REVISIONS 1,605 1,605 Approx. Offset: 50' Left Approx. Offset: 50' Left Approx. Station: 602+20 Approx. Station: 600+35 Approx. Offset: 35' Left Approx. Surface Elev.: 1602 ft Approx. Station: 601+50 Approx. Surface Elev.: 1602 ft Approx. Offset: 40' Left 1602 ft. - N=10 MC=12 P200=90.7% LL=28 PL=17 1602 ft. - <u>LEAN CLAY</u>, reddish brown (2.5YR 4/3) Stiff at 0 feet 1602 ft. - SANDY LEAN CLAY, brown (7.5YR 4/3) Stiff at 0 feet Approx. Surface Elev : 1601 ft Approx. Station: 601+05 1601 ft. - LEAN CLAY, dark brown (7.5YR 3/4) to reddish brown (2.5YR 4/3) 1601 ft. - N=8 MC=17 Approx. Surface Elev : 1599.5 ft 1,600 1,600 1600 ft. - N=17 MC=20 P200=% LL= PL= 600 ft. - Very Stiff at 2 feet 1600 ft. - N=16 MC=13 1600 ft. - Very Stiff at 2 feet Aedium Stiff at 0 feet 1599.5 ft. - LEAN CLAY with SAND, dark brown (7.5YR 3/4) to reddish brown (2.5YR 4/3) Stiff at 0 feet 1599.5 ft. - N=13 MC=13 1599 ft. - Soft at 2 feet 1599 ft. - N=4 MC=16 P200=77.8% LL=27 PL=15 P200=86.2% LL=25 PL=15 598 ft. - LEAN CLAY, dark brown (7.5YR 3/4) to eddish brown (2.5YR 4/3) oft at 4 feet 1598 ft. - N=2 MC=27 1598 ft. - N=11 MC=12 598 ft. - Stiff at 4 feet P200=88.1% LL=27 PL=15 1597 5 ft - N=5 MC=13 1597.5 ft. - Medium Stiff at 2 feet 1597 ft. - N=1 MC=28 597 ft. - Very Soft at 4 feet 1596 ft. - LEAN CLAY with SAND, reddish brown (2.5YR 4/3) 1595.5 ft. - N=2 MC=21 1595.5 ft. - LEAN CLAY, reddish brown (2.5YR 4/3) Soft at 4 feet 1,595 1,595 1595 ft. - N=7 MC=24 1595 ft. - Medium Stiff at 7 feet 1595 ft. - N=5 MC=26 P200=83.4% LL=35 PL=18 595 ft. - LEAN CLAY with SAND, brown (7.5YR 5/4) ledium Stiff at 7 feet P200=85.7% LL=30 PL=12 P200=% LL= PL= 1594 ft. - N=2 MC=26 1594 ft. Soft at 7 feet P200=81.7% LL=23 PL=16 593 ft. - Soft at 9 feet 592.5 ft. - Medium Stiff at 7 feet P200=78.4% LL=27 PL=13 1592 ft. - N=3 MC=25 1592 ft. - Soft at 10 feet 592 ft. - SILTY CLAY with SAND, reddish brown (2.5YR 4/3) 1591.5 ft. - LEAN CLAY with SAND, reddish brown  $\,$  ( 2.5 YR 4/3) soft to medium stiff P200=95.6% LL=25 PL=16 591 ft. - \*N=0, Weight of Hammer, Very Soft at 10 feet 1590.5 ft. - N=1 MC=25 590.5 ft. - Very Soft at 11.5 fee P200=80.8% LL=21 PL=16 1,590 1,590 7589.5 ft. - Soft at 10 feet 1589.5 ft. - \*N=0, Weight of Hammer, Very Soft at 12.5 feet\* 1589 ft. - <u>LEAN CLAY</u>, dark grayish brown (10YR 4/2) 1589.5 ft. - N=0 MC=29 1589.5 ft. - N=4 MC=26 589.5 ft. - \*N=0, Weight of Hammer, Very Soft at 11.5 feet\* 1589.5 ft. - N=0 MC=31 589 ft. - \*N=0, Weight of Hammer, Very Soft at 13 feet P200=81.7% LL=27 PL=12 1588 ft. - N=5 MC=23 588 ft. - LEAN CLAY, dark brown (7.5YR 3/4) to grayish brown (10YR 5/2) 1587 ft. - N=2 MC=27 P200=94.1% LL=28 PL=13 87 ft. - Very Soft at 15 feet 587 ft. - Soft at 15 feet 1586.5 ft. - LEAN CLAY, reddish brown (2.5YR 4/3) to grayish brown (10YR 5/2) 1586 ft. - N=5 MC=22 586 ft. - Medium Stiff at 15 feet 1585.5 ft. - N=0 MC=28 1585.5 ft. - \*N=0, Weight of Hammer, Very Soft at 16.5 feet P200=91.3% LL=30 PL=14 1,585 1,585 1584.5 ft. - N=5 MC=26 584.5 ft. - Medium Stiff at 16.5 feet 1584 5 ft - N= MC=25 1584.5 ft. - N=1 MC=29 584.5 ft. - Very Soft at 17.5 feet 1584 ft. - N=2 MC=29 1584 ft. - Soft at 18 feet 583 ft. - SANDY SILTY CLAY, reddish brown (2.5YR 4/3) 582 ft. - Medium Stiff at 20 feet 1582 ft. - N=2 MC=23 582 ft. - Soft at 20 