



# Constructing Landing Strip Hammer:

## Planning and Executing an Operation Iraqi Freedom Mission Readiness Project

*By First Lieutenant Joseph Sahl*

**I**n December 2004, leaders of the 62d Engineer Battalion (Heavy) began coordinating with the Department of Public Works and the United States Air Force to make improvements to a landing strip—called Landing Strip Hammer—at Fort Hood, Texas. Used in the early 1990s, the landing strip was designed to handle C-130 aircraft. The improvements would allow C-17s, as well as other aircraft, to land there.

### **The Project**

**T**he 62d worked for more than eight months on the project, along with the 68th Engineer Company (Combat Support Equipment). The runway construction provided the perfect Operation Iraqi Freedom mission readiness opportunity to train on many critical battle tasks. The 68th was tasked to do most of the on-site construction with support from the 62d in the form of haul assets, some equipment, survey support, and a vertical construction unit from Alpha Company that built a tail wall for the culvert under the taxiway.

### **Phase I**

Construction was divided into three phases. Phase I began in late January 2005 and involved clearing and grubbing the “maintained area,” which was more than 8.5 acres surrounding

the landing strip. The 68th removed obstacles (such as trees, shrubs, and rocks) that extended more than 6 inches above the existing grade. In the last weeks of the project, the area was graded again to remove new growth. Phase I also involved surveying the area to place initial boundary stakes for the runway and taxiway. The 68th then began removing the topsoil within the boundary stakes in order to remove any organics and ensure that there was room for 20 inches of quality fill and base material.

Unfortunately, February and March were the wettest months central Texas had experienced in quite some time, and there were fewer than ten days when this work could be done. The soil was so wet that any time heavy equipment was used, the site became messy and more work was often created. During these rainy weeks, the 62d’s equipment platoon began operating the borrow pit and hauled fill whenever the weather allowed. As topsoil was removed from the landing strip, many soft, wet spots were found, and initial estimates were increased. The round trip between the landing strip and the borrow pit took approximately one hour; fill became a valuable commodity. The original plan called for the equipment platoon to haul the fill and the 68th to emplace it during Phase II.



**Soldiers using scrapers to remove the existing base to stockpile for later use**

## **Phase II**

Phase II involved compacting and grading the fill to bring the runway and taxiway within 6 inches of grade. Because the base was purchased, the plan was to be very deliberate with the fill to ensure that none of the base would be wasted. This made Phase II the toughest and definitely the longest phase, but it was beneficial when the base was placed on top.

As the weather cleared and the ground dried, it became apparent that the haul assets could not keep up with the equipment at the site due to the long turnaround time. What was hauled in a week could usually be placed within a day and a half, so the plan was adjusted to compensate. Most of the work at the site was halted as the 68th combined haul and personnel assets with the equipment platoon. They performed 24-hour haul missions for three weeks and hauled more than 35,000 cubic yards of fill. Once this stockpile was in place, work was resumed at the site. The fill, picked up by the scrapers and often pushloaded by the dozers, was laid down in 6-inch lifts. The lifts were compacted by high-speed soil compactors, and then the surveyors would test compaction with a nuclear densometer.

Portions of the existing runway were usable and had to be tied in to the new fill, so as fill was added to the new side, the existing runway was ripped up and combined with the new fill to ensure that crevices would not form later. While 1st and 3d Platoons, 68th Engineer Company, removed topsoil and compacted fill, the majority of 2d Platoon extended the culvert that ran underneath the taxiway. The old tail wall was destroyed and part of the taxiway was cut back so the old culvert pipe could be accessed. The additional 30-foot pipes were bound to the existing pipes and sealed. Then the Soldiers spent several days tamping the fill around the new culvert pipe extension until the rollers could be used. Alpha Company, 62d Engineer Battalion, built the forms and placed the concrete for a new tail wall later that month, and the culvert extension was completed.

Phase II was completed with the help of Bravo Company, 62d Engineer Battalion, who came from Fort Sill, Oklahoma,

for a battalion field training exercise. Also, Marines from the Marine Wing Support Squadron 473d spent more than a week working on the runway and helping to perform equipment maintenance. During this phase, Soldiers combined efforts to haul and then emplace more than 40,000 cubic yards of fill. The runway was raised as much as 9 feet in some places. The entire landing strip (including the runway, taxiway, and two turnarounds) was within 6 inches of the final grade. The longitudinal and transverse slopes were all well within the allowable slopes determined by the Air Force.

## **Phase III**

Phase III involved compacting and grading the base over the fill to bring the landing strip up to final grade. The base, which had been stockpiled on top of the existing taxiway until it was ready to be used, was picked up by the scrapers and laid down in 4- to 6-inch lifts. The 68th used its smooth-wheel rollers to compact the base, along with two rented 9-wheel rollers to help with the final compaction.

Once the rain let up in March, there was almost no moisture for the rest of the project. The 68th used water distribution trailers behind M916 tractor trucks to bring in water. During the heat of the Texas summer, it became very challenging to keep the fill and base moist enough to meet compaction requirements. The 68th worked 24-hour operations for more than a month to keep the water coming. Light sets were used, and the Soldiers became proficient in operating their equipment at night. When optimal moisture content was reached, the fill and base reached compaction easily and the final phase moved quickly.

While final grading and compacting were conducted, other Soldiers worked to improve the drainage on the site. Ditches were dug on the outsides of the taxiway and runway to prevent water from settling on or near the landing strip. The ditches in between the runway and taxiway were connected to the culvert that went under the taxiway, and the water was routed out to a stock pond outside of the maintained area. The drainage was also improved along the access road—which has since been



**Soldiers compact fill between the two culvert pipes they emplaced. The culvert will be used to drain water from the area between the runway and the taxiway. Water was directed from either end of the runway and channeled through this culvert into a retention pond outside of the maintained area.**

renamed “Trailblazer Avenue” in recognition of the work done by the 68th Engineer Company “Trailblazers”—leading up to the landing strip.

### **Lessons Learned**

**M**any hours went into planning, coordinating, and constructing Landing Strip Hammer, and lessons were taken from each aspect of the project. Most of the lessons learned were simply common sense reminders of the importance or precedence that some tasks took over others.

#### **Planning Stage**

Weekly meetings with the survey sections during the project allowed the surveyors to have a working knowledge of the project. A good initial survey and periodic quality control checks were essential to meet the timeline without any unnecessary delays or mistakes. In this case, several different survey teams were involved, and it was essential that they were all working with the same, most up-to-date data.

#### **Cross Training and Licensing**

One of the biggest benefits to the landing strip project was the cross training that the operators received. As the project progressed, more Soldiers became licensed and qualified on the various equipment, even if it was outside of their military occupational specialty. This gave the unit

the flexibility needed to meet expected construction demands in Iraq.

### **Conclusion**

**T**he Landing Strip Hammer project provided the 62d Engineer Battalion excellent training in preparation for Operation Iraqi Freedom. Officers, noncommissioned officers, and Soldiers benefited from planning, supervising, and constructing this landing strip.

Soldiers from the 62d, in addition to elements from the Marine Wing Support Squadron 473d, were involved in the construction. The runway was extended and widened, and the maximum slope was decreased. The taxiway was widened, the culvert extended, and a new tail wall was built. The mission was completed with an approximate savings of \$627,000 to the Army.

Maintaining Landing Strip Hammer will continue to provide a training benefit to engineer units at Fort Hood, and the landing strip will be a valuable training facility for the Army and other services for many years. 

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