

**NORTH CHARLESTON SEWER DISTRICT**  
**BID NOTICE**  
**MEMBRANE FINE BUBBLE DIFFUSERS**

You are invited to submit a bid in accordance with the requirements of this solicitation which are contained herein. Bids must be submitted to the Purchasing Department by **Tuesday March 7, 2017, prior to 2:00 p.m.**, at which time all bids received will be publicly opened and read aloud at the North Charleston District Administrative Offices, 7225 Stall Road, North Charleston. Bids not received by 2:00 p.m. will not be considered.

Bids may be delivered to:

Purchasing Department  
North Charleston Sewer District  
7225 Stall Road  
North Charleston, South Carolina 29406

Bids may be mailed to:

Purchasing Department  
North Charleston Sewer District  
PO Box 63009  
North Charleston, South Carolina 29419

Bids must be properly sealed and marked '**Bid Enclosed**', with the item(s) bid on identified on the outside of the envelope. Failure to do so may result in premature opening of, or a failure to open, such bid. Bids which are received by FAX or other facsimile transmittal will not be accepted for consideration.

**ADDENDA AND INTERPRETATIONS:** No interpretation of the meaning of the Specifications, or other Bid Documents will be made orally to any Bidder. Every request for such interpretation should be in writing and emailed to [purchasing@ncsd-sc.com](mailto:purchasing@ncsd-sc.com). To be given consideration, such request must be received no later than 12 noon on **February 27, 2017**. **Any and all such interpretations and any supplemental instructions will be made in the form of written Addenda to the Specifications which, if issued, will be posted on the Purchasing website at <http://www.ncsd-sc.com/Purchasing.php>.** Failure of any bidder to receive any such Addendum or interpretation shall not relieve such Bidder from any obligation under his Bid as submitted. All Addenda so issued shall become part of the Contract Documents.

## **INTRODUCTION**

The North Charleston Sewer District is issuing this Invitation For Bids to qualified established firms interested in supplying **MEMBRANE FINE BUBBLE DIFFUSERS**, used in the Waste activated sludge aeration basin to transfer oxygen into the sludge, **and ORIFICE PLUGS**. This bid is for materials only; NCSD will install.

## **SUBMITTALS**

1. Each bid submitted for products from manufacturers claiming equivalency to those named in item 4 under Specifications must include manufacturers specification literature and a minimum of five (5) references, including current contact names, phone numbers, and email addresses. It is the intent of the District not to award the contract to any bidder who does not furnish satisfactory evidence that they have been in the business of manufacturing diffusers for a minimum of five (5) years, and that they successfully completed projects of this type and magnitude, and that they have sufficient capital, equipment and personnel to enable them to complete the required work successfully within the number of days submitted on the bid form.
2. The Instructions to Bidders and Conditions form must be signed and returned with you bid.

## INSTRUCTIONS TO BIDDERS

1. Unless otherwise required, submit three (3) copies of each bid.
2. Bids, amendments thereto or withdrawal requests received after the time advertised for bid opening will be void regardless of when they were mailed.
3. Quote prices on units specified with packing included.
4. Any deviation from specifications or exceptions to the bid must be clearly noted in the space provided on the specification/bid form.
5. If specifications or descriptive papers are submitted with bids, enter bidders name thereon.
6. If the article bid upon has a trade name or brand, show same on bid.
7. When required furnish samples, free of expense, prior to opening of bids. Label each sample with bidder name and item number. Should you wish samples returned at your expense when not destroyed in test, make requests for return within ten (10) days following opening of bids.
8. Show delivery time in number of calendar days after order is received.
9. These Instructions and Conditions, as well as the bid form, must be signed and dated by a qualified representative of your company and returned to this office with the bid in order to be considered.
10. All bids must be sealed and clearly marked on the outside with "Bid Enclosed,@ and just below that, indicate item(s) for which bid is submitted.
11. Use enclosed 'Invitation to Bid' form to make copies if more than one (1) bid is to be submitted.
12. All questions concerning this bid must be submitted in writing and emailed to [purchasing@ncsd-sc.com](mailto:purchasing@ncsd-sc.com).
13. **It shall be the responsibility of the Bidder to call to the attention of the Buyer obvious omissions of such magnitude as to affect the strength, adequacy, function, completeness, or cost of any part in ample time for amendment by Addendum prior to bid opening date.**
14. **Item(s) specified by brand name are intended to establish a standard of quality which will be required. Similar item or items of manufacturers other than those listed which are included in the bids submitted will be considered if comparable in quality and function. It will be the responsibility of the bidder to provide all technical information as to the acceptability of the alternate item(s).**

