Attachment D.1 Infrastructure

Drawing No 10P536-2 (Attachment B2) shows the proposed Site Layout, which includes the infrastructure and Drawing No. 10P536-50 Site Drainage included in this Attachment shows the proposed drainage arrangements.

D.1. Infrastructure

a. Site Security Arrangements

Section 4.14 of the EIS, which accompanies the application, describes the security arrangements.

b. Design For Site Roads

Road design and layout are shown on Drawing 10P536-02.

c. Hardstanding Areas & Drainage

Section 4.4, 4.5 and 5.4 of the EIS, which accompanies the application, describes the hardstanding and drainage areas and these are shown on Drawings 10P536-50 (this attachement), 10P536-51 and 10P536-55.

d. Weighbridge

A double weighbridge is located near the site entrance. All waste transport vehicles pass across the weighbridge on entering and leaving the facility.

e. Wheel Cleaning

Vehicles delivering waste will have travelled significant distances on paved roads and will not require wheeling cleaning on entry to the facility. The entire area where vehicles will manoeuvre and park will be paved. Wheel washing will be carried out inside the buildings.

f. Laboratory Facilities

A laboratory will not be provided.

g. Fuel Storage

Oil and fuel storage arrangements are described in Section 4.12 of the EIS, which accompanies the application.

h. Waste Quarantine Areas

Section 5.6 of the EIS, which accompanies the application, describes the waste quarantine arrangements.

i. Waste Inspection

Section 4.10 of the EIS, which accompanies the application, describes the waste inspection procedures.

j. Traffic Control

Section 6 of the EIS, which accompanies the application, describes the site access arrangements.

k. All Services

Section 4.6 of the EIS which accompanies the application describes the site services.

l. Sewerage and Surface Water Infrastructure

Section 4.5, 5.4 and 5.5 of the EIS, which accompanies the application, describe the sewage and surface water arrangements.

m. Plant Sheds, Garages and Equipment Compound

Section 4.4, 4.6, 5.2 and 5.3 describe the existing and proposed site layouts.

n. Site Accommodation

Offices and toilet facilities for facility personnel is provided in the Composting Building.

o. Fire Control System

Ormonde have applied for fire certification for the proposed new construction.

p. Civic Amenities

It is not proposed to provide any civic amenity facilities.

q. Details of Composting/Anaerobic Digestion Infrastructure

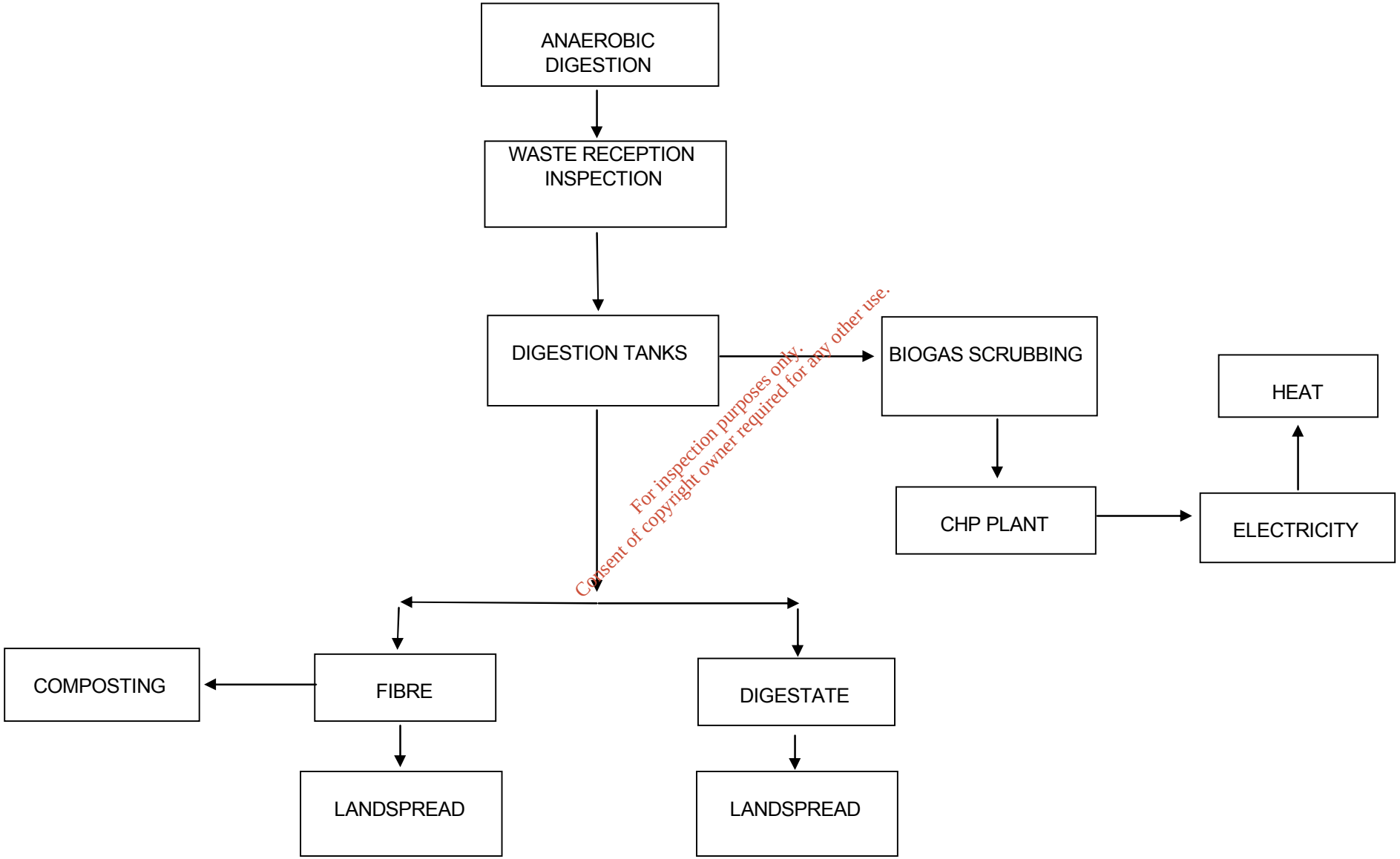
Details of the infrastructure associated with the existing composting operation and the proposed anaerobic digestion plant are proved in Sections 4.11 and 5.8 of the EIS.

