

Paul R. LePage, Governor

Mary C. Mayhew, Commissioner

Tel. (207) 287-5672

Department of Health and Human Services
Maine Center for Disease Control and Prevention
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Augusta, Maine 04333-0011
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Subsurface Wastewater Unit

Fax (207) 287-4172

September 5, 2012

Anua
Attn.: Colin Bishop, REHS, RS
P. O. Box 77457
Greensboro, NC 27417

Subject: Product Registration, Platinum Submerged Aerated Filter, Models 6, 8, 10, 12, 60, 80, 120, and 150

Dear Mr. Bishop:

The Division of Environmental Health has completed a review of a registration application for your company's products. This information was submitted pursuant to Section 6.HH of the Subsurface Wastewater Disposal Rules for registration for use in Maine.

The Platinum Submerged Aerated Filter consists of a multiple compartment aerated treatment unit which includes media blocks to accommodate fixed film biota. The device can be configured with an integral lift station if necessary. You have requested a 12 inch separation from the limiting factor and 50 percent reduction in disposal area when this device is used. According to the information you provided, the Platinum Submerged Aerated Filter has been certified by the European Committee for Standardization Standard EN 12566-3, which is analogous to ANSI/NSF Standard 40 for wastewater treatment systems.

On the basis of the information submitted, the Division has determined that the Platinum Submerged Aerated Filter is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

Disposal areas may be separated vertically by 12 inches from limiting factors when the Platinum Submerged Aerated Filter is used. Although the Division does not grant disposal area size reductions for specific aerated treatment units, disposal area size may be reduced pursuant to Table 4B of the Subsurface Wastewater Disposal Rules.

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of Platinum Submerged Aerated Filter. Further, registration of this product for use in the State of Maine does not represent Division preference or recommendation for this product over similar or competing products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen
Project Manager, Webmaster
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
e-mail: james.jacobsen@maine.gov

/jaj

xc: Product File



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August 15, 2012

James Jacobsen
Program Manager
Maine Division of Environmental Health
286 Water Street, 3rd Floor
Augusta, ME 04333

RE: Platinum SAF acceptance for general use as Advanced Treatment System

Dear James,

We are requesting acceptance of the Platinum Submerged Aerated Filter (SAF) as an Advanced Treatment System in Maine. Also, we are requesting 12 inch vertical separation to a limiting zone and an adjustment factor of 0.5 per Table 4B. Platinum can be used for residential strength waste or as a high strength waste (e.g. restaurant) pre-treatment or treatment unit.

The Platinum meets secondary standards and had an overall Total Nitrogen reduction average of 63% during third party testing per the European Committee for Standardization (CEN) EN 12566-3 protocol. The EN 12566-3 testing is very rigorous and demonstrates percent reductions for BOD, TSS and other parameters. Platinum is currently approved in West Virginia, Virginia and Alaska. The West Virginia and Virginia approval letters are attached. A case study for an Alaska installation is attached. Additionally, we have not yet applied for approval in Minnesota, but they recognize the EN 12566-3 protocol as shown below.

7083.4010 TESTING REQUIREMENTS FOR PROPRIETARY TREATMENT PRODUCTS.

The testing protocols in this part are incorporated by reference under part 7083.4000, subpart 2, item B.

TABLE 1

Treatment component/sequence category	Required testing protocol
Category A: Designed to treat sewage with strength typical of a residential source when septic tank effluent is anticipated to be equal to or less than treatment Level C (Table III, part 7083.4030)	NSF Residential Wastewater Treatment Systems, Standard 40, or CEN European Standard, EN-12566-3
Category B: Designed to treat high-strength sewage when septic tank effluent is anticipated to be greater than treatment Level C (Table III, part 7083.4030), including restaurants, grocery stores, mini-marts, group homes, medical clinics, residences, etc.	EPA/NSF Protocol for the Verification of Wastewater Treatment Technologies, EPA/ETV Protocol for the Verification of Residential Wastewater Treatment Technologies for Nutrient Reduction, or equivalent
Total nitrogen and phosphorus reduction in Categories A and B	EPA Environmental Technology Verification, Protocol for the Verification of Residential Wastewater Treatment Technologies for Nutrient Reduction, or equivalent or NSF Wastewater Treatment Systems - Nitrogen Reduction, Standard 243

Statutory Authority: *MS s 115.03; 115.55*

History: *32 SR 1420*

Posted: *February 18, 2008*



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Attached are:

1. Platinum Overview and Technical Specification sheets
2. Platinum Installation Manual
3. Platinum O&M Manual
4. CAD drawings
5. Testing results and comparison of EN 12566-3 testing protocol to NSF Standard 40 testing protocol
6. EN 12566-3 testing protocol
7. EN 12566-3 completion certificate
8. EN 12566-3 testing results
9. West Virginia approval letter
10. Virginia approval letter
11. Juneau, Alaska case study
12. Platinum sizing spreadsheet
13. Commercial design worksheet

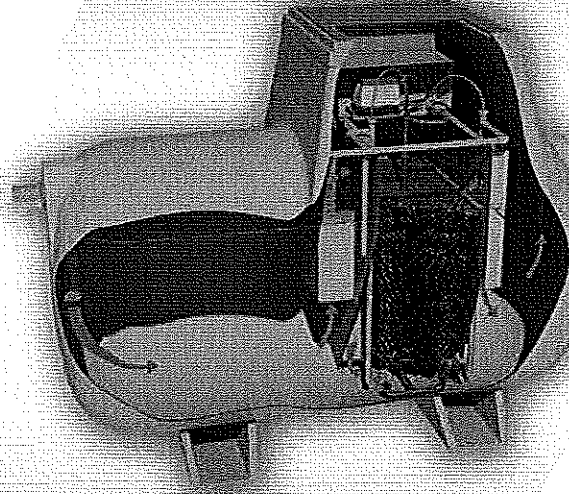
We look forward to hearing from you. If you have any questions, please contact us at your earliest convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Colin Bishop".

Colin Bishop, REHS, RS
Director of Sales and Government Relations

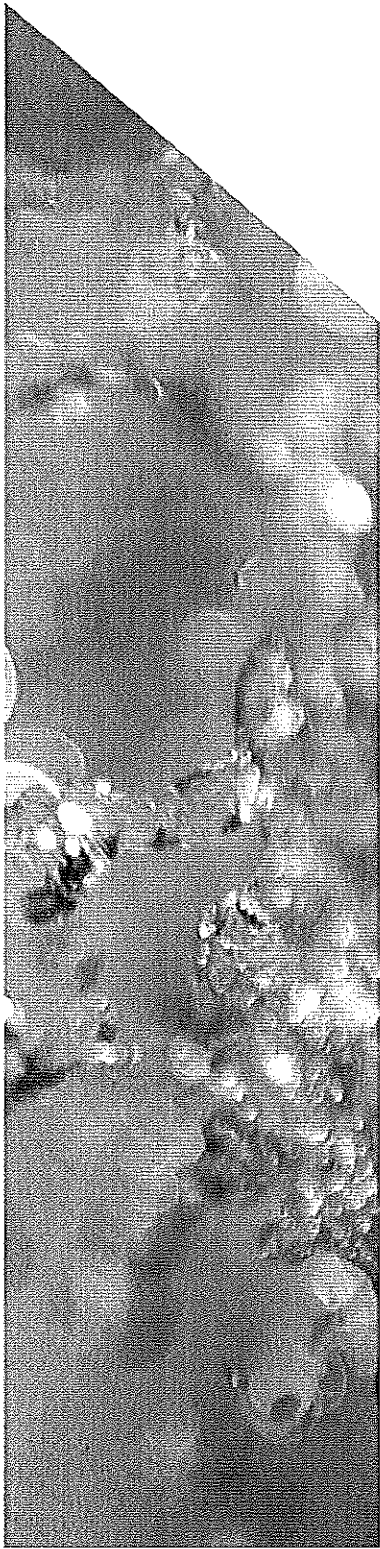
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Platinum

Wastewater Treatment
System for
Residential Use

The Platinum wastewater treatment system for residential use provides wastewater treatment for single-family homes. The key features of the Platinum wastewater treatment system are the low power consumption and reduced maintenance.



The only moving part in the Platinum wastewater treatment system is a small air delivery system with very low power consumption.

Why Choose the Platinum System?

- Highly-efficient
- Environmentally sensitive
- Virtually silent operation
- Very low power requirements
- Below-ground installation
- Factory assembled and installed by certified installers
- Certified to European Committee for Standardization (CEN) Standard EN 12566-3
- Odorless
- Flexible applications with integral pump, external compressor enclosure and alarm systems

Features and Benefits of the Platinum Wastewater Treatment System:

- Environmentally sensitive with a small footprint producing a high-quality effluent
- Low power consumption means low operating expense
- Below ground installation does not take up valuable yard space or leave unsightly equipment exposed
- Minimal maintenance results in low total cost of ownership and greater peace of mind

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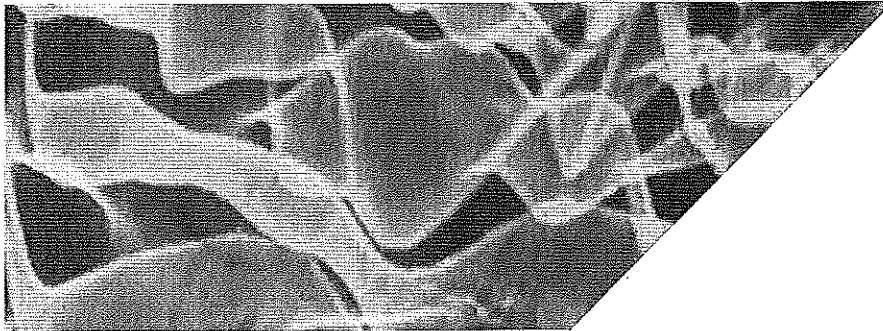
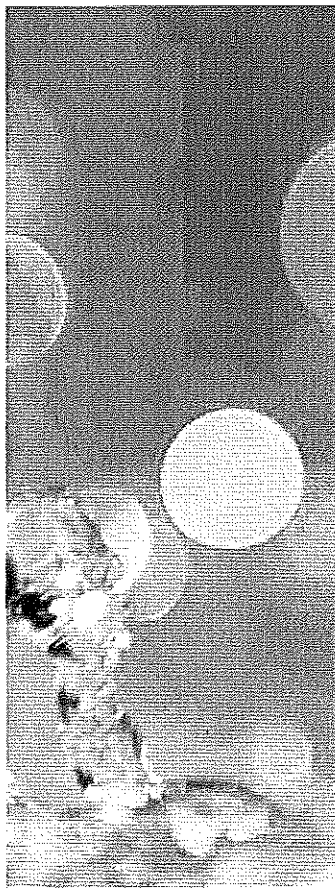


Platinum

Engineering & Technical Specifications

Platinum Wastewater Treatment System for Residential Use

- Highly-efficient process
- High-performance process
- Environmentally sensitive
- Below-ground installation
- Cost efficient and effective
- Minimal maintenance
- Small footprint



How the Platinum Wastewater Treatment System Works

Primary Settlement

Wastewater from the home flows into the primary chamber. Initial settlement and separation of gross solids occurs. A sludge layer is formed at the bottom of the tank which should be removed periodically. The settled effluent passes forward for treatment in the biological zone.

Submerged Aerated Filter (SAF)

The media in the biological zone provides a large surface area allowing natural growth of micro organisms (biomass). Oxygen is supplied to the zone through dedicated air diffusers at the base. The microorganisms require oxygen to develop and in turn reduce the levels of biological oxygen demand (BOD) and Total Suspended solids (TSS) in the effluent to <25:30 mg/l BOD:TSS.

Final Settlement

Further settlement occurs reducing the levels of suspended solids. Settled solids are returned via an automatic sludge return system to the primary settlement chamber for storage.

There is a tertiary treatment option whereby the Platinum SAF wastewater treatment system is followed by the Puraflo peat fiber biofilter. This treatment will achieve a 5:5 mg/l BOD:TSS standard and significant pathogen reduction.

Typical Specification

Description	Gravity Unit				Pumped Unit			
	6	8	10	12	6	8	10	12
Inlet invert depth from cover	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5
Outlet invert depth from cover	33.5	33.5	33.5	33.5	14	14	14	14
Inlet diameter	4	4	4	4	4	4	4	4
Outlet diameter	4	4	4	4	1.25	1.25	1.25	1.25
Overall length	86.5	110.25	118	118	86.5	110.25	118	118
Overall depth	82.5	82.5	82.5	82.5	82.5	82.5	82.5	82.5
Overall width	59	59	59	59	59	59	59	59

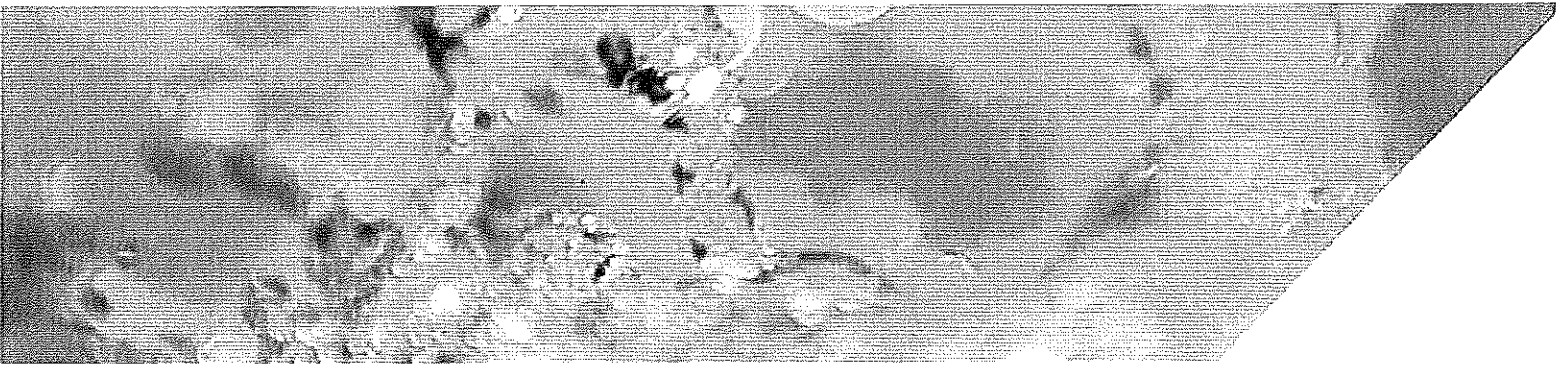
Conversion Table

1 m³ = 264 gallons
 1 kg = 2.2 pounds
 1 l/min = 0.0353 cfm

Residential Platinum Specifications

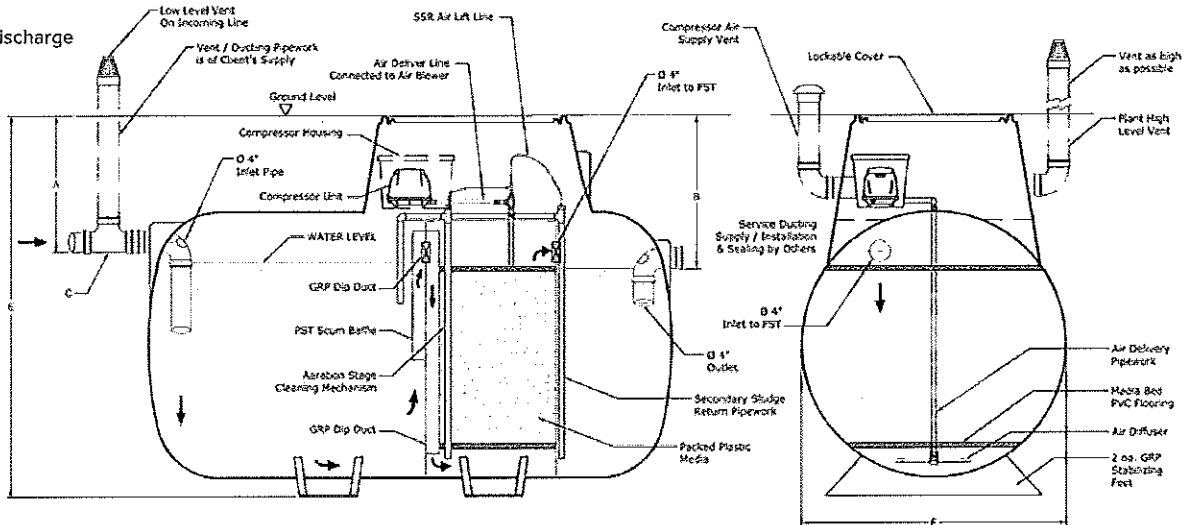
Model	Population Equivalent	Average Organic Load		Design Organic Load		Average Flow		Design Flow				Air Required	
		kg/d	lbs/d	kg/d	lbs/d	m ³ /d	gpd	m ³ /hr	gph	m ³ /d	gpd	l/min	cfm
6	6	0.39	0.86	0.59	1.29	1.2	320	0.15	40	1.8	480	60	2.1
8	8	0.52	1.15	0.78	1.72	1.6	425	0.20	53	2.4	640	80	2.8
10	10	0.65	1.43	0.98	2.15	2.0	530	0.25	66	3.0	800	100	3.5
12	12	0.78	1.72	1.17	2.58	2.4	635	0.30	79	3.6	955	120	4.2

