

# DEFE DAM TECHNICAL PROPOSAL

## JUNE 2025

**RPT-2500-2025-001**

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## 1. DOCUMENT CONTROL SHEET

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## **a. Introduction**

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The Government of Zimbabwe through the Zimbabwe National Water Authority (ZINWA) launched the construction of Ziminya Dam which is to be located on the Shangani River in Nkayi District of Matebeleland North, Grid Reference **PK924 081** on Map **No 1828 D4** of the Surveyor General's 1:50 000 map series. The construction contract was awarded to Fossil Contracting and preparatory works are currently underway on the ground.

The construction of the dam with an expected supply capacity of 94 million cubic meters is expected to benefit the local community by providing irrigation water to Ziminya, Tokwe and Nkuba area. The project will also aid in the augmentation of Nkayi growth point water supply and provide the local community with power through the construction of a small hydro power station.

Preliminary designs of the dam were carried out by then Ministry of Water Resources and Development. In order to confirm these designs and produce construction drawings and provide oversight of construction activities, Fossil contracting invited Bids from shortlisted eligible firms. Urban Infrastructure Projects Africa (Pvt) Ltd (UIPA) was shortlisted to provide the services under the Terms of Reference (TOR) provided.

The scope of works outlined in the TOR encompass the review of existing dam designs and proposing suitable up to date designs for construction. The TOR also include the design of access roads, water supply systems, irrigation systems and the provision of construction oversight of design outputs.

This proposal by Urban Infrastructural Projects Africa (UIPA) is in response to the Request for Proposals (RFP) issued by Fossil Contracting ('the Client') for **a Design Team Consultant**

**for the Ziminya Dam, Water Supply and Irrigation Project Construction.** It gives details of our approach and tasks that we will undertake from inception to completion of the project. The services envisioned will embrace full professional responsibility in addressing the respective Terms of Reference (ToR).

## **b. Terms of Reference (ToR)**

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In summary, the objectives of the consultancy work are to:

- c. Carry out comprehensive design review of preliminary drawings provided\ encompassing the following:
  - Topographical Surveys
  - Geotechnical Surveys
  - Borrow pits
- d. Produce preliminary and detailed engineering designs encompassing:
  - Dam and appurtenant works
  - Roads and stormwater drainage systems
  - Water supply and reticulation systems
  - Irrigation systems
  - Mini hydropower generation system
- e. Produce detailed project drawings
- f. Prepare associated bills of quantities for all designed works
- g. Produce Technical specifications for all designed works

- h. Produce reports on every aspect of the designs
- i. Produce computer aided dam design package
- j. Construction supervision
- k. Produce as-built drawings for the completed works



## **I. Comments on Terms of References (ToR)**

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The TOR are explicit, and we have formulated our proposal to comply with them. However, we make the following observation:

1. The TOR are silent on the requirement of an Environmental Impact Assessment (EIA) study. We have assumed that this was already done for the current project, and should this be required, we will provide a standalone provision for carrying out an EIA in terms of statutory requirements subject to negotiations with the Client.
2. The TOR are silent on the requirement of Bills of Quantities and material schedules. Should these be required, we will provide a standalone provision for carrying out the works.

## Methodology

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Below is our anticipated sequence of events for the proposed infrastructural designs:



• **Figure 1. Proposed workflow chart**

### 4.1 Inception

Our very first task upon being commissioned be will be to carry out a **stakeholder identification and mapping** exercise. We will then liaise with the client/client's representative(s) as well as other professional teams working on the project to confirm the key stakeholders of the project and establish a clear strategy of coordination with the respective parties. To ensure this is achieved, we will prepare a **stakeholder communication plan** which will be strictly adhered to and used throughout the project duration. The envisioned outcome of this initial liaison will be to:

- Assist in developing a clear project brief
- Clearly define the services and scope of works required to minimize both authorized and unauthorized scope variations (scope creep) so as not to affect the assumptions made on project timelines and budget.
- Conclude the terms of the agreement with the client
- Identify the stakeholders' contact personnel
- Discuss project administrative arrangements
- Established communication channels

- Identify possible areas of conflict and how to manage them

We will keep the Client apprised throughout the project duration of risks that will impact on the success of the project and we will put in place an appropriate **risk management plan**. Main attention will be given to those risks likely to affect scope, budget and quality and project delivery timelines.

