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PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
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ADDENDUM NUMBER 7

NOTIFICATION DATE:	SOLICITATION TITLE:	SOLICITATION NUMBER:	BID OPENING DATE & TIME:
04/03/2024	Lake Restoration & Improvements Project (Lakes 8 & 9) - RFP	24-014	04/09/2024 2:00PM

**THE FOLLOWING INFORMATION IS HEREBY INCORPORATED INTO,
AND MADE AN OFFICIAL PART OF THE ABOVE REFERENCED BID.**

The following clarifications are issued as an addendum identifying the following changes for the referenced solicitation.

The following answers to written, submitted questions:

1. Below I believe are missing from the specs. Please refer to page 55 in the specs where it calls out in the table of contents these documents but its missing in the specs.

Manufacturer Specifications (included at the end of the specifications):

1. Aeration Systems
2. Inlet Filters

Answer: Please see Attachment A: Manufacture Specifications

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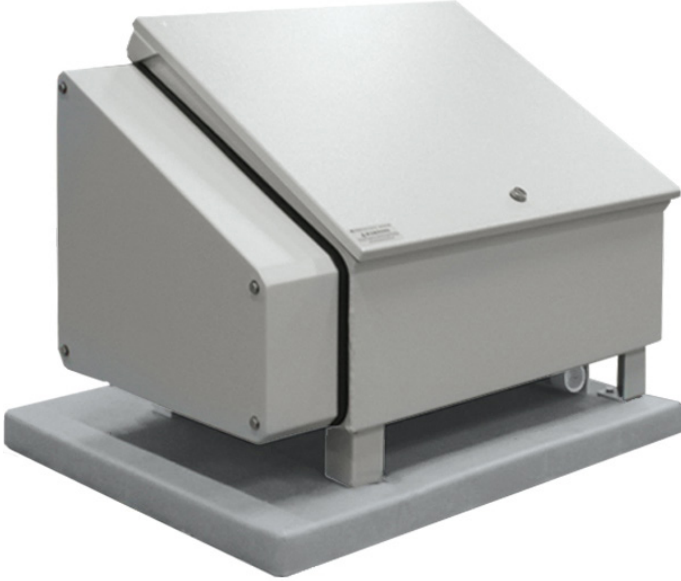
IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET .

1 Hp Aeration Systems

FOR MEDIUM TO LARGE LAKES

Vertex diffused aeration systems are super-efficient, affordable and safe. The rising force of millions of bubbles transports bottom water to the surface, allowing oxygen to be absorbed and circulating the entire water column.



Options: Sound kits, Shallow Water AirStations and VBS remote valve boxes

BENEFITS TO THE LAKE

- ◆ High pumping rate easily penetrates stratification layers
- ◆ Promotes beneficial bacteria growth
- ◆ Prevents low oxygen fish kills
- ◆ Reduces nutrient levels and associated algae growth
- ◆ Oxidizes/reduces bottom muck
- ◆ Expands oxygenated habitat for improved fisheries
- ◆ Reduces aquatic midge and mosquito insect hatches
- ◆ Eliminates foul odors from undesirable dissolved gases

1 HP SYSTEMS

NAME	AIRSTATIONS
AIR 4 XL2	4
AIR 5 XL2	5
AIR 6 XL2	6
AIR 3 XL4	3
AIR 4 XL4	4

SUPER-DUTY BROOKWOOD™ COMPRESSOR

3-year Vertex warranty

(excluding wearable parts: air filters and compressor maintenance kits)



- ◆ UL, 115v or 230v, 4 Cycle, 8.6 CFM
- ◆ Built for continuous 24/7 operation
- ◆ Upgraded rotors, stators, valve plates, bearings and capacitors
- ◆ Vertex SafeStart™ Technology for auto restart under maximum rated pressure without motor damage
- ◆ Thermal overload protection
- ◆ Oil-free, and require no lubrication
- ◆ 2-3 year extended duty cycle between scheduled maintenance

LARGE QUIETAIR™ CABINET

Limited lifetime warranty against rust

- ◆ Powder coated aluminum for a durable attractive finish
- ◆ Equipped with a stamped ventilation grill
- ◆ High capacity 140 CFM fan
- ◆ Class "A" GFCI Protection on compressor and fan circuits
- ◆ Quick disconnect switch included
- ◆ Easy access design with cam lock
- ◆ Easy plug-in connection to waterside electrical service
- ◆ Heavy duty, light weight mounting pad included
- ◆ Optional muffler box and additional insulation

©Vertex Aquatic Solutions. We reserve the right to improve/change our designs/specifications without notice or obligation.

