



Rhode Island Department of Environmental Management
Office of Water Resources – Stormwater Technology Review Committee
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Alternative Stormwater Technology Certification

Vendor Contact:

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Technology Name:

Barracuda™ Max

Approval Type:

Pretreatment/Retrofits

Certification Dates:

Issued: January 25, 2024

Expires: January 25, 2029

CERTIFICATION:

The Rhode Island Stormwater Technology Review Committee which consists of members from the Department of Environmental Management (DEM), Department of Transportation (DOT) and the Coastal Resources Management Council (CRMC) have reviewed the **Barracuda™ Max** application for certification of its Technology Approval and accepted use for Stormwater Treatment in the State of Rhode Island.

In accordance with Stormwater Rule 250-RICR-150-10-8.9B, **Advanced Drainage Systems (ADS®), Inc.** has petitioned the permitting agencies to certify the **Barracuda™ Max** as an acceptable structural stormwater control described in Stormwater Rule 250-RICR-150-10-8.31. They have submitted monitoring results and supporting information developed in accordance with the provisions of the Technology Assessment Protocol (TAP) for Innovative and Emerging Technologies as described in Stormwater Rule 250-RICR-150-10 Sections 8.39 and 8.40.

The **Barracuda™ Max** is granted reciprocity in Rhode Island as a proprietary stormwater treatment technology, given that it has been issued an MTD (manufactured treatment device) Lab Certification from the New Jersey Department of Environmental Protection (NJDEP) effective April 28, 2021, as a result of the *Independent Review of the Barracuda™ MAX Hydrodynamic Separator* study from March 2021, performed by Boggs Environmental Consultants as an independent third party. The study was conducted in accordance with the NJDEP "Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device" from January 2013. This NJDEP MTD Lab Certification recognizes the **Barracuda™ Max** as a stormwater treatment technology which provides 50% removal of total suspended solids when operating at the maximum treatment flow rate for each device specified in the attached **Table 1: Barracuda™ Max Sizing Table for 50% TSS Removal**. The State of New Jersey is a member of the Technology Acceptance Reciprocity Partnership (TARP). As per Stormwater Rule 250-RICR-150-10-8.39, both TAPE and TARP approved devices are allowed reciprocity consideration in Rhode Island.

The **Barracuda™ Max** is a pre-treatment or retrofit device that captures TSS from stormwater runoff as described in Stormwater Rule 250-RICR-150-10-8.31. It is comprised of plastic and stainless-steel components that are installed into pre-cast concrete manholes. The device is designed to remove trash and sediment from stormwater. This product was developed by **Advanced Drainage Systems (ADS®), Inc.** The **Barracuda™ Max** is approved for online and off-line use.

The manufacturer has demonstrated that this product meets the minimum water quality standards for pretreatment as described in Stormwater Rule 250-RICR-150-10-8.31. The **Barracuda™ Max** is approved for **50%** removal of total suspended solids (TSS) when designed using flow rates specified in the attached **Table 1: Barracuda™ Max Sizing Table for 50% TSS Removal**. The **Barracuda™ Max** is NOT recognized for removal of Pathogens, Total Phosphorus or Nitrogen. This device may be used as pretreatment or retrofit device provided that the design, installation, and maintenance are conducted in accordance with the following terms and conditions:

I. GENERAL CERTIFICATION REQUIREMENTS

1. The system must adhere to the manufacturer's specification for the **Barracuda™ Max**, which can be found on at: https://assets.adspipe.com/m/3d04f3eee3b0986f/original/ADS-Barracuda-Product-Sheet.pdf?_gl=1*_g6xxvi*_ga*MjEwNzE2MTU4Mi4xNjk4MDc2Mzgx*_ga_1TPLC9D3R7*MTY5ODkzMjQyNy4zLjAuMTY5ODkzMjQyNy42MC4wLjA.*_gcl_au*MjQ3MDc3NzMxLjE2OTgwNzYzODE.
2. The system must be installed in accordance with the manufacturer's installation manual for the **Barracuda™ Max**, which can be found at: https://assets.adspipe.com/m/5c72891bbe990fb1/original/Barracuda-S4-S6-S8-Concrete-Installation-Guide.pdf?_gl=1*_1neyr4p*_ga*MjEwNzE2MTU4Mi4xNjk4MDc2Mzgx*_ga_1TPLC9D3R7*MTY5ODkzMjQyNy4zLjAuMTY5ODkzMjQyNy41NS4wLjA.*_gcl_au*MjQ3MDc3NzMxLjE2OTgwNzYzODE.
3. The **Barracuda™ Max** is **certified as a pretreatment** device in accordance with Stormwater Rule 250-RICR-150-10-8.31, provided the device treats the flow of the first inch of runoff from the capture area, unless waived by the state permitting agency. The system's design must utilize flow rates, impervious catchment sizes, and maximum sediment capacities listed in the attached **Table 1: Barracuda™ Max Sizing Table for 50% TSS Removal**.
4. The applicant must provide the RI specific manufacturers design sheet for Departmental review or provide the manufacturer's review approval. All units that capture greater than one acre of impervious cover must be reviewed by the manufacturer.
5. This device is **certified as a retrofit device** in accordance with Stormwater Rule 250-RICR-150-10-8.6A. Retrofits are allowed flexibility with regards to the eleven minimum standards described in Sections 8.6 through 8.17 of Stormwater Rule 250-RICR-150-10, but in general they are considered effective if they capture at least 50% of the catchment and meet the target water quality treatment of at least the first 0.5 inches of the water quality volume.
6. The approved devices shall be located such that they are accessible for maintenance and/or emergency removal of oil or chemical spills.
7. The device cannot be used in series with another Hydrodynamic separator to achieve enhanced removal rates for TSS.

