

Description of Product/Service: Temporary 2.55 M HDPE Downstream Defender

Estimated amount of this purchase: \$ 209,600 (Estimate Attached) One Time Purchase  or Recurring

Department: Public Works

Contact Person: Patricia L Rendon

Phone: 305-673-7080 XT 6230

Due Date:  Work must be completed by:  
(check all that apply)  Material/Equipment/Supplies must be delivered by: June 1st  
 Service must begin by:

Please provide the following information in order to document the sole source request and prepare the appropriate recommendation to the City Manager and Mayor and City Commission:

- 1. Explain why the product/service requested is the only product/service that can satisfy your requirements and explain why alternatives are unacceptable. Be specific with regard to specifications, features, characteristics, requirements, capabilities and compatibility. Describe what steps have been undertaken to make this determination.**

During king tide and wet season, a total of 4 locations within the City flood with as much as two feet of water due to high ground water and rain entering the stormwater system. Some of these locations are in residential neighborhoods, and some are along major streets within the City. At each location, traffic flow is impeded and pedestrian flow is unsafe and almost impossible.

In order to relieve flooding in these areas, the Miami Beach Public Works Department on a seasonal basis uses a series of temporary diesel pumps to pump groundwater from a manhole at each location over the sea wall and into the Bay or at some locations, into another stormwater manhole which drains into the bay. To date, this has successfully relieved the flooding and reduced complaints of residents and visitors.

However, Miami Dade County has required that the Miami Beach obtain a DERM Class V Temp dewatering permit to discharge stormwater into the Bay. As a condition of this permit, the stormwater must be treated prior to discharge using a stormwater treatment system capable of reducing the total suspended solids and turbidity.

Due to the proposed location of the treatment systems and other factors, there are a number of significant constraints which must be met by the temporary treatment system. In addition to being a well-tested product manufactured by an established manufacturer, constraints include the following:

- **Patent** –The DownStream Defender Select is a patented device as it relates to an inlet module for a separator, a separator and a method of manufacturing a separator. It is patent approved in Great Britain with a patent number of GB 2593669 and is patent pending in the US.

The patent involves the separator itself, a method of manufacturing the separator and a specific inlet design; all of which help provide the following benefits:

- **Significantly improved separation efficiency in separating TSS from water.** This provides a cleaner effluent and more solids capture within the unit itself.
- **A reduction in the washout of captured pollutants which have already been trapped in the separator.** This means more solids that have already been captured stay captured even during periods of high flows instead of washing out and contaminating the effluent.

- **Increased ability to handle peak flows while saving space.** This means that higher flows can be accomplished in a smaller space while still providing a very high level of treatment.

Please reference the **attached letter** for additional information.

- **Treatment Performance** – The stormwater treatment system should be sized to meet the permit discharge requirements of a turbidity of no more than 29 NTU greater than the background turbidity in the bay and 40 mg/l TSS at the pumping flow rate required. The Temporary 2.55 M HDPE Downstream Defender has the treatment capabilities mandate by permit for the small footprint needed for space constraints.
- **Flow Capacity** – Public Works has determined through experience that a pumping rate of approximately 1,500 GPM is required to prevent flooding in the areas of concern. It is therefore critical that any stormwater treatment system have a full treatment capacity with overflow of at least this flow rate or some of the stormwater will be discharged without treatment. The Temporary 2.55 M HDPE Downstream Defender can meet the treatment mandated by permit at 1,500 GPM flow rates.
- **Materials of Construction**- Since the stormwater treatment system will be used above ground and moved every year, the materials of construction of the treatment system need to be very strong, resistant to heat and sunlight and at the same time light weight to be able to deploy onsite every 6 months. Public Works has determined that the best materials of construction for this site is HDPE because it meets all these criteria. The Downstream Defender is manufactures in HDPE material for these temporary applications.
- **No Power Required**- All sites do not have easy access to power. Bringing in temporary power or utilizing a separate generator would cause additional safety and logistic concerns and for this reason Public Works has determined that one of the constraints of the treatment system is that it cannot require power. The Temporary 2.55 M HDPE Downstream Defender requires no power or moving parts for stormwater treatment.
- **No Water Required**- Most of the sites do not have easy access to either potable or reuse water. Since temporary water lines would be difficult to implement and subject to vandalism and even to potential potable water system contamination, Public Works has determined that one of the constraints of the treatment system is that it cannot require an outside water source. The Temporary 2.55 M HDPE Downstream Defender requires no water for stormwater treatment.
- **Vac Truck Accessible**- Public Works owns several vac trucks which are currently used for other purposes including pumping out manholes, pumping and maintenance of existing below ground DownStream Defenders. Additionally, Public Works hires a third party contractors to be able to clean all stormwater system per NPDES permit. Because Public Works is already set up with vac trucks, the stormwater treatment system will need to be accessible to be cleaned of solids using a vac truck. The Temporary 2.55 M HDPE Downstream Defender is easily cleaned using vac truck same as the permanent concrete Downstream Defender.
- **Flexible and Mobile** - The treatment units will need to be put in place every year prior to the wet season and removed once the wet season is over. The units will then be moved to the Public Works yard and stored until the next season. Additionally, the treatment systems will need to be re-located around the City from time to time as the need for pumping the stormwater changes within the City. They may also occasionally be used as treatment for temporary dewatering on various projects throughout the City. All of these uses require a stormwater treatment that can be loaded onto a truck with a fork truck and moved around the streets of the City by Public Works service personnel without the use of a crane or other specialized equipment. The Temporary 2.55 M HDPE Downstream Defender is light weight and easy to transport unlike other solutions available in the market.
- **Footprint**- Several of the treatment systems will need to be located in major streets essentially taking up no more than a parking space and, in some cases, partially blocking a lane of traffic. For this reason, a small footprint is absolutely critical. A treatment system that is too large or requires excess

maintenance would be a potential safety concern to motorists and to Public Works Staff. The Temporary 2.55 M HDPE Downstream Defender requires no more than half a parking spot.

- **Schedule**— The stormwater treatment system must be in place and operational by the upcoming wet season on June 1st to allow the City to meet the permit discharge requirements while pumping out the flooded areas. Pre-purchase of the temporary HDPE Downstream Defenders will shorten the schedule by several months and allow the City to meet the discharge requirements during the upcoming wet season.

The temporary DownStream Defender is the perfect device for this application because it is made from structurally re-enforced HDPE, resistant to heat and sunlight and is light enough to be easily moved in a temporary application for use during the wet season. The temporary HDPE Downstream Defenders will be moved into position and will occupy approximately ½ of a parking spot for the wet season, then removed and put into storage during the off season. They are flexible enough to be moved to any application in the City where treatment is required by City staff with existing city equipment and could even be mounted on a small trailer and moved around the City on a regular basis if desired. Additionally, Miami Beach already has multiple successfully installed DownStream Defenders which have been on place for years, and Public Works is familiar with the performance and cleaning associated with them.

- 2. Explain why this service provider, supplier, or manufacturer is the only practicably available source from which to obtain this product or service and describe the efforts that were made to verify and confirm whether, or not, this is so. (Obtain and include a letter from the manufacturer confirming, claims made by distributors of exclusive distributorships for the product or service, if, that is cited as a reason for this Sole Source.)**

As indicated above, this application is very unique because there of the significant number of constraints that must be met. The Down Stream Defender meets all of these constraints without exception.

The Downstream Defender is unique in that it is a patented stormwater vortex separation device and is the only advanced vortex separator on the market without an internal bypass mechanism, meaning that 100% of the stormwater inflow entering the system is treated, ensuring maximum removal of pollutants. It is the only above ground structurally re-enforced HDPE vortex separation stormwater treatment system available that can meet the treatment within the required footprint.

The DownStream Defender is also the only HDPE above ground vortex separator without a by-pass and with a large enough capacity and adequate performance to handle this project. The DownStream Defender is unique in that it provides a very high level of stormwater treatment in a very small above ground footprint of about ½ of a car parking spot which is extremely important since some will be used on the main streets of Miami Beach during tourist season. The 2.55M HDPE Downstream Defender will remove particles down to 50 micron and will remove 95% of all particles 175 micron which should be more than adequate to meet the permit requirements.

The DownStream Defender is certified and accepted in multiple states by multiple organizations for TSS removal including Florida Department of Environmental Protection (FDEP). In fact, 28 DownStream Defenders were recently purchased for the high-profile signature Miami Bridge Project.

- 3. Will this purchase obligate us to a particular vendor for future purchases? (Either in terms of maintenance that only this vendor will be able to perform and/or if we purchase this item, will we need more "like" items in the future to match this one?)**

No, this is a simple capital sale, and there will be no obligation to any vendor due to this purchase. Although this vendor is the only vendor found which can meet all the specific constraints for this particular application, this is a standalone purchase without obligations or ties to other purchases. Specially regarding maintenance, there are no moving parts with this product, there are no sacrificial wear parts with this product, and there is no future maintenance of specialized labor associated with that is required to be supplied by the manufacturer.