Above all, our approach is cognisant of the important responsibility of ensuring **skills transfer and capacity building** within the Client's organisation and/or other key stakeholder institutions wherever possible. We will do this by ensuring that we carry out a **skills audit** relevant to our assignment, identify any training needs and formulate a **plan of action** to ensure that the selected technical personnel are involved in the whole project life cycle on specific identified training needs.

#### **4.1.1 Site Reconnaissance**

Upon establishment of the key administrative requirements, reconnaissance site visits of the proposed project area will be done at this stage to visually assess the project sites and identifying any additional site investigations which will have to be carried out. Physical barriers which are likely to impact on the designs (routing and location of infrastructure) will be noted for further assessment. This is an essential step towards determining an optimum design solution for the proposed infrastructure.

#### **4.1.2 Data Collection and Review (Desktop Study)**

Upon establishment of the key administrative requirements, our next task will be the assembling of data relevant to both the technical and non-technical aspects of the study. These data will primarily be obtained from the Client. Additional information will be sourced from independent entities as applicable. It is essential that the data are obtained early in the project and that copies are made available for use in our project office. The data we would be looking for will include:

- Maps and drawings of proposed infrastructure if any

- Preliminary reports on proposed project
- Local Standards relevant to the project
- Climatic data
- Population statistics and census data
- Water production and consumption figures of existing systems if any
- Physical planning data
- Geotechnical and Geological Reports
- Bylaws and Water Act
- Reports on environmental issues

We appreciate that not all these data may be readily available and that data which are available may need supplementing.

If we find that a lack of data is likely to be detrimental to the project defined deliverables then we will, in liaison with the Client, carry out further studies to successfully complete the assignment.

### **4.1.3 Risk Assessment**

**Risk assessment is the cornerstone of our approach to forestall any potential performance issues.** Risk assessment is a dynamic process that allows us to put in place a proactive policy of managing risks and is integral to the project Quality Management System (QMS). The Project Leader/Team Leader will initiate a **Risk Management Plan** at the outset. Risk management measures range from reducing known risks to preparing for unknown risks with insurance coverage and an adequate project contingency budget to account for unknown cost risks. We will identify potential risks, measure the likelihood and consequences of the potential risk elements, and identify strategies to reduce or eliminate risks or reduce the consequences of risk events on the project's cost or schedule.

Risks will be evaluated to assess which of the project participants (designers, contractors, suppliers) are best able to manage the risk. **Risk registers** will be developed for the project

and maintained throughout the design, construction, and implementation phases. **Risk mitigation measures** will be specified for the identified risks and a monitoring process will be established to assess the effectiveness of the mitigation measures and identify the need for additional risk mitigation actions.

With our approach, risk management is an active and continuous engagement process which implies that our team does continuous environmental scans to pick up new risks and to monitor actions and controls for existing risks. In terms of delivery, one non-negotiable is the construction timelines. To ensure that the services are ready within agreed timelines, a consistent monitoring and evaluation process must be in place.

Our risk management methodology will therefore include an understanding of construction type projects and elements that influence quality. The Service provider's methods of implementation will be reviewed continuously and pro-actively ensuring that risks are considered. Consideration in this case implies that the project team will be required to discuss the options available in terms of the risk and the feasibility of alternatives. The Project Leader, from a strategic level will guide the process and with the knowledge of and being privy to executive management discussions will be able to provide realistic options.

This approach has worked in other projects regarding identification of the risk and providing alternatives. When the risk is realised and due to the approach, alternatives are available for consideration and implementation. To foster a productive risk management environment, exceptionally good and committed support by the Client must prevail.

Our methodology will seek to maximise the strong capacity we have pooled within the project team we have identified to provide strong and effective pro-active risk management expertise to the Project.

## **4.2 Concept and Viability**

### **4.2.1 Site Investigations**

The type and size of the dam structure proposed is greatly influenced by the topography, regional geology, availability of construction materials, seismicity of the area, hydrology of the river basin, environmental and geotechnical conditions of the reservoir and the curtain site of the structure. For review of the design, the magnitude of definitive studies is dictated by the type and classification of the dam of which site investigations is key.

#### **4.2.1.1 Topographical Surveys**

Under this activity, we will first review the topographical site survey of the proposed dam location as will be issued by the Client and establish its extent of coverage of the project area. If there are any gaps in the available information, we will highlight them to the Client.

