DEPARTMENT OF WATER AND SANITATION
REBPUBLIC OF SOUTH AFRICA

REQUEST FOR BID

REQUEST FOR BID NUMBER: WP11501

DESCRIPTION

MUSINA WATER DEVELOPMENT PROJECT: PHASE 3 - MODULE 1: TECHNICAL FEASIBILITY STUDY FOR A PERIOD OF 36 MONTHS

ISSUE DATE:

7 FEBRUARY 2025

CLOSING DATE:

11 MARCH 2025
TIME: 11:00

Briefing Session not Compulsory
Date: 26 February 2025
Time: 11:00
Teams: Join the meeting now
Meeting ID: 380 159 873 420
Passcode: pb2Ce22i

SUBMIT TENDER DOCUMENT
TO

POSTAL ADDRESS:
DIRECTOR-GENERAL: WATER AND SANITATION
PRIVATE BAG X 313
PRETORIA,0001

OR

TO BE DEPOSIT IN:
THE TENDER BOX AT THE ENTRANCE
OF ZWAMADAKA BUILDING
157 FRANCIS BAARD STREET
(FORMERLY SCHOEMAN STREET)
PRETORIA,0002

TENDERER: (Company address and stamp)

Please be aware that the Department representatives at SCM will never call you and demand bribes in exchange for tender. If this happens, please notify the Department.

water & sanitation
Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

DIRECTIVE TO BIDDERS ON COMPLETION OF SBD FORMS AND PACKAGING OF BID PROPOSAL

The purpose of this document is to guide bidders on the completion of SBD forms and packaging of a Bid Proposals with each document being placed under the correct Annexure. The last column of the table below (this column must be ticked as an indication that each document and its requirements have been complied with by the bidder). The dates on this all-SBD forms must be a date which is within the bid advert period

TABLE OF CONTENTS FOR BID PROPSALS

DOCUMENT	ANNEXURE	DIRECTIVE	COMPLIED/NOT COMPLIED
SBD 1	**A**	Bidders are required to complete this document in full and be signed off. The date on this form must be a date which is within the bid advert period	
SBD .3.3	**B**	Bidders are required to complete the applicable form in full and ensure that the amounts in the document are properly calculated. The total amount (inclusive of VAT) as reflected herein will be regarded as the Total Bid Price. **Bidders who are not VAT Vendors are not allowed to charge VAT** Bidders are required to constantly verify their TAX Status on CSD to ensure that their task matters are in order	
SBD 4	**C**	This document must be completed in full. **Bidders' attention is drawn particularly to paragraph 2.3 which requires the bidder to disclose if the company or any of its directors have interest in other companies whether they have bidded or not. Bidders are required to provide all information. Should a bidder have more companies to declare, such information can be provided on a separate sheet in the format prescribed in the form and be attached to the SBD 4. Information captured must be in line with what is captured in the CSD report**	
SBD 6.1	**D**	This document must be completed in full. Bidders are advised to ensure that information captured in this this form is aligned to information contained in the CSD Reports.	
BBBEE Certificate/Sworn affidavit	**E**	Bidders are required to submit a valid BBBEE Certificate or sworn affidavit.	
CSD Report	**F**	Bidders are requested to provide copies of reg CSD Report.	
Certificate of authority for signatory	**G**	3 Different forms are attached. Bidders are required to only complete one form which is relevant to their situation	
Copy of an Identity document of the authorised individual	**H**	The ID copy to be attached should be that of a person authorised to represent the Service provider as per the completed certificate of authority for signatory form	
Copy of Company's CIPC Certificate	**I**	Bidders are required to attach copies of the CIPC Certificates	
Bid Proposal	**J**	A detailed bid proposal inline with the Specifications must be attached	

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE *(NAME OF DEPARTMENT/ PUBLIC ENTITY)*					
BID NUMBER:	**WP11501**	CLOSING DATE:	**11 MARCH 2025**	CLOSING TIME:	**11H00**
DESCRIPTION	**MUSINA WATER DEVELOPMENT PROJECT: PHASE 3 - MODULE 1: TECHNICAL FEASIBILITY STUDY FOR A PERIOD OF 36 MONTHS**				

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT *(STREET ADDRESS)*

ZWAMADAKA BUILDING ENTRANCE

157 SCHOEMAN STREET

PRETORIA

0002

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO		**TECHNICAL ENQUIRIES MAY BE DIRECTED TO:**	
CONTACT PERSON	**Mr JACOB MABUSELA**	CONTACT PERSON	**Mr Prashen Jugdawooh**
TELEPHONE NUMBER	**012 336 7240**	TELEPHONE NUMBER	**012 336 8188**
CELLPHONE		CELLPHONE	**082 610 0408**
E-MAIL ADDRESS	mabuselaj@dws.gov.za	E-MAIL ADDRESS	JugdawoohP@dws.gov.za

SUPPLIER INFORMATION

NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA

B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	TICK APPLICABLE BOX] ☐ Yes ☐ No	B-BBEE STATUS LEVEL SWORN AFFIDAVIT	[TICK APPLICABLE BOX] ☐ Yes ☐ No

[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]	ARE YOU A FOREIGN BASED SUPPLIER FOR **THE GOODS /SERVICES /WORKS OFFERED?**	☐Yes ☐No [IF YES, ANSWER PART B:3]

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO

DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO

DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO

DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO

IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.

PART B
TERMS AND CONDITIONS FOR BIDDING

1.	**BID SUBMISSION:**
1.1.	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2.	**ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.**
1.3.	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4.	**THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).**
2.	**TAX COMPLIANCE REQUIREMENTS**
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3	APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4	BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7	NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....
(Proof of authority must be submitted e.g. company resolution)

DATE: .....

PRICING SCHEDULE
(Professional Services)

NAME OF BIDDER: ..... BID NO: **WP11501**

CLOSING TIME 11:00 ..... CLOSING DATE: **11 MARCH 2025**

OFFER TO BE VALID FOR 180 DAYS FROM THE CLOSING DATE OF BID.

ITEM NO	DESCRIPTION	BID PRICE IN RSA CURRENCY ** (ALL APPLICABLE TAXES INCLUDED)

1. The accompanying information must be used for the formulation of proposals.
2. Bidders are required to indicate a ceiling price based on the total estimated time for completion of all phases and including all expenses inclusive of all applicable taxes for the project. R.....

3. PERSONS WHO WILL BE INVOLVED IN THE PROJECT AND RATES APPLICABLE (CERTIFIED INVOICES MUST BE RENDERED IN TERMS HEREOF)

4. PERSON AND POSITION	HOURLY RATE	DAILY RATE
----------	R----------	----------
----------	R----------	----------
----------	R----------	----------
----------	R----------	----------
----------	R----------	----------

5. PHASES ACCORDING TO WHICH THE PROJECT WILL BE COMPLETED, COST PER PHASE AND MAN-DAYS TO BE SPENT

----------	R----------	---------- days
----------	R----------	---------- days
----------	R----------	---------- days
----------	R----------	---------- days

5.1 Travel expenses (specify, for example rate/km and total km, class of airtravel, etc). Only actual costs are recoverable. Proof of the expenses incurred must accompany certified invoices.

DESCRIPTION OF EXPENSE TO BE INCURRED	RATE	QUANTITY	AMOUNT
----------	.....	.....	R.....
----------	.....	.....	R.....
----------	.....	.....	R.....
----------	.....	.....	R.....

TOTAL: R.....

" all applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies.**

Bid No.: .....

Name of Bidder: .....

5.2 Other expenses, for example accommodation (specify, e.g. Three star hotel, bed and breakfast, telephone cost, reproduction cost, etc.). On basis of these particulars, certified invoices will be checked for correctness. Proof of the expenses must accompany invoices.

DESCRIPTION OF EXPENSE TO BE INCURRED	RATE	QUANTITY	AMOUNT
----------	.....	.....	R.....
----------	.....	.....	R.....
----------	.....	.....	R.....
----------	.....	.....	R.....

TOTAL: R.....

6. Period required for commencement with project after acceptance of bid .....

7. Estimated man-days for completion of project .....

8. Are the rates quoted firm for the full period of contract? *YES/NO

9. If not firm for the full period, provide details of the basis on which adjustments will be applied for, for example consumer price index. .....

.....

.....

.....

*[DELETE IF NOT APPLICABLE]

BIDDER'S DISCLOSURE

1. PURPOSE OF THE FORM

Any person (natural or juristic) may make an offer or offers in terms of his invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

2. Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest1 in the enterprise,
employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	**Identity Number**	**Name of State institution**

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

.....
.....

1 the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

Name of company related to	**CSD Registration number of the company related to**

3 DECLARATION

I, the undersigned, (name)..... in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium2 will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of

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2 Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

the awarding of the contract.

3.5 There have been no consultations, communications, agreements, or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS

OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING

AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD

THIS DECLARATION PROVE TO BE FALSE.

.....	.....
Signature	Date
.....	.....
Position	Name of bidder

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, TENDERERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022

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1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and

1.2 To be completed by the organ of state

a) The applicable preference point system for this tender is the 80/20 preference point system.

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

(a) Price; and

(b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	**100**

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right) \text{ or } \quad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. **POINTS AWARDED FOR PRICE**

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system: or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Women	5	
People with disability	5	
Youth (35 and below)	5	
Location of enterprise (Province)	2	
B-BBEE status level contributors from level 1 to 2 which are QSE or EME	3	
Total points for SPECIFIC GOALS	20	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number: .....

4.5. TYPE OF COMPANY/ FIRM

Partnership/Joint Venture / Consortium
One-person business/sole propriety
Close corporation
Public Company
Personal Liability Company
(Pty) Limited
Non-Profit Company
State Owned Company
[TICK APPLICABLE BOX]

4.6. I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the

company/ firm for the preference(s) shown and I acknowledge that:

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation.

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME: .....
DATE: .....

ADDRESS: .....

.....

.....

.....

STANDARD EVALUATION CRITERIA IN TERMS OF THE PREFERENTIAL PROCUTEMENT REGULATIONS 2022

THE 80/20 POINTS AWARDED FOR PRICE AND SPECIFIC GOALS

The 80/20 Preferential Procurement System will be used in evaluating these bids:

Evaluation element	Weighting (Points)
SPECIFIC GOALS	20
PRICE	80
Total	**100**

Price

A maximum of 80 points are allocated for price on the following basis:

$$Ps = 80\left(1 - \frac{Pt - P\ \min}{P\ \min}\right)$$

Where:
Ps = Points scored for comparative price of bid under consideration
Pt = Comparative price of bid under consideration
Pmin = Comparative price of lowest acceptable bid

Preference point system

SPECIFIC GOALS	NUMBER OF POINTS TO BE ALLOCATED
Women	**5**
People with disability	**5**
Youth (35 and below)	**5**
Location of enterprise (Province)	**2**
B-BBEE status level contributors from level 1 to 2 which are QSE or EME	**3**
Total points for SPECIFIC GOALS	**20**

Documents Requirement for verification of Points allocation: -

Procurement Requirement	Required Proof Documents
Women	Full CSD Report
Disability	Full CSD Report
Youth	Full CSD Report
Location	Full CSD Report
B-BBEE status level contributors from level 1 to 2 which are QSE or EME	Valid BBBEE certificate/sworn affidavit Consolidated BEE certificate in cases of Joint Venture Full CSD Report

The definition and measurement of the goals above is as follows:

Women, disability, and youth:

This will be measured by calculating the pro-rata percentage of ownership of the bidding company which meets this criterion. E.g., Company A has five shareholders each of whom own 20% of the company. Three of the five shareholders meet the criterion, i.e. they are women/disability/youth. Therefore, this bidder will obtain 60% of the points allowable for this goal.

Location of enterprise

Local equals province. Where a project cuts across more than one province, the bidder may be located in any of the relevant provinces to obtain the points.

B-BBEE status level contributors from level 1 to 2 which are QSE or EME

Measured in terms of normal BBBEE requirements.

Note: Formula for calculating points for specific goals

Preference points for entities are calculated on their percentage shareholding in a business, provided that they are actively involved in and exercise control over the enterprise. The following formula is prescribed:

$$PC = Mpa \times \frac{P\text{-}own}{100}$$

Where

PC= Points awarded for specific goal

Mpa= The maximum number of points awarded for ownership in that specific category

P-own = The percentage of equity ownership by the enterprise or business

RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

_____

_____

(*Legally correct full name and registration number, if applicable, of the Enterprise*)

Held at _____ (*place*)

on _____ (*date*)

RESOLVED that:

1. The Enterprise submits a Bid /Tender, in consortium/Joint Venture with the following Enterprises:

   _____

   _____

   (*List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture*)

   to the Department of Water and Sanitation in respect of the following project:

   _____

   _____

   (*Project description as per Bid /Tender Document*)

   Bid / Tender Number: _____ (*Bid / Tender Number as per Bid / Tender Document*)

2. *Mr/Mrs/Ms: _____

   in *his/her Capacity as: _____ (*Position in the Enterprise*)

   and who will sign as follows: _____

   be, and is hereby, authorised to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.

4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

   Physical address: _____

   _____

   _____

   _____ (code)

Resolution of Board of Directors to enter into Consortia or Joint Ventures

Postal Address: _____

_____

_____

_____ (code)

Telephone number: _____

Fax number: _____

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			

The bidding enterprise hereby absolves the Department of Water and Sanitation from any liability whatsoever that may arise as a result of this document being signed

Note:

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must, where possible, be signed by <u>all</u> the Directors / Members / Partners of the Bidding Enterprise.*
3. *In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).*
4. *Directors / Members / Partners of the Bidding Enterprise may alternatively delegate a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed Delegation of Authority letter, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and Delegation of Authority letter are to be attached hereto).*
5. *Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.*

ENTERPRISE STAMP

SPECIAL RESOLUTION OF CONSORTIA OR JOINTVENTURES

RESOLUTION of a meeting of the duly authorized representatives of the following legal entities who have entered into a consortium/joint venture to jointly bid for the project mentioned below: (*legally correct full names and registration numbers, if applicable, of the Enterprises forming a Consortium/Joint Venture)*

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

7. _____

_____

8. _____

Held at_____

_____(*pla*

*ce)*on

_____(*dat*

e)

RESOLVED that:

A. The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the Department of Water and Sanitation in respect of the following project:

_____

_____

(*Project description as per Bid /Tender Document)*

Bid / Tender Number:_____(*Bid / Tender Number as per Bid /Tender Document)*

B. *Mr/Mrs/Ms:_____in *his/her

Capacity as:_____(*Position in the Enterprise)*and who will sign as follows: _____

be, and is hereby, authorized to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

C. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

_____

D. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the Department in respect of the project described under item A above.

E. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the Department for the due fulfilment of the obligations of the Consortium/Joint

Venture as mentioned under item D above.

F. No Enterprise to the Consortium/Joint Venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the Department referred to herein.

G. The Enterprises choose as the *domicilium citandi et executandi* of the Consortium/Joint Venture for all purposes arising from the consortium/joint venture agreement and the Contract with the Department in respect of the project under item A above:

Physical address:_____

_____

_____

_____

(code)Postal Address:_____

_____

_____

_____ (code)

Telephone number: _____

Fax number: _____

	Name	Capacity	Signature
1			
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3			
4			
5			

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7			
8			
9			
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11			
12			
13			
14			
15			

The bidding enterprise hereby absolves the Department of Water and Sanitation from any liability whatsoever that may arise as a result of this document being signed.

Note:

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must be signed by all the Duly Authorized Representatives of the Legal Entities to the consortium/joint venture submitting this tender, as named in item 2 of **RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES***
3. *Should the number of the Duly Authorized Representatives of the Legal Entities joining forces in this tender exceed the space available above, additional names, capacity and signatures must be supplied on a separate page.*
4. ***RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES**, duly completed and signed, from the separate Enterprises who participate in this consortium/joint venture,must be attached to this **SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES***

LETTER OF AUTHORITY FOR SOLE PROPRIETOR OR SOLE TRADER

I, ...hereby confirm that I am the sole owner of the business trading as .....

Signature: Sole owner..... .....

Date.....

Witnesses:

1. ---------- ----------
Date :

2. ---------- ----------

ENTERPRISE STAMP

RESOLUTION OF BOARD OF DIRECTORS FOR COMPANY /CLOSE CORPORATION/ PARTNERSHIP

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

_____

(legally correct full name and registration number, if applicable, of the Enterprise)

Held at_____*(place)*

on_____*(date)*

RESOLVED that:

1. The Enterprise submits a Bid / Tender to the Department of Water and Sanitation in respect of the following project:

   _____

   (project description as per Bid / Tender Document)

   Bid / Tender Number:_____*(Bid / Tender Number as per Bid / Tender Document)*

2. *Mr/Mrs/Ms: _____

   in *his/her Capacity as:_____ *(Position in the Enterprise)*

   and who will sign as follows: _____

   be, and is hereby, authorized to sign the Bid / Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid / Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid / Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
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Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

14			
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The bidding enterprise hereby absolves the Department of Water and Sanitation from any liability whatsoever that may arise as a result of this document being signed.

Note:

1. ** Delete which is not applicable.*
2. ***NB:** This resolution must, where possible, be signed by all the Directors / Members / Partners of the Bidding Enterprise.*
3. *In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).*
4. *Directors / Members / Partners of the Bidding Enterprise may alternatively delegate a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed Delegation of Authority letter, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and Delegation of Authority letter are to be attached hereto).*
5. *Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.*

ENTERPRISE STAMP

Annexure A

GOVERNMENT PROCUREMENT

GENERAL CONDITIONS OF CONTRACT
July 2010

NOTES

The purpose of this document is to:

(i) Draw special attention to certain general conditions applicable to government bids, contracts and orders; and

(ii) To ensure that clients be familiar with regard to the rights and obligations of all parties involved in doing business with government.

In this document words in the singular also mean in the plural and vice versa and words in the masculine also mean in the feminine and neuter.

- The General Conditions of Contract will form part of all bid documents and may not be amended.

- Special Conditions of Contract (SCC) relevant to a specific bid, should be compiled separately for every bid (if (applicable) and will supplement the General Conditions of Contract. Whenever there is a conflict, the provisions in the SCC shall prevail.

TABLE OF CLAUSES

General Conditions of Contract

1. Definitions

1. The following terms shall be interpreted as indicated:

1.1 "Closing time" means the date and hour specified in the bidding documents for the receipt of bids.

1.2 "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.3 "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.

1.4 "Corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution.

1.5 "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.

1.6 "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

1.7 "Day" means calendar day.

1.8 "Delivery" means delivery in compliance of the conditions of the contract or order.