Divide this column by gallons per bedroom for sizing

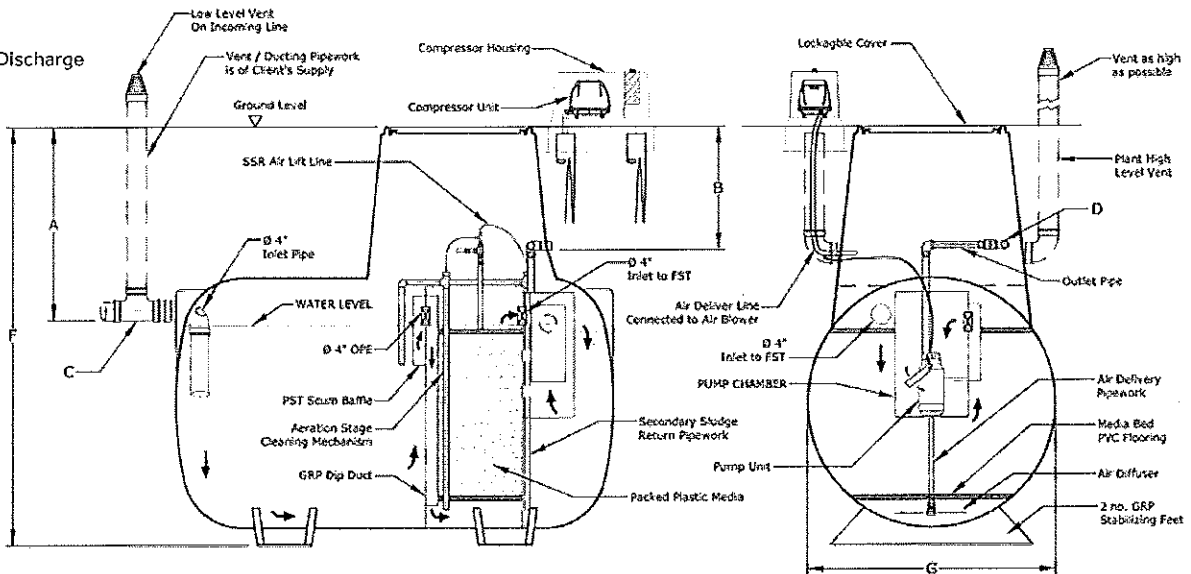


Technical Drawings

Platinum
with Gravity Discharge



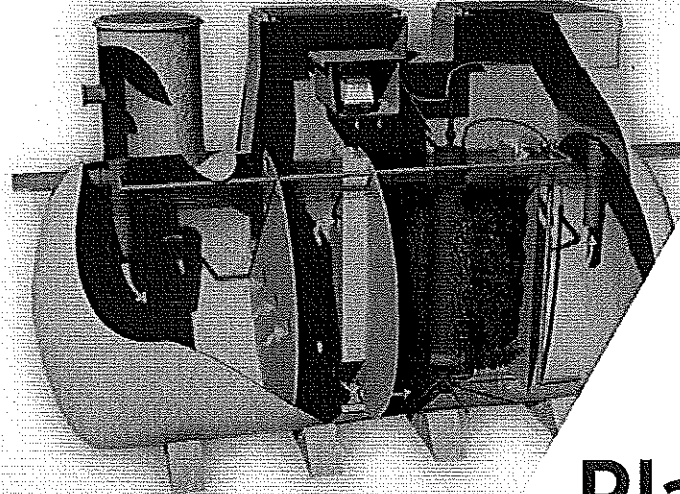
Platinum
with Pumped Discharge



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Platinum

Wastewater Treatment
System for
Small Communities
and Commercial Applications

The Platinum wastewater treatment system for small communities provides wastewater treatment for populations of six people or more.

The key features of the Platinum small community system are the low power consumption and reduced maintenance.



Platinum is the perfect choice for the small, decentralized community. The fully underground installation and low profile access covers allow for minimal visual impact on the completed project and surrounding area.

Nutrient removal options are available as required. Tertiary treatment options are also available where higher treatment levels need to be met.

Why Choose the Platinum System?

- Leading designer, manufacturer and supplier of wastewater treatment systems for more than 18 years
- Supplier of reliable, sustainable, long-term solutions for onsite wastewater treatment
- Systems and treatment processes for a wide variety of applications
- Ease of installation, low maintenance and low energy use

Features and Benefits of the Platinum Wastewater Treatment System:

- High performance process results in an efficient and thorough treatment of wastewater
- Environmentally sensitive with a small footprint and producing a high-quality effluent back into the water table
- Low power consumption means low operating expense for the owner
- Below ground installation does not take up valuable yard space or leave unsightly equipment exposed
- Minimal maintenance results in low total cost of ownership and greater peace of mind
- Suitable for a broad range of applications and able to handle a variety of situations and types of waste

Applications

- Housing developments
- Apartments
- Restaurants
- Hotels
- RV parks and campgrounds
- Mobile Home Parks
- Schools
- Nursing homes
- Other residential or high strength waste projects

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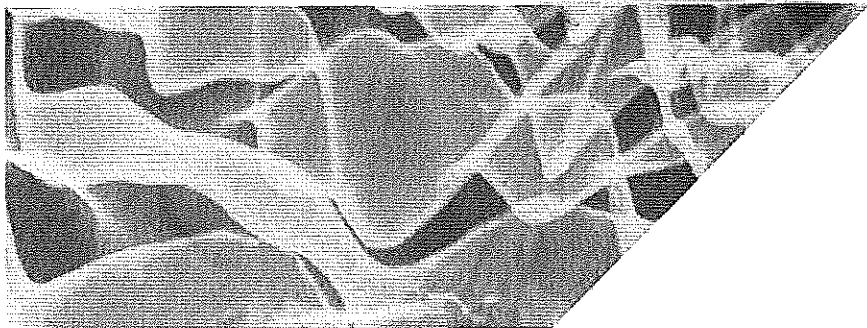


Platinum

Engineering & Technical Specifications

Platinum Wastewater Treatment System for Small Communities

- High-performance process
- Below-ground installation
- Low power consumption
- Reliable, minimal maintenance
- Environmentally sensitive
- Small and large applications



How the Platinum SAF Submerged Aerated Filter Wastewater Treatment System Works

Primary Settlement

The Platinum SAF system features a single or two-stage primary settlement tank, which in itself is unusual in plants of this size. Based on the principles used in traditional septic tanks, the primary settlement tank is designed in accordance with typical standards.

The strength (BOD) of the influent sewage is reduced by some 30-40 percent. The gross solids form sludge at the bottom of the tank and lighter debris forms a crust on the surface. The sludge and crust should be removed periodically in accordance with the product design. The settled liquid between the sludge and crust passes forward for treatment in the submerged aerated filter (SAF).

Submerged Aerated Filter (SAF)

This is the treatment zone and it contains a set of inactive modular media blocks that provide a large surface area on which naturally occurring bacteria can develop. The bacteria require oxygen, which is supplied by a linear low-pressure compressor beneath the media bed.

Final Settlement Tank

As the bacteria in the SAF dies off, it falls away from the media and is passed forward to the final settlement tank, where it settles out, further reducing the level of suspended solids in the final effluent. Design features include a benched bottom to ensure concentrated settlement, and a sludge return system that sends humus sludge back to the first stage of the primary settlement tank.

Treatment Results

The bacteria naturally feed on the settled sewage to further reduce the levels below 25 mg/l of Biochemical Oxygen Demand (BOD), 30 mg/l of Total Suspended Solids (TSS) or to residential strength levels for high strength waste applications. Regulatory requirements are becoming ever more stringent and we are able to modify processes/equipment to conform to these stricter standards, as needed, for:

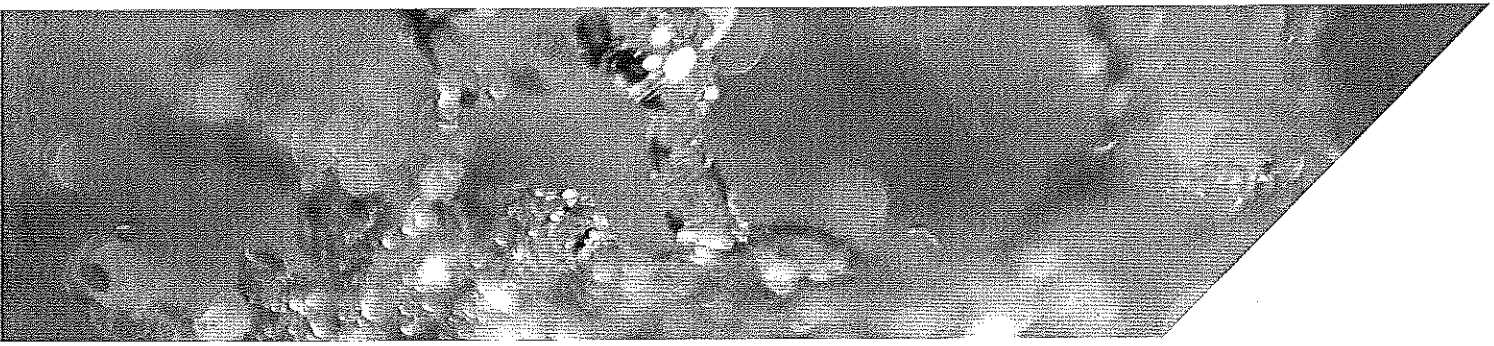
- Enhanced BOD removal
- Enhanced TSS removal
- Nutrient reduction
- Pathogen reduction

Commercial Platinum Specifications

Model	Population Equiv.	Average Organic Load		Design Organic Load		Average Flow		Design Flow				Air Required	
		kg/d	lbs/d	kg/d	lbs/d	m ³ /d	gpd	m ³ /hr	gph	m ³ /d	gpd	l/min	cfm
6	6	0.39	0.86	0.59	1.29	1.2	320	0.15	40	1.8	480	80	2.8
8	8	0.52	1.15	0.72	1.72	1.6	425	0.20	53	2.4	640	100	3.5
10	10	0.65	1.43	0.90	2.15	2.0	530	0.25	66	3.0	800	120	4.2
12	12	0.78	1.72	1.08	2.58	2.4	635	0.30	79	3.6	955	150	5.3

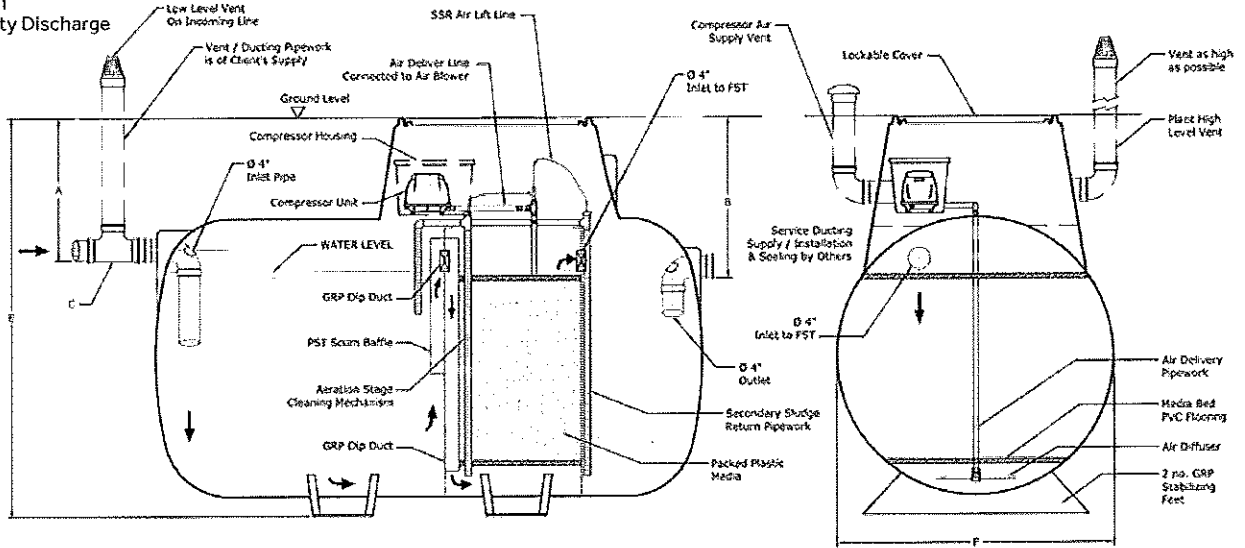
Conversion Table

1 m ³ /d =	264 gpd
1 kg =	2.2 pounds
1 L/min =	0.0353 cfm

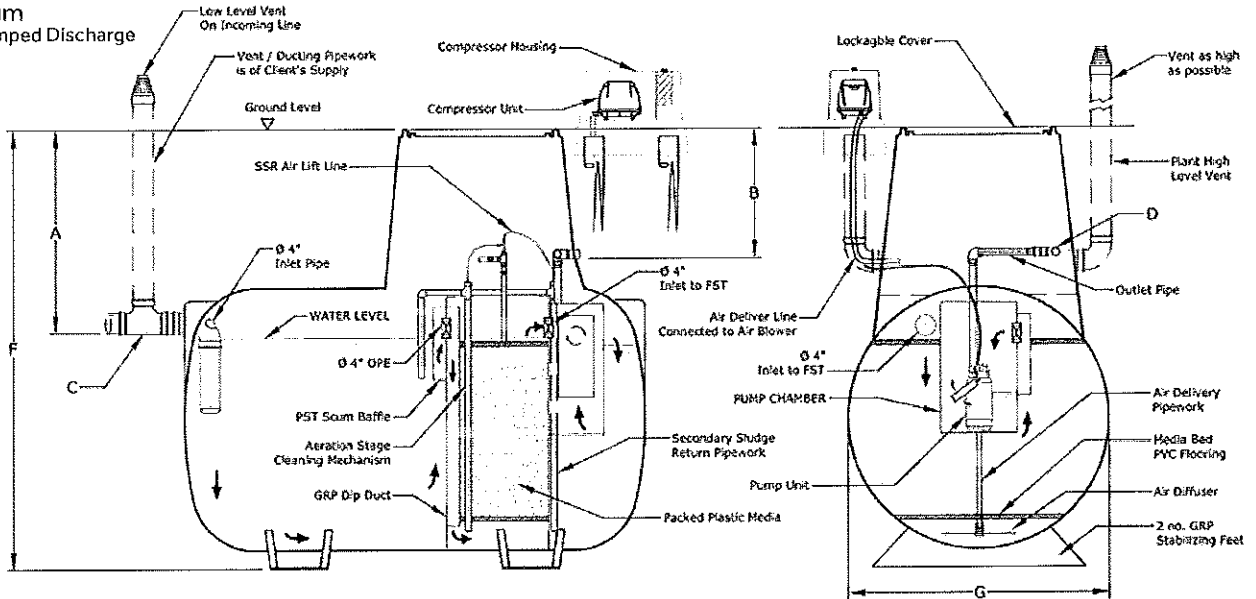


Technical Drawings

Platinum
with Gravity Discharge



Platinum
with Pumped Discharge



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Platinum

Submerged Aerated Filter

Installation Manual

Platinum

Submerged Aerated Filter

Installation Manual

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1.0	Installation Instructions	1
2.0	Unit Description	8
3.0	Specification, Data and Technical Drawings	9
4.0	Warranty	12

NOTE:

If you require any further information regarding the operation of the equipment, please contact customer service at:



P.O. Box 77457,
Greensboro, NC 27417
T: 336-547-9338
F: 336-547-8559
info@anua-us.com

1.0 Installation Instructions

Delivery

The installer is responsible for offloading. The following instructions are offered for guidance only. Anua cannot accept any responsibility for incorrect off-loading or installation.

