

## APPENDIX V: HAZARDOUS GASES

### 5.1 Decomposition of Gases

The decomposition of organic waste produces a number of gases, including carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>), hydrogen sulphide (H<sub>2</sub>S), and methane (CH<sub>4</sub>). Both within the landfill and within the AD Plant, these gases are collected and used to generate renewable energy in the form of electricity and heat.

### 5.2 Properties of Methane

- Explosive (LEL 5%, UEL 15%)
- Colourless
- Odourless
- Lighter than air

### 5.3 ATEX Zones

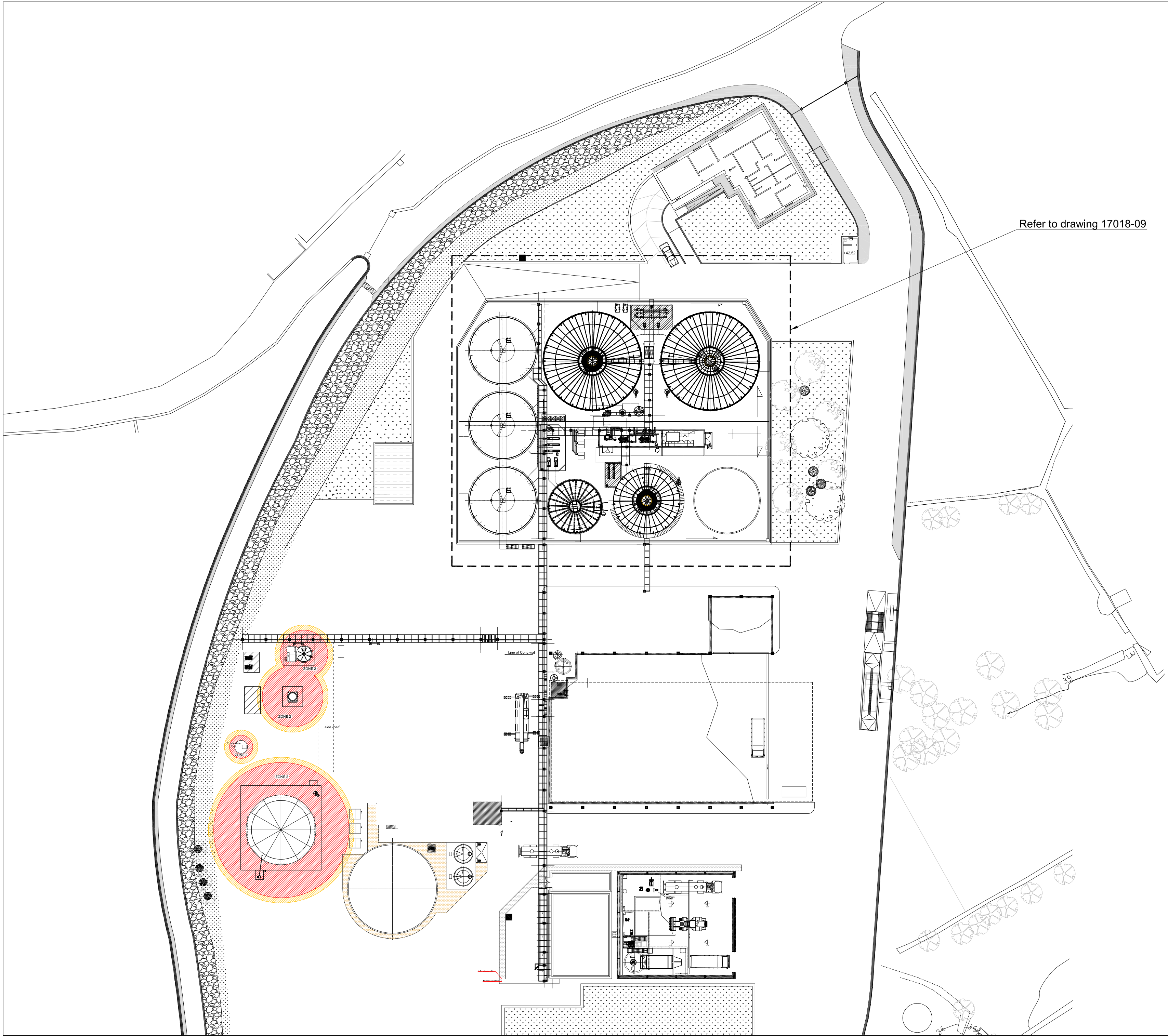
Location	Zone classification	Base of classification and remarks
Suspension buffer Digesters 1 and 2	1	Radius of 1m around the high / low pressure relief valve
Gas holder	2	Radius of 3m around the hydrostatic min/max relief valve
	2	Spacing between flexible and fixed membrane, airflow will be controlled
Condensate trap	1	Inside condensate trap
	2	Radius of 1m around the ventilation opening of the condensate trap
	2	Inside condensate drain
Gas compressors	1	Close up range around compressor because of ventilation
Desulphurisation tank	2	Radius of 3m around the hydrostatic min/max relief valve
Overflow tank SB (235BB002)	2	0.6m <sup>3</sup>
Condensate trap SB (235BB003)	2	1.4m <sup>3</sup>
Suspension buffer (235BB001)	2	2,000m <sup>3</sup>
Digester 1 (241BB001)	1	4,500m <sup>3</sup>

Overflow tank digester 1 (241BB002)	1	0.6m <sup>3</sup>
Digester 2 (242BB001)	1	4,500m <sup>3</sup>
Overflow tank digester 2 (242BB002)	1	0.6m <sup>3</sup>
Condensate trap digester (245BB001)	2	3m <sup>3</sup>
Condensate drain 1 (245BB002)	2	1m <sup>3</sup>
Anti foam dosing system (240BB001)	1	1m <sup>3</sup>

## 5.4 Hazardous Area Classification

The hazardous area classification for explosive vapour/air atmospheres is according to the EN 60079-10-1 as follows.

