

# Advanced Stabilization Technology Enlisted by the US Army

Holland Drop Zone FLS

## The Assignment

Army Engineers training for their combat airborne support responsibilities at Fort Bragg, North Carolina, practice their skills for rapid construction and maintenance of unpaved dirt runways known as Forward Landing Strips (FLS). The native sandy soils in this area of North Carolina do not have sufficient stability to support the landing and takeoff of loaded C-130 transport aircraft, so Fort Bragg was importing clay borrow soils that were becoming increasingly limited in availability and more expensive as the haul from new sources grew more distant. The imported clay capping material would

typically experience cracking after construction of the FLS was completed, and that would be the beginning of the soil erosion problems that could develop quickly in an area with an average annual rainfall of 45 inches. The Army Engineers were concerned about the increasing cost for frequently having to import more clay capping soil to maintain the FLS in proper condition. As the result of their research, they selected an **EMC SQUARED**® System stabilizer treatment that was one fourth the cost of the amount of conventional cement stabilizer product, which they could not install themselves using their own construction equipment.



EMC SQUARED System stabilizer solution being applied to FLS clay capping soils by military water tanker.

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## The Application

Application of the **EMC SQUARED** System products was done by the 37th Engineer Battalion themselves with their own equipment. By penetrometer testing, **EMC SQUARED** System treated soils showed almost a seven-fold improvement of the soils before treatment. "This stuff locks in and creates an almost cement material," said Staff Sgt. Thomas McDonald, Company B, 37<sup>th</sup> Engineering Battalion. Reports from years later said the constructed strips remained "rock hard without any sign of damage."



Field testing **EMC SQUARED** stabilized soil after initial curing by Penetrometer testing that measured a nearly seven-fold increase in bearing strength.



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Water tanker application equipment parked at left while cross-shaft rotary mixer at distant right mixes stabilization treatment while soil and motor grader begins to grade and shape the treated soil.



Water tanker applying stabilizer solution in front of cross-shaft rotary mixers with compaction equipment visible at right.

## The Result

The only problem? The irony of the FLS soil stabilization projects was that **EMC SQUARED** System treatment was too successful. The erosion-resistant treatment was so effective that the need for maintenance grading was eliminated. Since FLS grading maintenance was a required part of their training program, the command at Fort Bragg informed the Battalion, after two FLS were stabilized in this manner, that soil stabilization was counterproductive to their required training and for that reason they would not be approving stabilization of any additional Forward Landing Strips at Fort Bragg.

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