

## **Appendix B-1**

**Drilling Program  
NOV Groundwater Investigation  
Canon City Milling Facility  
Cotter Corporation  
Phase 1, Geoprobe Survey**

Appendix B-1, Phase One, Geoprobe Survey Results, NOV Groundwater Investigation

Boring ID	Easting	Northing	Ground Surface
GP-1	2076300	207299	5588.0
GP-2	2076148	207291	5593.1
GP-3	2076094	207296	5594.9
GP-4	2075893	207309	5598.2
GP-5	2075784	207284	5599.9
GP-6	2075693	207297	5599.6
GP-7	2075594	207313	5601.2
GP-8	2075504	207346	5601.3
GP-9	2075419	207422	5598.2
GP-10	2075330	207464	5596.4
GP-11	2075249	207524	5594.1
GP-12	2075171	207585	5591.9

Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-1						Located between 346 and 347. Started drilling at 1:35 on 5/18/09
GP-1	0 - 5'	2.2	silty sand	v. pale brn		thin silty clay stringers
GP-1	5 - 10'	3	siltysand	v. pale brn		sandier than above
GP-1	10 - 15'	1.3	silty sand	brn		increasing clay content w depth
GP-1	15 - 20'	2.8	silty clay/gravelly sand			0.5'silty clay/sharp contact w gravelly sand, pink granite frags, med to fine gr qtz, subrounded, argillaceous, fracture zones minerlized
GP-1	20 - 25'	3	gravelly sd			very hard, dry, zones of micaceous materials
GP-1	25 - 30'	3.2	silty clay/gravelly sand	gray green yellow brn		0.6' silty sand, argillaceous, decomposed granite
GP-1	30 - 35'	5	gravelly sdstone		31	argillaceous, pink granite frags, more firmly cemented at 31'
GP-1	35 - 38.6'	2.5	gravelly sdstone			refusal at 38.6

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Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-2						Located 50' west of 347. Started drilling at 3:30 on 5/18/09
GP-2	0 - 5'	2.4	silty sand	pale brown		
GP-2	5 - 10'	1	silty, clayey sand			clay increasing w depth
GP-2	10 - 15'	1	clayey silt	gray brown		
GP-2	15 - 20'	1	clayey silt/gravelly sand			gray/pale brown
GP-2	20 - 25'	2	gravelly sand			large granite frags, cobble size
GP-2	25 - 30'	2.6	gravelly sand			large granite frags, cobble size
GP-2	30-32.3	3.8	sand/sandstone	yellow brn	31	fine to med gr, weathered PC, refusal at 32.3'
GP-2	32.3-49	NA	sandy clay to claystone			switched to auger to 49'
Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-3						Located 50 ft west of GP-2. Started drilling at 8:10 on 5/19/09
GP-3	0 - 5'	2	silty sand	pale brown		unconsolidated dry
GP-3	5 - 10'	2.7	silty, gravelly sand	pale brown		thin silty layers, qtz, argillaceous, sub rounded, fine gr
GP-3	10 - 15'	1.5	silty, gravelly sand	pale brown		thin clay layers, qtz, argillaceous, sub rounded, fine gr
GP-3	15 - 20'	2	clay/gravelly sand	gray/brown		0.4' clay, sand becoming more gravelly w depth, large granitic frags
GP-3	20 - 25'	2.7	gravelly sand	brown		pink granite frag to 1 in., qtz sd w silt matrix
GP-3	25 - 30'	3.5	gravelly Sd/sandstone	brn/yellow brn	29	1.8' gravelly sand, qtz, med gr. weathered sandst (PC bedrock @29'
GP-3	30 - 31.1'	1.1	sandstone	brn/yellow brn		refusal at 31.1'

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Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-4						Located 200 ft west of GP-3. Started drilling at 9:30 on 5/19/09
GP-4	0 - 5'	2	silty gravelly sand	brown		unconsolidated, dry, qtz, argillaceous, granite frags
GP-4	5 - 10'	2.2	silty sand			unconsolidated, dry, qtz, argillaceous,
GP-4	10 - 15'	1.5	clay	gray brown		
GP-4	15 - 20'	2.8	clayey sd/sdy clay	brown		weathered Poison Canyon
GP-4	20 - 23.7'	3.7	sandy clay	yellow brown	23.5	PC at 23.5, refusal at 23.7'
Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-5						Located 100 west of GP-4. Started drilling at 10:15 on 5/19/09
GP-5	0 - 5'	2.4	silty sd	brown		argillaceous, unconsolidated dry
GP-5	5 - 10'	1.7	silty sd	brown		argillaceous, unconsolidated dry
GP-5	10 - 15'	1	sandy clay	dark brown		
GP-5	15 - 20'	2.4	sandy clay	brown		
GP-5	20 - 23.7'	2.8	sandy clay/ grav sd		22.9'	0.5 ft sandy clay, 1.5' gravelly sd with granite frags, 0.8' clayey sand
						refusal at 23.7'

