

**ALFRED NZO**  
DISCTRICT MUNICIPALITY

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**TERMS OF REFERENCE**  
**SUPPLY, LICENSING AND TRAINING ON THE USE OF DRONES**  
**2020/21 FINANCIAL YEAR**

**Issued and Prepared by:**  
**Alfred Nzo District Municipality**  
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## **1. BACKGROUND AND OVERVIEW OF THE PROJECT**

### **1.1 INTRODUCTION**

The locality of ANDM is faced with a great number of socio-economic challenges. The region is characterised of high poverty and unemployment levels and low education and skills levels. Due to low levels of income and job scarcity, the society is struggling to make ends meet and as a result, they are unable to afford the basic services provided at a very low cost to the end consumer. Amongst some of the challenges that the District is faced with; is low rural development that is unsustainable although it is almost 95% rural, due to the above mentioned challenges and therefore as a result there is a lack of interest from investors in investing into the region due to a prevailing lack of development.

In response to the above mentioned challenges the District has been selected as one of the Districts to undertake the implementation of Agri-Parks (AP), which presents a new model that will bring together the relevant resources and stakeholders in an integrated and socially inclusive manner. The Department of Rural Development and Land Reform (DRDLR) in partnership with the Department of Rural Development and Agrarian Reform (DRDAR) and the Alfred Nzo District Municipality have therefore been tasked with the implementation of this initiative. These APs are aimed at creating an enabling environment for economic development and job creation, with a focus on value chains for dominant products.

Geographic Information Systems (GIS) has been identified as one of the critical tools to meet the above mentioned objective as it can visually present agricultural related information. A multi-media agricultural geo-database for agricultural activities is a veritable tool for attracting investors by making access to agricultural information easy. It is against this background that the ANDM has taken an initiative to procure drones so as to make data collection of the agricultural

fields easy. Drones are small and light aerial vehicles which may fly at extremely high altitudes and carry various navigation systems or recording devices such as RGB cameras, infrared cameras and other sensors. Due to their ability to deploy various sensors and capture high resolution and low-cost images of crop conditions, drones are very useful in farming.

## **1.2 OVERALL AND SPECIFIC OBJECTIVES OF THE PROJECT**

### **1.2.1 Overall objective**

The overall objective of this project is to seek a service provider that can supply and deliver drones according to the specification below and also provide a 1 day training on how to use these drones. The drones will help in mapping agricultural fields/activities within the ANDM. The advantage of having these Agricultural Activities in digital format is the ability to continually update if there are any changes on the ground. This information will assist in marketing agriculture and attracting investors in the District.

### **1.2.2 Specific Objectives**

Specific objectives of the initiative include:

- Supply and delivery of drones
- Training on how to use the drones.
- Provision of after-sales service

## **2. SCOPE & EXTENT OF WORK**

Quotations from suitably qualified service providers are hereby invited to prepare and submit quotation of Supply and delivery of drones as per the scope of work, training to be included.

The following gives a high level indication of activities to be undertaken;

- Supply and delivery of drones.
- Training on how to use the drones
- Provision of after-sales service for a period of 12 months

2.1. SPECIFICATION:

ITEM	DESCRIPTION	QUANTITY	RATE	AMOUNT
1. Drones	<p><b>Weight:</b> (Battery &amp; Propellers Included) – max 1400 g, <b>Diagonal Size:</b>(Propellers Excluded) – max 350 mm, Max Ascent Speed : 6 m/, Max Descent Speed : 4 m/s, Max Speed : 45 mph (72 kph), Max Service Ceiling Above Sea Level :6000m, Max Wind Speed Resistance: 10 m/s, Max Flight Time Approx. :30 minutes, Operating Temperature Range: 32° to 104°F (0° to 40°C), Satellite Positioning Systems: GPS &amp; GLONASS, Hover Accuracy Range, Vertical: ±0.1 m (with Vision Positioning) ±0.5 m (with GPS Positioning), Horizontal: ±0.3 m (with Vision Positioning) ±1.5 m (with GPS Positioning).</p> <p><b>Vision Positioning System:</b> Vision System Forward, Backward, Downward, Velocity Range ≤31 mph (50 kph) at 6.6 ft (2 m) above ground, Altitude Range 0 - 33 feet (0 - 10 m), Operating Range 0 - 33 feet (0 - 10 m), Obstacle Sensory Range 2 - 98 feet (0.7 - 30 m) FOV Forward: 60°(Horizontal), ±27°(Vertical) Backward: 60°(Horizontal), ±27°(Vertical) Downward: 70°(Front and Rear), 50°(Left and Right), Measuring Frequency Forward: 10 Hz Backward: 10 Hz Downward: 20 Hz, Operating Environment Surface with clear pattern and adequate</p>	2		

