APPENDIX E

LABORATORY TEST DATA

APPENDIX E1

LABORATORY DATA SUMMARY TABLE

Table E-1
Taum Sauk Forensic Geotecnical Investigation
Summary of Laboratory Testing

Boring *	Sample	Depth	% Fines (-200sieve)	Atterberg Limits LL %	PL %	USCS Class (fines)	USCS Class (Sample)	Permeability (cm/sec)	Friction ø degrees	Cohesion c psi	Natural Moisture Content, %
TS-1	S-1	0-10	6.05				gp-gm				
TS-1	S-2	10-20	7.01				gp-gm				
TS-1	S-3	20-40	4.65				GW				
TS-1	S-4	40-50	0.82				GP				
TS-1	S-5	50-60	0.02				GP				
TS-1	S-6	60-70	0.05				GP				
TS-1	S-7	70-80	0.02				GP				
TS-1	S-8	80-90	0.42				GP				
TS-1	S-9	90-100	0.03				GP				
TS-1	S-10	90-100	0.00				GP				
TS-1	S-11	100-103	0.15				GP				
TS-1	S-12	103-105	8.55	NP**	NP		GP-GM				
TS-2	S-1	0-10	6.30	27	17	CL	GP-GC				
TS-2	S-2	10-20	3.99				GP				
TS-2	S-3	20-30	3.99				GW				
TS-2	S-4	30-40	2.44	NP	NP		GP				
TS-2	S-5	40-50	3.25				GP				
TS-2	S-6	50-60	7.88	19	16	ML	gp-gm				
TS-2	S-7	60-70	5.03	NP	NP		GP-GM	Rock Core Density = 163.9 pcf			
TS-2	S-8	70-80	4.09	22	18	CL-ML	GP				
TS-2	S-9	80-100	18.71	25	17	CL	GC				
TS-2	S-10	100-104.5	25.42	25	16	CL	GC				
TS-3	S-1	0-10	5.81				gw-gm				
TS-3	S-2	10-20	9.84	24	15	CL	GP-GC				
TS-3	S-3	20-30	6.81	23	15	CL	GP-GC				
TS-3	S-4	30-40	3.38	27	21	CL-ML	GW				
TS-3	S-5	40-50	1.00	24	19	CL-ML	GP				
TS-3	S-6	50-60	5.39	NP	NP		GP-GM				
TS-3	S-7	60-70	5.53	NP	NP		GP-GM				
TS-3	S-8	70-80	2.17	24	17	CL-ML	GP				
TS-3	S-9	80-90	3.10				GP				

Table E-1 (cont.)
Taum Sauk Forensic Geotecnical Investigation
Summary of Laboratory Testing

Boring *	Sample	Depth	% Fines (-200sieve)	Atterberg Limits LL %	Atterberg Limits PL %	USCS Class (fines)	USCS Class (Sample)	Permeability (cm/sec)	Friction ø degrees	Cohesion c psi	Natural Moisture Content, %
TS-3	S-10	90-95.7	14.15	31	18	CL	GC				
TS-4	S-1**	0-10	6.42				gp-gm	5.47E-01			
TS-4	S-2**	10-13	6.09				gp-gm				
TS-4	S-2	13-16	7.28				gp-gm				
TS-4	S-2	16-20	1.51				GP				
TS-4	S-3**	20-30	8.30				gp-gm	2.50E-01			
TS-4	S-4**	30-36	1.88				GP				
TS-4	S-4	36-40	0.02				GP				
TS-4	S-5	40-50	3.63				GP				
TS-4	S-6**	50-60	7.30				gp-gm	4.33E-01			
TS-4	S-7**	60-70	4.44				GP				
TS-4	S-8	70-80	1.34				GP				
TS-4	S-9	80-90	0.08				GP				
TS-4	S-10	90-98.25	7.55				gp-gm				
TS-5	S-1	0-10	4.95	22	17	CL-ML	GW				
TS-5	S-2	10-15	7.56				GP-GM				
TS-5	S-3	15-20	4.91	19	15	CL-ML	GP				
TS-5	S-4	20-30	5.62	20	16	CL-ML	GP-GC				
TS-5	S-5	30-40	6.28	21	16	CL-ML	GP-GC				
TS-5	S-6	40-50	5.82	NP	NP		gp-gc				
TS-5	S-7	50-60	3.41	NP	NP		GP				
TS-5	S-8	60-67	3.94				GW				