Operation of the units essentially consists of opening a hatch and utilizing a vac truck to vac out the accumulated solids from the unit. Miami Beach Public Works Department owns several vac trucks and also works with several third-party stormwater maintenance companies with vac trucks which are unaffiliated with this particular manufacture to clean out various existing sanitary sewer and stormwater manholes. Thus, Miami Beach has multiple post capital sale operational options, none of which involve this particular manufacturer and with no ongoing financial relationship with this company is anticipated post capital sale.

**4. Explain why the price for this product or service is considered to be fair and reasonable.**

Miami Beach has standardized on two vendors for stormwater treatment solutions and has purchased multiple units through competitive bids in the past and has a good understanding of the relative cost of these products. In this case, none of the vendors provides a HDPE treatment system suitable for above ground use which meets the previously identified restraints thus the request for a sole source.

As a further verification of a fair and reasonable pricing, at the request of the Public Works Department the vendor has supplied several past Purchase Orders for the same or similar product for comparison purposes. Based on an evaluation of these Purchase Orders, Public Works has concluded that the pricing is fair and reasonable.

**Price Verification Through Previous Purchase Orders**

In order to verify pricing is fair and reasonable, see attached Purchase Orders for both the “permanent below ground” concrete DownStream Defenders as well as the “temporary above ground” HDPE DownStream Defenders. An explanation of pricing for each of these two is as follows:

**a. 8' Concrete DownStream Defender (Permanent/ Concrete)**

Attached are the Purchase Orders for three 8' diameter concrete defenders. The scope is essentially same as would be purchased by Miami Beach for this project so the only adjust made to the price was for inflation as follows:

Summary of Comparison Purchase Orders - 8' Concrete DD									
No.	Purchase Order No.	Customer	PO Scope	PO Value	Date of PO	Estimated Inflation Rate	Adjusted to 2023 Pricing Delivered to Site	Adjusted to 2023 Pricing Delivered To Site	2023 Pricing Delivered To Site
1	HQU-097534	Penine Plumbing Inc	8' DD Concrete	\$44,753.00	2/16/2022	5.00%	\$46,990.65	\$46,990.65	\$46,990.65
2	HQU-110552	Superior Drainage Products, Inc	8' DD Concrete	\$34,328.00	8/15/2022	5.00%	\$35,186.20	\$35,186.20	\$35,186.20
3	HQU-114862	Superior Drainage Products, Inc	8' DD Concrete	\$36,588.00	10/17/2022	5.00%	\$37,136.82	\$37,136.82	\$37,136.82

This indicates that the proposed price to Miami Beach of \$34,800 is in line with previous purchase order pricing from other customers for similar scope for permanent solution.

A below ground 8' Concrete permanent DownStream Defender will have additional cost for design, permitting and installation which would surpass the cost of a temporary solution seen below and may take up to an additional year to implement.

**b. 2.55 M HDPE DownStream Defender**

As previously indicated, the Metric 2.55M HDPE is a standard product offered by Hydro International in the UK for years for use in buried systems. **Attached is a Purchase Orders** for several 2.55 M diameter HDPE DownStream Defenders for comparison purposes. Since the price of the PO is in Pound Sterling, the price of the Purchase Order has been adjusted to reflect the exchange rate at the time of purchase as well as for inflation. Additionally, the Purchase Order price has been added to reflect the cost of additional structural bands around the tanks to allow for above ground use and freight to Miami Beach, all of which has been included in the previous proposal to Miami Beach for the 2.55M HDPE DownStream Defenders. The adjusted price for these previous PO's is as follows:

Summary of Comparison Purchase Orders - 2.55 M HDPE DD											
PO No.	Purchase Order No.	Customer	Purchase Order Scope	PO Value (LBS)	Date of PO	2023 Pricing (LBS) (Inflation @ 5%)	Exchange Rate - Pound Sterling to US Dollar	2023 Pricing - USD	Additional Structural Additions for Above Ground	Overseas Freight & Delivery	Adjusted 2023 Pricing Landed and Delivered
1	PO #1275878371	Chadwicks	2.5 M DD	\$25,275.00	8/9/2021	\$27,170.63	1.3848	\$37,625.88	\$5,500.00	\$9,500.00	\$52,625.88

This indicates that the proposed price to Miami Beach of \$52,400 is in line with previous purchase order pricing from other customers for similar scope.

The temporary 2.55M HDPE DownStream Defenders does not require additional cost for design, permitting and construction /installation. Additionally, the temporary 2.55M HDPE DownStream Defenders can be onsite ready to use within 8-12 weeks of approved submittals.

**5. Describe the negotiation efforts, if any, that have been made with the supplier to obtain the best possible price.**

Public works initially requested that the unit price of each unit be reduced which was agreed to. Additionally, this vendor, at the request of Public Works, has provided a total of nine different proposals with various scopes, unit sizes, materials of construction and stormwater treatment solutions in an attempt to not only find the best solution, but to get as much scope added to the price as possible. As an example, Public Works requested that the vendor provide a specific type of non-standard pipe connection which the vendor agreed to provide at no charge. Additionally, Public Works requested the vendor also provide additional service time to help with setup once the units are on-site at no extra cost which was also agreed to by the vendor.

**6. Explain the consequence(s) to the City or Public, including a dollar estimate of the financial impact, if this Sole Source is not approved.**

Ultimately, the County will not allow the deployment of the temporary pump stations without having cleaning devise prior to discharge to the bay. Without the deployment of the temporary pump station the City streets will flood causing disruption to vehicle and pedestrian passage through main streets or into residences and /or commercial properties.

The impact to the public of not having the temporary devises and pumps would mean this 4 locations would remain under as much as two feet of water during wet season and they would be unable to get to their parked cars, houses and in some cases shops and stores without walking through water. This could obviously lead to other safety concerns and potential lawsuits involving significant amount of money. Additionally, flooding could enter private property causing damage beyond the ROW.

**7. Industry Independent Standard Review.**

Hydro International hydrodynamic vortex separators have several third-party certifications and verifications. Below is a list of the certifications and verifications:

- [New Jersey Corporation for Advanced Technology \(NJCAT\)](#)
- [New Jersey Department of Environmental Protection \(NJDEP\)](#)
- [Environmental Technology Verification \(ETV\) Canada](#)
- [Washington State Technology Assessment Protocol - Ecology \(TAPE\) for Pretreatment](#)
- [Virginia Department of Ecology BMP Clearinghouse](#)
- [Ohio Department of Transportation](#)
- [St. Louis Metropolitan Sewer District](#)
- [California Water Boards Full Trash Capture](#)
- [Florida Department of Environmental Protection \(Accepted\)](#)

The New Jersey Corporation for Advance Technology and Washington State Technology Assessment Protocol are the most widely accepted and known third party certifiers in the industry here in the United States.

A link to these certifications can be found on the Hydro website as follows: <https://hydro-int.com/en/products/downstream-defender>

**I hereby affirm that, pursuant to Section 2-367(d) of the City Code, the goods or services describe above are only available from the stated source.**

Department Director Name:	Industry Expert <sup>1</sup> :
Department Director Signature:	Industry Expert Signature:
Date:	Date:

**(Pursuant to Section 2-367(d) of the City Code, both director and industry expert/consultant shall complete.)**

<sup>1</sup>Section 2-367(d) requires the using department to “obtain the written determination from an industry expert or consultant that the item or service is the only one available to fulfill the city's need.”

# ATTACHMENT 1

## ESTIMATE



# SALES QUOTE



**Quote No:** HQU-130316

**Quote Date:** 03-09-2023

**Account:**

**Project Name:** Miami Beach Grit King Project

**Project Location:** Miami Beach, FL

**Contact:** Patricia L Rendon

**Hydro Ref:** 22\_12\_4063

**Hydro Contact:** Gary Lohse

**Hydro Phone:**

**Email:** glohse@hydro-int.com

Description	Quantity	Unit Price	Amount
2.55 M HDPE Downstream Defender System Each DownStream Defender System Includes Downstream Defender Internals installed in a 2.55 M Diameter HDPE Manhole reinforced for above ground use. 2.55 M HPDE DD estimated to remove 95 % of particles down to 175 microns.at 1500 gpm Please allow 8-12 weeks from approved submittal dwgs for delivery Price Includes delivery to site but not loading	4.00	52,400.00	209,600.00
		<b>Total</b>	<b>209,600.00</b>

Price is quoted in US Dollars and is FOB Jobsite

All treatment systems include precast concrete manhole/vault, preassembled internal components, manhole frame & cover/grate (unless otherwise noted).

Standard Exclusions:

1. Outlet pipe coupling.
2. Grade rings, concrete block, and mortar if needed to extend manhole frame and cover from manhole top slab to final grade.
3. Diversion structure and associated piping.
4. Inlet and outlet pipe boots.
5. Manhole frame and cover other than Hydro International standard.
6. Unloading, storage, final assembly, and installation of any equipment on site.
7. Taxes or duties of any kind.
8. Site design and construction.
9. Hydro International representative during installation, though one may be provided at additional cost.
10. State and/or local taxes will be charged unless Hydro International receives a valid resale/exemption certificate.