Getting the right system requires knowing the acreage, depth, shape and slope and location of power source.

Contact Vertex or your local Vertex Dealer for free design recommendations.

BOTTOMLINE™ SUPPLY TUBING

15-year Vertex warranty

- ◆ Available in 50', 100', 250' and 500' spools
- ◆ Self-weighted for easy installation
- ◆ Flexible PVC composite direct burial and submersible tubing
- ◆ Use with standard PVC solvent weld cement and insert fittings
- ◆ High wall thickness for durability and protection from punctures
- ◆ Remains flexible in cold temperatures.
- ◆ Over-sized I.D. for high flow



More than 60,000 diffuser disks installed without a single reported clogged or blown-out membrane. Each produces up to 3000 fine micron bubbles – the majority 500 to 1000 microns.



AIRSTATION DISKS

5-year "No Questions" warranty

- ◆ 9" diameter, flexible membrane diffuser discs
- ◆ Self-cleaning, low maintenance
- ◆ EPDM compound with 100% rebound memory
- ◆ Flexible, long-wearing and clog resistant even in the dirtiest waterbodies
- ◆ "Delta" surface pattern increases active surface area
- ◆ Highly efficient even during low and moderate air flows
- ◆ Larger, stronger diffuser ring improves membrane retention
- ◆ StableTrak™ technology increases lift velocity

SELF-SINKING AIRSTATION: XL1, XL2, XL2SW

5-year "No Questions" warranty

- ◆ Made of powder-coated stainless steel
- ◆ Designed to prevent settling into soft bottom sediments.
- ◆ Adjustable diffuser risers accommodate any site requirements

STANDARD AIRSTATION: XL4, XL5

5-year "No Questions" warranty

- ◆ Vacuum-formed HDPE base, spot-welded for unit integrity
- ◆ Hollow chamber design for the addition of gravel ballast
- ◆ Lipped design prevents settling into soft bottom sediments.





FLEXSTORM™ Inlet Filter Specifications and Work Instructions

Product: FLEXSTORM Inlet Filters

Manufacturer: Inlet & Pipe Protection, Inc www.inletfilters.com

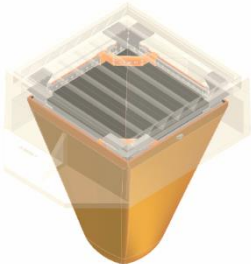
A subsidiary of Advanced Drainage Systems (ADS) www.ads-pipe.com

1.0 Description of Work:

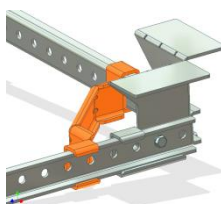
1.1 The work covered shall consist of supplying, installing, and maintaining/cleaning of the FLEXSTORM Inlet Filter assembly. The purpose of the FLEXSTORM Inlet Filter system is to collect silt and sediment from surface storm water runoff at drainage locations shown on the plans or as directed by the Engineer. FLEXSTORM PURE, permanent filters, are capable of removing small particles, hydrocarbons, and other contaminants from drainage “hot spots”.

2.0 Material:

2.1 The FLEXSTORM Inlet Filter system is comprised of a corrosion resistant steel frame and a replaceable geotextile sediment bag attached to the frame with a stainless steel locking band. The sediment bag hangs suspended from the rigid frame at a distance below the grate that shall allow full water flow into the drainage structure if the bag is completely filled with sediment.



2.2 The FLEXSTORM Inlet Filter frame includes lifting handles in addition to the standard overflow feature. A FLEXSTORM Removal Tool engages the lifting bars or handles to allow manual removal of the assembly without machine assistance. The frame suspension system on most rectangular designs is adjustable in 1/2” increments up to 5” per side should the casting or drainage structure have imperfections.





2.3 **FLEXSTORM CATCH-IT** Inlet Filters for temporary inlet protection: The FLEXSTORM CATCH-IT framing is galvanized or zinc plated for corrosion resistance. The “**FX**” Woven Polypropylene filter bag is the design standard, although the “**IL**” Nonwoven geotextile is also available if preferred by the engineer. These products are typically used for temporary inlet protection lasting 3 months (short term road work) to 5 years (residential developments).



