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 **REQUEST FOR PROPOSAL (RFP)**

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| NAME & ADDRESS OF FIRMUNDP BIH; Zmaja od Bosne bb; Sarajevo | DATE: 03/08/2018 |
| REFERENCE: BIH/RFP/042/18 |

Dear Sir / Madam:

We kindly request you to submit your Proposal for UNDP Bosnia and Herzegovina for the services of :

**Supervision of the construction works on regulation of Vrbas river in City of Banja Luka**

Please be guided by the form attached hereto as Annex 2, in preparing your Proposal.

Proposals may be submitted on or before ***August 15, 2018, 17:00 h the latest*** via courier mail to the address below:

**United Nations Development Programme**

**Zmaja od Bosne bb Street, 71 000 Sarajevo**

**General services**

**Ref: RFP-042-18**

Your Proposal must be expressed in local language or English and valid for a minimum period of 120 days.

In the course of preparing your Proposal, it shall remain your responsibility to ensure that it reaches the address above on or before the deadline. Proposals that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation.

Services proposed shall be reviewed and evaluated based on completeness and compliance of the Proposal and responsiveness with the requirements of the RFP and all other annexes providing details of UNDP requirements.

The Proposal that complies with all of the requirements meets all the evaluation criteria and offers the best value for money shall be selected and awarded the contract. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price shall be re-computed by UNDP, and the unit price shall prevail and the total price shall be corrected. If the Service Provider does not accept the final price based on UNDP’s re-computation and correction of errors, its Proposal will be rejected.

No price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted by UNDP after it has received the Proposal. At the time of Award of Contract or Purchase Order, UNDP reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.

Any Contract or Purchase Order that will be issued as a result of this RFP shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a Proposal implies that the Service Provider accepts without question the General Terms and Conditions of UNDP, herein attached as Annex 3.

Please be advised that UNDP is not bound to accept any Proposal, nor award a contract or Purchase Order, nor be responsible for any costs associated with a Service Providers preparation and submission of a Proposal, regardless of the outcome or the manner of conducting the selection process.

 UNDP’s vendor protest procedure is intended to afford an opportunity to appeal for persons or firms not awarded a Purchase Order or Contract in a competitive procurement process. **In the event that** you believe you have not been fairly treated, you can find detailed information about vendor protest procedures in the following link: <http://www.undp.org/procurement/protest.shtml>.

 **UNDP encourages every prospective Service Provider to** prevent and avoid conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, cost estimates, and other information used in this RFP.

UNDP implements a zero tolerance on fraud and other proscribed practices, and is committed to preventing, identifying and addressing all such acts and practices against UNDP, as well as third parties involved in UNDP activities. UNDP expects its Service Providers to adhere to the UN Supplier Code of Conduct found in this link : <http://www.un.org/depts/ptd/pdf/conduct_english.pdf>

**Thank you and we look forward to receiving your Proposal.**

**Sincerely yours,**

*UNDP BIH*

**Annex 1**

**Description of Requirements**

|  |  |
| --- | --- |
| Context of the Requirement | This procurement is a part of the flood risk mitigation activities, and consists of provision of services on **supervision of the execution of contracted works in order to meet the standards of execution of works related to:****Supervision of the construction works on regulation of Vrbas river in City of Banja Luka**Construction and other works will be conducted as follows:* Excavation of ground in the riverbed in order to reach of designed flowing profile
* Construction of river coast stone structure/lining of right coast
* Huming and grassing of the upper part of the coast

**Overall objective of the assignment**The overall objective of the assignment is to provide **Services on supervision over the execution of contracted works will be performed in accordance with the design documentation and relevant national legislation and professional standards.** |
| Brief Description of the Required Services | The required services include but are not limited to the following: 1. Supervision of compliance of purchased and delivered material with Bill of Quantities (BoQ) and technical description;
2. Supervision of compliance of construction works with the Physical Planning and Construction Act, by-laws regulating the construction of similar facilities, technical regulations, general and special technical conditions and professional codes;
3. Supervision of the quality of construction works;
4. Supervision of compliance of construction works with the Contract for Works, technical designs and other documents;
5. Supervision of the executed quantities of works and control of the account by final certificate and signing the said certificate;
6. Review and signing of the construction log and time-book;
7. Supervision of the completion deadlines;
8. Preparation of inception and final reports on the status of works and investments;
9. Preparation of the final report upon the completion of works;
10. Participation in the technical inspection and takeover of the building
11. Review and signing the as-built project design.

