

Project:

# Østfold Avfallssortering IKS - MRF

Title:

## APPENDIX A

### SCOPE OF WORK SUMMARY

C1		For Contract			
B1	15.09.22	For Tender	LIF	PT	ASE
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## 1 GENERAL

The Scope of Work of the electro-mechanical supply comprises

- a complete process plant for sorting of residual household waste with a capacity of minimum 40 tons/h, 60.000 tons/year in one shift.

The Scope of Work shall include:

- design (basic and detailed engineering)
- all materials, machines, equipment, structures including all optional supplies and services purchased by the Client
- complete installation
- commissioning / start-up services and trial period
- training of Client's personnel, operational assistance and other services as defined in the Tender Documents
- all documentation necessary to properly install, operate and maintain (including, inspection, repair, etc.) the plant
- quality assurance
- HSE compliance

The Work must be designed, manufactured and installed according to the most recent relevant codes, standards, legal rules and regulations of Norway and the EU.

The design of machinery and equipment must facilitate inspection, cleaning, maintenance and repair. Continuity of operation with high availabilities and lowest maintenance requirements are of prime concern. The design shall incorporate every reasonable precaution and provision for the safety of all those concerned in the operation and maintenance of the plant. The machinery and equipment shall be designed to operate satisfactorily under all variations of load, temperature, humidity, moisture, corrosive and other conditions as may be met in normal operation. The complete plant shall run without undue vibration and with the least practicable noise.

All equipment performing similar duties shall be of the same type and manufacture in order to limit the stock of spare parts required and maintain uniformity of the plant. Client reserves the right to advise the Contractor of preferred type and manufacture to secure the above-mentioned requirements.

If Contractor considers the plant performance to be improved, if some presumptions given in the appendices are changed, he shall give information of such changes in writing to Client.

Materials with a minimum of impact on the environment shall be chosen.

The described machinery and equipment is included in the Scope of Work, but not limited to, if not otherwise mentioned.

## 2 MAIN EQUIPMENT

The Tender shall at least comprise the required Scope of Work. Other technical solutions shall comprise all required equipment to achieve specified data within below specified delivery limits.

The process plant consists of the following main machines/ equipment:

- Feeding belt
- Shredder
- Drum screens
- Vibrating screen / screens
- Ferrous metal separators/magnets
- Non-ferrous metal separators / eddy current machines
- NIR-machines
- Conveyors
- Storage bunkers
- Baler
- De-dusting system (filter, fan, suction ducts, extraction points, chimney etc.)
- Ventilation reception hall
- Pressurized air units (compressors, dryers, pressure vessels) including piping
- Weight and report system

### Options:

- Service agreement for the complete delivery for the guarantee period
- Recommended spares for the guarantee period and wear parts for 2 years of operation
- Other options, refer price sheet.

See Appendix A6 for more detailed requirements.

## 3 STEEL STRUCTURES

The design of all steel structures shall be with a minimum of legs directly on the floor. This is an important requirement for cleaning of the floor by using machines.

All operating platforms, walkways and stairs shall be designed for easy operation and maintenance of the plant. All substructures shall be design in the same way as the support structures, as few as possible legs directly onto the floor.

See Appendix A6 for more detailed requirements.

## 4 ELECTRICAL SYSTEM

### 4.1 Power supply

Client will supply the transformer station and high voltage switchgear, including feeding cable to the MCC room and the 400V (TN) main distribution board. The location of the MCC room is shown on the drawings in Appendix F.

Contractor shall include all electrical engineering and equipment necessary to operate the plant. The Scope of Work is including, but not limited to, delivery and installation of the following systems:

- Power distributions (MCCs)
- Local control cabinets (shredder, baler, EC etc.)
- Supply to all motors and equipment /switches
- An uniform emergency stop system for the whole plant
- Optical and acoustical signal systems
- All site wiring
- All marking based on the Client requirements

See Appendix A7 for more detailed requirements.

