

PORT OF TACOMA INVITATION TO BID #81369
STORMWATER TREATMENT SYSTEMS
ADDENDUM #2
DATE 03/09/18

The following is additional information regarding ITB-81369 titled Treatment System for Stormwater released on 2/22/2018. **The due date and time for responses remains as 3/15/2018 @ 2:00PM PST.** This addendum includes revisions to the ITB. This addendum is hereby made part of the ITB and therefore, the information contained herein shall be taken into consideration when preparing and submitting a bid.

PART 1 – CHANGES TO TECHNICAL SPECIFICATIONS

- A. **Attachment C, Specification 33 44 19** – Treatment Systems; add new paragraph 2.01 B.7. as follows:
 - 7. Pipe penetrations shall be provided with the Treatment Systems. Penetration locations shall be as shown in the final design drawings to be provided following Contract execution.

PART 2 – CHANGES TO CONTRACT DRAWINGS

- A. **Not Used.**

PART 3 – QUESTIONS AND ANSWERS

- A. **Not Used**

END OF SECTION

ATTACHMENTS:

ATTACHMENT C SPECIFICATION 33 44 19

PART 1 - GENERAL

1.1 SUMMARY

- A. The Work under this section includes procurement, required storage prior to delivery, insurance, and transport of all the stormwater treatment system equipment, materials, and appurtenances as shown on the Drawings and specified herein.

1.2 REFERENCES

- A. Not Used.

1.3 SUBMITTALS

- A. Submit the following information in a single package under the Product Review category, according to Section 01 33 00, Submittal Procedures.
 - 1. Shop drawings showing general arrangement of equipment and dimensions and supporting hydraulic calculations.
 - 2. Structural design calculations sealed by a professional engineer licensed to practice in the State of Washington. Calculations shall demonstrate that the treatment system are designed to meet above ground structural design requirements for concrete structures and applicable building codes.
 - 3. System performance data.
 - 4. Handling, storage and installation instructions.
 - 5. Manufacturer representative qualifications.
 - 6. Operation and maintenance instructions.

1.4 QUALITY ASSURANCE

- A. Field Quality Control:
 - 1. The Engineer will:
 - a. Review materials proposed for use.
 - b. Inspect prior to installation.
 - c. Observe placement.
- B. Manufacturer shall provide, at no additional cost to the Port, 10 inspections and 1 annual maintenance of the treatment system for a period of one year. Provide a schedule for tenant notification at the time of installation completion.

1.5 REFERENCE DOCUMENTS

- A. The following reference documents are available at the Port for review or are included in the Construction Plans:
 - 1. Stormwater Engineering Report for West Sitcum Marine Terminal, Parametrix, January 2018.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Treatment Systems supplier shall deliver all treatment system equipment and materials to the West Sitcum Marine Terminal for storage by the General Contractor of the West Sitcum Stormwater Treatment project, and not before General Contractor has mobilized and is ready to accept delivery. The specific delivery location shall be designated by the Engineer. Supplier shall coordinate delivery with the Port's installation Contractor, who shall provide equipment for material offloading at the delivery site. No material shall be

ATTACHMENT C
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SECTION 33 44 19 - TREATMENT SYSTEMS

delivered prior to the times and dates specified by the Contractor. The Port shall incur no additional costs if the delivery schedule differs from this delivery date window.

- B. Protect all materials from damage during delivery, offloading, and storage. Cover UV sensitive materials if materials will be stored for more than one week. Storage surfaces should be free from dirt, mud and debris.
- C. Filter media shall be stored away and covered to prevent from being fouled by other granular materials and construction related sediment in the air.

PART 2 - PRODUCTS

2.1 TREATMENT SYSTEMS

A. GENERAL REQUIREMENTS

- 1. The stormwater treatment systems shall have an approximate loading rate of 1.0 gpm per square foot of filtration media. The number of cells required for each system and the Basis of Design model numbers are provided below.