**For more details please see attached ToR (Annex 4).** |
| List and Description of Expected Outputs to be Delivered | Assignment Output 1: Interim report submitted to the UNDP documenting that service provider was present on each project site in line with conditions set in section Presence at site of attached ToR (Annex 4) and that service provider supervised executed quantities of works and approved first invoice submitted by the Construction Contractor.Completed services on supervision over the execution of contracted works in accordance with the design documentation and relevant national legislation and professional standards; Final report submitted to the UNDP documenting that service provider was present on each project site in line with conditions set in sections Presence at site and Duration of supervision of attached ToR (Annex 4) during the entire Contract for execution of reconstruction works and that service provider supervised executed quantities of works and approved second and final invoice submitted by the Construction Contractor. |
| Person to Supervise the Work / Performance of the Service Provider  | **UNDP Engineer** |
| Frequency of Reporting | Described in details in attached ToR (Annex 4)  |
| Progress Reporting Requirements | Described in details in attached ToR (Annex 4)  |
| Location of work | Banja Luka City, Bosnia and Herzegovina |
| Expected duration of work  | 20 August 2018 – 15 December 2018**For more details please see attached ToR (Annex 4).** |
| Target start date  | 20 August 2018 **For more details please see the ToR (Annex 4).** |
| Latest completion date | 15 December 2018**For more details please see attached ToR (Annex 4).** |
| Travels Expected  | Yes |
| Special Security Requirements  | No |
| Facilities to be Provided by UNDP (i.e., must be excluded from Price Proposal) | N/A |
| Implementation Schedule indicating breakdown and timing of activities / sub-activities | Not required |
| Names and curriculum vitae of individuals who will be involved in completing the services | 🗹 Required |
| Currency of Proposal | 🗹 Local Currency |
| Value Added Tax on Price Proposal | 🗹 must be exclusive of VAT and other applicable indirect taxes |
| Validity Period of Proposals *(Counting for the last day of submission of quotes)* | 🗹 120 days In exceptional circumstances, UNDP may request the Proposer to extend the validity of the Proposal beyond what has been initially indicated in this RFP. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Proposal.  |
| Partial Quotes | 🗹 Not Permitted  |
| Payment Terms |

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| --- | --- | --- | --- |
| Outputs | Percentage | Timing | Condition for Payment Release |
| Assignment Output 1 | 100 % | Upon completed provision of services | Within thirty (30) days from the date of meeting the following conditions:1. UNDP’s written acceptance (i.e., not mere receipt) of the quality of the outputs; and
2. Receipt of invoice from the Service Provider.
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| Person(s) to review /inspect/ approve outputs/completed services and authorize the disbursement of payment | **UNDP Engineer** |
| Type of Contract to be Signed | 🗹 Insitutional Contract/Deminimis |
| Criteria for Contract Award | 🗹 Lowest Price Proposal among technically responsive Proposals.🗹 Full acceptance of the UNDP Contract General Terms and Conditions (GTC). This is a mandatory criteria and cannot be deleted regardless of the nature of services required. Non acceptance of the GTC may be grounds for the rejection of the Proposal. |
| Criteria for the Assessment of Proposal  | **Fulfillment of Minimum Qualification Requirements and Eligibility Criteria explained in details in Annex 5** Minimum qualification requirements are defined. Bidders applying need to demonstrate relevant capacity in terms of engaged staff.  |
| UNDP will award the contract to: | 🗹 One Service provider, depending on the following factors * Technical responsiveness/Full compliance to requirements
* Lowest price offer of technically qualified/responsive Proposals
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| Annexes to this RFP | 🗹 Description of Requirements (Annex 1)🗹 Form for Submission of Proposal (Annex 2)🗹 General Terms and Conditions / Special Conditions (Annex 3)🗹 Detailed TOR (Annex 4)🗹 Minimum Qualification Requirements and Eligibility Criteria (Annex 5)🗹 Technical description and Drawings (Annex 6)🗹 Others  |
| Contact Person for Inquiries(Written inquiries only) | **United Nations Development Programme Facsimile: 033/552-330 e-mail:** **registry.ba@undp.org**Any delay in UNDP’s response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers. |
| Other Information *[pls. specify]* | Minimum qualification requirements are defined. Offeror needs to demonstrate relevant capacity in terms of engaged staff.  |

**Annex 2**

**FORM FOR SUBMITTING SERVICE PROVIDER’S PROPOSAL**

***(This Form must be submitted only using the Service Provider’s Official Letterhead/Stationery)***

 [insert: *Location]*.