The TOR are silent on the availability of route surveys for the roads, water supply and irrigation infrastructure. With the client's permission we will deploy our surveyor and his team to carry out a topographic survey of the proposed routes and produce:

- Benchmarks which shall be established and clearly marked in identifiable positions and coordinated if required
- Spot heights on a specified grid with contours at required intervals
- Any registered servitudes
- Details of any natural physical features such as rock outcrops, depressions, water courses, etc
- Positions of all services such as roads, railway line, sewers, water lines, electricity lines, telecommunication services, etc

This task will be programmed to happen at the same time as the Geotechnical Investigation.

**In keeping with modern trends where design is now largely computer aided, we will seek to obtain electronic copies** of the existing survey information (if any) in standard format(s), and in the event that we carry out additional surveys, we will integrate the various surveys into one model which will become the base on which the design of the various project elements will be carried out.

#### **4.1.1.1 Geotechnical Tests**

As part of the preliminary services, we will review the geotechnical results to be provided by the client and produce reports to that effect. Our Geotechnical Engineers will supervise and oversee investigations covering the following:

- Prospecting for construction material in strategic areas close to the project area, as well as confirming the quality of material from any existing pits to ensure compliance with specifications.
- Determination of the properties of the surface and sub-surface materials in carefully selected locations within the dam site area, road reserves, possible routes for water lines and irrigation pipelines.
- Trial pits to ascertain the soil profile and depth of rock
- General testing of the soils in the project area, particularly in areas where the soils may appear marginal.
- Measurement of haul distances from prospective borrow areas to the project area.
- Material optimisation.

In addition, we will carry out field assessments and record other physical barriers that may have a bearing on the final location or routes of mains.

#### **4.1.1.2 Hydrological and Hydraulic Investigations**

Hydrological and hydraulic investigations will be carried out and reports will be produced to present the findings.

### **4.2.2 Preliminary Designs**

#### **4.2.2.1 Dam**

Reviewing the information that was supplied by the client, we noted that the dam designs had reached a stage in which tenders could have been invited for construction had a decision been made to proceed. It is understood also that the present designs were based on criteria and standards developed by Department of Water Resources and follows precedents established for other successful earthfill dams in Zimbabwe. The drawings and preliminary design report have sufficient detail for the present design review. From general observations, further work will be necessary to bring the drawings to a suitable standard for construction use

##### **4.2.2.1.1 Review of Existing Designs**

**Existing preliminary drawings and reports will be reviewed to ascertain the extent of work that had been covered previously. As outlined in the TOR, our technical team will check the adequacy of the preliminary designs taking into account new technologies and contemporary practices in dam construction. In liaison with the Design Review team, we will suggest any improvements or necessary changes to the existing preliminary designs for approval. The approved design review report will then form the scope of works for which the construction project will proceed. The designs of the dam will be reviewed from standpoints of hydrology, geology, choice of dam type, design and cost.**



#### **4.2.2.1.2 Hydrological and Hydraulic assessments**

#### **4.2.2.1.3 Geological Assessment and Seepage Control**

#### **4.2.2.1.4 Value Engineering Proposals**

#### **4.2.2.1.5 Embankment Design**

#### **4.2.2.1.6 Appurtenant Structures**

#### **4.2.2.1.7 Instrumentation**

### **4.2.2.2 Roads**

Roads will be generally designed in accordance with the guidelines for design of township roads in Zimbabwe. Close liaison with the Local Authority will be maintained at all critical stages of the design to ensure acceptability and possibly quicker approval of the final designs.

In the absence of any specific requirements, we will call on our expertise and experience on projects of a similar nature to ensure a sustainable balance between the technical adequacy of our designs and the purpose the roads are intended to serve. The final finish of the roads will be discussed with the Hwange Local Board and incorporated into the design accordingly.