1.9 "Delivery ex stock" means immediate delivery directly from stock actually on hand.

1.10 "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the supplies are so delivered and a valid receipt is obtained.

1.11 "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.

1.12 "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

1.13 "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

1.14 "GCC" means the General Conditions of Contract.

1.15 "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.

1.16 "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the supplies covered by the bid will be manufactured.

1.17 "Local content" means that portion of the bidding price which is not included in the imported content provided that local manufacture does take place.

1.18 "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.

1.19 "Order" means an official written order issued for the supply of goods or works or the rendering of a service.

1.20 "Project site," where applicable, means the place indicated in bidding documents.

1.21 "Purchaser" means the organization purchasing the goods.

1.22 "Republic" means the Republic of South Africa.

1.23 "SCC" means the Special Conditions of Contract.

1.24 "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.

1.25 "Written" or "in writing" means handwritten in ink or any form of electronic or mechanical writing.

2. Application

2.1 These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services, sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.

2.2 Where applicable, special conditions of contract are also laid down to cover specific supplies, services or works.

2.3 Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

3.1 Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.

3.2 With certain exceptions, invitations to bid are only published in the Government Tender Bulletin. The Government Tender Bulletin may be obtained directly from the Government Printer, Private Bag X85, Pretoria 0001, or accessed electronically from www.treasury.gov.za

4. Standards

4.1 The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information; inspection.

5.1 The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2 The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.

5.3 Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

5.4 The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent rights

6.1 The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

7. Performance

7.1 Within thirty (30) days of receipt of the notification of contract award,

security

the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.

7.2 The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.

7.3 The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:

(a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or
(b) a cashier's or certified cheque

7.4 The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified in SCC.

8. Inspections, tests and analyses

8.1 All pre-bidding testing will be for the account of the bidder.

8.2 If it is a bid condition that supplies to be produced or services to be rendered should at any stage during production or execution or on completion be subject to inspection, the premises of the bidder or contractor shall be open, at all reasonable hours, for inspection by a representative of the Department or an organization acting on behalf of the Department.

8.3 If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

8.4 If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the supplies to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

8.5 Where the supplies or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such supplies or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

8.6 Supplies and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

8.7 Any contract supplies may on or after delivery be inspected, tested or analyzed and may be rejected if found not to comply with the requirements of the contract. Such rejected supplies shall be held at the

cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with supplies which do comply with the requirements of the contract. Failing such removal the rejected supplies shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute supplies forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected supplies, purchase such supplies as may be necessary at the expense of the supplier.

8.8 The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 23 of GCC.

9. Packing

9.1 The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

10.1 Delivery of the goods shall be made by the supplier in accordance with the terms specified in the contract. The details of shipping and/or other documents to be furnished by the supplier are specified in SCC.

10.2 Documents to be submitted by the supplier are specified in SCC.

11. Insurance

11.1 The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the SCC.

12. Transportation

12.1 Should a price other than an all-inclusive delivered price be required, this shall be specified in the SCC.

13. Incidental services

13.1 The supplier may be required to provide any or all of the following services, including additional services, if any, specified in SCC:

(a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
(b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
(c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
(d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties,

provided that this service shall not relieve the supplier of any warranty obligations under this contract; and

(e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2 Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare parts

14.1 As specified in SCC, the supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the supplier:

(a) such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and

(b) in the event of termination of production of the spare parts:

(i) Advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and

(ii) following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1 The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2 This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise in SCC.

15.3 The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the supplier shall, within the period specified in SCC and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5 If the supplier, having been notified, fails to remedy the defect(s) within the period specified in SCC, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser

may have against the supplier under the contract.

16. Payment

16.1 The method and conditions of payment to be made to the supplier under this contract shall be specified in SCC.

16.2 The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfillment of other obligations stipulated in the contract.

16.3 Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4 Payment will be made in Rand unless otherwise stipulated in SCC.

17. Prices

17.1 Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized in SCC or in the purchaser's request for bid validity extension, as the case may be.

18. Contract amendments

18.1 No variation in or modification of the terms of the contract shall be made except by written amendment signed by the parties concerned.

19. Assignment

19.1 The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1 The supplier shall notify the purchaser in writing of all subcontracts awarded under this contracts if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the supplier from any liability or obligation under the contract.

21. Delays in the supplier's performance

21.1 Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.

21.2 If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

21.3 No provision in a contract shall be deemed to prohibit the obtaining of supplies or services from a national department, provincial department, or a local authority.

21.4 The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the supplies are required, or the supplier's services are not readily

available.

21.5 Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 21.2 without the application of penalties.

21.6 Upon any delay beyond the delivery period in the case of a supplies contract, the purchaser shall, without canceling the contract, be entitled to purchase supplies of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

22.1 Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

23.1 The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

(a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;

(b) if the Supplier fails to perform any other obligation(s) under the contract; or

(c) if the supplier, in the judgment of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

23.2 In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3 Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4 If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the

envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the intended penalty as not objected against and may impose it on the supplier.

23.5 Any restriction imposed on any person by the Accounting Officer / Authority will, at the discretion of the Accounting Officer / Authority, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the Accounting Officer / Authority actively associated.

23.6 If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

(i) the name and address of the supplier and / or person restricted by the purchaser;
(ii) the date of commencement of the restriction
(iii) the period of restriction; and
(iv) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7 If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website.

24. Anti-dumping and countervailing duties and rights

24.1 When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the contractor to the State or the State may deduct such amounts from moneys (if any) which may otherwise be due to the contractor in regard to supplies or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him

25. Force Majeure

25.1 Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2 If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1 The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the purchaser.

27. Settlement of Disputes

27.1 If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

27.2 If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.

27.3 Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.

27.4 Mediation proceedings shall be conducted in accordance with the rules of procedure specified in the SCC.

27.5 Notwithstanding any reference to mediation and/or court proceedings herein,

(a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
(b) the purchaser shall pay the supplier any monies due the supplier.

28. Limitation of liability

28.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6;

(a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and

(b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

29.1 The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

30.1 The contract shall be interpreted in accordance with South African laws, unless otherwise specified in SCC.

31. Notices

31.1 Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice

31.2 The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

32.1 A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.

32.2 A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.

32.3 No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid the Department must be in possession of a tax clearance certificate, submitted by the bidder. This certificate must be an original issued by the South African Revenue Services.

33. National Industrial Participation (NIP) Programme

33.1 The NIP Programme administered by the Department of Trade and Industry shall be applicable to all contracts that are subject to the NIP obligation.

34. Prohibition of Restrictive practices

34.1 In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder (s) is / are or a contractor(s) was / were involved in collusive bidding (or bid rigging).

34.2 If a bidder(s) or contractor(s), based on reasonable grounds or evidence obtained by the purchaser, has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in the Competition Act No. 89 of 1998.

34.3 If a bidder(s) or contractor(s), has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

DIRECTORATE: WATER RESOURCES DEVELOPMENT PLANNING

TERMS OF REFERENCE

MUSINA WATER AUGMENTATION PROJECT: PHASE 3 - MODULE 1: TECHNICAL FEASIBILITY STUDY FOR A PERIOD OF 36 MONTHS

DECEMBER 2024

TABLE OF CONTENTS

LIST OF ANNEXURES

LIST OF ACRONYMS AND ABBREVIATIONS

AADD	Average Annual Daily Demand
BoQ	Bill of Quantities
CD: IWRP	Chief Directorate: Integrated Water Resource Planning (now CD: NWRP)
CD: NWRP	Chief Directorate: National Water Resource Planning (previously CD: IWRP)
CMA	Catchment Management Agency
D: NWRP	Directorate: National Water Resources Planning (now D: SWRP)
D: SWRP	Directorate: Strategic Water Resources Planning (previously D: NWRP)
D: WRMP	Directorate: Water Resource Management Planning (previously D: WRPS)
D: WRPS	Directorate: Water Resources Planning Systems (now D: WRMP)
DFFE	Department of Forestry, Fisheries and the Environment
DMR	Department of Mineral Resources
DWA	Department of Water Affairs (now the DWS)
DWAF	Department of Water Affairs and Forestry (now the DWS)
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer

EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
EWR	Ecological Water Requirements
FSL	Full Supply Level
GWS	Government Water Scheme
HFL	High Flood Level
HFY	Historical Firm Yield
HPP	Proposed Hydropower Plant
I&APs	Interested and Affected Parties
IVRS	Integrated Vaal River System
LIMCOM	Limpopo Watercourse Commission
LHWP	Lesotho Highlands Water Project
LLWSS	Luvuvhu & Letaba Water Supply System
LM	Local Municipality
LSY	Long-term Stochastic Yield
MAE	Mean Annual Evaporation
MAP	Mean Annual Participation
MAR	Mean Annual Runoff
MCDA	Multi-Criteria Decision Analysis
MMSEZ	Musina Makhado Special Economic Zone
MWAP	Musina Water Augmentation Project
O&M	Operation and Maintenance
PPE	Personal Protective Equipment
PPP	Public Participation Process
PSP	Professional Services Provider
PSR	Project Summary Report
PWWD	Peak Weak Water Demand
RDM	Reserve Determination Model
RMF	Regional Maximum Flood
RSA	Republic of South Africa

SADC	Southern African Development Community
SEF	Safety Evaluation Flood
SMC	Study Management Committee
SSC	Study Steering Committee
TCTA	Trans-Caledon Tunnel Authority
ToR	Terms of Reference
URV	Unit Reference Value
VAPS	Vaal Augmentation Planning Study
VDM	Vhembe District Municipality
WC/WDM	Water Conservation and Water Demand Management
WMA	Water Management Area
WRPM	Water Resource Planning Model
WRSM	Water Resource Simulation Model
WRYM	Water Resource Yield Model
WTW	Water Treatment Works
WUL	Water Use License

LIST OF MEASUREMENT UNITS

km^2	square kilometre
million m^3	million cubic meters
million m^3/a	million cubic meters per annum
Mℓ/d	megalitres per day
mm/a	millimetre per annum
R/m^3	Rand per cubic meter

1. INTRODUCTION, BACKGROUND, AND STUDY AREA

1.1 INTRODUCTION

The current water resources of the Limpopo WMA are insufficient to meet the medium-to long-term water requirements of the Musina area. Several short to medium term interventions have been proposed for implementation in the interim. These interventions include addressing the current water supply problems utilising boreholes in the area and the transfer of potable water from the Beit Bridge Water Treatment Works (WTW) in Zimbabwe to augment water supply to Musina. Past investigations have indicated that these interventions would only address the short to medium term water requirements in the Musina area and that additional water resources are required for the longer term.

The RSA is a Contracting Party to the LIMCOM, together with Mozambique, Zimbabwe and Botswana. The purpose of the LIMCOM is to advise Contracting Parties on matters related to the development, utilization, and conservation of the water resources of the Limpopo River Basin. It is within the ambit of LIMCOM that joint projects and programs are identified, implemented, managed, and monitored which will prove to be a good resource for obtaining useful information regarding the Limpopo WMA.

The envisaged tasks for this feasibility study are set out in Chapter 6, Scope of Services. The objective of the Study is to undertake a feasibility level investigation and environmental impact assessment for the selected option to Augment Water Supply to the Musina Area. This will consist of water resource analysis, engineering analysis/reviews, scheme optimisation, conceptual design (desktop) and environmental impact assessment. The PSP will be required to liaise closely with the Vhembe District Municipality (VDM) and other role players in the study area.

The PSP team must provide multi-disciplinary skills and expertise required to undertake this Study within the time constraints provided. The Study leader must be a professional engineer, experienced in coordinating and managing a study of this nature (dam development/planning), who will form the main link between the DWS and the study teams as shown in Figure 1.1 below.

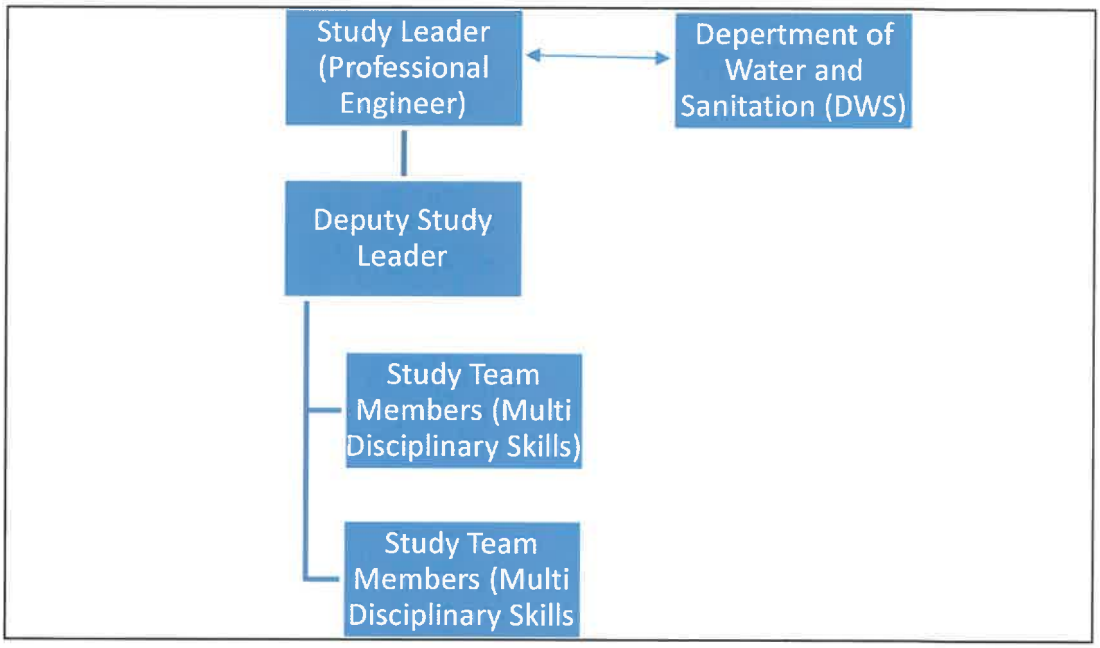

Figure 1.1: Study Team Structure with Reporting Link

The PSP will be appointed by DWS to carry out all the necessary work as described in the Scope of Services (Section 6) to facilitate the successful conclusion of this Study. The Scope of Services will be the minimum requirements that DWS will accept.

It is estimated that the duration of the Study will be **36 months.**

1.2 BACKGROUND

Over the next 50 years, the RSA is expected to experience continuing industrial and agricultural development, an ever-increasing demand for power, and annual national population growth. This will put growing pressure on the country's limited water resources. The Department of Water and Sanitation (DWS) and its partners in the Public Sector and the Private Sector are responsible for numerous programs to ensure the sustainability of the RSA's water supply. These include management initiatives, aimed at the efficient use of water resources through continuing Water Conservation and Water Demand Management (WC/WDM), public awareness campaigns and other initiatives, as well as Planning Investigations and Studies for future schemes to augment water supply.

There is increasing awareness of the RSA's dependence on its neighbours for additional water resources. Already the Integrated Vaal River System (IVRS), which is the primary source of water for RSA's economic hub in Gauteng, is supported extensively by transboundary water transfers via the Lesotho Highlands Water Project (LHWP). The LHWP incorporates two (2) major dams, namely the Katse Dam and Mohale Dam. Phase 2 of the LHWP is currently underway, which includes the construction of the Proposed Polihali Dam.

In the past, other transboundary schemes were also identified as possible additional sources of water for the RSA, like the Lesotho - Botswana Transfer Scheme and projects under the RSA - Swaziland Partnerships. Other proposals are the transfer of water from the RZW to the Northern Parts of the RSA. Such a scheme would provide critical support for the anticipated growth in water requirements associated with the development of the coal fields of the RSA's water-poor Limpopo Province and could even be extended southwards at a later stage to support areas currently dependent on the Olifants River System, Crocodile (West) River System, and the IVRS.

Catchments in the Limpopo WMA and the Luvuvhu and Letaba WMA were identified to assist with Augmentation of water to the Musina Area. The Sand River and Mutale River Catchments were identified respectively.

The Sand River catchment is the driest catchment in the Limpopo WMA, with very limited surface water resources. However, it has exceptional groundwater reserves which have been fully and possibly over-exploited, mostly by irrigation. The water requirements in this catchment are large compared to the rest of the WMA, with irrigation again being the largest water user. Urban requirements are supplied mostly from transfers from other WMAs. Several major developments are anticipated for the Sand River Catchment. These include the Limpopo Eco Industrial Park (LEIP) and the Special Economic Zone (SEZ), both near Musina. Water requirements for these developments have not yet been quantified but will have to be supplied from sources outside of the Limpopo WMA.

The water resources in the Mutale River catchment are still underdeveloped as limited storage structures, for exampledams, exist in this sub-catchment. Mukumbani Dam in the upper reaches of the Tshirovha River supplying water to the Mukumbani Tea Estate is the only dam in this catchment. The surface water appears to be of

reasonable quality and has not been polluted to any great extent by the present developments. The Vondo North Rural RWS and the Damani RWS are both partly located in the Mutale catchment and are supplied with water from Vondo and Damani dams respectively, which are both located in the Luvuvhu River catchment. The remainder of the Rural Water Supply Schemes are supplied from Mutale surface (50%) and groundwater resources (50%), with almost similar volumes used from both sources. Some irrigation did exist in the past, it is however uncertain how much of the irrigation is currently still practised.

1.3 STUDY AREA

The Study Area covers the following catchments and areas the:

- Sand River Catchment (Possible dam site and conveyance route to Musina);
- Mutale River Catchment (Possible dam site and conveyance route to Musina and supply areas within Luvuvhu Catchment);
- Limpopo River Catchment;
- Musina Area, which will be the Receiving Area.

The study areas are illustrated in **Figure 2.1** and **Figure 2.2** which are maps of the areas for the two proposed solutions. **Figure 1.1** below illustrates the Limpopo River catchment and all rivers within it.

