Appendix 1.1.2 Partial Lots - rev 1

Table of Contents

IZ Ravenshout zone 7.3
Industrieweg 150 │3583 Beringen
Tel. +32 11 52 08 10 │ fax + 32 11 52 08 11
info@biostoomberingen.be │ www.biostoomberingen.be

Appendix 1.1.2 Partial Lots - rev 1

1│6

1 Introduction

Biostoom Beringen has chosen to break the Lot Camera's and Access Control apart in different partial lots. For each of these parts, the general conditions remain applicable. Every candidate is free to express his interest for each part.

Remark: To guarantee a uniform working method, it is possible, in a later phase to unroll the system (partially) to the other Bionerga sites. The use on the other sites is not included in this scope, but it has to be taken into account during development and for the choice of the components.

The Lot Camera's and Access Control focusses on automation and autonomy of the traffic on the site of Biostoom Beringen. The main flow hereby is the freight traffic.

1.1 Freight traffic

A truck driver (waste, residues and excipients) needs to be able to load/unload on an autonomous way, without interference of operators. In addition, the circulation on the site needs to be clear without human intervention.

Following description is a conceptual, brief overview of the freight traffic on the site of Biostoom Beringen.

Arrival

Before a truck is allowed on the site, his freight needs to be registered. Biostoom Beringen will foresee an integration with eCMR in which freights can be registered in advance (see 2.5 Registration software). When driving onto the site, an ANPR camera (Automatic Number Plate Recognition) checks if the entering freight is registered. In addition a check is performed if the truck is covered with a canvas or has a fixed roof construction. Finally, it is checked which type of truck it is (walking floor, container truck, …). In the kiosk, a truck driver can print the necessary paperwork at departure.

Every truck passes the parking, where it is communicated on screens (see 2.2 Information screens), which truck can go to a released gate.

The allocation of the gates is determined by different factors: actual gate occupation (waste, residues, excipients), container trucks covered by a canvas or not (only for waste) and finally the volume of the waste in the tipping bunker (only for waste). When an available gate is allocated to a truck, he can drive to the weighing bridge.

Tipping hall for the dumping of waste

The tipping hall is closed off by gates that individually and automatically open after a gate is assigned. The gate closes automatically once the truck is inside. The truck enters a zone where he prepares for unloading (removing and folding of a canvas, opening of container doors,…) with at the far end of this zone a dumping gate, where the waste is dumped. In the waste bunker, a fully automatic crane sees to the emptying of the dumping gates and the feeding of

IZ Ravenshout zone 7.3
Industrieweg 150 │3583 Beringen
Tel. +32 11 52 08 10 │ fax + 32 11 52 08 11
info@biostoomberingen.be │ www.biostoomberingen.be

Appendix 1.1.2 Partial Lots - rev 1

2│6

the installation. To increase the safety of the truck driver, each dumping gate is closed off with a barrier with fall protection. If this barrier is in an opened position and a person enters the risk area, warning alarms will be triggered.

<u>Bottom ash</u>

The driver enters the ash bunker and loads his truck from the operating room with the semi-automatic crane. The loading can only start if the gate is closed and no one is inside the ash bunker.

<u>Communication</u>

The communication with the drivers is performed by interactive columns and screens. On diverse locations, at the height of the barriers and the gates (touchscreen and ticketdispenser/reader where necessary) interactive columns will be placed to communicate with the truck driver. At other locations (entrance, parking, tipping hall) communication with the drivers is performed via screens.

1.2 Traffic of persons

Next to the freight traffic, the lot Camera's and Access Control consists out of the traffic of persons.

Personnel has a unique identifier with which they gain access to the building and specific zones inside the installation. These identifiers can be configured so that certain areas are only accessible by persons with the necessary access rights.