#### **4.2.2.2.1 Stormwater Drainage**

A detailed storm water study will be carried out to ensure effective drainage of all roads in the project area. To this end, we will clearly identify and mark out all watersheds and natural water courses and establish the sub-catchments and estimated runoff figures. Reasonable flood return estimate will be made sizing of culverts and shelverts where

appropriate. Subsequently, we will design the storm water drainage infrastructure to ensure efficient removal of runoff from the roads and residential properties, and to maximise tying into existing stormwater drainage infrastructure, thereby reducing costs

#### **4.2.2.3 Water Supply**

##### **4.2.2.3.1 Water Demand**

Accurate estimation of the projected water demand will be one of the critical aspects of the study and due attention will be paid to this exercise. With the relevant data obtained from the data collection exercise, we will assess the water demand based on the Zimbabwean standard design and/or other accepted criteria and the following parameters:

- population figures
- Water use by consumer category
- Demand patterns and peaking factors including seasonal demand variations
- Hydraulic requirements such as: velocities, friction coefficients and requisite minimum nodal pressures
- Storage periods for the service reservoir

Where possible, we will utilise data from other similar developments in the country to check the adequacy of the assumed design criteria. We will be paying particular attention to those elements relating to technical specifications, supply standards and policy on **metering and tariffs**. The criteria so established will be presented to the client and responsible authorities for discussion and approval.

##### **4.2.2.3.2 Bulk Water Supply**

In this section Bulk Water Supply refers to the storage and transfer of water to the respective zones. This exercise will be required to assess the impact of the new (and future) developments on the existing bulk facilities and enable the identification of the

appropriate design augmentation or rehabilitation to ensure adequate supply of water to the respective consumers. We will therefore carry out the below activities.

- Confirmation of reservoir capacities against the gross water
- requirements
- Analysis of the reservoir operating patterns and assessment of the
- amount of spare capacity
- Determination of possible pipeline routes and lengths
- Detailed hydraulic calculations of the most feasible option for optimum operation.

#### **4.2.2.3.3 Storage Reservoirs**

If there is a need for such and considering that ideal sites for the construction of water storage reservoirs are generally limited, we will consult the Hwange Local Board with a view to obtaining information on any future planned developments which would be commanded by a reservoir on the identified site. This information will be used to assess the bulk storage requirements for future developments and allow analysis for optimisation of the reservoir site. Following this exercise, a detailed assessment of the storage requirements for the current phase will be carried out to ensure that the most cost-effective approach is followed in the construction of reservoir facilities as the downstream demand increases. The intention will be to come up with a design that will allow modular development of the storage facilities. The assessment of the facilities will not be limited to the technical requirements for storage but will also look at the various reservoir construction materials with a view to satisfying both cost and serviceability.

#### **4.2.2.3.4 Internal Water Reticulation**

Observance of the standards will be made during the design of the internal reticulation to provide for the minimum residual pressures during peak-hour draw-offs. Design of the reticulation will be by zones which will generally be connected to the main supply and can be isolated by valves to avoid water supply disruptions to other zones in the event of

pipe bursts or periodic maintenance works. As with the minimum conditions, maximum pressures when the system is closed will be determined to ensure that the correct pipe classes are used and thus minimise bursts.

Cost effective durable pipe materials will be recommended in the design

#### **4.2.2.4 Irrigation Systems**

#### **4.2.2.5 Mini Hydropower Generation**

Assessments will be carried out to ascertain the type of hydropower generation plant suitable for the proposed site.

### **4.1 Detailed Designs**

After having **presented, evaluated, and reviewed** the preliminary designs with the Client, we will seek to produce detailed designs and prepare for approvals with the Local Authority (XXXXXXX). However, close liaison with the Local Authority will be maintained at all critical stages of the design to ensure acceptability and possibly quicker approval of the final designs.

The Project Manager/Team Leader will prepare **procedures** for design changes, including sign-off and documentation, design reviews, and verification against the project scope in line with the **Quality Assurance Plan**.

## **4.2 Construction Supervision**

Under this section, we will manage and monitor the construction activities and processes including preparation and coordination of procedures and documentation to facilitate practical completion of works.

It is imperative to note that at this stage risk assessment will play a pivotal role for successful completion of the project within budget.

### **4.2.1 Quality Management**

Urban Infrastructure Projects Africa (Pvt) Ltd is in the process of acquiring its **ISO 9001 Quality Management** certification. We will strive to strictly adhere to this quality management system to ensure a successful project for the project stakeholders. On the onset, the Project Manager/Team Leader will develop a Quality Management Plan (QMP) for the project. The QMP will assure that the Client, stakeholders and, ultimately, the contractors are continuously involved in delivering a quality product as the project progresses through design and construction.

Quality reviews will be conducted periodically. In the various phases of the project, constructability reviews will be conducted to make sure the project includes sound construction principles consistent with operating and maintenance requirements and accepted engineering practices for safe, efficient, and economic construction. We will ensure that all parties adhere to the **Quality Assurance Plan**.

