

# Minnesota Soils Scorecard Questions for Pits 1 - 4 Scantron # 105481

Use your soils scorecard to fill out the answers on your scantron

Bubble in the front side of the sheet for Pit 1 (# 1-45) and Pit 2 (#51-95) and

Bubble in the back side of the sheet for Pit 3 (# 1-45) and Pit 4 (51-95)

## Pits 1 & 3 Questions

### Part 1: Surface soil

1. Surface Soil: Thickness in inches (2 pts)

A.

B. Answers to be determined

C. by pit and placard

D. with a 3 inch range.

E.

2. Surface Soil Color (4 pts)

A. Dark

B. Medium

C. Light

3. Surface: Soil Texture (5 pts)

A. Coarse

B. Moderately Coarse

C. Medium

D. Fine

E. Very Fine

4. Surface: Gravel and Rock (2 pts)

A. None to Few

B. Gravelly

C. Very Gravelly

D. Extremely Gravelly

### Part 2: Subsurface Soil

5. Subsurface Soil: Thickness in inches (2 pts)

A.

B. Answers to be determined

C. by pit and placard

D. with a 3 inch range

E.

6. Subsurface: Soil Color (4 pts)

A. Bright

B. Mottled

C. Dull

7. Subsurface: Texture (5 pts)

A. Coarse

B. Moderately coarse

C. Medium

D. Fine

E. Very Fine

8. Subsurface: Gravel and Rock (2 pts)

A. None to Few

B. Gravelly

C. Very Gravelly

D. Extremely Gravelly

### Part 3: Underlying Material

9. Parent Material: Thickness in inches (2pts)

A.

B. Answers to be determined

C. by pit and placard

D. with a 3 inch range

E.

10. Underlying Material: Texture (5 pts)

A. Coarse

B. Moderately coarse

C. Medium

D. Fine

E. Very Fine

11. Underlying Material: Gravel (2 pts)

A. None to Few

B. Gravelly

C. Very Gravelly

D. Extremely Gravelly

### Part 4: Topography

12. Steepness of slope (3 pts)

A. Nearly level – 2% or less

B. Gently sloping - 3 – 6 %

C. Moderately sloping - 7 – 12 %

D. Strongly sloping - 13 - 18 %

E. Steep – Greater than 18 %

**13. Landscape position** (3 pts)

- A. Upland
- B. Terrace – Footslope
- C. Bottom land – Flood Plains
- D. Depressional Area – No outlet

**Part 5: Land Classification**

**14. Land Capability Classification** (6 pts)

- A. Class I or II
- B. Class III
- C. Class IV
- D. Class V
- E. Class VI, VII, or VIII

**Part 6: Interpretation of Soils Features**

**15. Type of Material that Limits Depth** (2 pts)

- A. None- No limiting materials
- B. Bedrock – Soft or hard
- C. Hardpan – Cemented
- D. Very gravelly sand or high water table

**16. Parent Material** (2 pts)

- A. Bedrock – Soft or hard
- B. Alluvium/ Outwash/ Lacustrine
- C. Till/ Loess/ Aeolian Sand
- D. Organic Materials – Peat or Muck

**17. Depth favorable for roots & water** (2 pts)

- A. Very deep- 60 inches or more
- B. Deep- 40 – 59 inches
- C. Moderately Deep- 20 – 39 inches
- D. Shallow- less than 20 inches

**18. Air and water movement** (2 pts)

- A. Very Rapid
- B. Rapid
- C. Moderate
- D. Slow

**E. Total Available Water Capacity**

**Available water in horizon/ inch of soil**

**19. a. Surface Horizon** (1 pt)

- A. 0.05
- B. 0.15
- C. 0.20

**20. b. Subsoil Horizon** (1 pt)

- A. 0.05
- B. 0.15
- C. 0.20

**21. c. Underlying material Horizon** (1 pt)

- A. 0.05
- B. 0.15
- C. 0.20

**Available Water Capacity per Horizon**

**22. a. Surface Horizon** (1 pt)

- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**23. b. Subsoil Horizon** (1 pt)

- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**24. c. Underlying material** (1 pt)

- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**25. 3. Total available water capacity**  
(5 ft. of soil) (4 pts.)

- A. Very low – less than 3 inches
- B. Low – 3.1 to 6 inches
- C. Moderate – 6.1 to 9 inches
- D. High – Over 9 inches

**26. 4. Internal drainage** (4 pts.)

- A. Well drained
- B. Moderately well drained
- C. Somewhat poorly drained
- D. Poorly or very poorly drained

**Part 7 – Accelerated erosion**

**27. Amount of erosion** (2 pt.)

- A. No erosion evident (less than 2 inches)
- B. Deposition (2 inches or greater)
- C. Erosion present (2 inches or greater)

**28. Kind of erosion** (2 pts.)

- A. None
- B. Active gully
- C. Wind erosion
- D. Sheet or rill

**Part 8 – Need for erosion control**

**29. Water erosion** (3 pts.)

- A. None to slight
- B. Crop cover, sod cover and conservation tillage
- C. Contour, strip crop and conservation tillage
- D. Grass waterways and gully control
- E. Woodland/perm. pasture, wildlife or recreation