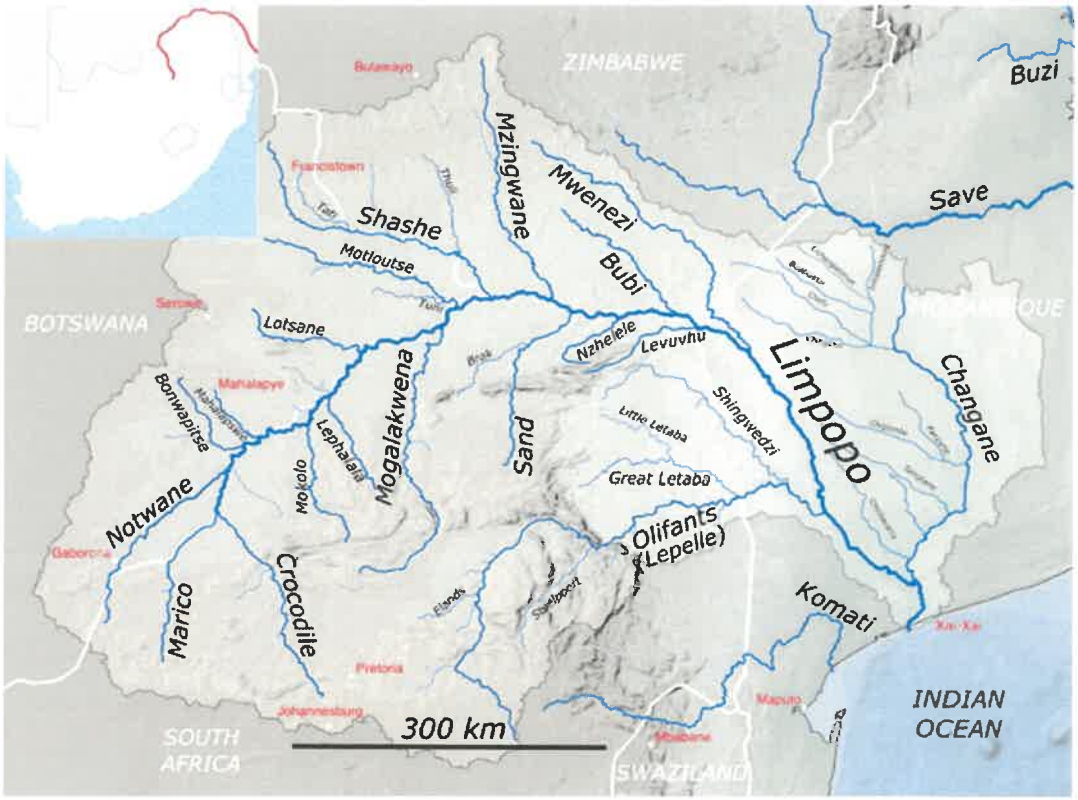

Figure 1.1: Limpopo River Catchment

2. STUDY OBJECTIVE AND STUDY PHASES

2.1 STUDY OBJECTIVE

As far as water supply to the Musina Area is concerned, there are currently the following four (4) phases, which are not to be confused with the three (3) Study Phases as outlined under **Sub-section 2.2** below:

- **Phase 1**: Addressing the current short term water supply problems in Musina, including the boreholes.
- **Phase 2**: Transfer of potable water from the Beit Bridge Water Treatment Works (WTW) in Zimbabwe to augment water supply Musina (the short to medium-term solution).
- **Phase 3**: Development of a dam in South Africa to further augment the water supply to Musina (the long-term solution).
- **Phase 4**: Development of a dam either in Zimbabwe or South Africa to further augment the water supply to Musina (the next long-term solution).

The focus area and subject of this Feasibility Study is **Phase 3**, and therefore the main objective of this Feasibility Study is to Assess and Study the Potential Dam Development Option to Augment Water Supply to the Musina Area.

2.2 STUDY PHASES

2.2.1 Study Phase 1 – Inception Stage

Study Phase 1 entails conducting a thorough review of all existing information, consultation with the Client and other knowledgeable parties, site visits, etc. Ensure that all the available information from all studies undertaken in the past is fully utilised to avoid repetition of work.

Deliverables: **Inception Report** including an update of the proposed scope of work, methodology, budget, study program and cashflow. It is anticipated that the Inception Report shall be completed three (3) months after the signing of the Contract for this Study. Therefore, Study Phase 1 shall be completed within three (3) months after the signing of the Contract for this Study.

2.2.2 Study Phase 2 – Pre-feasibility Stage

Study Phase 2 entails undertaking the necessary pre-feasibility level investigations and comparative analyses including a due diligence assessment for all possible water resource development options or hybrids thereof as well as the scheme configuration for each option. Select and recommend from a national perspective the best water resource development option to be carried forward to detailed feasibility level studies during Phase 3. Specify the optimal water resource size (including phasing), the configuration, composition, location and size of the key infrastructure elements of the recommended resource.

Deliverables: **Pre-Feasibility Study Main Report** together with all applicable and agreed **supporting reports**. Study Phase 2 shall be completed within twelve (9) months after Study Phase 1.

Options: The following two (2) options have been selected for evaluation at pre-feasibility stage:

(i) Proposed Musina Dam and Sand River Dam Projects in the RSA. (See Figure 2.1 below)

(ii) A Proposed Dam on the Mutale River in the Luvhuvu River Catchment in the RSA (See Figure 2.2 below).

Note: **The Client shall select at its sole discretion the Water Resource Option to be exercised. Allowance of 4 weeks must be made for Client review and approval at the end of Phase 2.**

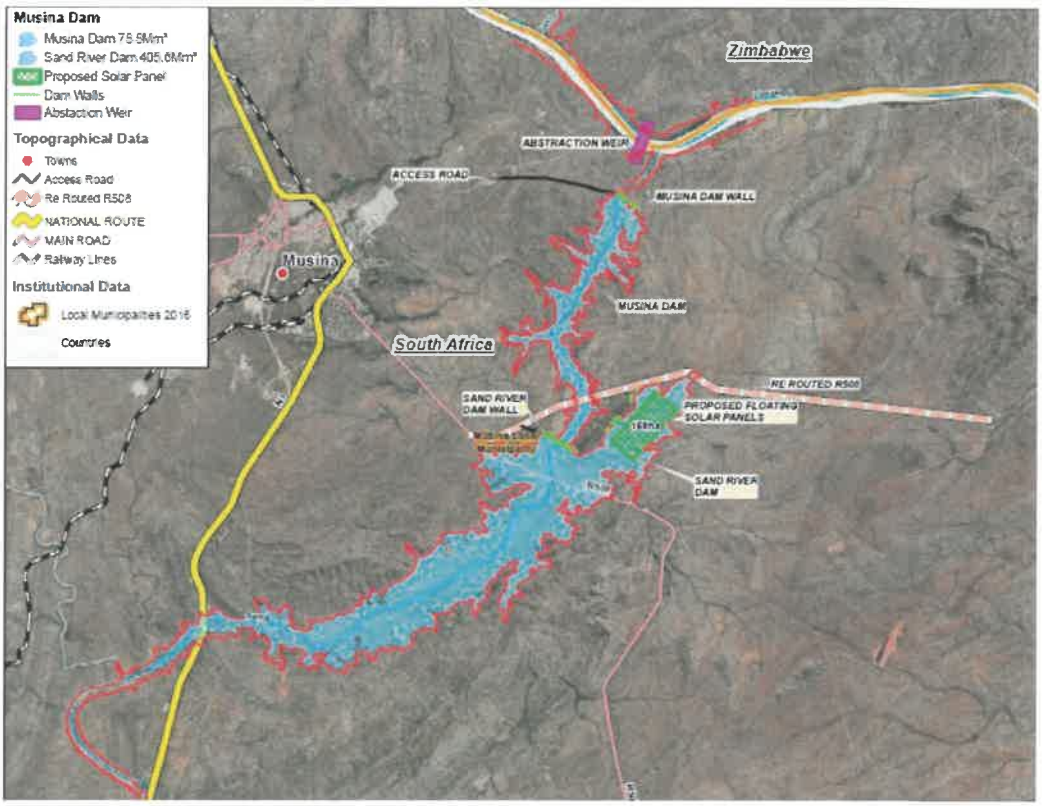

Figure 2.1: Musina Dam Locality Map

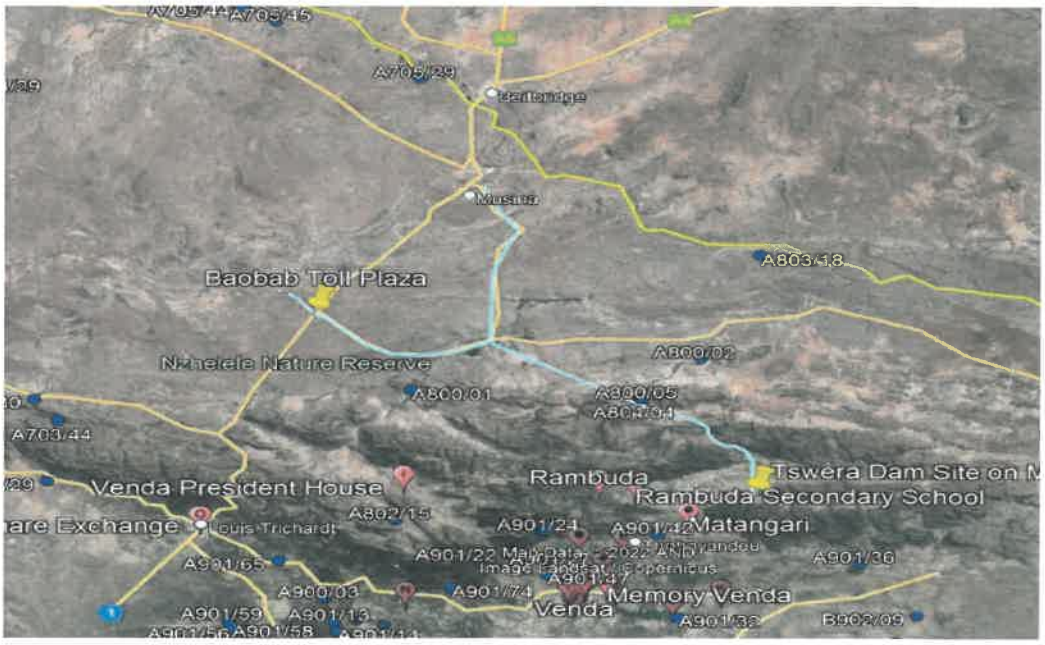

Figure 2.2: Mutale Dam Locality Map

2.2.3 Study Phase 3 –Feasibility Stage

Study Phase 3 Depends on the outcome of the pre-feasibility stage and when **DWS has selected** the best water resource option **from a national perspective**. Once the suitable option has been selected, the study will proceed with the full scope of feasibility studies and investigations for that water resource development scheme.

Deliverables: **Feasibility Study Main Report** together with all applicable **supporting reports**. Study Phase 3 shall be completed within twenty-one (21) months after Study Phase 2.

2.3 OUTLINE OF IMPORTANT TERMS OF ENGAGEMENT

The attention of the bidders is drawn to the following selected terms of engagement related solely to the technical scope of work. These are not exhaustive. Other terms are provided elsewhere.

The **task descriptions and methodologies** specified in this document shall be construed as minimum requirements or as a guide. These are neither intended to be exhaustive nor prescriptive.

***

Upon completion of each **Study Phase**, the Client shall be entitled to decide at its sole discretion to either proceed with further Phases or to terminate the study at this stage.

***

The bidders' tender pricing of all Phases should be balanced and aligned to the scope of work specified for each Phase. Bidders who do not comply with this requirement will lose marks in the final moderation of scores.

***

DWS may appoint a separate PSP to assist in reviewing the study work and reports and/or to manage the study. The successful PSP for the Feasibility Study shall liaise and co-operate with the Project Management PSP and shall promptly provide all reasonably required information.

***

Remuneration for any work undertaken will be based on approved Contract task budget of actual deliverables as approved by the Client, and not on time. Draft

Reports that meet the required standard, which require minimal corrections e.g. reports ready to be signed off by supervisors, can be invoiced. The final invoice for reports will only be payable once reports are signed of and hard copies, word and pdf versions have been handed over.

***

Two percent (2%) of the total contract amount will be retained and will be paid after the delivery and approval of all reports in the specified format.

***

"Amount" as referred to in this document is the quantity of monetary value in South African Rands (ZAR).

3. STUDY APPROACH

This Study shall be undertaken in a phased approach as outlined in **Sub-section 2.2** above. The Study Team shall investigate and report on the options for accessing water resource schedules, as well as the location of the delivery points in the Musina Area, for a planning horizon of 50 years.

The water resource development options to be investigated shall include the provision of storage reservoirs, conveyance systems (pipelines, pump stations, etc.) and ancillary works. Reference must be made to Previous Planning Investigations and Studies. The Engineering Evaluation and Costing of the Water Supply Infrastructure are to be based on available information, and by applying appropriate interpolations where different sizes of systems need to be considered.

The conveyance infrastructure and route identification shall be defined from basic principles and should include all options like tunnelling, canals, and pipelines as possible means of transfer where relevant. If rivers or canals are used as conduits the losses must be assessed. Known environmental sensitive areas should be avoided in the identification of conveyance routes.

Water availability estimates of the proposed water resource development options must consider the existing studies with appropriate consideration of the applicability of the yield figures for this Study. Additional yield should be created by providing new storage to cater for the existing and currently planned uses to ensure that the health of the river systems is maintained. It will be important to consider the developments and water requirements in all the yielding catchments (mentioned in **Sub-section 1.3** above).

The current and projected future water requirements must be presented to the Client (the DWS) for the final selection of water requirements to apply in this Study including the viability of the recommended water resource development option for the Feasibility Investigation. Furthermore, an Economic Discount Model is required, and to be compiled, to calculate the Unit Reference Values (URVs) in R/m^3 for each alternative option proposed by this Study for comparison purposes.

An overview and Report on legislative, institutional, and governance arrangements. A Legal, Institutional, Financial and Operational Aspects Report that would be necessary

at various stages of the Project, from inception to implementation be provided is required (refer to **6.5.3** below).

The key deliverables of this Study will be the Technical Feasibility Study Report, supported by the various supporting reports, describing all the investigations that were undertaken, the findings from this Study, and the recommendations of this Study. Appropriate large-scale maps and schematic diagrams presenting the water resource development options should be prepared.

The appointed PSP must undertake all the work for this Study in close consultation with the Client (the DWS) to ensure all those assumptions that might have a significant influence on the outcome of this Study are approved by the Client. Appropriate field visits are required for this Study.

In establishing the overall costs of the Potential Water Resource Development Options, the following should be considered amongst others:

- Capital cost of the bulk raw water conveyance infrastructure (e.g., pipelines, pump stations, etc.) and the appurtenant works;
- Refurbishing costs of existing Eskom Infrastructure that could potentially be utilized, or incorporated, for transferring and supplying water to the Musina Area;
- Operation and Maintenance (O&M) costs of the bulk raw water conveyance infrastructure and the appurtenant works in consultation with the DWS;
- Energy costs for pumping, as well as
- Impact on the water tariff of the various existing and new water users.

The appointed PSP for this Study is expected to apply their experience in selecting the most sensible potential water resources development options for the pre-feasibility Investigations, and to recommend the preferred water resources development option for feasibility Investigations. The appointed PSP is then expected to investigate the selected option at a technical Feasibility level while conducting the Environmental Impact assessment and acquiring the necessary approvals.

Apart from investigating the most sensible water resources development option other aspects that should be considered are, but are not limited to, the following:

- Potential environmental and social impacts, including potential fatal flaws (refer to **Sub-section 6.4** below);
- Socio-economic impacts;
- Water availability and timing;
- Water requirements;
- Ecological water requirements;
- Affected communities and existing infrastructure;
- Suitability of geotechnical and foundation conditions for the construction of any new dams, bulk raw water conveyance infrastructure and appurtenant works;
- Availability of construction materials, as well as
- Hydropower potential.

These above-mentioned aspects will have to be assessed through site visits by a multi-disciplinary team comprising at least an experienced:

- Water Resource Engineers;
- Geotechnical Engineers;
- Hydrologists;
- Design Engineers;
- Engineering Geologists to assess the geological conditions for new civil Works, if applicable, and
- Environmental Practitioners experienced in bulk water projects.

The appointed PSP for this Study must provide the diverse skills and expertise required to undertake and complete this Study within the timeframe as well as other constraints and risks. The appointed PSP for this Study will be required to liaise closely with municipalities, traditional authorities in the study area as well as with the relevant national and provincial government departments, other PSPs as well as other role players. The study team must have a Study Leader (Professional Engineer), experienced in coordinating and managing a study of this nature. The Study Leader will be the main link between the DWS and the study team.

The PSP will be appointed by the DWS to undertake and complete all the necessary work as described in the **Scope of Services Required** (refer to **Section 6** below) to facilitate the successful conclusion of this Study. The Scope of Services Required for this Study will be the minimum requirements that the DWS will accept.

The estimated duration of this Study is a maximum of **thirty-six (36) months**, which will include all the tasks as outlined in the Scope of Services Required (refer to **Section 6** below).

4. HEALTH, SAFETY, AND ENVIRONMENTAL CONTROL ASPECTS

Any **Required Fieldwork** and **Site Visits** for this Study shall be supervised by professionals. It must be ensured that any plant, machinery, vehicles, drones, and/or equipment are used under the general supervision of trained persons who understand the hazards associated with this plant, machinery, vehicles, drones, and/or equipment, where and if applicable. Furthermore, these trained persons must have the authority to ensure that the precautionary measures taken by their employer/s are implemented. The appointed PSP for this Study will also be required to do the following before any fieldwork and site visits:

(1) Compile **Risk Assessments** before any fieldwork and site visits.

(2) Prepare a **Safety File** and keep it up to date.

(3) Ensure **Safe Working Procedures**.

(4) Ensure that all his/her employees are provided with, and are wearing/using, the necessary **Personal Protective Equipment (PPE)**, which applies to employees on site.

If any required fieldwork is of such a nature that an **Environmental Control Officer (ECO)** must be present on-site, then the appointed PSP for this Study must ensure that an ECO is present during such fieldwork.

The DWS reserves the right to request and check any Risk Assessment, and/or any Safety File, before and during any required fieldwork and/or any site visits.

5. RELATED PAST, ENVISAGED AND CURRENT STUDIES

This Study will be informed by related past and present studies, which have been undertaken in the past. The appointed PSP shall collate, review, assess, document, as well as report on the findings of such Related Past and Envisaged Studies and shall utilise the current studies so as to ensure no duplication of work.

5.1 RELATED PAST STUDIES

The available related past study reports and other information are listed below, of which some are briefly discussed in **Sub-section 5.1.1 – 5.1.4** below. It should be noted that this is not necessarily a complete list of all the available relevant past study reports and other information, and therefore it will be expected from the appointed PSP for this Study to undertake a thorough literature search to source other relevant information. The current related planning studies, which the DWS is currently undertaking, are listed in **Sub-section 5.3** below.

The available related past study reports include, but are not limited to, the following:

(1) Beitbridge-Musina Integrated Water Supply Scheme Study: Baseline and Preliminary Water Balance Report. May 2020.