feet P200=58.8% LL=19 PL=13 1581 ft. - N=0 MC=27 581 ft. - \*N=0, Weight of Hammer, Very Soft at 20 feet 1580.5 ft. - N=2 MC=27 580 5 ft. - Soft at 21.5 feet 1,580 1,580 1579.5 ft. - \*N=0, Weight of Hammer, Very Soft at 21.5 feet\* 1579 ft. - <u>FAT CLAY</u>, grayish brown (10YR 5/2) 1579.5 ft. - N=2 MC=26 P200=86.3% LL=27 PL=14 79.5 ft. - Soft at 20 feet 1579 ft. - N=0 MC=26 P200=66.2% LL=28 PL=14 579 ft. - <u>LEAN CLAY,</u> dark grayish brown (10YR 4/2) to grayish rown (10YR 5/2) 578 ft. - Medium Stiff at 23 feet I=0, weight of hammer, Very Soft at 23 feet\* 577.5 ft. - <u>LEAN CLAY with SAND</u>, grayish brown(10YR 5/2) to ark brown (7.5YR 3/4) P200=97.2% LL=53 PL=19 1577 ft. - N=10 MC=27 P200=% LL= PL= 1577 ft. - N=1 MC=28 P200=89.7% LL=33 PL=14 1577 ft. - Very Soft at 1 feet 1577 ft. - <u>LEAN CLAY</u>, reddish brown (2.5YR 4/3) Stiff at 25 feet 1576 ft. - N=5 MC=31 P200=93.0% LL=46 PL=15 I576 ft. - LEAN CLAY, grayish brown (10YR 5/2) Medium Stiff at 25 feet 1575.5 ft. - N=4 MC=30 1,57 1,575 1574.5 ft. - N=1 MC=30 1574.5 ft. - Very Soft at 25 feet 574 ft. - \*N=0, Weight of Hammer, Very Soft at 28 feet\* P200=50.3% LL=32 PL=12 1572 ft. - N=2 MC=27 P200=75.8% LL=33 PL=16 1572 ft. - N=8 MC=20 572 ft. - SILTY SAND, grayish brown (10YR 5/2) ledium Stiff at 30 feet 572 ft. - <u>LEAN CLAY with SAND</u>, ark brown (7.5YR 3/3) ,Soft at 30 feet 1571 ft. - N=0 MC=29 571 ft. - \*N=0, Weight of Hammer, Very Soft at 30 feet\* 1570.5 ft. - N=1 MC=29 1570.5 ft. - Verv Soft at 31.5 feet 1,570 1,57 569.5 ft. - \*N=0, Weight of Hammer, Very Soft at 31.5 feet\* 1569.5 ft. - N=8 MC=22 P200=77.9% LL=24 PL=13 569.5 ft. - Medium Stiff at 30 feet 1569.5 ft. - N=0 MC=29 1569 ft. - N=2 MC=24 1569 ft. - Soft at 33 feet 568 ft. - SILTY SANDSTONE, red (2.5YR 4/8), well cemented to 1568 ft. - N=50/5.5" MC=19 P200=47.4% LL=0 PL=0 1567.5 ft. - TCP = 50/0.8" 50/0.5" 1568 ft. - N=0 MC=32 568 ft. - \*N=0, Weight of Hammer, Very Soft at 33 feet 1567 ft. - N=1 MC=31 1567 ft. - Very Soft at 35 feet 1566 ft. - N=1 MC=24 P200=98.5% LL=35 PL=16 566 ft. - Very Soft at 35 feet 1565.5 ft. - N=1 MC=35 565.5 ft. - Very Soft at 36.5 feet 1,565 1,565 1564.5 ft. - N=50/5" MC=21 1564 ft. - TCP = 50/1" 50/1" 1564.5 ft. - N=2 MC=226 564.5 ft. - Soft at 36.5 feet 1564.5 ft. - SILTY SANDSTONE, red (2.5YR 4/8), well cemented 1564 ft. - Boring Termination Depth = 35.5 feet Boring Completed and Grouted on 1/16/15 1563 ft. - N=0 MC=25 563 ft. - SANDY LEAN CLAY, dark brown (7.5YR 3/3) N=0, weight of hammer, Very Soft at 38 feet\* 1562.5 ft. - TCP = 50/1" 50/0.4 P200=59.2% LL=25 PL=15 1562 ft. - N=6 MC=28 P200=73.4% LL=36 PL=15 1562 ft. - Medium Stiff at 40 feet 1561 ft. - N=5 MC=23 561 ft. - Medium Stiff at 40 feet 1560.5 ft. - N=6 MC=28 560.5 ft. - Medium Stiff at 41.5 feet 1,560 1,560 1559.5 ft. - N=11 MC=24 559.5 ft. - Stiff at 41.5 feel 1559 ft. - N=5 MC=25 559 ft. - Medium Stiff at 43 feet 1557.5 ft. - TCP = 50/0.3" 50/0.1" 1557.5 ft. - Boring Termination Depth = 44.5 feet Boring Completed and Grouted on 8/31/15 1557 ft. - N=9 MC=24 1557 ft. - Stiff at 43 fee 1556 ft. - SANDY LEAN CLAY, reddish yellow (5YR 6/8) 1556 ft. - N=12 MC=19 1556 ft. - Stiff at 45 feet SITE GEOLOGY 1,555 1,555 Division Five of the "Engineering Classification of Geological Materials", published by the Oklahoma Department of Transportation (ODOT) indicates the project site, is underlain by the Rush Springs unit (Prs). 