Controls necessary for preserving the integrity of quality-related activities and the required documentation of the results will be identified and categorised in the following areas:

- Management Responsibility
- Documented Quality System

- Design Control(s)
- Purchasing
- Product Identification and Traceability
- Process Control
- Inspection, Measuring and Test Equipment
- Inspection and Test Status
- Non-conformance and Corrective Actions
- Quality Records
- Quality Audits

A similar quality management system will be adhered to during construction monitoring by making sure that the level of workmanship achieved, and material used meets the minimum specified requirement. Control and acceptance tests will be carried wherever necessary and the information kept in a construction file on site for reference and quality auditing purposes.

Furthermore, the construction monitoring team will be composed of individuals with experience on similar projects and preference will be given to individuals who would have been involved in the design process in the belief. This is because these individuals will have a reasonable understanding of the design philosophy and would have built relationships with the project's key stakeholders.

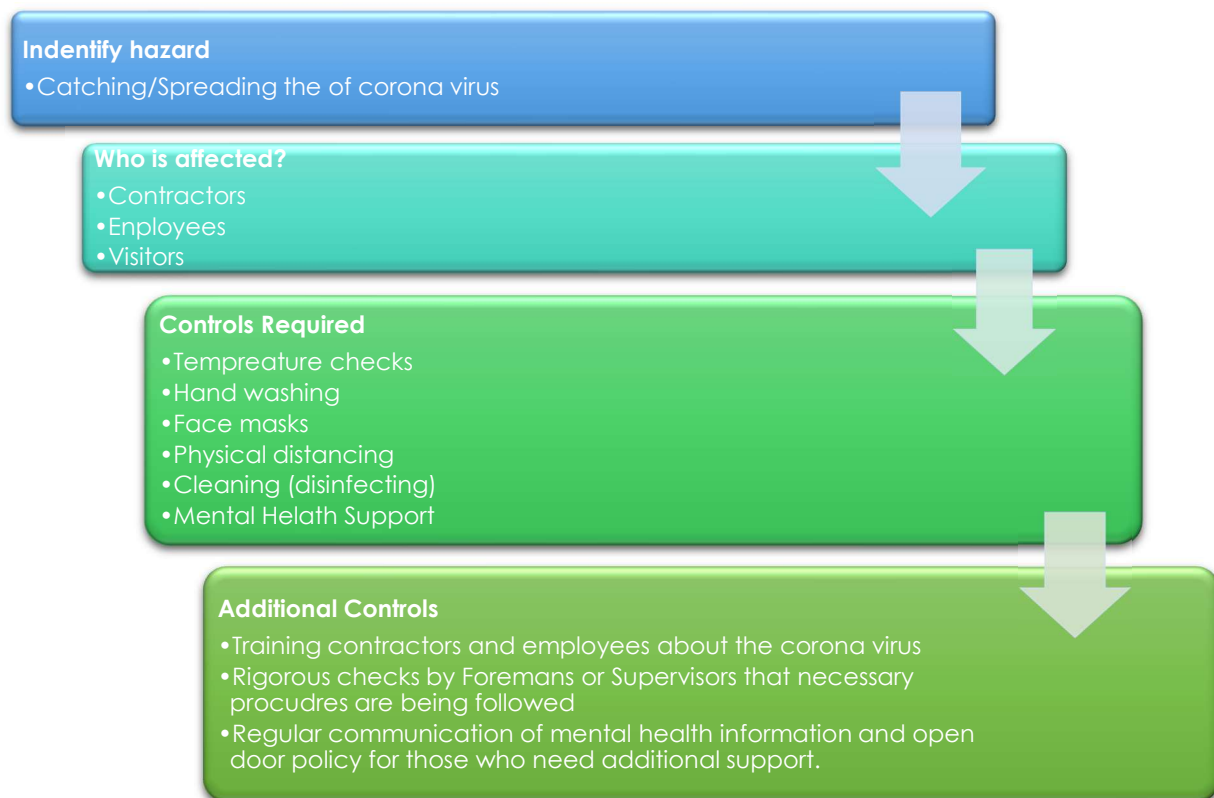
#### **4.2.2 Health and Safety**

A key aspect of the Construction Supervision Team will be the management of the Contractor's Safety functions, in order to ensure that all safety targets are met and adhered to, and to ensure full compliance with the requirements of the OHS legislation and Construction Regulations and risk mitigatory measures for Covid-19.