(2) Limpopo Water Management Area North Reconciliation Strategy. September 2016.

(3) Development of a Reconciliation Strategy for the Luvuvhu and Letaba Water Supply System: Final Reconciliation Strategy. January 2015.

(4) Pre-feasibility Report for the Proposed Musina Dam to Support the Musina-Makhado Special Economic Zone within the Musina Local Municipality, Vhembe District of the Limpopo Province. March 2021.

5.1.1 Beitbridge-Musina Integrated Water Supply Scheme Study: Baseline and Preliminary Water Balance Report

The Beitbridge-Musina Integrated Water Supply Scheme (BMIWSS) study was to provide a water development plan for the Beitbridge Musina-Makhado Special Economic Zone (SEZ) **Project Area**, including hinterland rural areas to enhance climate change resilience in the drought prone area. Zimbabwe and South Africa have embarked on the project seeking the joint planning, operation and efficient use of existing and new infrastructure. An assessment of available water resources and water demand has been undertaken in in the Project Area as input into the initial water balance of the area. Other potential sources have also been identified beyond the defined Project Area. Approximately 110,000 persons will benefit from the project, with direct beneficiaries increasing to approximately 200,000 by 2038.

The following key conclusions have been made from the study:

- The preliminary water balance for the area based on current information on existing commitments has established that the yield from Zhove Dam does not have any surplus water resource to facilitate exports to Musina and the SEZ areas.
- There are potential commitments from the Zhove Dam yield associated with the need to cater for agricultural irrigation use downstream of the dam before any exports can be affected.
- Indications are that even if a surplus is realised after the planned use of the yield from Thuli-Moswa Dam has been catered for, there may still be a significant supply deficit due to other competing requirements below the dam comprising riparian rural communities.
- The third potential additional source of water is the existing Manyuchi Dam whose yield has been reported to be currently underutilised, which could be used to supplement supplies to the project.
- The information on water use in Zimbabwe for agricultural irrigation is yet to be confirmed due to possible dormant agreements for water from the yield from

Zhove Dam such that it is likely that there may be surplus yield from the dam for use on the Beitbridge-Musina Integrated Water Supply project.

- Indications are that the combined yield from Zhove, and possible surpluses from the planned Thuli-Moswa Dam, as well as the existing Manyuchi Dam has the potential to supply a significant proportion of water requirements for the project, with any shortfalls being supplemented by other sources, including ground water and sand abstraction from the Limpopo Riverbed, downstream from the Beitbridge border post.
- The water demand assessment for Beitbridge town indicates that the new water treatment plant combined with the old works will not be adequate to cater for the requirements of the project, with most of its capacity being taken up to support the growth of Beitbridge.
- It is, however, very unlikely that the high annual growth rate 6.65% for Beit Bridge urban will be maintained in the medium to long-term. In addition, there is currently no clarity on the respective requirements for treated and raw water by the two SEZ areas in South Africa.
- It is therefore possible that the existing Beitbridge works may be able to provide the requirements for treated water to the SEZ areas over part of the planning horizon, with further upgrading being undertaken to cater for future growth of the areas for the rest of the planning horizon.

It is evident that this project will require an incremental approach in the water balance assessment process until sufficient water resources are confirmed that are able to cater for the future growth of the integrated area. Additional information gathering, and analyses will be required to refine the baseline study before the preliminary design of required infrastructure can be carried out.

5.1.2 Limpopo Water Management Area North Reconciliation Strategy

The main objective of the study was to formulate a water resource reconciliation strategy for the entire Limpopo WMA North up to 2040. The Reconciliation Strategy:

a) addressed growing water demands as well as water quality problems experienced in the catchment;

b) identified resource development options; and

c) provided reconciliation interventions, structural and administrative / regulatory.

To achieve these objectives, the following aspects were included in the study:

- Review of all available information regarding current and future water requirements projections as well as options for reconciliation;
- Determine current and future water requirements and return flows and compile projection scenarios;
- Configure the system models (WRSM2000 rainfall-runoff catchment model, also known as the Pitman Model, the Water Resources Yield Model (WRYM) and the Water Resources Planning Model (WRPM)) in the study area at a quaternary catchment scale, or smaller, where required, in a manner that is suitable for allocable water quantification. This includes updating the hydrological data and accounting for groundwater surface water interaction;
- Assess the water resources and existing infrastructure and incorporate the potential for Water Conservation and Water Demand Management (WCWDM) and water reuse as reconciliation options; and
- Develop a Reconciliation Strategy.

The following were concluded from the surface water quality assessment:

- With the exception of the Matlabas Catchment, all other catchments in the study area have water quality issues which indicated deterioration over time;
- Anthropogenic activities such as WwTW, pit latrines and agricultural activity are the main contributors to the deterioration of the water quality. The major concern

in the urban areas is non-compliance to phosphates and changes in pH, while increase in EC (salts) is the main concern in the rural areas; and

- Geology also plays a part in this study area with several determinants present in the surface water which are not tolerated by some of the users. These include iron in Lephalala, fluoride in Mogalakwena and lead in Sand and Nzhelele Catchment.

The following mitigation measures are recommended:

- For all problem determinants, the frequency of monitoring at the monitoring station as well as upstream and downstream points should be increased;
- Improve the management and monitoring of WwTW to ensure that discharged effluent comply with standard and licence requirements;
- Increase monitoring frequency of diffuse sources of pollution, such as monitoring at large farms to determine the impact of the agricultural activity on increased salinity; and
- In places were geology negatively affects water quality, monitoring must be increased and users must identify alternative water resources that can be used when levels are exceeded.

5.1.3 Development of a Reconciliation Strategy for the Luvuvhu and Letaba Water Supply System: Final Reconciliation Strategy

The main objective of the study was to compile a Reconciliation Strategy that will identify and describe water resource management interventions that can be grouped and phased to jointly form a solution to reconcile the water requirements with the available water for the period up to the year 2040 and to develop water availability assessment methodologies and tools applicable to this area that can be used for decision support as part of compulsory licensing to come. The development of the strategy required reliable information on the water requirements and return flows (wastewater) as well as the

available water resources for the current situation and likely future scenarios for a planning horizon of thirty years.

Several issues went beyond the scope of this study and separate studies were recommended for these issues.

- The extent of unlawful water use within the study area is not yet known, as the verification component of the Validation Verification study is currently still in process. The water balances for affected areas should be redone as part of the continuation study, once the validated water uses have been verified.
- The time frames in which irrigation developments will take place, as well as the expected rate of the developments are currently not known. This includes the development of new irrigation schemes, the revitalizing of existing inactive irrigation schemes as well as to what extent existing irrigation allocations that forms part of land claims will be taken up again in future.
- Engage with processes undertaken by LIMCOM and obtain clarity on the international obligations.
- Ensure that continuous integration between Water Balances and related Water Supply Planning of water services schemes takes place. As part of this process, it is important to obtain details on the timeframes of the different infrastructure developments, to ensure that these can take place within the available yield from the resources and the growing demands in the system. The correct timing of most of these infrastructure developments is essential, to maintain a positive water balance over the planning period.
- Licencing Issues: Ensure that water licence related issues are resolved within the given framework of the reconciliation strategy.
- The hydrology for the entire study area was completely redone and improved in 2015 with water requirements updated for the entire study area based on results obtained from the current Validation and Verification study, with only the Validation of water use component currently completed. This information in combination with the updated WRYM and WRPM provides a wealth of information and should be utilised for Operating Analyses which are carried out

on an annual basis under the supervision of DWS. In some cases, it will be required to update and or improve on existing operating rules.

5.1.4 Pre-feasibility Study for the Proposed Musina Dam to Support the Musina-Makhado Special Economic Zone within the Musina Local Municipality, Vhembe District of the Limpopo Province

The Musina Makhado Special Economic Zone (MMSEZ) commissioned this Pre-feasibility Study to establish whether an off-channel pumped storage scheme would be technically and financially viable from water pumped from the Limpopo River and stored in the Sand River Catchment. It is envisaged that surface water and/or flood water would be harvested from the Limpopo River through a diversion weir, which will discharge water into a sump adjacent to the Limpopo River, from which the water will be pumped into the Proposed Musina Dam. Therefore, the main purpose of this Pre-feasibility Study for the Proposed Musina Dam was to undertake a so-called "proof of concept" and to establish both the technical feasibility and financial viability of the planned water supply scheme. The proposed bulk water supply scheme is defined as the Musina Dam Project, which incorporates a storage dam within the Sand River Catchment at its confluence with the Limpopo River and a second storage dam about 8 km upstream of the Proposed Musina Dam, which is called the Proposed Sand River Dam.

The Pre-feasibility Study was undertaken by utilizing the existing meteorological, hydrological as well as geological data, where available. Where gaps in rainfall and flow data were observed, data patching was done based on a statistical approach. Based on the existing, as well as additional augmented hydrological data, a Water Balance Model was compiled for the Musina Dam Project. This Water Balance Model for the Musina Dam Project is based on both monthly and daily analyses using historical, as well as stochastically generated flow sequences. From this Water Balance Model for the Musina Dam Project, a firm yield was established taking into account both the historical flow sequence and stochastic sequences.

This Pre-feasibility Study concluded that:

- The Musina Dam Project and the Sand River Dam Project present a very unique and economically enabling opportunity for the local economy and social welfare of the surrounding communities.
- The Limpopo Province is in dire need of water supply for both domestic and industrial use.
- Once the project is successfully implemented, there will be a significant improvement in the quality of life for the people of the Limpopo Province.
- The Limpopo Province and the Musina Makhado Area as the immediate gateway into other SADC countries and the rest of Africa (by road) stand to revitalise significant economic activities and new economic opportunities thereby contributing to the gross domestic product measure of the province as a whole and the country at large.

Furthermore, the Preliminary Financial Viability Analysis and Assessment also showed that there is an attractive potential economic benefit for parties interested in investing in this project.

5.2 RELATED ENVISAGED STUDIES

5.2.1 South Africa and Zimbabwe Water Resource Development Project: Study to Assess the Potential of Water Resources in Zimbabwe to Supply Water to South Africa.

This envisaged study will be jointly undertaken by the RSA DWS and the RZW Ministry of Lands, Agriculture, Water, Climate & Rural Settlement. The ToR were prepared for this envisaged study, and the objectives of this envisaged study are:

- Assessment of water resources (Availability and Requirements);
- The extent and timing of the RSA accessing water from water catchments in the RZW, taking into account the water requirements in both the RSA and RZW;
- The Institutional Framework under which projects could be implemented at various phases of the projects, from inception through to implementation;

- Identifying the financial mechanisms for funding infrastructure for storage and the transfer of water from the RZW to the RSA;
- Pre-feasibility and feasibility investigations of options to supply raw water from the existing Tugwi-Mukosi Dam to the recently completed Beitbridge WTW, and for Potable Water from the Beitbridge WTW to be transferred to the RSA as the short-term solution;
- Reconnaissance investigations for the long-term solution to identify, and determine the viability of, potential water resource development options, which will cover the Runde, Save, and Mzingwane catchments;
- Recommend the water resource development options to be taken forward to pre-feasibility investigations for the long-term solution;
- Pre-feasibility investigations of the recommend water resource development options for the long-term solution;
- Recommend the preferred water resource development option/s to be taken forward to feasibility investigations for the long-term solution, as well as
- Feasibility investigations of the preferred water resource development option/s for the long-term solution;

Unfortunately, this envisaged study is not getting underway at this stage. Given the urgent need and priority for the DWS to augment the water supply to the Musina Area, the DWS decided to undertake the Pre-feasibility Study to Assess Potential Dam Development Options in South Africa to Augment Water Supply to the Musina Area in the meantime, which could also inform the envisaged study in the future.

5.3 RELATED CURRENT STUDIES

5.3.1 Development, Updating, and Review of the Strategies to Reconcile Water Availability, and Requirements in the North Planning Area

The DWS is currently undertaking the development, updating, and review of the strategies to reconcile water availability, and requirements in the North Planning Area

(DWS Project WP11341). The DWS Directorate: Strategic Water Resources Planning (D: SWRP) commissioned and appointed the PSP for this current study.

5.3.2 Environmental Flow Determination for the Limpopo Basin

LIMCOM is currently undertaking the Environmental flow determination for the Limpopo basin. This project will provide the necessary evidence to secure environmental flows (e-flows) for increasing the resilience of communities and ecosystems in the Limpopo Basin to changes in streamflow resulting from basin activities and climate change. The South African standards, acts and norms are being utilised for this study.

5.3.3 Determination of Water Resource Classes, Reserve and Resource Quality Objectives Study for Secondary Catchments A5 – A9 within the Limpopo Water Management Area (WMA1) and Secondary Catchment B9 in the Olifants Water Management Area (WMA2)

The Department of Water and Sanitation (DWS), Chief Directorate: Water Ecosystems initiated a three year study for the Determination of water resource classes, reserve and resource quality objectives for secondary catchments A5-A9 within the Limpopo Water Management Area (WMA 1) and Secondary Catchment B9 in the Olifants Water Management Area (WMA 2).

The suite of resource directed measures tools being implemented in these catchments aims to ensure sustainable utilisation of water resources to meet the ecological, social and economic needs of the communities dependent on them and provide a mechanism against which the objectives set can be monitored for compliance. The Study is expected to be completed by September 2025.

6. SCOPE OF SERVICES REQUIRED

6.1 STUDY PHASE 1 – INCEPTION STAGE

The appointed PSP will be required to undertake a thorough research and review of all the relevant previous study reports, as well as all other available information, and to become familiar with the Luvuvhu and Letaba Water Supply System and the Limpopo Management Area North. The key completed and current studies and other information relevant to this study are as listed and described in the previous sections. It will be necessary to update and maintain a list of such studies and their relevance to this assignment. The PSP will be required to liaise and engage with all relevant stakeholders and key role players in preparation and execution of the study.

After the review, the PSP shall compile a draft Inception Report that will consist of an updated and refined scope of work, methodology, study budget, study programme, human resource schedule and cashflow projections. This will be discussed with the Client and all aspects and uncertainties will be clarified. Once approved by the Client, the final Inception Report will form part of the contract and will constitute the agreed final Terms of Reference (ToR) for the study.

The purpose of the Inception Report is to capture and refine all important work that would be necessary for the successful completion of the study, which may have been overlooked, for any reason, in the compilation of the original ToR or in the proposal submitted by the PSP during tendering. Such omissions can only be detected once work on the study has started and the team has had the opportunity to familiarize itself with all available information on the study, which is often bulky.

The Inception Report is a formal document that will cover all aspects of the original proposal as well as any updates that may be required for the scope of work, contract amount and contract period. The Inception Report will list all tasks required, all team members for each task and their time allocation as well as their hourly rates per task, anticipated disbursements, revised study programme, etc. **The appointment of new team members to the study or any changes made to the team and their rates must be approved by the Client before they can be engaged**. The Inception Report can therefore be considered a revised Technical and Financial Proposal.

After signing of the Contract by both parties the PSP will commence with the study based on the approved Inception Report. A site visit to the study area shall be arranged by the PSP (with support where required from DWS) and undertaken together with DWS and other stakeholders early in the Inception Phase.

The water resource options investigated to date shall be thoroughly reviewed, specifically the study reports for the Musina Dam Project undertaken independently by MMSEZ as detailed in the previous sections of this document. Thereafter, the PSP shall establish whether or not a decision on the preferred (from a national perspective) water resource option can reasonably and conclusively be taken at this stage.

The PSP shall also compile a consolidated budget schedule and study programme as well as cashflow containing all scope activities; develop a full list and description of all study reports to be produced and indicate when these are to be delivered; and undertake stakeholder analysis and develop an outline Stakeholder Management Plan, propose a draft composition of the study steering committee and assist with its establishment. The roles and responsibilities of key stakeholders should be articulated.

Deliverables:

The **Inception Report** shall be produced and finalised within 3 months from the commencement date. It shall address all aspects described above and shall also serve as the first deliverable for the study.

6.2 STUDY PHASE 2 – PRE-FEASIBILITY STAGE

The main purpose of this phase is to undertake the necessary pre-feasibility level investigations and comparative analyses of **all** possible water resource development options, or hybrids thereof, for the Musina Water Augmentation Project including but not limited to those previously investigated by MMSEZ and others; to select and recommend **from a national perspective** the best water resource development option to be carried forward to detailed feasibility level studies during Phase 3; and to specify the optimal resource capacity (including phasing), the dam type, the configuration, composition, location and size of the key infrastructure elements of the recommended resource.

The study shall establish and confirm the optimal size/capacity of the new resource and scheme based on the latest water requirement projections, other planned augmentation projects, and consultations with stakeholders to meet the water requirements for the supply area until at least 2050.

The appointed PSP will also be required at this stage to commence with certain aspects of the EIA process and undertake environmental screening of the options in order to ensure that any "red flags" or potential fatal flaws are identified as early as possible.

6.2.1 Water Requirements

Water requirements are dependent on population growth and economic growth (including improvements in service delivery). An analysis shall be undertaken of the current and future water requirements and their projected growth for the Limpopo Management Area North beyond 2050. The analysis must include a determination of the potential growth in Average Annual Daily Demand (AADD) and Peak Week Water Demand (PWWD). This shall include the review of the latest long term water requirement projections developed by DWS, MMSEZ or others. Updated information should also be obtained on the water requirements for the surrounding smaller towns, as these towns should also benefit, where feasible, from the proposed new scheme.

The study must also consider all WC/WDM and water re-use interventions recently/currently being implemented in the study area and their impact on the water balance.

The spatial distribution of the water requirements is of particular importance and the PSP is to determine the water requirements for the Musina supply zone. The spatial distribution of the water requirements may influence the infrastructure capacities and may also impact on the preferred location of the water resource and pipeline route.

6.2.2 Updating Rainfall Data

The purpose of the Updating of the Rainfall Data is to update the Rainfall Records for each catchment until the 2024/25 Hydrological Year, to update and improve the reliability of the Catchment Hydrology of the catchments. This information is required as input for

the Water Resource Simulation Model (WRSM). The Updating of the Rainfall Data will, amongst other aspects include the following activities:

- Screening of Rainfall Gauges for use in this Study;
- Visual Screening of the Rainfall Data of each Rainfall Gauge, including identification of 'outlier' values;
- Analytical Screening of Rainfall Data, including Data Plotting and Testing for Stationarity;
- Infilling ('patching') of Discontinuous Rainfall Records of each Rainfall Gauge, where applicable. Rainfall Records requiring extensive 'patching' shall not be used to generate Stream Flow Data;
- Non-patched and Acceptable Patched Rainfall Data shall be used to generate Catchment Rainfall and Point Rainfall Time Series Files, as well as
- Estimate the Mean Annual Participation (MAP) for each catchment as well as for the sub-catchments in each catchment.