Table E-1 (cont.)
Taum Sauk Forensic Geotecnical Investigation
Summary of Laboratory Testing

Boring *	Sample	Depth	% Fines (-200sieve)	Atterberg Limits LL %	PL %	USCS Class (fines)	USCS Class (Sample)	Permeability (cm/sec)	Friction ø degrees	Cohesion c psi	Natural Moisture Content, %
TS-6	S-2	5-10	4.92				GP				
TS-6	S-3	10-20	12.51	NP	NP		GM				
TS-6	S-4	20-30	8.22				GP-GC				
TS-6	S-5	30-40	12.68	28	7	CL-ML	GC-GM				
TS-6	S-7	50-54	10.48	NP	NP		GP-GM				
TS-7	S-1	0-10	13.59				gm				
TS-7	S-2	10-20	5.64				gw-gm				
TS-7	S-3	20-30	9.12				gw-gm				
TS-7	S-4	30-40	0.37				GP				
TS-7	S-5	40-50	4.60				GW				
TS-7	S-6	50-60	4.92				GW				
TS-7	S-7	60-70	1.41				GW				
TS-7	S-8	70-80	4.13				GP				
TS-7	S-9	80-90	0.06				GP				
TS-ST-01	N/A	0-2	48.30	31	20	CL	GC	1.30E-06	33.96	2.78	
TS-ST-02	N/A	0-2	77.62	64	25	CH	CH	3.80E-07			
TS-Soil-01	S-2	9-14	38.91	35	20	CL	GC				14.6
TS-Soil-02	S-2	7-12	70.92	59	23	CH	CH		21.3	7.58	26.7
TS-Soil-02	S-3	12-19	79.72	57	27	CH	CH		29.35	6.85	30.2
TS-Soil-03	S-2	7-15	59.54	37	19	CL	CL		30.22	4.2	19.2
TS-Soil-04	S-2	5-11	78.89	51	28	CH	CH		28.6	4.95	31.9

* See Plate 7.1 for Sample Locations
** Samples Combined for Permeability Testing

APPENDIX E2

SOIL PHOTOGRAPHS

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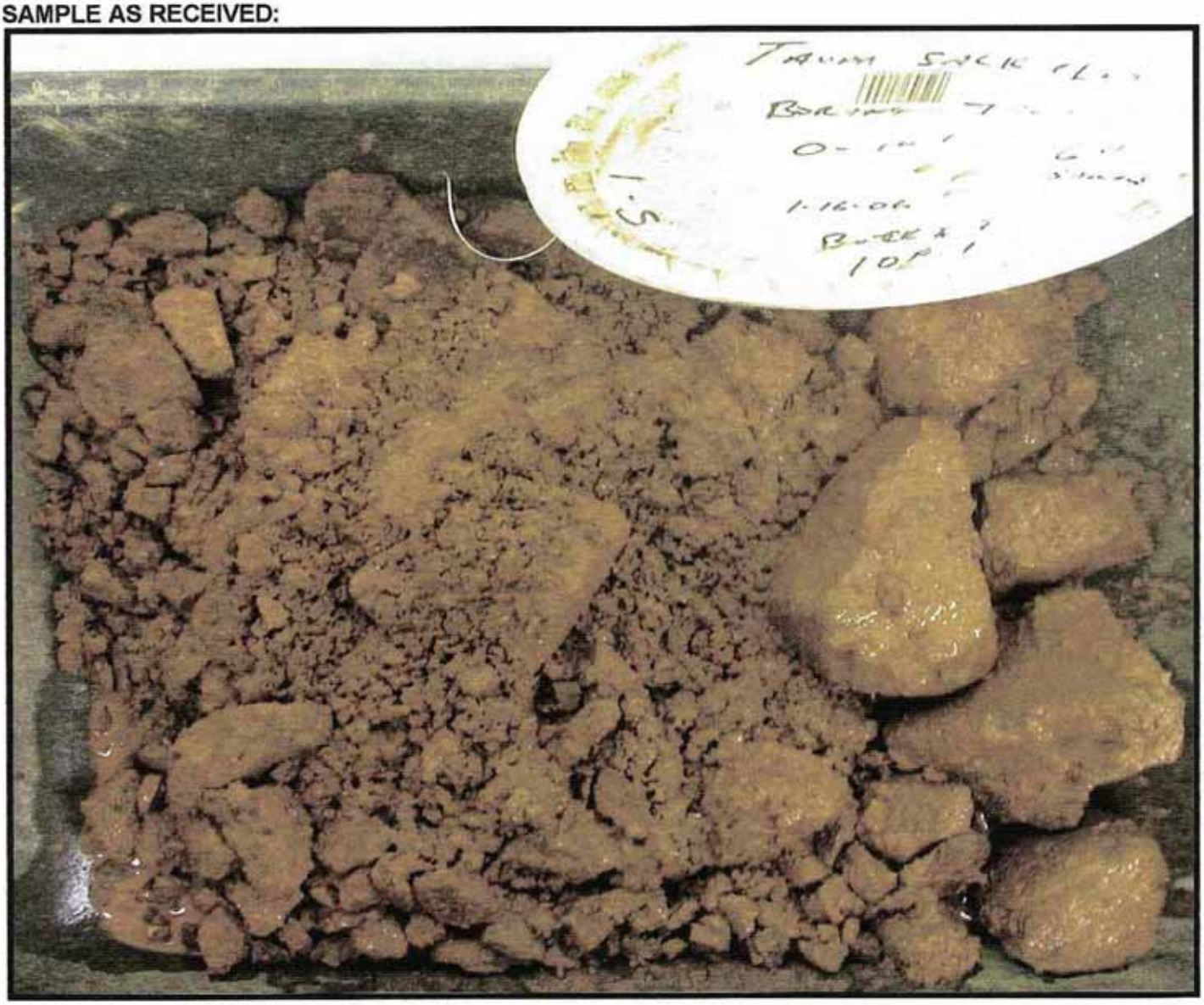
SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	0'-10'
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-01		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-20'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-02		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-40'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-03		