Location	Port Asset Nos.	No. of Units	MWS Model No.	No. of Treatment Cells per Unit
Basin A	TBD	6	MWS-L-8-24-V-HC	6
		2	MWS-L-8-8-V	2
Basin B	TBD	4	MWS-L-8-24-V-HC	6
		2	MWS-L-8-20-V	5
Basin C	TBD	10	MWS-L-8-24-V-HC	6
		2	MWS-L-8-20-V	5

- 2. The treatment systems shall have a pre-filtration stage followed by an adsorption media stage and utilize flow-through chambers where stormwater is introduced to the adsorption media using horizontal flow.
- 3. The treatment system must possess a flow control device or orifice to meet and maintain the water quality flow capacity. High flow bypass will be provided by an upstream diversion structure. Treatment system will also possess an internal bypass system to bypass flows that exceed the system treatment capacity.
- 4. The treatment system's piping shall possess clean outs with slotted collection piping configured in such a way to provide back flush capacity without removing the adsorption media.
- 5. The treatment system components shall be made in the USA, unless otherwise indicated.
- 6. The treatment system shall have a minimum 5-year warranty on non-consumable parts.
- 7. The supplier of the treatment system shall provide a one year supply of pre-filtration and adsorption media, conduct 10 system inspections within a 12-month period after activation, and provide chain of custody inspection and maintenance documentation.
- 8. Required treatment system reported minimum removal efficiencies:

<u>Pollutant</u>	<u>Minimum Removal Efficiency</u>
TSS	63%
Dissolved Copper	70%
Total Copper	60%
Dissolved Zinc	69%
Total Zinc	49%
TPH-Oil	53%

B. TREATMENT SYSTEM

1. All internal piping shall be SD35 PVC.
2. Basin filter components, including mounting hardware, fasteners, support brackets, filtration material, and support frame shall be constructed of 316 SST and fiberglass. Fasteners shall be stainless steel.
3. Primary filter mesh shall be 316 stainless steel welded screens. Filtration basket screens for coarse, medium and fine filtration is 3/4-inch by 1-3/4-inch expanded, 10 x 10 mesh, and 35 x 35 mesh, respectively. Mounts shall be constructed of SST.
4. Perimeter filter structure shall be constructed of lightweight injection molded plastic. Mounting brackets shall be constructed of SD40 PVC and shall be mounted with 3/8-inch diameter SST redheads.
5. The systems shall be contained in precast concrete structures designed for pedestrian traffic loading.
6. Manufacturer: BioClean Modular Wetlands models MWS L-8-8-V, MWS-L-8-20-V, and MWS L 8-24-V-HC, or approved equal.
7. Pipe penetrations shall be provided with the Treatment Systems. Penetration locations shall be as shown in the final design drawings to be provided following Contract execution.

C. TREATMENT SYSTEM MEDIA

1. Prefiltration Media:
 - a. Media shall be an inert material in cubed or block form.
 - b. Manufacturer: BioClean Modular Wetlands - BioMedia Green or approved equal.
2. Filtration Media:
 - a. Filtration media shall consist of structural light weight aggregates made of ceramic material produced by expanding and vitrifying select shales, clays, and slates in a rotary kiln. This process produces a high-quality ceramic aggregate that is structurally strong, physically stable, durable, environmentally inert, light in weight, and highly insulative. Media shall be a natural, non-toxic, absorptive aggregate that is dimensionally stable and will not degrade over time. Media must be produced to meet the requirements of ASTM C 330, ASTM C 331, and AASHTO M 195. Aggregates must have a minimum 24-hour water absorption of 10.5 percent mass.
 - b. Manufacturer: BioClean Modular Wetlands, Industrial Mix, or approved equal.

PART 3 - EXECUTION

3.1 TRAINING

- A. The Treatment Systems supplier shall arrange for one 8-hour day of operations training for Port personnel provided by the manufacturer's representative during system startup, or activation. Follow up training shall be provided by the manufacturer during the scheduled annual maintenance.

END OF SECTION