

UTILITY LIFT MECHANISM

COUNTY: Barnes
CONTACT PERSON: Kerry Johnson, Highway Supervisor
TELEPHONE: 701-845-8508
ADDRESS: 1525 12th St. NW
Valley City, ND 58072



PROBLEM STATEMENT

The county road crew was responsible for taking a series of cores on an asphalt roadway proposed for improvement. This involved two individuals transporting the coring machine to the work site with a pickup or trailer, unloading the coring machine, getting a core sample, loading the machine and moving to the next site. After collecting a series of cores, the work crew realized that a carrier could be attached to the vehicle to carry the coring machine, thereby eliminating the lifting of the machine and also holding the machine in place while the core was being extracted.

SOLUTION

The carrier was designed to attach to the hitch of the vehicle, as shown in the photos. Two-inch square tubing was used for the vertical assembly, with 1 ½" tubing inserted for raising and lowering the platform. A 3/8 inch steel plate, 18 inches square was attached to the horizontal tubing to hold the coring machine. The sliding mechanism for raising and lowering the coring machine is secured with a bolt through holes drilled in the tubing. The coring machine can then be raised for transport with the cable and winch mounted at the top. When extracting cores, the platform drops to the roadway and the coring machine remains attached to the platform. The platform is designed to hold the specific coring machine being used.

In this particular case, a pickup was used to also haul the generator and water tank, thereby eliminating the need for additional vehicles.

LABOR, MATERIALS AND COSTS

The materials needed were approximately 4 feet of 2" steel tubing, 4 feet of 1 ¾" steel tubing, a 3/8" by 18" square steel plate, a winch and steel cable. Total material cost was approximately \$90.00.

Approximately one day for one man was spent in making the mechanism.

SUMMARY

Collecting roadway cores has become a one-person operation. In the past, two people were necessary to load, unload and hold the coring machine in place. Now, for projects with low traffic counts, it can be done with one person. On a recent project involving 170 cores taken on a 200-mile project, it was estimated there was a \$10.00 savings per core for a total of \$1,700.00.

Also, this improvement has eliminated manual lifting of a heavy coring machine and facilitated safer operation of the machine, because it is permanently attached to the vehicle as cores are being taken. While the platform was specifically designed to hold the coring machine, it can be designed as a multipurpose lifting device and used for other purposes.