2.4 **FLEXSTORM PURE** Inlet Filters for permanent inlet protection: The FLEXSTORM PURE framing is comprised of 304 stainless steel with a 25 year life rating. Multiple filter bags are available: **FX**, **FX+**, **PC**, **PC+**, **LL** and others. The Post Construction “**PC+**” is the design standard consisting of the “**FX**” Woven Polypropylene sediment bag lined with Adsorb-it filter fabric, which is made from recycled polyester fibers. The “**PC+**” includes a replaceable hydrocarbon skimmer pouch strapped to the bottom of the bag for advanced TPH removal.



3.0 Filter Bag Specifications and Capabilities:

3.1 Material Properties (taken from manufacturers average roll value):

FLEXSTORM FILTER BAGS	(22" depth)	(12" depth)	Clean Water Flow Rate (GPM/SqFt)	Min A.O.S. (US Sieve)
	STD Bag P/N	Short Bag P/N		
FX: Standard Woven Bag	FX	FX-S	200	40
FX+: Woven w/ Oil Skimmer	FXP	FXP-S	200	40
FXO: Woven w/ Oil Boom	FXO	FXO-S	200	40
PC: Post Construction Bag	PC	PC-S	137	140
PC+: PC w/ Oil Skimmer	PCP	PCP-S	137	140
LL: Litter and Leaf Bag	LL	LL-S	High	3.5
IL: IDOT Non-Woven Bag	IL	IL-S	145	70



3.2 Standard Bag Sizes and Capabilities: Bag Sizes are determined by clear opening dimensions of the drainage structure. Once frame design size is confirmed, Small - XL bag ratings can be confirmed to meet design criteria. Ratings below are for standard 22” deep bags.

Standard Bag Size ⁶	Solids Storage Capacity (CuFt)	Filtered Flow Rate at 50% Max (CFS)			Oil Retention (Oz)	
		FX	PC	IL	PC*	PCP**
Small	1.6	1.2	0.8	0.9	66	155
Medium	2.1	1.8	1.2	1.3	96	185
Large	3.8	2.2	1.5	1.6	120	209
XL	4.2	3.6	2.4	2.6	192	370

4.0 **Tested Filtration Efficiency and Removal Rates:** Filtration Efficiency, TSS, and TPH testing performed under large scale, real world conditions at accredited third party erosion and sediment control testing laboratory. (See Full Test Reports at www.inletfilters.com)



Inside View of Hopper Agitator



Hopper With Outlet Pipe Leading To Area Inlet



Area Inlet Simulated Showing Influent Discharge From Pipe

4.1 **FLEXSTORM “FX” Filtration Efficiency Test Results:** All testing performed in general accordance with the ASTM D 7351, *Standard Test Method For Determination of Sediment Retention Device Effectiveness in Sheet Flow Application*, with flow diverted into an area inlet. Test Soil used as sediment had the following characteristics with a nominal 7% sediment to water concentration mix. This is representative of a heavy sediment load running off of a construction site.

Soil Characteristics	Test Method	Value	Filtration Efficiency of “FX” FLEXSTORM Bag 82%
% Gravel	ASTM D 422	2	
% Sand		60	
% Silt		24	
% Clay		14	
Liquid Limit, %	ASTM D 4318	34	
Plasticity Index, %		9	
Soil Classification	USDA	Sandy Loam	
Soil Classification	USCS	Silty Sand (SM)	



4.2 **FLEXSTORM “PC” and “PC+” Test Results:** TSS measured on effluent samples in accordance with SM 2540D and TPH in accordance with EPA 1664A.

Product Tested	110 micron Sediment Load	Ave Flow Rate GPM	% TSS Removal	Soil Retention Efficiency
FLEXSTORM PC Sediment Bag	1750 mg/L using OK-110 Silica Sand and Clean Water	23	99.28%	98.96%
		48	99.32%	99.25%
		70	98.89%	98.80%

Product Tested	Street Sweep Sediment Load	Particle Size of Sediment Load	% TSS Removal	Soil Retention Efficiency
FLEXSTORM PC Sediment Bag	2.5% = 100 lbs Sed / 4000 lbs water	.001 mm – 10.0 mm (median 200 micron)	99.68%	95.61%

Product Tested	Hydrocarbon Load	Ave Flow Rate GPM	% TPH Removal	Oil Retention Efficiency
FLEXSTORM PC+	243 mg/L using 750 mL (1.45 lb) used motor oil + lube oil and clean water	19	99.04%	97.22%
FLEXSTORM PC		20	97.67%	91.61%
FLEXSTORM PC+		92	96.88%	99.11%

5.0 Identification of Drainage Structures to Determine FLEXSTORM Item Codes:

5.1 The Installer (Contactor) shall inspect the plans and/or worksite to determine the quantity of each drainage structure casting type. The foundry casting number or the exact grate size and clear opening size will provide the information necessary to identify the required FLEXSTORM Inlet Filter part number. Inlet Filters are supplied to the field pre-configured to fit the specified drainage structure. Item Codes can be built using the FLEXSTORM Product Configurator at www.inletfilters.com. Detailed Submittal / Specification drawings are linked to each Item Code and available for download by engineers and contractors to include on plans and/or verify field inlet requirements. An example of a typical drawing is shown below.