SAMPLE AS RECEIVED:

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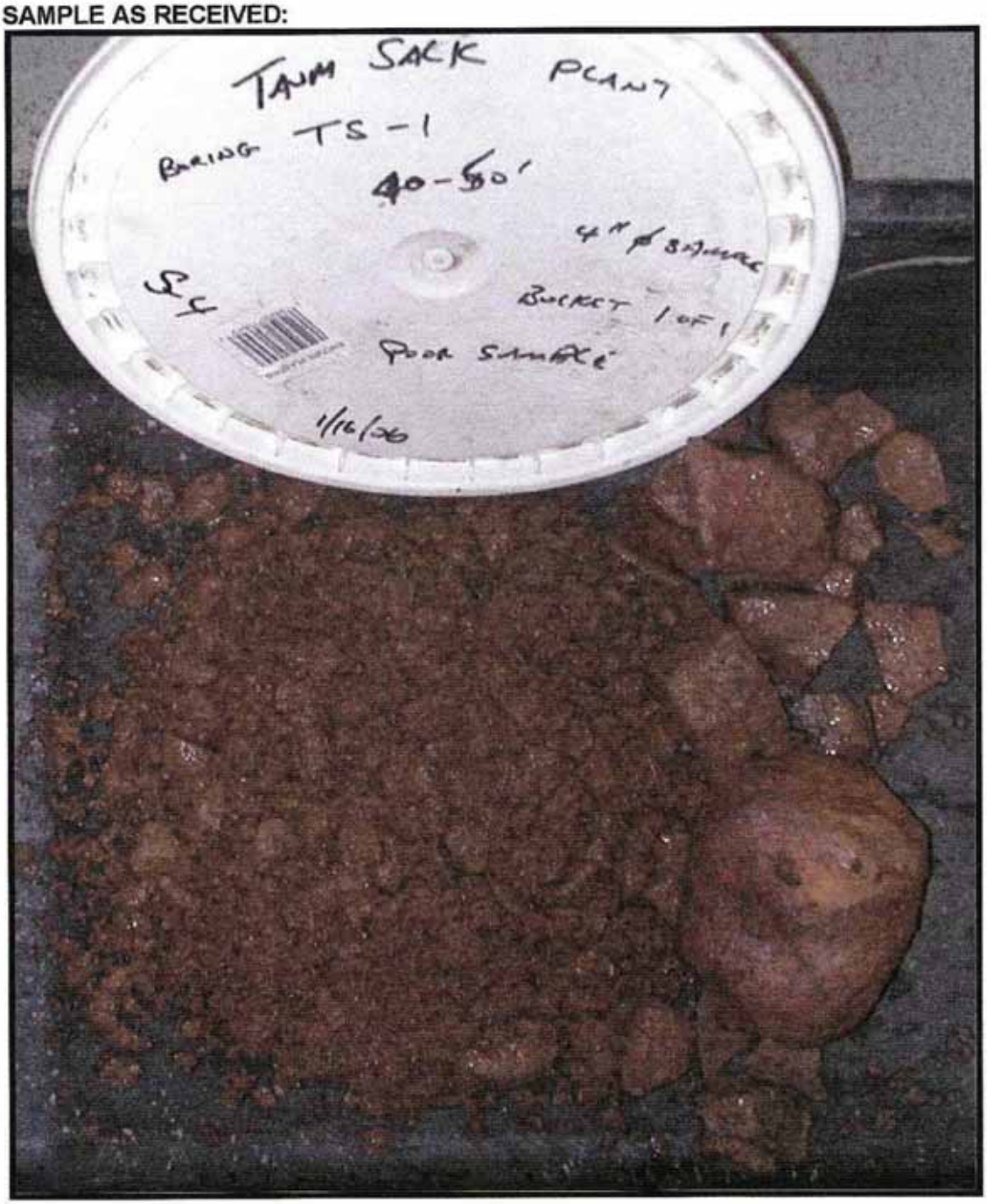
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	40'-50'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-04		

