**BOSNIA AND HERZEGOVINA**

**FEDERATION OF BOSNIA AND HERZEGOVINA**

**Project BiH10/00103203 „Scaling-up Investment in Low Carbon Public Buildings in Bosnia and Herzegovina“ funded by Green Climate Fund (GCF) through the United Nations Development Programme in Bosnia and Herzegovina (UNDP BiH)**

**TERMS OF REFERENCE FOR CONSULTANCY SERVICES**

**PERFORMING DESIGN AND WORKS SUPERVISION**

**for objects in Breza, Visoko, Ljubuški, Tomislavgrad and Livno**

**Contracts No:**

**UNDP/GCF- BiH10/00103203-CQ-09-CS-23-FBIH**

1. **Background:**

The Ministry of Spatial Planning of the Federation of Bosnia and Herzegovina and United Nations Development Programme in Bosnia and Herzegovina (UNDP BiH) signed a Letter of Agreement on the implementation of the Project Scaling-up Investment in Low Carbon Public Buildings in Bosnia and Herzegovina "funded by Green Climate Fund (GCF).

Within the Project is planned that UNDP BiH will make available a GCF grant to the Ministry of Spatial Planning of the Federation of Bosnia and Herzegovina in the amount of 4.002.697 USD. The amount is planned for the implementation of infrastructure energy efficiency measures in FBiH.

Building on UNDP's Derisking Renewable Energy Investment (DREI) approach, the proposed Project consists of two closely related outputs aimed at addressing financial and non-financial barriers, thereby reducing the risks and achieving an attractive and acceptable risk-return profile.

***Output 1.1: Addressing non-financial barriers to investment in low-carbon buildings and infrastructure ("Policy de-risking")***

***Output 1.2: Addressing financial barriers to low-carbon investment in buildings and infrastructure ("Financial de-risking and Investment support").***

These Terms of Reference (ToR) define the nature and detailed scope of an assignment to provide engineering services, including preparing designs for energy efficient retrofits and supporting preparation of bidding documents for civil works and supervision and approval of civil and mechanical works.

1. **Objectives**

BiH recognized the potential of public sector buildings for GMH emission reduction and the need to increase emission reduction and develop a sustainable system for public building renovation and overcome identified barriers to investment in low-carbon retrofits of a public building.

The objective of the proposed Project is to scale up investment in low-carbon public buildings via design and implementation of the National Framework for Low-Carbon Investment in Public Buildings comprising an integrated package of policy, regulatory, technological, informational, financial, and managerial solution designed to address country-specific risks and barriers to investment. The GCF project will result in a four-to-five-fold increase in the level of investment in low-carbon public buildings; this, in turn, will enable BiH to meet its stated objective to reduce GHG emission from the public buildings sector.

For the implementation of energy efficiency investments in public buildings, the Project Implementation Unit (PIU) on behalf of the Ministry of Spatial Planning of the Federation of Bosnia and Herzegovina - FMPP (‘the Client’) intends to hire a Consultant Company (‘the consultant’) who will perform the following services: (i) preparing designs for energy efficient retrofits and supporting preparation of bidding documents for civil works and (ii) supervision and commissioning of civil and mechanical works.

1. **Description and Scope of Services:**

3.1 GENERAL DEFINITION OF SERVICES

The services will be performed for the public buildings listed in Annex 1 of this ToR. The services to be provided by the Consultant are described in detail in section 3.2. The assignment will be executed in two (2) tasks whereby the Task 1-design will be compensated on the basis of the Lump-Sum contract provisions and Task 2 (supervison) on the basis of the Time-Based contract provisions.

The consulting services (“the Services”) include the Design for 4 objects and Supervision for 5 objects. Measures that plan to be implemented and for which technical design should be developed are mainly: thermal insulation of exterior walls, thermal insulation of roofs and ceilings, replacement of façade openings, boiler replacement and works in the boiler room (new equipment), TRV’s installation and lighting replacement. The consulting services also include works supervision. Consultant has to secure that all of the planned works are according to the technical specifications given in the tender documentation, all following local laws, energy efficiency regulations in FBiH, national standards, and regulations and environmental requirements.