**30. Wind erosion** (3 pts.)

- A. None to slight
- B. Mulch tillage, cover crop

**Part 9**

**31. Drainage required** (5 pts.)

- A. None required
- B. Surface and/or tile

**Part 10 – Fertilizer and lime recommendations**

**32. Nitrogen pounds per acre** (2 pts)

- A. Over 161
- B. 121- 160
- C. 81- 120
- D. 41- 80
- E. 0- 40

**33. Phosphorous pounds per acre** (2 pts.)

- A. Over 81
- B. 61- 80
- C. 41- 60.
- D. 21- 40
- E. 0- 20

**34. Potassium pounds per acre** (2 pts.)

- A. Over 181
- B. 136- 180
- C. 96- 135
- D. 46- 90
- E. 0- 45

**35. Lime tons per acre** (2 pts.)

- A. 8.5 or more
- B. 6.5- 8.0
- C. 4.5- 6.0
- D. 2.5- 4.5
- E. 0.0- 2.0

**Part 11 – Land Use limitation**

**36. Dwellings (lawns), foundations, basements** (3 pts)

- A. Slight
- B. Moderate
- C. Severe

**Use limitation**

**37 Septic tank absorption fields** (3 pts.)

- A. Slight
- B. Moderate
- C. Severe

**Use limitation**

**38. Farm lagoons and holding basins** (3 pts.)

- A. Slight
- B. Moderate
- C. Severe

**39. % Slope** (3 pts.)

- A. Zero to 2.0
- B. 2.1 to 6.0
- C. 6.1 to 12.0
- D. More than 12.0

**40. Surface Soil Texture** (1 pt.)

- A. Medium, moderate, coarse
- B. Coarse, fine, very fine

**41. Flooding** (3 pts.)

- A. None
- B. Any flooding

**42. Internal Drainage Class** (3 pts.)

- A. Well drained, moderate well drained
- B. Somewhat poorly drained
- C. Poorly drained

**43. Permeability Class** (2 pts)

- A. Vary rapid to rapid
- B. Moderate
- C. Slow to Very slow

**44. Depth to Bedrock (Inches)** (3 pts)

- A. More than 60
- B. 40 to 60
- C. Less than 40

**45. Underlying Material (Shrink swell)** (1pt)

- A. Coarse, mod. coarse, medium texture
- B. Fine texture
- C. Very fine texture

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## Pits 2 & 4 Questions

### Part 1: Surface soil

51. Surface Soil: Thickness in inches (2 pts)

A.

**B. Answers to be determined**

**C. by pit and placard**

**D. with a 3 inch range.**

E.

52. Surface Soil Color (4 pts)

A. Dark

B. Medium

C. Light

53. Surface: Soil Texture (5 pts)

A. Coarse

B. Moderately Coarse

C. Medium

D. Fine

E. Very Fine

54. Surface: Gravel and Rock (2 pts)

A. None to Few

B. Gravelly

C. Very Gravelly

D. Extremely Gravelly

### Part 2: Subsurface Soil

55. Subsurface Soil: Thickness in inches (2 pts)

A.

**B. Answers to be determined**

**C. by pit and placard**

**D. with a 3 inch range**

E.

56. Subsurface: Soil Color (4 pts)

A. Bright

B. Mottled

C. Dull

57. Subsurface: Texture (5 pts)

A. Coarse

B. Moderately coarse

C. Medium

D. Fine

E. Very Fine

58. Subsurface: Gravel and Rock (2 pts)

A. None to Few

B. Gravelly

C. Very Gravelly

D. Extremely Gravelly

### Part 3: Underlying Material

59. Parent Material: Thickness in inches (2pts)

A.

**B. Answers to be determined**

**C. by pit and placard**

**D. with a 3 inch range**

E.

60. Underlying Material: Texture (5 pts)

A. Coarse

B. Moderately coarse

C. Medium

D. Fine

E. Very Fine

61. Underlying Material: Gravel (2 pts)

A. None to Few

B. Gravelly

C. Very Gravelly

D. Extremely Gravelly

### Part 4: Topography

62. Steepness of slope (3 pts)

A. Nearly level – 2% or less

B. Gently sloping - 3 – 6 %

C. Moderately sloping - 7 – 12 %

D. Strongly sloping - 13 - 18 %

E. Steep – Greater than 18 %

**63.** Landscape position (3 pts)

- A. Upland
- B. Terrace – Footslope
- C. Bottom land – Flood Plains
- D. Depressional Area – No outlet

**Part 5: Land Classification**

**64.** Land Capability Classification (6 pts)

- A. Class I or II
- B. Class III
- C. Class IV
- D. Class V
- E. Class VI, VII, or VIII

