Aquabox O&M Manual

Aquabox Maintenance Row

Regular inspection and maintenance are essential to ensure a properly functioning stormwater system. The Aquabox maintenance row is a technique to inexpensively enhance Total Suspended Solids (TSS) removal with easy access for inspection and maintenance.

The Aquabox Maintenance Row

The Aquabox maintenance row is a row of Aquabox modules wrapped in filter fabric and connected to a closely located manhole for easy access. The fabric lined modules provide for sediment settling and filtration as stormwater rises in the maintenance row and passes through the filter fabric. The open structure of the modules allow stormwater to flow out the bottom and sides of the modules. Sediments are captured in the Aquabox maintenance row, protecting the storage volume in the rest of the modules from sediment accumulation.

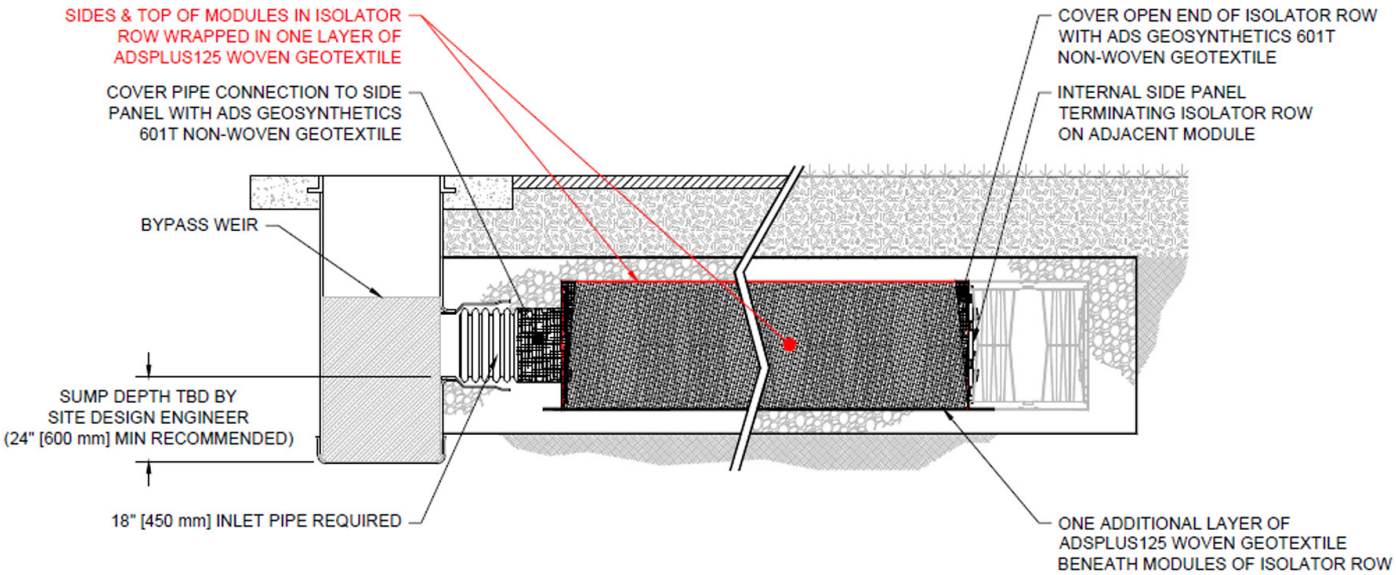
ADS Plus fabric is used to wrap the Aquabox maintenance row. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting.

The Aquabox maintenance row is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Aquabox maintenance row and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Aquabox maintenance row bypass through a manifold to the other modules. This is achieved with an elevated bypass manifold or a high-flow weir. After stormwater flows through the Aquabox maintenance row and into the rest of the Aquabox system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Aquabox maintenance row may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, ADS recommends using the Aquabox maintenance row to minimize maintenance requirements and inspection costs.

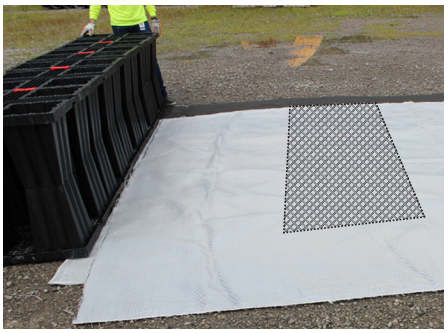
The StormTech Isolator Row PLUS is another product offering that may be coupled with Aquabox modules. The Isolator Row PLUS is a robust sediment capture & maintenance feature validated through testing from NJCAT. This feature is recommended on all sites as constraints allow.