3.2 DETAILED SCOPE OF WORK

**Task 1. Design**

The Consultant will be responsible for preparation and delivering the documentation related to the Design to the FMPP.

The Consultant shall:

* (1) review detailed energy audit (DEA) reports (Annex 2), (2) visit selected public buildings, (3) check and compare actual buildings’ conditions with those given in DEA report, (4) check and assess technical feasibility for the implementation of DEA recommended energy saving measures, and (5) report to the Client his findings, particularly those related to the feasibility of implementation of DEA recommended investment package. Technically non-feasible energy saving measures shall be excluded from the further consideration in agreement and after approval by the PIU.
* Prepare technical design documentation with all associated textual (descriptions, technical requirements and specifications), numerical (BoQ and priced BoQ) and graphical (drawings) fully in line with local legislation including energy efficiency in FBiH technical codes and good engineering practice for recommended and accepted energy saving measures (investments); as well as calculations on meeting the energy efficiency standards. A recalculation of energy savings and CO2 emissions should be carried out if the measures proposed by the project differ from those proposed by the optimal DEA scenario. It is also important to make economic calculations of the return on investment. As part of the technical design documentation, the Consultant is expected to also pay attention to the optimization of technical design documentation in accordance with financial costs of investments including inter alia: (i) optimization of window opening system (e.g. reduce the number of casements with opening handles where not practical); (ii) development of clear window specifications in terms of thermal performance; (iii) installation of local temperature control with thermostatic radiator valves, cleaning of radiators and/or other required improvements at radiators; and (iv) automatic central heating control system;
* The drawings will include the details that are usually produced in Federation of BH and will be issued at the scales required by the Federation of BH norms and standards. For technical requirements that will be linked to new equipment or equipment not included by the FBH standards, the Consultant shall follow the EN standards or other recognized international standards;
* The design (and technical part of the bidding documents) shall also take into account FBH regulations on environmental protection, any environmental management plans for public buildings and the Environment Management Plan provided by the Client (see Annex 3); the Consultant shall stipulate in the bidding documents the use of environmentally friendly materials, equipment and technologies;
* Prepare technical parts of bidding documents (including bills of quantities) for various procurement categories, i.e. works for reconstruction and/or building retrofit, supply and installation of equipment (including list of goods to be supplied and installed, and a cost estimate of goods and other related contractor services for installation). In the bidding document, a provision should be included that contractors shall provide training about operation and maintenance of new equipment and installations. The bidding documents shall be prepared in a format that meets the World Bank requirements (RFB procurement method) and Client requirements (template will be provided by the Client). In case of differences between local and the Bank procurement rules and requirements, the Bank one shall prevail (e.g. avoiding mentioning of manufacturer name, product brand name, etc.);
* Provide assistance to the Client in permitting process for obtaining all necessary conditions, approvals and permissions from local authorities with regards to technical design and works conducting including permission for construction up to the technical acceptance and use permit; this requires close coordination with canton/municipalities to prepare required technical documentation as well as active and continuous cooperation with the Consultant responsible for the Audit of technical design documentation during preparation of design documents and their audit;
* Prepare draft plan for execution of construction works in cooperation with administration of public buildings selected to accommodate their needs and work schedule;

The consultant may also provide the assistance with evaluation of technical parts of submitted bids by construction companies, including the following:

* Assist the client, as required, with review of bidder’s requests for clarifications, preparing draft answers and clarification on bidder requests during the bidding process for consideration and follow-up by the Client.
* Assist the Client, as required, with evaluation of technical parts of bids received under the tenders’ procedures for which the technical design documentation were developed by the Consultant and in accordance with the qualification information, criteria and procedures stipulated in the biding documents;
* Verify compliance of technical responsiveness of the bids with requirements set out in the bidding document, including deviations and missing information as well as issues concerning quality of goods, materials and technology proposed;
* Analyze responsiveness of the bids with the Norms and Standards specified in the bidding documents.