Agreement to purchase equipment as quoted above is contingent upon approval of submittal drawings.

This document constitutes a binding contract that may only be cancelled by the agreement of both parties or by the rejection of product submittals without recourse for resubmittal.

All order cancellations in whole or in part that have been approved and released to production will be billed a rate of 50% of the product unit price.

Terms: 100% net 30 days after delivery or notification that unit is ready for delivery (subject to credit approval).

Payment in accordance with Hydro International standard Terms and Conditions. By executing this contract you are verifying that you read and agree to the Terms and Conditions listed on our website. Please review them at <https://www.hydro-int.com/ASW.pdf>

Due to market volatility, proposal is based on receipt of a signed quotation or purchase order within 15 days of the quotation date. As you are aware, due to the volatility in the energy market cost of fuel has risen significantly over the last several months. As such, we will be initiating a fuel surcharge on all deliveries from this point forward, or until we see fuel prices stabilize and we can change

You can see our terms and conditions of sale on our website at <https://www.hydro-int.com/ASW.pdf>

Hydro International, 94 Hutchins Drive, Portland ME 04102  
Tel: +1 (207) 756-6200 Fax: +1 (207) 756-6212 Web: [www.hydro-int.com](http://www.hydro-int.com)

Turning Water Around...®



our freight charges back to the standard rates.

Below is the surcharge calculation.

Fuel Surcharge:

A fuel surcharge of \$ .10 per mile, round trip will be charged on all deliveries when the average fuel price is exceeded by 2% in your region of the country. Please refer to (<https://www.smc3.com/weekly-fuel-prices.jsp>). An additional \$ .10 per mile, round trip will be charged for each additional \$ .10 per gallon increase in fuel cost thereafter.

Signed: \_\_\_\_\_ Date: \_\_\_\_\_

Name: \_\_\_\_\_ Company: \_\_\_\_\_

Site Contact for Delivery Coordination

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

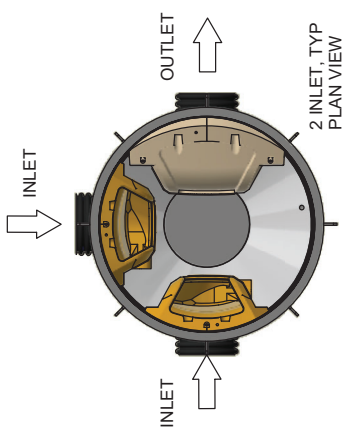
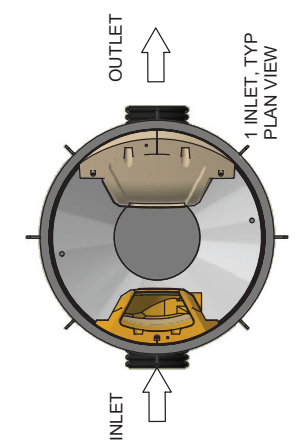
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Requested Delivery Date: \_\_\_\_\_

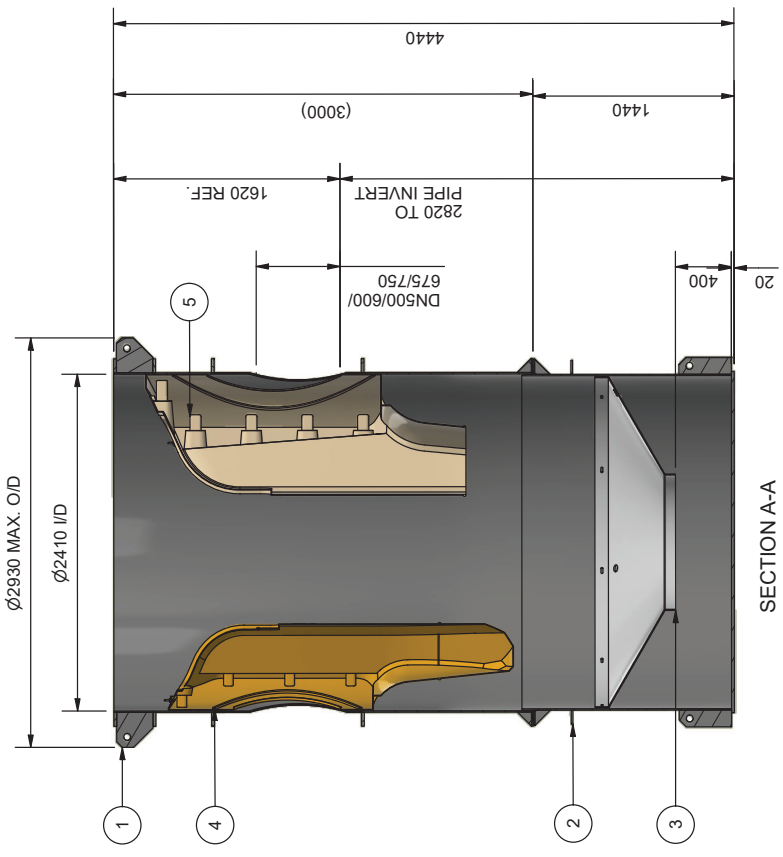
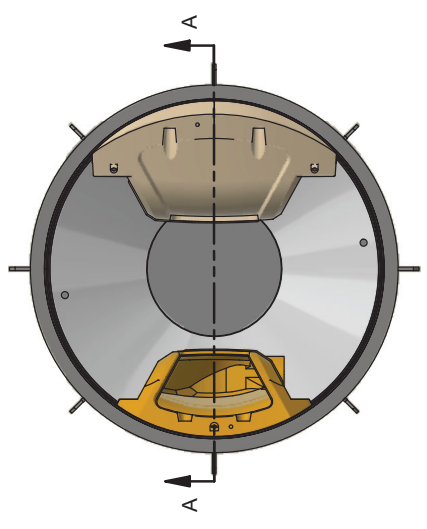
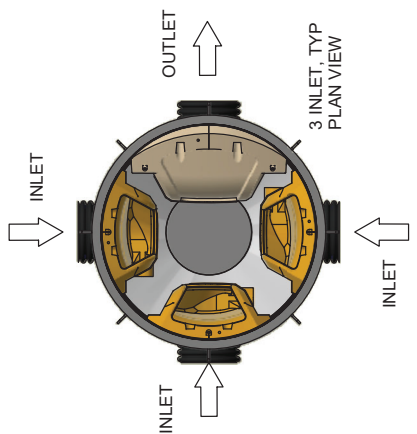
PARTS LIST	
ITEM	DESCRIPTION
1	Single Skin Upper Chamber
2	Single Skin Lower Chamber
3	Benching Skirt
4	Chamber Inlet Chute
5	Outlet Hood
6	DN500/600/675/750 Pipe Connection

**Note:**

- Angles can be adjusted to suit. Minimum angle between inlets and outlet is 90°.
- Maximum number of inlets is 3.
- Cover slab, cover and frame by others.
- Max. lift weight 950kg.



PIPEWORK SHOWN FOR ILLUSTRATION PURPOSES



REV	BY	CHK	APP	REVISION HISTORY	DATE
B	JM	CG	RWB	DIMS CHANGED: 2930 WAS 2890, 2410 WAS 2406, 1620 WAS 1600, 3000 WAS 2950, 4440 WAS 4420, 1440 WAS 1470.	17/06/2022



IF IN DOUBT ASK	
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17/06/2022	1:55
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JM	CG
APPROVED BY:	RWB

