

PRELIMINARY REPORT

Installation of Prefabricated  
Underdrain Along Route 44-A

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#### Construction

Approximately 445 feet of prefabricated underdrain were installed under the north shoulder of Route 44-A, 1.7 miles west of the intersection with Route 32. The maintenance section of the Connecticut Department of Transportation installed the drain with the assistance of Richard P. Long and Kenneth F. Briggs from UConn. Mr. Robert Keith supervised the maintenance crew. The project lasted eight working days; beginning August 17, 1970 and ending August 26, 1970.

The installation began at a double size catch basin (Sta 1+00) and proceeded west. For the first two days, the rate of installation was approximately 100 feet per day; as fast as the backhoe could dig the trench. Progress slowed on the third day when ledge was encountered at Sta 3+75 above the proposed elevation of pipe. While the first section of ledge was being prepared for blasting, three test pits were dug between Sta 4+00 and 5+40. The pits showed that ledge between these stations is within 44 inches of the ground surface. The rock appeared sound, with water perched on top of it. The drains in this portion were placed on top of rock to drain any water that might accumulate. A suitable grade to raise the pipe to the top of ledge required several dynamite blasts between Sta 3+75 and 4+15. The grade of the underdrain pipe in the final section over ledge was set parallel to the grade of the pavement. Some water seeped into the trench near Sta 5+40. A small amount of water flowed in the brook west of Sta 5+40.

The height of the prefabricated underdrains, as delivered, was five feet. The bottom of the underdrain at the catch basin was approximately 36 inches below the surface of the soil. In this area, the underdrain cores were bent in half so that they could be covered by at least six inches of soil. As the trench proceeded west, it became deeper and less core had to be bent over. About Sta 2+00, the trench was deep enough to receive a drain of full height with sufficient soil cover. At Sta 4+00, the drains were again so close to the surface that some of the core had to be bent over and continued this way to the end of the drain.

The excavated sides of the trench were essentially vertical. The underdrain was placed as close to the north side of the trench as possible and backfilled with sand. This procedure pressed the flexible core against the north wall of the trench. Whenever the pipe could not be placed close to the north side of the trench, the space behind the drain was backfilled with sand to a height of about 12 inches. The trench was then completely backfilled with sand and the major portion of the core again pushed against the north wall. This latter procedure of backfilling slightly between the drain and the north wall of the trench was also used where the removal of boulders left large cavities.

During the final day of construction, the entire length of underdrain pipe was flushed with water. This was considered desirable because an overnight rain had washed some soil into the end of the pipe in the trench. Normally it would not be required.

Remaining Work

The remaining work on this project is the observation and recording of the rate of water flow out of the drain. These observations will begin during the Fall of 1970.

Remarks

The base of Route 44-A in this vicinity consists of cobble-sized stones and has large pores. This observation was made during the drain installation. The presence of these large pores provides an avenue for water to flow underneath the pavement from west to east. The underdrain installation is parallel to this direction of flow and may not intercept all the water moving under the pavement. It will certainly collect ground water on the north side of the road. In the event that the present installation does not completely solve the subsurface drainage problem, a transverse underdrain should be considered in the vicinity of Sta 5+00.