
APPENDIX A

**EXAMPLE SOIL TEST DATA FOR
DIFFERENT PARTS OF ALBERTA
AND RESPECTIVE SOIL ERODIBILITY RATING
PRELIMINARY ASSESSMENT**

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| <u>Table No.</u> | <u>Soils from the Area of:</u> |
|-------------------------|---------------------------------------|
| A.1 | Hotchkiss and Keg River |
| A.2 | Grimshaw and Notikewin |
| A.3 | Cherry Point and Hines Creek |
| A.4 | Sand River |
| A.5 | Waterton National Park |
| A.6 | Waterton National Park |

Table A.1: Test Data from Soil Samples in the Hotchkiss and Keg River Areas

| Material Type | Classification (USCS) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Composition | | |
|---------------|-----------------------|------------------|-------------------|----------------------|----------------------|------------------------|--------------------|
| | | | | | Sand (2.0-0.05) (mm) | Silt (0.05-0.002) (mm) | Clay (<0.002) (mm) |
| Lacustrine | CH | 56 | 25 | 31 | 5 | 26 | 69 |
| | CH | 51 | 21 | 30 | 2 | 45 | 53 |
| | CI | 45 | 20 | 25 | 13 | 44 | 43 |
| | CH | 61 | 21 | 40 | 10 | 29 | 61 |
| | CH | 60 | 21 | 39 | 5 | 43 | 52 |
| | CH | 84 | 36 | 48 | 0 | 21 | 79 |
| Fluvial | CH | 52 | 24 | 28 | 8 | 57 | 43 |
| Residual | SM | | | TR | 78 | 10 | 12 |
| | MH | 51 | 30 | 21 | 1 | 45 | 54 |

Table A.2: Test Data from Soil Samples in Grimshaw and Notikewin Areas

| Material Type | Classification (USCS) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Composition | | |
|---------------|-----------------------|------------------|-------------------|----------------------|----------------------|------------------------|--------------------|
| | | | | | Sand (2.0-0.05) (mm) | Silt (0.05-0.002) (mm) | Clay (<0.002) (mm) |
| Till | CI | 43 | 20 | 23 | 18 | 39 | 43 |
| | CI | 41 | 19 | 22 | 19 | 41 | 40 |
| | CI | 36 | 18 | 18 | 27 | 33 | 40 |
| | CI | 43 | 18 | 25 | 22 | 42 | 36 |
| | CI | 41 | 20 | 21 | 21 | 48 | 38 |
| | CI | 44 | 20 | 24 | 20 | 37 | 43 |
| | CI | 44 | 18 | 26 | 25 | 34 | 41 |
| | CI | 43 | 19 | 24 | 21 | 41 | 38 |
| | CI | 37 | 18 | 19 | 23 | 35 | 32 |
| Lacustrine | CI | 40 | 18 | 22 | 20 | 46 | 34 |
| | CH | 58 | 24 | 34 | 3 | 19 | 78 |
| | CI | 44 | 18 | 26 | 0 | 25 | 75 |
| | CH | 61 | 28 | 33 | 2 | 40 | 58 |
| | CH | 57 | 24 | 33 | 2 | 44 | 56 |
| | CH | 66 | 27 | 39 | 0 | 40 | 60 |
| | CH | 64 | 28 | 36 | 3 | 19 | 78 |
| | CH | 69 | 26 | 43 | 6 | 20 | 74 |
| | CI-CH | 50 | 21 | 29 | 3 | 35 | 62 |
| | CI | 43 | 20 | 23 | 7 | 44 | 49 |
| Fluvial | CI | 42 | 21 | 21 | 22 | 45 | 33 |
| | CI | 38 | 19 | 19 | 20 | 50 | 30 |