#### **4.2.2.1 Response to Covid – 19**

The COVID-19 pandemic continues to affect the world and is now a major global health threat requiring stringent measures to be taken. We aim to promote and safeguard the Health and Safety of our staff and contractors on-site, while proactively implementing actions to ensure that construction activities do not suffer from inadequate planning or poor decision making. By coming up with a **risk assessment plan**, we will come up with various risk mitigations aimed at preventing the spread of the virus as having one infected person in the workplace may cause the closure of the whole construction site.

Firstly, we will carry out a risk assessment plan for dealing with COVID-19 as shown in the flow chart below:



• **Figure 2. Covid-19 Risk Assessment Plan flow chart**

Having reviewed the risk assessment plan, we will develop **an action plan checklist**. This checklist will comprise of mitigatory measures in line with the guidelines published by WHO and the Government of Zimbabwe. Amongst other duties, the SHEQ Officer will be tasked with the monitoring of the trend of the pandemic, provide guidance and advice and report on the preparedness of our company and relevant contractor to our key stakeholders in dealing with COVID-19.

It is also imperative that an isolation facility is made readily available for a person who is suspected have symptoms of the virus. Rapid testing kits should also be made accessible for ease and quick testing of the virus.

We recommend that all Contractors promote **mental health & wellbeing awareness** to their staff during the Coronavirus outbreak and that they should offer whatever support they can to help Mental health support. Below is our anticipated **action plan checklist** to deal with COVID -19.

| Action By                 | Responsibility  |
|---------------------------|---|
| Employer's Representative | <ul style="list-style-type: none"><li>• Develop a COVID-19 Exposure Action Plan</li><li>• Conduct safety meetings (toolbox talks)</li><li>• Access to the job site will be limited to only those necessary for the work.</li><li>• Provide hand sanitizers, face masks, gloves and maintain Safety Data Sheets of all disinfectants used on site.</li></ul> |
| Contractor                | <ul style="list-style-type: none"><li>• Become familiar with the Exposure Action Plan and follow all elements of the Plan.</li><li>• Practice good hygiene: wash hands with soap and water for at least 20 seconds. If these are not available, use alcohol-based hand rub with at least 70% alcohol</li></ul>  |



|  |   |
|--|---|
|  | <ul style="list-style-type: none"> <li>• Avoid touching your face, eyes, food, etc. with unwashed hands</li> <li>• Clean and disinfect frequently used tools and equipment on a regular basis. <ul style="list-style-type: none"> <li>○ This includes other elements of the jobsite where possible e.g. lunchrooms</li> <li>○ Employees should regularly do the same in their assigned work areas.</li> </ul> </li> <li>• Maintain at least 2m physical distancing while in shared spaces.</li> <li>• Disinfect shared surfaces (door handles, machinery controls, etc.) on a regular basis.</li> <li>• Provide and arrange for any portable job site toilets be cleaned and disinfected inside least twice per week.</li> <li>• Any trash collected from the jobsite must be changed frequently by someone wearing gloves.</li> <li>• Provide and wear the proper PPE</li> </ul> |
|--|---|

#### **4.2.2.2 Shift Operations**

Construction works will likely take place during a normal day shift; therefore, no provision is made at this stage to have 24-hour supervision.

#### **4.2.2.3 Quality**

It is planned that a full-time QA/QC Manager will be included as part of the Construction Supervision Team. Third Party testing (e.g. water pressure logging test and air tests) may be called for during the contract and will be undertaken by outside companies. The cost of such tests **has not been allowed** for in the price but should be included as part of the test regime stipulated under the construction contract.