The objects, for which development of Design is required, are mentioned in Annex 1.

**Task 2. Works Supervision**

Consultant's service must be done in accordance with local law, energy efficiency regulations in FBiH, national standards and regulations. The works supervision ensures that the measures are implemented in accordance with the technical designs and specifications in satisfactory precision and quality and in accordance with the Client's requirements. This task covers the duties and responsibilities of the Project Manager described in the general and particular conditions in the standard bidding documents. This includes inter/alia:

* Verify ”as built” documentation prepared by the works contractor(s);
* Coordinate with the relevant stakeholders (the Client, building administration, canton/municipality, and, as applicable, the relevant line Ministry) and the civil works contractor(s) on the detailed works plan and schedule;
* Carry out the supervision of all works and the supply and installation of goods, including quality control of materials, equipment, and installations, and their compliance with the technical design requirements, regulation, and environmental requirements (including the Environmental Management Plan/checklist provided in Annex 2) in the Federation of Bosnia and Herzegovina; this also includes spot-checks on adequate registration/licensing of workers employed on-site;
* Visit the buildings regularly in order to ensure that all of the works are carried out according to the technical specifications given in the tender documentation, all following local law, energy efficiency regulations in FBiH, national standards, and regulations and environmental requirements and to monitor progress of works at each building. The Consultant will prepare a short report (Progress Report) every 14 days on the work progress, including compliance with the work plan and technical documentation, the Environmental Management Plan, time schedule, quality assurance (including quality of works and materials/equipment delivered on the work site) and taking into account relevant standards and norms of the Federation of Bosnia and Herzegovina that could be affected by the energy efficiency works. Building visit reports will also include photographs providing a good view of the works progress, and highlight any issues or problems at the worksite.
* Sign regularly erection diaries and construction books and verify installed goods and materials as well as performed works;
* Verify payment certificates submitted by the Contractors, based on verified statement of works and contract requirements;
* Address problems that may occur, such as delays of delivery and installation, and bring issues to the Client's attention and recommend solutions to address the issues and avoid delays;
* Prepare requests to the Contractor, in coordination with the Client, to remedy all defects, to replace the non-adequate equipment and to install the goods in accordance with the technical requirements;
* Seek the Client's and the beneficiary's approval for any additional works required or modifications to be introduced prior to performance of such work; if agreed modifications were introduced by the Constructor with prior written approval of Consultant, the client and the beneficiary, the Consultant shall verify the final technical documentation, detailed technical design (after the work completion) and related cost estimates; the Consultant should not approve any extended or additional works prior to obtaining a written approval of the Client;
* Be responsible for design revisions required as per site conditions during the implementation of the Project in the minimum possible time;
* If necessary, give assistance to the Investor in obtaining approvals of the relevant authorities during contract implementation;
* Be responsible for (i) supervising the training provided by the works Contractor to the beneficiaries' maintenance staff (as included in the contract for equipment suppliers/works contractors), (ii) ensuring gathering attests, certificates and guarantee/warranty documentation from the contractor on the works and installed equipment, and providing the Client with the technical specification of the goods and equipment, the operation manuals and the maintenance protocols and schedules, and (iii) providing the Client with all necessary information on the newly installed equipment and materials;
* Organize and manage commissioning and testing of the works and site handover; this includes managing acceptance and commissioning procedures and verifying formal agreements on the successfully implemented works and their completion, managing any follow-up activities required for formal acceptance of the works (if there remain any deficiencies requiring repeated commissioning), ensuring adequate technical documentation of the accomplished works, verifying final commissioning of the work sites, and verifying final payments invoices, including report of the client on payment of retention.