Table A.3: Test Data from Soil Samples in Cherry Point and Hines Creek Area

| Material Type | Classification (USCS) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Composition | | |
|---------------|-----------------------|------------------|-------------------|----------------------|----------------------|------------------------|--------------------|
| | | | | | Sand (2.0-0.05) (mm) | Silt (0.05-0.002) (mm) | Clay (<0.002) (mm) |
| Till | CI | 39 | 18 | 21 | 20 | 38 | 42 |
| | CH | 51 | 23 | 28 | 12 | 33 | 55 |
| | CI | 43 | 20 | 23 | 20 | 42 | 38 |
| | CI | 41 | 20 | 21 | 17 | 49 | 34 |
| | CI | 40 | 19 | 21 | 15 | 41 | 44 |
| | CH | 67 | 30 | 37 | 2 | 15 | 83 |
| | MH | 78 | 38 | 40 | 5 | 9 | 86 |
| | CH | 55 | 25 | 30 | 1 | 41 | 58 |
| | CI | 45 | 26 | 19 | 6 | 60 | 34 |
| Lacustrine | CH | 55 | 24 | 31 | 10 | 23 | 67 |
| | CH | 69 | 30 | 39 | 1 | 19 | 80 |
| | CH | 51 | 21 | 30 | 17 | 40 | 43 |
| | CH | 69 | 28 | 41 | 3 | 27 | 70 |
| Fluvial | CI | 43 | 23 | 20 | 15 | 32 | 53 |
| | CI | 41 | 19 | 22 | 21 | 43 | 36 |
| | CI | 39 | 19 | 20 | 29 | 38 | 33 |
| | CI | 41 | 22 | 19 | 16 | 51 | 33 |
| | CI | 33 | 21 | 12 | 2 | 32 | 65 |
| | CI | 35 | 23 | 12 | 32 | 49 | 19 |
| | ML | 32 | 23 | 9 | 59 | 25 | 16 |
| | CL-MI | 22 | 17 | 5 | 84 | 14 | 2 |
| | MH | 51 | 30 | 21 | 8 | 19 | 73 |
| | MH | 41 | 27 | 14 | 8 | 42 | 50 |

Note: Potential soil erodibility: moderate to high


Table A.4: Test Data from Soil Samples in Sand River Area

| Material Type | Classification (USCS) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Composition | | | |
|---------------|-----------------------|------------------|-------------------|----------------------|------------------|----------------------|------------------------|--------------------|
| | | | | | Gravel (>2) (mm) | Sand (2.0-0.05) (mm) | Silt (0.05-0.002) (mm) | Clay (<0.002) (mm) |
| Till | CI-CH | 49 | 26 | 23 | | 22 | 35 | 43 |
| | CI | 35 | 20 | 15 | 1 | 29 | 32 | 38 |
| | CI | 36 | 21 | 15 | 3 | 38 | 27 | 37 |
| | CI | 31 | 17 | 14 | 2 | 34 | 27 | 37 |
| | CI | 32 | 19 | 13 | 1 | 30 | 34 | 35 |
| | CI | 38 | 19 | 19 | 1 | 31 | 33 | 35 |
| | CL | 27 | 15 | 12 | 1 | 38 | 29 | 32 |
| | CL-CI | 30 | 15 | 15 | 10 | 30 | 30 | 30 |
| | CI | 33 | 17 | 16 | 1 | 30 | 39 | 30 |
| | CI | 33 | 17 | 16 | 2 | 40 | 28 | 30 |
| | CL-CI | 28 | 15 | 13 | 3 | 40 | 27 | 30 |
| | CI | 27 | 14 | 13 | 1 | 42 | 28 | 29 |
| | CI | 31 | 17 | 14 | | | 34 | 28 |
| | CL-CI | 29 | 16 | 13 | 18 | 20 | 34 | 28 |
| | CL-CI | 31 | 18 | 13 | 18 | 20 | 34 | 28 |
| | CL | 24 | 16 | 8 | 1 | 40 | 31 | 28 |
| | CI | 32 | 17 | 15 | 2 | 30 | 42 | 26 |
| | CL-CI | 29 | 16 | 13 | 2 | 41 | 31 | 26 |
| | CL | 27 | 15 | 12 | 2 | 42 | 30 | 26 |
| | ML | 19 | 16 | 3 | 7 | 37 | 30 | 26 |
| | CL | 23 | 14 | 9 | 1 | 47 | 27 | 25 |
| | CL | 29 | 13 | 16 | 5 | 45 | 25 | 25 |
| | CL | 27 | 16 | 11 | | | 37 | 25 |
| CL | 28 | 17 | 11 | 3 | 39 | 34 | 24 | |
| CL-CI | 30 | 16 | 14 | 2 | 46 | 28 | 24 | |
| CL | 24 | 14 | 10 | 3 | 47 | 26 | 24 | |
| CL | 24 | 14 | 10 | 2 | 52 | | | |
| SM | | | | NP | 4 | 53 | 29 | 14 |
| Lacustrine | CH-CL | 51 | 24 | 27 | | 2 | 46 | 52 |

