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VERTICAL FILE

# OPERATIONS REPORT LESSONS LEARNED

REPORT 8-66  
~~ENGINEER~~ NOTES #1



ENGINEER SCHOOL LIBRARY  
THAYER HALL  
FORT BELVOIR, VIRGINIA



## RECOVERY OF CRUSHER FINES

When aggregate is crushed for use in asphalt mixes, fines passing the #200 sieve may be blown away while the aggregate is being moved on conveyors and stockpiled. The aggregate fines may be saved by placing a spray bar on the primary crusher conveyor, thus avoiding the requirement to add cement filler to meet required gradation criteria. During crushing operations a small pipe placed over and at right angles to the conveyor, drilled with 1/16" holes, produced a suitable spray bar. In addition to saving cement, the spray bar considerably reduced dust at the crushing site.

## HELICOPTER LANDING ZONES IN JUNGLE AREAS

One engineer unit had the mission of constructing a helicopter landing zone in deep jungle to evacuate wounded personnel. A 100 x 1000 foot landing zone with approach zones having 1:10 glide angles was constructed. The unit involved suggests the following procedures for such a task.

(1) A 1½-ton pallet is suspended beneath the Chinook by a special 100-foot sling of 5/8-inch cable. The pallet carries 1500 pounds of satchel charge explosives (detonating cord through tetrytol), 6000 feet of detonating cord, 60 gallons of water, 60 meals, shovels, axes, chain saw repair kit, marking tape, and other miscellaneous pioneer tools. The pod is instantly released when the Chinook lowers it to the ground.

(2) The 60-foot aluminum ladder is then lowered to the ground and a platoon of engineer troops descends the ladder while the Chinook hovers in place (see figure 9). Meanwhile, 10 boxes with chain saws are lowered through the bottom of the Chinook by an electric hoist.

(3) The first construction priority is to use demolition to blow an approach path about 100 x 500 feet or more through the jungle to the selected helicopter pad location. (Although the twin-rotor Chinooks can rise vertically, a loaded HU-16 helicopter has an emergency climb angle of 1:5. If trees are 100 feet tall, a glide path of dropped trees 500 feet long gives the 1:5 climb angle; however, a 1:10 angle is much safer.)

(4) A well trained engineer platoon can drop 100 or more trees with explosives within 1 hour or less. In cutting mahogany trees having a diameter greater than 18 inches, experience factors indicate that approximately 20% more explosive than that required by the standard formula ( $P = D^2 / 40$ ) is required. For example, a 40-inch tree requires approximately 50 pounds of TNT.



Figure 9. A platoon of engineer troops descend from a hovering Chinook by ladder to construct a helicopter landing zone for evacuation of wounded infantrymen.