

RECOVERING LOSS FROM MUNICIPAL EFFLUENT

Use of clarifiers, decanter centrifuges, hydrocyclones and sedimentation tanks prior to marine discharge equals lost biomass & lost energy !

The Problem:

In treatment of municipal effluent it is not uncommon to discover as much as 500 ppm of biodegradable matter can be harvested; Lost to environment as BOD (marine pollution) and CO₂ (greenhouse gas). Just 1-litre (1-Quart) kills flora/fauna in 100-litres (25-Gallons) of marine ecosystem, whilst 1,000-litres (250-Gallons) per day can produce 0.15-m³ methane (equivalent to 0.015-kW).

The Solution:

One Baleen '240-Series packaged plant can reclaim around 0.5 metric-tonne of biomass per hour from 40MLD (300,000 EP) of municipal outflow (subject to survey). At almost 1MW.hr (\$\$250) per Tonne and 8,750 operating hours (Per Year) it's not difficult to see that Baleen provides for a solid return on investment (measured in months).

Pre-requisites:

- 5mm (0.20") pre-screen or similar for protection against sharps
- Anaerobic Digestion Plant (for Biogas conversion)
- Concrete foundation and Utility requirements (subject to site survey)

Nota Bene:

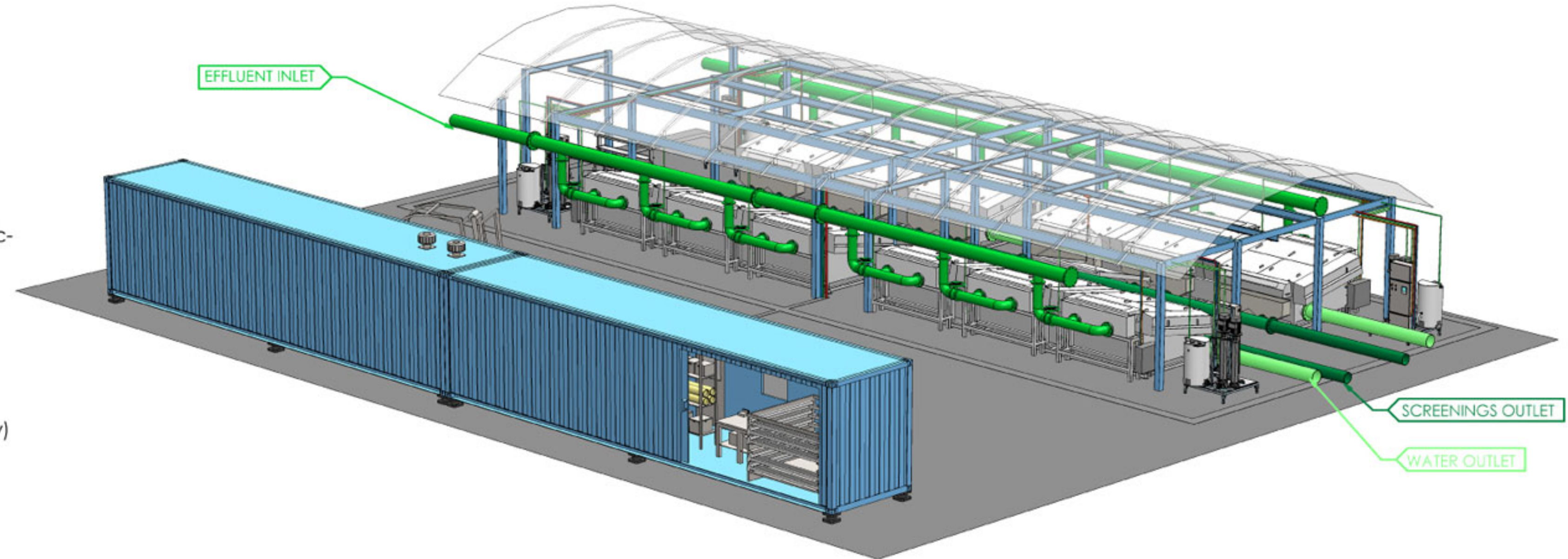
ppm = mg/L = kg/ML, 40MLD = 10.5MGD, 1MW = 1,340HP, \$\$250 = US\$175 (Sept '15)

Industry Benefit:

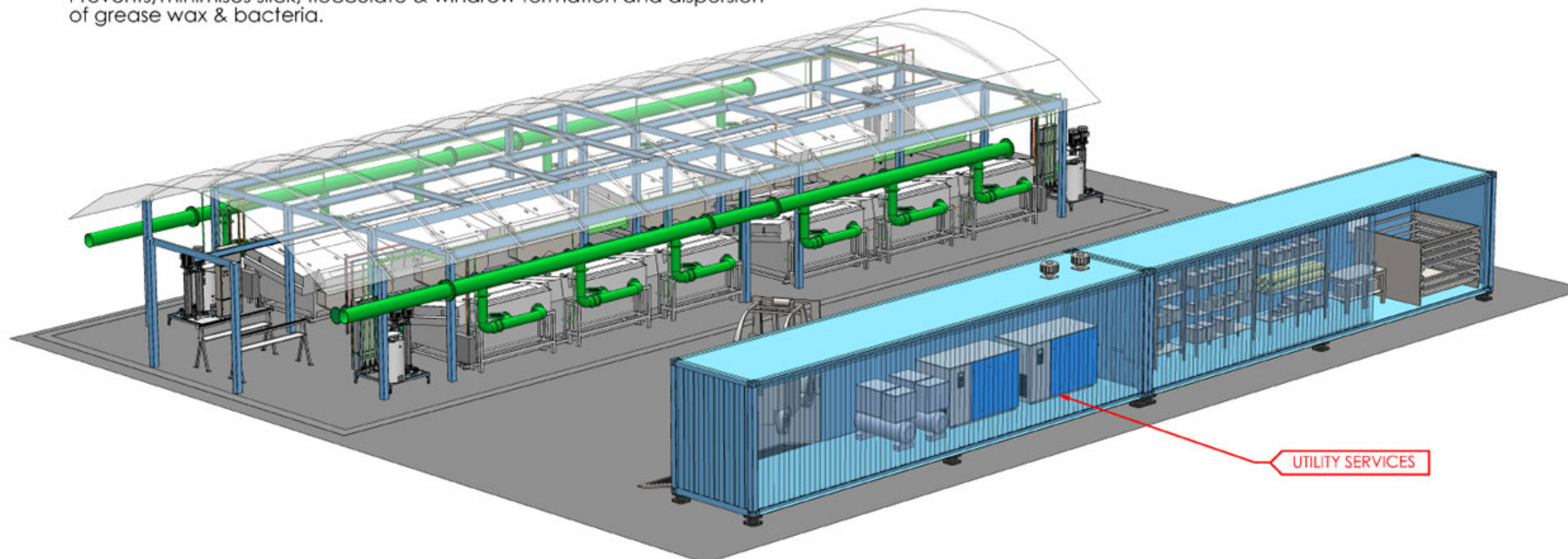
Biomass recovery for Biogas (Stage 1 - Resource Separation, as shown);
'Fit-for-Purpose' Water reclamation opportunity (Stage 2 - Barrier Filtration);
Rapid Return On Investment (Basis: \$\$250/Tonne);

Environmental Benefit

Baleen alleviates impacts upon marine environs in a number of ways:
Prevents/minimises bioaccumulation of toxins & sedimentation of sludge;
Prevents/minimises agglomeration of particles, grease & micro-plastics;
Prevents/minimises slick, flocculate & windrow formation and dispersion of grease wax & bacteria.



PERSPECTIVE VIEW 1
CANOPY ITEM GHOSTED FOR CLARITY



PERSPECTIVE VIEW 2
SOME ITEMS GHOSTED FOR CLARITY

baleen
engineered by nature

Functional Description:

Baleen is readily integrated into existing operations using gravity pipework with thickened biomass reclaimed for Anaerobic Digestion. Industry experience has confirmed that Baleen can consistently yield a mixed-biomass consistency of 8-12% percent solids content for optimum Biogas production.