- Off-load the unit using suitable mechanical equipment operated by trained personnel.
- Only lift with certified webbing straps surrounding the unit.
- Do not wrap chains around the unit.
- Do not lift the unit if it contains water.
- Do not subject the unit to sharp impacts.
- Do check that all items delivered correspond with the delivery note.
- All shortages and damages must be reported on delivery.

Notice

Please read and understand the following instructions in full before starting installation. These instructions are provided as a general guide and do not allow for non-standard site specific issues which may arise. Failure to adhere to these instructions may compromise the structural or operational integrity of the product which will be deemed outside the responsibility of Anua.

The Platinum unit is provided with built-in eye bolts on the outside of the unit. These are NOT intended for offloading/lifting of the unit. These eyes are included to allow positioning of the unit once it is located in the excavation.

Storage

- During storage on site the tank should be placed on level ground avoiding all possibility of accidental damage.
- The tank should be tied down during periods of high winds.
- The *Platinum* unit should be stored with the access cover closed to prevent accumulation of rainwater in the unit.

If in doubt with regard to any aspect of the instructions, please contact us using any of the details listed below:

Phone: 336-547-9338
Fax: 336-547-8559

All installations should be carried out observing all necessary Health & Safety Requirements

Pre-Installation Checklists/Notes

1. One set of lifting straps of correct length and adequate safe working load is required for offloading and placing the unit in the excavation.
2. Weight varies from 385 to 1,140 pounds depending on model.
3. It is important to take into account the following items when locating of unit:

See Figure 1 for reference.

- a) The unit requires a low level and high level vent. The low level is on the incoming line immediately prior to the unit. The high level vent is off either of the duct sockets labeled on each side of the unit.
- b) The venting arrangement should be located in areas which will receive a clear flow of fresh air.
- c) Vents should be installed in clear areas free of potential obstacles to allow for clear passage of air flow.

d) Finished locations of the vents should be away from foot traffic.

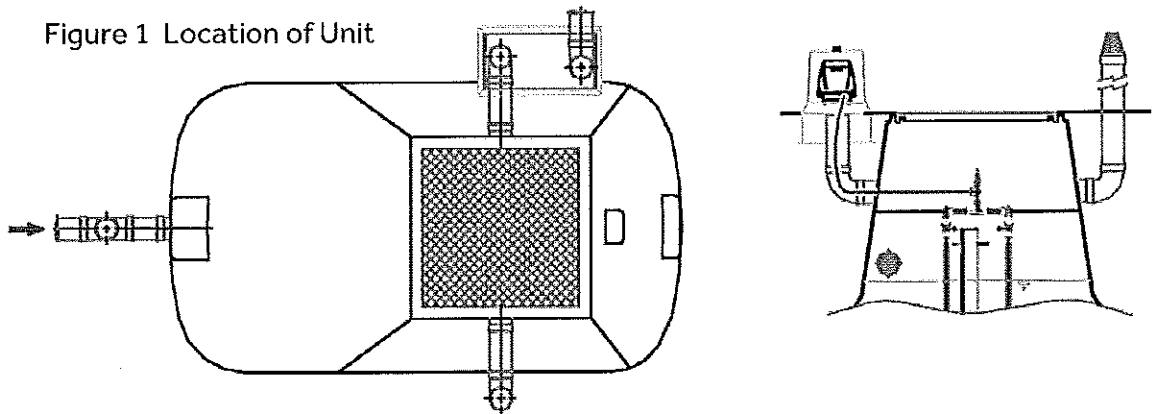
e) The unit comes standard with an internal compressor housing. If the internal compressor box placement is used, locate above ground immediately adjacent to the unit. The maximum allowable distance away from the lid of the treatment plant is 13 feet.

f) The service duct will contain the air delivery line to the unit from the external compressor box.

4. Please ensure receipt of the following upon delivery:

- One (1) internal compressor housing and alarm control panel
- One (1) compressor (see appendices for compressor technical information)
- One (1) 20 ft. coil of 1" air delivery line c/w two (2) clips
- Two (2) cover lifting hooks
- One (1) triangular lock key

Figure 1 Location of Unit



Note:

The unit comes standard with an internal compressor housing. This drawing shows optional external compressor.

Installation Procedure

Please refer to appropriate drawing in Section 3 for unit dimensions.

Assessment of these conditions is the responsibility of others.

1. Excavate to the Platinum dimensions allowing an additional 12" to all sides and 12" to the base. Level the base of the excavation. The excavation should be carried out in accordance with OSHA standards on building sites. The excavation should be prepared so there is no risk of puncture or any other damage to the tank structure during installation. In high water table conditions, anti-buoyancy measures must be implemented. Please contact Anua for further information.
2. In wet ground conditions it is important the excavation is kept dry throughout the installation. The use of pumps and pump sumps is recommended in cases of high water tables de-watering equipment may be required.
3. Level the base of the excavation with suitable backfill or pea gravel.
4. Lower the unit into position onto suitable backfill/pea gravel using slings taking care not to damage any external pipework. Ensure correct orientations of the inlet/outlet pipework and any other connections.
5. Stabilize the Platinum unit in the excavation taking care not to distort it. Ensure the unit is level in all directions.
6. Ensure the tank access cover is in place.
7. Backfill unit at a maximum of 12" lifts. At the same time begin filling each chamber of the unit with water so the levels of backfill and water remain equal. Please note the following:
 - The backfill needs to be evenly distributed around the tank at all times.
 - The water levels in the unit are equalized across the three chambers.
 - Never wholly fill the unit with water before surrounding it with backfill.
 - Never wholly surround the unit with backfill before filling with water.
 - Equalize inside and out.
8. Ensure the backfill is worked under the tank to prevent voids. Do not use vibrating rammers. Over compaction of the concrete may result in damage or distortion of the tank structure.
9. Connect and seal interconnecting pipework. This includes connecting the low level vent on the incoming inlet pipe/the high level vent to either of the 4" duct sockets situated on the side of the unit and the service duct to the other 4" duct socket.
10. Continue placing backfill until a minimum cover of 9" above the top of the cylindrical aspect of the tank is achieved (based on a standard inlet invert depth of 26" below ground level).
11. Begin backfilling the excavation with free flowing material (not sand) or concrete if desired.
12. At 6" below ground level the base section of the external compressor box should be installed (see Figure 2, Compressor Box Installation). Please note the maximum setback distance from the plant access cover to the compressor box of 13'.

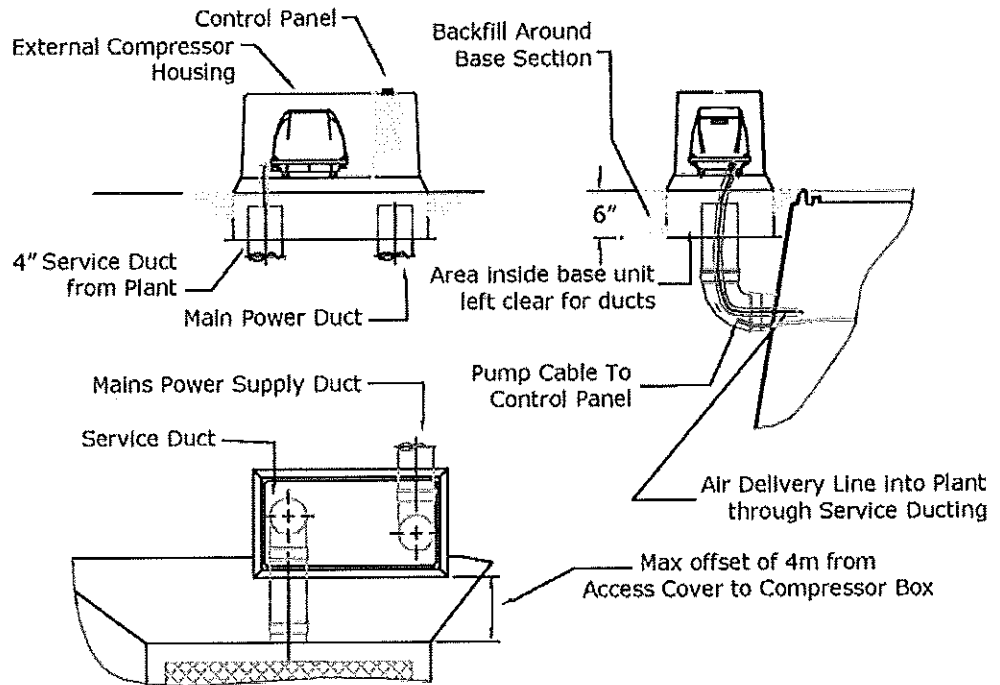
13. Ensure that the service and mains supply ducts are lined up in the correct position. At this stage also ensure that the mains cable and blower hose are in place and are fed through the openings in the compressor box base section. Backfill around the base section.

14. Backfill excavation to ground level.

NOTE

- In areas where very high water tables are a problem it may be advisable to provide a concrete slab or runners with straps to prevent flotation. See Section 3 for weight of concrete needed to prevent flotation of tank.
- If installed in areas of traffic or if superimposed loadings will be applied above the unit, a suitably designed reinforced concrete slab should be constructed to dissipate any of these loadings from the unit.
- Maximum tank burial depth is five feet from finished grade to inlet invert.

Figure 2 Compressor Box Installation

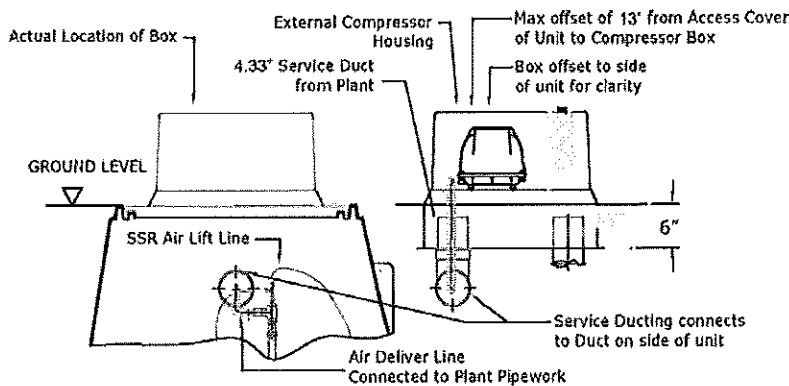


Note:
External compressor is optional.

Air Compressor Connection

15. The unit comes with an internal compressor which needs to be connected to the incoming power supply. The compressor is packaged in "bubble wrap" for protection during transportation. Please remove prior to installation as failure to do so will hinder the operation of the unit.
16. Place the compressor unit on top of the base section of the external compressor box (see Figure 3).
17. The air delivery line is supplied in a 20' length with two clips. Attach one end of the air delivery line by means of the clip to the compressor. Then feed the line through the service duct into the unit.
18. The other end of the air delivery line is connected to the internal air pipework connection using the other clip.
19. This is located in the middle of the center section of the unit as indicated on Figure 3.

Figure 3 Air Line Connection



Venting

Two vents are required to be installed to ensure correct operation of the unit as shown on Figure 1, *Location of Unit*.

1. One inlet vent prior to the unit connected to the incoming line (see Figure 1, *Location of Unit*). This serves as the low level vent.
2. One vent connected to the vent socket on the right hand side of the unit turret when standing at the inlet end. This serves as the high level vent.
3. Either duct on the sides of the unit can be used for high-level vent. Therefore the alternative duct is then used for the service ducting.
4. Ideally this vent should be 6' high but obviously this is not always possible. In this event please ensure this vent finishes at a higher level than the inlet vent. This is important to create a through flow of air throughout the unit.
5. Both vents will require 4" sewer pipework or equivalent.
6. Vents should be installed in clear areas free of potential obstacles to allow for clear passage of air flow. The locations should take account of future vegetative growth.
7. Finished locations of the vents should be away from public interaction.

(In addition to the two vent detail here all installations also require a high stack vent at the property).

Electrical Installation

In order that you achieve a safe and cost effective installation, it is not possible to state a specific installation configuration that would suit all sites or regulatory requirements.

Electrical installation of this equipment must be performed by a licensed electrician or an installer licensed to perform electrical work. All electrical work must meet all applicable state or local electrical codes.

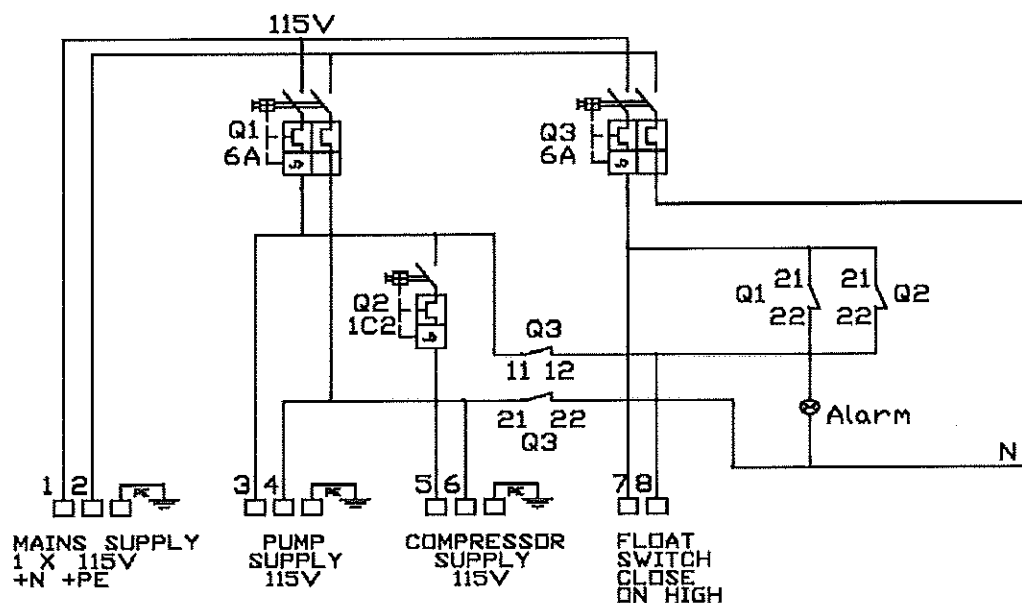
Electrical Connection of the Compressor Unit

1. Feed the compressor electrical cable through the pre drilled hole in the base of the compressor box (compressor compartment) under the base and through the hole in the base of the control panel compartment.
2. Terminate in the control panel.

