Good day, Molebogeng

# [REPORT] TESTING AND INSPECTION OF LIGHTNING PROTECTION FOR OLIEWENHUIS ART MUSEUM BLOEM

We have been requested to submit our report and recommendations on the lightning protection systems on existing structures at the above.

An inspection and testing were conducted on 09 September 2022 by our Contracts Technician

# REPORT

We conducted a physical and visual site inspection and found the following structures mentioned below not to be incompliance with the SANS Codes of Practice 10313 (2018) in conjunction with SANS 62305-1-2-3-4: 2011, as well as SANS 10199 (2016), SANS 1063

(2015) and SANS 62561: 1-7: 2012-2018.

# SURVEY RESULTS

We enclose a schedule showing itemized and numbered structures, indicating whether the system is in compliance with the SANS requirements.

In addition, we indicate the cost to improve the system in compliance with the SANS/IEC requirements, as mentioned above.

Of the structures lightning protection, earthing system surveyed, various structures are not in compliance with lightning protection requirements and need upgrading in compliance with SANS requirements for the resistance value measured for electrical earthing system. The structures being:

# NON-COMPLIANCE WITH ‘SANS’ CODES – LIGHTNING PROTECTION

|  |
| --- |
| **Pole No 1** |
| 3.1 | Test results exceeded the maximin allowable Ω reading permitted by SANS codes. Max reading for LPS 10 Ω reading taken 47.7 Ω. |
| **Pole No 2** |
| 3.2 | Test results exceeded the maximin allowable Ω reading permitted by SANS codes. Max reading for LPS 10 Ω reading taken 24.2 Ω. |
| **Pole No 3** |
| 3.3 | Test results exceeded the maximin allowable Ω reading permitted by SANS codes. Max reading for LPS 10 Ω reading taken 15.98 Ω. |

1. **PRICE**

Our price for the supply and installation of Materials will be:

|  |  |
| --- | --- |
| **DESCRIPTION** | **AMOUNT** |
| 1) LPS – To masts | Rxxx |
|  |  |
| SUB-TOTAL: | Rxxx |
| 15% VAT | Rxxx |
| TOTAL: | Rxxx |

# UPGRADE REQUIRED

To prevent structural damage, risk of fire, and life hazard, that all non- compliant structures

be upgraded as per our ‘Site Assessment Data’.

Our testing procedure and recommendations will fully comply with the SANS Codes of Practice 10313 (2018) in conjunction with SANS 62305-1-2-3-4: 2011, as well as SANS 10199 (2016),

SANS 1063 (2015) and SANS 62561: 1-7: 2012-2018.

# TEST METHOD

The survey was based on a physical and visual and physically inspection of the air termination, down conductors, and earth termination points, wherever installed. The resistance values were conducted with a null balance earth megger and ground resistivity measurements were taken by means of the Wenner or fall of potential method.

The fall of potential method is used to measure existing earthing systems, whether connected or disconnected. The potential test spike is set up midway between the current test spike and the earth electrode under test. The instrument terminals are then connected to the current and potential test spikes, and earth electrode under test. The resistance is then measured.

# QUALIFYING NOTES

No allowances have been made for the cutting or removal of concrete/paving / hard rock, waterproofing etc, including the reinstatement thereof, these works are to be done by others. We have not made allowance for Medicals & Inductions. Should these be required, it will be to the expense of the client. No allowances have been made for scaffolding or hoisting, should this be needed at any time it will be to the expense of the client.

# SURGE INSTALLATION & POWER DISCONNECTION

In Addition, we strongly recommend providing surge protection to the main and sub- distribution boards wherever required. A surge protection device is required to protect against indirect and direct lightning discharges or other transients/switching over voltages. These devices go hand in hand and are part of the structural lightning protection system and electrical earthing system. This is a requirement as per SANS 10142-1:2017, SANS

10313:2018 and SANS 61643-1:2011. Please note the quote does **not** allow for surge protection. **For surge installation temporary power disconnection may be required.** Should the client require HHK to install surge after hours **OVERTIME** rates will apply

# GROUND CONDITIONS

As no soil resistivity surveys have been conducted on-site yet, our price has been based on the assumption that the ground/soil is hand pickable and, on the resistivity, not being more than 100 ohms per metre at 1 metre deep. Should additional rods or specialised excavating

/ drilling equipment be required, this will be to your account. No allowances have been made for the cutting or removal of concrete, paving and or any other surface coverings (other than pickable soil), including the reinstatement thereof, these works are to be done by a professional contactor and the costs associated with these works will be for the client’s own account.

# UNDERGROUND SERVICES

We accept no responsibility for damage to any hidden services such as water mains, electrical cables, sewerage pipes, or any other services.

# MATERIAL REQUIREMENTS TO SANS 62561: 1-7 2012-2018

The materials specified will be manufactured as per PROPSTER or similar certified products which will be in compliance with SANS 62561: 1-7 2012-2018, as per the materials installed in all our projects.

# RISK ASSESSMENT AND PROTECTION LEVELS (62305: 2)

Our recommendations are also based on a risk assessment as per SANS (IEC) 62305:2 2011 which also evaluates the level of protection (SANS 62305:3 2011) in identifying the source and type of damage that could be expected in the event of lightning discharge and associated surges.

# ELPA – EARTHING LIGHTNING PROTECTION ASSOCIATION

It should also be known that the recently launched, above mentioned Association requires, based on our legal standards, accredited companies, designers, and installers to be approved by ELPA and are to strictly comply to the SANS Standards. HHK is fully accredited by ELPA.

# AS-BUILT DESIGN DRAWING

On completion, an ‘as-built’ design drawing can be prepared showing all air termination, down conductor, and earth termination positions, in compliance with the SANS and IEC Standards which will be important for future testing procedures. For this, we require Auto-cad version drawings.

# TEST CERTIFICATE

After completion of the system, a final resistance test certificate (COC) will be supplied. Wherever possible, suitable personnel may witness and sign the achieved resistance values.

# COVID-19

HHK hereby confirms we follow the COVID-19 regulations and guidelines applicable to businesses as published on the government website [www.gov.za](http://www.gov.za/). HHK developed a plan or the phased-in return of employees to the workplace, which is retainable for inspection. This plan outlines which employees are permitted to work, how the return of employees will be phased in and what health protocols are in place to protect employees from COVID-19.

HHK has conducted a risk assessment which assessed the risk of transmission of COVID-19 at the workplace. A response plan to address COVID-19 related occupational health and

safety risks has been designed and implemented at HHK. The response plan aligns with all applicable legislation, regulations and directives and considers, inter alia, the following risk control measures: Vulnerable workers; Physical Distancing; Hygiene Standards; Personal Protective Equipment (PPE); External risks controls; Testing, screening, and reacting to positive results & Worker communication, engagement, and communication.

HHK undertake to perform ongoing monitoring of COVID-19 risks applicable to our business and to report any cases if required. HHK is available during all operating hours for inspection and verification by any authorised law enforcement officials and undertakes to co-operate with such law enforcement officials to assist them in fulfilling their duties.

TERMS AND CONDITIONS:

Account Holders - 30 days from submission of progress invoices

**Non-account holders – 50% Deposit required upfront, Progress invoicing will be put through for the amount of work completed to date and will need to be paid as per invoice sent.**

**(Please use our Quote Reference number when making payment.)**

**(Please note no Test Certificates will be released until we have received payment in full)**

Signature:

Name:

Date: