

CASE STUDY

Southbridge Recycling and Disposal Park Southbridge, Massachusetts

Storage Required:	20,603 cubic feet
Storage Provided:	20,726 cubic feet
Model:	Recharger V8HD
Number of Units:	195
Installed:	March 2015
Engineers:	Green Seal Environmental, Inc. Sagamore Beach, Mass.
Contractor:	RH White Construction Auburn, Mass.



The Southbridge Recycling and Disposal Park (SRDP), a privately-owned recycling center in Southbridge, Mass, has been in operation since 1981 and is quickly nearing its maximum fill capacity. With nearly 2,000 tons of waste per day, the existing 191-acre landfill is expected to reach capacity by early 2017. Complete Material Management, Inc., the entity responsible for the recycling center's operation, has proposed a plan to extend the life of the landfill by expanding the area used for waste disposal. This will allow the landfill to continue its operation for approximately 11 more years.

Currently, the stormwater management system for the landfill is comprised of nine stormwater basins. Stormwater runoff is directed to these basins in a variety of ways, including via swales, culverts, catch basins and underground pipes. The basins collect and pre-treat stormwater runoff per Massachusetts State Stormwater Management regulations before discharging it into the surrounding wetland areas. The expansion of the current landfill will require the construction of additional stormwater basins to

collect and treat increased stormwater runoff. Engineers from Green Seal Environmental, Inc., located in Sagamore Beach, Mass., along with contractors from Auburn, Mass. — RH White Construction, were brought on board to design and build an updated stormwater management system. Similar to the previous system, the new stormwater infiltration system is fed by catch basins. After collection, the water moves through 6,000 and 8,000 gallon settling tanks for pretreatment. Stormwater runoff from the roof drains is also directed into these settling tanks. When the stormwater settling tanks become overwhelmed, an overflow pipe feeds the excess stormwater into a basin which is treated and eventually deposited into a wetland. This method of water treatment constitutes one working system in a network of stormwater treatment systems. If water cannot access this particular stormwater system, it will flow over into grass swales located on the south side of the building. The swales remove sediment which ends up in a settling basin. The

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grass swale runoff is then discharged to the municipal storm drainage system.

Contractors selected CULTEC's cost-efficient, underground stormwater management chambers to provide detention, or temporary storage of excess stormwater, on-site and to allow for infiltration in accordance with State regulations. Engineers utilized HydroCAD® software to prepare pre- and post-development drainage calculations as well as the system design.

The project designers originally considered using an above-ground retention system, but due to geographical constraints, the project team needed to find another solution. The team chose CULTEC's Recharger® V8HD, as this model would provide the required 20,603 cubic feet of storage without sacrificing any additional space. A total of 195 units were installed, and provide the site with 20,726 cubic feet of storage when surrounded by stone. The V8HD model measures 32" high, 60" wide, has an installed length of 7.5 feet long and a bare chamber capacity of 8.7 cubic feet per linear foot. In addition, the V8HD model is able to withstand traffic loading with minimal cover — a major site requirement.



The CULTEC subsurface chambers work in conjunction with nine stormwater basins, catch basins, manholes and HDPE and concrete pipe to provide retention to the new site. Approximately 44% of total suspended solids are removed prior to the stormwater being directed into the CULTEC units, which then eliminate 80% of suspended solids via infiltration.

Engineers and contractors faced unique challenges throughout the stormwater solution implementation process. Existing material, rocky gravel and shale ledges needed to be removed from the site prior to installation. Additionally, difficult soil characteristics made for laborious land excavation. In spite of these challenges, the installation of the CULTEC chambers went smoothly and without incident.

"CULTEC was an excellent supplier and had been very helpful and attentive throughout the entire construction process," said Brian Cronin, Project Manager for RH White Construction. "With the support and customer service that we have received from CULTEC, we will be looking forward to working with them again on future projects."