SAMPLE AS RECEIVED:



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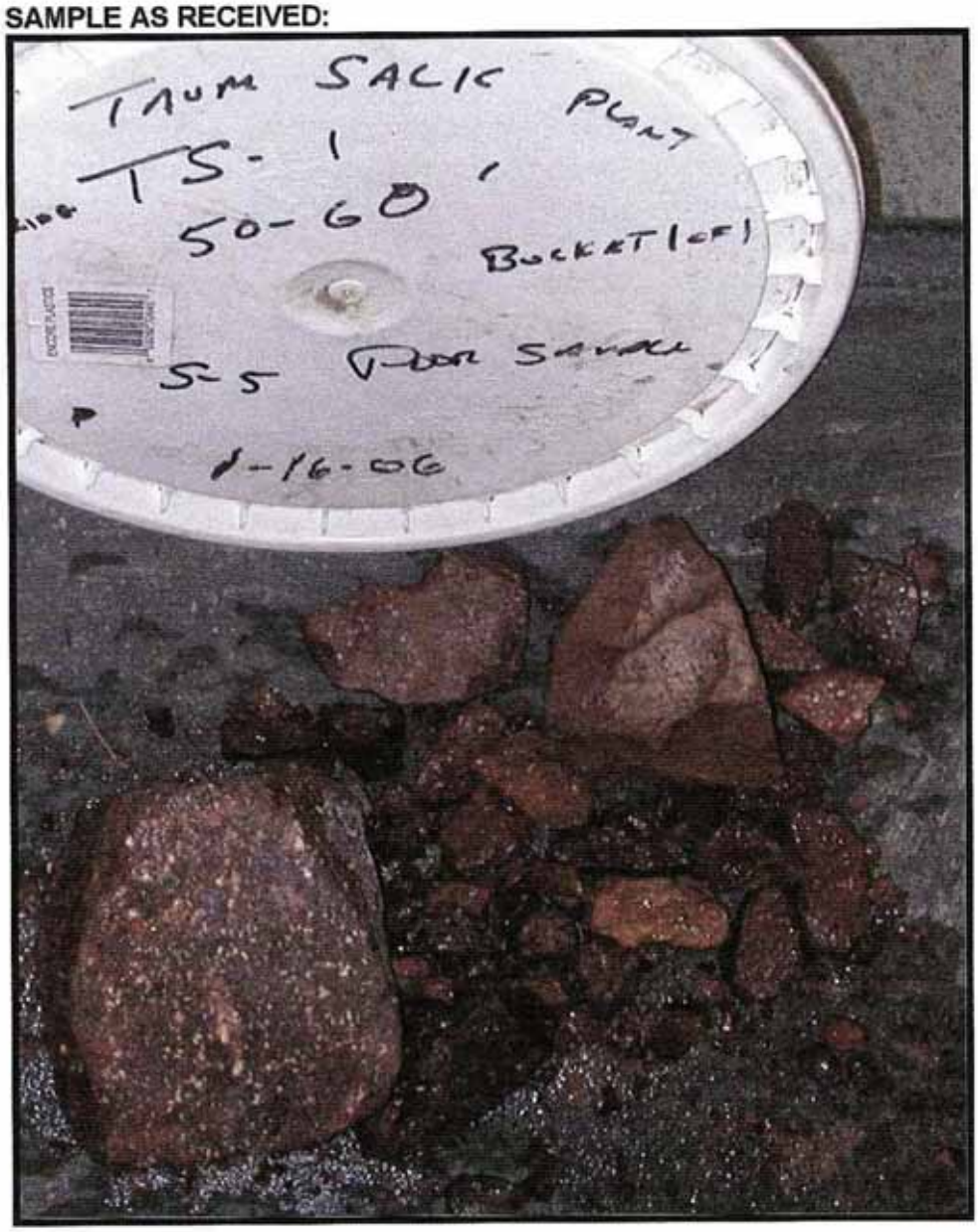
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-60'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-05		