6.2.3 Identification and Analyses of Water Resource Development Options

The following key proposed Musina Water Augmentation Project water resources have been identified, investigated and selected as viable development options during previous studies undertaken by MMSEZ and DWS (see **Sections 5**):

- **Resource Option 1:** Proposed Musina Dam and Sand River Dam Projects in the RSA.
- **Resource Option 2:** A Proposed Dam on the Mutale River in the Luvhuvu River Catchment in the RSA.

The PSP shall ensure that all possible information on previous related studies are assessed / used and that work shall not be repeated.

The above two water resource development options, together with their associated infrastructure elements (inter alia abstraction works, pipelines, pump stations, water

treatment plants and reservoirs) will be subjected to assessment during this Study. Cognisance should be taken of the least possible social and environmental impacts.

In addition to the usual assessment criteria of technical viability, financial and economic feasibility, environmental acceptability, the study shall also consider other important criteria, including but not limited to: risks and redundancy built into the options, minimising the impacts of the proposed scheme abstractions on the Limpopo River system yield, the optimal integration and utilisation of available capacities in any existing infrastructure together with consideration of its physical condition and remaining useful life, institutional arrangements for ownership and operation, financing options, affordability and bankability, attractiveness for private investors and off-balance sheet funding, opportunities for phased implementation and fast tracked development, stakeholder preference, etc. The resource and scheme capacity shall be optimised through system analyses, stakeholder engagement and infrastructure condition assessments.

Without limiting the generality of the above specification, the following particular requirements are offered as a guide, but not listed in compelling order. These should be considered and investigated as part of the Pre-Feasibility Phase:

- Review and consolidate the information and individual analyses undertaken in the past by DWS, and MMSEZ, or others, during the studies outlined in the previous sections. Determine conceptual layouts for each of the identified resources and schemes. This would include all elements of the proposed infrastructure, such as: abstraction works, a weir (if required), raw water pump stations, pipelines, water treatment plants (if required), access roads, river and road crossings, power supply infrastructure, etc. Where necessary, liaise with the entities who commissioned the original studies (and/or their respective consultants) to clarify background and uncertainties.
- In view of the information about the previously identified competitive options being available from investigations at vastly varying levels of detail (from pre-feasibility to reconnaissance levels), the PSP should carefully consider how best to use this information in this comparative study, without unduly advantaging or disadvantaging any of the competitive options.

- The Comprehensive Reserve Determination Study is currently being completed. Due to the lack of specific information regarding the dam position and size, a detailed evaluation of the ecological consequences could not be undertaken. As a contribution to the impact assessment as well as to comply with the National Water Act (Act 36 of 1998) the ecological consequences on the recommended Ecological Category should be evaluated for all options to provide the required information when determining the management classes. This evaluation should be undertaken using the DWS or recommended tools. To ensure consistency with the Ecological Reserve results, the model setups, which are being used to determine the present ecological state and to evaluate operational scenarios, must be used. These models are available from Chief Directorate: Water Ecosystems (CD: WE). The evaluation must be undertaken using the existing Environmental Water Requirements (EWR) sites downstream of the proposed dams. Additional to the above, a preliminary analysis should be undertaken of which floods or portion of the recommended EWR floods should be released from both dams. This will be required to determine available yield from the dams and therefore plays a vital role in the decision-making process regarding the two options.
- The scheme configuration, layouts and routes will be delineated based on the available topographic and cadastral information. Preliminary consultations should be held with the relevant authorities, to establish their wayleave requirements and whether or not installation of infrastructure within or along road reserves will be allowed. This is necessary to establish the viability of the pipeline route.
- The infrastructure must be optimized to meet the AADD and PWWD until at least 2050. This is to be confirmed with the Client and relevant stakeholders.
- For each water resource option select the optimal dam type, Construction material, and optimum capacity for the Dam Resource. It is imperative that this work be undertaken during the pre-feasibility phase as it may influence the costing and ultimately the selection of the best option.
- The scheme capacity and abstraction rates shall be optimised through system analyses taking cognisance of the impacts on the yield of the Limpopo River System. The study will involve a determination of available yield for the water resource options. The study shall consider the latest system yield data available from other reports.

- Determine the capacity and incremental system yield of each of the identified options using the Water Resources Yield Model (WRYM). Take into consideration and analyse (with the WRYM) the river losses associated with each resource option,
- Perform a historic yield analysis/review using the existing hydrology in order to determine a yield versus full supply capacity relationship.
- The geotechnical conditions and material properties at each resource site should be established by means of a desktop study and available information.
- Evaluate the associated risks for each option. This includes potential Eskom outages, risk of failure of old infrastructure integrated in options where applicable, droughts, etc.
- Similarly, consider the operational flexibility, redundancy and safety advantages associated with certain options.
- Undertake a pre-feasibility level assessment of the physical condition and the remaining expected useful life of any existing infrastructure available to form part of the new scheme (where applicable) and take this into account in the cost estimates and economic evaluation by properly accounting for the residual values of competitive options. The bidders shall propose the approach to this task in line with best practice.
- For each of the competitive options, consider the opportunities offered for the optimal utilisation of existing and planned infrastructure owned by both DWS and VDM and for the seamless integration of the new scheme into the existing LLWSS or Limpopo WMA, including considerations of institutional arrangements for the operation of the new scheme. Consultations should be held in this regard with VDM and DWS to achieve this. Also consider the convenience and ease of operation and maintenance for each option. This task should form a stand-alone chapter in the Pre-feasibility Report.
- Each competitive resource option should undergo a high-level environmental and social screening to identify potential fatal flaws or significant environmental impacts/constraints which could affect the viability of the scheme. A high-level socio-economic assessment should be undertaken for each resource option and considered in the evaluation criteria.
- The potential impact for Sedimentation must also be assessed for each resource option and considered in the evaluation criteria.

- Identify at conceptual level opportunities for hydropower generation, provide high level costing, and account for this advantage when comparing the options.
- Consider the costs and time for development of the requisite power supply infrastructure required for all pump stations and water treatment plants (if required) and other infrastructure.
- Consider the opportunities for phased development and fast-tracked implementation of options. Compile a preliminary implementation programme for each option.
- Produce calculation sheets, conceptual drawings and schedules of quantities at appropriate levels of detail. Determine comparative capital and operational costs of the options based on cost models (such as VAPS) using updated construction rates from recent similar projects. Determine the Net Present Value (NPV) and Unit Reference Value (URV) for water supplied by each option using the VAPS economic models. Appropriate allowance for refurbishment costs and residual values should be made in the calculation of the URV's.
- The options shall be compared using the Multiple-Criteria Decision Analysis (MCDA) methodology, which assists in evaluating multiple and sometimes conflicting criteria. Based on this, the PSP shall make an independent well motivated and reasoned recommendation as to which scheme / option is the best and optimal **from a national perspective** and should be brought forward to detailed investigation during the feasibility study stage.

Note: It is critical that each of the identified competitive options be conceptualised, priced and compared on a common base to allow meaningful evaluation and conclusive recommendation.

6.2.4 Meetings with Key Stakeholders and Interested and Affected Parties

The PSP will identify interested and affected parties and stakeholders that will either be affected by the implementation and operation of the possible scheme, or where an early involvement will benefit the planning and implementation process. The PSP will be required to maintain regular liaison between all parties involved in the implementation process and facilitate interaction between the parties and the stakeholders.

6.2.5 Deliverables: Pre-feasibility Study Reports

A Pre-feasibility Study Report (including all agreed supporting reports) shall be compiled in a manner that explicitly defines and motivates the selection of the preferred dam development option, together with its associated infrastructure, that will be carried forward to detailed feasibility study stage. The criteria for selection of the preferred option shall be based on the best interest from a national perspective that is inferred from existing guidelines and legislation in infrastructure development, drawing on integrated and robust optimization and best international practice. **The outcomes of the pre-feasibility study must be approved by DWS prior to commencement with the detailed feasibility study and preliminary design.** The pre-feasibility report shall cover and document all aspects specified in this section, including water requirements and updated Hydrology chapters. It is important to note that the outcome of the pre-feasibility study will inform the scope of work during the feasibility study stage.

6.3 STUDY PHASE 3 – FEASIBILITY STAGE

Depending on the outcome of the Pre-feasibility Stage and upon approval by the Client, the Feasibility Stage of the study will proceed. This will include the usual detailed optimisation of the selected best option based on further technical analyses, geotechnical investigations, topographical surveys, environmental studies, the feasibility level designs, detailed bills of quantities and costing, finalisation of the institutional arrangements, financial and bankability assessment, record of implementation decision, etc.

A full feasibility study and technical evaluation shall be undertaken for the selected preferred dam development option. The scheme shall be optimised to determine the fine-tuned best solution at lowest cost. The outcome of this stage of the study should be such as to allow the seamless transition towards the future detailed design, without the need to reconsider the key elements, such as conveyance routes and position of major infrastructure. To achieve this, sufficiently detailed work on confirmation of the location of the proposed major infrastructure should be undertaken.

The level of output from the feasibility study shall be such as to allow immediate commencement of the detailed design and ultimately construction of the preferred dam

development option once the environmental authorisation and requisite licenses are issued.

Without limiting the generality of the aforesaid, at least the following will be required to fulfil this task (not listed in a particular order):

6.3.1 Water Resources

6.3.1.1 Determine Existing and Future Water Demands

All the current and future water demands, up to the year 2050, must be updated. This must include an independent review of the demographic study undertaken as detailed in Section 5. Growth projections should be considered best on at least three (3) scenarios (best practice, municipal projections and current consumption behaviour). In consultation with the client and stakeholders, the old and new users to be supplied from the new dam/dams need to be identified.

6.3.1.2 Yield Analyses with the Water Resources Yield Model

Various yield analyses performed with the Water Resources Yield Model (WRYM), other than that required for the Ecological Reserve, will be required. The following subtasks are foreseen but there is likely that further tasks may be identified during the course of the study.

Configuration and testing of a network (system yield) for the WRYM

Review the WRYM for the entire Study Catchment that would support water availability assessments. The resolution sought will require that all existing and future points of abstraction, return flows and storage within the catchment will be incorporated in network. Compilation of the WRYM schematic diagram representing the system network is important and must be included as part of the deliverables.

Review operating rules: The operating rules must take into account all the technical data and analysis developed for the study. The operating rules must be recorded in a report.

Extensive testing must be undertaken to ensure that the model has been configured correctly and appropriately represents the system.

Compilation of Storage-yield Curves

In order to size the dam/dams it will be necessary to compile storage-yield curves for each dam. These curves will then be transformed into yield-cost curves, etc. The area-capacity and other related information of the various dam sites will form part of the Engineering Task.

The yield analyses shall take cognizance of all current water requirements that influence the yield of the MWAP.

The yields utilized for compiling storage-yield curves will be limited to Historical Firm Yields (HFYs). Yields will be calculated on the live storage volumes of dams as estimated in the engineering task, i.e. dead water storage will not be included in yield calculations.

Compilation of a User Priority Classification Table for the Water Users of the Limpopo (North) System

Compile a user priority classification table for all water users of water resources (the Limpopo (North) Catchment) through a process of stakeholder involvement. The table shall reflect all the types of users encountered and categorized into different user sectors. Where necessary, user sectors will be sub-divided in sub-categories. Typical categories (user sectors) would, for example be urban domestic; rural domestic; urban industrial; water intensive industries; mining; and irrigation. The likelihood exists that the irrigation sector may require further sub-divisions to reflect and suit particular agricultural activities.

Determine Historical Firm Yields (HFYs) of the MWAP

HFY analyses shall be carried out for the dam/dams. The yields shall be determined for the final live storage/s selected for the dam/s. Thus the HFY, so assessed, would be considered the final HFYs of the MWAP. The refined resolution network of the WRYM will be used to determine HFYs.

The HFYs shall be calculated for the in-basin demands of the Limpopo (North) Catchment at 2030, 2040 and 2050 development levels. These dates are based on the current assumption that the MWAP will only become operational after 2030 and may be

changed by the Client during the course of the study. The appointed PSP will therefore have to confirm the final dates to be adopted with the Client during the study.

In order to establish the sensitivity of the Environmental Reserve with regards to the yields of the MWAP, HFYs shall be determined for two different cases viz (1) Case 1: Full compliance with the Reserve, and (2) Case 2: No releases for the Ecological Reserve.

Additionally, as part of the HFY analysis, a preliminary assessment of system operating rules must be undertaken based on scenario analysis methodology with the aim of selecting the most appropriate operating rule that can be used in the assessment of long term stochastic yields.

Determine Long-term Stochastic Yields of the Musina Water Augmentation Project

Long-term Stochastic Yield (LSY) analyses must be undertaken for the final proposed scheme. As in the case of HFYs, the LSYs shall be determined for the final live storages selected for the dam/dams. Thus, the LSY so assessed will be considered to be the final LSYs of the MWAP. The refined resolution network of the WRYM will be used to determine LSYs.

LSYs shall be calculated for the medium growth in-basin demands of the Study Catchment at 2030, 2040 and 2050 development levels. As in the case of the HFY determinations, the appointed PSP will have to confirm the final dates to be adopted with the Client during the course of the study.

LSYs will be recorded in the report for the following assurances of supply: 75.0%, 90%, 95.0%, 98.0%, 99.0% and 99.5%.

6.3.1.3 Future Water Balance for the Project

The LSY results and the determined water demands must be used to project annual water balances from 2030 to 2040 in order to get a preliminary indication of when augmentation of MWAP will be required.

6.3.1.4 Development of Short-term Stochastic Yield Reliability Curves

Short-term yield analyses must be conducted for the MWAP and short-term yield reliability curves developed for each decision month as required by system water users. These curves will be used for conducting analyses with the Water Resources Planning Model (WRPM).

6.3.1.5 Water Resources Planning Model

The WRPM must be configured, tested and applied with the purpose of:

- Deriving final system operating rules;
- Deriving drought curtailment rules, and
- Determining the timing of the next augmentation scheme.

Configuration and Testing of the WRPM

A network for the WRPM must be configured based on the network developed for the WRYM of the Study Catchment in the water resources task and linked to the latest update of the WRPM network of the Limpopo System. The final WRPM schematic diagram representing the network with penalty structures must be compiled and included as part of the deliverable of this module.

In configuring the WRPM, the model shall use the user priory classification tables applicable for each part of the Limpopo System.

Practical decision dates for WRPM analyses will be proposed by the appointed PSP.

Before proceeding with any analyses, the WRPM configuration must be thoroughly tested to ensure that all aspects are functioning correctly and that the intended system operation is indeed simulating the model correctly.

An electronic copy of the final WRPM for the Limpopo System, supported by the associated report, must be submitted to both the DWS in the format required by the DWS. Electronic copies of scenario runs with the WRPM must also be made available to the DWS.

Recording the Final Operating Rules Recommended for the MWAP

This task comprises a write-up in the report of the final operating rules recommended for the various phases of the MWAP.

6.3.1.6 Assessment of the Potential for Hydropower Generation at the Dams (Water Resources)

The purpose of this task is to assess the potential of the MWAP to develop hydropower at the dam/dams. Power so developed would be either utilized to power project pumping stations or made available to the national grid.

In order to obtain conservative results all analyses will be performed using the medium demand scenario.

The first deliverable of this task will be to produce time-series of flow releases and associated lake water levels of the dams for the historical inflow sequence. This has to be performed for three (3) different future demand horizons, e.g. 2030, 2040 and 2050. These dates are not fixed and will be finalized through discussion with the Client during the course of the investigation when more information will be available.

The monthly flow releases, so obtained, must be converted into daily flow releases that take account of the hydrographs required for both the Reserve and other downstream users. These calculations would typically be performed through the use of spreadsheets. The method and assumptions used for the conversion of monthly flows into daily flows must be well described in the report. The results must be presented in both tables and graphs.

The second deliverable would be to provide the above results to the Engineering Study Team in order to determine the characteristics of a typical hydropower plant that would suit the determined release data. These characteristics will then be used in the WRYM to assess the hydropower potential of each dam, at each specific planning horizon. The results of this task, typically energy and power duration curves for each month of the year and all the months combined (total) must be provided in the form of graphs and tables.

The above results must be submitted to the Engineering Study Team who will then have to assess the economic viability of the MWAP's potential for the generation of hydropower.

6.3.2 Ecological Reserve and Classification

To ensure consistency with the Ecological Reserve results, the model setups, which were used to determine the Present Ecological State and to evaluate operational scenarios, must be used. The evaluation must be undertaken using the existing EWR sites downstream of the selected scheme.

Additional operational scenarios developed for a study that was not captured during the reserve and classification process should be identified in order to update the models as part of the review process.

For the above-mentioned work all bidders will be allowed to price for this task based on historical estimates of past projects, so that a subcontractor can be appointed to complete this task. When appointing a subcontractor, the PFMA and other Government Procurement Guidelines will need to be followed.

6.3.3 Engineering Investigation

6.3.3.1 Dam and Associated Infrastructure Position

The appointed PSP will be required to revisit the position of the proposed site/s for the proposed dam/dams and abstraction infrastructure. It is a possibility that the centerline for the dam might need to deviate from the centerline proposed in the pre-feasibility study. It will most likely not be necessary to move it more than 100 metres.

6.3.3.2 Materials Investigation

The main focus of the materials investigation will be to identify suitable sources of material for the dam construction. This investigation must be carried out by an experienced team supervised by a dam design engineer with experience in a variety of types of large dams (typically Categories 2 and 3 dams). Quarry sites must be identified and assessed by an engineering geologist with proven experience in dam construction

and it is recommended that the engineering geologist responsible for the geotechnical investigation also be used for this task.

Suitable material would be material of acceptable quality and quantity found as close as possible to the dam sites, preferably within the dam basin. The quality of material will have to be proven by laboratory testing in accordance with international standards for dam construction.

In the Financial Proposal of the PSP, the PSP shall price for the professional time of the professional team member(s) responsible for the procurement of reputable service providers to conduct the physical investigations, supervision of these investigations and reporting on the findings of the investigations as well as, pricing for this task based on historical estimates of past projects, so that a subcontractor can be appointed to complete this task.

When Sub-Contractors are appointed Government Procurement Guidelines (for example the PFMA) will be adhered to.

It will be required to setup a Geographical Information System (GIS) (surveyed with a sub-meter GPS) and material sources should be indicated on a map which will, not only indicate their aerial extent, but also the haulage distances to the dam site.

The material investigations to be conducted for the various scheme components will entail the following (bidders must submit requirements for a feasibility study):

- Borrow areas for embankment soils;
- Borrow areas for sand, as well as
- Quarries for concrete aggregate, rockfill and rip-rap.

6.3.3.3 Geomorphologic and Seismic Investigation

It is foreseen that this task will be led by a qualified geomorphologist with a proven experience in this type of investigation. It will be required to identify active faults within 10 km of dam sites and on the route of the conveyance system.

A seismic study must be undertaken at the proposed dam site, and cognizance taken of the results during the feasibility design component of this study.

6.3.3.4 Geotechnical Investigations

This task is aimed at obtaining detailed feasibility level information on the foundation conditions for all the project infrastructure. In addition, this task will also assess the stability of the dam basin slopes. A qualified engineering geologist with proven experience in dam construction should execute this task.

In the Financial Proposal of the PSP, the PSP shall price for the professional time of the professional team member(s) responsible for the procurement of reputable service providers to conduct the physical investigations, supervision of these investigations and reporting on the findings of the investigations as well as, pricing for this task based on historical estimates of past projects, so that a subcontractor can be appointed to complete this task.

When Sub-Contractors are appointed Government Procurement Guidelines (for example the PFMA) will be adhered to.

It will be required to setup a GIS (surveyed with a sub-meter GPS) to log geotechnical investigations.

The geotechnical investigations to be conducted for the various scheme components will entail the following:

Dam Foundations

These investigations will typically involve amongst others core drilling; pit and trench excavations, in situ permeability tests, grout-take tests, petrographic analysis of rock, compressive strength of rock cores, fault description and quantification, weathering resistance of rock, etc. i.e. all the typical parameters required for designing a dam on the particular site. The results of the investigations will be used to predict as accurately as possible excavation depths for both concrete and embankment dam walls.

Slopes of the Dam Basin

This investigation will be limited to the basin of the selected dam where potentially critical slopes will be identified. The investigation on critical slopes will typically entail the following: determination of overburden depth by means of test pits and trenches or core drilling; assessment of overburden material properties in both the dry and submerged states; assessment of rock strata joint orientation and joint fill material; etc. These investigations will be concluded with stability analyses where required with suitable recommendations on potential methods for slope stabilization.

6.3.3.5 Water Treatment Works and Conveyance System

Preliminary geotechnical work might be required to optimize a conveyance system with WTW for the selected Dam. A detailed geotechnical investigation must be undertaken so that feasibility for the conveyance system and WTW can be proven.

6.3.3.6 Survey

The appointed PSP will be required to do all surveys necessary for the feasibility design for the project. Bidders must propose and cost for each component of the scheme and provide detail of the survey that will be required.

6.3.3.7 Dam Type Selection

An alternative position can necessitate a review of the dam type proposed. An alternative proposal must be based on technical, financial and environmental reasons. Nevertheless, it is required that the proposed dam type be reviewed at feasibility level by comparing dam types. Proper discussion in this regard will be required.

6.3.3.8 Establish Required Storage Capacity for the Dam

In planning, a dam one of the major objectives is to keep the cost of water (water tariff) affordable to the water users.

Area-capacity curves are required to be determined for various dam sizes. Further, working closely with the Water Resources Study Team, the yield-cost curves for the dam/dams must be compiled. Comparison of the Unit Reference Values (URVs) of the

various scenarios would indicate the best scenario from an engineering/yield economic perspective.

Any environmental concerns, determined by the EAP as part of the EIA Process, that could have an impact of the sizing of recommended dam must be taken into consideration after joint consultation with the Client and the EAP.

There may, however, also be other considerations that could influence the final size selected and the PSP would have to bring this to the attention of the Client during the Inception Phase of the study (Inception Report).

6.3.3.9 Flood & Backwater Calculations for the Final Dam

This task would require the services of a hydraulic engineer with proven experience in Flood Hydrology & backwater calculations.

The appointed PSP will do flood determinations for the recommended dam.

Determination of the dam's backwater curve under high flood conditions (1:100 year flood) would essentially establish the purchase line for the dam. The backwater for the dam will consider the impact of 50-years of sediment deposition in the dam basin and will assume that the dam would be full when the high flood occurs, thus when the 1:100 year flood flows into the dam.

6.3.3.10 Water Quality and Limnology

The water quality and limnology according to best practices is to be undertaken by the PSP. Technical outputs of these assessments must be incorporated into the feasibility designs for the scheme.

6.3.3.11 Sediment Yield

The PSP must do a sediment yield assessment (50-year deposition) for the proposed dam/s. The sediment deposition in all dam basins need to be modelled, since the deposited sediment will influence the backwater levels especially in the upper reaches of the dam basins.

This task would require the services of a hydraulic engineer, or an appropriate professional, with proven experience in sediment yield assessments and the modelling of sediment deposition in dam basins.

6.3.3.12 Land Requirements and Associated Costs

The PSP will be required to determine the purchase/expropriation line around all scheme infrastructure and to establish the extent of any servitudes required. Standard DWS requirements must be adhered to is this regard.

Working in close liaison with the EAP, the appointed PSP will be required to establish the names and contact details of affected landowners and the relevant cadastral details relating to the infrastructure, impoundment area and pipeline routes.

The services of an experienced land evaluator must be utilized to obtain an accurate cost for the land purchase and servitude registration required for this project. These costs are to be incorporated into the cost model. All information obtained must be suitable documented in the final reports.

6.3.3.13 Optimize Scheme Configuration

The optimum scheme will be the combination of the optimum scheme components. In establishing the optimum scheme configuration, URV calculations will be similar to the procedure used for the dams. Water sales will commence at the same date assumed for the particular dam type. O&M costs will be estimated in accordance with recommendations made in the ***Vaal Augmentation Planning Study: Guidelines for the Preliminary Sizing, Costing and Engineering Economic Evaluation of Planning Options*** (VAPS) (DWS, 1996).

The appointed PSP will assess operational requirements (gauging weirs, telemetry etc.) for the scheme in this task.

6.3.3.14 Assessment of the Potential for Hydropower Generation at the Dams (Engineering Investigation)

The purpose of this task is to assess the potential of the MWAP to develop hydropower. The power developed would be either utilized to power project pumping stations or made available to the national grid.

The Engineering Study Team is required to work together with the Water Resources Study Team to complete the deliverable required for this task which shall be completed as a desktop assessment.

The characteristics of a typical hydropower plant best suited to the water releases data from the Water Resource Study must be determined. An assessment must be conducted on the economic viability to develop a hydropower capability at the dam/dams. The results are to be discussed with the Client to get a decision on whether to include hydropower further into the feasibility study. All results must be well documented in the final reports.

6.3.3.15 Feasibility Design of the Selected Scheme

The feasibility design of the selected (optimum) scheme must be done at a very detailed level in order to facilitate a smooth and quick tender design phase during the implementation phase. Specialist input will be required for this work. A feasibility study design report must be prepared by the PSP at least addressing, but not limited to, the following:

- Spillway;
- Embankment;
- Outlet works;
- Intake works;
- Diversion during construction;
- Operation and maintenance;

- Pipeline or alternative;
- Pump station;
- Electricity requirements;
- Access roads, and
- Realignment of services.

6.3.3.16 Costing of the Project

This task shall be performed by a specialist estimator who has both a proven record and experience in estimating construction costs and is still employed in the field. The task requires that a very accurate cost model be set up for all the listed items in the bill of quantities for the project. The design engineers for the project will therefore have to assist the estimator in identifying most of the billing items that would be encountered in the study. Typical billing items for the project will be found in the DWS's Vaal Augmentation Planning Study: Guidelines for the Preliminary Sizing, Costing and Engineering Economic Evaluation of Planning Options (VAPS) (DWS, 1996). Costs for items that will make up 80% of the project construction costs, e.g. excavation, fill material, concrete, etc., should be developed from first principles considering the costs of labor, plant, material, energy and transport (hauling). The remaining items having a minor impact on the overall cost of the project may be estimated by other means. Rates determined shall not include contingencies.

6.4 OTHER CONCURRENT TASKS

6.4.1 Potable Water Supply to Identified Inadequately Served Communities

Potable water supply will ensure reliable potable water supply to currently identified inadequately served communities adjacent to the potential water conveyance routes, within 30 km from the centre line of these potential water conveyance routes (e.g., pipelines and canals). Currently inadequately served communities surrounding and close to the Potential Dams must also be identified during this Study.

Furthermore, potable water supply will ensure reliable potable water supply to currently identified inadequately served communities surrounding potential new dams.

The appointed PSP for this Study must, however, identify all the inadequately served communities as part of **Study Phase 3** (refer to **6.3.1.1** above) and assess their current and future water requirements over an analysis period of fifty (50) years, from 2020 to 2070.

An assessment of the current supply situation to all these surrounding communities is required, as well as the review of previously proposed potable water supply options for all the aforementioned identified inadequately served communities. Different water resources (e.g., Groundwater) as well as the options for water supply, including the conjunctive use of surface and groundwater as an option, to all the, identified inadequately served communities must be identified, investigated, and cost at a high level of detail. Furthermore, an assessment of whether the current water supplies to all the identified inadequately served communities can be improved and/or developed further is required, which could also be an option.

An assessment of the water quality of the current water resources is required to determine whether it is acceptable in terms of the DWS Applicable Potable Water Quality Guidelines and Standards.

Investigations at a high level of detail are required for the proposed potable water supply to the identified inadequately served communities for this Study.

Bidders must take note that the extent of this Task is uncertain at this stage, and this can have Financial Implications. Bidders must therefore consider this in their **Financial Proposals**.

An **Investigation Report on Potable Water Supply to Currently Identified Inadequately Served Communities** is required, which must be of a high standard.

6.4.2 Economic and Socio-economic Analysis

An Economic and Socio-economic Analysis of the recommended water resource development option is required. These analyses must establish what the Socio-

Economic Benefits/Losses are for the Musina Area, and what other areas could benefit from augmenting the water supply to the Musina Area if the water supply is not augmented to the Musina Area (the No Project Option).

An **Economic and Socio-economic Analyses Report** is required, which must be of a High Standard.

6.4.3 Assessment of the Legal, Institutional, Financial and Operational Aspects

A **Legal, Institutional, Financial and Operational Aspects Report** is required, which must be of a High Standard.

6.4.3.1 Legal Aspects

The appointed PSP for this Study must identify, assess and investigate all the Legal Aspects at a high Level of detail for the Recommended Water Resource Development Option in terms of the relevant Legislation, Policies, and Regulations. An experienced Legal Professional with appropriate experience in the relevant Legislation, Policies, and Regulations must preferably undertake the identification, assessment, and investigation of all the legal aspects.

6.4.3.2 Financial Aspects

The appointed PSP for this Study must investigate the financial aspects at a high level of detail, which is, but is not limited to, the following:

- The Financial Viabilities of the Recommended Water Resource Development Option and Scheme Configuration Option;
- The Financial Viability of the Preferred Water Resource Development Option and scheme configuration options to be taken forward to Implementation in the future;
- The Affordability of Water to be supplied by the Recommended Water Resource Development Option as far as the various user groups and the DWS Pricing Strategy are concerned, especially the impacts on the social and municipal water users, as well as

- Potential funding arrangements.

The above-mentioned aspects are in addition to the URV calculations that are required for this Study of the Recommended Water Resource Development Option and Scheme Configuration Option.

6.4.3.3 Institutional and Operational Aspects

The appointed PSP for this Study must undertake an investigation of the institutional arrangements for the implementation of the Preferred Water Resource Development Option and Scheme Configuration Option that will be taken forward to Implementation in the future. The potential role players that are responsible for implementation and operation, as well as the funding options, determine these arrangements for the proposed project. Recommendations need to be made on the Legal, Administrative, and Financial Arrangements as well as responsibilities for the implementation of the proposed project.

6.5 PROJECT MANAGEMENT AND CO-ORDINATION

The **Project Management and Coordination** of this Study will be the responsibility of the appointed PSP for this Study under the supervision of the DWS Project Manager. This will involve several meetings and the appointed PSP for this Study must make provisions for these meetings as specified in **Table 6.1** below which may exclude other meetings required. These meetings shall be priced per meeting and not as a collective.

The appointed PSP for this Study will be responsible for the Subsistence and Travel Costs of the Study Team Members attending meetings and site visits. It will also be required of the appointed PSP for this Study to provide secretarial services at all the meetings and workshops.

Table 6.1: Meetings to be Priced by Bidder in the Financial Proposal

Meeting	Number of Meetings	Venue	PSP Obligations
Study Management Committee (SMC), excluding Inception Meetings	Once every two (2) months (Price for 24)	Assume venue is in the study area. Musina for all these meetings.	• Arrangements for Meetings; • Attendance; • PowerPoint Presentations of Study Progress, as well as • Minute Taking and Distribution.
Study Steering Committee (SSC) and/or Stakeholder Meetings	Once every three (3) months (Price for 16)	Assume venue is in the study area. Musina for all these meetings.	• Arrangements for Meetings; • Attendance; • PowerPoint Presentations of Study Progress, as well as • Minute Taking and Distribution.
Presentation to the DWS Management	Assume Seven (7) Presentations.	DWS Pretoria and Musina.	• High-Quality PowerPoint Presentations by One or Two Study Team Members.
Meetings with Key Stakeholders (Arranged by the PSP)	Assume six (6) events and twelve (12) meetings.	Assume venue is in Musina Project area for all these meetings.	• Arrangements for Meetings; • Attendance; • PowerPoint Presentations of Study Progress, as well as • Minute Taking and Distribution. • Arrange refreshments.

Meeting	Number of Meetings	Venue	PSP Obligations
Liaison with Role Players (Municipalities, other Government Departments, etc.)	As required (Price for 10)	Assume venue is in Musina Project area for all these meetings.	• Arrangements for Meetings; • Attendance; • PowerPoint Presentations of Study Progress, as well as • Minute Taking and Distribution.

6.5.1 Study Management Committee Meetings

The DWS will provide the appointed PSP for this Study with the names and contact details of the DWS officials and other officials that will be nominated to the Study Management Committee (SMC). The coordination, arrangements, and costs of meetings with key SMC members, as well as liaison with role players such as municipalities, other Government departments, etc., will be the responsibility of the appointed PSP for this Study.

6.5.2 Study Steering Committee Meetings

The DWS will provide the appointed PSP for this Study with the names and contact details of the DWS officials and other officials that will be nominated to the Study Steering Committee (SSC). The coordination, arrangements, and costs of meetings with key stakeholders, as well as liaison with role players such as municipalities, other Government departments, etc., will be the responsibility of the appointed PSP for this Study.

6.5.3 Liaison with Role Players and Stakeholders

The appointed PSP for this Study will be responsible to arrange Liaison Meetings with role players, which may, or may not be, attended by the DWS Project Manager and the DWS Regional Offices. Typical role players and stakeholders would be, but are not limited to, the following:

- Local municipalities in the Study Area;

- District municipalities in the Study Area;
- Irrigation Boards in the Study Area;
- Water Boards in the Study Area;
- MMSEZ;
- The appointed PSP for the Study, Development, Updating, and Review of the Strategies to Reconcile Water Availability, and Requirements in the North Planning Area (DWS Project WP11341), which includes the ORS;
- The appointed PSP for the Development of Operating Rules for Water Supply and Drought Management of Stand-Alone Dams, Schemes, and Integrated Systems in the Northern Planning Area (DWS Project WP11251);
- Interested and Affected Parties (I&APs), as well as
- Other National and Provincial Government departments, as well as institutions and any other appointed PSPs.

6.5.4 Coordination and Management of the Study Team

It will be the Study Leader's responsibility to ensure that all Study Team members and tasks are activated and completed at the right times. The appointed PSP for this Study will be responsible to provide Project Progress Reports for the SSC and SMC Meetings.

6.5.5 Quality Control of Study Reports

It will be Study Leader's responsibility to review all reports (Draft or Final) before submitting thereof to the DWS. The Study Leader shall ensure that all reports are produced in the format required by the DWS and conform to the template that will be provided at the start of this Study. Quality control of reports includes ensuring that language use and grammar are of a high standard and that reports contain all information required to take the Preferred Transfer Option forward to implementation in the future. Any reports that display a lack of review and scrutiny by the Study Leader will be sent back to the appointed PSP for this Study before the DWS Project Manager will review these reports and approve payment of the next invoice.

6.5.6 External Specialist Reviewers

The bidder shall price based on historical estimates from similar studies, to appoint **External Specialist Reviewers**, as required, to review the technical content of selected Specialist Reports if applicable, to confirm or improve the quality of these reports.

The **Amount** for the **External Specialist Reviewers** shall be **included** in the **Financial Proposal** by all the Bidders to cover these costs. Furthermore, Bidders **must make provision** in their **Financial Proposals** for **assisting the DWS with the Procurement (Specifications, Evaluation of Quotations and Recommendations) of the Services of Specialist Reviewers** as a **percentage (%)** of the **Amount** and for the **Management of Payments to the Specialist Reviewers** as a **percentage (%)** of the **Amount** through the appointed PSP's invoices. The man hours utilised must be stipulated for this task to ensure alignment between the resource input and cost.

6.5.7 Financial Management

The Study Leader shall ensure that the DWS is invoiced as required and that invoices will be supported by all the necessary documentation, which is required by the DWS. It is the responsibility of the appointed PSP for this Study to ascertain themselves of the DWS requirements at the onset of this Study. Progress Reports must be submitted together with the draft invoice, which cover the Invoice Period. These Progress Reports are in addition to the Progress Reports that have to be prepared for SSC Meetings that cover the period between two successive SSC Meetings. It should be noted that the appointed PSP's Study Leader will be responsible for, and be up to date with, financial-related issues of this Study. The DWS Project Member shall advise if the draft invoice and supporting documentation is acceptable before the PSP may submit a final signed invoice. Please refer to **Section 10.3 Invoices** for further information.

6.5.8 Maintain and Update the Project Website

It will be necessary to provide information to the DWS Web Service Manager to update and maintain the DWS Website for the dissemination of information during the Study Period. The following information must be published:

- Notices of all public meetings;

- Minutes of all public meetings and presentations;
- Scanned versions of newspaper advertisements;
- Approved study reports and supplementary reports;
- Approved Scoping Reports;
- Approved EIRs and presentations;
- Approved EMPr, as well as
- A copy of the official Environmental Authorisations (EAs) for the project issued by DFFE and DMR.

