

**IMPORTANT NOTICE: Save all materials AFTER TESTING until further notice.**

**Mactec Samples from 21A 22 44 47 77 85 18 76 84**

**NB-21A**

UD-1, NB-21A Depth 15-17 ft 2.0-REC

UD-2, NB-21A Depth 18-20 ft 2.0-REC

UD-3, NB-21A Depth 21-23 ft 2.0-REC

1. **UNIT Weight ON UD-2 + MOISTURE CONTENT D2216**
2. **First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-1 (one six inch) =15 PSI, UD-2 (one six inch) =30 PSI, UD-3 (one six inch) = 60 psi confining pressures).**
3. **Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854**
4. **Then with UD-1 (one six inch) =15 PSI, UD-2 (one six inch) = 30 PSI, UD-3 (one six inch) = 60 psi confining pressures) perform ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation.**
5. **Conduct one D-5084 Hydraulic Conductivity test at 48 PSI effective confining stress to represent 23 foot sample depth (UD-3) under about 35 to 40 feet of fill.**

UD-4, NB-21A Depth 30-32 ft 2.0-REC

UD-5, NB-21A Depth 33-35 ft 2.0-REC

1. **PERFORM ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) WITH UD-4 (one six inch) SPECIMENT AT=32 PSI, UD-5 (one six inch) =64 PSI, UD-6 (one six inch) = 128 psi confining pressures).**
2. **Conduct one D-5084 Hydraulic Conductivity test at 24 PSI effective confining stress to represent 35 foot sample depth. Note that this test depth and boring location was requested by H. Julian on or near May 27, 05 in communication with G. McNulty.**
3. **Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854**
4. **UNIT Weights ON ALL SHELBY TUBES + MOISTURE CONTENT D2216**

UD-6, NB-21A Depth 36-38 ft 2.0-REC

1. **MOISTURE CONTENT D2216**

UD-7, NB-21A Depth 39-41 ft 2.0-REC

1. **MOISTURE CONTENT D2216**

**\*CU means with pore pressure measurement**

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**NB-22**

UD-1, NB-22 Depth 9-11 ft 1.2-REC 1.2

UD-1, NB-22A Depth 9-11 ft 2.0-REC 1.2

- 1. UNIT WEIGHT ON UD – 1 NB-22A + MOISTURE CONTENT D2216**
- 2. One 5- point proctor test D698 at 95 percent – requires 3 buckets of soil from below root zone fill to 80 percent height of bucket. Take soil from first soil layer in top 8 to 10 feet of auger cuttings or simply by shovel below root zone.**

UD-2, NB-22 Depth 16.5-18.5 ft 2.0-REC 1.0

UD-2, NB-22A Depth 16.5-18.5 ft 2.0-REC 1.50

UD-3, NB-22 Depth 19-21 ft 2.0-REC 1.0

UD-2, NB-22A Depth 19-21 ft 2.0-REC 1.70

UD-4, NB-22 Depth 22.5-24.5 ft 2.0-REC 1.6

UD-5, NB-22 Depth 26.5-28.5 ft 2.0-REC 2.0

UD-6, NB-22 Depth 31.5-33.5 ft 2.0-REC 2.0

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**Mactec Samples from 21A 22 44 47 77 85 76 84**

**NB-44**

UD-1, NB-44 Depth 9-11 ft 2.0-REC 1.80

1. UNIT WEIGHT FROM UD-1 + MOISTURE CONTENT D2216
2. **ONE D 2435 CONSOLIDATION TESTS 0.1 TO 32 TSF USE SQUARE ROOT OF TIME REDUCTION.** REPORT ALL DIAL READINGS, SCALE FACTORS, AND INITIAL READINGS FOR EACH LOAD INCREMENT DEFLECTION VERSUS TIME, IN BOTH PAPER AND ELECTRONIC FORMAT.
3. **ONE pinhole test D 4647 for erodibility of clays.**