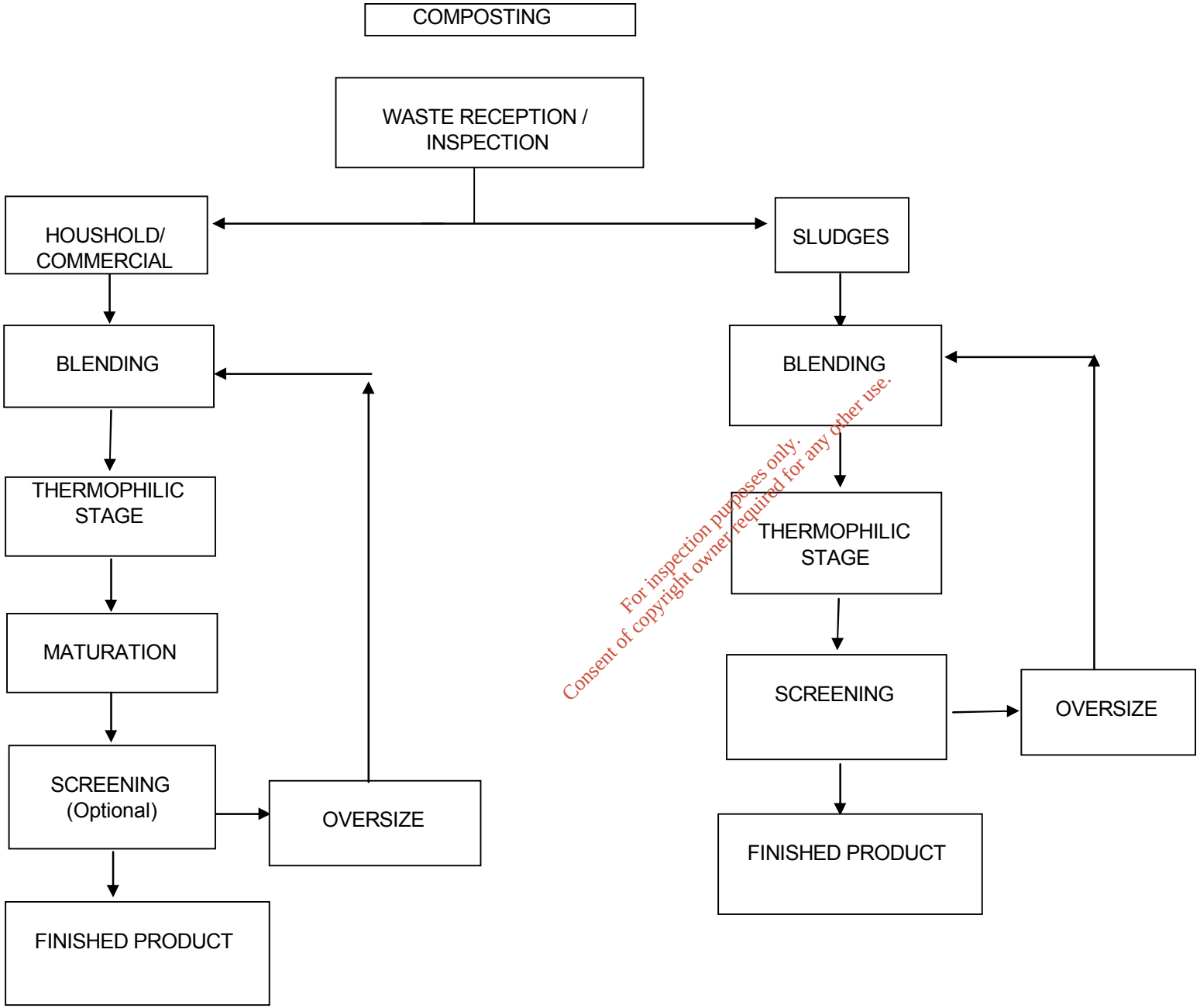
r. Description of Incineration infrastructure (if applicable)

Not Applicable.

s. Details of any other infrastructure proposed

Other proposed infrastructure is described in Section 5 of the EIS, which accompanies the application.





Attachment D.2 Facility Operation

Unit Operations

Composting

It is intended to continue composting of the municipal wastewater treatment sludge in Building 1 to a level that is suitable for land application. Non-hazardous organic sludges, which will not contain ABP, will be composted in Building 1 to a level that is suitable for land application. The sewage sludge will be composted in their respective bays.

The wastewater treatment sludges and organic sludges will reach a temperature of more than 55^0C for more than three consecutive days to ensure that that material is sterilised.

Upon completion of the thermophilic stage, the sterilised wastewater treatment sludge and the treated organic sludges will be moved to the Screening Area, where they will be screened, with the oversize sent back to the reception area for reuse, and the finished product then sent off-site for land application. Should the facility accept ABP waste, all of the wastes will be screened down to 12 mm and then moved from Building 1 to Building 2.

Building 2 will contain 2 Pasteurisation Bays and 5 Maturation Bays. To comply with DAFFM requirements on the composting of wastes that contain ABP, a temperature of 70^0C will be achieved and maintained for a minimum of one hour in the Pasteurisation Bays. The materials will then be moved into the Maturation Bays and when the materials meet the required compost quality criteria, they will be sent off site and used for agricultural or horticultural purposes.

Anaerobic Digestion

The fully enclosed AD system is designed to process non-hazardous organic waste and biomass, for example silage. Three (3 No.) purpose built digester tanks will be constructed. The organic wastes will, depending on the available processing capacity, either be fed directly into the AD process or temporarily stored in the former wastewater treatment tanks. A concrete lined silage storage area will be provided, which will be used to store biomass before it is fed into to the process

The treatment process will begin in the new Waste Reception Building (Building No. 3A), where the organic wastes and biomass will be off loaded and fed, using a loading shovel, into a slide feeding system, which will move it via a fully enclosed conveyor to the tanks. The contents of the tanks will be continuously agitated and maintained at an optimum temperature for the process.

The AD process, which takes approximately 50 days for each batch to complete the digestion and post digestion stages, produces a biogas, fibre and digestate. The biogas consists largely of methane and carbon dioxide, but also contains a small amount of hydrogen sulphide and ammonia, as well as traces of other gases. The biogas will be treated to reduce the levels of ammonia and hydrogen sulphide.

The treated gas will be used as a fuel in two gas engines in CHP plant. There are a number of utilisation options for the heat and electricity generated in the CHP, which include meeting on-site energy needs or being exported to the national grid. A gas flare with a capacity of 600m^3/hour will be provided as a back–up for when the gas engines are shut down for routine servicing.

The digestate and fibre have a significant nutrient and soil enhancement value and will, depending on the time of the year, either be immediately sent off site for application to agricultural lands, or stored in a number of the converted wastewater treatment tanks until ground/weather conditions allow land application.