### 4.3 Close-Out

Under this activity we will,

- Inspect and verify the rectification of defects
- Receive, comment, and approve relevant payment valuations and completion certificates
- Facilitate and/or procure final operations and maintenance manuals, guarantees and warranties
- Prepare and/or procure as-built drawings and documentation
- Conclude the final accounts where relevant

### 4.4 Skills Transfer and Capacity Building

The predominant aim of this task is that skills must contribute to the achievement of the country's new economic growth and social development goals whose mandate is to strengthen and increase the skills and human resource base. In light of this, our Skills Transfer and Capacity Building Framework comprises of a broad set of interventions including institutional development and human resource development which build the capacity of designated technical staff to perform their roles and responsibilities in an effective and efficient manner. The implementation approach is illustrated in Figure 1 and explained below:

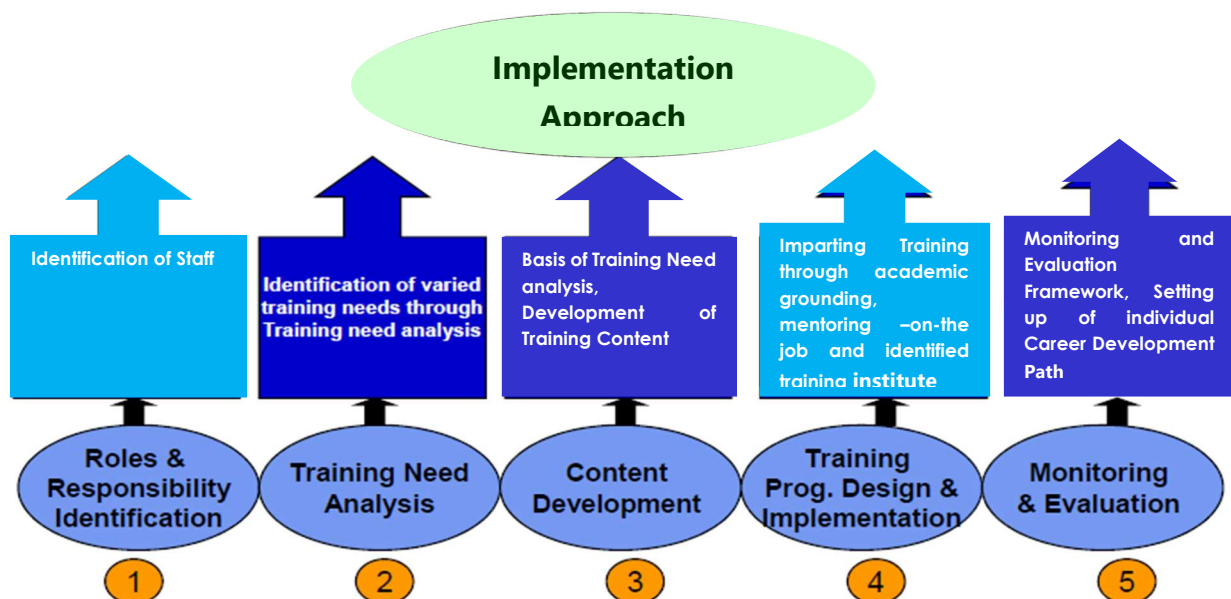


Figure 3. Implementation approach to capacity building

**Task 1: Roles and Responsibility Identification:** This task involves “**Role Mapping**” of the designated Plumtree Town Council's water and sanitation staff.

**Task 2: Training Need Analysis:** This step will involve carrying out a “**skill-gap analysis**” and it will be the key to identifying both core and specialized training needs across operational functions. The inventory of skills required for implementation of the project will be done. The gauged inventory of skills will then be categorized to identify which specific sectors should be involved, as well as learnerships and potential accredited training providers relevant within each of these sectors.

For each Role identified in Task 1, Training content development and imparting would largely be done considering the project implementation stages as well. The Specialists in the project team will coordinate the identification of roles, knowledge, tools, and skills – for the functional areas.

**Task 3: Content Development:** Content Development will be undertaken in areas of Technical, Project Management Skills etc.

**Task 4: Training Programme Design and Implementation:** Skills transfer can be achieved through a three-pronged approach, i.e.

1. **An academic grounding:** The skills transfer programme will consist of a series of slide presentations and lectures to be delivered by various experts in the project team, in line with their specific specialities.
2. **A mentoring, on-the-job,** doing up-skilling delivery to impart practical skills, using various tools, commissioning, and managing surveys, interfacing with Stakeholders, standing your ground whilst maintaining the ‘civil’ in the ‘civil service, etc.

3. **Empanelled Training:** Academic re-enforcements through **certificated continued professional development courses**.

**Task 5: Monitoring and Evaluation:** This task would involve evaluation of the extent of achievement of over-all progress. Sample parameters like timelines, risks and deviation will be used to monitor the process. We will setup for each of the identified staff an individual career development path.

