

**ANNEXURE A: BILL OF QUANTITIES- PON**

NO	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL FOR 36 MONTHS
1	Service Provider is required to provide a detailed condition assessment, list each item/ equipment and what is required should it be non-operational. The remaining useful life of the equipment must be provided as well. Essentially we require an Asset Register and Condition Assessment Report for the Air Quality Station. Provide an itemised budget quote for that which is required to bring the Air Quality Monitoring Station to be operational. These may include but not limited to the assessment of the condition of the shelter and all equipment, e.g. analysers, electrical circuitry, work benches, drawers, sample manifolds, analyzer racks, sample inlets, internal ventilation system (single unit air conditioning), data connectivity to the base station, standard alarm system, power points and lighting, temperature sensor and ladder, lightning protection and 3kVA UPS, communication system (e.g. assessment of wifi-router, sim card and if the software is functional/useable). 1.1 Asset Register 1.2 Condition Assessment Report 1.3 Detailed Budget Quote for the malfunctioning equipment.	Once-off	1.1 Asset Register 1.2 Condition Assessment Report 1.3 Detailed Budget Quote for the malfunctioning equipment	R R R	R
2	Consumables kits for all gas analysers and pumps for a period of 3 years.	Monthly	36	R	R
3	Setup or upgrade of data acquisition system in line with requirements set out in the scope of work.	Once-off	1	R	R
4	Supply and specification of a server (mid-range) for data storage. (If required – if existing equipment is not in working condition).	Once-off	1	R	R
5	Operation, zero/span checks 2-weekly (Two per month).	Monthly	72	R	R
6	Change of particulate filters.	Monthly	36	R	R
7	Cleaning of inlet gas sample manifold.	Quarterly	12	R	R
8	Cleaning of inlet particulate monitor inlet gas sample line.	Quarterly	12	R	R
9	Cleaning of particulate monitor inlets (heads).	Quarterly	12	R	R
10	Particulate monitor pump and flow controller checks.	6 Monthly	6	R	R
11	Multi point calibration and validation of permeation tubes. (SANAS accredited).	Quarterly	12	R	R
12	Data management - Collection, interpretation and reporting of data from the monitoring network for 3 years.	Monthly	36	R	R
13	Development of a QA/QC system for management of monitoring network in accordance with ISO 17025.	Once-off	1	R	R
14	Major service of NOx, SO2 monitors.	Annually	3	R	R
15	Major service of TEOM particulate monitor.	Annually	3	R	R
16	Certification of working gas standard.	Annually	3	R	R
17	Gas monitor pump performance assessment.	Annually	3	R	R
18	Air conditioner service.	Annually	3	R	R
19	Internal performance audit.	6 Monthly	6	R	R
20	Calibration of meteorological equipment (wind anemometer, temperature sensors (2), solar radiation monitor).	6 Monthly	6	R	R
21	Development of a Work Instruction for the operation of the AQMS, instrument maintenance and calibration inclusive of other requirements needed to ensure effective operation of the AQMS.	Once-off	1	R	R
22	On site training of TNPA Environment Departmental personnel (3).	Once-off	1	R	R
23	Travelling and accommodation per month.	Monthly	36	R	R
24	Report Writing (Monthly Reports & Annual Reports).	Annually	39	R	R
25	Up to date SHE File for the duration of the contract.	Annually	3	R	R
26	Laboratory analysis to determine the precise type of pollutant being captured on the particulate matter filters on an as and when required basis over the contract period.	Adhoc	For 1 pollutant in a PM2.5 filter	R	R
27	Laboratory analysis to determine the precise type of pollutant being captured on the particulate matter filters on an as and when required basis over the contract period.	Adhoc	For 1 pollutant in a PM10 filter	R	R
28	Breakdowns: Normal Hours Weekends and Public holidays	Adhoc	Rates	R	R
<b>SUB TOTAL</b>				<b>R</b>	<b>R</b>
<b>VALUE ADDED TAX (VAT 15%)</b>				<b>R</b>	<b>R</b>
<b>TOTAL INCLUDING VAT</b>				<b>R</b>	<b>R</b>

<b>ANNEXURE A: BILL OF QUANTITIES PON</b>			
<b>NO</b>	<b>DESCRIPTION</b>	<b>REPAIR COST</b>	<b>REPLACEMENT COST</b>
1	SO2 continuous ambient air quality analyser	R	R
2	NOx continuous ambient analyser	R	R
3	Continuous PM10 analyser operating on beta-attenuation principle	R	R
4	Continuous PM 2.5 analyser operating on beta-attenuation principle	R	R
5	Gas dilution calibrator with built-in ozone generator	R	R
6	Humidity sensor	R	R
7	Solar radiation monitor	R	R
8	Service Provider to assess the condition of the ambient temperature monitors	R	R
9	Wind speed and wind direction monitor	R	R
10	Mast / tower	R	R
11	Data logger and data management system	R	R
<b>SUB TOTAL</b>		<b>R</b>	<b>R</b>
<b>VALUE ADDED TAX (VAT 15%)</b>		<b>R</b>	<b>R</b>
<b>TOTAL INCLUDING VAT</b>		<b>R</b>	<b>R</b>