6.5.9 Collaboration between Study Teams

A close collaboration needs to be maintained between the EIA Study Team and the Technical Feasibility Study Team. The main objectives for this collaboration are, but not limited to, the following:

- To make both teams aware of all the environmental impacts at an early stage;
- To support each other in establishing suitable mitigation measures for environmental impacts;
- To assess the cost of proposed environmental mitigation measures and include it as part of the overall project cost, as well as
- To avoid conflicting Project Reports produced by the two different study teams.

6.6 IMPLEMENTATION PROGRAMME FOR THE PREFERRED WATER RESOURCE DEVELOPMENT OPTION

This task involves determining the date that the project needs to be commissioned taking into consideration the current water use projections as well as the actual time required to implement the project.

The timing of the project from a water resources perspective will be determined by means of analysis performed with the WRPM. This analysis will be conducted as part of the system analysis task. However, the date so obtained may have to be adjusted as a result of practical constraints with regards to lead times and the actual construction time required.

Hence, this task would mostly entail determining the required implementation programme for the project comprising the following programme components:

- Tender design;
- Detail design (will follow on tender design and carry on during construction);
- Letting of tenders;
- Adjudication and award of contract, as well as
- Actual construction.

The PSP is expected to provide a very detailed programme utilizing Microsoft Project, or any other similar software acceptable to the Client.

6.7 STUDY MAIN REPORT

When all the tasks are nearing completion, it will be required from the appointed PSP for this Study to collate all the results of this Study in a **Study Main Report**, which must be of a high standard. Furthermore, any past reports and/or articles used, as information on any particular identified potential water resource development option, e.g., new dams, etc. shall be referenced in the last section of the Study Main Report since these references may be utilized in the future. The structure of the Study Main Report will be agreed upon between the DWS and the appointed PSP for this Study during the Inception Stage of this Study. Furthermore, the preferred water resource development option and scheme configuration option must be recommended to be taken forward to implementation in the future.

6.8 Book of Drawings and Maps

A Book of Drawings and Maps, which meets the DWS Standards, must also be prepared. Furthermore, soft copies of all the maps and drawings, Google Earth files, as well as GIS files must be submitted to the DWS. All these soft copies must be properly indexed, accessible, and usable for implementation in the future.

6.9 Record of Implementation Decisions

The appointed PSP will be responsible for writing a Record of Implementation Decisions (RID)

A Memorandum of Agreement between the CD: IWRP and CD: ID dated March 2005, clarifies "the division and/or sharing of roles, responsibilities and accountability of the Chief Directorates through the various project phases from planning to the commissioning of a project".

The Memorandum states that once the detail planning of a project has been concluded and the scheme configuration and other related requirements for implementation have been approved by the Minister, the project shall be formally handed over from the CD: IWRP to the CD: ID for implementation. This formal handing-over of the project is concluded through an official document, the RID, and is signed off by responsible officials from both the CD: IWRP and the CD: ID. The RID describes the scope of the project, the specific configuration of the scheme to be implemented, the required implementation timelines, the finalization of required institutional arrangements and the required environmental mitigation measures as described in the project's Environmental Impact Report (EIR) as well as any further requirements that may be prescribed by the Department of Environment, Forestry and Fisheries (DEFF) in its Record of Decision (ROD). Any work carried out outside of the scope of the RID will be considered unauthorized work, unless official approval for such work has been obtained from the CD: IWRP prior to such work being carried out.

The RID also forms part of the Implementation Agreement for the project that must be concluded between the DWS and the funding agency for setting out clear lines of responsibility and accountability as has been directed in the Ministerial Directive.

This RID provides the detailed planning guidelines for the project. The RID should, however, be read in conjunction with the original feasibility study reports and associated subsequent bridging study reports as well as the EIR.

6.10 PROJECT SUMMARY REPORT

The Project Summary Report (PSR) will not only cover technical aspects, but also environmental and other aspects dealt outside of the feasibility study phase.

The PSR will be drafted in the same manner as former white papers of the DWS. This would best suit its publication in both the Government Gazette and on the DWS and project websites. It is anticipated that the PSR, written in 11-point size Arial font, will require a report length of about five (5) to ten (10) pages. The PSR shall contain some very elementary drawings to illustrate the project area and some of the most important infrastructure.

6.11 CLOSE-OUT REPORT

Upon completion of this Study and approval of all the deliverables and reports by the DWS, the appointed PSP for this Study will also be required to prepare and submit a Close-out Report for this Study to the DWS, which must be of a high standard. The Close-out Report will be the final deliverable for this Study and should serve as feedback on all the following aspects:

- Deliverables;
- Milestones;
- Stakeholder Participation;
- Capacity Building and Training;

- Challenges;
- Contact Details of all the Stakeholders and I&APs;
- Lessons Learned, as well as
- Recommendations that can be considered for similar studies in the future.

The Close-out Report should not exceed one hundred (100) pages in total. The structure and contents of the Close-out Report will be agreed upon between the DWS and the appointed PSP for this Study during the Inception Stage of this Study.

6.12 CAPACITY BUILDING AND TRAINING

The appointed PSP for this Study will be required to undertake Capacity Building and Training of DWS officials and/or interns in one (1) or more of the following aspects of this Study:

- Project Management;
- Technical Aspects, as well as
- Legal, Institutional, Financial and Operational Aspects.

The DWS officials and/or interns could therefore be seconded to the PSP for certain Portions of this Study to gain practical experience. The cost to the PSP would be time to mentor the DWS interns as well as the provision of office space and resources.

Alternatively, the PSP can arrange one-day accredited Continued Professional Development (CPD) training workshops to present certain technical aspects of this Study to the DWS officials and/or interns. Copies of all the presentations and other training materials must be submitted to the DWS. Furthermore, the PSP must also email electronic copies of all the presentations and other training materials to the DWS officials and/or interns who attended these workshops.

7. STUDY PROGRAMME

The appointed PSP for this Study is required to develop a **Detailed Programme for this Study** to be completed within **thirty-six (36) months**. The Study Programme must be prepared with **MS Project** and not with MS Excel. A detailed Study Programme, broken down to specific tasks and time allocated for each task must be submitted and the critical path shall be indicated. The Study Programme must indicate all study landmarks and target dates for deliverables.

8. PROJECT PROPOSAL

Bidders are required to submit, at their own cost, a Proposal (Bid), which consists of the following documents:

- **Standard Bidding Documents**, as specified under **Sub-section 8.3.2** below;
- A **Technical Proposal**, to demonstrate the capability of the Bidder to perform the full scope of this Study as presented in this Terms of Reference (ToR), and
- A **Financial Proposal**, to provide the cost to undertake this Study.

Bidders should submit comprehensive Technical and Financial Proposals as this Study is managed to avoid variation orders as far as possible. There is a limit to the amount of variation of the original contract amount that is permitted by National Treasury Regulations, and any variation of scope or cost requires the approval of DWS regardless of extent. Bids that show a lack of understanding of the scope of services required, and that are not comprehensive enough will be evaluated accordingly.

8.1 TECHNICAL PROPOSAL

8.1.1 Introduction

An Introductory Section should provide a brief overview of the Bidding Organization with particular emphasis on the available capacity to undertake this Study.

8.1.2 Past Experience

Bidders are required to provide information on the recent past ten (10) relevant assignments undertaken by the Bidding Organisation. Specific details must be given to indicate the extent to which these studies relate to the Scope of Services Required for this Study. The responsibility of the proposed Study Leader and the other key team members (Task Leaders and Specialists) for these past assignments must be specified. The client organizations and contact details (names, telephone numbers, and email addresses), indicative professional fees, and duration of the work program must also be specified for each assignment.

8.1.3 Estimated Total Hours

Bidders are required to include the **Required Summary of Hours** in **ANNEXURE B.1** in their **Financial Proposals** only **and not** in their **Technical Proposals**. Bidders are, however, required to **state** their **Estimated Total Hours** in the **Technical Proposal** to **Undertake and Complete this Study** since the Bidder's Estimated **Total Hours** form part of the **Functional/Technical Evaluation** (refer to **8.3.3** below).

The **Estimated Total Hours** are for the **Bidder's Professional Fees**, including the hours of any **Sub-consultants** proposed by the Bidder.

These **Estimated Total Hours** in the **Technical Proposal must correspond** to the **Estimated Total Hours in the Financial Proposal**. Any **discrepancies** between the **Estimated Total Hours** in the **Technical Proposal** and in the **Financial Proposal** to Undertake and Complete this Study could lead to possible disqualification.

8.2 FINANCIAL PROPOSAL

The **Financial Proposal** is a stand-alone document that should provide comprehensive information on the cost of undertaking this Study.

Bidders shall make provision in their Financial Proposal for all costs and expenses to undertake and complete the tasks described in the Scope of Services Required. The DWS will make provisions for necessary **Contingencies**, and bidders must not add them to the Financial Proposal.

The Financial Proposal shall include the following:

- **Breakdown of Deliverables** and **Associated Costs** based on the allocation of resources to the various tasks, sub-tasks, and other activities described in the Scope of Services Required;
- **Value Added Tax** (VAT) at **15%** on the **Total Estimated Cost**. VAT must only be added as a **Penultimate Item** before the **Total Cost**, right at **the bottom** of the **Required Detailed Cost Summary Sheet** and the **Required Cost Summary Sheet.** (refer to **ANNEXURE B.2** and **ANNEXURE B.3**);

- **Escalation of Professional Fees, including Disbursements,** over the **Contract Period, must be built into the Deliverable Costs** and **may not be claimed separately later**. However, **escalation of Professional Fees beyond the Contract Period**, if the **Contract is extended**, must be stated separately as a **percentage (%) per annum** in the **last row** of the **Required Detailed Cost Summary Sheet** (refer to **ANNEXURE B.2**);
- **Monthly Cash Flow** for the contract period based on the **Work Programme**, as well as
- **Breakdown of Professional Fees** to show the amount earned by each team member and the fees earned by **Historically Disadvantaged Individuals (HDIs)**.

8.2.1 Cost of Deliverables

The **Cost of Deliverables** must be defined in the **Financial Proposal** as it is the intention to manage this Study based on deliverables and not on the number of hours worked. The person-hours, which also need to be provided, must therefore be linked to suitable deliverables that can be achieved regularly to provide a smooth cash flow that meets the requirements of the appointed PSP for this Study. Past experience has shown that, on average, most service providers cannot survive periods longer than three (3) months without payment. A **Guideline of the Expected Deliverables** is presented in **Section 9** below.

The **Required Detailed Cost Summary Sheet** is given in **ANNEXURE B.2** and the **Required Cost Summary Sheet** is given in **ANNEXURE B.3**

This information on the cost of deliverables will form the basis of the **Study Budget** and shall include the following:

a) **Professional Time-based Costs** and **Disbursements** for each task;

b) **Sub-consultants** whose costs are part of this Bid;

c) **Procurement of the Services** of **Specialist Sub-consultants** and **Sub-contractors** for **Specialist Tasks**

d) **Management of Payments to Specialist Sub-consultants** and **Sub-contractors** for **Specialist Tasks**

e) **Value Added Tax (VAT)** at **15%** on the **Total Estimated Cost**, which must appear on the **Required Detailed Cost Summary Sheet** and the **Required Detailed Cost Summary Sheet** (see **ANNEXURE B.2** and **ANNEXURE B.3**);

f) **Cash Flow** and **Estimated Total Cost**;

g) **Links** to the **Proposed Work Programme**, as well as

h) **Breakdown** by **Study Team Member Fees** including **fees earned by HDIs**.

ADMINISTRATIVE COMPLIANCE

Bidders are required to comply with the following:

No	Criteria	Yes	No
1	Companies must be registered with the National Treasury's Central Supplier Database. Provide proof of print out from CSD.		
2	Tax compliant with SARS (to be verified through CSD and SARS).		
3	Complete, sign, submit SBD 1, SBD 3.3, SBD 4, SBD 6.1		
4	Active registration with Company Intellectual Property Commission (to be verified through CSD and CIPC) Attach copy of CIPC/CIPRO		
5	The service provider (and in the case of a consortium or joint venture – at least one member of such consortium or joint venture) should submit		
6	CERTIFICATE OF AUTHORITY FOR SIGNATORY (bidders to complete the relevant form.)		
7	Copy of an Identity document of the authorised individual to represent the Service provider as per the CERTIFICATE OF AUTHORITY FOR		
8	Attendance of Non-compulsory virtual briefing session		

8.3 EVALUATION SYSTEM

Department of Water and Sanitation will evaluate all proposals in terms of the Preferential Procurement Regulations (PPR's) 2022. In accordance with the PPR's 2022, submissions will be adjudicated on 80/20 points system and the evaluation criteria. A three phase evaluation criteria will be considered in evaluating the bid. On the receipt of the proposals, the evaluation criteria shown below will be used for the selection of the most suitable bidder to undertake the assignment.

PHASE 1: MANDATORY COMPLIANCE (IF NOT COMPLIED WITH BIDDER WILL BE DISQUALIFIED)

PHASE 2: FUNCTIONAL / TECHNICAL EVALUATION

PHASE 3: POINTS AWARDED FOR PRICE AND SPECIFIC GOALS (80/20 PREFERENTIAL SYSTEM)

8.3.1 Phase 1: Mandatory Compliance

Please note that all bidders must comply with the following mandatory requirement. Failure to submit the document listed below will render your bid non-responsive and will be disqualified.

NO	DESCRIPTION	COMPLY	DO NOT COMPLY
1.	Attach a valid proof of membership/registration for the study leader, deputy study leader and task leaders with either of the below Professional body: Study Leader: Engineering Council of South Africa (ECSA) for Engineers. Deputy Study Leader: Engineering Council of South Africa (ECSA) for Engineers. Task Leaders: Engineering Council of South Africa (ECSA); South African Council of Natural Science Professions (SACNASP); similar relevant professional association or proof of expertise must be provided.		

Technical Proposals will be evaluated and scored without reference to the Financial Proposals.

8.3.2 Phase 2: Functionality (Technical) Evaluation

The 80/20 point system will be used in evaluating all proposals. The criteria and guideline weighting points applicable are detailed in the following paragraphs.

Definition of values: 1= Very Poor… 2 = Poor…3 = Average…….4 = Good…. 5 = Excellent

Criteria	Sub-Criteria	Points Value	Weight of Criterion	Bidder Score
Past experience of the company: 30% Provide details of work of a similar nature undertaken by the bidding PSP.	Specific details must be given to indicate the extent to which these previous studies relate to the work described below: • Feasibility designs of water recourse projects (Dams); • Environmental impact assessments for water resource developments; • Final designs of water recourse projects (Dams); *(Attach testimonial letters or refences with contact details as proof of past experience)*		30%	
	≥10 years on all 3 items	5		
	Above 6 to 10 years on all 3 items	4		
	Above 5 to 6 years on all 3 items	3		
	Above 3 to 5 years on all 3 items	2		
	1 to 3 years on all 3 items	1		
Team Capability: Team should have a range of experts in various fields (water resource engineer, hydrologist, geohydrologist, water quality specialist, environmentalist, stakeholder engagement specialist).	The **Study leader** must be a professional engineer (ECSA registered), with relevant experience, and in coordinating and managing the following studies. • Feasibility Designs of Water Recourse Projects (Dams); • Environmental Impact Assessments for water resource developments; • Final Designs of Water Recourse Projects (Dams); *(Bidders are required to attach abbreviated (2pages max) Curriculum Vitae (CV) highlighting*		10%	

Criteria	Sub-Criteria	Points Value	Weight of Criterion	Bidder Score
A study team organogram must be provided indicating key positions such as Study Leader, Task Leader and supporting Specialists. The organogram shall also indicate the levels at which there will be interaction with the client and/or other interested bodies. Persons proposed for these positions must be identified and supported by CVs of one page each to be included in an **Appendix**. Brief capability statements must be given for each designated team member, emphasizing recent experience relevant to the task envisaged	*the areas of work that was previously conducted).*			
	With more than 10 years' experience in at least 2 of the above	5		
	With above 8 to 10 years' experience in at least 2 of the above	4		
	With above 6 to 8 years' experience in at least 2 of the above	3		
	With 4 to 6 years' experience in at least 2 of the above	2		
	With less than 4 years' experience in at least 2 of the above	1		
	The **Deputy Study Leader** must be a Professional Engineer who has experience in projects in the water resource development environment (Dams, large pumpstations and bulk water pipelines). *(Bidders are required to attach abbreviated (2pages max) Curriculum Vitae (CV) highlighting the areas of work that was previously conducted)..*		5%	
	With more than 10 years' experience	5		
	With above 8 to 10 years' experience	4		
	With above 6 to 8 years' experience	3		
	With 4 to 6 years' experience	2		
	With less than 4 years' experience	1		

Criteria	Sub-Criteria	Points Value	Weight of Criterion	Bidder Score
	The **Task leaders** (hydrologists/ engineers/scientists) *(Bidders are required to attach abbreviated (2pages max) Curriculum Vitae (CV) highlighting the areas of work that was previously conducted).*		10%	
	Task leader with more than 10 years' experience	5		
	Task leader with above 8 to 10 years' experience	4		
	Task leader with above 6 to 8 years' experience	3		
	Task leader with 4 to 6 years' experience	2		
	Task leader with less than 4 years' experience	1		
Methodology: 35% Present a short concise description of the Scope of Work, such as to reveal **understanding of the study required**. The proposed approach and methods to be used during the study should be outlined with emphasis on the important or critical aspects of each task. This section may also be used	Considers the responsiveness to the ToR, the level of detail in the proposal, attention to project management and innovative approaches and ideas. General approach planned methodology and proposed activities towards the undertaking of the project. The following items must be clearly indicated in detail: The methodology will be evaluated on the following: **1.** Broad methodologies in line with the task descriptions outlined under project scope/ task description. **2.** Clear milestones, timeframes and man hours required for each task to be completed.		35%	

Criteria	Sub-Criteria	Points Value	Weight of Criterion	Bidder Score
by the bidding PSP to briefly present alternative proposals, innovative approaches or other special features of their proposal.	**3.** Detailed programme. **4.** Detailed method statement for each task within the study area. **5.** Demonstrate innovation			
	All 5 items above included.	5		
	Item 2, 3, 4 and 5 included	4		
	Item 1, 2, 3 and 4 included.	3		
	Any two of the items above	2		
	Any one or less items above included	1		
Skill transfer: 10%	In terms of building capacity and ensuring skills transfer in the DWS, the PSP will be responsible for establishing a capacity building programme aligned to the skills developmental needs of identified officials responsible for water resource planning process. Provide clear proposals on Capacity Building and Training of 5 DWS officials in project management and/or technical aspects to be undertaken as part of this study. Capacity building is realised through the following components: 1. Hands on practical training including field work. 2. Inclusion of DWS officials in all phases of the project. 3. Develop a capacity building programme with quantifiable measures.		10%	

Criteria	Sub-Criteria	Points Value	Weight of Criterion	Bidder Score
	4. Relevant software training and training manuals; and 5. Inclusion of local specialists and stakeholders. *(The Service provider is requested to attach a capacity building programme to demonstrate how they will transfer skills through the identified components above)* PSP to submit a previous project with skills transfer plan executed and output thereof. (Provide portfolio of evidence).			
	All 5 items above included.	5		
	Item 2, 3, 4 and 5 included.	4		
	Item 1, 2, 3 and 4 included.	3		
	Item 1, 2 and 3 included.	2		
	Any 2 items above included.	1		
Total			**100%**	

Bidders must score the required minimum of **70 points (70%)**, or higher, for **Functionality** (Past Experience, Methodology, Team Capability, and Capacity Building and Training), in order to qualify for further evaluation. Further evaluation is based on **Price and Preference** after the minimum score has been achieved by the bidder.