SAMPLE AS RECEIVED:

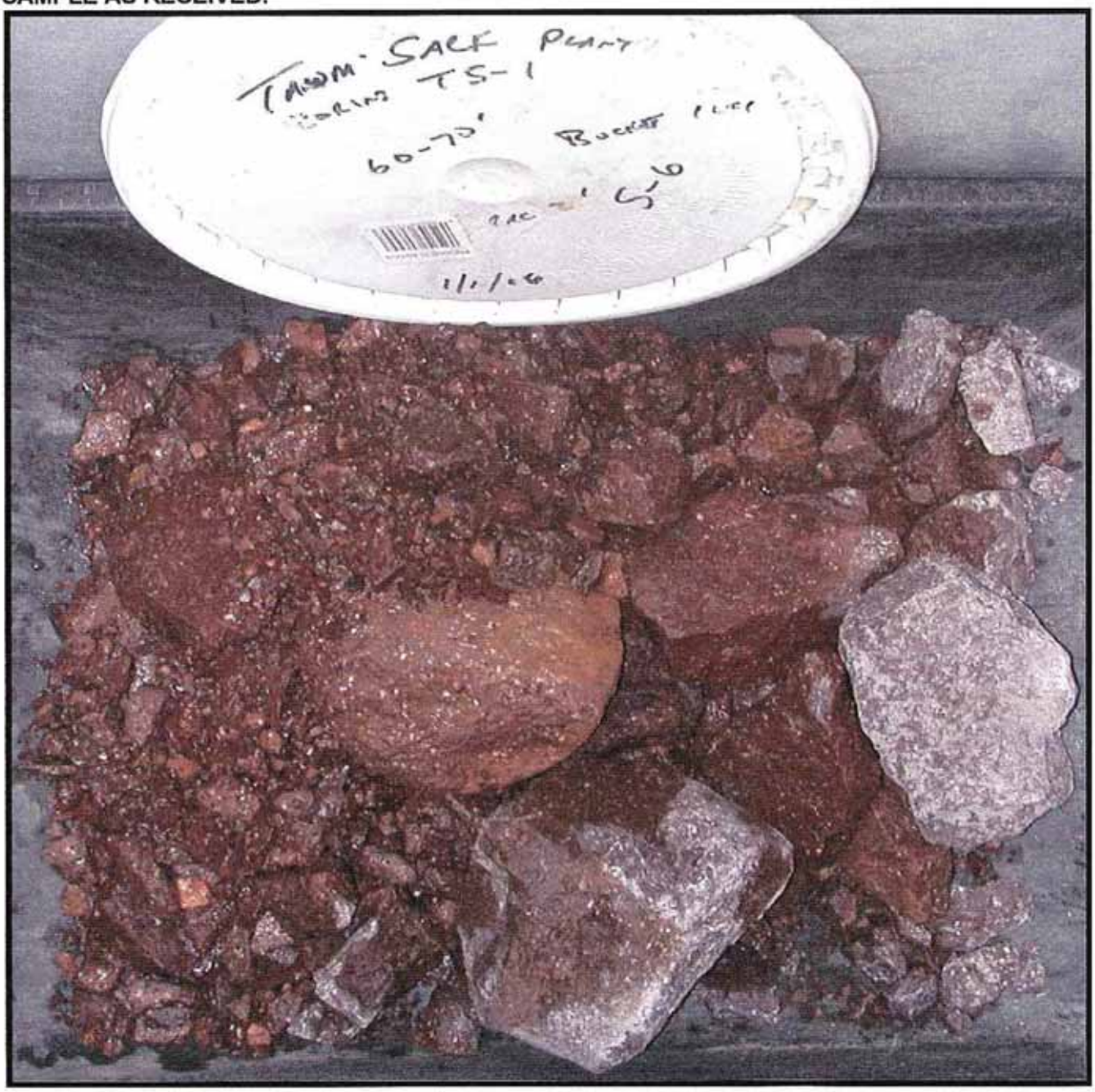


geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	60'-70'
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-06		