FLEXSTORM P/Ns 62SHDFX & 62SHDFXP
 HD4 INLET TYPE: SQUARE/RECT PRECAST OPENING WITH 4 SEAT GRATE SUPPORT

Pure Frame with FX Bag		Field Inlet Dimensions		Flexstorm Framing Dims				Flexstorm Ratings (Flow at 50% Max)			Pure Frame with FX Bag	
ADS P/N	Flexstorm Item Code	Grate Size (A x C)	Clear Opening (B x D)	B1	D1	A1	C1	Bag Capacity (ft³)	PC/PC+ Flow Rate (CFR)	Bypass (CFR)	ADS P/N	Flexstorm Item Code
62SHDFX	FHD4-95-95-90-90-FX	9 1/2 X 9 1/2	8 X 8	6.0	5.0	9.5	9.3	0.2	0.5	1.2	62SHDFXP	FHD4-95-95-90-90-FXP
62SHDFX	FHD4-115-115-105-105-FX	11.75 x 11.5	10.5 x 10.5	8.0	7.5	11.5	11.3	0.4	0.7	1.7	62SHDFXP	FHD4-115-115-105-105-FXP
62SHDFX	FHD4-118-118-105-105-FX	11.75 x 11.75	10.5 x 10.5	8.0	7.5	11.5	11.5	0.4	0.7	1.7	62SHDFXP	FHD4-118-118-105-105-FXP
62SHDFX	FHD4-120-120-105-105-FX	12 X 12	10.5 X 10.5	8.5	7.5	12.0	11.8	0.4	0.7	1.7	62SHDFXP	FHD4-120-120-105-105-FXP
62SHDFX	FHD4-134-134-110-110-FX	13.375 X 13.375	11.50 X 11.50	9.5	8.5	13.0	13.1	0.5	0.8	1.9	62SHDFXP	FHD4-134-134-110-110-FXP
62SHDFX	FHD4-130-130-120-120-FX	13 x 13	12 x 12	9.5	9.0	13.0	12.8	0.5	0.8	2.0	62SHDFXP	FHD4-130-130-120-120-FXP
62SHDFX	FHD4-144-144-133-133-FX	14.375 x 14.375	13.25 x 13.25	10.5	10.5	14.0	14.1	0.7	0.9	2.3	62SHDFXP	FHD4-144-144-133-133-FXP
62SHDFX	FHD4-145-145-133-133-FX	14.5 X 14.5	13.25 X 13.25	11.0	10.5	14.5	14.3	0.7	0.9	2.3	62SHDFXP	FHD4-145-145-133-133-FXP
62SHDFX	FHD4-159-159-143-143-FX	15.87 X 15.87	14.25 X 14.25	12.0	11.5	15.5	15.6	0.9	1.0	2.5	62SHDFXP	FHD4-159-159-143-143-FXP
62SHDFX	FHD4-176-176-160-160-FX	17.75 x 17.75	16 x 16	14.0	13.0	17.5	17.5	1.2	1.1	2.9	62SHDFXP	FHD4-176-176-160-160-FXP

NOTES:

- RATINGS SHOWN ARE FOR STANDARD 22" BAG DEPTH; "SHORT" 12" DEPTH BAGS ARE AVAILABLE WITH -S SUFFIX; RATINGS REDUCED BY ~50%.
- THE FOLLOWING REQUIRES ADDITIONAL REVIEW
 - GRATES WITH EXTENDED BOTTOMS
 - ANY OBSTRUCTED INLET OPENINGS

ALL PRODUCTS MANUFACTURED BY INLET & PIPE PROTECTION, INC. A DIVISION OF ADS, INC. WWW.INLETFILTERS.COM (866) 287-9655 PH (630) 355-3477 FX INFO@INLETFILTERS.COM