Zone	Potentially explosive atmospheres caused by gas, vapours or mist
0	Areas in which hazardous concentrations of flammable gases, vapours or mists are present continuously under normal operating conditions.
1	Areas in which hazardous concentrations of flammable gases, vapours or mists are present occasionally under normal operating conditions.
2	Areas in which hazardous concentrations of flammable gases, vapours or mists are not expected under normal operating conditions.



LEGEND:

 ATEX Zone

CLIENT:



WASTESERV MALTA LTD.

JOB TITLE:

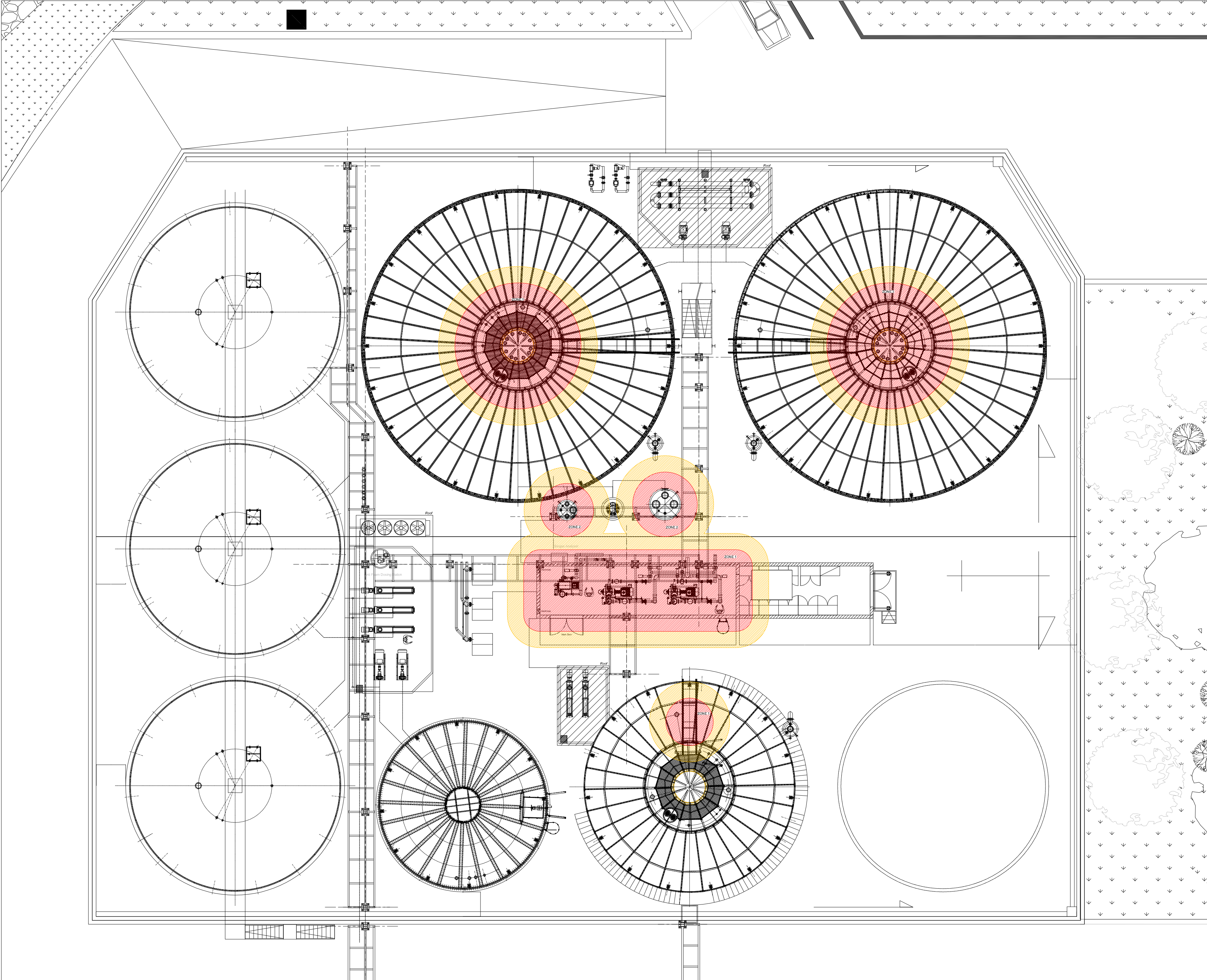
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ATEX zones Rev 00

DRAWING TITLE

Anaerobic Digestion Plant

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drawn	checked	revision suffix	
SC	SS	0	





LEGEND:

 ATEX Zone

CLIENT:



WASTESERV MALTA LTD.

JOB TITLE:

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DRAWING TITLE

Anaerobic Digestion Plant  
Digester Zone

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drawn	checked	revision suffix	
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