

**SECTION 913
SHELL MATERIAL**

913-1 General.

913-1.1 Composition: Shell materials to be used for shell base or shell stabilized base, shall consist of naturally occurring deposits formed essentially of broken mollusk shell, corals and the skeletal remains of other marine invertebrates. Live or steamed shell, or man-made deposits as a by-product of the shellfish industry will not be permitted.

Approval of mineral aggregate sources shall be in accordance with 6-3.3.

913-1.2 Deleterious Substances: Shell materials shall be reasonably free of lumps of clay, organic matter, and other substances not defined which may possess undesirable characteristics. The material shall not contain silica sand in sufficient quantity to prevent bonding.

913-1.3 Physical and Chemical Properties: Shell materials shall meet the following physical and chemical requirements:

Limerock Bearing Ratio (LBR) (FM 5-515) - The material shall have an average LBR value of not less than 100. Material represented by any individual LBR value of less than 90 is unacceptable.

Plasticity (AASHTO T89 and AASHTO T90) - That portion of the material passing the No. 40 sieve shall be non-plastic.

Carbonates (FM 5-514) - The minimum percentage of carbonates of calcium and magnesium shall be 50.

913-2 Dredged Shell.

913-2.1 Definition: Dredged shell shall be defined as those shell materials meeting the requirements of 913-1, which are dredged from ocean, bay or lake deposits.

913-2.2 Gradation Requirements: Materials classified as dredged shell shall meet the following gradation requirements:

Passing 3-1/2 inch sieve	97% (maximum dimension not to exceed 6 inches)
Passing No. 4 sieve	maximum 50%
Passing No. 200 sieve	maximum 7.5% (by weight)

913-3 Bank-Run Shell.

913-3.1 Definition: Bank-run shell shall be defined as those shell materials meeting the requirements of 913-1 which are presently found as "dry land" deposits.

913-3.2 Gradation Requirements: Materials classified as bank-run shell shall meet the following gradation requirements:

Passing 3-1/2 inch sieve	97% (maximum dimension not to exceed 6 inches)
Passing No. 4 sieve	maximum 80%
Passing No. 200 sieve	maximum 20% (washed)

913-4 Exceptions, Additions and Restrictions.

Other specification modifications, based on material usage, may be found in applicable Sections of the specifications.