Electrical Connections at the Control Panel

1. The control/alarm panel is located in a separate compartment in the compressor box.
2. The panel is supplied with a wiring diagram (located inside the control panel enclosure). The standard control panel includes the facility for the optional high level alarm (see Figure 4, *Electrical Control Panel Wiring Diagram*).
3. The power supply is delivered via the mains supply duct which enters the external compressor box from underneath the base as indicated in Figure 1, *Location of Unit*.
4. The electrical supply to the control panel should be by means of a dedicated circuit with isolation and protection devices consistent with the requirements for fixed equipment and in accordance with state or local electric code.
5. Connect power supply cable into control panel as required.

Figure 4 Typical Electrical Control Panel Wiring Diagram



Post-Installation Checklist

1. The compressor is packaged in "bubble wrap" for protection during transportation. Please remove prior to operation as failure to do so will hinder the operation of the unit.
Note: The unit comes standard with an internal compressor housing. The drawing on page 2 shows optional external compressor.
2. The unit is full with water to the current level and is not overfilled.
3. The compressor is wired and operational.
4. The air delivery line from the compressor to the unit is connected and air bubbles can be seen rising through the water in the central chamber (biological zone).
5. The inlet (low-level) and high level vents are installed and are supplied with a protection device at top level to prevent entry of debris (crow's nest or equivalent).
6. Ensure all vents and the external compressor box are situated in areas clear of obstacles which would impede the free flow of air.
7. Ensure the lid for the external compressor box has been placed onto the base unit and is locked in place using the two locks on either end of the lid.
8. Ensure the lid has been placed in a manner which will allow the status light for the plant to be clearly seen from the building.

————— Warning —————

The customer must contact Anua, or an Anua-authorized representative, to schedule the commissioning visit when the installation has been completed in accordance with these installation guidelines and before wastewater enters the unit. Failure to do this may result in damage to the unit and invalidate the manufacturers' warranty.

If in doubt, ask!

Customer Service

T: 336-547-9338

F: 336-547-8559

info@anua-us.com

2.0 Unit Description

Introduction

The *Platinum* is a packaged sewage treatment unit developed to serve a population equivalent or design flow as specified. This treatment plant is comprised of: a primary settlement stage, a biological filtration zone and a secondary clarification zone.

The unit will provide long and trouble-free operation provided the simple maintenance procedures are adhered to.

Please see operation and maintenance manual for proper safety procedures. It is imperative that you read these instructions carefully before attempting to carry out any work on the system.

The unit has been designed to treat a specific volume and strength of sewage. To ensure that the plant continues to operate efficiently, your attention is drawn to the following points:

- DO NOT EXCEED THE MAXIMUM DESIGN LOADING OF THE UNIT
- DO NOT ALLOW SURFACE WATER TO ENTER THE SYSTEM
- DO NOT ALLOW HIGH VOLUME DISCHARGES SUCH AS FROM SWIMMING POOLS OR JACUZZIS TO ENTER THE SYSTEM
- DO NOT ALLOW LARGE QUANTITIES OF CHEMICALS SUCH AS WATER SOFTENER REGENERANT, DISINFECTANTS, STRONG ACIDS OR ALKALIS, OIL OR GREASE, PESTICIDES OR PHOTOGRAPHIC CHEMICALS TO ENTER THE SYSTEM
- DO NOT USE CHEMICAL OR BIOLOGICAL EMULSIFIERS IN GREASE TRAPS

If you have any doubts about a particular substance, please contact customer service at Anua for further advice.

Scope of Supply

Platinum Units

This comprises of a single tank containing the following components required for the sewage treatment process, the:

- Tank
- Submerged Aerated Filter
- Air Diffuser Arrangement
- Linear Compressor
- Compressor Housing/Control Panel Housing
- Control Panel

The *Platinum* tank is manufactured in fiberglass reinforced plastic (FRP) and is supplied in a standard light aircraft gray color. It is completely impervious to water and sewage and has been designed to ensure a robust construction and a long service life. The tank is provided with an access cover over the treatment zone.

The access cover is opened by rotating the triangular public utility keys.

The submerged aerated filter is comprised of plastic pieces of media installed randomly into the tank. The media is made from UV stable uPVC and provides a large surface area on which the bacteria required for the purification process can grow. The media is enclosed under an uPVC open mesh panel fixed above the top water level (TWL) of the aeration stage.

The clarifier settles out dead biological organisms (biomass) that have carried forward from the filter zone.

3.0 Specification, Data and Technical Drawings

Platinum: Material Specification

The *Platinum* tanks are manufactured from fiberglass reinforced plastic (FRP) materials and are fabricated from individually molded components, which are joined by hand laminating. The *Platinum* is manufactured under a strict ISO 9002 Quality system and is Irish Agrément Certified.

Sizes: See general arrangement drawings in Appendices

During installation due consideration of the following must be made:

Electric Supply: 115V single phase

1. Noise nuisance
2. Accessibility
3. Surface water
4. Electrical services
5. Public access

Compressor: See specification in Appendices

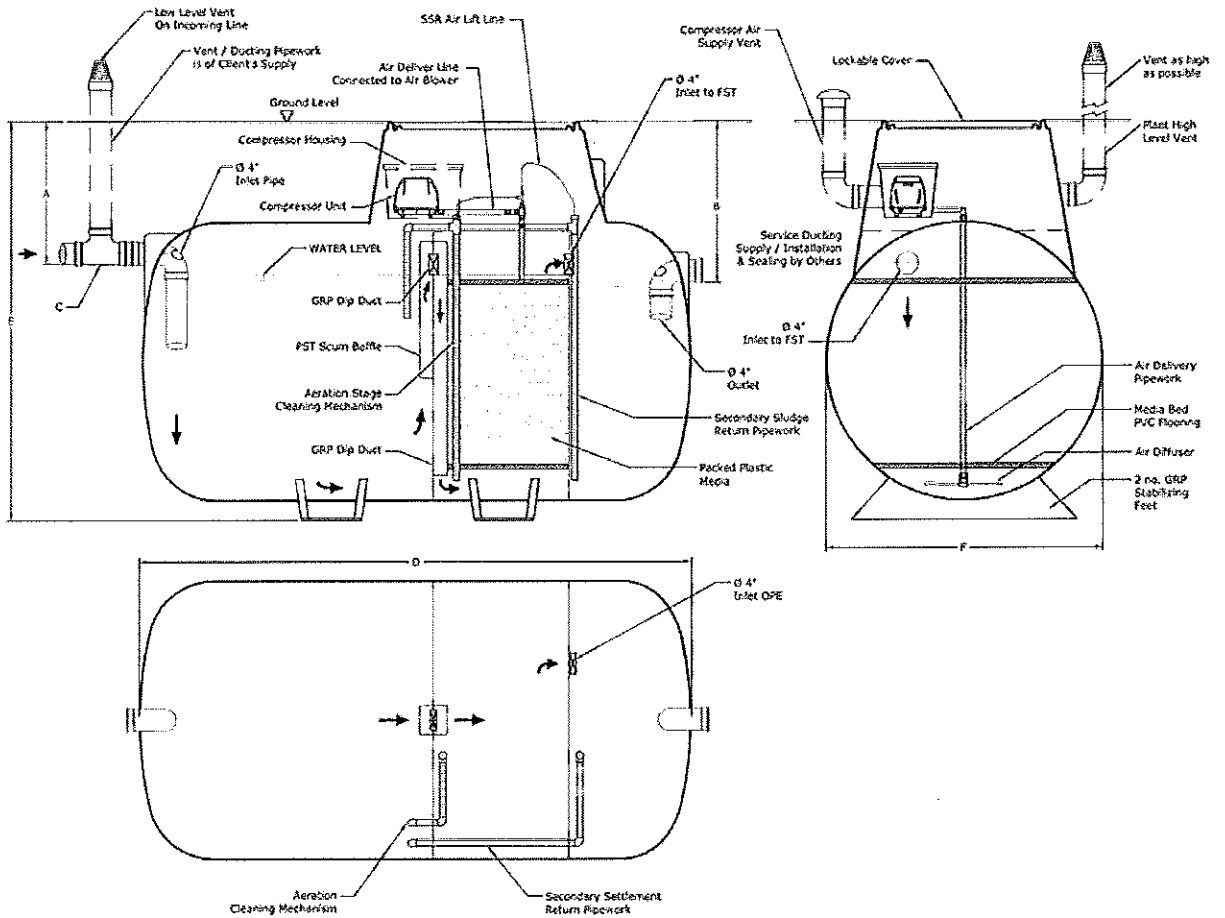
Electrical installation of this equipment must be performed by a licensed electrician or an installer licensed to perform electrical work. All electrical work must meet all applicable state or local electrical codes.

Platinum Bouyancy Calculations

Model	Volume of Tank (cubic feet)	Volume of Access (cubic feet)	Total Volume (cubic feet)	Bouyant Force (pounds)	Safety Factor	Weight of Platinum (pounds)	Weight of Concrete req'd (pounds)	Volume of Concrete req'd (cubic ft) (cubic yds)	
6	126	23	150	9342	1.2	~385	10,825	72	2.7
8	193	60	253	15800	1.2	~715	18,245	122	4.5
10	238	60	298	18606	1.2	~840	21,487	143	5.3
12	238	60	298	18606	1.2	~840	21,487	143	5.3

Maximum tank burial depth is five feet from finished grade to inlet invert.

Platinum with Gravity Discharge



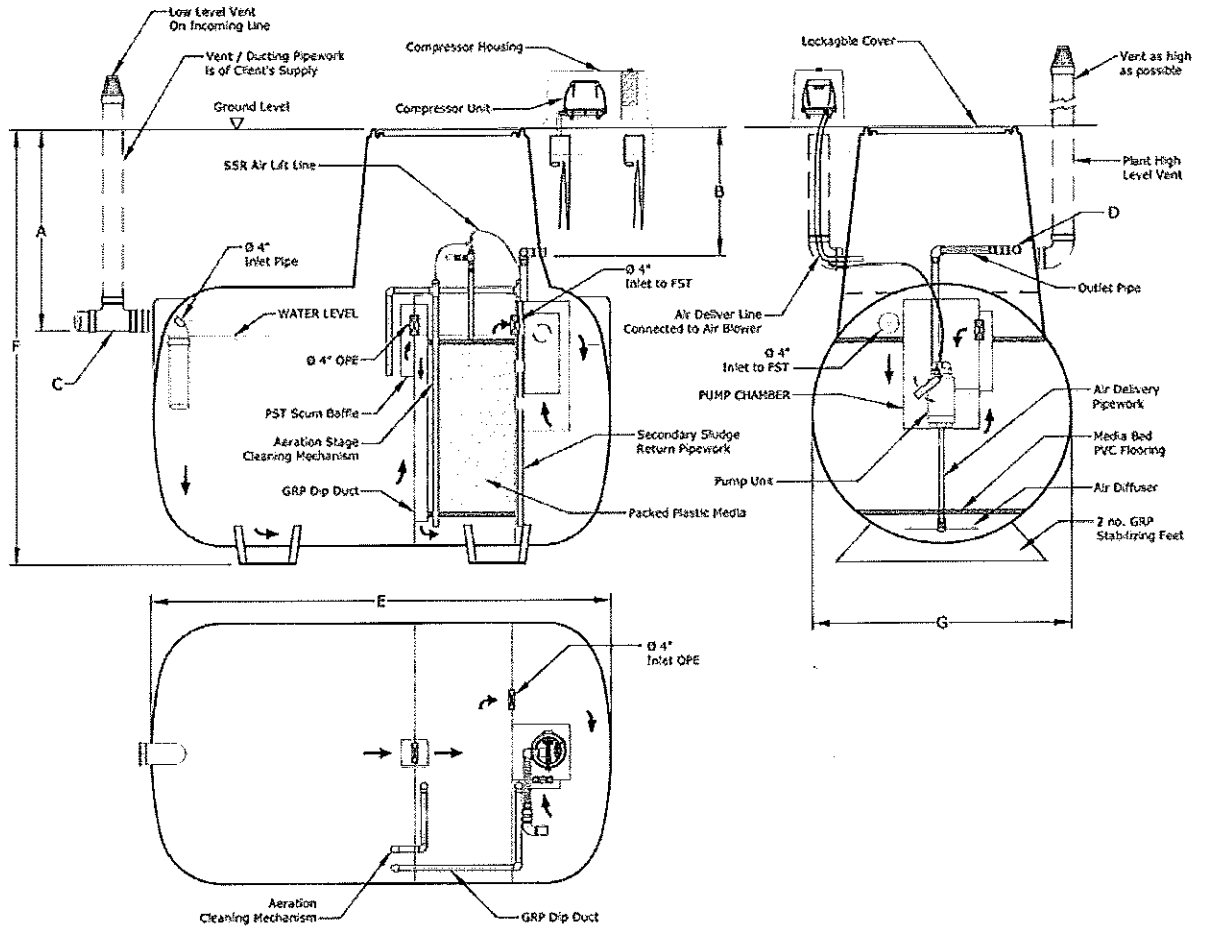
Typical Specification

Description	Label	6	8	10	12
Inlet invert depth from cover	A	29.5	29.5	29.5	29.5
Outlet invert depth from cover	B	33.5	33.5	33.5	33.5
Inlet / outlet diameter	C	4	4	4	4
Overall length	D	86.5	110.25	118	118
Overall depth	E	82.5	82.5	82.5	82.5
Overall width	F	59	59	59	59

NOTES:

- 1) All dimensions inches unless stated otherwise
- 2) Pipework orientation as per drawing
- 3) All 4-inch pipework uPVC
- 4) Venting arrangement requires a low level vent prior to the unit inlet
- 5) A high level vent is required to maximum possible height off either duct 1 or 2
- 6) Duct pipework and fittings are not included in the supply of this unit
- 7) Compressor unit (blower) connected to the air delivery pipework as indicated
- 8) System is tested and confirmed to EN12566 Part 3

Platinum with Pumped Discharge



Typical Specification

Description	Label	6	8	10	12
Inlet invert depth from cover	A	29.5	29.5	29.5	29.5
Outlet invert depth from cover	B	14	14	14	14
Inlet diameter	C	4	4	4	4
Outlet diameter	D	1.25	1.25	1.25	1.25
Overall length	E	86.5	110.25	118	118
Overall depth	F	82.5	82.5	82.5	82.5
Overall width	G	59	59	59	59

NOTES:

- 1) All dimensions inches unless stated otherwise
- 2) Pipework orientation as per drawing
- 3) All 4-inch pipework uPVC
- 4) Venting arrangement requires a low level vent prior to the unit inlet
- 5) A high level vent is required to maximum possible height off either duct 1 or 2
- 6) Duct pipework and fittings are not included in the supply of this unit
- 7) Air delivery line 3/4" from blower will be fed through the air vent duct and be connected to the air delivery pipework as indicated
- 8) Pump pipework terminates outside of plant
- 9) Client is required to connect 1-1/4" pump force main to pipework

Parts List

Gravity Models	Residential				Commercial			
Platinum model	6	8	10	12	6	8	10	12
HiBlow model	60	80	100	120	80	100	120	150
Controls	Alarm panel w/ air sensor				Alarm panel w/ air sensor or custom			
Vent screen, no.	3				3			
Cable connector, no.	2				2			
Barbed tee, no.	1				1			

Pumped Models	Residential				Commercial			
Platinum model	6	8	10	12	6	8	10	12
HiBlow model	60	80	100	120	80	100	120	150
Controls	Control panel w/ air sensor alarm and pump high water alarm				Control panel w/ air sensor alarm and pump high water alarm or custom			
Floats	(1) HWA and (1) on/off				(1) HWA and (1) on/off			
Pump	Sta-rite STEP 20 or Little Giant				Sta-rite STEP 20 or Little Giant			
Vent screen, no.	3				3			
Cable connector, no.	2				2			
Barbed tee, no.	1				1			

Miscellaneous	Description
Platinum riser	30" tall riser section and (3) adhesive, 10.2 oz. cartridge

4.0 Warranty for Platinum

Warranty:

- Anua guarantees the *Platinum* system for a period of three years, unless otherwise specified by the regulatory authority, from the date of delivery. This guarantee is subject to the *Platinum* system being operated in accordance with the recommendations for operation and maintenance of the *Platinum* system, as laid out in the *Platinum* Operation and Maintenance Manual, supplied to each customer upon delivery of the *Platinum*.
- In addition, Anua will, at its own expense, repair and replace any defective parts of the *Platinum* system, which manifests itself within three years, unless otherwise specified by the regulatory authority, from the date of delivery.

