Attachment 1

Manufactured Treatment Device (MTD) Registration

1. **Manufactured Treatment Device Name:** *Jensen Deflective Separator (JDS)*

2. **Company Name:** *Jensen Enterprises*
   Mailing Address: *9895 Double R Blvd*
   City: *Reno*
   State: *NV* Zip: *89521*

3. **Contact Name (**to whom questions should be addressed**):** *Walter Stein*
   Mailing Address: *521 Dunn Cir*
   City: *Sparks*
   State: *NV* Zip: *89431*
   Phone number: *(775) 352-6336*
   E-mail address: *wstein@jensenprecast.com*
   Web address: https://www.jensenprecast.com/water-resources/

4. **Technology**
   Specific size/capacity of MTD assessed (include units):

   The JDS is designed in a manhole configuration with sizes ranging from 36" to 144" diameter. A summary table of approved units is available in New Jersey Corporation for Advanced Technology Performance Verification Report attached.

   Range of drainage areas served by MTD (acres):

   The JDS can be configured in multiple size and capacities in order to treat various drainage areas.

   Include sizing chart or describe sizing criteria:

   The JDS is sized on a consistent hydraulic loading rate of 33-gpm/ft^2. The sizing table is available in the New Jersey Corporation for Advanced Technology Performance Verification Report attached.

   Intended application: on-line or offline:

   The JDS is intended for both on-line and offline use as certified by New Jersey Department of Environmental Protection.

   Media used (if applicable): *N/A*

5. Warranty Information (describe, or provide web address)**:**

Jensen Precast provides a 12-month (1-year) warranty against all manufacturers' defects from the date of final project acceptance. Jensen Precast or its agent/representative upon its determination will repair, correct or replace any noted manufacturer originated defects advised to Jensen Precast in writing during the warranty period.

6. Treatment Type

☒ Hydrodynamic Structure
☐ Filtering Structure
☐ Manufactured Bioretention System
Provide Infiltration Rate (in/hr):
☐ Other (describe):

7. Water Quality Treatment Mechanisms (check all that apply)

☒ Sedimentation/settling
☐ Infiltration
☐ Filtration (specify filter media)
☐ Adsorption/cation exchange
☐ Chelating/precipitation
☐ Chemical treatment
☐ Biological uptake
☒ Other (describe): Swirl Concentration

8. Performance Testing and Certification (check all that apply):

Performance Claim (include removal efficiencies for treated pollutants, flow criteria, drainage area):

Through laboratory verification testing, the JDS achieves 50% removal efficiency of total suspended solids (TSS) with a d_{50} of 62-microns (µm) at a hydraulic loading rate of 33-gpm/ft^2. These results are NJCAT verified and NJDEP approved.

Specific size/Capacity of MTD assessed:

A JDS36-1818 unit was tested with a capacity of 0.52-cfs (233-gpm).

Has the MTD been "approved" by an established granting agency, e.g. New Jersey Department of Environmental Protection (NJDEP) , Washington State Department of Ecology, etc.

☐ **No**

☒ **Yes**; For each approval, indicate (1) the granting agency, (2) use level if awarded (3) the protocol version under which performance testing occurred (if applicable), and (4) the date of award, and attach award letter.

1. *New Jersey Department of Environmental Protection (NJDEP)*
2. *Manufactured Treatment Device Lab Certification*
3. *New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device (NJDEP 2013)*
4. *February 28, 2019*

Was an established testing protocol followed?

☐ **No**

☒ **Yes**, (1) Provide name of testing protocol followed, (2) list any protocol deviations:

Provide the information below and provide a performance report (attach report):

For lab tests:

Testing was done on a full-scale JDS36-1818 in accordance with the NJDEP Hydrodynamic Separator program. https://www.njstormwater.org/pdf/hds-protocol-1-25-13.pdf The verification performance report is attached for reference.

For lab tests:

i. Summarize the specific settings for each test run (flow rates, run times, loading rates) and performance for each run:

A full-scale JDS was lab tested according to New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device (NJDEP 2013). Specific testing information can be found in the attached New Jersey Corporation for Advanced Technology (NJCAT) performance verification report.

ii. If a synthetic sediment product was used, include information about the particle size distribution of the test material:

The sediment was mixed in accordance with the NJCAT testing protocol. A sediment blend with a particle size distribution d_{50} of 62-microns (µm) was mixed with commercially available sediment products. Full particle size distribution analysis is readily available within the attached NJCAT performance verification report.

iii. If less than full-scale setup was tested, describe the ratio of that tested to the full-scale MTD:

A full scale, JDS36-1818 unit was tested.