SAMPLE AS RECEIVED:



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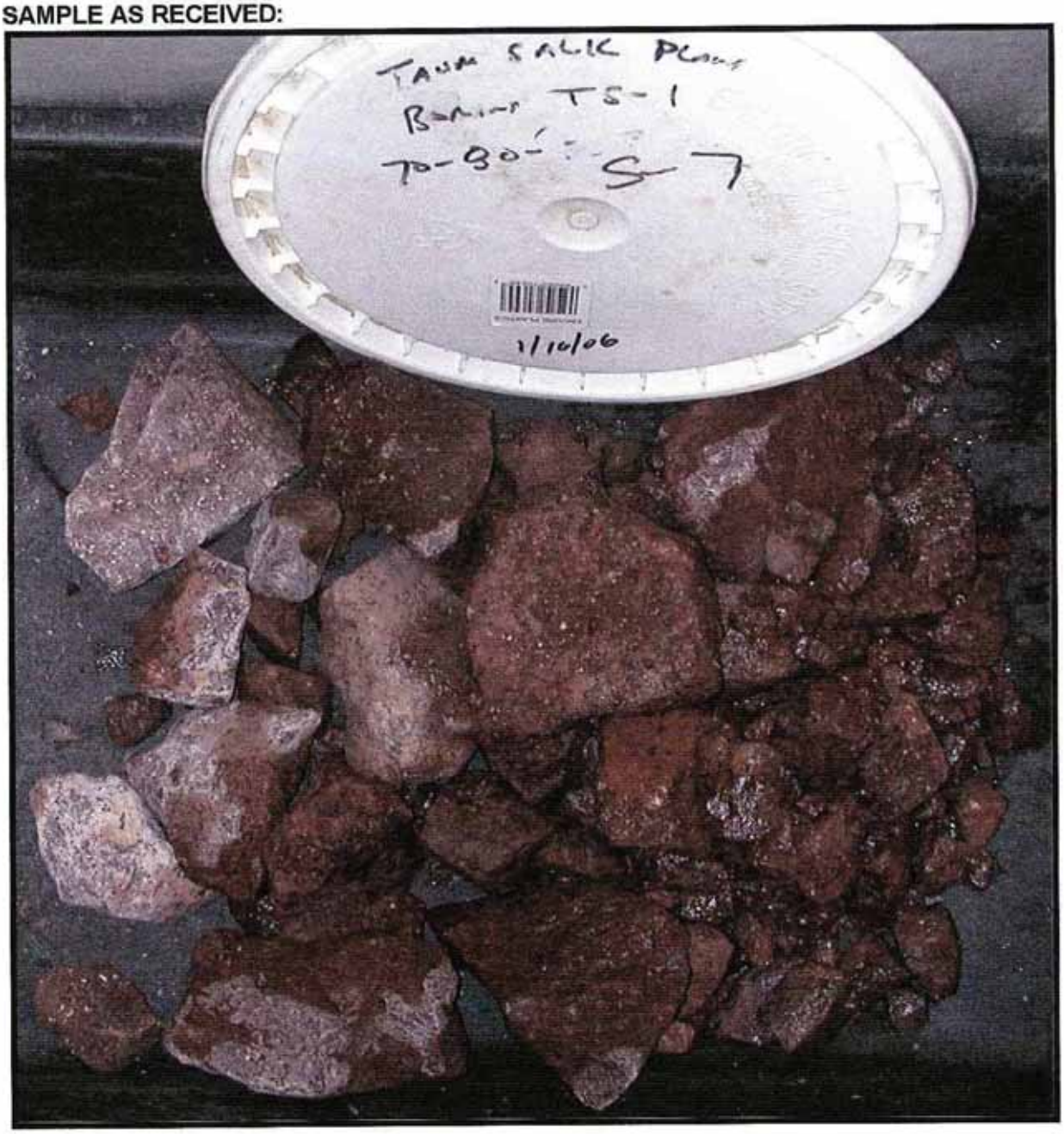
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	70'-80'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-07		