1553 ft. - N=33 50/4.8" MC=16 The Rush Springs unit consists dominantly of soft, reddish-brown, massive, cross-bedded to regular-bedded silty sandstone which weathers 1552 ft. - N=24 50/4.5" MC=17 1552 ft. - SILTY SANDSTONE, red (2.5YR 4/8) well cemented 1552 ft. - TCP = 50/0.9" 50/0.4" 552 ft. - SILTY SANDSTONE, red (2.5YR 4/8) vell cemented to very well cemented rapidly, producing a sandy soil which is often blown about by the wind and in some localities is piled into sand dunes. A few dolomite and 1551 ft. - TCP = 50/1.3" 50/0.8" 1,550 gypsum beds occur in the upper portions. These beds are generally less than 2 feet thick. One marker bed (Weatherford Dolomite) occurs some 24 to 52 feet below the top of the unit. It varies from 1 foot to 8 feet in thickness and grade from dolomite in eastern Custer and northern Washita Counties to gypsum elsewhere. The Weatherford Dolomite was previously correlated as the base of the Cloud Chief Unit as is the case in the Division 7 publication. The Rush Springs Unit is one of the best water aquifers in western Oklahoma. The total thickness of the unit 1547 ft. - TCP = 50/0.3" 50/0.1" varies from 186 to 430 feet with the unit generally thinning northwestward from the Custer-Washita Counties area. 1546 ft. - TCP = 50/0.8" 50/0.3 1,54 In Division 5 the Rush Springs Unit outcrops in the east-west band two to six miles wide on the south flank of the Anadarko Basin in Southern INFORMATION SHOWN ON THIS SHEET IS TAKEN Washita and northeaster Kiowa Counties. On the north flank of the basin, it outcrops over broad band which extend across northeastern FROM THE GEOTECHNICAL REPORT PREPARED BY Washita, western Blaine, Custer Dewey, and eastern Roger Mills Counties. In Beckham, Greet, and Harmon Counties, the strata of the Rush RED ROCK CONSULTING DATED OCTOBER 8, Springs Unit and the underlying Marlow Unit are similar and are mapped together as the Whitehorse Unit. 2015. A COPY OF THIS REPORT IS AVAILABLE 1542 ft. - TCP = 50/0.6" 50/0.4" 1542 ft. - Boring Termination Depth = 59 feet Boring Completed 8/28/15 and Grouted on 8/31/15 1541 ft. - TCP = 50/0.6" 50/0.4" 1541 ft. - Boring Termination Depth = 61 feet Boring Completed 8/28/15 and Grouted on 8/31/15 FROM THE DEPARTMENT UPON REQUEST. 1.540 The Rush Springs Unit forms broad gently rolling topography dissected locally by rugged canyons throughout most of its outcrop. Rolling hills are prominent near its base with massive bluffs to rounded hills overlooking the underlying Marlow Unit. According to the Geologic Map of the "Hydrologic Atlas 5 of Oklahoma," Reconnaissance of the Water Resources of the Clinton quadrangle, S.H. 44 OVER DRY ELK CREEK WASHITA COUNTY Design RRC west-central Oklahoma," by Jerry E. Carr and DeRoy L. Bergman, 1976, indicates that the project site is located over Rush Springs Formation DRB Note: TCP denotes Texas Cone Penetration Test Detail (Pr). The deposit and geologic formation are described therein as follows:

186 feet.

Orange brown, cross-bedded, fine-grained sandstone with dolomite and gypsum beds. Thickness, about 300 feet, thinning northward to about

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