#### **4.2 Automation system (CMS)**

The plant shall have a sophisticated automation level and be remote controlled from the central control room. To ensure a maximum of information and plant availability, the plant has to be equipped with an adequate number of sensors and control instruments.

A CCTV system shall be included.

See Appendix A8 for more detailed requirements.

### **5 SERVICES BEFORE INSTALLATION**

#### **5.1 Basic and detailed engineering**

The basic engineering is defined as the planning of all details which is necessary for engineering and planning for the Civil Works. The supply shall include, but not limited to:

- Lay out drawings
- Civil data and foundation drawings and loads
- Drawings of embedded items
- Drawings showing all necessary openings in walls with dimension and location

Detailed engineering means the detailed planning by Contractor to achieve the necessary accuracy for the manufacture, assembly and/or installation and commissioning. The required actual measurements are to be taken and incorporated into the detail engineering by Contractor.

See Appendix C2 and E for more detailed requirements.

#### **5.2 Coordination with Client and third Parties**

Contractor must carry out the necessary coordination and planning work with Client. Contractor is obliged to provide an expert English-speaking project manager appropriate for the size and scope of the work.

Attendance on site and project meetings called by Client is obligatory for Contractor's authorized representative and, if required, for the authorized representatives of Subcontractors.

The language in the site meetings is English.

## **6 MANUFACTURING, DELIVERY AND INSTALLATION**

The entire manufacturing, including required internal factory tests, factory acceptances tests (FAT), site acceptance tests (SAT) etc. shall be included.

In addition, packaging of all supplied machinery and equipment, transportation to the site incl. offloading and intermediate storage (if any) in the areas indicated is a part of the supply.

All measures for doing the installation Work in accordance with Appendix D shall be included.

## **7 START UP/COMMISSIONING/PERFORMANCE TESTS/TRAINING**

The sequence of the start-up, commissioning, performance tests, and Contractor's obligations during this period are defined in Appendix A5.

Training of Clients operating personnel shall be done during commissioning and trial period of the plant. More information of this scope is described in Appendix A10.

## **8 ADDITIONAL SERVICES**

### **8.1 CE conformity**

Contractor must supply manufacturers' declarations for all machinery and conformity declaration for the whole plant.

Any risk analyses according to regulations and as needed for the certificate shall be documented and included in the Scope of Work.

All other analysis and calculations needed shall also be included in the Scope of Work.

### **8.2 As-built-documentation**

All operating and maintenance documentation and other technical documentation are to be delivered in accordance with Appendix E.

The documentation shall be uniform for the whole Scope of Work (incl. Sub-contractors).

For further information, see Appendix E.

### **8.3 Quality Assurance**

All necessary Quality plans and checklists and tests necessary for the whole delivery according to NS ISO 9001 and NS ISO 14001.

For further details, see Appendix D.

#### **8.4 Wear and spare parts, special tools (option)**

The Contract shall also include an offer for proposed wear and spare parts for a 2-year period of operations (min 1700 h/y) of the plant. This shall also include special equipment and tools necessary for operation and/or maintenance.

To meet the required availability, using equipment of which spare parts can be delivered at site on short notice shall be considered.

#### **8.5 Support**

Contractor shall give support to Client. Upon a request for assistance from Client, the Contractor shall:

- a) connect via internet for maintenance, trouble-shooting and on-line assistance within 4 hours after request for assistance is given by Client.
- b) send skilled service personnel to site within next day after request for assistance is given by Client.
- c) effectuate shipment of requested spares (inhouse production) or ordering of requested spares (3<sup>rd</sup> party production) within next working day after order of spares is received from Client.

### **9 LIMITS OF SCOPE/ INTERFACES**

Contractor has to deliver each machinery and equipment required by the Contract documents, even though not explicitly mentioned, but needed for the satisfactory operation of the plant.

Interfaces with other parties are described in more details in Appendix A11.

Attachment: Appendix A1-A11.