The objects, for which the Works Supervision is required, are mentioned in Annex 1.

**4. Output/Deliverables and Time Schedule:**

The deliverables include the following documents for each building separately:

**Task 1:**

* Final technical documentation (including lay-out, drawings, detailed technical design, bill of quantities and cost estimate, calculations on energy efficiency standards) of retrofitting measures to be implemented in each building (including supply and installation goods, and implementation of works), in compliance with local norms and standards; the final documentation takes into account comments received from the Client and the Beneficiary and adequately addresses these. The technical documentation is expected to be submitted in local language in four (4) hard copy and one (1) copy on CD ROM (MS Word, Excel, AutoCAD (.dwg) for drawings); Task shall be completed and submitted to the Client for final approval within 45 days starting from Contract signature.
* Technical part of bidding documents for selected buildings, as described in this TOR, arranged in procurement packaged and in a format that meets the World Bank and the local requirements (template will be provided by the Client). The technical part is expected to be provided in local language; Documents shall be submitted by email and in in one (1) copy on CD ROM (MS Word, Excel). Task shall be completed and submitted to the Client within 5 days starting from Client approval of proposed technical documentation.
* Reports on findings about feasibility for implementation of DEA recommended investment package, in MS Word format, with associated photo documentation, in local and English language, submitted via email; deadline is 7 calendar days from the first visit to the building;
* Draft answers to bidder’s inquiries (in local language and per email) and technical (written) inputs on responsiveness of bids in accordance with criteria agreed with PIU and defined in Bidding Documents in a format to be agreed with the Client (local language). Written clarifications concerning the potential bidders' enquiries on the bidding documentation shall be submitted to the Client within three (3) days from receipt of such request. The report on compliance of bidders’ proposals with the qualification requirements of bidding documentation shall be submitted to the Client within five (5) days from receipt of such proposals. Wherever any proposal is found to be technically non-responsive the report shall explain in details the reasons of such deviations.

**Task 2:**

* Consultant's Detailed Works plan and Schedule; Revised plans, if any revision done;
* Progress Reports, on a two weeks basis including all the detailed mentioned above (local language);
* Verified interim and final payment certificates based on verified construction books (monthly);
* Environmental Check-List Report;
* Final acceptance and commissioning report for each building certifying the quality of the works, materials and equipment including final technical documentation after the work completion in compliance with local regulations;
* Other reports as relevant (e.g. final technical documentation in case of any modifications made as approved by the Client and relevant authorities during construction).

Progress Reports shall be submitted in one (1) copy on CD ROM (MS Word, Excel) in local language every fourteen (14) days.

Verified interim and final payment certificates in four (4) hard copies in local language and shall be submitted to the Client by 10th of every month.

Environmental Check-List Report in one (1) hard copy and one (1) copy on CD ROM (MS Word, Excel) in local language and shall be submitted to the Client within fifteen (15) days after acceptance on the successfully implemented works;

Final acceptance and commissioning report in three (3) hard copies and one (1) copy on CD ROM (MS Word, Excel) in local language.

**5. Duration**

* Task 1: 60 days
* Task 2: The perceived Works duration is:

Works for 1 object in WHC, 2 objects in ZDC and 2 objects in Canton 10: 4 months (supervision services 5 months, 15 days before/after the Works) – expected period: 2023.

**6. Qualification requirements and basis for evaluation**

The Consultant should be a qualified firm or joint venture of firms (up to 3 companies for a joint venture) that have demonstrated experience in preparing technical documentation and supervision of works (of several sites at the same time) for energy efficiency measures. The firm must propose a team capable of successfully carrying out all aspects of the ToR with in-depth experience in executing similar consultancies. The Consultant shall demonstrate his capability to mobilize enough skilled staff for carrying out the project activities within the allocated timeframe and include all necessary engineering specialists as part of the proposal by including in the technical proposal the Curriculum Vitae of the proposed key staff, including educational background, relevant working experience in similar projects, and by confirming their availability during the period of the contract.