The XXXXProject  
Downstream Defender Select 2400  
Single Skin, Advanced Vortex

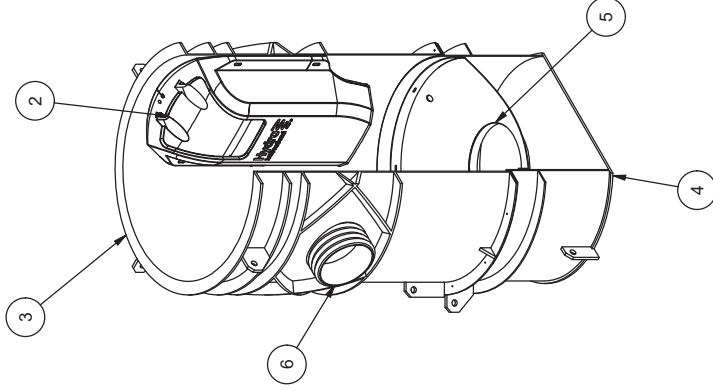
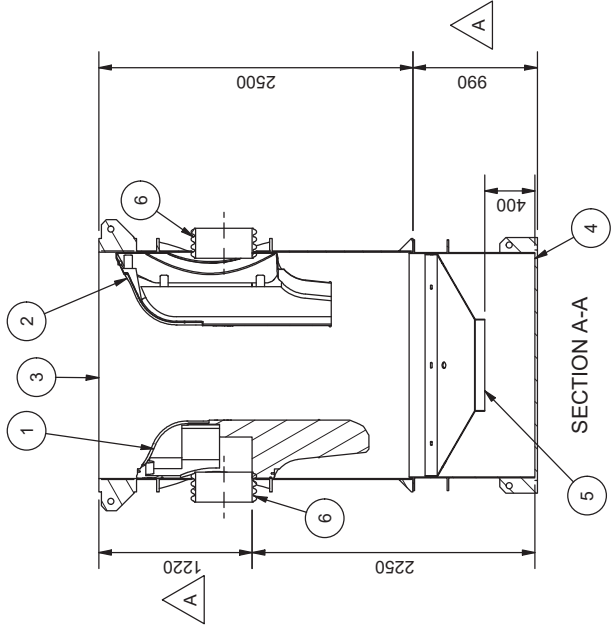
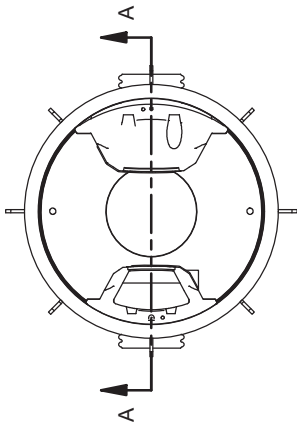
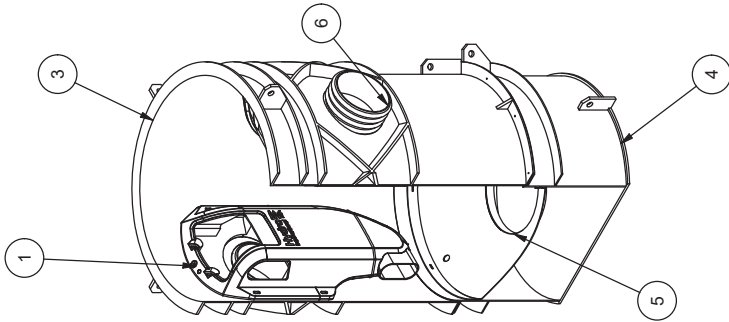
Hydro International  
hydro-int.com  
©2022 HYDRO INTERNATIONAL  
WEIGHT: N/A  
MATERIAL:  
STOCK NUMBER:

DRAWING NO.:	XXXXPROJECT-2400SAV
SHEET SIZE:	A3
SHEET:	1 OF 1
Rev:	B

1 2 3 4 5 6

CHAMBER DIAMETER 1800 ID

ITEM	QTY	DESCRIPTION	MATERIAL	MASS
1	1	Inlet Chute	Polyethylene, High Density	238.4 kg
2	1	Outlet Hood	Polyethylene, High Density	15.6 kg
3	1	Single Skin Upper Chamber	HDPE Plastic	192.2 kg
4	1	Single Skin Lower Chamber	Polyethylene, High Density	114.7 kg
5	1	Benching Skirt	HDPE Plastic	17.3 kg
6	2	Pipe size options DN375-600, pipe type TBC by client	Polyethylene, High Density	8.4 kg



IF IN DOUBT ASK

DATE: 15/03/2022  
 SCALE: 1:40  
 DRAWN BY: RJT  
 CHECKED BY: APPROVED BY:

THIS DRAWING IS FOR THE  
 DOWNSTREAM DEFENDER  
 SELECT  
 ADVANCED VORTEX  
 DDC18-600-F SINGLE WALL  
 PLASTIC



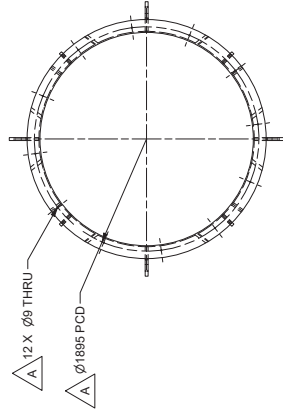
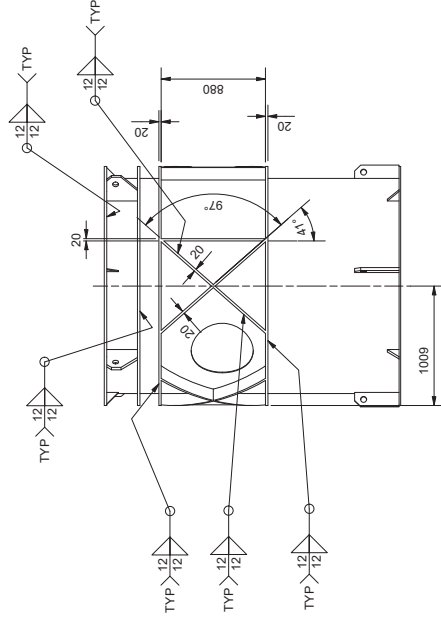
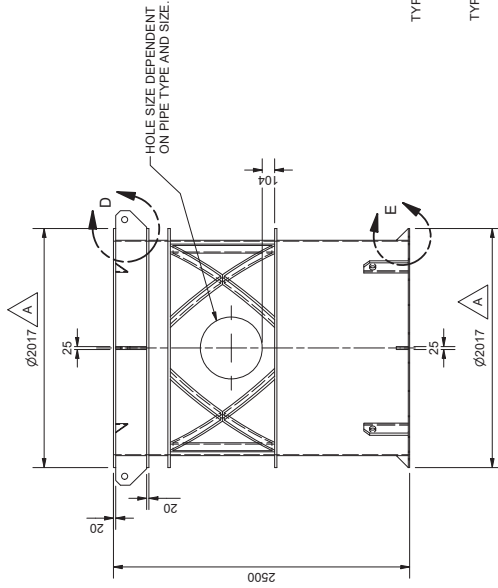
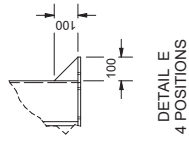
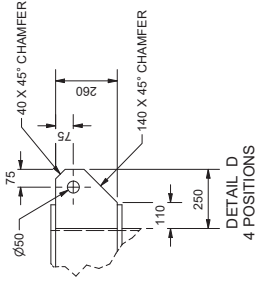
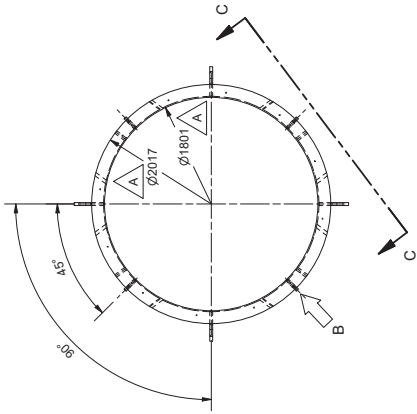
©2021 HYDRO INTERNATIONAL  
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 MATERIAL:  
 STOCK NUMBER:

DRAWING NO.: -DDC18-F  
 SHEET SIZE: A3  
 SHEET: 1 OF 3  
 Rev: A

SPECIFICATION	
Mat'l Description	High Density Polyethylene
Mat'l Specification	Black PE 80/100
Standards	DIN EN ISO 17855-1 PE QUACH, 45 T 003/006 DIN4102 B2
Method	Extrusion welding (hot stinger bead torch separate from filler)
Welding Standards	EN 13705:2004 EN 12943:2000 EN 1306:2003

1 2 3 4 5 6

UPPER CHAMBER FABRICATION



**PLEASE READ THE FOLLOWING TOLERANCES**  
 DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS.  
 Linear: 000: 1000+/- 1.0 / 10000+/- 0.15 / 100000+/- 0.25 / 1000000+/- 0.50 / 10000000+/- 1.00  
 Angular: 10: 10' / 5: 5' / 2: 2' / 1: 1'

**IMPORTANT! THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT TO POSITION THE INLET/OUTLET HOLES AND STRUCTURE TO SUIT THE PIPE TYPE AND SIZE.**

<b>PROJECTION</b>	
<b>IF IN DOUBT ASK</b>	
DATE:	15/03/2022
SCALE:	1:30
DRAWN BY:	RJT
CHECKED BY:	APPROVED BY:
TITLE: DOWNSTREAM DEFENDER SELECT	
DESCRIPTION: ADVANCED VORTEX DDC18-600-F SINGLE WALL PLASTIC	

**Hydro International**  
 hydro-int.com  
 © 2021 HYDRO INTERNATIONAL  
 WEIGHT: 192 kg  
 MATERIAL: HDPE Plastic  
 STOCK NUMBER:

DRAWING NO:	DDC18-F
REV:	1
CHK:	
APP:	
DATE:	15/03/2022
DESCRIPTION:	REVISED AS PER MARCOLO COMMENTS
SCALE:	A2
SHEET SIZE:	12 OF 3

