



# Building a Base Camp

By Lieutenant Colonel Thomas J. Shea III

**M**ost engineer officers never get the chance to see a base camp built from scratch, but I have had the opportunity to build two. The first was Camp Powderhorn, built in the Yoro Mountains of Honduras to support Exercise Fuertes Caminos 88. The second was Forward Operating Base (FOB) Hammer, recently built in an equally remote area in Iraq for the surge during Operation Iraqi Freedom.

## Camp Powderhorn

**E**ngineer Task Force 111 built Camp Powderhorn to very austere standards. We did not have access to the Internet; morale, welfare, and recreation (MWR) support; telephone systems; or the robust maintenance infrastructure that we can provide today at an FOB. An advantage we did have was that we designed, built, and lived in it—we were our own customer. Another advantage was that we had almost a year of lead time before we had to occupy the camp. Thus, we had plenty of time to lay it out, identify the required facilities, and develop the bill of materials (BOM). When the 52d Engineer Battalion arrived to build the camp, all the materials were on hand. Given the low security threat, we could drive an hour to the nearest hardware store for supplies, or two hours to a larger city for other supplies or repair parts.

Camp Powderhorn had the basics of a 1,000-person base camp. We built a shower facility and mess hall and used tents for command and control, billets, and an aid station. The 249th Engineer Battalion (Prime Power) provided two generators, and a quartermaster company provided water purification, shower, and laundry services. Communications consisted of a loud speaker, a radio teletype rig, and four satellite phones.

Finally, we had a small post exchange that sold junk food and beer. Life was very simple and good.

## FOB Hammer

**F**OB Hammer was almost the opposite in every respect. In January 2007, with the notice of the surge of forces into Iraq, Multinational Corps–Iraq (MNC–I) began its planning and decision-making process to determine where it would use each incoming brigade combat team (BCT). The outcome was a basing plan that fell to the corps engineer brigade, the 411th Engineer Brigade, to construct. In this case, MNC–I selected the Butler Range Complex as a site to house a BCT. Built a few years earlier, the range offered enough open space to construct an FOB. MNC–I told us to have the camp ready to accept the first elements by mid-March 2007.

### Site Reconnaissance

Accepting some uncertainty in the final boundaries of the site, MNC–I and the 411th Engineer Brigade construction management section (CMS) conducted a joint reconnaissance of the proposed site. A single building to use and an understanding of the limits of the new base camp were the results. The CMS then sent a survey team to conduct a detailed topographic survey of the proposed camp, while the rest of the section used overhead imagery to begin to lay out the facilities and develop the force protection plan. Before its completion, the limits of the camp and its name changed several times.

### Planning

To synchronize the many aspects of the planning and execution of the construction, we formed a special team within

the brigade from the primary sections involved in the planning: operations, supply, CMS, and the subordinate units. This team gathered regularly to identify and resolve issues and met with the MNC-I engineer section (C7) and the 13th Sustainment Command (Expeditionary), both of which conducted similar meetings. The cross-communication was critical to the ultimate success of building FOB Hammer.

The basic plan for the camp was to use Army Force Provider kits and supplement critical facilities with Southwest Asia (SWA) huts. A Force Provider kit provides tents, environmental control units, generators, kitchens, dining areas, MWR tents, beds, and a chapel, as well as laundry, latrine, and shower facilities. Engineers are required to prepare the ground, construct force protection measures, and install electrical and plumbing components. Since only four Force Provider kits were available, MNC-I contracted for the remaining necessary tents, beds, generators, and environmental control units.

### **Construction Priorities**

The base camp was planned in increments that supported the MNC-I priorities for construction. The general layout of the camp included areas for each unit as well as areas for contractor general life-support functions, such as—

- Burn pit.
- Water purification units.
- MWR.
- Entry control points.

We also considered special topics, such as—

- Detainee holding area.
- Brigade medical treatment facility.
- Helipads.
- Force protection.

The result of this planning was the recognition that the entire BCT could not be moved into SWA huts. Thus, it was decided that key facilities such as the brigade headquarters, battalion headquarters, medical treatment facility, and maintenance facilities would be placed in SWA huts. Everything else would stay in tactical vehicles or field tents drawn in Kuwait. These facilities were then prioritized for the 411th to build.



**Airmen construct future brigade headquarters.**

### **Coordination**

During the entire planning time and well into the construction phase, interface was nonexistent with the surge unit, which was either at its home station or in Kuwait training for its upcoming mission. Eventually, some contact was established via e-mail or a liaison officer, and the surge unit was able to review the overall site plan and the layouts for the brigade and battalion SWA huts. We received minimal comments and made all of the requested changes. Mostly, the leaders of the surge units had to trust that we were going to do the right thing for them, and the CMS did not take that responsibility lightly. Once the surge unit hit the ground, additional coordination began and the combined team made several site changes.