II. MAINTENANCE REQUIREMENTS

1. Standard permitting conditions for inclusion of this technology will, at a minimum include the following:
 - a. Each individual owner must ensure that any and all of their proprietary stormwater treatment devices are maintained in accordance with the manufacturer's specifications, which are provided in the **Barracuda™ Max** Operation & Maintenance Manual: <https://www.adspipe.com/resources/documents/751255C7-F1AA-49D5-98369D79A11D7813>
 - b. Each individual owner must ensure that any and all of their proprietary stormwater pre-treatment devices' are maintained in accordance with the requirements stated in Stormwater Rule 250-RICR-150-10-8.31-C, which requires the sump to be inspected a minimum of 2 times per year. Additionally, the device must be cleaned out when either pollutant removal capacity is reduced by 50% or more, or when 50% or more of the device's pollutant storage capacity is filled or displaced.

- c. All material removed from the unit must be properly disposed of and is the responsibility of the owner.
 - d. The applicant must include a copy of the **Barracuda™ Max** Inspection and Maintenance Guide in their project specific long term operation and maintenance plan.
2. The applicant must provide evidence of a maintenance contract which extends for a minimum of two years. The contracted maintenance provider must receive training by **Advanced Drainage Systems (ADS®), Inc.** on how to properly maintain **Barracuda™ Max** devices. This requirement excludes maintenance providers recognized by the RIDEM to be qualified in maintenance of **Barracuda™ Max** devices.

III. REPORTING REQUIREMENTS

1. Upon request from the owner of any **Barracuda™ Max** system installed in the State of Rhode Island, the vendor shall provide the owner with a recommended maintenance schedule after the first year of the device's operation. If a recommended maintenance schedule is requested by the owner after the first year of the device's operation, then the owner is responsible for notifying the vendor of any additional pollutant loading sites where contributing drainage areas may be subject to further development (i.e., strip malls).
2. The Vendor shall provide a listing to the RIDEM Office of Water Resources of all systems installed within the State of Rhode Island on an annual basis.
3. The Vendor shall provide an annual listing to the RIDEM Office of Water Resources of all Rhode Island maintenance providers that they trained in **Barracuda™ Max** maintenance.
4. The Vendor shall immediately notify the RIDEM Office of Water Resources if and when any changes are made to the model name or number of any **Barracuda™ Max** device for all models applicable to this certification.
5. The Vendor shall immediately notify the RIDEM Office of Water Resources if and when any revisions are made to the design, installation operation and maintenance manuals for all models applicable to this certification. Revisions deemed by the RIDEM to be substantial, may require re-application to the Alternative Stormwater Technology Program.
6. The Vendor shall notify the RIDEM at least thirty (30) days following any proposed transfer of ownership of the Component technology. Notification shall include the name and address of the new owner and a written agreement between the existing and new owner specifying a date for transfer of ownership, responsibility, and liability for the Component. All provisions of this Certification shall be applicable to any new owners.

IV. RIGHTS OF THE RIDEM AND CRMC

1. The RIDEM may suspend, modify, or revoke this approval for cause, including but not limited to non-compliance with any of the conditions or provisions of this approval, misrepresentation, or failure to fully disclose all relevant data, or receipt of new information indicating that the use of the **Barracuda™ Max** system is contrary to the public interest, public health, or the environment.
2. This approval does not represent an endorsement of the **Barracuda™ Max** system by the RIDEM, RIDOT or CRMC. This letter of approval may be reproduced only in its entirety.

3. The **Barracuda™ Max** General Specification and **Barracuda™ Max** Inspection and Maintenance Guide referenced herein are approved upon the date of approval of this Certification.
4. The RIDEM reserves the right to suspend or revoke this Certification if updated design, installation, and O&M manuals are not provided to the RIDEM within thirty (30) days of RIDEM request or one hundred and eighty (180) days prior to the expiration date of this Certification. All revisions must be reviewed and approved by the RIDEM prior to re-certification.