REV:	1	CHK:		APP:		DATE:	15/03/2022	DESCRIPTION:	REVISED AS PER MARCOLO COMMENTS
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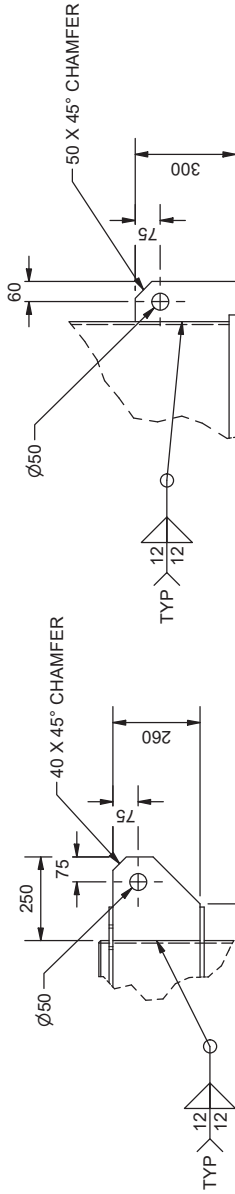
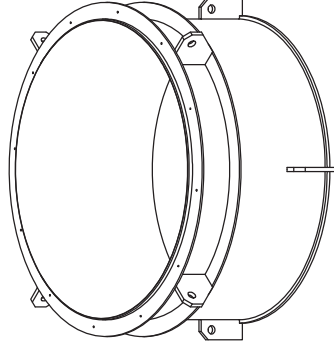
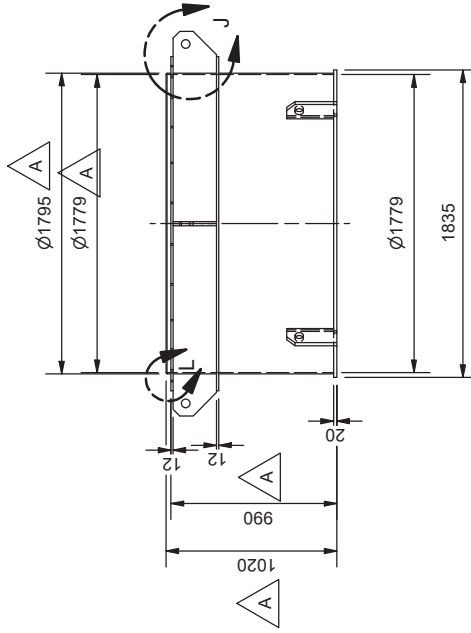
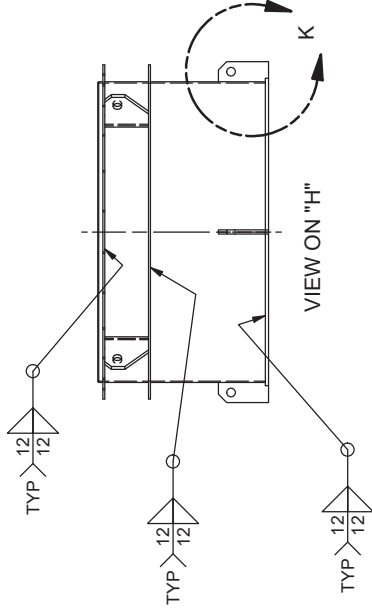
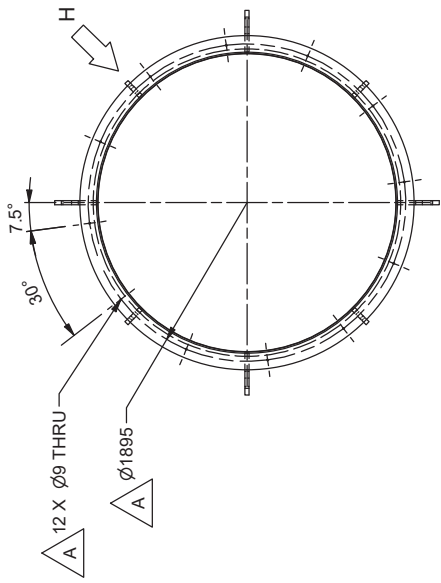
4

3

2

1

LOWER CHAMBER FABRICATION



DETAIL J  
4 POSITIONS

DETAIL K  
4 POSITIONS

DETAIL L

DO NOT SCALE DRAWING  
LASER/WATERJET CUTTING TOLERANCES  
UNLESS OTHERWISE SPECIFIED.  
DIMENSIONS ARE IN MILLIMETERS.

000-1000 = ± 0.1mm  
1000-2000 = ± 0.15mm  
2000-5000 = ± 0.2mm  
5000-10000 = ± 0.3mm  
10000-20000 = ± 0.4mm  
20000-50000 = ± 0.5mm  
50000-100000 = ± 0.7mm  
100000-200000 = ± 1.0mm  
200000-500000 = ± 1.5mm  
500000-1000000 = ± 2.0mm  
1000000-2000000 = ± 3.0mm  
2000000-5000000 = ± 4.0mm  
5000000-10000000 = ± 5.0mm  
10000000-20000000 = ± 7.0mm  
20000000-50000000 = ± 10.0mm  
50000000-100000000 = ± 15.0mm  
100000000-200000000 = ± 20.0mm  
200000000-500000000 = ± 30.0mm  
500000000-1000000000 = ± 40.0mm  
1000000000-2000000000 = ± 50.0mm  
2000000000-5000000000 = ± 70.0mm  
5000000000-10000000000 = ± 100.0mm

**IMPORTANT! THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE RELEVANT GENERAL ARRANGEMENT TO POSITION THE HOLES AND STRENGTHENING RIBS TO SUIT THE PIPE TYPE AND SIZE.**

PROJECTION  
IF IN DOUBT ASK

DATE: 15/03/2022  
SCALE: 1:30  
DRAWN BY: RJT  
CHECKED BY:  
APPROVED BY:

THIS IS A  
DOWNSTREAM DEFENDER  
SELECT

ADVANCED VORTEX  
DDC18-600-F SINGLE WALL  
PLASTIC

**Hydro International**  
hydro-int.com  
©2021 HYDRO INTERNATIONAL

WEIGHT: 115 Kg  
MATERIAL: Polyethylene - High Density  
STOCK NUMBER:

DRAWING NO.: -DDC18-F  
SHEET SIZE: A3  
SHEET: 3 OF 3  
Rev: A

6

5

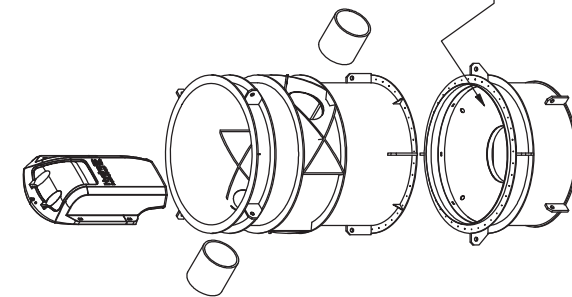
4

3

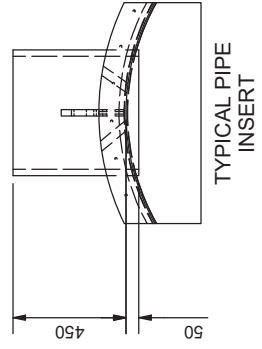
2

1

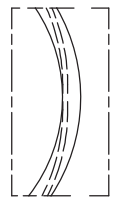
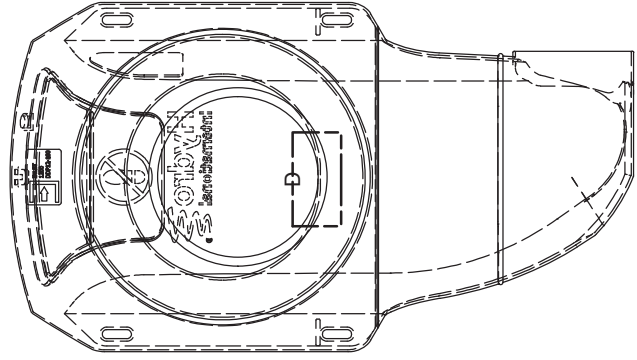
1 2 3 4 5 6



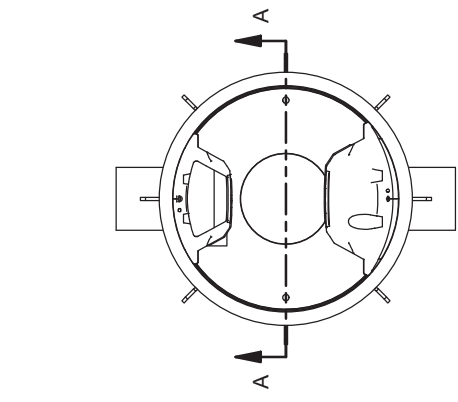
WELD IN BENCHING SKIRT  
PRIOR TO ASSEMBLING  
LOWER CHAMBER TO  
UPPER CHAMBER.