[insert: *Date]*

To: [*insert: Name and Address of UNDP focal point]*

Dear Sir/Madam:

We, the undersigned, hereby offer to render the following services to UNDP in conformity with the requirements defined in the RFP dated *[specify date]*, and all of its attachments, as well as the provisions of the UNDP General Contract Terms and Conditions:.

1. **Qualifications of the Service Provider**

*The Service Provider must describe and explain how and why they are the best entity that can deliver the requirements of UNDP by indicating the following:*

1. *Profile – describing the nature of business, field of expertise, licenses, certifications, accreditations;*
2. *Business Licenses – Registration Papers, Tax Payment Certification, etc.*
3. *Latest Audited Financial Statement – income statement and balance sheet to indicate Its financial stability, liquidity, credit standing, and market reputation, etc. ;*
4. *Track Record – list of clients for similar services as those required by UNDP, indicating description of contract scope, contract duration, contract value, contact references;*
5. *Certificates and Accreditation – including Quality Certificates, Patent Registrations, Environmental Sustainability Certificates, etc.*
6. *Written Self-Declaration that the company is not in the UN Security Council 1267/1989 List, UN Procurement Division List or Other UN Ineligibility List.*
7. **Proposed Methodology for the Completion of Services**

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| *The Service Provider must describe how it will address/deliver the demands of the RFP; providing a detailed description of the essential performance characteristics, reporting conditions and quality assurance mechanisms that will be put in place, while demonstrating that the proposed methodology will be appropriate to the local conditions and context of the work.* |

1. **Qualifications of Key Personnel**

*If required by the RFP, the Service Provider must provide:*

1. *Names and qualifications of the key personnel that will perform the services indicating who is Team Leader, who are supporting, etc.;*
2. *CVs demonstrating qualifications must be submitted if required by the RFP; and*
3. *Written confirmation from each personnel that they are available for the entire duration of the contract.*
4. **Cost Breakdown by Cost Component (in Bosnian Convertible Marks – BAM):**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Supervision of the construction works on regulation of Vrbas river in City of Banja Luka** | **Remuneration per PERSON/DAY****(without VAT)** | **Number of days of engagement** | **Total** **(without VAT)** | **Total (including VAT)** |
| **Supervision of the construction works on regulation of Vrbas river in City of Banja Luka** |  |  |
| **Supervisor - Team Leader**  |  | 32 |  |  |
| **Supervisor - Team member** |  | 48 |  |  |
| **TOTAL** |  |  |

**Annex 3**

***General Terms and Conditions for Services***

Link: [English version](https://popp.undp.org/_Layouts/15/POPPOpenDoc.aspx?ID=POPP-11-2493)

**Annex 4**

**Terms of Reference**

 **Supervision of the construction works on regulation of Vrbas river in City of Banja Luka**

**Construction and other works will be conducted as follows:**

* **Excavation of ground in the riverbed in order to reach of designed flowing profile**
* **Construction of river coast stone structure/lining of right coast**
* **Huming and grassing of the upper part of the coast**

**Length of river regulation is 315,57 m.**

**Services on supervision over the execution of contracted works will be performed in accordance with the design documentation and relevant national legislation and professional standards.**

**SCOPE OF WORK:**

In order to fulfill and conduct supervision over the implementation of the works, the following activities shall be carried out:

