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**Agronomy Tech Note #MN-18**  
**Conservation Planning**

**Measuring Length and Percent of Slope for PHEL Soil Map Units to Determine the EI**

All county Highly Erodible Soil Lists (HEL) are posted in Section II of the eFOTG. On each list the county's identified soil map units have been determined to be either NHEL, HEL or PHEL; using the archived Universal Soil Loss Equation (USLE) soil factors for Rainfall (R), Soil Erodibility (K) and (I), Climate (C), and Soil Tolerance (T) from the USLE.

Policy in the National Food Security Act Manual, Part 511, provides guidance for making and documenting N/HEL determinations. Included in this policy are provisions for fields with PHEL soil map units. When the N/HEL determination hinges on PHEL soil map unit(s), by policy the PHEL soils will be verified on-site to determine whether they are HEL or NHEL.

The following procedures will be used by field staff to verify and document the status of PHEL soils in an N/HEL determination:

1. Make an on-site L (slope length) and S (slope percent) measurement on several representative slopes for each PHEL soil map unit in the field. The measurement of slope length should not be restricted to the boundaries of the PHEL soil map unit but should represent the sheet and rill erosion flow path that affects the PHEL soil map unit. This means that "L" begins at the point of origin of overland flow and extends until either deposition or concentrated flow begins. When making this determination the slope length "L" may also extend outside of the field boundary. The measurement for percent of slope should be taken from within the PHEL soil map unit, along the "L" that was just measured.
2. An individual can take as many slope length and slope steepness measurements as they feel are needed to become familiar with the topography of each PHEL soil map unit. However, the "LS" value used for each PHEL soil map unit in the determination will be based on a single measurement which represents the "typical" condition for each PHEL soil map unit. When the PHEL soil map unit is a soil complex make the additional determination of which specific soil factors ("K" and "T") correspond to the location of the "LS" measurement. If you are unfamiliar with the different portions of the soil complex contact the Area Soil Scientist for assistance. Document the location of the slope length and steepness measurements on an aerial photo of the field.
3. PHEL soil map units cannot be subdivided into HEL and NHEL components. If the percent slope that you determine for the PHEL soil map unit is outside of the stated map unit range, contact the Area Soil Scientist for assistance.
4. For each PHEL soil map unit determine if the Erodibility Index (EI) is greater then or equal to 8. For water erosion the EI formula is as follows;  $(EI) = (R) \times (K) \times (LS) \text{ divided by } (T)$ .



5. Along with the aerial photo of the field, use form **MN CPA-14 Highly Erodible Lands Determination Worksheet** to document all on-site soil erosion factors, the calculated Erodibility Index (EI) and the resulting N\HEL determination. The calculated EI for the PHEL soil map unit, includes the use of your actual slope length and slope percent measurements. N\HEL determinations must use the archived USLE soil factors, including the LS charts.
  
6. All new N\HEL determinations are recorded and distributed using form CPA-026. All CPA-026s are sent via certified mail or hand delivered, no exceptions, with a copy given to FSA.