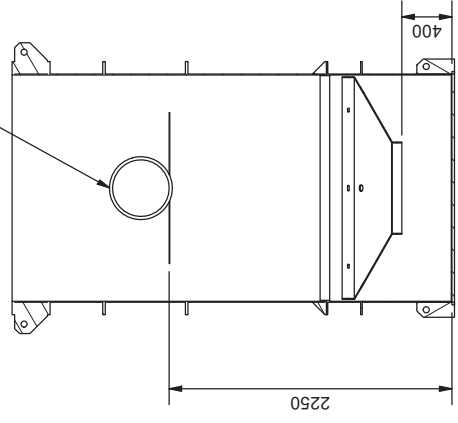
TYPICAL PIPE  
INSERT



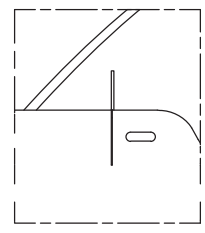
DETAIL D  
ALIGN INVERT AND  
TRIM CHUTE TO PIPE O/D



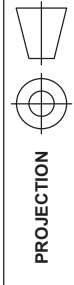
SECTION A-A



SECTION B-B



DETAIL C  
ALIGN INVERT MARKS



IF IN DOUBT ASK

DATE:	22/03/2022	SCALE:	1:20
DRAWN BY:	RJT	CHECKED BY:	APPROVED BY:

THIS  
DOWNSTREAM DEFENDER  
SELECT  
ADVANCED VORTEX  
1.8m SINGLE SKIN



WEIGHT:	N/A	MATERIAL:	
STOCK NUMBER:			

DRAWING NO.:	-DDC18-1
SHEET SIZE:	A3
SHEET:	1 OF 2
REV:	-

D

C

B

A

1 2 3 4 5 6

6

5

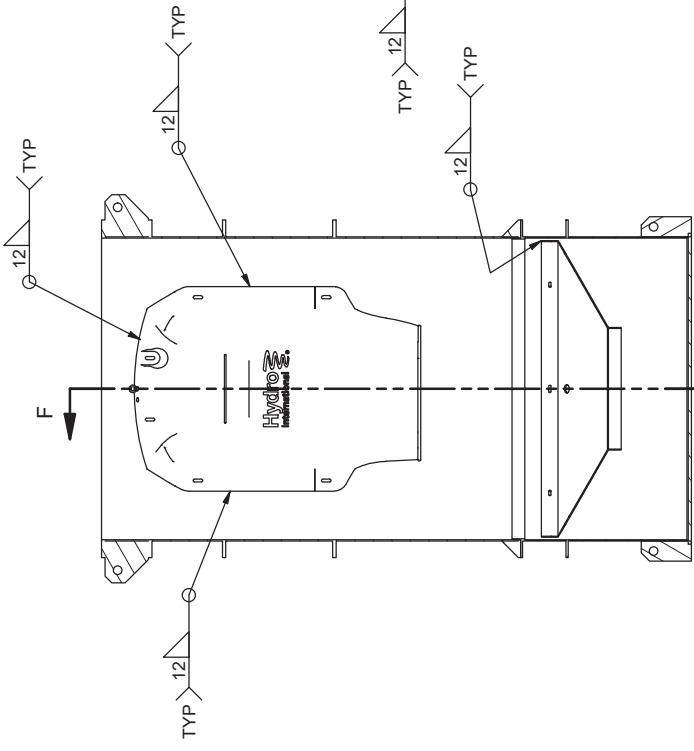
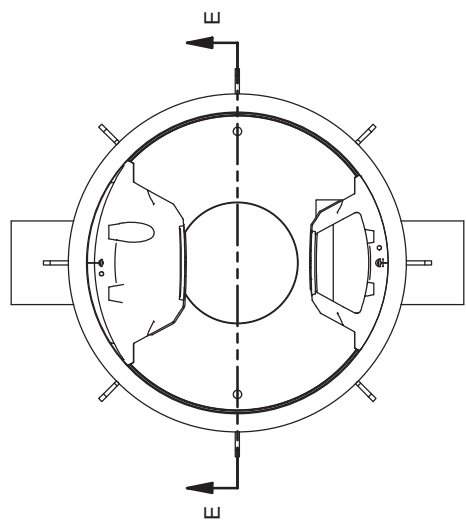
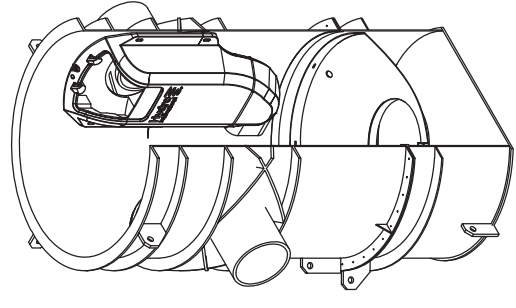
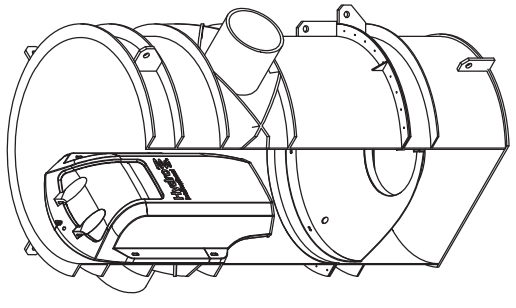
4

3

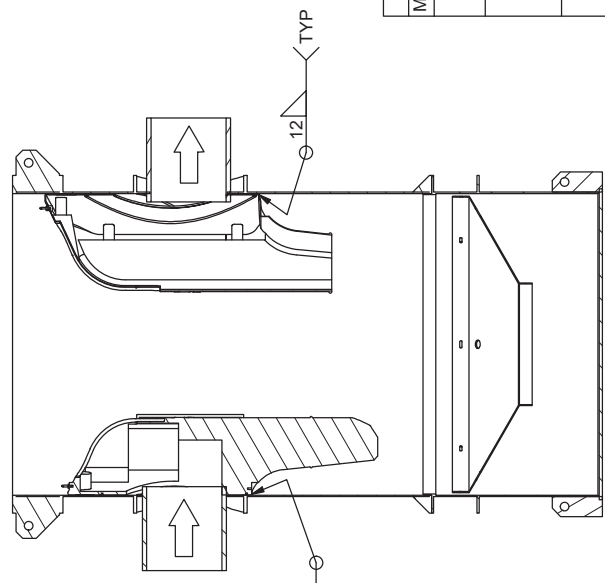
2

1

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT GENERAL ARRANGEMENT & DETAIL DRAWINGS.
2. ALL COMPONENTS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE PRODUCTION SPECIFICATION HRD-FM09/15. ANY CUT OR WORKED EDGES TO BE MADE SMOOTH.



SECTION E-E



SECTION F-F

**PROJECTION**

**IF IN DOUBT ASK**

DATE: 22/03/2022 SCALE: 1:30  
 DRAWN BY: RJT CHECKED BY: APPROVED BY:

THIS IS A DOWNSTREAM DEFENDER SELECT ADVANCED VORTEX 1.8m SINGLE SKIN

SPECIFICATION	
Mat'l Description	High Density Polyethylene
Mat'l Specification	Black PE 80/100
Standards	DIN EN ISO 17855-1 PE QUACH, 45 T 003/006 DIN4102 B2
Method	Extrusion welding (hot stringer bead torch separate from filler)
Welding Standards	EN 13705:2004 EN 12943:2000 EN 1306:2003

**HydroZ International**  
 hydro-int.com  
 ©2021 HYDRO INTERNATIONAL

WEIGHT: N/A	MATERIAL:
STOCK NUMBER:	
DRAWING NO.: -DDC18-1	
SHEET SIZE: A3	SHEET: 2 OF 2
Rev: -	

6

5

4

3

2

1



**ATTACHMENT 2**  
**PATENT LETTER**



3/17/23

Patricia L Rendon, P.E  
City of Miami Beach  
Regulatory Compliance Manager  
PUBLIC WORKS DEPARTMENT, Engineering Division  
1700 Convention Center Drive,  
Miami Beach, FL 33139

Dear Patricia:

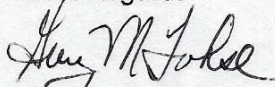
The DownStream Defender Select is a patented device as it relates to an inlet module for a separator, a separator and a method of manufacturing a separator. It is patent approved in Great Britain with a patent number of GB 2593669 and is patent pending in the US. The first page of the GB patent has been attached for reference.

The patent involves the separator itself, a method of manufacturing the separator and a specific inlet design; all of which help provide the following benefits:

- **Significantly improved separation efficiency in separating TSS from water.** This provides a cleaner effluent and more solids capture within the unit itself.
- **A reduction in the washout of captured pollutants which have already been trapped in the separator.** This means more solids that have already been captured stay captured even during periods of high flows instead of washing out and contaminating the effluent.
- **Increased ability to handle peak flows while saving space.** This means that higher flows can be accomplished in a smaller space while still providing a very high level of treatment.