Aquabox Maintenance Row Standard Cross-Section

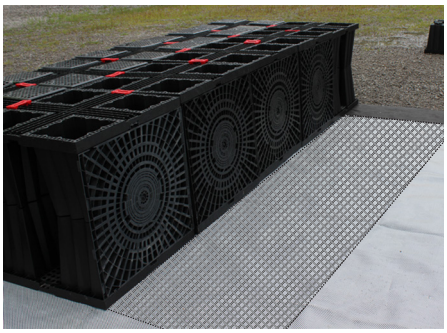


Installing the Aquabox Maintenance Row

Step 1: Roll out one piece of ADS Plus geotextile in the approximate area of the maintenance row. The geotextile will be placed directly on the ADS 601 non-woven.



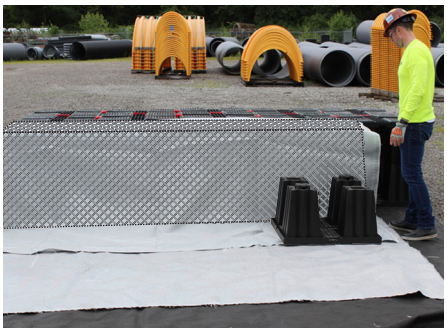
Step 2: Continue assembling the system until the modules are two rows away from the maintenance row. Then roll out a second piece of ADS Plus the exact length of the Maintenance row. Place the edge this geotextile against the modules.



Step 3: Install the next row of modules, placing them on top of the ADS Plus geotextile. This row requires side panels to be installed on the module sides facing the maintenance row.

Step 4: Fold the upper layer of ADS Plus geotextile back over the top of the previously installed modules

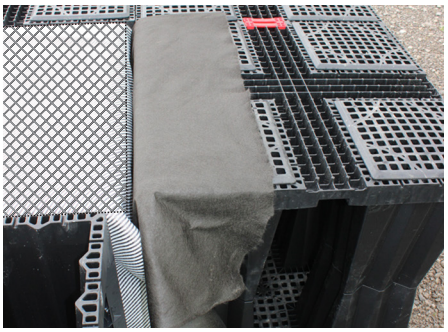
Step 5: Install the modules of the maintenance row, including top caps and joints.
Note: only single joints should be used between the maintenance row modules and no joints should be used between the maintenance row and adjacent modules.



Step 6: Once the maintenance row modules are installed, fold the ADS Plus geotextile back over the top of the maintenance row. Pull the geotextile down the other side of the row, removing slack. Begin installing the next row of modules to hold the geotextile in place.

Step 7: As the next row of modules are assembled, install side panels on the module sides facing the maintenance row.

Note: do not use joints between the maintenance row modules and this row.



Step 8: For maintenance rows that end within the bed, install the module outside the end of the row with a side panel facing the Maintenance row. Place a piece of ADS 601 non-woven geotextile between the maintenance row and this final module.

Step 9: The maintenance row is now completely installed. The geotextile wrap traps sediment in the maintenance row modules for easy maintenance. Proceed with the rest of the system install.

Aquabox Maintenance Row: Inspection/Maintenance

Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the actual frequency of inspection and maintenance practices.

At a minimum, ADS recommends annual inspections. Initially, the maintenance row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The maintenance row should be inspected via the connecting pipe from the upstream structure. Mirrors on poles or cameras may be used to avoid a confined space entry. Inspection ports (optional) may be used for easy access to the system from the surface.

When the average depth of sediment exceeds 3” (75 mm) throughout the maintenance row, clean-out should be performed.

Maintenance

The maintenance row was designed to reduce the cost of periodic maintenance. By isolating sediments to just one row, costs are dramatically reduced by eliminating the need to clean out all modules of the storage bed. If inspection indicates the potential need for maintenance, access is provided via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entry.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the maintenance row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Rear facing jets with an effective spread of at least 45° are best. The minimum clear span within the Aquabox modules is 6.5” (162.5 mm)--please ensure cleaning equipment does not exceed this width. ADS recommends a maximum nozzle pressure of 1750 psi be utilized during cleaning. JetVac reels can vary in length. For ease of maintenance, ADS recommends maintenance row lengths up to 150’ (46 m) with a structure at one end, or up to 300’ (91 m) with a structure at both ends.

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