### **Building Design**

The actual design of the SWA huts was relatively easy. The CMS used several sources, to include the Theater Construction Management System and previously built SWA huts. One alteration was to the width of the building. This change accommodated the RED HORSE squadron since it already had jigs built for the roof trusses. To speed up the process, we gave the construction unit our designs in increments, such as the initial layout, finalization of the details, and development of the BOM. This served several functions: it allowed the constructing unit as much time as possible to conduct its planning and provided a review process to catch errors and omissions in the BOM.

### **Construction Priorities**

In keeping with MNC-I construction priorities, we started with the perimeter berm and concertina wire, and at the same

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time we built a small engineer camp to house the construction force. HESCO barriers for force protection around the housing areas, the billeting tents, and the dining facility came next. The overriding goal was to provide a safe place for the surge unit to live and eat. The burn pit, water supply, and blackwater lagoon were the next priorities for horizontal construction, while the brigade headquarters, medical facility, and battalion headquarters were priorities for vertical construction. A brigade ammunition holding area, a detainee holding annex, and upgrades to the existing helipads were also constructed.

While most force protection measures in Iraq use the T-Wall®—a precast concrete retaining wall system—or some variation of it, the tactical situation at the time of the construction prevented us from using it. Instead, we used 7-foot and 4-foot HESCO barriers. A key lesson to remember is to develop a drainage plan for the area protected by the barriers. This includes grading the area to create a sloping crown, ditching key areas to drain the water to where you want it, and including seep pipes under the barriers to allow additional draining. Failure to include this will create a pool and a mud bath, which Soldiers will not enjoy.

The 411th Engineer Brigade was fortunate that the RED HORSE squadron assigned to the mission was composed of National Guard personnel who recently performed a similar mission in support of Hurricane Katrina relief. The squadron provided the command and control cell and half of the construction force, while the 92d Engineer Battalion from Fort Stewart, Georgia, provided its Bravo Company as the other half of the construction force. It was a pleasure to watch these two units come together and operate as a single joint force.

### **Logistics**

The final critical piece to the whole operation was the logistics. As previously stated, the camp was in a remote location. If located in the United States or some other part of the world, the distance to a nearby town might not be too great, but this was Iraq. Everything had to be trucked in—Force Provider kits, contractor tents, lumber, electrical BOM, water, and all classes of supply. (Eventually, a water source was found, so it was no longer necessary to truck it in.)

In addition to the normal logistical packages, the 411th Engineer Brigade supply section sent more than



**Construction on the medical treatment facility began once force protection measures were in place.**



**Construction of an engineer living area was a top priority.**

300 containers of lumber, concertina wire, and electrical parts to FOB Hammer. We had to procure all of the electrical BOM locally. And while the Iraqis can deliver dimensional lumber fairly quickly, it took at least 30 days to deliver electrical parts. That was after awarding the contract, which takes about 30 days. Since our regulations consider construction materials to be permanent supplies, our field ordering officers are not allowed to purchase them. Special care must be taken in the identification of the BOM, or the project could be delayed 60 days or more.

Gravel and concrete pose a special problem in Iraq. For FOB Hammer, we initially programmed more than 100,000 cubic meters of gravel for roads, limited dust control, and the maintenance areas. Gravel deliveries from the three companies with contracts were slower and of lower quality than expected. The constant problem with gravel in most of Iraq is that it is river run and not well gradated. This leads to poor quality concrete and roads that require constant maintenance. We never found a contractor willing to deliver ready-mix concrete to the camp.

### **Summary**

**D**uring the initial buildup of the camp, the 13th Sustainment Command (Expeditionary) and its 15th Sustainment Brigade provided outstanding support. It was interesting to learn that when the 15th sent a small party to FOB Hammer to coordinate logistical support,

they brought their own communications package, including long-range voice and satellite voice and data capabilities. The engineers, on the other hand, relied on a single AN/PRC-150 radio—mounted in a high-mobility, multipurpose wheeled vehicle (HMMWV)—and a TeleEngineering Toolkit. We had no way to send e-mail messages with status reports, requests for BOM, or construction drawings in a secure and timely manner. As a result, I believe it is important that we take a hard look at how we are equipping our new deployable brigade command posts and ensure that they have the same communications capabilities that other brigades have.

Although the experiences were quite different, planning and building Camp Powderhorn and FOB Hammer were both very rewarding. The challenges of building a base camp from scratch can be daunting. But by building on the lessons learned from others, we can quickly provide our Soldiers the accommodations they need to support their missions.



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