible in the foreground of Figure 3 will be unbolted to separate both sections.

At low tide, a team of two operatives will unbolt and take off as many concrete collars as feasible (some may present some difficulties due to corrosion/concretion on the bolts and nuts), to facilitate the following lifting of the pipe.

The operatives will try to remove all accessible collars, stopping at the point where the pipe gets in the water, below low tide level.

The collars removed will be brought closer to the shore, put on a pallet and lifted by means of the excavator standing on the shore, in order not to leave behind any residual material on the river bed.

The fixed bolts used to anchor the pipe to the quaywall will be cut off, to free the pipe and the marker buoy at its offshore end is going to be disconnected by the multicat crew and brought to the shore. (see buoy in Figure 9).

Still at low tide, the crew of the multicat vessel will connect a sling to the offshore section of the pipe (the furthest point reachable at low tide). This will be used to lift the pipe by means of the vessel deck crane.

Another sling will be attached to the shore end and used by the excavator on shore to lift the pipe and the two teams will start the combined lifting and dragging operation, facilitated by the rising tide.

The whole pipe is going to be pulled on shore and the last

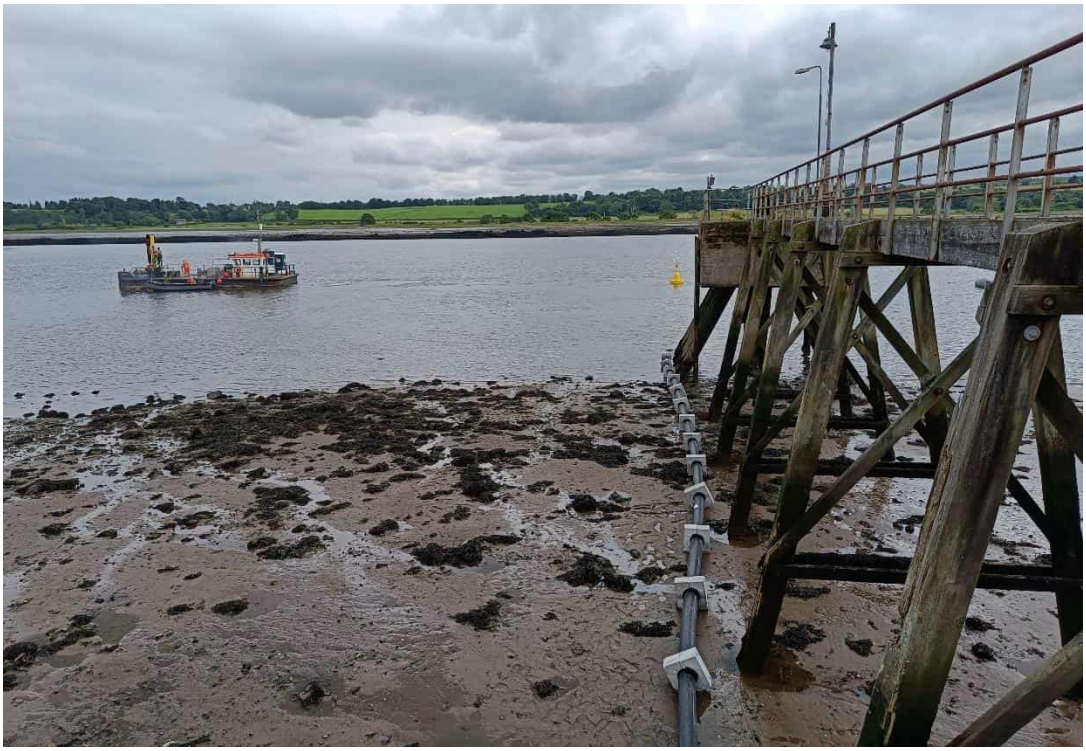

Figure 9 Discharge pipe laying on river bed and marker buoy indicating pipe outfall

5 SCHEDULE

The pipe will be removed during the project demobilisation phase which is planned in January 2024.

The operation will last overall one day, starting at low tide and being completed at high tide. The pipe will be then further dismantled on site to avoid any interference with the river and the adjacent SPA.

6 PROTECTION OF THE ENVIRONMENT

The discharge pipe runs across a section of the Inner Clyde European Special Protection Area (SPA) and Ramsar Site, classified to protect an internationally important population of migratory wildfowl (see **Project Drawings**). The protected bird population (a.o. redshanks) should be present in the SPA during installation of the pipeline as they should have returned from migration.

In the context of this project an ecological mitigation screening visual fencing has been installed along the river frontage of the Site to ensure that Redshank are not disturbed by movement of plant and personnel during the works (Figure 10).

Figure 10 – Ecological mitigation screening visual fencing along river frontage

The visual screening will need to be opened locally to ensure the removal of the pipeline by the excavator and the multicat. However, machines operations described above will be undertaken during high tidal levels when no birds are able to feed or roost within the SPA. The dismantling of the offshore section of the pipe will be carried out afterwards behind the ecological mitigation screening fencing to avoid any disturbance.