

TABLE 3.1

CITY OF LONGMONT, UNION RESERVOIR FEASIBILITY STUDY
SUMMARY OF GEOTECHNICAL LABORATORY TEST RESULTS, EOLIAN SOIL

| Sample Location | | Natural Moisture Content (%) | Natural Dry Density (pcf) | Gradation | | | Atterberg Limits | | Standard Proctor | | Unconfined Compressive Strength (psf) | Consolidation ¹ (%) | Pinhole Dispersion Classification | Unified Soil Classification |
|-----------------|--------------|------------------------------|---------------------------|-----------|--------|-------------------------|------------------|----------------------|---------------------------|------------------------------|---------------------------------------|--------------------------------|-----------------------------------|-----------------------------|
| Hole | Depth (feet) | | | % Gravel | % Sand | % Passing No. 200 Sieve | Liquid Limit (%) | Plasticity Index (%) | Maximum Dry Density (pcf) | Optimum Moisture Content (%) | | | | |
| TH-2 | 7.5 | 18.6 | 109.0 | 0 | 33 | 67 | 30 | 14 | | | 4050 | | | Sandy Clay (CL) |
| TH-7 | 12 | 27.1 | 92.1 | 0 | 6 | 94 | 23 | 12 | | | 1000 | | | Clay (CL) |
| TH-19 | 4 | 12.6 | 90.5 | 0 | 23 | 77 | 34 | 19 | | | | | | Clay with Sand (CL) |
| TH-20 | 4 | 15.4 | 100.9 | 0 | 25 | 75 | 34 | 17 | | | 2.4 | | | Clay with Sand (CL) |
| TH-21 | 4 | 16.2 | 109.5 | 0 | 29 | 71 | 34 | 19 | | | | | | Clay with Sand (CL) |
| TH-22 | 4 | 21.9 | 102.4 | 0 | 29 | 71 | 29 | 3 | | | | | | Silt with Sand (ML) |
| TH-25 | 4 | 20.0 | 105.8 | 0 | 25 | 75 | | | | | | | | Clay with Sand (CL) |
| TH-39 | 4 | 27.5 | | 0 | 27 | 73 | 38 | 14 | | | | | | Clay with Sand (CL) |
| TH-39 | 9 | 14.9 | | 0 | 47 | 53 | 27 | 15 | | | | | | Very Sandy Clay (CL) |
| TH-40 | 4 | 15.4 | 104.2 | 0 | 47 | 53 | 34 | 19 | | | 6.3 | | | Very Sandy Clay (CL) |
| TH-40 | 9 | 20.6 | 101.8 | 0 | 28 | 72 | 28 | 14 | | | 7.0 | | | Clay with Sand (CL) |
| TH-41 | 4 | 14.0 | 110.0 | 0 | 38 | 62 | 36 | 20 | | | | | | Sandy Clay (CL) |
| TH-41 | 9 | 18.9 | | 0 | 55 | 45 | 26 | 12 | | | | | | Very Clayey Sand (SC) |
| TH-43 | 9 | 27.0 | | 0 | 19 | 81 | | | | | | | | Clay with Sand (CL) |
| TH-44 | 4 | 21.4 | 99.9 | 0 | 12 | 88 | | | | | | | | Clay (CL) |
| TH-45 | 9 | 29.8 | 92.0 | 0 | 5 | 95 | 41 | 25 | | | | | | Clay (CL) |
| TH-46 | 4 | 20.0 | | 0 | 8 | 92 | 42 | 24 | | | | | | Clay (CL) |
| TH-47 | 4 | 20.0 | | 0 | 8 | 92 | 40 | 23 | | | | | | Clay (CL) |
| TH-47 | 9 | 20.0 | | | | | | | | | | | | Clay (CL) |
| TH-48 | 4 | 10.2 | | 0 | 18 | 82 | 33 | 19 | | | | | | Clay with Sand (CL) |
| TH-48 | 9 | 8.6 | | 0 | 7 | 93 | | | | | | | | Clay (CL) |
| TH-49 | 9 | 29.6 | 93.6 | 0 | 3 | 97 | 41 | 24 | | | 11.8 | | | Clay (CL) |
| TP-2 | 5-8 | 20.9 | | 0 | 8 | 92 | 33 | 17 | 108.8 | 17.7 | | | ND1 ² | Clay (CL) |
| TP-3 | 1-4 | 16.6 | | 0 | 33 | 67 | 32 | 18 | | | | | | Sandy Clay (CL) |
| TP-5 | 2-6 | 19.7 | | 0 | 18 | 82 | 33 | 19 | 104.3 | 19.4 | | | | Clay with Sand (CL) |
| TP-5 | 12 | 23.7 | | | | | | | | | | | | Clay with Sand (CL) |
| TP-11 | 1-3 | 12.6 | | 0 | 14 | 86 | 32 | 18 | 106.8 | 17.0 | | | | Clay (CL) |

