

Appendix 7 – Requirements concerning earth masses excavated from the riverbed

The following Appendix to the Environmental Management Plan for *the Contract for works 1B.1/1 (a) Reconstruction of the Odra River control infrastructure-adjusting to the III class of waterway, on the section from the village of Ścinawa to the estuary of the Nysa Łużycka River – Stage II* sets out the ways of dealing with excavated masses from riverbed while removal of sediments within 11 selected sections covering a total length of 2500m.

Works connected with excavation and management of the earth masses obtained from riverbed embrace the following:

- providing and utilizing at the works site all of the necessary equipment and auxiliary devices necessary to perform the works;
- setting and proper marking of the surface excavations;
- performing inventory measurements of the grinding volume before commencing the dredging works (bathymetric measurements), so-called opening balance;
- mechanical extraction of deposit or underwater support elements with loading material in means of transport (upper deck barges) and its export to the waste management sites, including utilizing it as waste and covering the costs of doing that;
- testing the extracted earth masses - examination of chemical and bacteriological contamination for the qualification of the obtained earth masses as waste or material built into the groynes structures;
- cleaning the equipment and tidying the construction site;
- making geodetic measurements within the executed works (as-built inventory);
- removal of all the necessary equipment and auxiliary devices for works performance from the area of dredging works.

Works related to the removal of the earth masses surplus from the river bed shall be carried out with the use of floating equipment. Detailed selection of the equipment units required for performing this type of works is left for the Contractor's discretion after prior arrangements with the Engineer. Equipment, machines or devices that do not guarantee compliance with the quality requirements for the Works, OHS and Safety and Health Plan provisions and those which may cause damage in the existing infrastructure and development elements will not be approved by the Engineer for the Works.

Items 17, 18 and 19 listed in **Appendix 1** to the EMP determine the conditions regarding handling of earth masses extracted from the places of their excessive accumulation at the river bottom.

Item 89 in **Appendix 2** to the EMP defines the conditions concerning the monitoring of the quality of earth masses extracted from the river bed.

The following Annex to the EMP outlines how to handle earth masses extracted from the river bottom, discussing the following issues:

- a) The estimated amount of earth masses to be removed;
- b) Qualitative tests of the earth masses extracted from the water;
- c) Means in which earth masses shall be managed.

a) The estimated amount of earth masses to be removed

Excavations should be carried out in the places specified in the Design Documentation or elsewhere where Odra river is locally shallow – locations that shall be noticed during implementation of the Task being the subject of this Contract. In first stage the places should be inventoried before commencing the works (the bottom and slopes structure below the water table should be inventoried by sounding) in order to determine at the beginning the accurate amount of ground masses to excavate (so called opening balance) and additionally tonnage of excavated earth masses will be measured on the basis of immersion of barge in ports. The inventory in question should be carried out in the presence of a qualified surveyor and Engineer's acceptance of the inventory should be obtained.

In the second stage, the quantity surveying will be done in the loading berth of the port while loading on the lorries and amount of earth masses handing over for disposal will be documented with proper waste transfer card.

Subsequent to the works completion geodetic measurements of the scope of performed works (as-built inventory) shall be carried out. The works will cover the sections indicated for the execution of works in the Design Documentation. According to the existing Design Documentation, the estimated volume of output to be removed amounts to approx. 49 thousand m³. The amount of earth masses (estimated on the basis of geodetic measurements before commencement of works and on the amount of output post work completion) may, however, currently differ from the data included in the Design Documentation compiled in 2011 due to the continuous movement of sediments within the river bed.

b) Qualitative tests of the earth masses extracted from the water

The output dredged from the river bottom in order to determine the means of its further management must be examined for the earth masses quality.

At the stage of preparing the Design Documentation, no work related to the identification of the quality of sediments located within the river bed (the excess of which must be removed) was carried out due to the possible variability of quality parameters over time. Such tests shall be conducted by the Contractor during the Task implementation period, on each of the sections of the river, yielding the most reliable and up-to-date results.

In order to qualify the planned earth masses output to be taken from the sites of riffle material removal and groynes reconstruction the Contractor shall carry out quality examinations (contamination level) for the excavated earth masses. The examinations will be conducted in accordance with the following schedule (defined in pos. 89 of Appendix 2 to the EMP):

In the areas of the planned earth masses output removal and within each section of the groins reconstruction, the Contractor will conduct control examinations and determine the quality (contamination level) of residues, pursuant to the applicable regulations (the Waste Act of December 14th 2012 and relevant executive acts the Acts). The examinations will be conducted by a laboratory accredited for this types of tests.

The examinations are meant to:

- * determine the possibility of managing the obtained land and residues within the groins being reconstructed, pursuant to applicable regulations (determining metals content and concentration, polycyclic aromatic hydrocarbons and polychloric biphenyls) and
- * determine the permissible ways of proceeding with earth masses that cannot be managed within the construction site.

The examinations should be performed by an accredited laboratory, approved by the Engineer. The examinations should evenly cover the entire output and guarantee minimum 1 (one) test to be performed per each 1 thousand m³ of excavated earth masses.

Before commencing the tests, the Contractor shall provide the Engineer with the Quality Assurance Plan including quality (contamination level) tests for earth masses excavated from the river bed as well as frequency and depth of collecting the tests. Quality Assurance Plan will be prepared concerning available data from monitoring (e.g. national) of contamination of earth masses in river beds.

c) Means in which earth masses shall be managed

Based on the test results earth masses will be classified in terms of quality, which will be the basis for determining the means of how it shall be managed:

- output suitable for incorporation into the groyne bodies reconstruction within the Task (uncontaminated earth masses) will be transported by water into the implementation area;
- output not suitable for re-embedding (contaminated earth masses) will be transported by water onto the wharf of selected ports in Nowa Sól, Cigacice, Krosno Odrzańskie.

Output from excavations performed below the river surface, which shall not be managed on the spot, within the construction site (built into the groynes), will be transported to the selected above mentioned ports. The technology of transshipment works, including the provisions for a temporary storage of ground masses within ports, will be described by the Contractor in the *Quality Assurance Plan*, which must be approved by the Engineer prior to the commencement of works included in it.

The technology adopted by the Contractor may not cause environmental pollution within the adjacent areas. The wharves used for transshipment of earth masses should be equipped with devices used for rainwater pre-treatment (in order to protect surface waters from oil derivatives penetration).

Within the ports there will be loading and unloading sites for the ground masses. The output supplied via the waterway will be transferred to the means of land transport and then moved to appropriate landfills. The exact locations of the designated landfills to

which contaminated sludge will be transported shall be selected by the Contractor and must be pre-approved by the Engineer. The Contractor is responsible for the appropriateness of the designated landfills to the type of contamination of disposed sediments. Landfills must meet, in accordance with legal regulations, requirements in terms of storage capacity of ground masses with different levels of pollution.

Loading, transporting and unloading of materials should be carried out in accordance with Health Safety and Protection Plan (HASP), Occupational Health and Safety Training (OHS) and provisions and traffic regulations (in the case of transportation of materials from dredging works on public roads).

The earth masses obtained from the river bed must not be stored within the river bed, inter-groyne and the inter-embankment zones.