* + - 1. **Preparatory activities**
	1. Audit of the taken-over Bill of Quantities, Contract document with General Terms and Conditions for Works in terms of their completeness,
	2. Survey of the facilities with the Investor and the Contractor
		+ 1. **Supervision over construction works**
	3. Technical consulting with the Contractor and the Investor
	4. Supervision of regular execution of works in accordance with construction standards, as well as written instructions and regulations on the delivery and treatment
	5. Control of fulfillment of certain requirements by instructions
	6. Pointing out severe violations of construction regulations by responsible Contractor and the Contractor’s experts, especially when failing to comply with safety-at-work regulations, i.e. strict supervision of implementation of safety-at-work standards
	7. Pointing out severe defects, danger of delays in form of written notification to UNDP’s Contract Administrator, with a request for further instructions
	8. Proposal to the UNDP about removal of unsuitable representatives of the Contractor
	9. Control of development of the construction time schedule plan, supervision of construction deadlines
	10. Should the contractor be responsible for a delay, a proposal to the UNDP on defining a new deadline for completion of the Contract and notification of occurrence of contractual penalties
	11. Inspection of the delivered construction material, construction elements concerning their completeness and compliance with contractual requirements (required standards, compliance with offered factory products, certificates of compliance, etc.)
	12. Preparation of conclusions necessary for calculation in accordance with the sequence of works
	13. Control of submitted accounts of units and quantities, verification of correctness of deliveries and executed works and financial control of invoices
	14. Control of submitted certificates for final payment and for determination of the account payable
	15. Providing expert’s statements on delivery and works not included in the Contract.
		+ 1. **Submission of reports/ notices**
	16. Keeping the necessary archive or registry of all documents within the responsibility of expert supervision.
	17. Establishment and keeping the construction log.
	18. Submission of inception report by August 09, 2018, interim weekly reports and final reports by December 10, 2018 to the UNDP on the execution of the planned works as well as special reports, if necessary.
	19. Proper and timely notification to the UNDP of all important circumstances of the quality and quantity of works, construction that is non-compliant to the regulations and professional code, construction non-compliant to the designs, delay or acceleration of construction deadlines, improper keeping of the construction log and time-book, improper invoicing in the interim and final certificates, potential occurrence or occurrence of damage, potential occurrence or occurrence of *force majeure*, defects of construction and other important issues and especially of the causes, quantities and need to execute unforeseen works, additional works, increase or decrease of quantity of works in relation to the contracted Bill of Quantities or the Contract Price**. Supervision service provider is not authorized to approve any unforeseen works, additional works, increase or decrease of quantity of works.**
1. **Handover and completion of construction works**
	1. Preliminary and final inspection of overall construction works or each completed section of construction together with the Investor and the Contractor and preparation of minutes with set deadlines for removal of possible deficiencies
	2. Instructions to the operating staff on the basis of manufacturer’s operation and maintenance manuals submitted by the Contractor
	3. Participation in the final inspection and handover of the constructed structure.

**TECHNICAL DOCUMENTATION:**

In terms of executing expert supervision, Supervision service provider should ensure and check whether the Contractor has furnished the construction site with the following:

1. Construction Contract (original/ copy)
2. Decision on Entry into the Court Register or Trade License of the Contractor
3. Notice of appointment of the Main Site Engineer, Site Engineer i.e. Construction Manager
4. Notice of appointment of the Supervising Engineer i.e. Main Supervising Engineer
5. List of employees at the site
6. Construction log, time-book, bills of quantity
7. Proofs of compliance for installed construction products in accordance to the applicable laws
	* 1. Necessary certification of the constructed parts of the facility and current construction and other works in progress
8. Site-specific safety plan
9. Supervising engineer’s report for final payment certificate
10. Written statement of the Contractor on executed works and conditions for the maintenance of the facility
11. Supervising engineer’s report following the execution of works
12. Other documents, permits and approvals as prescribed by special regulations

The Contractor shall be notified of the appointment of expert supervision.

**PRESENCE AT SITE:**

Working hours for expert supervision and providing instructions concerning construction and time spent on the construction site should be determined and allocated so that all tasks can be fulfilled diligently and conscientiously.

Depending on the progress of works Supervision service provider must be present on each project site each time when Contractor perform activities critical for overall quality of works in line with adopted Work Programme and Quality Assurance Programme.

At minimum, Supervision service provider must be present on construction site and available on minimum **three times a week** base.

The Supervision service provider will be obliged to fulfill the timesheet with short field report upon each site visit.

**DURATION OF SUPERVISION:**

Construction supervision starts with issuance of the Notice to Commence by UNDP’s Contract Administrator to the Contractor.