ITEM	DESCRIPTION	QUANTITY	RATE	AMOUNT
	<p>lighting (lux&gt;15), ISO Range - Video: 100 - 3200 (Auto) 100 - 6400 (Manual) Photo: 100 - 3200 (Auto)100- 12800 (Manual),</p> <p><b>Camera: Sensor:</b> 1" CMOS, Effective pixels: 20M, Lens: FOV 84° 8.8 mm/24 mm (35 mm format equivalent) f/2.8 - f/11 auto focus at 1 m - ∞, Mechanical Shutter Speed: 8 - 1/2000 s, <b>Electronic Shutter Speed:</b> 8 - 1/8000s, Image Size: 3:2 <b>Aspect Ratio:</b> 5472 × 3648 4:3 Aspect Ratio: 4864 × 3648 16:9 Aspect Ratio: 5472 × 3078, PIV Image Size: 4096×2160 3840×2160 2720×1530 1920×1080 1280×720, <b>Still Photography Modes:</b> Single Shot <b>Burst Shooting:</b> 3/5/7/10/14 frames, Auto Exposure Bracketing (AEB): 3/5 bracketed frames at 0.7 EV Bias Interval: 2/3/5/7/10/15/20/30/60s, <b>Video Recording Modes:</b> H.265 C4K:4096×2160 24/25/30p @100Mbps 4K:3840×2160 24/25/30p @100Mbps 2.7K:2720×1530 24/25/30p @65Mbps 2.7K:2720×1530 48/50/60p @80Mbps FHD:1920×1080 24/25/30p @50Mbps FHD:1920×1080 48/50/60p @65Mbps; Max Video Bitrate: 100 Mbps, Supported File Systems: FAT32 (≤32 GB); exFAT (&gt;32 GB), Photo: JPEG, DNG (RAW), JPEG + DNG, <b>Video:</b> MP4/MOV (AVC/H.264; HEVC/H.265),</p>			

ITEM	DESCRIPTION	QUANTITY	RATE	AMOUNT
	<p>Supported SD Cards: Micro SD Must support maximum capacity of 512GB.</p> <p><b>Charger:</b> Must include suitable charger</p> <p><b>App / Live View:</b> Must have dedicated mobile app, Live View Working Frequency: 2.4 GHz ISM, 5.8 GHz ISM, Live View Quality: 720P @ 30fps, Latency: 220ms (depending on conditions and mobile device), Required Operating Systems: iOS 9.0 or later and Android 4.4.0 or later.</p> <p><b>Gimbal:</b> Stabilization: 3-axis (pitch, roll, yaw), Controllable Range Pitch: -90° to +30°, Max Controllable Angular Speed Pitch: 90°/s, Angular Control Accuracy: ±0.02°</p> <p><b>Infrared Sensing System:</b> Obstacle Sensory Range: 0.6 - 23 feet (0.2 - 7 m), FOV: 70° (Horizontal), ±10° (Vertical), Measuring Frequency: 10 Hz, Operating Environment: Surface with diffuse reflection material, and reflectivity &gt; 8% (such as wall, trees, humans, etc.)</p> <p><b>Remote Controller:</b> Operating Frequency 2.400 - 2.483 GHz and 5.725 - 5.825 GHz, Max Transmission Distance 2.400 - 2.483 GHz (Unobstructed, free of interference) FCC: 7 km CE: 3.5 km SRRC: 4 km 5.725 - 5.825 GHz (Unobstructed, free of interference) FCC: 7 km CE: 2 km SRRC: 5</p>			

