

From Chapter 5

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Hasty Field Identification

With the standard methods of field identification supplemented with a few simplified field tests, an approximate and hasty classification of almost any soil can be obtained. The simple or hasty tests outlined in [Figure 5-7](#) will, for the most part, eliminate the need for specialized equipment such as sieves. The results will give at least a tentative classification to almost any soil. The schematic diagram in [Figure 5-7](#) may be used as a guide to the testing sequence in the process of assigning a symbol to a sample of soil.

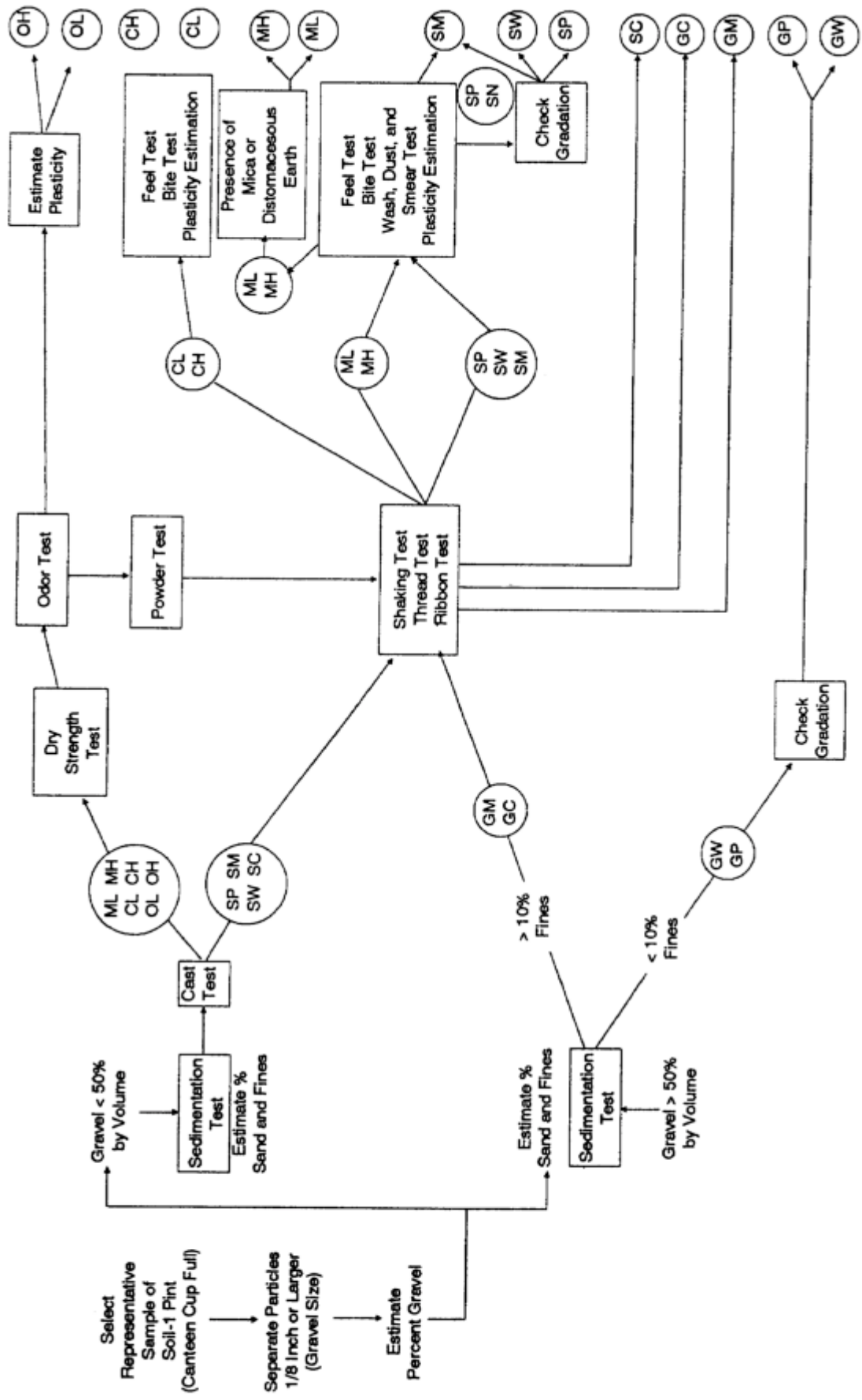


Figure 5-7 Suggested procedure for best field identification

1. Select a random but typical sample of soil.
 2. Separate the gravel.
 - (a) Remove from the sample all particles larger than 1/4 inch in diameter.
 - (b) Estimate the percent of gravel.
 3. Use the sedimentation test to determine the percent of sand.
 - (a) Place the sample (less gravel) in a canteen cup and fill it with water.
 - (b) Shake the mixture vigorously.
 - (c) Allow the mixture to stand for 30 seconds to settle out.
 - (d) Pour the water containing the suspended fines into another container.
 - (e) Repeat steps (b) through (d) until the water poured off is clear.
 - (f) Dry the soil left in the cup (sand).
 - (g) Estimate the percent of sand.
 4. Compare the gravels, sands, and fines.
 - (a) The gravels have been estimated in test (2), step (b).
 - (b) The sands have been estimated in test (3), step (g).
 - (c) Dry the soil remaining in the second container (fines).
 - (d) Estimate the percent of fines.
 5. Cast test.
 - (a) Compress a handful of moist (but not sticky) soil into a ball or cigar-shaped cast.
 - (b) Observe the ability of the cast to withstand handling without crumbling.
 - (c) If the cast crumbles when touched, the sample is a sand with little or no fines (SW) or (SP).
 - (d) If the cast withstands careful handling, the sample is a sand with an appreciable amount of fines (SM) or (SC).
 - (e) If the cast can be handled freely or withstands rough handling, the sample is either silt, clay, or organic.
 6. Dry strength test.*
 - (a) Form a moist pat 2 inches in diameter by 1/2 inch thick.
 - (b) Allow it to dry with low heat.
 - (c) Place the dry pat between the thumb and index finger only and attempt to break it.
 - (d) If breakage is easy, it is a slightly plastic silt (ML).
 - (e) If breakage is difficult, it is a medium plastic and medium compressible clay (CL) or a highly compressible silt (MH).
 - (f) If breakage is impossible, it is a highly plastic and highly compressible clay (CH).
 7. Odor test.
 - (a) Heat the sample with a match or open flame.
 - (b) If the odor becomes musty or foul smelling, there is a strong indication that organic material is present.
 8. Powder test.*
 - (a) Rub a portion of the broken pat with the thumb and attempt to flake particles off.
 - (b) If the pat powders, it is silt.
 - (c) If the pat does not powder, it is clay.
 9. Wet shaking test.*
 - (a) Place the pat of moist (not sticky) soil in the palm of the hand (the volume is about 1/2 cubic inch).
 - (b) Shake the hand vigorously and strike it against the other hand.
 - (c) Observe how rapidly water rises to the surface.
 - (d) If it is fast, the sample is silty. If there is no reaction, the sample is clayey (C).
- * Tests conducted on material smaller than 1/32 inch in diameter (passes Number 40 sieve).

Figure 5-7. Suggested procedure for hasty field identification (continued).