Contract for execution of construction works commence by August 06, 2018. Deadline for completion of works is 120 calendar days.

Supervision shall continue during the entire Contract for execution of civil works and will be delivered within the course of 48 business days.

Expert supervision is conducted under the obligation of duration to the end of control of calculation and possible legal dispute related to the construction.

**MANAGEMENT AND HIERARCHY:**

The Supervision service provider is the representative of the Investor (UNDP) at the site.

Team members of Supervision service provider cannot be employee(s) of the Construction Contractor neither connected to Construction Contractor in any way. For this reason, team members of Supervision service provider must not perform any activity which would place him/ her in the domain of or make him/ her responsible to the Contractor. Supervision service provider is thus not responsible to the Construction Manager for organization of the construction site.

For any alterations to the Bill of Quantities, Contract document with General Terms and Conditions for Works, Supervision service provider shall obtain prior consent of the Investor (UNDP).

Supervision service provider is technically subordinate to the UNDP’s Contract Administrator.

**LIST OF INPUTS AND SERVICES WHICH WILL BE PROVIDED TO THE SERVICE PROVIDER BY UNDP:**

The UNDP will make the following inputs available to the service provider:

* Drawings, Bill of Quantities, Contract document with General Terms and Conditions for Works.

**CONFLICT OF INTEREST:**

Supervision service provider must be independent and free from conflicts of interest in the responsibilities accorded to them. Furthermore, the engaged service provider must not be involved in any other related activity to construction phase, including contractors, sub-contractors, suppliers and sub-suppliers.

**Annex 5**

**MINIMUM QUALIFICATION REQUIREMENTS**

|  |  |
| --- | --- |
| **Eligibility criteria** | **Documents Establishing Bidder’s Eligibility** |
| * Registration to perform the requested services as a legal entity;
* License for services of design and **supervision** over the subject works as a legal entity, issued by Ministry of Spatial Planning, Civil Engineering and Ecology Rebublike Srpske valid at minimum until the end of the construction period;
 | * Certified copy of bidder’s registration
* Certified copy of bidder’s license
 |
| * At least **5 (five) years** of experience as a legal entity in designing and **supervision** over the civil works on the river regulations, hydro-structures, low rising structures and similar structures etc.
* At least 2 **(two)** successfully implemented projects within the last 5 (five) years related to **supervision** over the construction works on the river regulations, hydro-structures, and similar activities (as a legal entity).
* Team Leader must have 2 (two) successfully implemented projects on **supervision** over the construction works on the river regulations and similar activities within the last 5 (five) years.
* Team member must have 1 (one) successfully implemented projects on **supervision** over the construction works on the river regulations and similar activities within the last 5 (five) years.
 | * Reference list indicating successfully implemented projects within the last 5 (five) years on the company memorandum letter;
* Recommendation letters indicating the value, complexity and date of project completion, for at least 2 (two) projects implemented within the last 5 (five) years. Letters should include referal’s contact details.
* CV of Team Leader and Team member with references of implemented projects
 |
| **Team composition and competences of the team members:*** One licensed graduate hydro engineer (Supervisor-Team Leader), with minimum 7 years of experience in design, construction and supervision over the construction works on the river regulations and similar activities and similar projects with similar complexity;
* One licensed graduate civil engineer (Supervisor-Team member), with minimum 5 years of experience in design, construction and supervision over the construction works on the river regulations, and similar activities and similar projects with similar complexity;

**Supervisor -Team Leader and Supervisor-Team member, must be permanent (full-time) employees of the Service Provider.** | * List of team members to be engaged for the contract (names, education, skills, years of experience);
* Original certificate issued by relevant Tax Administration Office (for bidders registered in Bosnia and Herzegovina) or other authorized government body, confirming contributions paid for all registered (full-time) employees for at least six-month period, issued within the 30 days from the tender launching date;
* CV of each team member with references and letters of recommendation;
* Copies of professional license and professional exam certificates of each team member;
* Statement on availability and exclusivity during the entire contracted period, signed by each team member;
 |
| Business cooperation contract | * Contract signed by the Bidder and engaged staff including statement on availability and exclusivity during the entire contracted period
 |