Interested consultants must provide information indicating that they are qualified to perform the services by fulfilling following requirements:

* Company information: name, registration, address, telephone number, email address, year of establishment, contact person for the project, fields of expertise;
* Confirmation on no obligations relating to the payment of direct and indirect taxes in accordance with the relevant laws of Bosnia and Herzegovina (may not be older than three (3) months) or with the relevant law of the country from the EOI submitter
* Hold a license from The Ministry of Spatial Planning of the Federation of Bosnia and Herzegovina for Design and Work Supervision (mechanical design). If not available, it will be obtained within 30 days as a condition to signing the contract. Such consultant shall confirm along with the EOI that he will secure the license if he is selected to submit technical/ financial proposals;
* Hold a license from the Ministry of Spatial Planning of the Federation of Bosnia and Herzegovina for Performing energy audit and certification of buildings for complex buildings systems in the Federation of Bosnia and, if not available, will be obtained within 30 days as a condition to signing the contract. Such consultant shall confirm along with the EOI that he will secure the license if he is selected to submit technical/ financial proposals;

The shortlisting criteria are:

Qualified consulting firms and their staff for this assignment should have extensive experience in the services mentioned above. The required minimum experience should be demonstrated by at least (3) three assignments that included similar tasks during the last five (5) years with a value of at least BAM 32,000 per assignment for Task 1 and at least (3) three assignments that included similar tasks during the last five (5) years with a value of at least BAM 40,000 per assignment for Task 2.

Details of the referenced assignments would include the contract(s) value, location(s), number of staff involved in the contract(s), name of the Client(s), name of partners for contract(s) execution, source(s) of financing, type of services provided, contract(s) commencement and completion dates, a brief description of the contract(s).

The team of an individual consultant available under the assignment may include the following experts: civil, mechanical, electrical engineers, and architects. The team members must have at least a university degree and, as a minimum, five years of professional experience. CVs of Key Experts are not required /will not be evaluated/ at the shortlisting stage.

Consultants may associate with other firms in the form of a joint venture or a sub consultancy to enhance their qualifications. All the members of the joint venture shall be jointly and severally liable for the entire assignment. However, the experience of the sub-consultant will not be considered while shortlisting.

During the proposal stage selected consultant within its technical-financial proposal will submit:

* Curricula Vitae (short version, specifying experience in similar assignments, six (6) CVs of key personnel from various professions requested under such services) of key staff who will be working on the assignment(s) with minimum:
* Team Leader, responsible for managing/overseeing the entire consultancy contract implementation; University degree (Master's equivalent) in architecture, mechanical, electric or civil construction engineering or related field; minimum seven (7) years of experience in relevant field, including project management of similar assignments;
* Responsible key staff for managing/coordinating design and supervision of works:
	+ At least two (2) graduate architect and/or civil engineers with competency exam passed and at least five (5) years of work experience in relevant field;
	+ At least two (2) graduate mechanical engineers with competency exam passed and at least five (5) years of work experience in relevant field;
	+ At least one (1) graduate electrical engineer with competency exam passed and at least five (5) years of work experience in relevant field;
	+ One (1) administrative assistant (support personnel, CV not needed).