Please do not hesitate to contact me with any questions or comments regarding this patent or if you require additional information regarding the patent.

Best Regards



Gary M. Lohse  
Industrial Sales Manager



(21) Application No: **2002320.6**  
 (22) Date of Filing: **19.02.2020**

(51) INT CL:  
**E03F 5/04** (2006.01) **E03F 5/14** (2006.01)

(71) Applicant(s):  
**Hydro International Limited**  
**(Incorporated in the United Kingdom)**  
**Shearwater House, Clevedon Hall Estate, CLEVEDON,**  
**Avon, BS21 7RD, United Kingdom**

(56) Documents Cited:  
**GB 2459896 A** **KR 102037006 B1**  
**US 20150048014 A1** **US 20070012608 A1**  
**KR20120052493**

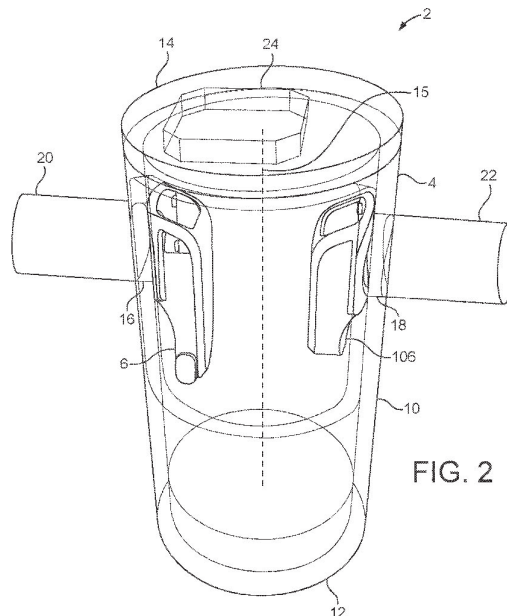
(72) Inventor(s):  
**Mark Richard Bowditch**  
**Philip Walsh**  
**Daniel Stuart Jarman**

(58) Field of Search:  
 INT CL **E01F, E03F**  
 Other: **WPI, EPODOC**

(74) Agent and/or Address for Service:  
**Haseltine Lake Kempner LLP**  
**Redcliff Quay, 120 Redcliff Street, Bristol, BS1 6HU,**  
**United Kingdom**

(54) Title of the Invention: **An inlet module for a separator, a separator and a method of manufacturing a separator**  
 Abstract Title: **An inlet module for a separator, a separator and a method of manufacturing a separator**

(57) An inlet module for a separator 2, the separator comprising a chamber 4 defined by a chamber wall having a chamber wall opening. The inlet module 6 comprises an attachment portion 27 and a projecting portion 29 extending from the attachment portion. The attachment portion is coupled to the chamber wall and comprises an inlet (36 fig 6) for receiving liquid passing through the chamber wall opening. The projecting portion comprises an outlet (46 fig 6) directed such that the liquid exits the inlet module and creates a circulating flow within the chamber about a central axis (15 fig 12) of the chamber. The projecting portion is offset from the attachment portion such that a gap (76 fig 5) is formed between the projecting portion and the chamber wall through which the circulating flow can pass. There is also described a method of manufacturing a separator comprising obtaining an inlet module from a range of inlet modules; obtaining a further inlet module from a range of inlet modules; removing a distal end of the projecting portion of the further inlet module so as to form an outlet module; and coupling the inlet module and the outlet module to the chamber wall so as to form a separator.



# ATTACHMENT 3

## PO COMPARISON

# Purchase Order

## Pennine Plumbing, Inc.

1139 S. Placentia Avenue

Fullerton, Ca. 92831

Tel: 714-888-0040. Fax: 714-888-0043

Cont' Lic # 844663

2/16/2022

Summary: PO (PUR ORDER)

Reference #: 2251-9333

P.O. #: HQU-097534

### Bill To:

PENNINE PLUMBING, INC.

1139 S. PLACENTIA AVE

FULLERTON, CA 92831

### Job Name:

TABC, Inc.

6375 N Paramount Blvd

Long Beach, CA 90805

714-888-0040

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### Description of Work

---

---

The attached submittal has been approved by TABC, Inc.  
Please move forward as per your attached submittal and sales quote..

Any questions please call Dave Linton directly-562-755-2749.

---

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Subtotal	Total
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---

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89506.00

Total

\$89,506.00

All material is guaranteed to be as specified. All work to be completed in a professional manner according to standard practices. Any alteration or deviation from above specifications involving extra costs will be executed only upon written orders and will become an extra charge over and above the estimate. All agreements contingent upon delays beyond our control. Purchaser agrees to pay all costs of collection, including attorney's fees.

Signature

David Linton

Date

2-16-2022

# SALES QUOTE



Quote No: HQU-097534

Quote Date: 02-09-2022

**Account:**

Pennine Plumbing  
1139 S. Plancetia Ave,  
Fullerton CA 92831

**Project Name:** TABC Inc Facility - Long Beach

**Project Location:** Long Beach, CA

**Hydro Contact:** Phil O'Neill

**Hydro Phone:** +1 805-350-8163

**Email:** poneill@hydro-int.com

**Contact:** Dave Linton

**Hydro Ref:** 21\_12\_4350

Description	Quantity	Unit Price	Amount
8' Downstream Defender System	2.00	44,753.00	89,506.00
		<b>Total</b>	<b>89,506.00</b>

Price is quoted in US Dollars and is FOB Jobsite

All treatment systems include precast concrete manhole/vault, preassembled internal components, manhole frame & cover/grate (unless otherwise noted).

Standard Exclusions:

1. Outlet pipe coupling.
2. Grade rings, concrete block, and mortar if needed to extend manhole frame and cover from manhole top slab to final grade.
3. Diversion structure and associated piping.
4. Inlet and outlet pipe boots.
5. Manhole frame and cover other than Hydro International standard.
6. Unloading, storage, final assembly, and installation of any equipment on site.
7. Taxes or duties of any kind.
8. Site design and construction.
9. Hydro International representative during installation, though one may be provided at additional cost.
10. State and/or local taxes will be charged unless Hydro International receives a valid resale/exemption certificate.

Agreement to purchase equipment as quoted above is contingent upon approval of submittal drawings.

This document constitutes a binding contract that may only be cancelled by the agreement of both parties or by the rejection of product submittals without recourse for resubmittal.

All order cancellations in whole or in part that have been approved and released to production will be billed a rate of 50% of the product unit price.

Terms: 100% net 30 days after delivery or notification that unit is ready for delivery (subject to credit approval).

Payment in accordance with Hydro International standard Terms and Conditions. By executing this contract you are verifying that you read and agree to the Terms and Conditions listed on our website. Please review them at <https://www.hydro-int.com/ASW.pdf>

Due to market volatility, proposal is based on receipt of a signed quotation or purchase order within 15 days of the quotation date.

Signed: David Linton Date: 2-16-2022

Name: David Linton Company: Pennine Plumbing

D.B.A

Anderson Plumbing

You can see our terms and conditions of sale on our website at <https://www.hydro-int.com/ASW.pdf>

Hydro International, 94 Hutchins Drive, Portland ME 04102

Tel: +1 (207) 756-6200 Fax: +1 (207) 756-6212 Web: [www.hydro-int.com](http://www.hydro-int.com)

Turning Water Around...®



# SALES QUOTE



**Quote No:** HQU-110552  
**Quote Date:** 08-15-2022  
**Account:**  
Superior Drainage Products, Inc.  
3131 E. Governor John Sevier Hwy,  
Knoxville TN 37914

**Project Name:** The Bowen House at Knollmere Place  
**Project Location:** Nashville, TN

**Contact:** Brent Burnette  
**Hydro Ref:** 22\_12\_1966

**Hydro Contact:** Will Hall  
**Hydro Phone:** +1 770-380-7749  
**Email:** whall@hydro-int.com

PO 8526

Description	Quantity	Unit Price	Amount
8' Downstream Defender System	1.00	34,328.00	34,328.00
		<b>Total</b>	<b>34,328.00</b>

Price is quoted in US Dollars and is FOB Jobsite

All treatment systems include precast concrete manhole/vault, preassembled internal components, manhole frame & cover/grate (unless otherwise noted).

Standard Exclusions:

1. Outlet pipe coupling.
2. Grade rings, concrete block, and mortar if needed to extend manhole frame and cover from manhole top slab to final grade.
3. Diversion structure and associated piping.
4. Inlet and outlet pipe boots.
5. Manhole frame and cover other than Hydro International standard.
6. Unloading, storage, final assembly, and installation of any equipment on site.
7. Taxes or duties of any kind.
8. Site design and construction.
9. Hydro International representative during installation, though one may be provided at additional cost.
10. State and/or local taxes will be charged unless Hydro International receives a valid resale/exemption certificate.

Agreement to purchase equipment as quoted above is contingent upon approval of submittal drawings.