Terms and conditions:

- This guarantee does not apply to any defects whether patent or latent, and whether workmanship or materials or design of works carried out by any independent contract, or any failure due to accidental or malicious damage, failure to comply with recommendations for operations and maintenance. Unit abuse, fair wear and tear, frost, storm damage, infiltration of storm or surface water or any other such climatic conditions or acts of God generally.
- In particular note that this guarantee will not operate unless the customer can produce written evidence of the system having been desludged as required.
- Notwithstanding this guarantee if the cost of remedial work is increased due to delay on part of the customer informing of the problem, we reserve the right to invoice the customer for such increased cost.
- This guarantee is strictly limited to the replacement of product supplied by Anua. It specifically excludes all other alleged headings of loss, including consequential loss.

Jacobsen, James

From: Colin Bishop [colin.bishop@anua-us.com]
Sent: Wednesday, August 15, 2012 7:32 PM
To: Jacobsen, James
Subject: Maine Platinum SAF approval, email 1
Attachments: Anua_Platinum_ME_Ltr_081512.pdf; Anua_Platinum_Resi_Overview_080411.pdf;
Anua_Platinum_Resi_TechSpec_041712.pdf; Anua_Platinum_Comm_Overview_080411.pdf;
Anua_Platinum_Comm_TechSpec_041712.pdf; Anua_Platinum_Install_Manual_041712.pdf;
Anua_Platinum_OM_Manual_080411.pdf

Jim,

Please see attached letter and documents. Attachments will be sent in multiple emails. Thank you!

Colin Bishop, REHS, RS
Director of Sales and Government Relations

Anua
P.O. Box 77457
Greensboro, NC 27417

M: 409.466.4644
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F: 336.547.8559
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www.anua-us.com

Bord na Mona p.l.c.

Registered Office: Main Street, Newbridge, Co.Kildare
Registered No: 297717

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8/17/2012



Platinum

Submerged Aerated Filter

Operation and Maintenance Manual

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2.0	Health and Safety	1
3.0	Unit Start-up/Shut-down Procedure	2
4.0	Maintenance	3
5.0	Do's and Don'ts	4
6.0	Troubleshooting	5
7.0	Warranty	6

NOTE:

If you require any further information regarding the operation of the equipment, please contact customer service at:



P.O. Box 77457,
Greensboro, NC 27417
T: 336.547.9338
F: 336.547.8559
info@anua-us.com

1.0 Operating Sequence

The Platinum Process

The Platinum is a new generation of packaged sewage treatment plant developed to treat domestic and other biodegradable sewage waste in a simple and compact system comprising of three treatment zones within the design.

Raw sewage flowing to the Platinum is received in the primary settlement zone. Here, gross solids (sludges and other social debris) settle to the bottom of the tank where they remain until the tank requires desludging. The remaining effluent (supernatant liquor) is displaced from the primary settlement tank and then flows into the media zones which are split into two compartments.

Flow circulation in the aeration zone is generated by the effect of the air diffuser arrangement. This causes settled sewage entering the filter zone to be drawn with the media. As it does so, it is purified by the micro-organisms growing on the surface of the media. Growth of these micro-organisms results in an excess which is shed as solid particles known as humus solids. These are eventually washed down through the media to the final settlement zone (clarifier).

When sewage enters the Platinum it displaces an equal volume of treated liquor into the clarifier; here the humus solids settle out and form a sludge on the bottom of the tank. This must be removed periodically as detailed in the Maintenance Schedule, Section 4 of this manual.

The liquid displaced from the clarifier has been fully treated as described, and is known as final effluent. It is suitable for discharge to an approved dispersal field or to the surface after disinfection.

2.0 Health and Safety

Sewage gases are potentially explosive and toxic. **DO NOT** enter any of the below ground compartments of the Platinum.

Before carrying out any maintenance work, the equipment **MUST** be electrically isolated at the fuse box from which the compressor power supply is derived.

Do not leave covers open for any longer than necessary. Temporary barriers and warning signs should be erected around any open covers or access as appropriate.

The service provider is responsible for the health and safety of individuals working on the unit. The end user is responsible for ensuring that proper provision is made under the Health and Safety Act, and due account is taken in respect of unauthorized access and vandalism. It is the end user's responsibility to provide safe access for purposes of operation and maintenance.

Operation and maintenance must be performed by licensed and authorized personnel.

Normal safety precautions must be taken and appropriate procedures observed to avoid accidents.

3.0 Unit Start-up/Shut-down Procedure

Unit Start-up

All electrical work should be carried out by a competent qualified electrician.

If any equipment appears not to be operating correctly, refer to Troubleshooting, Section 6 of this manual.

1. Fill the unit with clean water until there is a discharge from the outlet.
2. Check the operation of the electrical circuits.
3. Check the operation of the compressor.
4. Check that water flows freely into and out of the plant.
5. Check the operation of the pump (where applicable)
6. Check the operation and position of the alarm float (where applicable).

Unit Shut-down

The Platinum is now in an operational state. However, the treatment process relies on the growth of micro-organisms on the filter media. The time taken for these naturally occurring organisms to develop is dependent on temperature and may take up to eight weeks in winter. Until the biomass is fully developed, the treatment process will be incomplete. During this time do not allow any strong cleaning agents or bleaches to enter the system.

Temporary absence of flow to the plant will not be detrimental, however, if the flow of sewage to the unit will be interrupted for more than two months, the following procedure should be completed.

1. Desludge all the compartments in accordance with the instruction in the Maintenance, Section 4, of this manual.
2. Refill the plant with clean water.
3. Fit the tank covers.
4. Stop the compressor.

4.0 Maintenance

End-User Responsibility

The end-user of the sewage treatment unit is entirely responsible for the operation of the unit and for ensuring that the quality of the effluent does not violate the effluent standards.

You are reminded that the existence of a service agreement does not transfer responsibility for general maintenance which must be conducted in accordance with the accompanying instructions. Effluent dispersal and building plumbing and the desludging/emptying of primary tanks remain the responsibility of the

end user. If the unit appears not to be operating correctly, refer to the Troubleshooting, Section 6 of this manual.

Should the following maintenance not be carried out, gross septic conditions and foul odors may occur within the unit. This would require considerable remedial work involving desludging and digging out of the media. Anua will not accept responsibility for these costs other than those expressed within our warranty (see Section 7).

Maintenance Schedule

Monthly

- Check the operation of the compressor (bubbles rising in the media beds)
- Remove and clean or replace (as required) compressor air inlet filter.
- Check the biomass growth on the filter media. The biomass should be a light brown color, not white or gray. The odor in the plant should be "earthy." There should not be a noticeable "rotten egg" smell.
- Check the final effluent. If this is cloudy or contains many suspended particles, then the clarifier is likely to require desludging.
- Desludge the primary and clarifier tanks as required. This is most conveniently achieved using a conventional licensed sewage/septic haulers. Please consult the Anua website (www.anua-us.com) for a service provider near you.
- Remove the cover from the tank compartments. Carefully lower the suction hose into the compartment. After desludging each compartment, it is essential that the unit is filled up with water. This can be done by using a hose or by running several taps in the building.
- Repeat the Plant Start-Up Procedures, Section 3 of this manual

5.0 Do's and Don'ts

Do:

- Think before you put anything down the sink, toilet or drains.
- Read the label and use the manufacturers' recommended doses for all household cleaning products.
- Use cleaning products little and often so the unit isn't overloaded.
- Spread your clothes washing throughout the week.
- Stick to the same washing, dishwasher powders and other cleaning products – the bacteria in the plant will work more efficiently with products they are used to.

Don't:

- Spring clean and use large amounts of cleaners and chemicals in one day.
- Have a "washing day" – spread your washing throughout the week.
- Use household bleach and other strong chemicals indiscriminately.
- Keep changing your brands of household cleaners and washing powders.
- Empty bottles of medicine, mouthwash, etc. down the toilet.
- Put sanitary towels, tampon, disposable diapers, condoms, cigarette butts, flushable wipes, baby wipes, incontinence pads, etc. down the toilet.
- Over flush the toilet unnecessarily – use a water-saving flush if it's fitted.
- Pour fat or grease from cooking down the sink or drains.
- Change the oil in your car and pour it down the sink or drains.
- Use your waste disposal unit like a trash bin – use it sparingly.
- Pour garden chemicals or car engine oil down the drains.

6.0 Troubleshooting

To verify motor overload setting, refer to the Installation Manual.

Electrical installation of this equipment must be performed by a licensed electrician or an installer licensed to perform electrical work.

All electrical work must meet all applicable state or local electrical codes.

1. Compressor Not Running

Cause	Remedy
1.1 Power cut	Do nothing. When the power is restored the system will restart automatically.
1.2 Power supply Circuit-breaker has tripped	Switch off the power and replace the fuse. Compressor should start automatically. If it doesn't, switch off the power and contact a service provider.

2. Air Bubbles are Not Rising From the Filter Bed

Cause	Remedy
2.1 Compressor is not running	Refer to fault condition 1. Check no blockages exist in the air lines. If you fail to re-start contact a service provider.

7.0 Warranty for Platinum

Warranty:

- Anua guarantees the Platinum system for a period of three years, unless otherwise specified by the regulatory authority, from the date of delivery. This guarantee is subject to the Platinum system being operated in accordance with the recommendations for operation and maintenance of the Platinum system, as laid out in the Platinum Operation and Maintenance Manual, supplied to each customer upon delivery of the Platinum.
- In addition, Anua will, at its own expense, repair and replace any defective parts of the Platinum system, which manifests itself within three years, unless otherwise specified by the regulatory authority, from the date of delivery.

Terms and conditions:

- This guarantee does not apply to any defects whether patent or latent, and whether workmanship or materials or design of works carried out by any independent contract, or any failure due to accidental or malicious damage, failure to comply with recommendations for operations and maintenance. Unit abuse, fair wear and tear, frost, storm damage, infiltration of storm or surface water or any other such climatic conditions or acts of God generally.
- In particular note that this guarantee will not operate unless the customer can produce written evidence of the system having been desludged as required.
- Notwithstanding this guarantee if the cost of remedial work is increased due to delay on part of the customer informing of the problem, we reserve the right to invoice the customer for such increased cost.
- This guarantee is strictly limited to the replacement of product supplied by Anua. It specifically excludes all other alleged headings of loss, including consequential loss.

Notes:

- 1) ALL DIMENSIONS INCHES UNLESS STATED OTHERWISE
- 2) PIPEWORK ORIENTATION AS PER DRAWING
- 3) ALL 4 INCH PIPEWORK UPVC
- 4) VENTING ARRANGEMENT REQUIRES A LOW LEVEL VENT PRIOR TO THE UNIT INLET
- 5) A HIGH LEVEL VENT IS REQUIRED TO MAXIMUM POSSIBLE HEIGHT OFF EITHER DUCT 1 OR 2
- 6) DUCT PIPEWORK & FITTINGS ARE NOT INCLUDED IN THE SUPPLY OF THIS UNIT
- 7) COMPRESSOR UNIT (BLOWER) CONNECTED TO THE AIR DELIVERY PIPEWORK AS INDICATED
- 8) SYSTEM IS TESTED AND CONFIRMED TO EN 12566 PART 3

Legend:

REV	DESCRIPTION	DATE
A	FIRST ISSUE	12/9/12

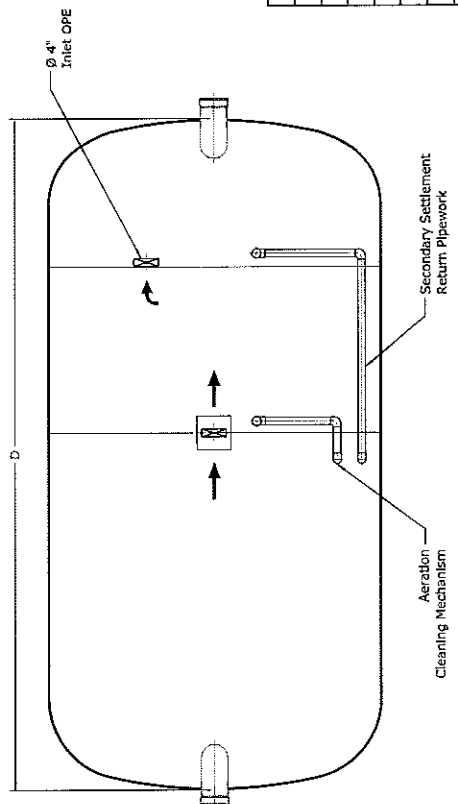
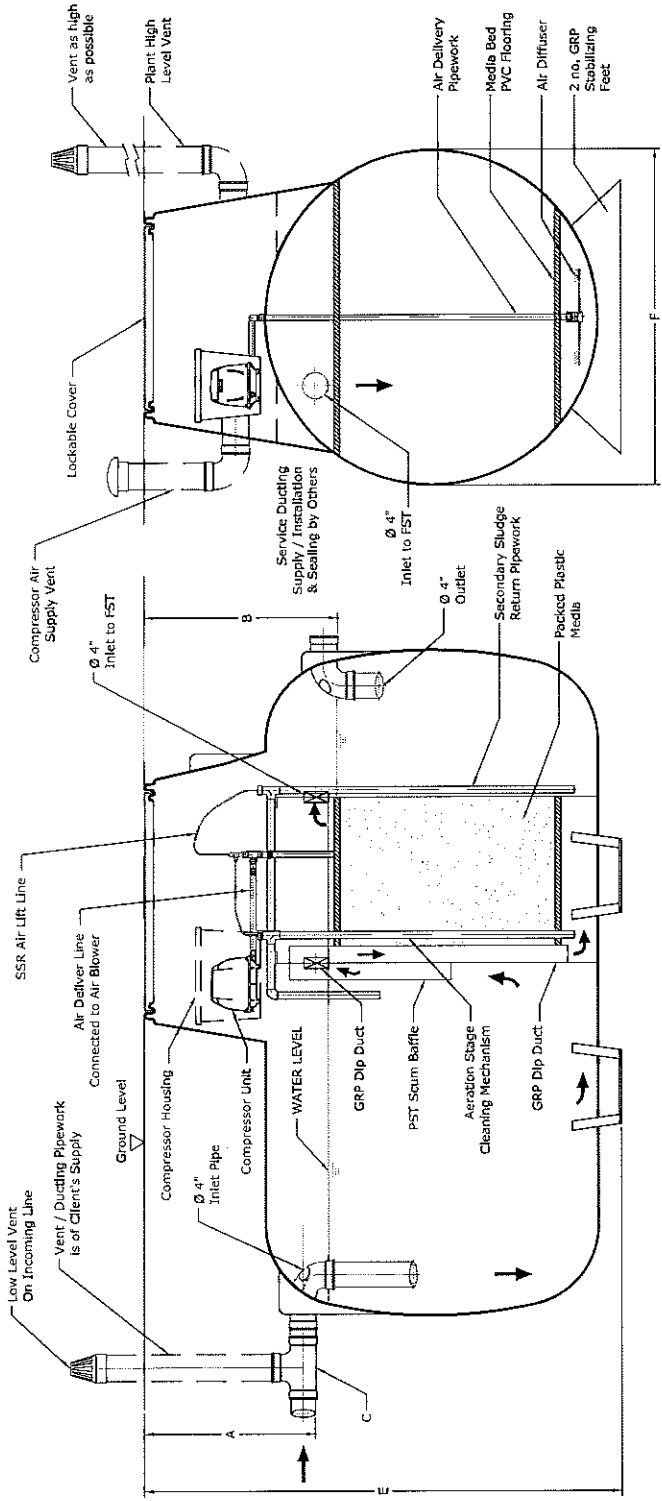


