

A Quick-Fill Method For Drainage Installation

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View of truck-mounted conveyor-belt device used to deliver crushed stone to drainage trenches.

THERE'S nothing more important than good drainage on a golf course, but the installation of subsurface drainage pipe requires several steps and can be a costly procedure.

A time-consuming and labor-intensive step is backfilling the drainage ditch with crushed stone. For years golf course maintenance personnel have used shovels and strong backs to fill drainage trenches by hand, a system that is not so uncommon today.

There are three steps involved in the placement of stone in the ditch. First, the stone is dumped in small piles on plywood sheets adjacent to the trench. Next, a thin layer of stone is placed in the bottom of the ditch. The drain pipe is then placed on top of this layer and the ditch is filled to the surface with more stone.

John Napieracz, superintendent of Stanley Golf Club, in New Britain,

Conn., felt there must be a better way, and he came up with a simple but ingenious solution. With the help of assistant superintendent John Mulhearn, he fitted his dump truck with a conveyor belt that places $\frac{3}{4}$ " crushed stone into the ditch quickly and effectively with minimum damage to nearby turf. The system uses a dump truck, an engine-driven conveyor belt from a Royer soil sifter, rubber shields, and a custom-built frame. The conveyor belt is mounted along the width of the rear end of the dump truck. As the dump bed is raised, the crushed drain rock flows onto the conveyor belt and is then dumped into the ditch. The driver of the truck drives parallel to the ditch, with the end of the conveyor belt positioned directly above the trench. The forward speed determines the depth of the stone placed in the ditch. A series of rear-view mirrors allows the driver to position the conveyor belt over the ditch, and a second

worker walks behind the truck to monitor the depth of the stone and insure an even flow of stone out of the dump bed onto the conveyor belt.

Mounting the conveyor belt and engine to the dump truck was not easy. Careful measurements and precise welding were needed to keep the engine chains and linkage from binding. Periodic adjustments and welds were needed after the system was in operation. Gary Egri, a mechanic at Stanley, says a few modifications are needed before the system will be perfect. One of the problems encountered was rock bouncing off the rubber conveyor belt. To correct this, sheets of rubber and plywood were attached in areas where this occurred, and chains and other moving parts were shrouded to protect employees.

Alternatives to the hand shoveling method have been attempted by other superintendents. One individual built plywood forms that funnel the stone into the ditch. This works well but does not eliminate the damage that occurs from heavy trucks traveling back and forth along the ditch as loads of stone are dumped.

Another method used is to straddle the ditch with the dump truck while stone pours out of a small opening in the tailgate directly over the ditch. This works well if the trench is narrow. Wide ditches are subject to collapsing sides from the weight of the dump truck. Another disadvantage to this method is limited visibility for the driver.

With his conveyor belt method, Napieracz estimates that he can cut labor costs by one third while nearly doubling the length of drainage pipe installed in a day. And normally there are a number of ruts to be repaired from heavy machinery traffic, but with this method the ruts in the turf are kept to a minimum. It is frustrating to have a drainage project drag on forever. A dump truck and a conveyor belt have come together to be an efficient money saver at Stanley Golf Club.