IZ Ravenshout zone 7.3
Industrieweg 150 │3583 Beringen
Tel. +32 11 52 08 10 │ fax + 32 11 52 08 11
info@biostoomberingen.be │ www.biostoomberingen.be

Appendix 1.1.2 Partial Lots - rev 1

3│6

2 Partial lots

The Lot Camera's and Access Control consists out of the following parts:

2.1 Actuators

In this part, different actuators are brought together. This partial lot consists mainly out of the delivery, placing and installation of the actuators together with the delivery of the necessary signals to the On-Site Automation programming (see 2.6 Site Automation)

This part consists of:

- Barriers
- Barriers with fall protection for persons
- Interactive column (touchscreen with ticketdispenser/reader where applicable)
- Traffic lights
- Flashing lights
- …

2.2 Information screens

On the parking and in the tipping hall, screens are foreseen to inform the truck driver. These screens are used both for general messages and specific messages directed towards a truck driver.

These messages are controlled by the Automation Programming (see 2.6 Site Automation)

2.3 Detection

The flow of trucks requires, at different locations, specific sensors and detectors. Biostoom Beringen foresees currently the following specific hardware:

- ANPR camera
- Detection of persons (PIR)
- Detection of trucks (PIR)
- Type of truck detection
- Detection of canvas or not
- …

These detectors are input for the On-site Automation programming. (see 2.6 Site Automation).

IZ Ravenshout zone 7.3
Industrieweg 150 │3583 Beringen
Tel. +32 11 52 08 10 │ fax + 32 11 52 08 11
info@biostoomberingen.be │ www.biostoomberingen.be

Appendix 1.1.2 Partial Lots - rev 1

4|6

2.4 Camera's

The camera's for security and visualisation (including software) are included in this part. These camera's will be used for:

- Protection against burglary
- Safeguard of materials and buildings
- Visualize the process

Specific camera's like ANPR camera's, heat camera's,… are included elsewhere and are out of scope of this part.

2.5 Registration software

(scope of this request)

Freights needs to be registered in advance. In the first phase, 1 possibility is foreseen: eCMR. The transporter fills in the required data in the eCMR system. Via API integration, the freight is known in the systems of Biostoom Beringen. This data will be used on the one hand for the handling of the traffic flow on the site and on the other hand for invoicing after the loading/unloading.

The registration occurs in a third party eCMR system. The scope of this project is the API integration.

In the next phase (currently out of scope) the registration manners are expanded with, for example, integration with the own systems of the transporter or eCMR software from other suppliers. The software needs to be designed so that integration with other systems is possible.

2.6 Site Automation

(scope of this request)

The freight traffic flow will be fully automated. The elements included in the part Actuators (see 2.1 Actuators) needs to be integrated. Also, information from the registrations (see 2.5 Registration software) and the detections (see 2.3 Detection) needs to be included. Through the combination of these elements, a clear communication can be held with the truck driver by, amongst others, gate assignment at which the correct gate opens, traffic lights turn green and the barrier opens,…

The truck driver needs to be able to go through the process as efficiently and as autonomic as possible. The communication with him, needs to be clear and performed in his own language.

IZ Ravenshout zone 7.3
Industrieweg 150 │3583 Beringen
Tel. +32 11 52 08 10 │ fax + 32 11 52 08 11
info@biostoomberingen.be │ www.biostoomberingen.be

Appendix 1.1.2 Partial Lots - rev 1

5│6

The communication happens on the one hand on the interactive columns (see 2.1 Actuators) and on the other hand on the information screens (see 2.2 Information screens).

The programming and the integration of these components is included in this part.

2.7 Administrative and reporting functionality

(scope of this request)

For internal use a separate registration possibility is foreseen. The administrative personnel of Biostoom Beringen has the possibility to register a truck outside the eCMR system (e.g. in case the eCMR system is down). Additionally it is possible from within this system to make adjustments: e.g. if a freight was registered with the wrong origin. For billing purposes it is important that this information is correct.

The information gathered via the Registration system and in the Automation system is available in the Biostoom Beringen SQL for reporting and analysis.

2.8 Identification of persons

The personnel should be able to identify themselves, for example when entering the buildings. This will be performed based on a unique identifier.

IZ Ravenshout zone 7.3
Industrieweg 150 │3583 Beringen
Tel. +32 11 52 08 10 │ fax + 32 11 52 08 11
info@biostoomberingen.be │ www.biostoomberingen.be

Appendix 1.1.2 Partial Lots - rev 1

6|6