Possible Future Options

Ormonde has identified potential changes to the configuration of the treatment processes for wastes that contain ABP, which may be implemented at some time in the future subject to the approval of the DAFM. These include the use the northeastern section of Building No 3A for the pasteurisation of all incoming solid (household and commercial) wastes that contain ABP. If implemented this would mean that the ABP regulations would not apply to Buildings 1 and 2.

The change to the use of Building 3A would mean the relocation the waste reception area for the AD tanks, the slide feeder and the CHP plant to the southwestern side of the building. An internal wall dividing the two areas will be constructed to fully seal off the Pasteurisation Area from the rest of the building. The floor of the Pasteurisation Area will be provided with a drainage system that collects any liquid and directs it to a sealed sump located inside the building.

While the CHP plant may be moved, the exhaust gases will be ducted to the original emission point. The pasteurisation Bays in Building 2 would no longer be required, but could form additional composting capacity.

Flow Diagrams

Process flow diagrams of the composting and anaerobic digestion processes are included in this attachment.

Emissions

The potential emissions associated with facility operations include, surface water, odours, noise, air, wastewater and dust. Further information on emissions is presented in Sections 7, 8, 10, 11 and 12 of the EIS that accompanies this application.

List 1 and 2 substances will not be emitted to groundwater. The potential groundwater impacts and mitigations measures are described in Section 8.3, 8.5 and 8.6 of the EIS.

A3

PIPE SIZES AND GRADIENTS FOR STORM PIPE RUNS				
RUN	PIPE⌀	GRADIENT	PIPE SPEC	BEDDING CLASS
1.0–1.1	225	100	uPVC	B
1.1–1.2	375	100	uPVC	B
1.2–1.3	450	100	uPVC	B
1.3–1.4	450	120	uPVC	B
1.4–1.5	450	120	uPVC	B
1.5–1.6	450	120	uPVC	B
1.6–1.7	450	120	uPVC	B
1.7–1.8	450	118	uPVC	B
2.0–2.1	300	100	uPVC	B
2.1–1.3	300	75	uPVC	B
3.0–3.1	225	100	uPVC	B
3.1–1.2	225	43	uPVC	B
1.8–1.9	150	120	uPVC	B
1.9–4.0	150	120	uPVC	B

DATA FOR STORM DRAINAGE			
MANHOLE	COVER LEVEL	INVERT LEVEL	DEPTH
1.0	10.900	9.850	0.825
1.1	10.100	8.675	1.050
1.2	9.200	7.775	1.050
1.3	9.200	7.285	1.465
1.4	9.200	7.156	1.594
1.5	9.000	6.932	1.618
1.6	9.000	6.655	1.895
1.7	9.000	6.055	2.495
1.8	9.000	6.000	2.550
1.9	9.000	5.990	2.560
2.0	9.200	8.450	0.450
2.1	9.200	7.775	1.125
3.0	10.500	9.750	0.525
3.1	10.100	8.675	1.200
4.0	9.100	5.962	2.988
5.0	9.930	8.430	1.500

LEGEND

- Ex. FOUL DRAINAGE TO BE RETAINED
- Ex. FOUL DRAINAGE TO BE MADE REDUNDANT
- PROPOSED FOUL DRAINAGE
- PROPOSED FOUL TREATMENT SYSTEM AND PERCOLATION AREA
- EX. SEPTIC TANK AND PERCOLATION AREA TO MADE REDUNDANT
- Ex. FOUL MH TO BE RETAINED
- Ex. FOUL MH TO BE MADE REDUNDANT
- Ex. STORM DRAINAGE TO BE RETAINED
- Ex. STORM DRAINAGE TO BE MADE REDUNDANT
- PROPOSED STORM DRAINAGE
- PROPOSED 50mm DIA. FOUL RISING MAIN
- PROPOSED PRIVATE WELL RELOCATED
- Ex. STORM MH TO BE RETAINED
- Ex. STORM GULLY TO BE RETAINED
- PROPOSED STORM MH
- PROPOSED STORM GULLY
- EXISTING STORM SUMP MANHOLE
- PROPOSED STORM SUMP MANHOLE
- Ex. PETROL INTERCEPTOR TO BE RETAINED
- PROPOSED CLASS 1 BYPASS INTERCEPTOR
- SITE BOUNDARY
- 1.2m STOCK PROOF FENCE
- 1.8m CHAIN LINK FENCE
- EXISTING SITE FACILITIES /BUILDINGS
- PROPOSED SITE FACILITIES/BUILDINGS
- ALTERED SITE FACILITIES/BUILDINGS