1. Consolidation under 10 kip load.
2. ND1 = Non-dispersive clay with very slight to no colloidal erosion.

TABLE 3.3

CITY OF LONGMONT, UNION RESERVOIR FEASIBILITY STUDY
SUMMARY OF GEOTECHNICAL LABORATORY TEST RESULTS, BEDROCK

| <i>Sample Location</i> | | <i>Natural Moisture Content (%)</i> | <i>Natural Dry Density (pcf)</i> | <i>Gradation</i> | | | <i>Atterberg Limits</i> | | <i>Standard Proctor</i> | | <i>Unconfined Compressive Strength (psf)</i> | <i>Classification</i> |
|------------------------|---------------------|-------------------------------------|----------------------------------|------------------|---------------|--------------------------------|-------------------------|-----------------------------|----------------------------------|-------------------------------------|--|-----------------------|
| <i>Hole</i> | <i>Depth (feet)</i> | | | <i>% Gravel</i> | <i>% Sand</i> | <i>% Passing No. 200 Sieve</i> | <i>Liquid Limit (%)</i> | <i>Plasticity Index (%)</i> | <i>Maximum Dry Density (pcf)</i> | <i>Optimum Moisture Content (%)</i> | | |
| TH-19 | 9 | 13.8 | 114.0 | 0 | 81 | 19 | | | | | | Sandstone with Silt |
| TH-20 | 9 | 10.3 | | 0 | 79 | 21 | | | | | | Sandstone with Silt |
| TH-26 | 4 | 14.9 | 117.6 | 0 | 56 | 44 | | | | | | Very Silty Sandstone |
| TH-28 | 4 | 17.8 | 110.0 | 0 | 1 | 99 | 36 | 18 | | | | Claystone |
| TH-29 | 4 | 23.9 | 100.5 | 0 | 1 | 99 | 37 | 19 | | | | Claystone |
| TH-29 | 9 | 14.6 | | 0 | 4 | 96 | 41 | 25 | | | | Claystone |
| TH-31 | 4 | 14.5 | | 0 | 2 | 98 | 38 | 20 | | | | Claystone |
| TH-33 | 4 | 13.2 | 113.6 | 0 | 1 | 99 | 36 | 20 | | | | Claystone |
| TH-33 | 9 | 11.4 | 128.3 | 0 | 3 | 97 | 35 | 18 | | | | Claystone |
| TH-34 | 4 | 14.2 | | 0 | 1 | 99 | 41 | 25 | | | | Claystone |
| TH-40 | 19 | 17.8 | | 0 | 2 | 98 | 48 | 31 | | | | Claystone |
| TH-45 | 36.2 | 12.9 | | 0 | 14 | 86 | 34 | 19 | | | | Claystone |
| TP-11 | 3-6 | 13.3 | | 0 | 4 | 96 | 33 | 17 | 110.8 | 16.0 | | Claystone |
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