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Product: PLATINUM

Drawn by:	Checked by:	Approved by:
JAW	JAW	PJ
Scale:	Sheet No.:	Drawn by:
1/2" = 1'	1	JAW
Planning:	For Approval:	Drawn by:
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Project:	Sheet No.:	Drawn by:
PLATINUM001	PLATINUM001	PLATINUM001



TYPICAL SPECIFICATION

DESCRIPTION	LABEL	APG6	APG8	APG10	APG12
INLET INVERT DEPTH FROM COVER	A	29.5	29.5	29.5	29.5
OUTLET INVERT DEPTH FROM COVER	B	33.5	33.5	33.5	33.5
INLET/OUTLET DIAMETER	C	4	4	4	4
OVERALL LENGTH	D	96.5	110.25	118	118
OVERALL DEPTH	E	82.5	82.5	82.5	82.5
OVERALL WIDTH	F	59	59	59	59

Notes:

- 1) ALL DIMENSIONS IN INCHES UNLESS STATED OTHERWISE
- 2) PIPEWORK ORIENTATION AS PER DRAWING
- 3) ALL 4 INCH PIPEWORK UPVC
- 4) VENTING ARRANGEMENT REQUIRES A LOW LEVEL VENT PRIOR TO THE UNIT INLET
- 5) A HIGH LEVEL VENT IS REQUIRED TO MAXIMUM POSSIBLE HEIGHT OF EITHER DUCT 1 OR 2
- 6) DUCT PIPEWORK & FITTINGS ARE NOT INCLUDED IN THE SUPPLY OF THIS UNIT
- 7) AIR DELIVERY LINE 3/4" FROM BLOWER WILL BE FED THROUGH THE AIR VENT DUCT AND BE CONNECTED TO THE AIR DELIVERY PIPEWORK AS INDICATED
- 8) PUMP PIPEWORK TERMINATES OUTSIDE OF PLANT
- 9) CLIENT IS REQUIRED TO CONNECT 1-1/4" PUMP FORCE MAIN TO PIPEWORK

Legend:

REV	DESCRIPTION	DATE
A	FIRST ISSUE	3/7/12

ANUA
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 www.anua-us.com

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Product: **PLATINUM**

Client: _____

Drawing Title: **PLATINUM TECHNICAL DRAWING PUMPED MODULE**

Scale (AS): _____

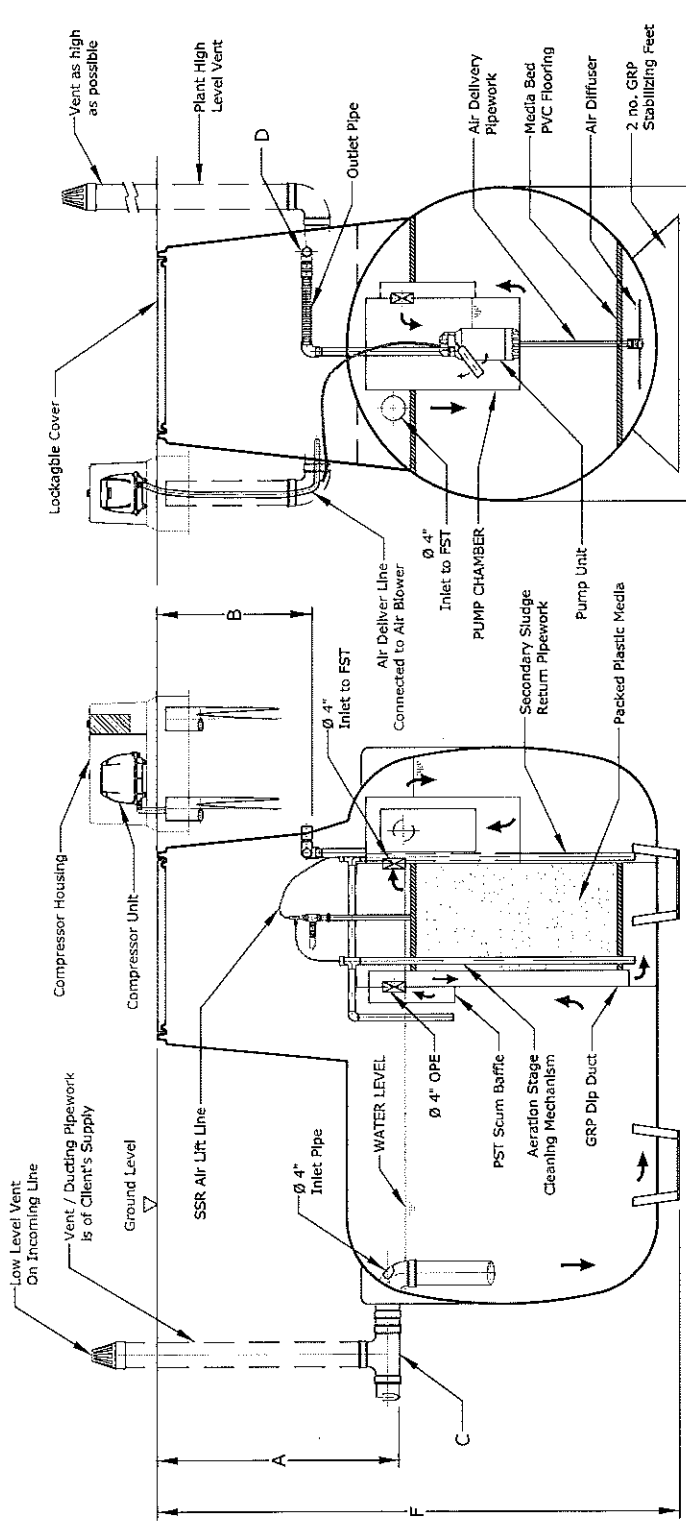
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Checked by: _____

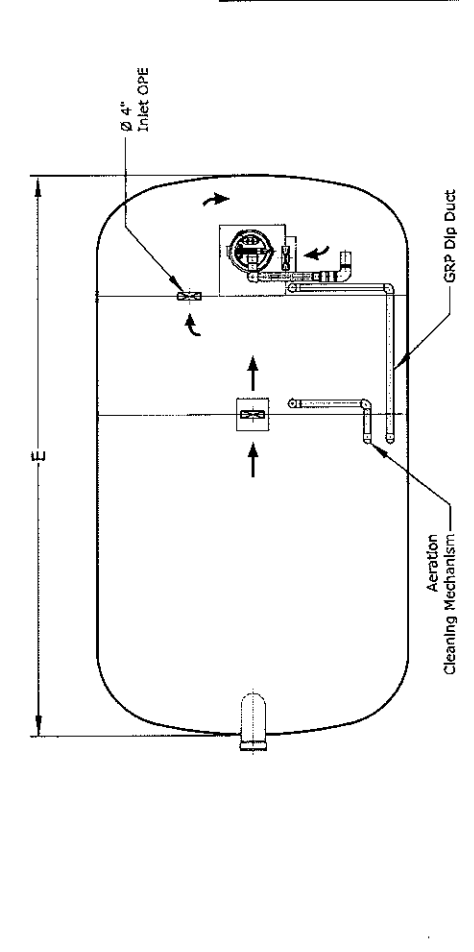
Approved by: _____

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Sheet No.: **PLATINUM002**



TYPICAL SPECIFICATION		APP6	APPB	APP10	APP12
DESCRIPTION	LABEL	A	B	C	D
INLET INVERT DEPTH FROM COVER	A	29.5	29.5	29.5	29.5
OUTLET INVERT DEPTH FROM COVER	B	14	14	14	14
INLET DIAMETER	C	4	4	4	4
OUTLET DIAMETER	D	1.25	1.25	1.25	1.25
OVERALL LENGTH	E	86.5	110.25	118	118
OVERALL DEPTH	F	82.5	82.5	82.5	82.5
OVERALL WIDTH	G	59	59	59	59





Platinum

Submerged Aerated Filter

**Testing Results and Comparison of
CEN Standard EN 12566-3
versus
NSF Standard 40**

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3.0	Daily Hydraulic Flow Pattern	2
4.0	Platinum Performance Results	3
5.0	Platinum Sizing	4
6.0	Platinum Warranty	5

NOTE:

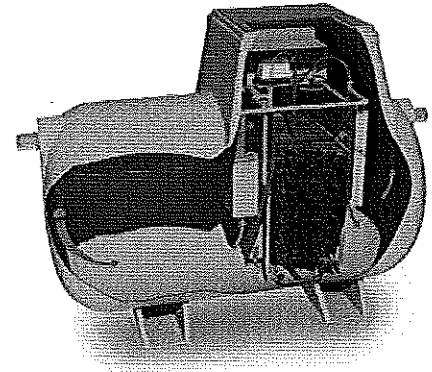
If you require any further information regarding the operation of the equipment, please contact customer service at:



P.O. Box 77457,
Greensboro, NC 27417
T: 336.547.9338
F: 336.547.8559
info@anua-us.com

1.0 Purpose

To demonstrate compliance with secondary standards through successful completion of the European Committee for Standardization (CEN) Standard EN 12566-3 protocol in lieu of National Sanitation Foundation (NSF) NSF/ANSI Standard 40 certification.



2.0 Introduction

Many U.S. states and Canadian provinces reference Standard 40 as the method for demonstrating compliance to secondary treatment standards. In order to successfully pass Standard 40, a system must meet 30-day average effluent concentrations of 25:30 CBOD₅/TSS at the hydraulic loading capacity. EN 12566-3 reports hydraulic and organic loading parameters, treatment efficiency as percent removal, and electrical consumption. EN 12566-3 testing parameters include COD, BOD₅, TSS and Nitrogen. For effluent concentrations, EN 12566-3 reports BOD whereas Standard 40 reports CBOD.

The purpose of third party testing is to benchmark system performance and provide reasonable assurance that a listed model will comply with effluent performance standards. Since many states utilize Standard 40, a comparison to EN 12566-3 is made to demonstrate compliance with secondary treatment standards and provide assurance that the testing protocol meets or exceeds equivalency to Standard 40.

Standards Comparison Table

Parameter	CEN Standard EN 12566-3	NSF Standard 40
Testing Period	38 weeks	26 weeks
BOD ₅ influent range	150 to 500 mg/l	100 to 300 mg/l
TSS influent range	200 to 700 mg/l	100 to 350 mg/l
TKN influent range, or NH ₄ -N influent range	25 to 100 mg/l, or 22 to 80 mg/l	No criteria
TP influent range	5 to 20 mg/l	No criteria
Grinder effluent allowed?	No	Yes
Weekly surge during normal flow period (min >53gals during 3 mins)	Yes	No
Sampling during stress periods?	Yes	No
Tank/vessel structural integrity testing?	Yes	No

3.0 Daily Hydraulic Flow Pattern

The daily hydraulic flow pattern is comparable between the two standards, with the exception of the EN 12566-3 weekly peak flow discharge.

The normal or nominal flow pattern for each standard is depicted below:

Standard 40 Daily Flow Pattern

Time Frame	% rated daily hydraulic capacity
6:00am to 9:00am	approximately 35
12:00am to 2:00pm	approximately 25
5:00pm to 8:00pm	approximately 40

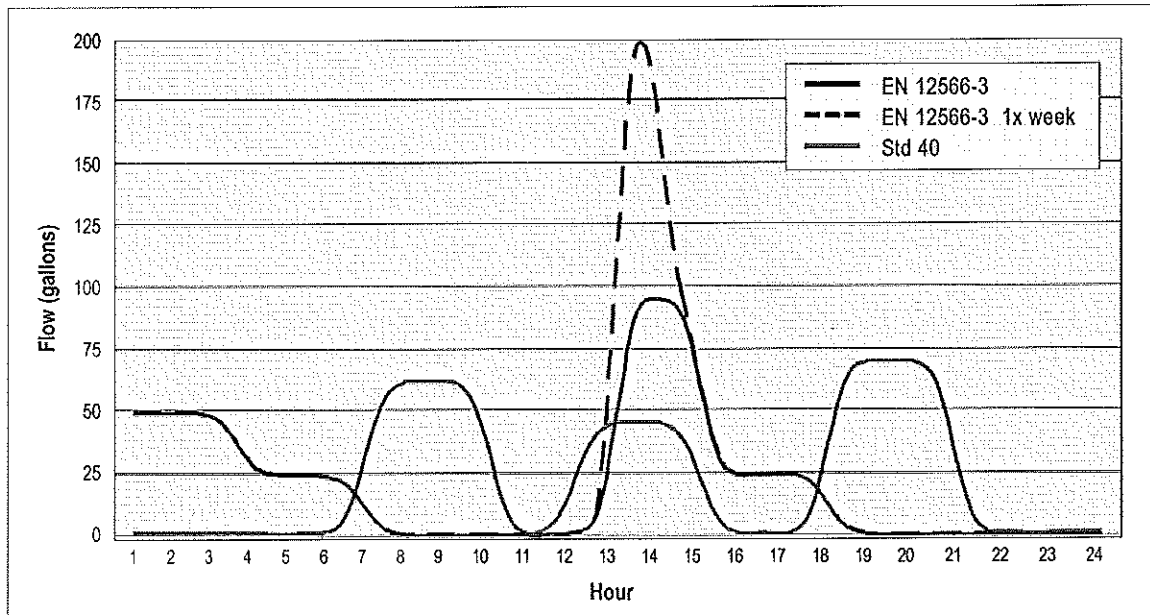
Note: The individual dosage shall be no more than 10 gallons per dose, unless the dosage system is based on a continuous flow, and be uniformly applied over the dosing periods.

EN 12566-3 Daily Flow Pattern

Period (h)	% of daily volume
3	30
3	15
6	0
2	40
3	15
7	0

For illustration purposes of the daily hydraulic flow pattern, a 480 gallon per day system is shown in the graph below*:

Daily Hydraulic Flow Pattern — Normal or Nominal Flow Period 480gpd



*During nominal flow periods, a weekly peak discharge, in addition to the daily flow, would be dosed at the beginning of the daily 40% flow period.

4.0 Platinum Performance Results

When comparing performance results, it should be noted that systems tested under EN 12566-3 are subject to frequent, severe hydraulic loading conditions. Furthermore, influent constituents are significantly higher than typical influent constituents at U.S. testing centers that administer Standard 40. Therefore, EN 12566-3 could be considered a more "real world" or "push it to the limits" test.