**ANNEXES**

Annex 1 – Draft List of selected public buildings

Annex 2 - Environmental Management Plan/check list

**Annex 1 – List of selected public buildings**

*This annex includes the list of selected public buildings and might be a subject to change.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| No | Building Name | Canton | Location/Municipality | Works to be implemented (ENG) | Heated area(m2) | Design | Works supervision |
| 1 | Vrtić „Umihana Čuvidina“ | ZDC | Breza | M1 - Thermal insulation of roof and ceiling and AC roof cover replacementM2 - New heating sourceM3 - Installation of TRV’sM5 - Lighting replacement | 642 | Yes | Yes |
| 2 | OŠ Tin Ujević PŠ Klobuk | WHC | Ljubuški | M1 - Thermal insulation of façade wallsM2 - Windows and doors replacementM3 - Thermal insulation of roof and ceilingM4 - Installation of new boiler and TRV’sM5 - Lighting replacement | 1,371 | Yes | Yes |
| 3 | OŠ Ivan Mažuranić PŠ Franjo Nevistić Šujica | Canton10 | Tomislavgrad | M1 - Thermal insulation of façade wallsM2 - Windows and doors replacementM3 - Thermal insulation of roofM4 - Installation of new boiler and TRV’sM5 - Lighting replacement | 2,249 | Yes | Yes |
| 4 | OŠ Ivan Goran Kovačić PŠ Zabrišće | Canton10 | Livno | M1 - Thermal insulation of façade wallsM2 - Partial windows and doors replacementM3 - Thermal insulation of roof and AC roof cover replacementM4 - Installation of new boiler and TRV’sM5 - Lighting replacement | 1,378 | Yes | Yes |
| 5 | OŠ Mula Mustafa Bašeskija Donje Moštre | ZDC | Visoko | M1 - Thermal insulation of roof and AC roof cover replacement | 2,378 | No | Yes |

**Annex 2 - Environmental Management Plan/check list**

General part

The Contractor is obliged during the works to follow relevant laws and regulations relevant to the scope of the works, which apply at the level of the Municipality, the Canton and the Federation of Bosnia and Herzegovina, relating to physical planning and construction, environmental protection and health and safety at work.

The table above refers to environmental protection measures from potential impacts during different stages of project development. The Contractor is required to always comply with the provisions of this Environmental Management Plan, and the Project Manager (professional supervision) and / or members of the Project Implementation Unit should properly monitor the implementation of the proposed measures.

 Environmental Management Plan (EMP)

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| --- |
| **Stage: Designing** |
| **Impact on environment** | **Mitigation measures** | **Mitigation costs** | **Institutional responsibility** | **Comments** |
| Overview of final project documentation | Ensure that the activities in the project documentation comply with the Environmental Management Plan, the Law on Fire and Fire Protection and in accordance with the Rule book on storage and keeping fuel oil(“Official Gazette of SFRJ”, No. 45/67) | Part of project activities, included in operational costs | Contracted Design Consultant, together with Project Implementation Unit or team |  |