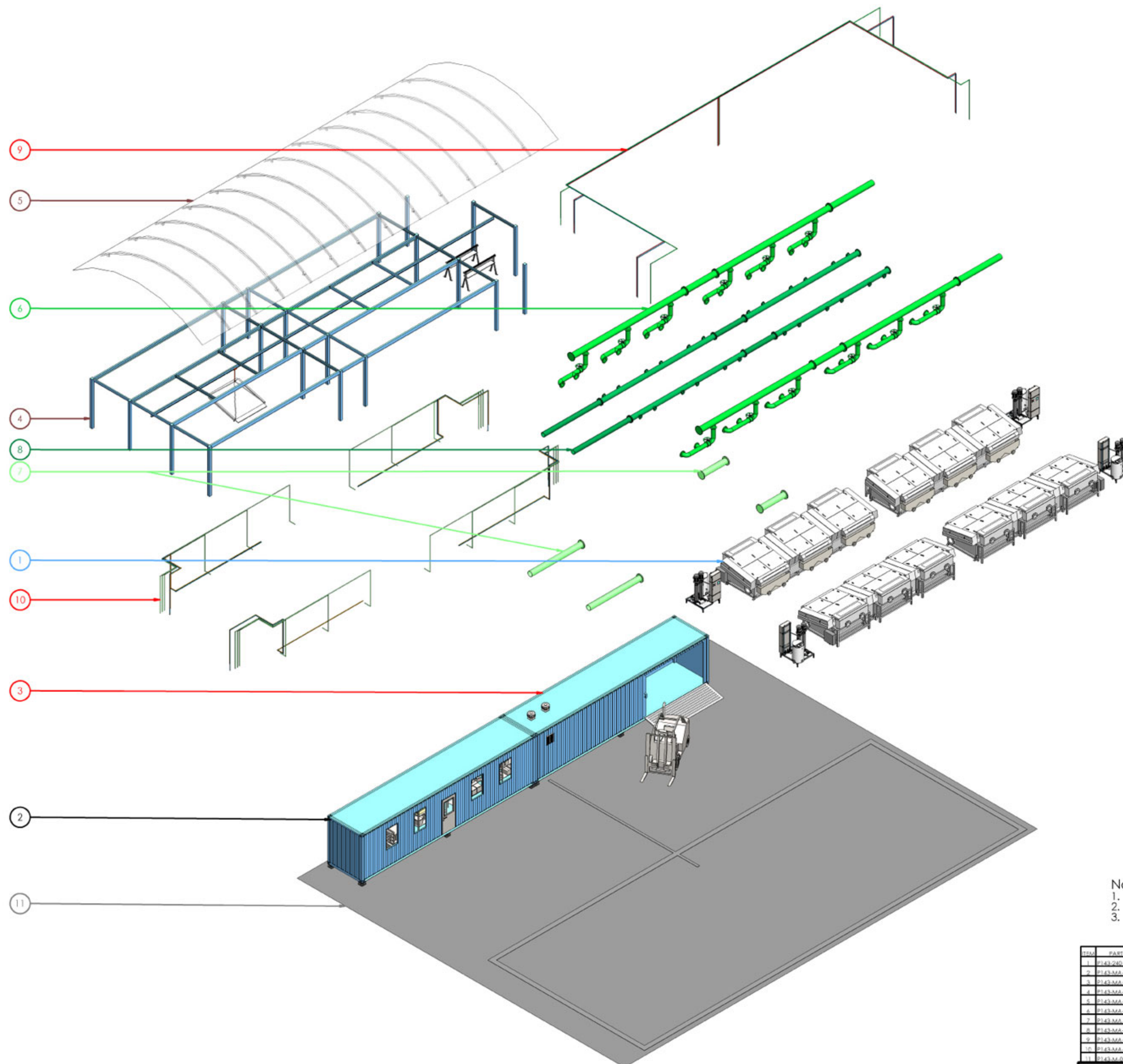
Product Features:

- Major part change-out in 15 -30 minutes
- 'Hot-Swap' automation to alleviate operational downtime
- Exceptionally low service requirement per annum

Technology Features:

- FAT certified, ready-to-install plant
- Packaged in customised 40-ft (12.5m) shipping containers
- 'Connect and Use' within 20-days from delivery
- Complete pipework, framework and utility provisions
- Locked-in process-performance monitoring
- Instrumentation and remote-monitoring for full auto-operation
- Detailed design (PFD, P&ID and 3D CAD) for optimum durability
- No chemical or potable water requirement for operation
- Online density/flow log of recovered biomass volume
- Compliant to International safety, electrical & building codes

Near 100% Biosolids Removal from Effluent = Water Reclamation Opportunity = Reduced Treatment Cost (by as much as 95%)