**NOTE: Above minimum qualification requirements are defined. Bidder must demonstrate relevant capacity n terms of the engaged staff through the submission of their CVs.**

**Annex 6**

1. **TEHNIČKI OPIS**
	1. **Uvodna obrazloženja organizacije Projekta**

Projekat uređenja vodnog režima i korita rijeke Vrbas kroz urbano područje Grada Banja Luke sagledan je u prvom redu kroz izradu Idejnog rješenja, gdje su analizirane hidrološko-hidrauličke osobenosti minor i major korita, poplavni rizici, mogućnosti za uređenje vodnog režima, te sagledavanje logičkih cjelina, stepena i izbora tipa zaštite od velikih voda.

Uređenje vodnog režima i korita rijeke Vrbas, faznost izgradnje i osigurani nivo zaštite Hidrotehničke regulacione građevine koje se primjenjuju kod uređenja vodnih tokova, pogotovo u urbanim sredinama su izuzetno kompleksne i značajnih investicionih vrijednosti. Razlog za to jeste veliki obim radova u specifičnim uslovima izvođenja, uključujući brojna ograničenja, uzurpaciju vodnog zemljišta stalnim i privremenim objektima i td. Stoga se teži izboru racionalnih, ali odgovarajućih tehničkih rješenja u vidu korišćenja prirodnih materijala gdje god je to moguće, pogotovo van naseljenih mjesta. Pored toga cilj je da se prirodnim materijalima u urbanim dijelovima, sačuvaju što veći potezi prirodnih cjelina vodotoka uz objezbjeđenje uslova

provećanja proticajnog kapaciteta riječnog korita. Analizom varijantnih tehničkih rješenja zaštite urbanog područja Grada Banja Luke od velikih voda rijeke Vrbas, u fazi Idejnog rješenja razmatrana je stabilizacija minor korita, povećanje propusnog kapaciteta korita, odnosno zaštita urbane matrice Grada od poplava u periodima povodnja, a u fazi Glavnog projekta predložena tehnička rješenja razrađena su do nivoa koji omogućava tenderisanje projekta i implementaciju istih na terenu.

Projektnim zadatkom u dijelu „Ciljevi i zadaci Glavnog projekta“ definisan je zahtjevani rang zaštite od velikih voda. Zahtjevani rang zaštite u skladu je sa dosadašnjom praksom uređenja vodnih tokova na glavnim pritokama rijeke Vrbas, gdje se priobalje štiti od stogodišnjih velikih voda rijeke sa nadvišenjem zaštitnih objekata (freeboard) na visini od 80 cm. Izuzetno na dionicama u zonama gdje su skoncentrisani objekti od izuzetnog značaja i interesa za Grad Banja Luku primjeniće se prema zahtjevima Projektnog zadatka nadvišenje od 1,0 m, u odnosu na nivo velikih voda ranga pojave 1/100.

Za uređenje osnovnog korita i vodnog režima rijeke Vrbas na području projekta od mosta u Trnu pa uzvodno do Tulekove brane, prema Idejnom rješenju usvojen je sljedeći stepen zaštite:

- Zaštita najnizvodnije dionice X+ (nizvodno od ušća Široke rijeke pa do blizine mosta u Trnu), rang zaštite je stogodišnja velika voda (Q1/100), sa nadvišenjem zaštitnih paralelni objekata od 0,80m.

- Zaštita dionice X (uzvodno od ušća Široke rijeke do mosta u Trapistima), rang zaštite je stogodišnja velika voda (Q1/100), sa nadvišenjem zaštitnih paralelnih objekata od 1,0m.

 Nadvišenje lijeve obale od 1,0 m u odnosu na stogodišnje velike vode ima svoje opravdanje u planiranoj izgradnji privredno-industrijske zone.

- Zaštita dionica VIII i IX (nizvodno od ušća rijeke Vrbanje do mosta u Trapistima), rang zaštite je stogodišnja velika voda (Q1/100), sa nadvišenjem zaštitnih paralelnih objekata od 1,0m. Zadržavanje ovog ranga zaštite kao i na nizvodnoj dionici X ima tehničko opravdanje u stvaranju jedinstvenog “branjenog područja“, sa pretežno privredno orijentisanim kapacitetima na području zaobalja lijeve obale rijeke Vrbas.