For field tests:

i. Provide the address, average annual rainfall and characterized rainfall pattern, and the average annual number of storms for the field-test location:

N/A

ii. Provide the total contributing drainage area for the test site, percent of impervious area in the drainage area, and percentages of land uses within the drainage area (acres):

N/A

iii. Describe pretreatment, bypass conditions, or other special circumstances at the test site:

N/A

iv. Provide the number of storms monitored and describe the monitored storm events (amount of precipitation, duration, etc.):

N/A

v. Describe whether or not monitoring examined seasonal variation in MTD performance:

N/A

9. MTD History:

How long has this specific model/design been on the market?

Jensen Precast has offered JDS units since the summer of 2016. Competitors version of this same treatment process have been offered since 1996.

List no more than three locations where the assessed model size(s) has/have been installed in Virginia. If applicable, provide permitting authority. If known, provide latitude & longitude:

Jensen Precast is a West Coast based precast concrete company and has not yet installed any JDS units in the State of Virginia. JDS units will be offered in Virginia via a partnership with Mack Industries, which has precast facilities in North Carolina.

List no more than three locations where the assessed model size(s) has/have been installed outside of Virginia. If applicable, provide permitting authority. If known, provide latitude & longitude:

Jensen Precast has installed many dozens of JDS units throughout California, Arizona, Nevada and Hawaii, treating flows from 0.4 to 166-ft^3/sec in 3 to 16-foot diameter manholes.

- *(World's Largest System) - Dual Model JDS192-132132 JDS units, 166-ft^3/s*
  Corner of E. Spring Street & N. Lakewood Blvd, Long Beach, CA 90806
  (In the South East area of the Long Beach Airport, CA.)
  Multi-Agency approval: LA Regional Water Quality Control Board, California Department of Transportation, City of Los Cerritos, City of Long Beach

- *JDS96-6782, 19-ft3/s*
  Ewa Beach, Oahu, close vicinity to 21°18'42.8"N 158°00'20.8"W
  Approving Agency: City and County of Honolulu

10. Maintenance:

What is the generic inspection and maintenance plan/procedure? (attach necessary documents):

The operation and maintenance manual can be found at :
https://www.jensenprecast.com/water-resources/wp-content/uploads/2020/04/OM-Manual-JDS-March-2020.pdf

Is there a maintenance track record/history that can be documented?
☐ No, no track record.
☒ Yes, track record exists; (provide maintenance track record, location, and sizing of three to five MTDs installed in Virginia [preferred] or elsewhere):

Routine JDS maintenance records are the responsibility of the property owner.

Recognizing that maintenance is an integral function of the MTD, provide the following: amount of runoff treated, the water quality of the runoff, and what is the expected maintenance frequency for this MTD in Virginia, per year?

The JDS maintenance frequency is typically governed by the specific site pollutant loads and should be evaluated in the first year of installation. The JDS has been approved for a 96-months sediment removal interval in accordance with the NJCAT testing protocol.

Total life expectancy of MTD when properly operated in Virginia and, if relevant, life expectancy of media:

The JDS has an expected lifespan of 50 plus years, assuming regular maintenance and inspection.

For media or amendments functioning based on cation exchange or adsorption, how long will the media last before breakthrough (indicator capacity is nearly reached) occurs?

N/A

For media or amendments functioning based on cation exchange or adsorption, how has the longevity of the media or amendments been quantified prior to breakthrough (attach necessary performance data or documents)?

N/A

Is the maintenance procedure and/or are materials/components proprietary?
☐ Yes, proprietary
☒ No, not proprietary

Maintenance complexity (check all that apply):
☐ Confined space training required for maintenance
☒ Liquid pumping and transportation
Specify method: *Vactor Truck*
☒ Solids removal and disposal
Specify method: *Vactor Truck*
Other noteworthy maintenance parameter (describe):

11. Comments

Include any additional explanations or comments:

12. Certification

Signed by the company president or responsible officer of the organization:

"I certify that all information submitted is to the best of my knowledge and belief true, accurate, and complete."

Signature: _____

Name: Eric Jensen

Title: President

Date: 11/11/2020

NOTE: All information submitted to the department will be made publicly accessible to all interested parties. This MTD registration form will be posted on the Virginia Stormwater BMP Clearinghouse website.