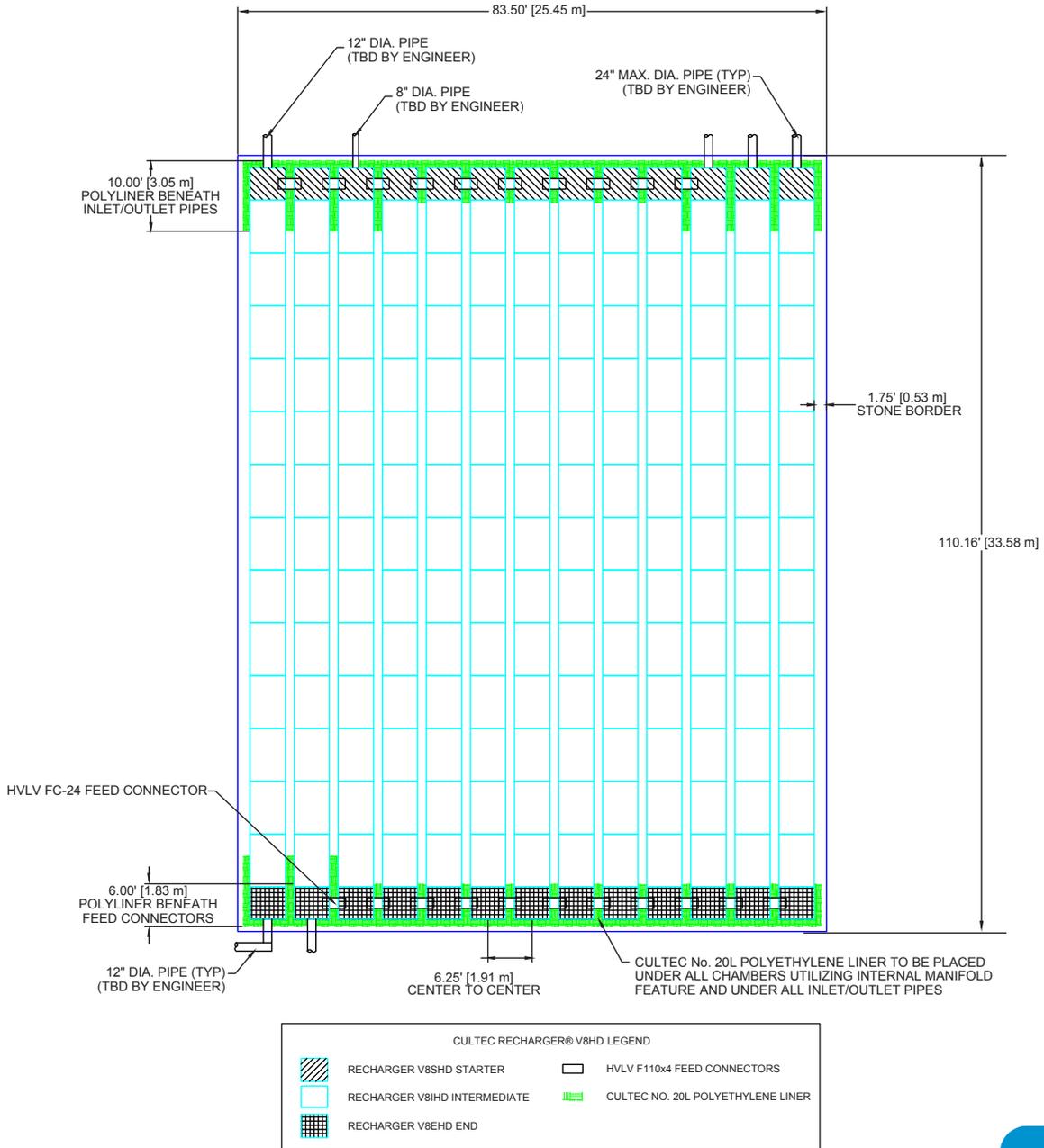


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The stormwater management expansion is part of Phase I of the construction process, which also includes a 4.38-acre expansion on the eastern side and northeast corner of the existing landfill and a 2.52-acre expansion on the southern side. The entire project is expected to conclude in 2024.

This updated system will satisfy the solid waste disposal demand in the region and will be managed in full compliance with the current site assignment, MassDEP's Stormwater Management Regulations, and the Massachusetts Stormwater Management Standards and policies.



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