ITEM	DESCRIPTION	QUANTITY	RATE	AMOUNT
	<p>km, Operating Temperature Range 0° to 40°C, Battery 6000 mAh LiPo 2S, Transmitter Power (EIRP) 2.400 - 2.483 GHz FCC: 26 dBm CE: 17 dBm SRRC: 20 dBm 5.725 - 5.825 GHz FCC: 28 dBm CE: 14 dBm SRRC: 20 dBm, Operating Current/Voltage 1.2 A@7.4 V, Video Output Port USB, Mobile Device Holder Tablets and smart phones</p> <p><b>Other items</b> : Aircraft operational with battery, camera, propellers, remote and all necessary accessories and software to make it operational as described above, Additional Flight Batteries, Protective Aluminium Cases, ND2-400 Filter, Multi Charging Hub capable of charging three batteries at a time, Petal Hood Cover, Additional Propellers, Landing Gear Extenders, Landing Pad, Range Extenders, Short iOS Cable, Short USB type C cable for Android, Universal USB Card Reader, Lanyard, Quick Detachable Propeller Guards, Sunshields for all device types, Thumb Toggle Controller, Remote Control Dampers,</p>			
<b>8. Intelligent Flight Battery</b>	Capacity (min) 5870 mAh, Battery Type LiPo 4S, Net Weight (max) 468 g, Max Charging Power 100 W	4		
<b>10 Training</b>	Training for 5 people in basic Flying and Operations of the drone.	5		



ITEM	DESCRIPTION	QUANTITY	RATE	AMOUNT
11 After sales services	After-sales services to be provided for a period of 12 Months.	12		
	<b>TOTAL EXCL. VAT</b>			
	<b>VAT 15%</b>			
	<b>TOTAL INCL. VAT</b>			

The project proposal must contain the following:

- Indication of related experience as per the requirements of the project, with verifiable references
- Comprehensive company profile coupled with an indication of the proposed project team in terms of the activities to be undertaken by each project team member. Furthermore the proposal must indicate the contact person to be responsible for the project.
- Clear time frame for completion of the project, which is expected to be within 1 month.

Delivery will be undertaken according to the roll out plan which will stipulate where and when the procured goods must be delivered. Furthermore prior to delivery, liability for any damages that may occur to the goods will be that of the appointed service provider.

## 2. PROJECT TIME FRAME

The project time frame will be 1 month from the date of appointment of the service provider, which is anticipated to take place \_\_\_\_\_ 2020.

### **3. KEY OUTPUTS/PROJECT MILESTONES/DELIVERABLES**

The key outputs/deliverables of the project are:

- Supply and delivery of drones.
- Training on the use of drones.
- After sales service for a period of 12 months
- Licensing of drones.

### **4. STAKEHOLDERS CONSULTATION**

The main consultation with regards to the project will take place between the stakeholders involved which are the client and the appointed service provider. The successful service provider will be required to undertake stakeholder consultations and engagements as it is a vital and an ongoing requirement to ensure support and buy-in towards the successful completion of the project.

### **5. PROJECT MANAGEMENT**

In cases where the appointed service provider appoints the services of other consultants or sub-contractors, the appointed service provider will take responsibility of the work of the sub-contractors. The client will deal with the contracted service provider and not with sub-contracted consultants. The project is to be coordinated and managed by an operational team led by Alfred Nzo District Municipality.

### **6. REPORTING MECHANISM**

There will be no report needed to be submitted by the service provider, however the service provider must inform the ANDM on the status of procurement weekly.

**7. SUBMISSION OF BIDS**

Proposals must be placed in a sealed envelope and clearly marked: “Project proposal – “**supply and delivery of drones**” and placed in the tender box in the Alfred Nzo District Municipality not later than 10H00 on the\_\_\_\_\_.