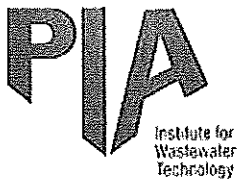
The Platinum 6 demonstrated compliance with secondary standards through testing to EN 12566-3 that was completed in November 2010.

Sample Averages — All Testing Phases

Parameter	Results
BOD ₅ average influent:	334 mg/l
BOD ₅ average effluent:	22 mg/l or 93% reduction
TSS average influent:	420 mg/l
TSS average effluent:	30 mg/l or 93% reduction
Total Nitrogen avg. influent:	57 mg/l
Total Nitrogen avg. effluent:	21 mg/l or 63% reduction

Completion Certificate

Note the percent reductions are calculated based on nominal or normal flow periods.



PERFORMANCE RESULTS

Bord na Móna Environmental Ltd.
Mainsireef, Newbridge, County Kildare, Ireland

EN 12566-3, Annex B
"Small wastewater treatment systems for up to 50 PT"

Small wastewater treatment system Platinum P6
moving-bed biological aeration process

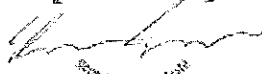
Nominal organic daily load	0.39	kg/d
Nominal hydraulic daily load	1.20	m ³ /d
Material	Glass-reinforced plastic	
Treatment efficiency (nominal sequences)	COD	88.0 %
	BOD ₅	92.0 %
	SS	91.3 %
	NH ₄ -N	73.3 %
Electrical consumption	1.1	kWh/d

Reference tested to:
PIA - Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenthaler Weg 30
D-52074 Aachen

Certified according to
ISO 9001:2000

Notified Body number: 1739

The signatory includes under the declaration of responsibility for the testing


PIA - Prüfinstitut für Abwassertechnik GmbH
SEITE 1/1
Final L2005 November 2010

The **influent** averages for Platinum (BOD₅:TSS, 334:420 mg/l) during the EN 12566-3 testing exceed the maximum influent averages allowed for NSF Standard 40 testing. Because of this, percent reductions can be applied to estimate effluent values. Two values for percent reduction are calculated. The PIA testing certificate reports percent reductions during the normal or nominal flow testing periods. The "Sample Averages — All Testing Phases" table on page 3 lists the percent reductions based on the total testing period, including the stress periods. This is useful since you get a comparison of performance of normal or nominal testing versus stress testing.

Probable maximum effluent quality values per application of % reduction to NSF Standard 40 influent values

Parameter	BOD ₅	TSS
NSF Standard 40 maximum influent value	300 mg/l	350 mg/l
Platinum probable maximum effluent value per normal or nominal testing % reduction (per PIA EN 12566-3 certificate)	$300 \times (100\% - 92\%) = 24 \text{ mg/l}$	$350 \times (100\% - 91.3\%) = 30 \text{ mg/l}$
Platinum probable maximum effluent value per all testing % reduction (includes stress periods)	$300 \times (100\% - 93\%) = 21 \text{ mg/l}$	$350 \times (100\% - 93\%) = 25 \text{ mg/l}$

5.0 Platinum Sizing

During EN 12566-3 testing, a system is subject to various peak flow conditions. This would be similar to a home loading a system at design flow. The peak flow testing conditions are outlined below:

- Overloading** - Two week period where system is subject to initial 48 hour extra flow at 150% of total flow. Sampling does occur during this testing phase.
- Peak flow discharge** - During nominal flow periods, a weekly peak discharge, in addition to the daily flow, would be dosed at the beginning of the daily 40% flow period. The once weekly peak flow dosed to the Platinum, within 3 minutes, was 106 gallons.

Platinum design sizing is based on the peak flow experienced during testing. The Platinum system is sized based on the following parameters:

- Design Flow** - both in gallons per day and gallons per hour
- Design Organic Loading** - in BOD pounds per day
- Population Equivalent** - occupancy or number of people

Sizing Chart

Model	Population Equiv.	Average Organic Load		Design Organic Load		Average Flow		Design Flow		Air Required			
		kg/d	lbs/d	kg/d	lbs/d	m ³ /d	gpd	m ³ /hr	gph	m ³ /d	gpd	l/min	cfm
6	6	0.39	0.86	0.59	1.29	1.2	320	0.15	40	1.8	480	60	2.1
8	8	0.52	1.15	0.78	1.72	1.6	425	0.20	53	2.4	640	80	2.8
10	10	0.65	1.43	0.98	2.15	2.0	530	0.25	66	3.0	800	100	3.5
12	12	0.78	1.72	1.17	2.58	2.4	635	0.30	79	3.6	955	120	4.2

Conversion Table

1 m ³ =	264 gallons
1 kg =	2.2 pounds
1 L/min =	0.0353 cfm

↑
 Divide this column by
 gallons per bedroom
 for sizing

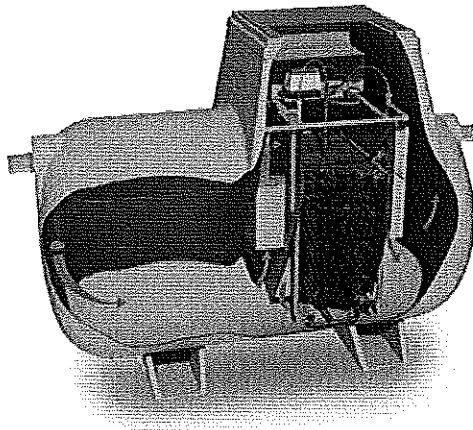
6.0 Warranty for Platinum

Warranty:

- Anua guarantees the *Platinum* system for a period of three years, unless otherwise specified by the regulatory authority, from the date of delivery. This guarantee is subject to the *Platinum* system being operated in accordance with the recommendations for operation and maintenance of the *Platinum* system, as laid out in the *Platinum* Operation and Maintenance Manual, supplied to each customer upon delivery of the *Platinum*.
- In addition, Anua will, at its own expense, repair and replace any defective parts of the *Platinum* system, which manifests itself within three years, unless otherwise specified by the regulatory authority, from the date of delivery.

Terms and conditions:

- This guarantee does not apply to any defects whether patent or latent, and whether workmanship or materials or design of works carried out by any independent contract, or any failure due to accidental or malicious damage, failure to comply with recommendations for operations and maintenance. Unit abuse, fair wear and tear, frost, storm damage, infiltration of storm or surface water or any other such climatic conditions or acts of God generally.
- In particular note that this guarantee will not operate unless the customer can produce written evidence of the system having been desludged as required.
- Notwithstanding this guarantee if the cost of remedial work is increased due to delay on part of the customer informing of the problem, we reserve the right to invoice the customer for such increased cost.
- This guarantee is strictly limited to the replacement of product supplied by Anua. It specifically excludes all other alleged headings of loss, including consequential loss.



ICS 13.060.30

English version

Small wastewater treatment systems for up to 50 PT - Part 3:
Packaged and/or site assembled domestic wastewater treatment
plants

Petites installations de traitement des eaux usées jusqu'à
50 PTE - Partie 3: Stations d'épuration des eaux usées
domestiques prêtes à l'emploi et/ou assemblées sur site

Kleinkläranlagen für bis zu 50 EW - Teil 3: Vorgefertigte
und/oder vor Ort montierte Anlagen zur Behandlung von
häuslichem Schmutzwasser

This European Standard was approved by CEN on 20 June 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels



Institute for
Wastewater
Technology

PERFORMANCE RESULTS

Bord na Móna Environmental Ltd.
Mainstreet, Newbridge, County Kildare, Ireland

EN 12566-3, Annex B
"Small wastewater treatment systems for up to 50 PT"

Small wastewater treatment system Platinum P6
moving-bed biological aeration process


Nominal organic daily load	0.39	kg/d
Nominal hydraulic daily load	1.20	m ³ /d
Material	Glass-reinforced plastic	
Treatment efficiency (nominal sequences)	COD	88,0 %
	BOD ₅	92,0 %
	SS	91,3 %
	NH ₄ -N	73,3 %
Electrical consumption	1.1	kWh/d

Performance tested by:


PIA - Prüfinstitut für Abwassertechnik GmbH
(PIA GmbH)
Hergenrather Weg 30
D-52074 Aachen

Certified according to
ISO 9001:2000



Notified Body number: 1739 

This document replaces neither the declaration
of conformity nor the CE marking.

Prüfinstitut für Abwassertechnik GmbH

geprüft - tested - teste

Elmar Lancé

November 2010

PIA-No.:		KKA 2009			
Test Code:		134B29			
Hydr. Load		[l/d]			
Testing sequence		1			
Sample-No.		SN 0 - 1	SN 0 - 2	SN 0 - 3	SN 0 - 4
Date		9/29/2009	10/6/2009	10/13/2009	10/16/2009
Air temp. min/max	[°C]	6/20	5/17	5/17	
Influent:					
Temperature	[°C]	16.1	14.6	12.4	
CODhom	[mg/l]	770	860	928	
BOD5	[mg/l]	-	-	-	
NH4-N	[mg/l]	26.8	38	16	
Ntot	[mg/l]			-	
Suspended solids	mg/l			-	
Effluent:					
Temperature	[°C]	15.9	15.1	14.2	13.5
CODhom	[mg/l]	139	101	228	137
% COD Reduction					
BOD5	[mg/l]	-	-	-	-
% BOD Reduction	%				
NH4-N	[mg/l]	22.4	3.7	3.7	4.8
% NH4-N Reduction					
Ntot	[mg/l]				
% N tot Reduction	%				
Suspended solids	[mg/l]	-	-	-	-
% SS Reduction	%				
Energy (new Couter)	[kWh]				

Anua - Platinum - PIA - Full - Test Period Results.xls x1s
see file under: G/products/advanced+treatment/Anua



STATE OF WEST VIRGINIA
DEPARTMENT OF HEALTH AND HUMAN RESOURCES
BUREAU FOR PUBLIC HEALTH
OFFICE OF ENVIRONMENTAL HEALTH SERVICES

Earl Ray Tomblin
Governor

Michael J. Lewis, M.D., Ph.D.
Cabinet Secretary

March 12, 2012

Colin Bishop, REHS, RS
ANUA
PO Box 77457
Greensboro, North Carolina 27417

Re: Platinum Submerged Aerated Filter

Dear Mr. Bishop:

Our Department has reviewed your submission for approval of the Platinum wastewater treatment system for use in West Virginia. This system was tested through the European Standard EN 12566-3 program.

The EN 12566-3 testing protocol was considered by the West Virginia Sewage Advisory Board to be worthy of recommendation as an "other recognized testing agency" as stated in West Virginia 64CSR47, subdivision 6.11.b. This subdivision of the West Virginia Sewage Treatment and Collection System Design Standards references the requirement for the NSF Standard 40 certification for individual home aeration units. This approval will allow for Platinum SAF treatment systems to be installed in West Virginia under the same circumstances as NSF Standard 40 Class I certified home aeration units.

Systems being proposed for discharge to a stream, or to the surface of the ground, will require additional review and permitting through the West Virginia Department of Environmental Protection, Division of Water and Waste Management.

NSF standard 40 requires that systems be serviced by the manufacturer or distributor's representative for the first two years after initial installation. West Virginia Rules and Design Standards require systems to be under perpetual maintenance, therefore, the distributor or his representative must offer a maintenance contract after the initial 2 year two years passes. It is assumed that all installers shall be "factory trained" prior to performing installations or maintenance of new units.

Please advise this office of the recommended method for determining solids accumulation which will require pumping, as well as whether a "trash trap" can be installed ahead of the Platinum unit, and if so, the allowable sizes of same.

Mr. Bishop
Page Two
March 12, 2012

This office reserves the right to restrict the use of the Anua Platinum SAF systems if the operation of the units, or new information, indicate the systems will not meet standards.

This approval does not constitute an endorsement of your products.

Sincerely,

A handwritten signature in cursive script, appearing to read "Rick Hertges".

Rick Hertges, R.S., Program Manager
Public Health Sanitation Division

cc: Local Health Departments
District Offices
Public Health Sanitation Division Staff



COMMONWEALTH of VIRGINIA

Department of Health
P O BOX 2448
RICHMOND, VA 23218

KAREN REMLEY, MD, MBA, FAAP
STATE HEALTH COMMISSIONER

TTY 7-1-1 OR
1-800-828-1120

February 7, 2012

Mr. Colin Bishop, REHS, RS
Director of Sales and Government Relations
Anua
PO Box 77457
Greensboro, NC 27417
cbish@yahoo.com

Dear Mr. Bishop:

You requested that the Virginia Department of Health (VDH) consider the EN-12566-3 as equivalent to the NSF 40 test protocol and to extend General Approval for Treatment Level 2 to the Anua Platinum wastewater treatment unit. Treatment Level 2, or TL-2, is equivalent to a 30 mg/l BOD₅ and 30 mg/l TSS effluent standard.

VDH has reviewed the EN-12566-3 protocol and a detailed analysis is included in the attached memo. Based on our review of the protocol, VDH accepts the EN-12566-3 as equivalent to the NSF 40 and sufficient for determining general approval for TL-2. However, there are some caveats to how the data will be interpreted as noted on the attached memo.

For purposes of General Approval for TL-2, VDH assigns a rated capacity of a NSF Standard 40 Class I ATU as the flow that was tested and certified by NSF as listed on their website. That rated flow capacity is then divided by the Virginia regulatory flow value of 150 gpd/bedroom to determine the number of bedrooms for which it is rated. Other non-tested models of that certified ATU may then be included under that NSF certification by evaluating them against the certified model in light of appropriate "scale-up" factors.

In the case of the Platinum ATUs, it appears that the P6 unit was tested per EN 12566-3 protocol by PIA GmbH and certified as follows:

Nominal Organic Load:	0.39 kg/d (0.86 lb/d)
Nominal Hydraulic Load:	1.2 m ³ /d (317 gpd)
BOD ₅ Removal Efficiency:	92.0%
TSS Removal Efficiency:	91.3%
NH ₄ -N Removal Efficiency:	73.3%

Mr. Bishop
Page two

Therefore VDH accepts the Platinum P6 as a secondary (TL-2) treatment device with the design flow of approximately 317 gpd. The other, non-EN-certified units can also be accepted as secondary treatment devices by evaluating them against that P6 unit adjusted by appropriate scale-up factors. Peak flows from the test protocol cannot be readily accepted as design flows since the EN 12566-3 testing was only briefly performed at those flows; therefore, long-term treatment performance at those higher flows is unknown.

The following units are generally approved in accordance with the listed flow and organic load:

P6: 4 residents = 300 gpd and 0.8 lb/d BOD₅ (2 bedrooms)
P8: 5 residents = 375 gpd and 1.0 lb/d BOD₅ (2 bedrooms)
P10: 7 residents = 525 gpd and 1.4 lb/d BOD₅ (3 bedrooms)
P12: 8 residents = 600 gpd and 1.6 lb/d BOD₅ (4 bedrooms)

VDH does recognize that the regulatory design flows for small systems in Virginia are higher than most states and that there are other states that do use an average and peak design concept. VDH will be exploring this topic with the Sewage Handling and Disposal Regulation Advisory Committee in the future.

If you have additional facts that you believe bear on this situation and you would like to schedule an informal-fact finding conference pursuant to §2.2-4019 of the *Code of Virginia* you should contact Mr. Allen Knapp, Director, Division of Onsite Sewage and Water Services, Environmental Engineering, and Marina Programs within 30 days of receipt of this letter. Mr. Knapp can be reached at (804) 864-7458, Allen.Knapp@vdh.virginia.gov, or at 109 Governor Street, 5th Floor, Richmond, Virginia 23219. If I can be of more help, please feel free to call me at (804) 387-1883.