#### **4.4.1 Conclusion**

Above all, our approach is cognisant of the important responsibility of ensuring **skills transfer and capacity building** within the Client's organisation and/or other key stakeholder institutions wherever possible. We will do this by ensuring that we carry out a **skills audit** relevant to our assignment, identify any training needs and formulate a **plan of action** to ensure that the Clients technical personal are involved in the whole project life cycle on specific identified training needs.

The training will be structured around the specific training needs identified and related to the project for all the project phases.

## **m. Workplan and Design Output**

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The milestones for key activities as proposed by us are broken down below:

| Item | Description of Services                           | Timeline |
|------|---|----------|
|      | <ul style="list-style-type: none"><li>•</li></ul> |          |
|      | <ul style="list-style-type: none"><li>•</li></ul> |          |
|      |   |          |
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|      |   |          |

## **n. Engineering Design Output**

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### **6.1 Detailed Working Drawings**

These will comprise

### **6.2 Technical Specifications**

Detailed specifications which outline the materials, workmanship, construction methodologies, and required tests and compliances will be produced.

### **6.3 Design Reports**

The Design Report will comprise results of the investigations carried out and assumptions made in the design. It will also present a comprehensive narrative of the various elements of the project. All layout drawings will be appended to the main report as part of the submission.

### **6.4 Computer Aided Design Packages**

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### **6.5 Construction Supervision Reports**

## **Appendix B**

### **Experience and Qualifications**

## 7 Experience and References

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Urban infrastructure Projects Africa (Pvt) Ltd is an inimitable local Consulting Engineering firm, which passionately advocates for inclusive design. Firmly footed in Zimbabwe we provide tailor made solutions to various institutions who wish to embark on infrastructure development projects. Through extensive experience in the local industry and international exposure, we deliver world-class yet cost effective engineering solutions. We also provide due diligence, cost control, contract administration and quality control services on projects as well.

Our team is led by highly passionate and motivated professionals who have years of experience in delivering infrastructure development projects locally and abroad. Great emphasis is placed on innovation transparency, attention to detail and ethical conduct in all our operations.

UIP Africa has undertaken a couple of similar infrastructural development projects over the years and below is a summary of the projects. Client testimonials/references for these projects are also attached.

| <b>Completed Services</b>                  |                                |                   |                 |                        |
|--|--------------------------------|-------------------|-----------------|------------------------|
| <b>Employer name &amp; contact details</b> | <b>Description of Services</b> | <b>Start Date</b> | <b>End Date</b> | <b>Estimated Value</b> |
|  |                                |                   |                 |                        |
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## 8 Project Team

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Below is an outline of the experience of each of the key team members and their proposed positions on the project. Curricula vitae for the full team are included in Appendix B1. All staff are registered members of the following professional bodies:

- Zimbabwe Institution of Engineers
- Engineering Council of Zimbabwe
- Zimbabwe Institute of Geomatics

### 8.1 Team Leader – Knowledge Mudzengerere

### 8.2 Civil Engineer –

**8.3 Electrical Engineer –**

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**8.4 Mechanical Engineer -**

**8.5 Geotechnical Engineer -**

**8.6 Engineering and Land Surveyor –**

**8.7 Civil Technologist –**

**8.8 CAD Technician –**

## **8.9 Organogram**

## Appendix B1

### CVs & Qualifications for key Personnel

| Supersedes                 | Effective Date | Revision | Page     |
|----------------------------|----------------|----------|----------|
| UIPA-QA-PL-OPS-3-002 Rev 1 | 01-08-2024     | 02       | 36 of 38 |

## Appendix B2

### Company Documents

- Certificate of Incorporation
- CR 6
- CR14
- Power of Attorney
- Tax Registration Certificate
- Tax Clearance Certificate
- PRAZ Registration
- NSSA Registration
- Professional Registration  
Certificates (ECZ, ZACE)
- Company Profile
- Professional Indemnity Policy

| Supersedes                 | Effective Date | Revision | Page     |
|----------------------------|----------------|----------|----------|
| UIPA-QA-PL-OPS-3-002 Rev 1 | 01-08-2024     | 02       | 37 of 38 |

| Supersedes                 | Effective Date | Revision | Page     |
|----------------------------|----------------|----------|----------|
| UIPA-QA-PL-OPS-3-002 Rev 1 | 01-08-2024     | 02       | 38 of 38 |