**8. EVALUATION CRITERIA**

Evaluation criteria of quotations;

**The bids will be evaluated in two stages, namely:**

- Stage 1- Functionality
- Stage 2- Price and BBBEE Points

Only Bidders who score 70% or more on stage 1 would be evaluated further and therefore eligible for the award.

ITEM	Weight
<b>STAGE 1 OF EVALUATION – FUNCTIONALITY</b>	<b>100</b>
• Previous Experience	50
• Capacity and Expertise	50
<b>STAGE 2 OF EVALUATION – PRICE &amp; PREFERENTIAL POINTS</b>	<b>100</b>
<b>BBBEE POINTS</b>	<b>20</b>
<b>Price</b>	<b>80</b>

Previous Company Experience	Weighting
<b>Note: The scoring in this section is not cumulative</b>	
Traceable record for successful completion of a minimum of 03 or greater supply and delivery of GIS or Survey Equipment projects to the value of no less than R50 000	50
Traceable record for successful completion of 02 supply and delivery of GIS or Survey Equipment projects to the value of no less than R50 000	30

Traceable record for successful completion of 01 supply and delivery of GIS or Survey Equipment project to the value of no less than R50 000	10
<b>Maximum Weighting</b> <b>Note COMPULSORY attachments for verifying work done:</b> <p>1. The ANDM Assessment Bidder Form must be completed, stamped and signed by previous employer as a means of verifying references for each project undertaken. If 3 Projects were done, 3 Assessment bidder forms must be completed.</p> <p>2. In ADDITION to the above, a traceable record will be evaluated on the basis of:</p> <ul style="list-style-type: none"> <li>- An appointment letter or official purchase order specifying the contract amount for each project completed</li> </ul>	50

<b>Capacity and Expertise to Undertake the Project</b> <b>Note: The scoring in this section is preferably cumulative, unless justifiable to the Specification Committee</b>	<b>Weighting</b> <b>[50]</b>
<b>A Project Team with the following areas of expertise:</b>	<b>[50]</b>
A team of qualified Service Provider with the following expertise: <ul style="list-style-type: none"> <li>- One or more personnel must have a minimum NQF level 6 qualification in Geographic Information System (GIS) or Spatial information management or Environmental Sciences/Studies or Geology or Geography or Land Survey or Hydrology or Geomatics.</li> </ul>	30
<ul style="list-style-type: none"> <li>-One or more personnel must have a valid drone license/certificate.</li> </ul>	20
<b>Maximum Weighting</b> <b>NB: Attach C.V and certified copies not older than 3 months for all qualifications</b>	50
<b>Total Maximum Weighting</b>	50

For any queries regarding this tender, please contact Ms. A. Ngomane for project related queries; on (039) 254 5024 or;

Mr. V. Cita for SCM related queries at telephone number (039) 254 5134 during office hours.

**Alfred Nzo district Municipality**

**Erf 1400 Ntsizwa Street**

**Mount Ayliff**

**4735**

Yours in municipal administration,

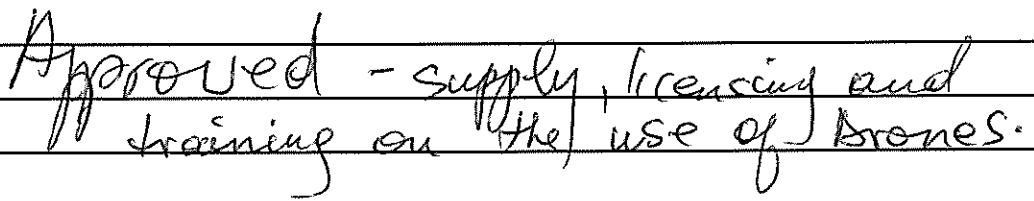
  
\_\_\_\_\_  
**Mr. S Ntshikilana**

**Senior Manager: Planning and Economic Development**

**Approved/Not Approved**

  
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**Mr. L. Mdutyana**

**Comments by Chairperson:**

  
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