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Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-6						Located 100 west of GP-5. Started drilling at 11:15 on 5/19/09
GP-6	0 - 5'	2.8	fill/silty sd	brown		some granite fragments
GP-6	5 - 10'	1	silty sand			becoming more clayey w depth
GP-6	10 - 15'	3	clay/siltstone	brown/white		
GP-6	15 - 20'	4.9	clay/gravelly sd	brown/white		
GP-6	20 - 20.5'	0.5	gravelly sdstone	brown	20.5	very hard drilling refusal at 20.5'
Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-7						Located 100 west of GP-6. Started drilling at 12:00 on 5/19/09
GP-7	0 - 5'	2.8	silty sd/clayey sd			
GP-7	5 - 10'	1.8	silty sd/clayey sd			becoming increasingly clayey with depth
GP-7	10 - 15'	4.7	clay/sandy clay		12	brown, appears to be weathered sandy clay (Poison Canyon at 12'?)
GP-7	15 - 18'	3	sandy clay			refusal at 18.0'

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Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-8						Located 100 west of GP-7. Started drilling at 12:30 on 5/19/09
GP-8	0 - 5'	2.5	fill/silty sd	dark brown		
GP-8	5 - 10'	2.2	clay/silt	brown		clay grading to silt w depth
GP-8	10 - 15'	4.5	clayey sdstone	yellow brn	10	loosely cemented, argillaceous (weathered bedrock)
GP-8	15 - 15.5'	0.5	clayey sdstone	yellow brn		loosely cemented, argillaceous (weathered bedrock) refusal at 15.5'
Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-9						Located 100 west of GP-8. Started drilling at 13:30 on 5/19/09
GP-9	0 - 5'	2	Fill/Silty Clay			
GP-9	5 - 9.1'	4.9	Sandstone	yellow brown	6.5	Clayey, loosely cemented argillaceous, alternating cla and sand stringers in upper section, appears to be decomposed granite, refusal at 9.1'
						refusal at 9.0'

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Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-10						Located 100 west of GP-9. Started drilling at 14:35 on 5/19/09
GP-10	0 - 5'	2.1	Fill/Sand Clay			
GP-10	5 - 9.0'	5	Sandy Clay/Sandstone			2 ft clay, Clayey, loosely cemented argillaceous, appears to be decomposed granite, refusal at 9.0'
GP-10	9 - 13'	NA-auger	Sandstone	yellow brown	7	argillaceous, decomposed granite refusal at 13.0'
GP-10	13-30'	NA-auger	Claystone-Shale	Choc. Brn		Switched to Auger, only cuttings
GP-10	30-52.5	NA-auger	Claystone-Shale	gray		Clay becoming darker with depth, continuous to 52.5 ft
Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-11						Located 100 west of GP-10. Started drilling at 10:30 on 5/20/09
GP-11	0 - 5'	2.5	fill/silty sand	brown		
GP-11	5 - 10'	2.5	silty clay/claysiltstone	green brown	5.5	0.5 ft silty clay, siltstone may be PC
GP-11	10 - 15'	5	siltstone	green brown		
GP-11	15 - 16.5'	1.5	siltstone	green brown		refusal at 16.5'

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Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP-12						Located 100 west of GP-11. Started drilling at 11:40 on 5/20/09
GP-12	0 - 5'	1.5	fill/silty sand	brown		
GP-12	5 - 10'	3.2	silty clay/claysiltstone	green brown	6	1 ft silty clay, siltstone may be PC
GP-12	10 - 15'	4.5	siltstone	green brown		
GP-12	15 - 16'	1	siltstone	green brown		refusal at 16.0
Boring ID	Depth Interval	Recovery (ft)	Lithology	Color	Bedrock depth <sup>a</sup>	Descriptors
GP13						Located 200 ft south of West SCS dam near center of drainage basin
GP13	0 - 5'	3	soil	dark brown		
GP13	5 - 10'	0.8	silty clay/clay	brown		clay has rock fragments
GP13	10 - 15'	0.5	clay	brown		
GP13	15 - 20'	2.6	clay	brown		
GP13	20 - 25'	3.2	clay/gravelly sd	brown		
GP13	25 - 30'	4.3	clay/gravelly sd	brown		refusal at 30.0'