

## TO EXTRACT SOILS DATA FROM A SOIL INTERPRETATIONS RECORD

To estimate soil erosion by wind requires accurate input of basic soils data. The major source of this information is the SOIL INTERPRETATIONS RECORD (Soils Five) for the specific soil series. Some of the older Soils Five forms may not have all values listed. Current survey sheets should be used whenever available. When not available, a "best estimate" may be used or consult the NRCS Area Soil Scientist.

An example of the "Soils Five" sheet for the Amarillo Series is on the next page (APPENDIX E-2). From this sheet the following data are needed:

Sand %	Organic matter %
Silt %	Calcium carbonate (CaCO <sub>3</sub> ) %
Clay %	

For wind erosion estimates, only the surface layer values are used. In this example the surface layer is 0-11 inches. For the Amarillo series the clay % varies from 10 to 18 %. See yellow block on next page. For illustration purposes, the average of 14 % is used. For other situations, use a number in the range that describes a particular soil.

The silt fraction is calculated from the following equation.

$$Silt \% = \left( \frac{Pass\ 200}{Pass\ 10} \times 100 \right) - Clay \% \quad [1]$$

In equation [1] "Pass 200" is the "percent of material less than 3" passing sieve no. 200". The range in our example is 30 to 55. See the green block on the next page. Use the average value of 43 %. "Pass 10" is the "percent of material less than 3" passing sieve no. 10". The value for our example is 100. See grey block on the next page. Again, averages may be used for silt or clay or any value in the range for a particular soil.

Solving equation [1] for silt gives the following.

$$\begin{aligned} Silt \% &= \left( \frac{43}{100} \times 100 \right) - 14 \\ &= 43 - 14 = 29 \end{aligned}$$

Sand % is calculated from the following equation.

$$Sand \% = 100 - Clay \% - Silt \% \quad [2]$$

The Amarillo series example is calculated below.

$$Sand \% = 100 - 14 - 29 = 57 \%$$

The organic matter is 0.5 to 1 %. See blue block. The CaCO<sub>3</sub> has no value on this form, but as these forms are updated and populated CaCO<sub>3</sub> values will be listed. See red block.

APPENDIX E-2

TX0130

SOIL INTERPRETATIONS RECORD

AMARILLO SERIES

MLRA(S): 77, 78  
REV. JCW, 9-82

ARIDIC PALESTALFS, FINE-LOAMY, MIXED, THERMIC

THE AMARILLO SERIES CONSISTS OF DEEP, WELL DRAINED, NEARLY LEVEL TO GENTLY SLOPING SOILS OF UPLANDS. THE SOIL FORMED IN LOAMY, CALCAREOUS, ALLUVIAL OR EOLIAN MATERIALS. IN A REPRESENTATIVE PROFILE, THE SURFACE LAYER IS BROWN FINE SANDY LOAM ABOUT 11 INCHES THICK. THE SUBSOIL IS SANDY CLAY LOAM TO DEPTHS OF MORE THAN 99 INCHES. IT IS REDDISH BROWN IN THE UPPER 16 INCHES, YELLOWISH RED IN THE NEXT 11 INCHES, PINK WITH 60 PERCENT CALCIUM CARBONATE IN THE NEXT 29 INCHES, AND LIGHT REDDISH BROWN BELOW 85 INCHES. SLOPES RANGE FROM 0 TO 5 PERCENT.

LANDSCAPE AND CLIMATE PROPERTIES					
ANNUAL AIR TEMPERATURE	FROST FREE DAYS	ANNUAL PRECIPITATION	ELEVATION (FT)	DRAINAGE CLASS	SLOPE (PCT)
				W	0-5

ESTIMATED SOIL PROPERTIES (A)

DEPTH (IN.)	USDA TEXTURE	UNIFIED	AASHTO	FRACT. >10 IN (PCT)	FRACT. 3-10 IN (PCT)	PERCENT OF MATERIAL LESS THAN 3" PASSING SIEVE NO.				CLAY (PCT)
						4	10	40	200	
0-11	FSL	SM, SM-SC, CL-ML, ML	A-2-4, A-4	0	0	100	100	95-100	30-55	10-18
0-11	LFS	SM, SM-SC	A-2-4	0	0	100	100	95-100	15-35	5-15
11-38	SCL, CL	SC, SM-SC, CL	A-4, A-6	0	0	100	100	95-100	35-65	20-35
38-40	SCL, CL	SC, CL, SM-SC	A-4, A-6	0	0	90-100	90-100	65-98	35-70	20-35

DEPTH (IN.)	LIQUID LIMIT	PLAS-TICITY INDEX	MOIST BULK DENSITY (G/CM3)	PERMEA-BILITY (IN/HR)	AVAILABLE WATER CAPACITY (IN/IN)	SOIL REACTION (PH)	SALINITY (MMHOS/CM)	SAR	CEC	CACO3 (PCT)	GYPSUM (PCT)
0-11	17-25	3-7	1.35-1.60	2.0-6.0	0.11-0.15	6.6-7.8	-				
0-11	<22	NP-4	1.40-1.60	2.0-6.0	0.06-0.10	6.6-7.8	-				
11-38	20-40	7-20	1.30-1.65	0.6-2.0	0.14-0.18	7.4-8.4	-				
38-80	20-35	7-17	1.40-1.80	0.6-2.0	0.10-0.15	7.9-8.4	-				

DEPTH (IN.)	ORGANIC MATTER (PCT)	SHRINK-SWELL POTENTIAL	EROSION FACTORS		WIND EROD. GROUP	WIND EROD. INDEX	CORROSIVITY	
			K	T			STEEL	CONCRETE
0-11	.5-1	LOW	.24	5	3	86	MODERATE	LOW
0-11	.5-1	VERY LOW	.15	5	2	134		
11-38		LOW	.32					
38-80		LOW	.32					

FLOODING			HIGH WATER TABLE			CEMENTED PAN		BEDROCK		SUBSIDENCE		HYD GRP	POTENT'L FROST ACTION
			DEPTH (FT)	KIND	MONTHS	DEPTH (IN)	HARD-NESS	DEPTH (IN)	HARD-NESS	INIT. (IN)	TOTAL (IN)		
FREQUENCY	DURATION	MONTHS											
NONE			>6.0			-		>60		-		8	-

**APPENDIX E-3**

<b>Soils Input Data</b>						
Texture	Filename <sup>1</sup>	Sand %	Silt %	OM %	CaCO <sub>3</sub> %	Rock Cover %
Sand	SAND	93	4	0.3	1	0
Loamy Sand	LOAMY_SA	84	10	0.5	2	0
Sandy Loam	SANDY_LO	64	26	0.5	3	0
Sandy Clay Loam	SANDY_CL	59	13	1.0	3	0
Sandy Clay	SANDY_C	52	7	1.0	3	0
Silt	SILT	6	88	1.5	3	0
Silt Loam	SILT_LOA	21	67	1.5	3	0
Loam	LOAM	41	41	1.5	3	0
Silty Clay Loam	SILTY_CL	10	56	2.0	3	0
Silty Clay	SILTY_C	6	47	2.5	3	0
Clay Loam	CLAY_LOA	32	34	2.5	3	0
Clay	CLAY	20	20	3.0	3	0

<sup>1</sup> Use this filename to access the file in DOS sub-directory RWEQ97.