Sincerely,



Marcia J. Degen, Ph.D., P.E.
Technical Services Administrator
Division of Onsite Sewage, Water Services,
Environmental Engineering & Marina Programs

Cc: Allen Knapp, Division Director
Kemper Loyd, Technical Service Engineer

Virginia Department of Health
Office of Environmental Health Services
Division of Onsite Sewage and Water Services, Environmental Engineering and Marina Programs

To: File

From: Kemper Loyd, P.E. -- Technical Services Engineer

Date: January 27, 2012

RE: Anua Platinum
Review Summary -- Data Submission for TL-2 Compliance

Cc: Marcia Degen, P.E. -- Technical Services Manager

Background:

VDH has been requested to accept the **Platinum** ATUs as "generally approved" for secondary (TL-2) treatment in Virginia. The Platinum ATUs are not certified under NSF/ANSI Standard 40, Class I, but they are certified under the European Union standard EN 12566-3. At least one other state (Minnesota) accepts certification under EN 12566-3 for "general approval" as a secondary treatment device.

The EN 12566-3 certification protocol consists of the following:

<u>Sequence</u>	<u>Description</u>	<u>Duration (weeks)</u>	<u>Sampling Events</u>
1	Biomass Establishment	As recommended	0
2	Nominal Loading	6	≥ 4
3	Underloading	2	≥ 2
4	Nominal Loading w/ Power Interruption	6	≥ 5
5	Low Occupation Stress (No flow)	2	0
6	Nominal Loading	6	≥ 3
7	Overloading	2	≥ 2
8	Nominal Loading w/ Power Interruption	6	≥ 5
9	Underloading	2	≥ 2
10	Nominal Loading	6	≥ 3

The results of the 20(+) samples collected during Nominal Loading sequences (with and without power interruptions) are used to calculate removal efficiencies for COD, BOD₅, TSS, and (usually) one or more N species. Those removal efficiencies are stated on the unit's EN 12566-3 Certification. Removal efficiencies are also calculated for the 6(+) samples collected during periods of Underloading and Overloading; those efficiencies are reported separately.

The EN 12566-3 protocol specifies influent BOD₅ and TSS concentrations of 150-500 mg/L and 200-700 mg/L, respectively. The upper ends of both ranges exceed the 30-day average influent concentrations specified by the NSF/ANSI Standard 40, Class I protocol (BOD₅ = 100-300 mg/L and TSS = 100-350 mg/L). Therefore, EN 12566-3 certification may represent treatment efficiency with a higher-strength influent.

VDH Determination:

VDH has decided that EN 12566-3 certification testing may serve as the basis for "general approval" as a secondary (TL-2) treatment device in accordance with the following:

1. Average BOD₅ and TSS treatment efficiencies will be calculated using the results from all (26+) samples collected during the EN 12566-3 certification test period -- including all Nominal Loading, Underloading and Overloading sequences.

2. BOD₅ and TSS treatment efficiencies determined in #1 will be applied to maximum NSF/ANSI Standard 40, Class I BOD₅ and TSS influent concentrations (300 mg/L BOD₅ and 350 mg/L TSS) to calculate resultant effluent concentrations.
3. If both the BOD₅ and TSS effluent concentrations calculated in #3 meet secondary requirements (≤ 30 mg/L), VDH will proceed to have the unit recognized as "generally approved" for secondary (TL-2) treatment.

Platinum ATUs:

The Platinum P6 ATU was tested per EN 12566-3 protocol by PIA GmbH and certified as follows:

Nominal Organic Load:	0.39 kg/d (0.86 lb/d)
Nominal Hydraulic Load:	1.2 m ³ /d (317 gpd)
BOD ₅ Removal Efficiency:	92.0%
TSS Removal Efficiency:	91.3%
NH ₄ -N Removal Efficiency:	73.3%

Platinum ATU sizes are as follows:

P6:	Organic Load = 0.86 lb/d, Hydraulic Load = 317 gpd (average) and 480 gpd (peak)
P8:	Organic Load = 1.15 lb/d, Hydraulic Load = 423 gpd (average) and 640 gpd (peak)
P10:	Organic Load = 1.43 lb/d, Hydraulic Load = 528 gpd (average) and 800 gpd (peak)
P12:	Organic Load = 1.72 lb/d, Hydraulic Load = 634 gpd (average) and 955 gpd (peak)

Contrary to VDH policy, the Platinum brochure indicates that the number of bedrooms/residents served by their units should be based on the peak hydraulic capacities of those units. However, per VDH policy, and given a residential design flow of 75 gpd/person and a BOD₅ contribution of 0.2 lb/d/person, the number of residents that can be served by the above Platinum ATUs and the resultant hydraulic and organic loads would be as follows:

P6:	4 residents = 300 gpd and 0.8 lb/d BOD ₅	2 bedroom
P8:	5 residents = 375 gpd and 1.0 lb/d BOD ₅	2 bedroom
P10:	7 residents = 525 gpd and 1.4 lb/d BOD ₅	3 bedroom
P12:	8 residents = 600 gpd and 1.6 lb/d BOD ₅	4 bedroom

The following characteristics were determined from the results of all samples collected during the certification test period:

Influent BOD ₅ :	334 mg/L	(n=28)
BOD ₅ Removal Efficiency:	93.4%	(n=30)
Calculated Effluent BOD ₅ :	19.8 mg/L	(300*(1-0.934))
Influent TSS:	420 mg/L	(n=30)
TSS Removal Efficiency:	92.8%	(n=30)
Calculated Effluent TSS:	25.2 mg/L	(350*(1-0.928))

The above calculated effluent BOD₅ and TSS concentrations both meet secondary effluent criteria.

Note: The manufacturer has not requested VDH approval of the Platinum ATUs as nitrogen removal units, but it appears that they may meet the NSF/ANSI Standard 245 criterion of > 50% TN removal. A couple of the effluent TN data are suspect, however, in that they are less than the sum of the Ammonia-N, Nitrate-N, and Nitrite-N data.

Recommendation: Accept the Anua Platinum units as TL 2 with the following ratings:

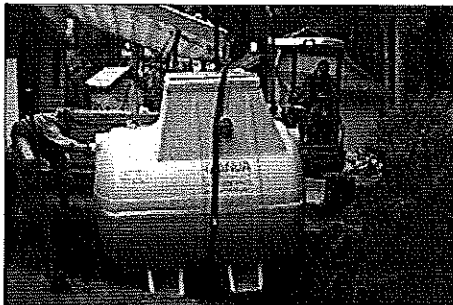
P6:	4 residents = 300 gpd and 0.8 lb/d BOD ₅
P8:	5 residents = 375 gpd and 1.0 lb/d BOD ₅
P10:	7 residents = 525 gpd and 1.4 lb/d BOD ₅
P12:	8 residents = 600 gpd and 1.6 lb/d BOD ₅



Case Study

Quick Facts Application: Replacement solution for failed drainfield
Product: Platinum with Puraflo® polishing filter and in-ground pad dispersal
Installer: Juneau Septic Services
Location: Juneau, AK

High-Quality Effluent Solution in a Small Footprint



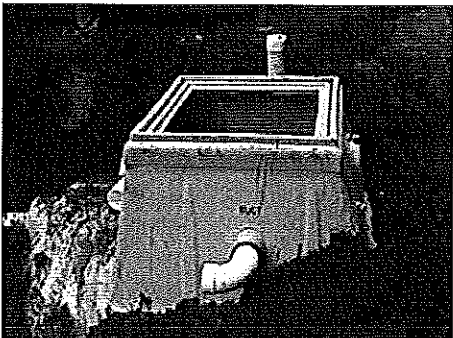
Situation

A three-bedroom home on a small lot in Juneau, Alaska had a failed drainfield and limited space for a replacement solution.

No room was available for a conventional drainfield. Direct discharge of treated effluent was not an option either.



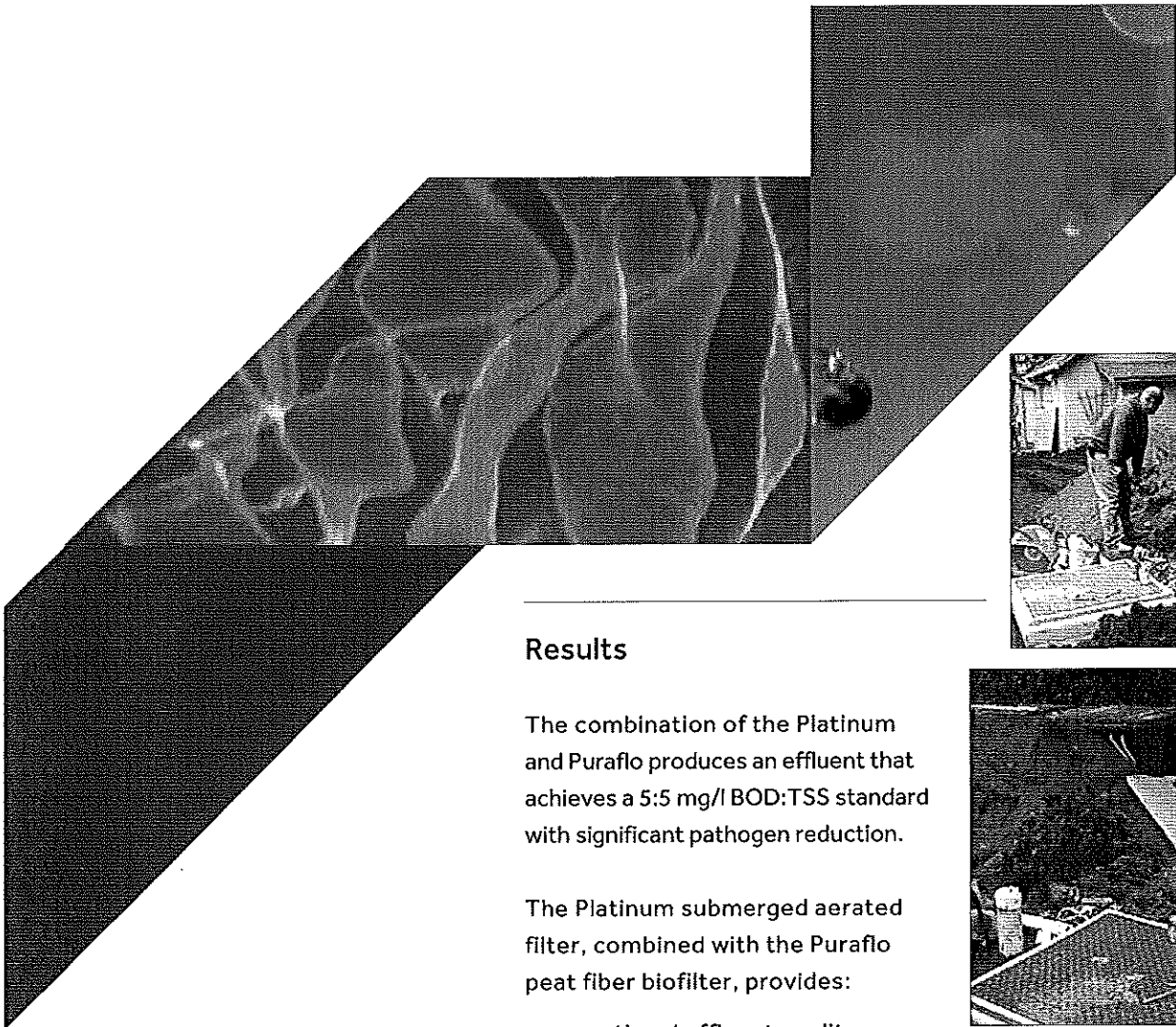
The situation called for an all-in-one treatment and dosing system that would be robust, provide effluent by-pass protection and consistently produce high quality effluent for dispersal into a reduced sized area.



Solution

Sloan Swendsen, co-owner of Juneau Septic Services, designed a solution:

- Platinum submerged aerated filter for secondary treatment. This model has an integrated pump package in the clarifier (no need for separate pump tank).
- Two Puraflo peat fiber biofilters for final polishing of the secondarily treated effluent.
- In-ground pad for dispersal of the effluent weeping from the base of the Puraflo modules.

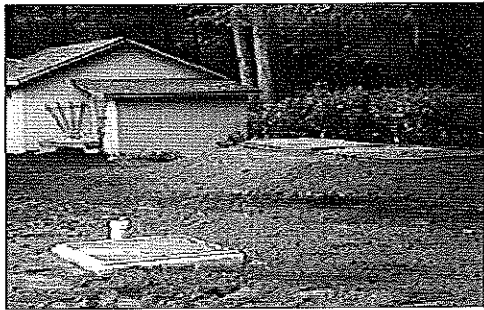
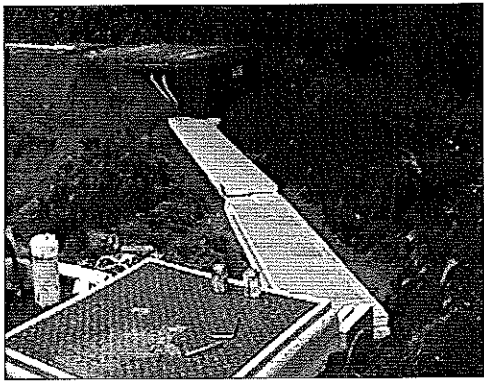


Results

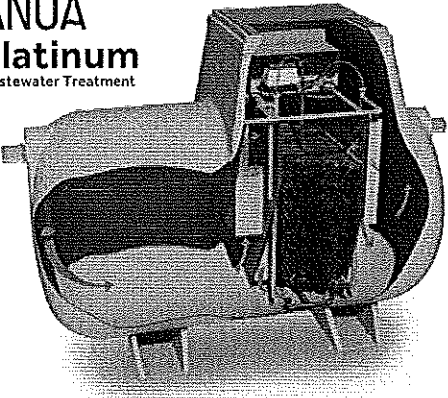
The combination of the Platinum and Puraflo produces an effluent that achieves a 5:5 mg/l BOD:TSS standard with significant pathogen reduction.

The Platinum submerged aerated filter, combined with the Puraflo peat fiber biofilter, provides:

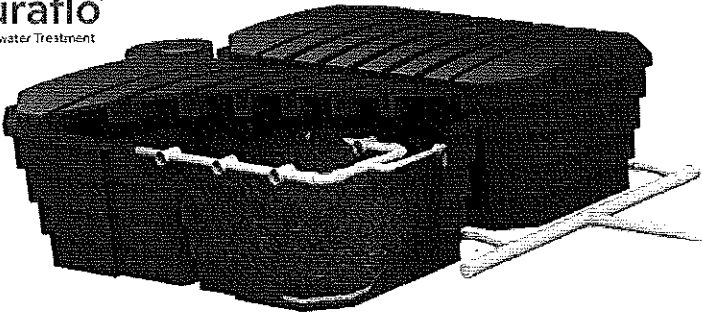
- exceptional effluent quality
- extremely small footprint
- high level of nitrogen and pathogen reduction
- low life cycle costs compared to other options
- reliability and peace of mind



ANUA
Platinum
Wastewater Treatment



ANUA
Puraflo
Wastewater Treatment



Jacobsen, James *see files under G:/products/advanced treatment/Anua*

From: Colin Bishop [colin.bishop@anua-us.com]
Sent: Wednesday, August 15, 2012 7:44 PM
To: Jacobsen, James
Subject: Maine Platinum SAF approval, email 4
Attachments: Anua_Platinum_design_sheet_022912.xls; Anua_SmallCommercialDesign_072712.xls
See attached.

Colin Bishop, REHS, RS
Director of Sales and Government Relations

Anua
P.O. Box 77457
Greensboro, NC 27417

M: 409.466.4644
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