DRAINAGE LAYOUT

SCALE 1:500

Note:
ITM (Irish Transverse Mercator)
Co-ordinate System Used
North Sign Refers to Grid North
Level Tied to Ordnance Datum (Malin Head)
O.S. Sheet No. 5562-B 5497-D

PRIVATE WELL TO BE RELOCATED AWAY FROM PROPOSED FRONT EXTENSION

EXISTING 3 STAGE PETROL INTERCEPTOR

EXISTING OPEN DRAIN

EXISTING WELL TO BE CAPPED

EXISTING BUILDING 1 FFL=10.192m

EXISTING FIRE WATER RETENTION TANK

PROPOSED CONNECTION TO EXISTING STORM DRAIN AT S4.0

EXISTING SURFACE OUTFALL TO RIVER

PEN STOCK SHUT OFF VALVE TO BE USED IN FIRE EMERGENCY TO PREVENT CONTAMINATED WATER DISCHARGING TO RIVER

EXISTING WWTP OUTFALL TO BE MADE REDUNDANT

HYDROBRAKE MANHOLE S1.9 DISCHARGE = 4.2litres/sec

PROPOSED SUMP MANHOLE UPSTREAM OF ATTENUATION TANK

PROPOSED ATTENUATION SYSTEM BY STORMTECH TO BE 55.6m BY 6.53m BY 1.05m (381m OF STORAGE) TO CATER FOR THE 1 in 30 YEAR STORM. INVERT LEVEL = 6.025m TWL = 7.445m

WE PROPSOED TO ATTENUATE THE 1 in 100 YEAR RETURN PERIOD STORM FLOOD WITHIN THE PROPOSED STORAGE SYSTEM, BY PROVIDING AN ADDITONAL 11.25m OF TANK, WHIHC EQUATE TO AN ADDITIONAL 127m³ OF STORAGE.

PROPOSED CLASS 1 (8000Lt) BYPASS INTERCEPTOR, ref NSB-020-CH BY MOLLOY PRECAST

EX. SEPTIC TANK AND PERCOLATION AREA TO BE MADE REDUNDANT

PROPOSED AD DIGESTER TANKS FFL=7.65m

PROPOSED BUILDING 3B FFL=9.2m

EDGE OF PROPOSED CONCRETE YARD

PROPOSED BUILDING 2 FFL=10.19m

PROPOSED BUILDING 3A FFL=9.2m

RAMP

EDGE OF PROPOSED CONCRETE YARD

PROPOSED LEACHATE TANK (UNDERGROUND)

TRIAL HOLE

4–12PE Aswaflow Treatment System BY MOLLOY PRECAST AND 132sq.m PERCOLATION AREA, DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH CURRENT EPA CODE OF PRACTICE

11.523m ◆ 9.917m ◆ 9.907m ◆ 11.960m ◆ 10.900m ◆ 10.020m ◆ 9.660m ◆ 10.325m

FOUL RISING MAIN

BOWE CONSULTING ENGINEERS

Referenced drawings	
Dwg No.	Dwg Title

Revision change notes		
Rev.	Date	Description

Issue register					
Rev.	Date	Description	Dsn.	Chkd.	Appvd.
	18.10.11	PLANNING	BD	IB	

NOTES:
1. DO NOT SCALE, USE FIGURED DIMENSIONS ONLY.
2. NO PART OF THIS DRAWING MAY BE REPORDUCED OR TRANSMITTED IN ANY FORM OR STORED IN ANY RETRIEVAL SYSTEM OF ANY NATURE WITHOUT THE WRITTEN PERMISSION OF BOWE CONSULTING ENGINEERS AS COPYERITE HOLDER EXCEPT AS AGREED FOR USE ON THE PROJECT FOR WHICH THE DOCUMENT WAS ORIGINALLY ISSUED.

Drawing Title: PROPOSED DRAINAGE LAYOUT

Date: 01.10.11 | Scale: 1:1000 A3

Drawn By: BD | Checked By: IB

Client: ORMONDE ORGANICS

Job Description: PROPOSED ANAEROBIC DIGESTION PLANT AT PORTLAW, CO.WATERFORD

Project No: 10P536 | Drawing Ref: 50 | Rev:

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