- Najuzvodnija dionica koja se obrađuje Glavnim projektom je dionica VII pruža se duboko usječenim vodnim koritom sa veoma uskom priobalnom nižom zonom, pa se na ovom potezu vodnog toka razrađuje koncept zaštite od stogodišnje velike vode (Q1/100), sa nadvišenjem zaštitnih paralelnih objekata od 0,80m

**1.2. Dispoziciono rješenje**

Trasa regulacije rijeke Vrbas na Dionici 1 od Starog mosta u Trapistima pa nizvodno do granice sa opštinom Laktaši, u dužini od 5.559,42 m položena je u postojećem minor koritu rijeke Vrbas. Na ovom dijelu budućih regulacionih radova prisutna je ubrzana urbanizacija i razvoj prateće infrastrukture naselja duž obala, što uz smanjen proticajni profil osnovnog korita u zonama ušća. Široke rijeke, stjenskih formacija na Etapi X+ i formiranih ada na Etapi X, za posljedicu ima umanjen i veoma nizak stepen zaštite od velikih voda.

Osnovni, i u sadašnjim uslovima jedini mogući koncept podizanja stepena zaštite i sigurnosti prigradskih naselja i samog Grada Banja Luka od plavljenja velikim vodama Vrbasa, zasnovan je na povećanju propusnog kapaciteta osnovnog korita (inundacioni pojas je isključen usljed izgradnje objekata stanovanja, pomoćnih objekata, objekata infrastrukture, planiranih budućih sadržaja Grada i td. ...).

Osnovni tehnički preduslov vođenja trase regulacije je da trasa i osovina budućeg regulisanog korita ne bude u koliziji sa postojećim objektima mostova, ali i da se ispune hidraulički uslovi u pogledu minimalnih radijusa, koji za vodotoke prvog reda iznose minimalno tri širine vodenog ogledala pri stogodišnjim velikim vodama. Položaj osovine regulisanog korita rijeke Vrbas na Dionici 1 uslovljen je položajem i gabaritima mostovske konstrukcije u Trapistima, zatim putem na desnoj obali u zoni ušća Široke rijeke, visećim mostom u Priječanima i nizvodnom prelaznom dionicom. Projektovani proticajni profil korita i shodno projektovanim gabaritima proticajnog profila projektovano dispoziciono rješenje trase regulisanog korita, obezbjeđuje proticaj računskih stogodišnjih velikih voda sa propisanim nadvišenjem od 80 cm na dijelu uređenja korita Etape X+ nizvodno od ušća Široke rijeke i 1,0 m na dijelu Etape X uzvodno od ušća Široke rijeke do mosta u Trapistima.

Trasa vodotoka u osnovnom koritu Dionice 1, provedena je radijusima od R9 = 160 m do R2 = 1.000 m na Etapi X+ i od R15 = 180 m do R12 = 700 m na Etapi X.

Predviđeno je da se buduća zaštita od plavljena u najvećoj mjeri ostvari povećanjem proticajnog kapaciteta osnovnog korita (produbljenjem i proširenjem postojećeg korita) i izgradnjom servisne saobraćajnice (dijelimično na nasipu) duž lijeve i desne obale rijeke Vrbas.

Dispoziciono rješenje uređenja ovog dijela toka rijeke Vrbas, podrazmjevalo je potpuno uklanjanje objekata domaćinstava na lijevoj obali u zoni ušća Široke rijeke, koji su regulacionim planom Grada Banja Luka već predviđeni za uklanjanje. Na ostalom dijelu trase nema objekata domaćinstava koji su u koliziji sa koridorom uređenja izuzev objekta eko kampa na lijevoj obali u zoni profila P87 (4+583,00) i više individualnih podzida domaćinstava. Na dispozicionom rješenju naznačena je linija građevinskih radova na regulaciji rijeke Vrbas. Od

građevinske linije na 5 m širine van koridora radova naznačena je linija obuhvata građevinskih radova na kome se planira rezervisani prostor za sadnju visokog drveća na svakih 10 m pored projektovane servisne saobraćajnice za održavanje budućeg regulisanog korita.

