50-Year-Old Septic Tank Replaced with Modern Concrete System

Design Engineer Patrick Prendergast, PE, of Valatie, NY, chose a complete, “modern concrete system” when hired to design a replacement for the 50-year-old, “completely-rusted-out” steel septic tank for the reopening of the restaurant at the Stone Castle Inn in East Durham, NY. He found the site was a small lot with marginal soil, an obvious situation for an engineered upgrade. Working with Keeler Vault, Hudson, NY, he specified a three-component enhanced treatment system. The Excavator/Installer was Bruce Degeyter, Oak Hill, NY.

The first tank is a 1000-gallon grease interceptor; the second tank is a 750-GPD JET Wastewater Treatment Plant, and the third tank is a 1000-gallon pump chamber fitted with a Gould Pump, float switches, and a control panel, all conduit ready. Note the cast in ‘red disk’, indicating these tanks are on the PCANY list of certified tanks. Pat said the Jet unit was like a small aerobic system. It contains various screens, promotes the growth of aerobic bacteria, and reduces the black biomass to help preserve the receiving drainage field.

Joe Keeler reports that they now manufacture, distribute, and service JET systems, and they are also a Gould Pump Distributor. He recently had an open house at Keeler Vault Co., as shown in the photo with JET representative Ed Schloss explaining a JET Wastewater Treatment Plant to local health officials, engineers, and installers.

Thanks to Joe Keeler of Keeler Vault Co. for these pictures and the article, as well as to Patrick Prendergast for his help.
Stormwater Treatment Unit Upgrades Wegmans Distribution Center Parking Lot

Lakelands Concrete Products, working with CrystalStream Technologies, recently delivered and installed a complete STU for Wesley Construction at the large Wegmans Distribution Center in Rochester, NY. Jeffrey Benty of CrystalStream Technologies writes that their products come in a variety of sizes and depths to meet any project requirement or condition, and this flexibility is due greatly to the housing of the system which is made of precast concrete, allowing the product to meet a variety of loading requirements and depths. In addition, all the internals are pre-installed by the precast manufacturer prior to the delivery to the site, thus speeding up and simplifying on-site work.

One of the key features that the contractor found attractive in the selection of a product for this site improvement project, in addition to the fact that it was locally manufactured, was that it required a shallower excavation, with a minimum sump depth savings of at least 4 feet over other products in this same market. The size of the vault was 5’ wide x 8’ long x 6’ deep (id), and was made with Lakeland’s standard 5000 psi mix. The unit was set 2-3’ below grade and had precast risers to bring the frame and grate/cover to grade. It was designed for HS-20 loading. Our thanks to Chad Bond, Lakelands Concrete Products, for this article and photos, and for his sending of Jeff Benty’s comments.

Not Your Everyday Backyard Septic Tank

Large tanks can be quickly and economically installed using standard box culvert sections. When the Byron-Bergen Central School District decided to take their own treatment plant off line, and install a new tank from which the effluent would flow to the Town Treatment
Not Your Everyday Backyard Septic Tank  
(continued from page 2)

Plant, the project designer, Eric Wies, PE, of Clark Patterson Lee designed this 30,000 gallon septic tank, working with Kistner Concrete Products design aids. As you can see in the photos, almost any size and dimension tank is possible. These 9 sections were installed in one day!

All precasters that manufacture and install box culverts have standard details to assure watertight joints, meeting the requirements of ASTM C1677-09, Standard Specification for Joints for Concrete Box, Using Rubber Gaskets. The units shown here are 12’ W x 6’H x 7’ long sections, and were designed for an HS-20 traffic superimposed load. Kistner uses a bolt & pocket system for connection between each section to secure the joints, and their own specially designed single offset rubber gasket joint, and a proprietary ‘waterproofing foam’ for final sealing of tank.

High strength self-consolidating concrete is used for the structure, with a design strength of 5000 psi at 28 days, but Kistner reports their 28 day tests typically break at 8000 psi. The project specifications required that the precaster be an NPCA Approved and Certified plant. Thanks, again, to Eric Wies, PE, Clark Patterson Lee, and Mike Kistner, Kistner Concrete Products, Lockport, NY for this article.

Stormwater Treatment System for North Tonawanda Central School District

As is common today, North Tonawanda CSD’s aging parking lot and drainage system needed an upgrade, especially considering the need to add new bus routings and not contaminate the areas’ ecology. The project designers, Kideney Architects and TVGA Engineers, decided to add a new detention system and silt chambers, to comply with the newest code requirements. Installation of a V2B1 Stormwater Treatment System from Environment 21 proved to be a fast, easy, and economical solution.

V2B1 – a cost effective option to help meet EPA Phase 2 Stormwater requirements

Its unique standard pre-cast concrete two manhole design is project sized to help meet the EPA goal of 80% TSS and 40% Phosphorus removal efficiency. The inlet manhole has a tangential mounted inlet pipe that creates a swirl flow pattern, which improves flow distribution and reduces turbulence, thus enhancing sedimentation settling. The center withdrawal elbow pipe conveys flow to the outlet manhole where floatable debris is retained by using an underflow baffle. Maintenance is a cinch with access openings to all stages and a clear view to the sump. The V2B1 is ideal for unique site scenarios with other utilities.

Our thanks to Mike Kistner, Kistner Concrete Products, supplier of the concrete products and the V2B1, for this article and the photos, as well as Ron Mauer and Jim Collins Jr. at Milherst Construction Inc., project contractor.
SAVE THE DATE:
October 28, PCANY Meeting (and) Joint NYSDDT Meeting (afternoon), Albany

Engineering News Record Recognizes Top Design Firms


And congratulations to our Professional Members listed in six various categories in the ENR Top 200 Environmental Firms: CDM and AECOM Technologies Corp.