COLOUR KEY BALOON ITEMS

- BALEEN FILTER PLANT
- CONCRETE FOUNDATION
- SUPPORT STRUCTURE
- INFLOW PIPEWORK
- OUTFLOW PIPEWORK
- BY-PRODUCT PIPEWORK
- UTILITY SERVICES
- PERSONNEL/ PLANT ROOM

Notes:

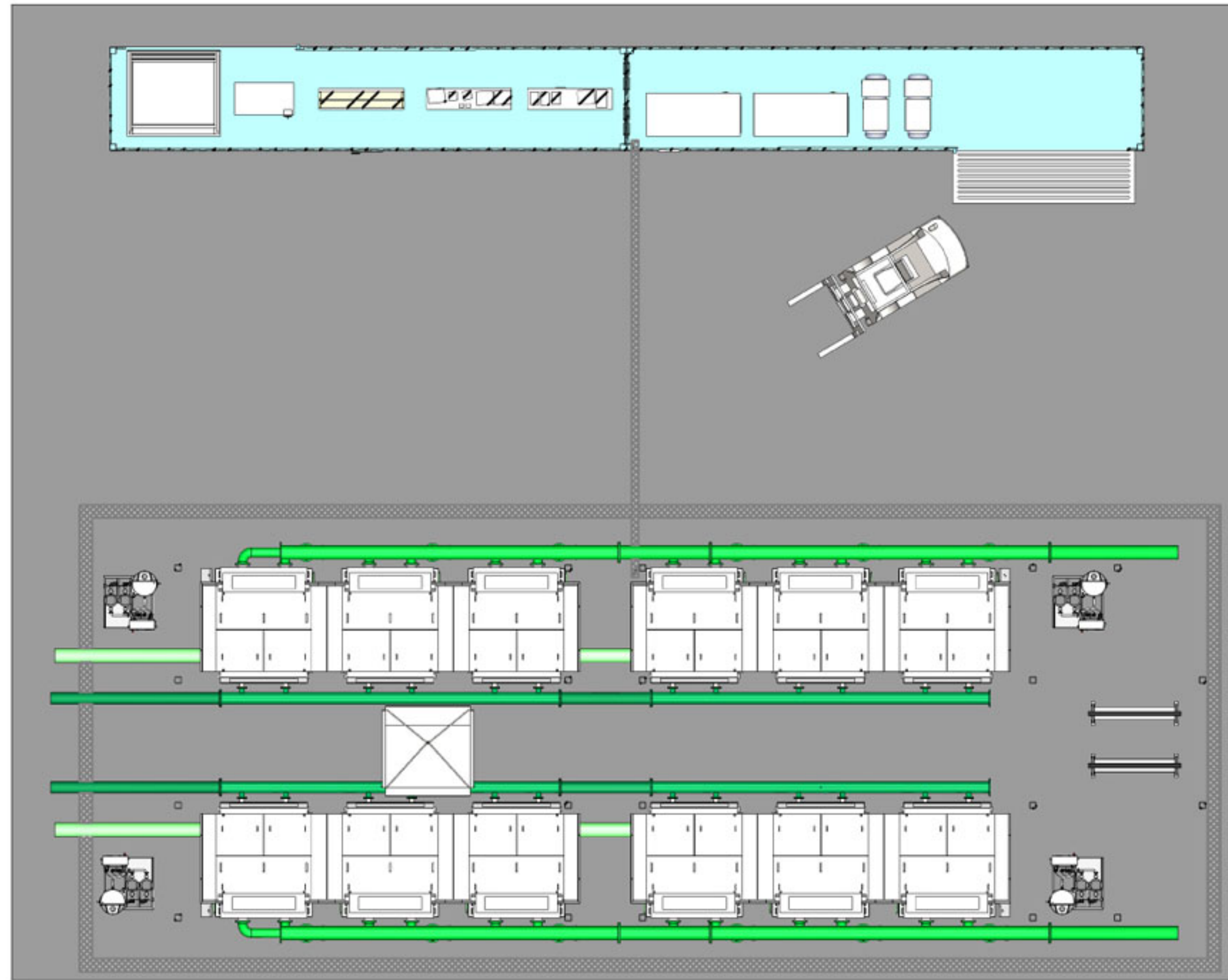
1. Refer to Product Proforma, model 60W15C for filter details.
2. Refer to Product Proforma, model PCU(AS) for utility details.
3. For further information please contact your local Baleen representative.