UD-2, NB-44 Depth 16.5-18.5 ft 2.0-REC 1.80

4. WEIGHT FROM SHELBY TUBE + MOISTURE CONTENT D2216
5. **ONE D 2435 CONSOLIDATION TESTS 0.1 TO 32 TSF USE SQUARE ROOT OF TIME REDUCTION.** REPORT ALL DIAL READINGS, SCALE FACTORS, AND INITIAL READINGS FOR EACH LOAD INCREMENT DEFLECTION VERSUS TIME, IN BOTH PAPER AND ELECTRONIC FORMAT.
6. **Conduct one D-5084 Hydraulic Conductivity test at 14 psi (1 tsf) PSI effective confining stress to represent consolidation stress of 1 tsf (UD-6)**
7. **One D422 Grain Size Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**

UD-3, NB-44 Depth 19-21 ft 2.0-REC 1.80

UD-4, NB-44 Depth 21.5-23.5 ft 2.0-REC 2.0

UD-5, NB-44 Depth 26.5-28.5 ft 2.0-REC 1.80

8. UNIT WEIGHT FROM UD-4 + MOISTURE CONTENT D2216.
9. **ONE D 2435 CONSOLIDATION TESTS 0.1 TO 32 TSF USE SQUARE ROOT OF TIME REDUCTION FROM UD-4.** REPORT ALL DIAL READINGS, SCALE FACTORS, AND INITIAL READINGS FOR EACH LOAD INCREMENT DEFLECTION VERSUS TIME, IN BOTH PAPER AND ELECTRONIC FORMAT.
10. **Conduct one D-5084 Hydraulic Conductivity test at 55.6 (4 tsf) PSI effective confining stress to represent consolidation stress of 4 tsf (UD-3) so a comparison of consolidation test derived k's and 5084 k's can be made to account for secondary compression test effects in consol test that will tend to reduce back out k's.**
11. **Use post test D-5084 specimen for the - One D422 Grain Size Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854.**
12. **ONE pinhole test D 4647 for erodibility of clays.**
13. **PERFORM ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) WITH UD-3 (one six inch) SPECIMENT AT=32 PSI, UD-3 (one six inch) =64 PSI, UD-5 (one six inch) = 128 psi confining pressures). (Carried over from NB-47 due to insufficient sample material).**
14. **PERFORM ONE THREE POINT Q 2850 TRIAXIAL TEST (3 VALID MOHR CIRCLES) WITH UD-3 (one six inch) SPECIMENT AT=32 PSI, UD-3 (one six inch) =64 PSI, UD-5 (one six inch) = 128 psi confining pressures). (Carried over from NB-47 due to insufficient sample material).**

UD-6, NB-44 Depth 31.0-33.0 ft 2.0-REC 1.00

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15. UNIT WEIGHT FROM SHELBY TUBE + MOISTURE CONTENT D2216
16. **ONE D 2435 CONSOLIDATION TESTS 0.1 TO 32 TSF USE SQUARE ROOT OF TIME REDUCTION.** REPORT ALL DIAL READINGS, SCALE FACTORS, AND INITIAL READINGS FOR EACH LOAD INCREMENT DEFLECTION VERSUS TIME, IN BOTH PAPER AND ELECTRONIC FORMAT.
17. **Conduct one D-5084 Hydraulic Conductivity test at 28 psi (2 tsf) PSI effective confining stress to represent consolidation stress of 1 tsf (UD-6)**
18. **One D422 Grain Size Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**

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**NB-47**

UD-1, NB-47A Depth 9-11 ft 2.0-REC 2.00

UD-2, NB-47A Depth 12-14 ft 2.0-REC 2.00

UD-3, NB-47A Depth 15-17 ft 2.0-REC 1.30

1. **UNIT Weight UD-2 + MOISTURE CONTENT D2216**
2. **First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-1 (one six inch) =15 PSI, UD-2 (one six inch) =30 PSI, UD-3 (one six inch) = 60 psi confining pressures).**
3. **Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854**
4. **Then with UD-1 (one six inch) =15 PSI, UD-2 (one six inch) = 30 PSI, UD-3 (one six inch) = 60 psi confining pressures) perform ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation.**