Please note, that in order to achieve a qualifying score for Functionality, bidders must have experience and capability to successfully undertake the updating of the water resource assessment and feasibility investigations of this Study.
Bidders can form a joint venture, or other similar arrangement, to ensure that they are qualified for all aspects of this Study.

8.3.3 Phase 2: The 80/20 Principle based on Price and Specific Goals

The 80/20 Preferential Procurement System will be used in evaluating these bids:

Evaluation element	*Weighting (Points)*
SPECIFIC GOALS	***20***
PRICE	***80***
Total	***100***

Price

A maximum of 80 points are allocated for price on the following basis:

$$Ps = 80\left(1 - \frac{Pt - P\ \min}{P\ \min}\right)$$

Where:

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

Preference point system

SPECIFIC GOALS	*NUMBER OF POINTS TO BE ALLOCATED*
Women	***5***
People with disability	***5***
Youth (35 and below)	***5***

Location of enterprise (Province)	***2***
B-BBEE status level contributors from level 1 to 2 which are QSE or EME	***3***
Total points for SPECIFIC GOALS	***20***

Documents Requirement for verification of Points allocation: -

Procurement Requirement	***Required Proof Documents***
Women	***Full CSD Report***
Disability	***Full CSD Report***
Youth	***Full CSD Report***
Location	***Full CSD Report***
B-BBEE status level contributors from level 1 to 2 which are QSE or EME	***Valid BBBEE certificate/sworn affidavit***
	Consolidated BEE certificate in cases of Joint Venture
	Full CSD Report

The definition and measurement of the goals above is as follows:

Women, disability, and youth:

This will be measured by calculating the pro-rata percentage of ownership of the bidding company which meets this criterion. E.g., Company A has five shareholders each of whom own 20% of the company. Three of the five shareholders meet the criterion, i.e. they are women/disability/youth. Therefore, this bidder will obtain 60% of the points allowable for this goal.

Location of enterprise

Local equals province. Where a project cuts across more than one province, the bidder may be located in any of the relevant provinces to obtain the points.

B-BBEE status level contributors from level 1 to 2 which are QSE or EME

Measured in terms of normal BBBEE requirements.

Note: Formula for calculating points for specific goals

Preference points for entities are calculated on their percentage shareholding in a business, provided that they are actively involved in and exercise control over the enterprise. The following formula is prescribed:

$$PC = Mpa \times \frac{P\text{-}own}{100}$$

Where

PC= Points awarded for specific goal

Mpa= The maximum number of points awarded for ownership in that specific category

P-own = The percentage of equity ownership by the enterprise or business

9. DELIVERABLES

Deliverables such as reports, presentations, analyses, letters, minutes of meetings, and databases must be provided in **Microsoft applications** and in **PDF format** (where applicable). The text for all documents shall be in **Arial 11 font** at **1.5 spacing** unless otherwise stated or agreed.

Provision must also be made to submit deliverables, such as reports and letters, in hard copy format if required. The format of reports must be confirmed with the DWS before issuing final versions of reports. Reports are typically submitted as the First Draft, Draft Final and Final Version.

A **Guideline of the Deliverables Required** for this Study is provided in **Table 9.1** below, which is not an exhaustive and final list. This list must be read in conjunction with the other sections of the ToR. Bidders should scrutinize the list, as well as relevant sections of the ToR, and submit an **Updated Comprehensive List of the Expected Deliverables** for this Study in the **Technical Proposal**. Smaller deliverables submitted frequently to provide a steady cash flow throughout this Study are preferable to "big" deliverables that take too long to complete.

Table 9.1: Guideline of Deliverables Required for this Study

No.	Description
A	**Work Plan** setting out the various tasks that must be undertaken, with a detailed description of each task/sub-task/work package and showing the expected technical deliverables.
B	**Study Status Reports** to summarize information and progress to date on the various tasks and provide other relevant information.
C	**Study Gantt Chart** showing the various tasks, sub-tasks, and work packages with delivery dates.
D	**Formal Monthly Progress Reports** including information on expenditure.
E	**Minutes of PSC and SMC Meetings** as well as other meetings and workshops including presentations on study progress.

No.	Description
F	**Decision Register** to record substantial decisions made to guide the smooth execution of this Study.
G	**Record of Liaison** with role players and stakeholders.
H	**Executive Reports** on the findings and recommendations of this Study.
I	This Study is expected to consist of, but is not limited to, the following reporting as deliverables: • Inception Report; • Pre-Feasibility Study Report; o Hydrological and Water Resources Assessment Supporting Report; o Review Report of the Proposed Water Resource Development Options; • Feasibility Study Report; o Return Stream Flow Hydrology Supporting Report; o Water Requirements and Return Flows Supporting Report; o Updated Ecological Reserve Requirements Supporting Report; o Yield Analysis Supporting Report; o Short-term Stochastic Yield Reliability Curves; o Water Resources Planning Analysis Supporting Report; o Environmental Screening Report; o Material Investigation Supporting Report; o Geotechnical Investigation Supporting Report; o Topographical Surveys; o Dam Type Selection Report Supporting Report; o Flood Estimates Write-up; o Indicative Backwater Determinations Write-up; o Storage Capacities and Yields of the Potential Dams Chapter in the Feasibility Investigation Report;

No.	Description
	○ Optimisation of Water Supply Option Supporting Report; ○ Hydropower Assessment Supporting Report; ○ Costing Supporting Report and Cost Models; ○ Google Earth Satellite Images; ○ Geomorphologic and Seismic Investigation Supporting Report; ○ Water Quality and Limnology Supporting Report; ○ Sediment Yield Supporting Report; ○ Land Requirements Report; ○ Feasibility Design Report; • Investigation Report on Potable Water Supply to Currently Identified Inadequately Served Communities; • Basic Economic and Socio-economic Analyses Report; • Basic Legal, Institutional, Financial and Operational Aspects Report; • Commentss and Response Report; • Environmental Impact Report; • Environmental Impact Assessment Report; • Environmental Management Programme; • Environmental Management Plan for Borrow Pits and Quarries; ○ Socio-economic Impact Assessments Supporting Report; ○ Visual Impact Assessment Supporting Report; ○ Floral Impact Assessment Supporting Report; ○ Faunal Impact Assessment Supporting Report; ○ Heritage Impact Assessment Supporting Report; ○ Water Quality Study Supporting Report; ○ Aquatic Ecology Assessment Supporting Report; ○ Wetland Assessment Supporting Report; ○ Reserve Determination Supporting Report;

No.	Description
	• Study Main Report; • Book of Drawings and Maps; • Summary Report; • Record of Implementation Decisions; • Project Implementation Programme; • Close-out Report, as well as • Capacity Building and Training. The suggested report titles may be rephrased, and additional reports added in the course of this Study in the light of better information. Some reports may be combined while others may be divided into more reports as found necessary. Different sections of the ToR must be consulted to draw up a **Full List of the Required Reports**.

10. GENERAL INFORMATION

10.1 CLIENT AND STUDY TITLE

The DWS will act as the **Client** for this Study. This Study shall be called: **The Musina Water Augmentation Project (MWAP): Phase 3 - Module 1: Technical Feasibility Study**.

10.2 INTELLECTUAL PROPERTY

The ownership of **intellectual property** derived from this Study shall vest with the DWS.

10.3 INVOICES

The **Financial Proposal**, as well as invoices submitted for payment, must be structured in a way that makes it possible for payments to be linked to relevant deliverables. This information will enable the DWS to **monitor the study progress** by comparing invoices against approved contract deliverables. Invoice certification is required before payments are made.

The invoice format will need approval by the DWS at the commencement of this Study. A Pro-forma Invoice must be submitted for the approval process. Only **one (1) invoice** may be submitted for payment in any month of this Study although an invoice does not need to be submitted every month. Furthermore, the first invoice may only be submitted after the Contract has been signed between the parties and an Order Number has been created.

Under no circumstances may the PSP commence with any work before signing the Contract.

10.3 LEVEL OF DETAIL

The technical investigations must be undertaken at a very high level of detail, appropriate for taking decisions on to the implementation phase. The study deliverables should allow the project to proceed immediately to detailed design and construction within the shortest possible timeframe.

10.4 Retention on PSP Contracts

It is the DWS's practice to impose a retention amount equal to 2% of the approved contract amount until the Final Reports are submitted and approved by the Client. The retention clause comes into effect near the end of the study.

10.5 DWS's PSP Database

The PSP must be registered on the DWS's PSP Database.

11. CONTACT DETAILS

The **DWS Directorate: Water Resources Development Planning** together with the **DWS Directorate: Supply Chain Management** is administering this ToR and Invitation to Bid. The Contact Persons for Enquiries about this Study are given in **Table 11.1** below:

Table 11.1: Contact Persons for Enquiries about this Study

For Technical Matters
Mr. Prashen Jugdawooh Tel: (012) 336 8188 E-mail: JugdawoohP@dws.gov.za

Note:	*Email correspondence regarding this Bid should be sent to both contact persons listed in **Table 11.1** above.*

ANNEXURE A

GUIDELINES FOR PREPARATION OF A TECHNICAL PROPOSAL

The contents of the Technical Proposal must be to the point and limited to the information required. It should reflect a clear understanding of the Study to be undertaken and should concentrate on and stress the expertise and competence of the team.

The Technical Proposal should be in Arial font size 11 at 1.5 line spacing.

No financial information is to be included in the Technical Proposal.

C.1	**Introduction**
	Limited to two (2) A4 pages
1.a	An introductory section should provide a brief overview of the bidding organization with particular emphasis on available capacity to perform the Study.
C.2	**Past Experience and Estimated Hours**
	Limited to five (5) A4 pages
2.a	Information must be provided on recent (past five years) relevant assignments undertaken by the bidding organization (the PSP). Specific details must be given to indicate the extent to which these studies relate to the Scope of Services. The responsibility of the proposed Study Leader and the other key team members (Task Leaders and Specialists) for these past assignments must be specified. The Client organization, indicative professional fees and duration of the work programme must also be specified for each assignment.
C.3	**Methodology**
	Limited to 30 A4 pages
3.a	Bidders are required to provide a brief description of their approach and methodology, and comment on the ToR, illustrating their understanding of the challenges of the Study, time frames, and deliverables. This section may also be used to briefly present alternative proposals, innovative approaches or other special features of the Technical Proposal.
3.b	The Bidder is expected to provide a brief outline of the work to be done, placing emphasis on the important or critical aspects of each task. Where the Scope of Services is silent on particular issues, bidders must clearly state which issues can be expected to arise during the Study and which additional tasks may be necessary. These assumptions / additional tasks must then be scheduled

	and budgeted for in a separate section of the Financial Proposal, which is clearly indicated as additional tasks.
3.c	The Bidder must submit a proposed programme of work illustrating their understanding of the best way to organise the Study. This representation should show phases of the Study, tasks within phases and, where necessary, sub-tasks. The work programme must be presented in a Gantt Chart (Microsoft Project) illustrating the dates at which critical milestones can be reached and indicating the critical path.
C.4	**Team Capability**
	One to two A4 pages per CV
4.a	A project team organogram must be provided indicating key positions such as Study Leader, Task Leaders and Specialists. Persons proposed for these positions must be identified and supported by CVs to be included in an Appendix. The CVs shall clearly contain the following critical information: • Name of the person • Proposed position on the project team • Current employer • Present position with the current employer • Qualifications and dates obtained • Citizenship (in case of HDIs both present and in 1994) • Membership of professional bodies (Name of the body, registration number, registration date) • Specialisation • Applicable experience, related to the position in the project team
4.b	Brief capability statements must be given for each designated team member, emphasising recent experience relevant to the task envisaged. The availability of each designated team member for the expected duration of the Study must be indicated by reference to limitations that may be placed by other known commitments.
4.c	Information must also be given on the key support staff envisaged for the Study, supported by brief CVs, also included in an Appendix. Company profiles, etc. can be provided in a separate Appendix, but will not be used for the evaluation of bids.
4.d	Members of the proposed project team must be assigned to the tasks identified in the work programme. A schedule is required to indicate the anticipated time contribution of each member of the project team to each main task.
C.5	**Capacity Building and Training**
	Limited to five (5) A4 pages

5.a	The PSP must make provision for capacity building and training of DWS officials or interns in the water resource planning process and/or project management and/or technical aspects, to be undertaken as part of this Study. The content of the capacity building programme will need to be approved by the DWS.
5.b	The interns could be seconded to the PSP for certain portions of the Study to gain practical experience. In this case the cost to the PSP would be time to mentor the interns and the provision of office space. Another option is the presentation of a one-day workshop(s) to present certain technical aspects of the study to the DWS officials.
5.c	**The PSP shall make provision in the Financial Proposal for:** • **Three (3) interns/officials to be seconded for a period of eight (8) months each; and** • **The presentation of two (2) one-day workshops.**

ANNEXURE B.1

EXAMPLE: SUMMARY OF MANPOWER, TIME AND COST SCHEDULE

Team Member	Company Name	Company Position	Study Position (Activity)	Applicable experience in activity	HDI/Woman	Hourly Rate	Time on Study	% of time on Study	Total Cost
				Years	Yes/No	R/h	Hours		Rand
Initials & Name	ABC Consult	Director	Project Leader	25	Y / N	520	20	10.53	10 400
Initials & Name	ABC Consult	Associate	Task Leader, Hydrology	15	N / N	480	50	26.32	24 000
Initials & Name	ABC Consult	Engineer	Dam Design	13	N / N	400	30	15.79	12 000
Initials & Name	ABC Consult	Director	Task Leader, Dam Design	6	Y / Y	500	40	21.05	20 000
Initials & Name	ABC Consult	Associate	Hydrology	10	N / Y	120	15	7.89	1 800
Initials & Name	ABC Consult	Technician	Support	2	Y / Y	110	35	18.42	3 850
TOTAL							**190**	**100**	**72 050**

ANNEXURE B.2

EXAMPLE: TIME AND COST SCHEDULE

Task No.	Team Member	Company Name	Position	HDI	Study Position/Activity	Time Schedule	Hourly Rate (Excl. VAT)	Total Cost (Excl. VAT)
				Yes/No		Man hours	Rand/hour	Rand
1.	**TASK: INCEPTION REPORT:**							
1.1	Initials and Name	ABC Consult	Director	Y	Project Leader	6	440,00	2 640,00
1.2	Initials and Name	ABC Consult	Director	N	Task Leader: Dam Design	7	380,00	2 660,00
	Subtotal for professional fees					**13**		**5 300,00**
	Disbursements:							
	- Travel							2 000,00
	- Accommodation							1 000,00
	- Subsistence							550,00
	- Printing							350,00
	Subtotal for disbursements							**3 900,00**
	TOTAL COST TASK 1							**9 200,00**
2.	**TASK: DAM DESIGN**							
2.1	Initials and Name	ABC Consult	Director	Y	Task Leader	125	380,00	47 500,00
2.2	Initials and Name	ABC Consult	Associate	N	Structural Design	96	350,00	33 600,00
2.3	Initials and Name	ABC Consult	Associate	N	Hydraulics	72	320,00	23 040,00
2.4	Initials and Name	ABC Consult	Engineer	Y	Flood Hydrology	80	300,00	24 000,00
2.7	Initials and Name	ABC Consult	Associate	N	Seismic Assessment	40	300,00	12 000,00
	Subtotal for Professional Fees					**413**		**140 140,00**
	Disbursements:							
	- Travel							45 000,00
	- Accommodation							7 500,00
	- Subsistence							2 500,00
	- Printing							1 000,00
	Subtotal for disbursements							**56 000,00**
	TOTAL COST TASK 2							**196 140,00**
	SUBTOTAL FOR THIS PAGE ***(carry forward to next page)***					**426**		**205 340,00**

Escalation of Professional Fees beyond the Contract Period, if the Contract is extended							
Deliverable Number	**Ref. in ToR**	**Description**	**Unit**	**Quantity**	**Rate**	**Amount**	**Notes and Comments**
N/A	8.2	Indicate Escalation (% per annum) of Professional Fees, including Disbursements, beyond the Contract Period, if the Contract is extended.	% per annum	N/A		N/A	Rate (% per annum) only.

ANNEXURE B.3

EXAMPLE: SUMMARY SHEET FOR FINANCIAL PROPOSAL

Task No.	Task Description	Total Cost / Amount of Task as per Cost and Time Schedule (Excl. VAT)	14% VAT	Total Task Cost (Incl. VAT)
		Rand	Rand	Rand
1.	Inception Report	14 240,00	1 993,60	16 233,60
2.	Water Resources	150 000,00	21 000,00	171 000,00
3.	Systems Analyses	80 000,00	11 200,00	91 200,00
4.	Hydrology and Yield Analysis	120 000,00	16 800,00	136 800,00
5.	Pre-feasibility Investigations	450 000,00	63 000,00	513 000,00
6.	Pre-feasibility of Transfer Options	104 900,00	14 686,00	119 586,00
7.	Feasibility Designs of Dams	352 240,00	49 313,60	401 553,60
8.	Pump Station Layout and Design	136 400,00	19 096,00	155 496,00
9.	Pipeline Alignment and Design	214 800,00	30 072,00	244 872,00
10.	Economic Studies	100 000,00	14 000,00	114 000,00
11.	Study Management and Reports	250 000,00	35 000,00	285 000,00
12.	Other Tasks (Task Name)	701 754.39	98 245,61	800 000,00
	TOTAL COST OF STUDY	**2 674 334,39**	**374 406,81**	**3 048 741,20**