

TERMS OF REFERENCE

PROJECT TITLE: **REGULATION OF THE RIGHT DANUBE RIVERBANK
rkm 1333-1328 IN THE AREA OF THE CITY OF VUKOVAR**

INVESTOR: HRVATSKE VODE

TOR PREPARATION: HRVATSKE VODE
Water Management Department for the
Drava and Danube River Basins, Osijek
Development and Cadastre Division

BACKGROUND:

The section rkm 1333-1328 of the river Danube flows through the area of the city of Vukovar, from the confluence of the river Vuka to the archaeological site Vučedol. The Danube in the city of Vukovar was partially regulated before the Homeland War with the construction of a revetment in the section from the confluence of Vuka (rkm 1333) to the location Stara klaonica (rkm 1331). Cessation of activities on regulation of the said section on the right Danube riverbank resulted in prominent riverbank erosion, especially on the section from rkm 1333 to rkm 1330, along with sedimentation of deposit and creation of sandbanks.

Lack of regulation resulted in instability of the section from rkm 1332 to rkm 1329, which contributes to the creation of sandbanks on the right riverbank, which are visible even at medium water levels of the Danube. In the section from rkm 1331 to rkm 1328, on the right bank characterised by high loamy shores (up to 30 m above the water table), where a revetment was not constructed, erosion is also present, which threatens the stability of the high loamy shore, and therefore the wider constructed waterfront.

OBJECTIVES OF THE ASSIGNMENT:

For the said reasons, it is necessary to define a new regulation of the right Danube riverbank in the stretch from rkm 1333 to rkm 1328 by construction of regulation facilities that would achieve the following objectives:

- Stopping erosion of the right Danube riverbank,
- Stabilization of the shore and constructed waterfront in the area of the city of Vukovar with increased safety of navigation through the said section of the river.

SCOPE OF SERVICES:

The Designer's obligation of preparation of project documents for regulation of the right Danube riverbank in the area of the city of Vukovar from rkm 1333 to rkm 1328 consists of the following:

1) Conceptual Solution of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar

The Conceptual Solution of regulation of the right Danube riverbank in the section rkm 1333 (confluence of the Vuka river) to rkm 1328 (archaeological site Vučedol) should contain a definition of the required regulation facilities that would result in the achievement of planned objectives with the confirmation of the proposed solution of regulation through a hydraulic model of the flow in the section concerned.

Along with the hydro technical solution of regulation of the right Danube riverbank in the city of Vukovar, the concept should generally define the interaction of new regulation with existing and other potential urban features such as walkways, bicycle lanes, access roads and infrastructure paths (connection with the memorial water tower and content at Vučedol, connection of the high loamy shore and revetment). The Conceptual Solution should also contain a solution of regulation of this section that would ensure stabilization of the high loamy shore. During the preparation of the Conceptual Solution it is necessary to conduct preliminary geomechanical surveys.

The Conceptual Solution should be prepared and submitted within 30 days after conclusion of contract to Hrvatske vode and the City of Vukovar for adoption.

After adoption of the Conceptual Solution, the Designer shall prepare the basic document for the preparation of amendments to the Physical Plan of the city of Vukovar for the Project area.

2) Environmental Impact Assessment

For the adopted Conceptual Solution, it is necessary to prepare an Environmental Impact Assessment of the planned regulation project in accordance with the Environmental Protection Act and conduct all the prescribed procedures and obtain a positive opinion on the planned project. The EIA shall also contain all potential additional elements prescribed by the World Bank criteria for this type of projects.

3) Preliminary feasibility study

It is necessary to prepare a Preliminary Feasibility Study for the planned regulation project in the standard form and scope for this type of projects planned for financing through the World Bank Loan.

4) Conceptual Design of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar

For the planned project, it is necessary to prepare the Conceptual Design of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar on the basis of which the Location Permit for the planned project shall be obtained.

Along with the standard attachments for this type of design, it is necessary to conduct all required geomechanical surveys for regulation facilities and high loamy riverbank.

5) Main and Construction Designs of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar

The Main and Construction Designs of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar shall contain all the standard attachments for this type of design needed for obtaining the Construction Permit, as well as the bidding documents for execution of works in accordance with the World Bank procedures.

AVAILABLE BASIC DOCUMENTS:

- Cross section of the Danube river from rkm 1333-1328
- Basic State map 1:5,000, topographic map 1:25,000
- Orthophotograph of the area
- Digital cadastre of the area
- Physical planning documents (General Physical Plan and Physical Plan of the city of Vukovar),
- Hydrological databank, Meteorological and Hydrological Service, Zagreb
- Designs for regulation of the Danube river in the project area

All basic documents could be obtained from the Croatian Waters Water Management Department for the Drava and Danube river basins in Osijek.

LIST OF REPORTS, SCHEDULE OF DELIVERABLES AND PERIOD OF PERFORMANCE:

The deadline for completion of design preparation is 12 months from the date when the Contract is signed. The schedule for completion of the documents named in the scope of service is as follows:

- 1) Conceptual Solution of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar – 2 months
- 2) Environmental Impact Assessment and Preliminary feasibility study - 3 months
- 3) Conceptual Design of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar - 3 months
- 4) Main and Construction Designs of regulation of the right Danube riverbank rkm 1333-1328 in the area of the city of Vukovar - 4 months.

The reporting consists of the draft version for each separate project document which should be submitted 15 days before the defined duration of the assignment. The consultant is obligated to incorporate all necessary remarks given by the Croatian Waters in the final version of the documents. The final versions of the project documentation must be submitted to the beneficiary in 10 printed copies and one copy of the document on CD/DVD ROM.

The working language for design preparation is Croatian. Additionally, the Environmental Impact Assessment, the Preliminary feasibility study as well as the bidding documents for execution of works must be prepared both on Croatian and English language.

**DIRECTOR OF
WATER MANAGEMENT DEPARTMENT OSIJEK**
Zoran Đuroković, B. Sc. C. E.