## CONDITIONS

1. NCS D reserves the right to reject any and all bids, to waive technicalities, and to be the

- sole judge of the suitability of products or equipment for use by the NCSD.
2. Unit prices will govern over extended prices, unless otherwise stated in the bid specifications.
  3. All materials and products offered must be guaranteed to meet the requirements of the specifications indicated, given, or referred to.
  4. Prices bid must be based upon payment after delivery and within thirty (30) days of receipt of invoice. Discounts for payment in less than thirty (30) days will not be considered in making award.
  5. The right is reserved, in case tie bids are received, to make award as considered to be most advantageous to the NCSD.
  6. The right is reserved to reject any bid in which the delivery time indicated is considered sufficient to delay the operation for which the commodity is intended.
  7. **APPLICABLE SALES TAX MUST BE SHOWN AS A SEPARATE ITEM ON THE BID FORM, UNLESS OTHERWISE REQUESTED.**
  8. Bidders are invited to attend the bid opening.
  9. Unless otherwise indicated, prices must be firm for sixty (60) days after bid opening.
  10. Ambiguous bids which are uncertain as to terms, delivery, quantity, or compliance with specifications may be rejected or otherwise disregarded.
  11. Any bid submitted that is not properly completed or not in full compliance with these Instructions and Conditions may be rejected.
  12. Any manufacturers' names, trade names, brand names, or catalog numbers used in the specifications are for the purpose of describing and establishing general quality levels. Such references are not intended to be unnecessarily restrictive. Unless otherwise stated in the specifications, bids will be considered for any brand which meets or exceeds the quality of the specifications listed for any item.

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**Authorized Signature**

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**Date**

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**Type or print name and title**

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**Name of Bidder (Company)**

# **SPECIFICATIONS**

## **MEMBRANE FINE BUBBLE**

### **DIFFUSERS**

1. The Supplier shall furnish all materials necessary for NCSD's installation, testing, and placing into satisfactory operation all supplied fine bubble diffusers.
2. The diffusers shall be provided complete with all PVC or polypropylene subplates.
3. The orifice plugs shall be supplied with orifice plug installation tool.
4. The membranes, subplates, and orifice plugs shall be supplied by Xylem (Sanitaire), 9333 N. 49th Street, Brown Deer, Wisconsin 53223; Aquarius Technologies, Inc., 1103 Mineral Springs Dr., Port Washington, Wisconsin 53074; or Environmental Dynamics International (EDI), 5601 Paris Road, Columbia, MO 65202, or equal.
5. The Supplier shall submit Shop Drawings, Installation and Operation & Maintenance Instructions and other information for a complete installation to be performed by NCSD, and adjustment instructions and recommendations.
6. Certified oxygen transfer efficiency shall be submitted for identical diffusers based on previous testing conducted in accordance with the latest revision of ASCE Standards for the design submergence and range of operating airflows specified herein.
7. The diffuser manufacturer shall submit a performance guarantee and one-year warranty.
8. The materials covered by these Specifications are intended to be standard equipment of proven reliability and as manufactured by reputable manufacturers having experience in the production of such equipment.

9. The equipment furnished shall be designed and constructed in accordance with the best practices and methods and shall operate satisfactorily when installed and operated per the manufacturer's recommendations.
10. All material shall be new and both workmanship and materials shall be of the very best quality, totally suitable for use with compressed air for the service conditions.
11. The system for expansion and contraction shall be designed for a temperature range of a minimum of 0°F (with 1 foot of water over the top of the diffusers, operated at 1 scfm per diffuser) and a maximum of 140°F measured at the discharge of the blower.
12. All membrane fine bubble aeration equipment shall be supplied from a single manufacturer.
13. Special care shall be exercised during delivery and handling material to prevent damage, degradation of materials, and fouling.
14. The Supplier shall ensure that all membrane diffusers shall be completely protected from exposure to sunlight.
15. All parts of the air diffusion equipment shall be shipped to the job site adequately palletized and protected from breakage and dirt.
16. The membrane fine bubble diffusers will be used in the Waste activated sludge aeration basin to transfer oxygen into the sludge. The Manufacturer shall ensure that all materials are compatible with potential constituents found in wastewater.
17. The diffuser manufacturer shall unconditionally guarantee the membrane diffuser system performance for specified transfer efficiency.
18. The diffusers and diffuser system shall operate efficiently and effectively over the range 0.5 to 3.5 scfm per diffuser.