UD-4, NB-47A Depth 18-20 ft 2.0-REC 1.10

UD-5, NB-47A Depth 23-25 ft 2.0-REC 1.10

UD-6, NB-47A Depth 25-27 ft 2.0-REC 1.00

5. **UNIT Weight UD-5 + MOISTURE CONTENT D2216**
6. **First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-1 (one six inch) =20 PSI, UD-2 (one six inch) =40 PSI, UD-3 (one six inch) = 80 psi confining pressures).**
7. **Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854**
8. **Then with UD-1 (one six inch) =20 PSI, UD-2 (one six inch) = 40 PSI, UD-3 (one six inch) = 80 psi confining pressures) perform ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation.**
9. **May take portion of UD-7 NB-47B BELOW for specimens for triaxial test.**

UD-7, NB-47A Depth 30-32 ft 2.0-REC 2.00

1. **Conduct one D-5084 Hydraulic Conductivity test at 24 PSI effective confining stress to represent 35 foot sample depth**
2. **Use post test D-5084 specimen for the - One D422 Grain Size Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**

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**Mactec Samples from 21A 22 44 47 77 85 76 84**

**NB-77**

UD-1 Depth 4-6 ft 2.0 REC

UD-2 Depth 9-11 ft 2.00 REC

UD-3 Depth 12-14 ft 1.9 REC

1. UNIT WEIGHT FROM UD-3 + MOISTURE CONTENT D2216
2. D-5084 Hydraulic Conductivity (16 PSI) UD -1.
3. **First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-1 (one six inch) =15 PSI, UD-2 (one six inch) =30 PSI, UD-3 (one six inch) = 60 psi confining pressures).**
4. **Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**
5. **Then with UD-1 (one six inch) =15 PSI, UD-2 (one six inch) = 30 PSI, UD-3 (one six inch) = 60 psi confining pressures) perform ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation.**

UD-4 Depth 15-17ft 1.6 REC

UD-5 Depth 19-21 ft 0.80 REC

UD-6 Depth 21-23 ft 0.70 REC

UD-7 Depth 24-26 ft 1.70 REC

6. UNIT WEIGHT FROM UD-7 + MOISTURE CONTENT D2216
7. **First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-4 (one six inch) =20 PSI, UD-5 (one six inch) =40 PSI, UD-7 (one six inch) = 80 psi confining pressures).**
8. **Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**
9. **Then with UD-4 (one six inch) =20 PSI, UD-6 (one six inch) = 40 PSI, UD-7 (one six inch) = 80 psi confining pressures) perform ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation.**

UD-7 Depth 24-26 ft 1.70 REC

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**Mactec Samples from 21A 22 44 47 77 85 76 84**

**NB-85, 85A**

- 1. 3 - 5 gal buckets 80 percent full from below the "topsoil" layer and root zone- Three 5 point D 698 Laboratory Compaction Characteristics of Soil Using Standard Effort – at 95 percent.**
- 2. D-5084 Hydraulic Conductivity remolded specimen at 95 – percent (16 PSI) UD -1.**
- 3. Perform on test specimen before D698 test is started D422 -(with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854**

UD-1, NB-85 Depth 13-15 ft 1.5 REC

UD-2, NB-85/B Depth 15-17 ft 1.3 REC

UD-3"A", NB-85A/B Depth 17-19 ft 0.40 REC

UD-3"B", NB-85A/B Depth 17-19 ft 1.00 REC

UD-4, NB-85A/B Depth 19-20.65 ft 0.80 REC

- 1. Measure unit weight of Shelby UD-3"B" along with moisture content.**
- 2. First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-1 (one six inch) =15 PSI, UD-2 (one six inch) =30 PSI, UD-3"B" (one six inch) = 60 psi confining pressures).**
- 3. Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**
- 4. Then with UD-1 (one six inch) =15 PSI, UD-2 (one six inch) = 30 PSI, UD-3"B" (one six inch) = 60 psi confining pressures) perform ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation. USE part of UD-4 if not enough soil from UD-3"B". Measure unit weight of Shelby UD-4 before it is used in a triaxial test.**