**ANNEXURE A: BILL OF QUANTITIES- POPE**

NO	DESCRIPTION	UNIT	QUANTITY	RATE	TOTAL FOR 36 MONTHS
1	Service Provider is required to provide a detailed condition assessment, list each item/ equipment and what is required should it be non-operational. The remaining useful life of the equipment must be provided as well. Essentially we require an Asset Register and Condition Assessment Report for the Air Quality Station. Provide an itemised budget quote for that which is required to bring the Air Quality Monitoring Station to be operational. These may include but not limited to the assessment of the condition of the shelter and all equipment, e.g. analysers, electrical circuitry, work benches, drawers, sample manifolds, analyzer racks, sample inlets, internal ventilation system (single unit air conditioning), data connectivity to the base station, standard alarm system, power points and lighting, temperature sensor and ladder, lightning protection and 3kVA UPS, communication system (e.g. assessment of wifi-router, sim card and if the software is functional/usable) . 1.1 Asset Register 1.2 Condition Assessment Report 1.3 Detailed Budget Quote for the malfunctioning equipment.	Once-off	1.1 Asset Register 1.2 Condition Assessment Report 1.3 Detailed Budget Quote for the repairs of malfunctioning equipment	R R R	R
2	Consumables kits for all gas analysers and pumps for a period of 3 years.	Monthly	36	R	R
3	Setup or upgrade of data acquisition system in line with requirements set out in the scope of work.	Once-off	1	R	R
4	Supply and specification of a server (mid-range) for data storage. (If required – if existing equipment is not in working condition).	Once-off	1	R	R
5	Operation, zero/span checks 2-weekly (Two per month).	Monthly	72	R	R
6	Change of particulate filters.	Monthly	36	R	R
7	Cleaning of inlet gas sample manifold.	Quarterly	12	R	R
8	Cleaning of inlet particulate monitor inlet gas sample line.	Quarterly	12	R	R
9	Cleaning of particulate monitor inlets (heads).	Quarterly	12	R	R
10	Particulate monitor pump and flow controller checks.	6 Monthly	6	R	R
11	Multi point calibration and validation of permeation tubes. (SANAS accredited).	Quarterly	12	R	R
12	Data management - Collection, interpretation and reporting of data from the monitoring network for 3 years.	Monthly	36	R	R
13	Development of a QA/QC system for management of monitoring network in accordance with ISO 17025.	Once-off	1	R	R
14	Major service of NOx, SO2 monitors.	Annually	3	R	R
15	Major service of TEOM particulate monitor.	Annually	3	R	R
16	Certification of working gas standard.	Annually	3	R	R
17	Gas monitor pump performance assessment.	Annually	3	R	R
18	Air conditioner service.	Annually	3	R	R
19	Internal performance audit.	6 Monthly	6	R	R
20	Calibration of meteorological equipment (wind anemometer, temperature sensors (2), solar radiation monitor).	6 Monthly	6	R	R
21	Development of a Work Instruction for the operation of the AQMS, instrument maintenance and calibration inclusive of other requirements needed to ensure effective operation of the AQMS.	Once-off	1	R	R
22	On site training of TNPA Environment Departmental personnel (3).	Once-off	1	R	R
23	Travelling and accommodation per month.	Monthly	36	R	R
24	Report Writing (Monthly Reports & Annual Reports).	Annually	39	R	R
25	Up to date SHE File for the duration of the contract.	Annually	3	R	R
26	Laboratory analysis to determine the precise type of pollutant being captured on the particulate matter filters on an as and when required basis over the contract period.	Adhoc	For 1 pollutant in a PM2.5 filter	R	R
27	Laboratory analysis to determine the precise type of pollutant being captured on the particulate matter filters on an as and when required basis over the contract period.	Adhoc	For 1 pollutant in a PM10 filter	R	R
28	Breakdowns: Normal Hours Weekends and Public holidays	Adhoc	Rates	R	R
<b>SUB TOTAL</b>				<b>R</b>	<b>R</b>
<b>VALUE ADDED TAX (VAT 15%)</b>				<b>R</b>	<b>R</b>
<b>TOTAL INCLUDING VAT</b>				<b>R</b>	<b>R</b>

**ANNEXURE A: BILL OF QUANTITIES POPE**

<b>NO</b>	<b>DESCRIPTION</b>	<b>REPAIR COST</b>	<b>REPLACEMENT COST</b>
1	SO2 continuous ambient air quality analyser	R	R
2	NOx continuous ambient analyser	R	R
3	Continuous PM10 analyser operating on beta-attenuation principle	R	R
4	Continuous PM 2.5 analyser operating on beta-attenuation principle	R	R
5	Gas dilution calibrator with built-in ozone generator	R	R
6	Humidity sensor	R	R
7	Solar radiation monitor	R	R
8	Service Provider to assess the condition of the ambient temperature monitors	R	R
9	Wind speed and wind direction monitor	R	R
10	Mast / tower	R	R
11	Data logger and data management system	R	R
<b>SUB TOTAL</b>		<b>R</b>	<b>R</b>
<b>VALUE ADDED TAX (15%)</b>		<b>R</b>	<b>R</b>
<b>TOTAL INCLUDING VAT</b>		<b>R</b>	<b>R</b>