DATE: 07/20/16
 SCALE: 1/8"=1'-0"
 SHEET: 1 OF 1

6.0 Installation Into Standard Grated Drainage Structures:

6.1 Remove the grate from the casting or concrete drainage structure. Clean the ledge (lip) of the casting frame or drainage structure to ensure it is free of stone and dirt. Drop in the FLEXSTORM Inlet Filter through the clear opening and be sure the suspension hangers rest firmly on the inside ledge (lip) of the casting. Replace the grate and confirm it is elevated no more than 1/8", which is the thickness of the steel hangers. For Curb Box Inlet Filters: Insert FLEXSTORM CATCH IT Inlet Filter as described above, pull the rear curb guard flap up and over the open curb box until tight, align magnets to ensure firm attachment to the top portion of the curb box casting. If the curb back opening is not magnetic, slide a typical rock sack or 2 x 4 through the 2-ply rear curb box flap to create a dam which will direct runoff into the sediment bag.





- 7.0 Maintenance Guidelines:** The frequency of maintenance will vary depending on the application (during construction, post construction, or industrial use), the area of installation (relative to grade and runoff exposure), and the time of year relative to the geographic location (infrequent rain, year round rain, rain and snow conditions). The FLEXSTORM Operation & Maintenance Plan (as shown in 7.5) or other maintenance log should be kept on file.
- 7.1 **Frequency of Inspections:** Construction site inspection should occur following each ½” or more rain event. Post Construction inspections should occur three times per year (every four months) in areas with year round rainfall and three times per year (every three months) in areas with rainy seasons before and after snowfall season. Industrial application site inspections (loading ramps, wash racks, maintenance facilities) should occur on a regularly scheduled basis no less than three times per year.
- 7.2 **General Maintenance for standard sediment bags:** Upon inspection, the FLEXSTORM Inlet Filter should be emptied if the sediment bag is more than half filled with sediment and debris, or as directed by the Engineer. Remove the grate, engage the lifting bars or handles with the FLEXSTORM Removal Tool, and lift the FLEXSTORM Inlet Filter from the drainage structure. Machine assistance is not required. Dispose of the sediment or debris as directed by the Engineer. As an alternative, an industrial vacuum may be used to collect the accumulated sediment if available. Remove any caked on silt from the sediment bag and reverse flush the bag for optimal filtration. Replace the bag if the geotextile is torn or punctured to ½” diameter or greater on the lower half of the bag. If properly maintained, the Woven sediment bag will last a minimum of 4 years in the field.
- 7.3 **Inspection and Handling of the FLEXSTORM PC / PC+ post construction sediment bag:** The PC+ sediment bags will collect oil until saturated. Both the Adsorb-it filter liner and the skimmer pouch will retain oil. The volume of oils retained will depend on sediment bag size. Unlike other passive oil sorbent products, Adsorb-it filter fabric has the ability to remove hydrocarbons at high flow rates while retaining 10- 20 times its weight in oil (weight of fabric is 12.8 oz / sq yd). The average 2’ x 2’ PC Bag contains approx .8 sq yds, or 10 oz of fabric. At 50% saturation, the average Adsorb-it lined PC filter will retain approximately 75 oz (4.2 lbs) of oil. Once the bag has become saturated with oils, it can be centrifuged or passed through a wringer to recover the oils, and the fabric reused with 85% to 90% efficacy. If it is determined, per Maintenance Contracts or Engineering Instructions, that the saturated PC sediment bags will be completely replaced, it is the responsibility of the service technician to place the filter medium and associated debris in an approved container and dispose of in accordance with EPA regulations. Spent Adsorb-it can be recycled for its fuel value through waste to energy incineration with a higher BTU per pound value than coal. The oil skimmers start white in color and will gradually turn brown/black as they become saturated, indicating time for replacement. The average skimmer pouch will absorb approximately 62 oz (4 lbs) of oil before requiring replacement. To remove the pouch simply unclip it from the swivel strap sewn to the bottom of the bag. Dispose of all oil contaminated products in accordance to EPA guidelines. The ClearTec Rubberizer media used in the pouch, since a solidifier, will not leach under pressure and can be disposed of in most landfills, recycled for industrial applications, or burned as fuel.



- 7.4 Sediment Bag Replacement: When replacing a Sediment Bag, remove the bag by loosening or cutting off the clamping band. Take the new sediment bag, which is equipped with a stainless steel worm drive clamping band, and use a drill or screw driver to tighten the bag around the frame channel. Ensure the bag is secure and that there is no slack around the perimeter of the band. For Oil absorbent boom bags, simply replace the oil boom or pouch when saturated by sliding it through the mesh support sleeve.