EXPLODED VIEW

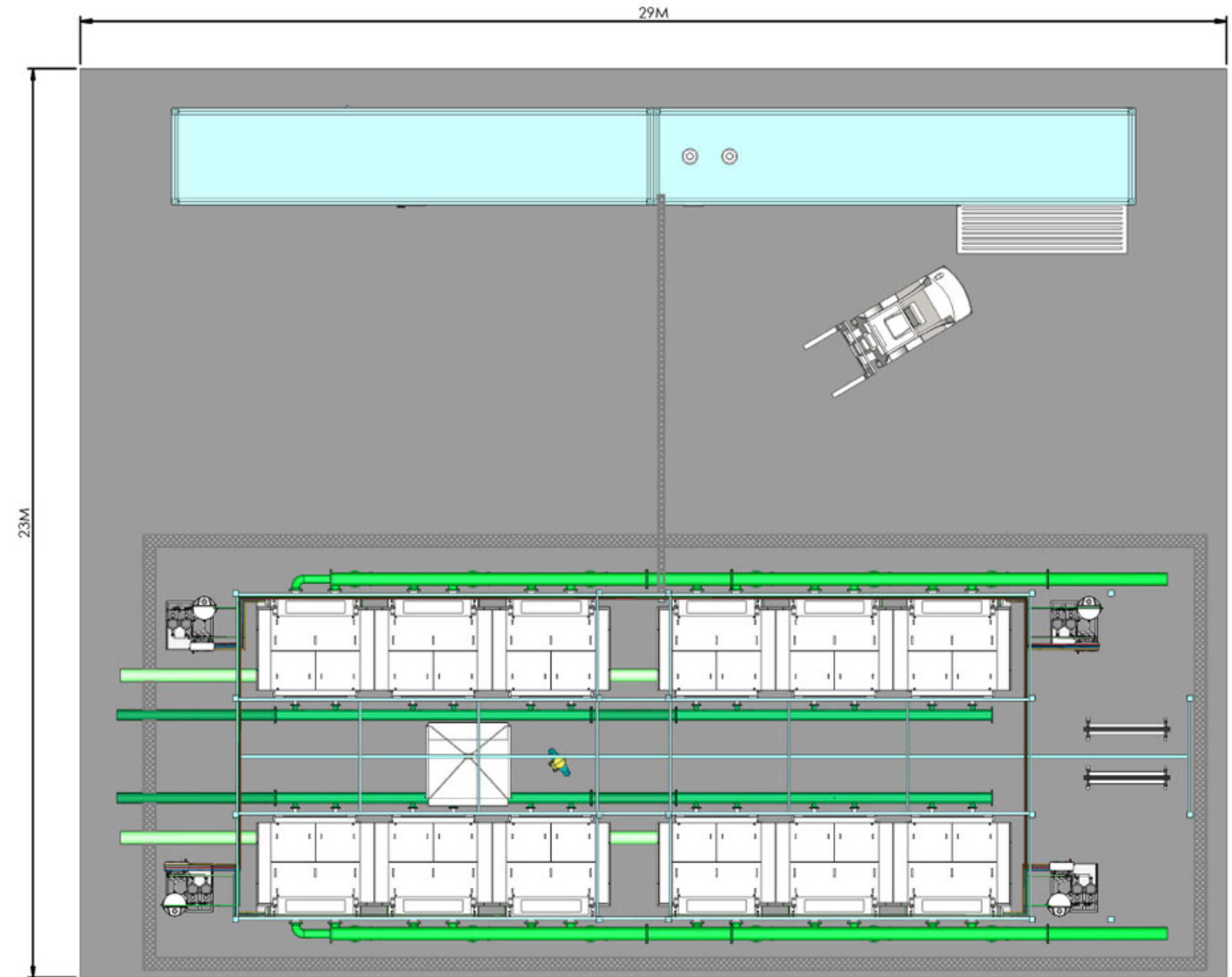
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ITEM	PART NO.	ITEM DESCRIPTION	QTY	REV
1	P143-240	60W15C x 4 - PCU(AS) x 4	1	
2	P143-MA-001	CONTAINER A (WORKSHOP/SPARES STORE)	1	
3	P143-MA-002	CONTAINER B (UTILITY - GEN SET x 2 - COMPRESSORS x 2 - EORKLET)	1	
4	P143-MA-003	CANOPY, GANTRY SYSTEM & UTILITY SUPPORT STRUCTURE	1	
5	P143-MA-004	CANOPY (SHELTER STATION)	1	
6	P143-MA-005	EFFLUENT INFLOW PIPING (12" B" A" - TBC)	1	
7	P143-MA-006	WATER OUTLETS (12" PIPE) - TBC	1	
8	P143-MA-007	SCREWDRIVER OUTLET PIPING (4" - 12" - TBC)	1	
9	P143-MA-008-01	SERVICES TO PCU(AS) x 4 (POWER, 60W15C - Amp EACH SET, WATER, AIR 50CFM x 8/m)	1	
10	P143-MA-009-02	SERVICES TO 60W15C x 4	1	
11	P143-MA-009	REINFORCED CONCRETE SLAB	1	