Ukupna površina koja je potrebna da se izvrše građevinski radovi na uređenju korita rijeke Vrbas na Etapama X+ i X, uključujući i postojeće korito koje se nalazi u vodnom dobru, iznosi 59,21 ha.

Po etapama i podetama uređenja površine se nalaze u iznosu:

**ETAPA X+:**

- Poetapa 1 (P1-P32), površina: 17,60 ha

- Poetapa 2 (P33-P53), površina:10,84 ha

- Poetapa 3 (P54-P70), površina: 8,17 ha

**Ukupno: 36,61ha**

**ETAPA X**

- Poetapa 1 (P71-P82), površina 8,68 ha

- Poetapa 2 (P83-P101), površina 13,92ha

**Ukupno: 22,60 ha**

Linija obuhvata građevinskih radova na kome se planira ozelenjavanje površina duž uređenog

korita i rezervacija prostora zahvata 64,82 ha, ili po etapama i podetapa:

**ETAPA X+**

- Poetapa 1 (P1-P32), površina: 18,63 ha

- Poetapa 2 (P33-P53), površina: 11,97 ha

- Poetapa 3 (P54-P70), površina: 9,12 ha

**Ukupno: 39,72 ha**

**ETAPA X**

- Poetapa 1 (P71-P82), površina: 9,63 ha

- Poetapa 2 (P83-P101), površina: 15,47 ha

**Ukupno: 25,10 ha**

**1.3. Normalni profili regulacije korita rijeke Vrbas**

Na Etapama X+ i X (nizvodno od mosta u Trapistima do granice sa opštinom Laktaši, na dužini od 5,56 km) projektovan je naturalni tip regulacije osnovnog korita rijeke Vrbas, po obliku normalnog profila simetrični jednostruki trapez.

Širina normalnog profila uređenja korita u dnu rijeke Vrbas iznosi:

• Etapa X+:

o od profila P1 (0+000,00) do profila P63 (3+021,39) – širina u dnu 60,0 m,

o od profila P63 (3+021,39) do profila P70 (3+338,66) – širina u dnu 50,0 m,

• Etapa X, od profila P70 (3+338,66) do profila P101 (5+559,42)– širina u dnu 50,0 m.

Normalni profil uređenog riječnog korita je nagiba kosina pokosa od 1:2. Izvršeno je osiguranje kamenom naslagom do visine od 4,0 m. Projektovani su propratni nasipi (većinom se radi o prirodnoj obali na kojoj se projektuje servisna saobraćajnica) odmah uz kosinu korita, nagiba kao i pokos obloženih obala od 1:2. Širina nasipa u kruni je 5,0 m (širina servisne saobraćajnice je 4,0 m).

Ručna i mašinska kamena naslaga osiguranja kosine i nožice uređenih obala korita rijeke Vrbas postavlja se na prethodno isplaniranu površinu na koju se postavlja 10 cm debeo izravnjavajući sloj šljunka, a zatim geotekstil kao filter zaštita.

Nožica osiguranja obala je oblika obrnutog trapeza širine u kruni 4,0 m. Srednji prečnik krupnoće kamena nožice iznosi 50 cm. Na projektovanoj nožici planirana je šljunčana servisna saobraćajnica u toku izgradnje obaloutvrde, debljine 20 cm i srednje krupnoće zrna od 5 cm. Kosina obaloutvrde građena je od kamena srednje krupnoće zrna 30 cm u visini od 4,0m od nivelete uređenja korita. Kamen je pri dnu i vrhu kosine zaliven u beton MB30 u sloju debljine 30 cm. Popunjavanje fugni pri dnu kosine obaloutvrde betonom u visini od 70 cm u najvećoj mjeri spriječiće narušavanje stabilnosti obaloutvrde usljed nicanja rastinja, dok se zalivanjem vrha obaloutvrde u visini od 1,0 m dobija na dodatnoj stabilnosti kompletne kosine.

Nadvišenje nasipa na Etapi X+ iznosi 80 cm na nivo velikih voda ranga pojave 1/100, dok na Etapi X nadvišenje iznosi H1/100+1,0m.

1. **TEHNIČKI CRTEŽI**
* **SITUACIJA REGULACIONIH RADOVA**



* **NORMALNI PROFIL REGULACIJE**



**Ukupna dužina predmetne dionice iznosi 315,57 m.**