UD-5, NB-85A/B Depth 21-22.6 ft 0.90 REC

UD-6, NB-85A/B Depth 23-25 ft 1.60 REC

UD-7, NB-85A/B Depth 25-27 ft 2.00 REC

UD-8, NB-85A/B Depth 27-29 ft 1.60 REC

- 1. MEASURE UNIT WEIGHT AND MOISTURE CONTENT D2216 OF UD-7.**
- 2. First do ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-6 (one six inch) =20 PSI, UD-7 (one six inch) = 40 PSI, UD-8 (one six inch) = 80 psi confining pressures).**
- 3. Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**
- 4. Then do ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation least UD-6 (one six inch) =20 PSI, UD-7 (one six inch) = 40 PSI, UD-8 (one six inch) = 80 psi confining pressures).**

UD-9, NB-85A/B Depth 29-30.3 ft 1.00 REC

- 1. MEASURE UNIT WEIGHT AND MOISTURE CONTENT D2216 FROM UD-9.**

\*CU means with pore pressure measurement.



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**NB-18**

**3 - 5 gal buckets 80 percent full from below the "topsoil" layer and root zone- Three 5 point D 698 Laboratory Compaction Characteristics of Soil Using Standard Effort – at 95percent.**

- 1. perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854.**

UD-1, NB-18 Depth 6.5-8.5 ft 1.2 REC

UD-2, NB-18 Depth 9.0-11 ft 1.9 REC

UD-3, NB-18 Depth 11.5-13.5 ft 1.80 REC

UD-4, NB-18 Depth 16.5-18.5 ft 1.70 REC

- 2. MEASURE UNIT WEIGHT of UD-3 (depth 11.5 to 13.4 ft) ONLY and measure MOISTURE CONTENTs D2216 OF EACH SHELBY TUBE ABOVE (FOUR)**
- 3. PERFORM ONE THREE POINT CU\* 4767 R-BAR(w pp measurements)\* TRIAXIAL TEST (3 VALID MOHR CIRCLES) at least UD-1 (one six inch) =20 PSI, UD-3 (one six inch) = 40 PSI, UD-4 (one six inch) = 80 psi confining pressures).**
- 4. Combined all three specimens from the three CU\* D4767 triaxial test specimens and perform D422 Analysis (with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854.**
- 5. Then do ONE THREE POINT Q 2850 TRIAXIAL TEST Under 100 percent Saturation least UD-2 (one six inch) =20 PSI, UD-3 (one six inch) = 40 PSI, UD-4 (one six inch) = 80 psi confining pressures).**
- 6. Perform D-5084 Hydraulic Conductivity test on specimen from UD- 3 or 4 (20 PSI).**

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**NB-76**

UD-1, NB-76 Depth 9-11 ft 1.60 REC

1. **MEASURE UNIT WEIGHT of UD-3 (depth 11.5 to 13.4 ft) ONLY and measure MOISTURE CONTENT D2216.**
2. **Conduct one D-5084 Hydraulic Conductivity test at 20 psi effective confining stress to possible future effective stresses.**
3. **Perform on test specimen once D 5084 test is completed D422 Analysis -(with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216.**

UD-2, NB-76 Depth 19-20.5 ft 1.50 REC

UD-3, NB-76 Depth 26.5-28.5 ft 1.20 REC

UD-4, NB-76 Depth 30-32 ft 1.50 REC

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**Mactec Samples from 21A 22 44 47 77 85 18 76 84**

**NB-84**

UD-1, NB-84 Depth 10-12 ft 2.00 REC

UD-2, NB-84 Depth 20-22 ft 1.00 REC

UD-3, NB-84 Depth 27.5-29.5 1.80 REC

UD-4, NB-84 Depth 32.5-34.5 ft 1.00 REC

1. **MEASURE UNIT WEIGHT of UD-4 (depth 32.5 to 34.5 ft) ONLY and measure MOISTURE CONTENT D2216.**
2. **Conduct one D-5084 Hydraulic Conductivity test at 40 psi effective confining stress to possible future effective stresses.**
3. **Perform on test specimen once D 5084 test is completed D422 Analysis -(with hydrometer and D1140 -200 mm Sieve + passing 0.002 mm to calculate Activity) + D4318 Atterberg Limits with 3 points for accuracy + moisture content D2216, + Specific Gravity D854.**