| **Stage: Construction** |
| --- |
| **Impact on environment** | **Mitigation measures** | **Mitigation costs** | **Institutional responsibility** | **Comments** |
| Old equipment or waste that can be used again | Attempt to reuse or recycle the resulting waste as much as possible, in case it is not possible to reuse it, dispose waste into specific landfills.It is forbidden to burn or use all waste for fuel, including painted wooden parts of doors and windows. Long-term storage of such waste near the site is also not permitted. |  | Contractor or facility end user |  |
| Construction waste | Separation of all types of waste, reuse and recycling wherever possible.Disposal of waste that cannot be reused or recycled, transported and disposed at specific landfills in cooperation with local waste management companies; there is no open incineration or illegal disposal of waste.Hazardous waste (smaller amount of paint, oil etc.) will be kept separately after the marking procedure and will be handed over to certain and authorized firms or agencies, in accordance with relevant legal requirements.Avoid long-term waste collection on site. |  | Contractor or subcontractor | Will be defined within scope of project documentation |
| Removal of materials that may contain asbestos (or other hazardous materials such as mercury bulbs) | Removal of asbestos-containing materials will be carried out in accordance with local laws, including construction standards, workplace safety issues, emissions of hazardous pollutants and disposal of waste and hazardous waste (in case there are no local regulations, Directive 2003/18 / EC of the European Parliament will be used, which will amend Council Directive 83/477 / EEC on the protection of workers from exposure to asbestos at work: the limit values of the floating dust particles are 0.1 fiber / cm3; also use the Good Practice Handbook: Asbestos: Health problems at work and community; World Bank). | Special subcontract during works, if necessary.Additional costs may be significant, depending on the amount of material to be removed. | Contractor | The Contractor should train his workers on how to evaluate the presence of asbestos-containing materials and to establish a safe removal process with appropriate protective equipment, continuous safe storage in hermetically sealed containers and management by an authorized agency or firm (registered within Ministries of Tourism and environment of entities). |
| Placement of the fuel oil tank | For existing tanks:Determine whether they are placed in accordance with the Law on fire protection and firefighting and in accordance with the Rule book on placement and keeping of fuel oil (“Official Gazette of SFRJ”, No. 45/67)  | Included in investmentSpecial subcontract during works, if necessary.Additional costs may be significant. | Designer/Supervisor; Contractor |  |
| In case of a move of tank per User request:Ensure that the tanks are placed in accordance with the Law on fire protection and firefighting and in accordance with the Rule book on placement and keeping of fuel oil (“Official Gazette of SFRJ”, No. 45/67)  | User | Designer/Supervisor; User |  |
| Random finding | In case of a random finding or other important discoveries during the excavation, all work must be suspended and notified to the competent authorities before proceeding.  |  | Contractor  |  |
| Noise generation | Limit the work to daily intervals that are in accordance with local laws. Ensure uninterrupted use of the building for other users or tenants. Use machines with the appropriate attestations. Without unnecessary use of machines or vehicles on the ground. | Insignificant costs.Contractor’s costs. | Contractor  |  |
| Dust generation | Suppression of dust with water or covering material and work surface that can create dust; reduce the speed in transporting these materials.Dust during the demolition can be reduced by using appropriate masks to work in the area; workers should use appropriate protective equipment. | Contractor’s costs. | Contractor  |  |
| Organization of site and its removal after completion of works | Plan activities to minimize disturbance to the environment and neighbors (including plans to ensure proper traffic management at site access)Enclosing the construction site or setting up the marking measures.After completion of the works, the enclosed area will be returned to its original state and the entire waste will be cleaned in accordance with the provisions of this EMP, all the machines will be removed from the area.All scaffolds, cranes and other auxiliary equipment will be installed in such a way as to ensure workers’ safety, but also the safety of passers-by. Everyone working on a site must be clearly marked with restricted access rights. Workers will also have to use adequate personal protective equipment. | Insignificant costs.Contractor’s costs. | Contractor  | It will be further defined with the specifications in the project documentation |

 Supervision plan for environment and monitoring

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| **Stage: Construction** |
| **WHICH**Parameter should be monitored? | **WHICH**Parameter should be monitored? | **WHICH**Parameter should be monitored? | **WHICH**Parameter should be monitored? | **WHICH**Parameter should be monitored? |
| The works are carried out in accordance with all relevant legal requirements (and permits if necessary) | The works are carried out in accordance with all relevant legal requirements (and permits if necessary) | The works are carried out in accordance with all relevant legal requirements (and permits if necessary) | The works are carried out in accordance with all relevant legal requirements (and permits if necessary) | The works are carried out in accordance with all relevant legal requirements (and permits if necessary) |
| Waste management(including works and hazards) | Waste management(including works and hazards) | Waste management(including works and hazards) | Waste management(including works and hazards) | Waste management(including works and hazards) |
| The presence of asbestos or other harmful and hazardous materials on site | The presence of asbestos or other harmful and hazardous materials on site | The presence of asbestos or other harmful and hazardous materials on site | The presence of asbestos or other harmful and hazardous materials on site | The presence of asbestos or other harmful and hazardous materials on site |
| Noise and dust emission | Noise and dust emission | Noise and dust emission | Noise and dust emission | Noise and dust emission |
| Safety signs and notifications | Safety signs and notifications | Safety signs and notifications | Safety signs and notifications | Safety signs and notifications |