19. Membrane diffuser transfer efficiency requirements at 14.7 feet of diffuser submergence shall be as follows:

<b>Airflow (scfm/diffuser)</b>	<b>Minimum Clean</b>
1.18	31.5
1.75	30.1
2.35	29.0
3.00	28.1
3.50	27.5

20. Clean water transfer efficiency shall be based on a liquid temperature of 20°C, oxygen saturation value and transfer characteristic (KLa) equal to that of clean tap water at 20°C, and initial dissolved oxygen concentration of zero mg/l, an alpha factor of 1.0, a beta factor of 1.0, and a temperature correction factor (theta) of 1.024.
21. No tolerance shall be allowed for required minimum oxygen transfer efficiency.
22. If within one year after the date that diffused aeration equipment is placed into service, any materials are found to be defective, the manufacturer shall pay materials costs for replacement with satisfactory materials. The warranty period of one year will extend from the date that equipment is placed into service or after correction of defective materials, whichever is later.
23. Diffuser shall be a one-piece compression molded part with a minimum thickness of 0.080" for nominal 9-inch diameter unit.

The EPDM rubber compound shall have the following minimum characteristics:

		<b>ASTM</b>
Base Polymer:	EPDM	
UV Resistance:	Carbon Black	
Specific Gravity:	1.25 or Less	
Ozone Resistance	Pass	D1171
Durometer, Shore A:	60 Point $\pm$ 5	2240
Tensile Strength:	1,450 psi	D412
Elongation at Break:	500%	D412
Accelerated Aging		
Max. Compression Set		
	@ 23°C, 22 Hrs. 20%	D573
	@ 70°C, 22 Hrs. 40%	

24. The material shall be proven to be effective in fine bubble aeration applications with at least five installations with not less than 3 years' experience each of satisfactory performance. Materials/diffusers that do not comply with performance history requirements will not be accepted. Membrane shall collapse and seal when aeration system air is turned off. Membrane shall be able to collapse onto the support base when air is not being diffused. Diffusers that require a center bolt to limit membrane deflection will not be allowed.
25. The vertical edges of the diffuser shall not be exposed to the liquid.
26. Diffusers shall be substantially free from any material soluble in sewage containing household industrial wastes of any character and from any loose, unbonded material which may affect their normal and proper operation.
27. All diffusers shall be free of cracks, soft spots, or other defects which may cause unequal air distribution. The diffuser elements shall provide a constant and uniform distribution of the emergent diffused air bubbles across their entire exposed area.



28. Each subplate shall incorporate a control orifice. The air release of the orifice shall be distributed evenly under the horizontal surface of the diffuser element to meet the operating requirements including pressure, temperature, wastewater characteristics, airflow per diffuser, etc. for the system specified.
29. Orifices shall be of the same diameter and length for all diffuser subplates. Orifices shall be provided free of any shavings, obstructions, or residual solvent weld material.
30. All subplate orifices shall be factory drilled. Improperly fabricated orifices on all associated subplates shall be replaced by the manufacturer at no cost to the Owner.
31. Subplate orifices shall be 13/64-inch diameter control orifices unless otherwise required.
32. The Supplier shall replace any diffusers which are damaged in shipment or during installation at no additional cost to the Owner.

\*\*\*\*THE BUDGETED AMOUNT FOR THIS PROJECT IS \$140,000. THIS BID WILL BE AWARDED TO THE SUPPLIER THAT WILL SUPPLY THE MOST DIFFUSERS WITHOUT EXCEEDING THIS BUDGET. BIDDERS MUST FILL IN THE QUANTITY OF DIFFUSERS ON THE BID FORM.

THE TOTAL AMOUNT MUST INCLUDE ALL FREIGHT/SHIPPING & HANDLING, AND SALES TAX OF 8.5%. **NCSD MUST PAY SALES TAX WHETHER THE SUPPLIER COLLECTS IT OR NOT, SO ALL BIDDERS MUST INCLUDE SALES TAX ON THEIR BID FORM WHETHER THEY COLLECT IT OR NOT.** THE TOTAL AMOUNT ON THE BID FORM MUST NOT EXCEED \$140,000.

**NORTH CHARLESTON SEWER DISTRICT  
SUPPLY AND DELIVERY OF  
MEMBRANE FINE BUBBLE DIFFUSERS  
BID FORM**

Description	Quantity	Unit	Unit Price	Extended Price
Diffusers and subplates		Ea		
Orifice Plugs with tool	2606	Ea		
SC Sales Tax (8.5%)				
Freight/Shipping/Handling charge				
Total Delivered Cost				

**LIST OR ATTACH AS SEPARATE PAGE WORKMANSHIP WARRANTIES:**

**In compliance with the invitation, and subject to all conditions thereof, the undersigned offers and agrees to furnish all items quoted on, at prices set forth above within \_\_\_\_\_ days after receipt of order, delivered, all transportation costs included.**

\_\_\_\_\_  
**Bidder**

Signed By: \_\_\_\_\_

Print name and Title: \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**TELEPHONE**

\_\_\_\_\_  
**Email**

\_\_\_\_\_  
**DATE**