**Part 6: Interpretation of Soils Features**

**65.** Type of Material that Limits Depth (2 pts)

- A. None- No limiting materials
- B. Bedrock – Soft or hard
- C. Hardpan – Cemented
- D. Very gravelly sand or high water table

**66.** Parent Material (2 pts)

- A. Bedrock – Soft or hard
- B. Alluvium/ Outwash/ Lacustrine
- C. Till/ Loess/ Aeolian Sand
- D. Organic Materials – Peat or Muck

**67.** Depth favorable for roots & water (2 pts)

- A. Very deep- 60 inches or more
- B. Deep- 40 – 59 inches
- C. Moderately Deep- 20 – 39 inches
- D. Shallow- less than 20 inches

**68.** Air and water movement (2 pts)

- A. Very Rapid
- B. Rapid
- C. Moderate
- D. Slow

**E. Total Available Water Capacity**

**Available water in horizon/ inch of soil**

**69.** a. Surface Horizon (1 pt)

- A. 0.05
- B. 0.15
- C. 0.20

**70.** b. Subsoil Horizon (1 pt)

- A. 0.05
- B. 0.15
- C. 0.20

**71.** c. Underlying material Horizon (1 pt)

- A. 0.05
- B. 0.15
- C. 0.20

**Available Water Capacity per Horizon**

**72.** a. Surface Horizon (1 pt)

- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**73.** b. Subsoil Horizon (1 pt)

- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**74.** c. Underlying material (1 pt)

- A. 0.0- 2.0
- B. 2.1 – 4.0
- C. 4.1 – 6.0
- D. 6.1 – 8.0
- E. over 8.0

**75.** 3. Total available water capacity  
(5 ft. of soil) (4 pts.)

- A. Very low – less than 3 inches
- B. Low – 3.1 to 6 inches
- C. Moderate – 6.1 to 9 inches
- D. High – Over 9 inches

**76.** 4. Internal drainage (4 pts.)

- A. Well drained
- B. Moderately well drained
- C. Somewhat poorly drained
- D. Poorly or very poorly drained

**Part 7 – Accelerated erosion**

**77.** Amount of erosion (2 pt.)

- A. No erosion evident (less than 2 inches)
- B. Deposition (2 inches or greater)
- C. Erosion present (2 inches or greater)

**78.** Kind of erosion (2 pts.)

- A. None
- B. Active gully
- C. Wind erosion
- D. Sheet or rill

**Part 8 – Need for erosion control**

**79.** Water erosion (3 pts.)

- A. None to slight
- B. Crop cover, sod cover and conservation tillage
- C. Contour, strip crop and conservation tillage
- D. Grass waterways and gully control
- E. Woodland/perm. pasture, wildlife or recreation

**80.** Wind erosion (3 pts.)

- A. None to slight
- B. Mulch tillage, cover crop

**Part 9**

**81.** Drainage required (5 pts.)

- A. None required
- B. Surface and/or tile

**Part 10 – Fertilizer and lime recommendations**

**82.** Nitrogen pounds per acre (2 pts)

- A. Over 161
- B. 121- 160
- C. 81- 120
- D. 41- 80
- E. 0- 40

**83.** Phosphorous pounds per acre (2 pts.)

- A. Over 81
- B. 61- 80
- C. 41- 60.
- D. 21- 40
- E. 0- 20

**84.** Potassium pounds per acre (2 pts.)

- A. Over 181
- B. 136- 180
- C. 96- 135
- D. 46- 90
- E. 0- 45

**85.** Lime tons per acre (2 pts.)

- A. 8.5 or more
- B. 6.5- 8.0
- C. 4.5- 6.0
- D. 2.5- 4.5
- E. 0.0- 2.0

**Part 11 – Land Use limitation**

**86.** Dwellings (lawns), foundations, basements

(3 pts)

- A. Slight
- B. Moderate
- C. Severe

**Use limitation**

**87** Septic tank absorption fields (3 pts.)

- A. Slight
- B. Moderate
- C. Severe

**Use limitation**

**88.** Farm lagoons and holding basins (3 pts.)

- A. Slight
- B. Moderate
- C. Severe

**89.** % Slope (3 pts.)

- A. Zero to 2.0
- B. 2.1 to 6.0
- C. 6.1 to 12.0
- D. More than 12.0

**90.** Surface Soil Texture (1 pt.)

- A. Medium, moderate, coarse
- B. Coarse, fine, very fine

**91.** Flooding (3 pts.)

- A. None
- B. Any flooding

**92.** Internal Drainage Class (3 pts.)

- A. Well drained, moderate well drained
- B. Somewhat poorly drained
- C. Poorly drained

**93.** Permeability Class (2 pts)

- A. Vary rapid to rapid
- B. Moderate
- C. Slow to Very slow

**94.** Depth to Bedrock (Inches) (3 pts)

- A. More than 60
- B. 40 to 60
- C. Less than 40

**95.** Underlying Material (Shrink swell) (1pt)

- A. Coarse, mod. coarse, medium texture
- B. Fine texture
- C. Very fine texture