This document constitutes a binding contract that may only be cancelled by the agreement of both parties or by the rejection of product submittals without recourse for resubmittal.

All order cancellations in whole or in part that have been approved and released to production will be billed a rate of 50% of the product unit price.

Terms: Net 30 Days (subject to credit approval).

Payment in accordance with Hydro International standard Terms and Conditions. By executing this contract you are verifying that you read and agree to the Terms and Conditions listed on our website. Please review them at <https://www.hydro-int.com/ASW.pdf>

Due to market volatility, proposal is based on receipt of a signed quotation or purchase order within 15 days of the quotation date. As you are aware, due to the volatility in the energy market cost of fuel has risen significantly over the last several months. As such, we will be initiating a fuel surcharge on all deliveries from this point forward, or until we see fuel prices stabilize and we can change our freight charges back to the standard rates.

Below is the surcharge calculation.

Fuel Surcharge:

A fuel surcharge of \$ .10 per mile, round trip will be charged on all deliveries when the average fuel price is exceeded by 2% in your region of the country. Please refer to (<https://www.smc3.com/weekly-fuel-prices.jsp>). An additional \$ .10 per mile, round trip will be charged for each additional \$ .10 per gallon increase in fuel cost thereafter.

You can see our terms and conditions of sale on our website at <https://www.hydro-int.com/ASW.pdf>

Hydro International, 94 Hutchins Drive, Portland ME 04102  
Tel: +1 (207) 756-6200 Fax: +1 (207) 756-6212 Web: [www.hydro-int.com](http://www.hydro-int.com)

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Signed: Elle Burnette Date: 8/15/22  
Name: Elle Burnette Company: Superior Drainage Products

Site Contact for Delivery Coordination

Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Requested Delivery Date: \_\_\_\_\_

# SALES QUOTE



**Quote No:** HQU-114862  
**Quote Date:** 10-17-2022  
**Account:** Superior Drainage Products, Inc.  
3131 E. Governor John Sewer Hwy,  
Knoxville TN 37914

**Project Name:** Dal-Tile Quartz Plant - Phase II  
**Project Location:** Dickson, TN

**Hydro Contact:** Will Hall  
**Hydro Phone:** +1 770-380-7749  
**Email:** whall@hydro-int.com

PO 8047

**Contact:** Brent Burnette  
**Hydro Ref:** 22\_12\_2827

Description	Quantity	Unit Price	Amount
8' Downstream Defender System This unit has 2' of extra vertical footage.	1.00	36,588.00	36,588.00
<b>Total</b>			<b>36,588.00</b>

Price is quoted in US Dollars and is FOB Jobsite

All treatment systems include precast concrete manhole/vault, preassembled internal components, manhole frame & cover/grate (unless otherwise noted).

Standard Exclusions:

1. Outlet pipe coupling.
2. Grade rings, concrete block, and mortar if needed to extend manhole frame and cover from manhole top slab to final grade.
3. Diversion structure and associated piping.
4. Inlet and outlet pipe boots.
5. Manhole frame and cover other than Hydro International standard.
6. Unloading, storage, final assembly, and installation of any equipment on site.
7. Taxes or duties of any kind.
8. Site design and construction.
9. Hydro International representative during installation, though one may be provided at additional cost.
10. State and/or local taxes will be charged unless Hydro International receives a valid resale/exemption certificate.

Agreement to purchase equipment as quoted above is contingent upon approval of submittal drawings.

This document constitutes a binding contract that may only be cancelled by the agreement of both parties or by the rejection of product submittals without recourse for resubmittal.  
All order cancellations in whole or in part that have been approved and released to production will be billed a rate of 50% of the product unit price.

Terms: Immediate Payment (subject to credit approval).

Payment in accordance with Hydro International standard Terms and Conditions. By executing this contract you are verifying that you read and agree to the Terms and Conditions listed on our website. Please review them at <https://www.hydro-int.com/ASW.pdf>.  
Due to market volatility, proposal is based on receipt of a signed quotation or purchase order within 15 days of the quotation date.  
As you are aware, due to the volatility in the energy market cost of fuel has risen significantly over the last several months. As such, we will be initiating a fuel surcharge on all deliveries from this point forward, or until we see fuel prices stabilize and we can change our freight charges back to the standard rates.

Below is the surcharge calculation.

Fuel Surcharge:

A fuel surcharge of \$ .10 per mile, round trip will be charged on all deliveries when the average fuel price is exceeded by 2% in your

You can see our terms and conditions of sale on our website at <https://www.hydro-int.com/ASW.pdf>  
**Hydro International**, 84 Hulchias Drive, Portland ME 04102  
Tel: +1 (207) 756-6200 Fax: +1 (207) 756-6212 Web: [www.hydro-int.com](http://www.hydro-int.com)  
**Turning Water Around...®**

region of the country. Please refer to (<https://www.smc3.com/weekly-fuel-prices.jsp>). An additional \$.10 per mile, round trip will be charged for an additional \$.10 per gallon increase in fuel cost thereafter.

Signed: Elle Burnette Date: 10/17/22  
Name: Elle Burnette Company: Superior Drainage Products

Site Contact for Delivery Coordination

Name: \_\_\_\_\_  
Phone: \_\_\_\_\_  
Email: \_\_\_\_\_  
Requested Delivery Date: \_\_\_\_\_



# The Panelling Centre

kitchens appliances wardrobes

HEITON BUCKLEY Robinhood Road Off Long Mile Road DUBLIN 22 D22V5T3  
Phone 4089500 e-Mail : creditteam32@heiton.ie

## PURCHASE ORDER RH55693

### Supplier Details

HYDRO INTERNATIONAL UK LTD  
SHEARWATER HOUSE  
VICTORIA ROAD  
CLEVEDON

Phone : 01275878371

Comment : AR PER QUOTE FROM

: PHIL COLLINS

Prepared By : SEAN MCDERMOTT

Date : 8/9/21

**\*\*CONFIRMATION ORDER\*\***

Item	Description	Unit	Qty.	Unit Price	Total Price
916092	2.55M DOWNSTREAM DEFENDER III - SINGLE WALL HDPE PQL1320.1081 Suppliers Item Code - N/A	EA	1	23275.00	23275.00
916093	FLEXSEAL COUPLING 411000 Suppliers Item Code - N/A	EA	2	0.01	0.02
916094	TRANSPORT DELIVERY TO SITE VIA FLAT BED VEHICLE TRA1010.3000 Suppliers Item Code - N/A	EA	1	2500.00	2500.00
916095	1.8M DOWNSTREAM DEFENDER III - SINGLE WALL HDPE PQL1320.1051 Suppliers Item Code - N/A	EA	1	13912.75	13912.75
916111	FLEXSEAL COUPLING 411000 Suppliers Item Code - N/A	EA	2	0.01	0.02
916112	TRANSPORT DELIVERY TO SITE VIA FLAT BED VEHICLE TRA1010.3000 Suppliers Item Code - N/A	EA	1	500.00	500.00
916113	1.8M DOWNSTREAM DEFENDER III - SINGLE WALL HDPE PQL1320.1051 Suppliers Item Code - N/A	EA	1	13912.75	13912.75
916114	FLEXSEAL COUPLING 411000 Suppliers Item Code - N/A	EA	2	0.01	0.02
916115	TRANSPORT DELIVERY TO SITE VIA FLAT BED VEHICLE TRA1010.3000 Suppliers Item Code - N/A	EA	1	500.00	500.00
916116	2.55M DOWNSTREAM DEFENDER III - SINGLE WALL HDPE PQL1320.1081 Suppliers Item Code - N/A	EA	1	23275.00	23275.00
916117	FLEXSEAL COUPLING 411000 Suppliers Item Code - N/A	EA	2	0.01	0.02
916118	TRANSPORT DELIVERY TO SITE VIA FLAT BED VEHICLE TRA1010.3000 Suppliers Item Code - N/A	EA	1	2500.00	2500.00

**THIS IS A DIRECT DELIVERY TO OUR CUSTOMER. USE DELIVERY ADDRESS BELOW. DO NOT deliver to branch.**

Total In EUR Excl. Vat : 80375.58

Direct Order

Deliver To : CLONMEL ENT LTD

ADAMSTOWN NSEW LINK RD.  
MILO 0866043057 OR COLIN  
0860201076.NEAREST EIRCOD K78EF64

**\*\* CONFIRMATION ORDER \*\* \*\* CONFIRMATION ORDER \*\***

PLEASE REFERENCE OUR ORDER NUMBER RH55693 ON ALL CORRESPONDENCE

ALL INVOICES & DELIVERY NOTES SHOULD BE CAREFULLY MARKED HEITON BUCKLEY Robinhood Road

Registered Office: c/o Grafton Group plc, Heron House, Corrig Road, Sandymount Ind Est., Dublin 18. Reg. No. 3510. VAT Reg. No. IE 8053150B WEEE No. 2572W