Eric A. Beck, P.E.

Date

Administrator of Groundwater and Freshwater Wetlands Protection

ATTACHMENTS:

Table 1: Barracuda™ Max Sizing Table for 50% TSS Removal

Model #	Structure Inside Diameter (ft)	Maximum Treatment Flow Rate (cfs)	Maximum Approximate Impervious Treatment Area (acres)	50% of Max Sediment Storage Volume (ft³)
S3	3	0.85	0.78	5.9
S4	4	1.52	1.39	10.5
S5	5	2.37	2.16	16.4
S6	6	3.40	3.10	23.6
S8	8	6.08	5.55	41.9
S10	10	9.48	8.66	65.5

TYPICAL STANDARD DETAIL FOR BARRACUDA™ MAX (S4) - ON NEXT PAGE

LID & FRAME SUPPLIED BY ADS FOR LOADS NOT TO EXCEED HL-93:
SEE STD-414 FOR FURTHER DETAILS OF FRAME & COVER.
ALTERNATE LID & FRAME BY OTHERS AS ALLOWED PER DESIGN
ENGINEER, FRAME TO BE SUPPORTED BY CONCRETE COLLAR.

MIN. AS SPECIFIED
BY OTHERS, BUT
NOT LESS THAN
18" (450mm)

INTEGRATED INTERNAL
WEIR
30" FRAME AND COVER

CONCRETE SLAB DIMENSIONS ARE FOR GUIDELINE PURPOSES ONLY.
ACTUAL CONCRETE SLAB MUST BE DESIGNED TAKING INTO
CONSIDERATION LOCAL SOIL CONDITIONS, TRAFFIC LOADING, & OTHER
APPLICABLE DESIGN FACTORS.

MIN. AS SPECIFIED
BY OTHERS, BUT NOT
LESS THAN 8" (200mm)

OUTLET

INLET

BOWL
DEFLECTOR PLATE
BARRACUDA MAX BOWL
INSERT
FIN ARRAY
(TYP 4 PLACES)

CLASS I BACKFILL & BEDDING PER ASTM D2321
MATERIAL SHALL BE WELL PLACED UNIFORMLY
AROUND STRUCTURE AND INLET CONNECTIONS
AND COMPACTED IN 8" MAX LIFTS AT LEAST 18"
FROM OUTSIDE OF STRUCTURE.

6" (MIN) DESIGN BY SITE ENGINEER
PER LOADING AND SOIL CONDITIONS

FLAT TOP SECTION VIEW - A
NTS

12" MIN FABRICATED PP
INLET STUB
(12" MIN FABRICATED PP
OUTLET STUB NOT
SHOWN FOR CLARITY)

BOWL
DEFLECTOR PLATE
BARRACUDA MAX BOWL
INSERT
FIN ARRAY
(TYP 4 PLACES)

ASPHALT OVERLAY

CONCRETE COLLAR SHALL SUPPORT
DUCTILE IRON REDUCING TOP WHEN
ASPHALT OVERLAY IS USED

INTEGRATED INTERNAL
WEIR

FLOOR

85" MIN

36" MIN

FLAT TOP SECTION VIEW - B
NTS

ADVANCED DRAINAGE SYSTEMS, INC. ("ADS") HAS PREPARED THIS DETAIL BASED ON INFORMATION PROVIDED TO ADS. THIS DRAWING IS INTENDED
TO DEPICT THE COMPONENTS AS REQUESTED. ADS HAS NOT PERFORMED ANY ENGINEERING OR DESIGN SERVICES FOR THIS PROJECT, NOR HAS
ADS INDEPENDENTLY VERIFIED THE INFORMATION SUPPLIED. THE INSTALLATION DETAILS PROVIDED HEREIN ARE GENERAL RECOMMENDATIONS AND
ARE NOT SPECIFIC FOR THIS PROJECT. THE DESIGN ENGINEER SHALL REVIEW THESE DETAILS PRIOR TO CONSTRUCTION. IT IS THE DESIGN
ENGINEER'S RESPONSIBILITY TO ENSURE THE DETAILS PROVIDED HEREIN MEET OR EXCEEDS THE APPLICABLE NATIONAL, STATE, OR LOCAL
REQUIREMENTS AND TO ENSURE THAT THE DETAILS PROVIDED HEREIN ARE ACCEPTABLE FOR THIS PROJECT.

STANDARD DETAIL
BARRACUDA MAX
FLAT TOP INSTALLATION

DRAWING NUMBER STD-520



4640 TRUEMAN BLVD
HILLIARD, OH 43026

DATE: 9/13/22
BY: NTS
SCALE: 1 OF 1