Note: Potential soil erodibility: moderate to high

Table A.5: Test Data from Soil Samples in Waterton National Park Area

| Material Type | Classification (USCS) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Composition | | |
|------------------|-----------------------|------------------|-------------------|----------------------|----------------------|------------------------|--------------------|
| | | | | | Sand (2.0-0.05) (mm) | Silt (0.05-0.002) (mm) | Clay (<0.002) (mm) |
| Till | CL-ML | 27 | 21 | 6 | 49 | 28 | 23 |
| | CI | 30 | 18 | 12 | 18 | 61 | 21 |
| | CI | 37 | 23 | 14 | 18 | 34 | 31 |
| | CI | 38 | 23 | 15 | 35 | 3 | 32 |
| Lacustrine | CI | 39 | 24 | 15 | 36 | 32 | 32 |
| | MH | 72 | 39 | 33 | 1 | 39 | 67 |
| | MH | 68 | 39 | 29 | 1 | 39 | 60 |
| Fluvial ----- | SM | | | NP | 88 | 6 | 6 |
| | SP-SM | | | NP | 88 | 10 | 2 |
| Acadian | SM | | | NP | 58 | 23 | 19 |
| | SW | | | NP | 96 | 4 | 0 |
| | SM | | | NP | 87 | 6 | 7 |

Note:  Potential soil erodibility: moderate to high

APPENDIX A

Table A.6: Test Data from Soil Samples in Waterton National Park Area

| Material Type | Classification (USCS) | Liquid Limit (%) | Plastic Limit (%) | Plasticity Index (%) | Composition | | | |
|---------------|-----------------------|------------------|-------------------|----------------------|------------------|----------------------|------------------------|--------------------|
| | | | | | Gravel (>2) (mm) | Sand (2.0-0.05) (mm) | Silt (0.05-0.002) (mm) | Clay (<0.002) (mm) |
| Till | CH | 50 | 22 | 28 | 18 | 12 | 38 | 32 |
| | CL-ML | 27 | 21 | 6 | 38 | 26 | 27 | 9 |
| | GM | 17 | 15 | 2 | 43 | 23 | 27 | 7 |
| | GM-GC | 25 | 20 | 5 | 55 | 22 | 19 | 4 |
| | ML | 19 | 15 | 4 | 3 | 41 | 46 | 10 |
| | GC | 47 | 37 | 10 | 77 | 6 | 9 | 8 |
| | GM | | | NP | 60 | 26 | 9 | 5 |
| | SC | 36 | 18 | 18 | 35 | 27 | 27 | 11 |
| | CI | 37 | 20 | 17 | 5 | 8 | 72 | 15 |
| | GM | 18 | 16 | 2 | 48 | 39 | 10 | 3 |
| Fluvial | GP-GM | | | NP | 76 | 18 | 4 | 2 |
| | ML | | | NP | | 28 | 70 | 2 |
| | GP-GM | | | NP | 59 | 33 | 5 | 3 |
| | MH | 53 | 30 | 23 | | 3 | 67 | 30 |
| | ML | 35 | 25 | 10 | | 7 | 71 | 22 |
| | ML-CL | 42 | 27 | 15 | | 15 | 58 | 27 |
| | GC | 22 | 14 | 8 | 76 | 7 | 9 | 8 |
| | GD | | | NP | 84 | 12 | 3 | 1 |
| | GM | 28 | 22 | 6 | 83 | 5 | 7 | 5 |
| | SM | | | NP | 43 | 45 | 10 | 7 |
| | SM | 27 | 22 | 5 | 55 | 33 | 8 | 4 |
| | ML | 37 | 28 | 9 | 2 | 25 | 54 | 19 |
| | GP-GM | | | NP | 78 | 14 | 6 | 2 |
| | GP-GM | | | NP | 79 | 14 | 5 | 2 |
| | GP-GM | 16 | 14 | 2 | 78 | 15 | 5 | 2 |
| | GM | | | NP | 58 | 25 | 13 | 4 |
| | ML | 36 | 19 | 17 | 4 | 29 | 50 | 17 |
| | ML | 26 | 23 | 3 | 7 | 44 | 38 | 11 |
| | SM | | | NP | | 75 | 22 | 3 |
| | SM | | | NP | | 64 | 27 | 11 |
| | SM-SC | 25 | 19 | 6 | 42 | 40 | 13 | 5 |
| | GM-GC | 25 | 20 | 5 | 74 | 17 | 7 | 4 |
| | GC | 43 | 20 | 23 | 55 | 13 | 20 | 12 |
| | GM | 19 | 16 | 3 | 78 | 8 | 10 | 4 |
| | SM | 21 | 19 | 2 | 40 | 46 | 10 | 4 |
| | GP-GC | 25 | 10 | 15 | 80 | 11 | 6 | 3 |
| GM | | | NP | 71 | 18 | 9 | 2 | |

Note: Potential soil erodibility: moderate to high