DISCLAIMER		DATE	BY	BALEEN FILTERS PTY LTD	PROJECT	DESCRIPTION	REV	DATE	BY
DETAILS ACCURATE AT TIME OF PRINTING. BALEEN FILTERS PTY LTD RESERVES THE RIGHT TO CHANGE ANY DETAILS.		14/09/2015	YTD		B10004	MUNICIPAL RESOURCE RECOVERY			
ALL DIMENSIONS IN mm UNLESS OTHERWISE SPECIFIED		14/09/2015		PO BOX 1189, WOODVILLE SA 5006 AUSTRALIA Tel: +61 8 8354 4511 Fax: +61 8 8354 4522 Email: info@baleenfilters.com	INTS	P143-240-002P	2 of 3		



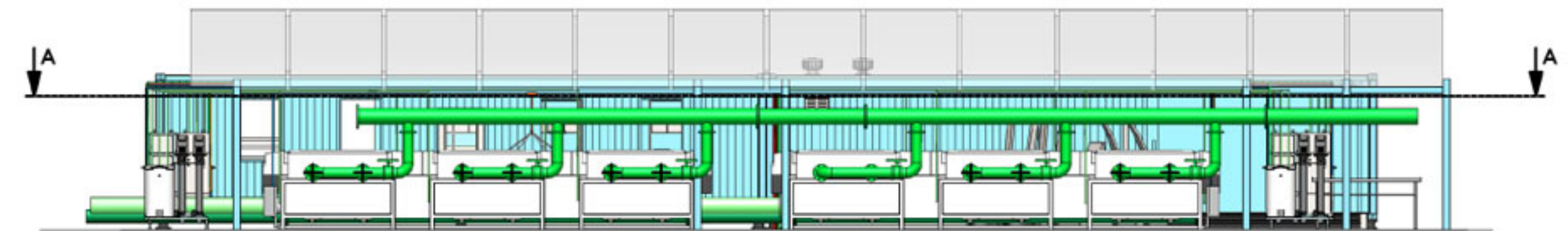
SECTION A - CONTAINERS LAYOUT
DRAINS GHOSTED, SUBJECT TO SITE SURVEY



PLAN VIEW
CANOPY OMITTED FOR CLARITY



SIDE ELEVATION



FRONT ELEVATION

Notes:

1. Effluent inflow is gravity fed to Baleen plant, and water/screenings outlets are also by gravity.
2. The ancillary works (involving concrete foundation and bunding provisions) to be provided by the client to Baleen's specifications.
3. Extended concrete surrounds (as shown) required for mobilisation/demobilisation of plant.
4. For further information please contact your local Baleen representative.

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engineered by nature

DESIGN FOR MANUFACTURE					
DISCLAIMER	DATE	REV	BALEEN FILTERS PTY LTD	DESCRIPTION	MUNICIPAL RESOURCE RECOVERY
DETAILS ACCURATE AT TIME OF PRINTING. BALEEN FILTERS PTY LTD RESERVES THE RIGHT TO CHANGE ANY DETAILS.	14-09-2015	1	PO BOX 1189, NORTH ADELAIDE SA 5006 AUSTRALIA	PROJECT	BIOMASS
	CHECKED	TRD	Tel: +61 8 8354 4511 Fax: +61 8 8354 4522	DRAWING NO.	P143-240-003P
ALL DIMENSIONS IN mm (UNLESS OTHERWISE SPECIFIED)	DATE	14-09-2015	email: info@baleenfilters.com.au	NTS	3 of 3