SAMPLE AS RECEIVED:



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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	80'-90'
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-08		

SAMPLE AS RECEIVED:

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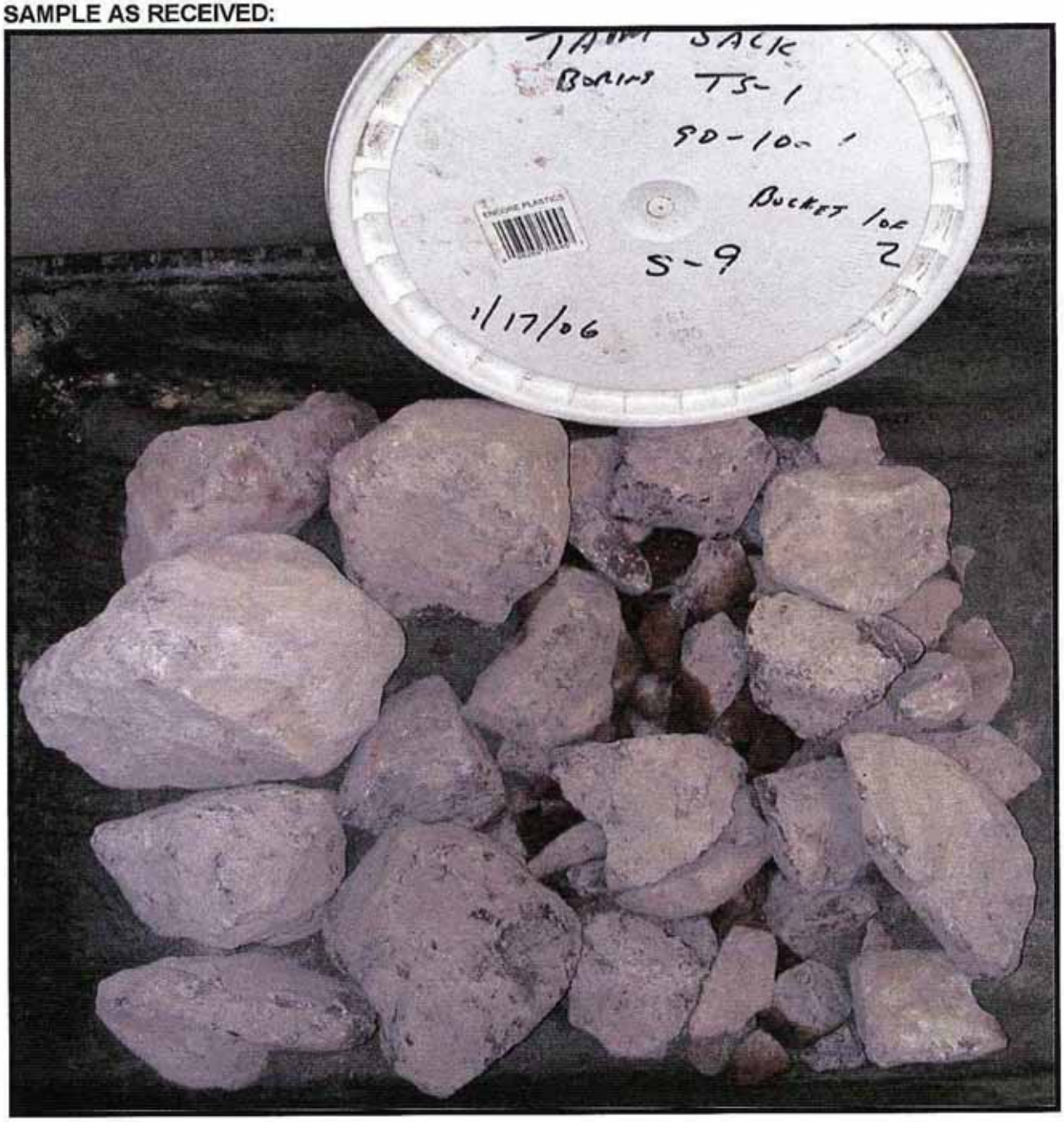
SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	90'-100'
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-09		

SAMPLE AS RECEIVED:



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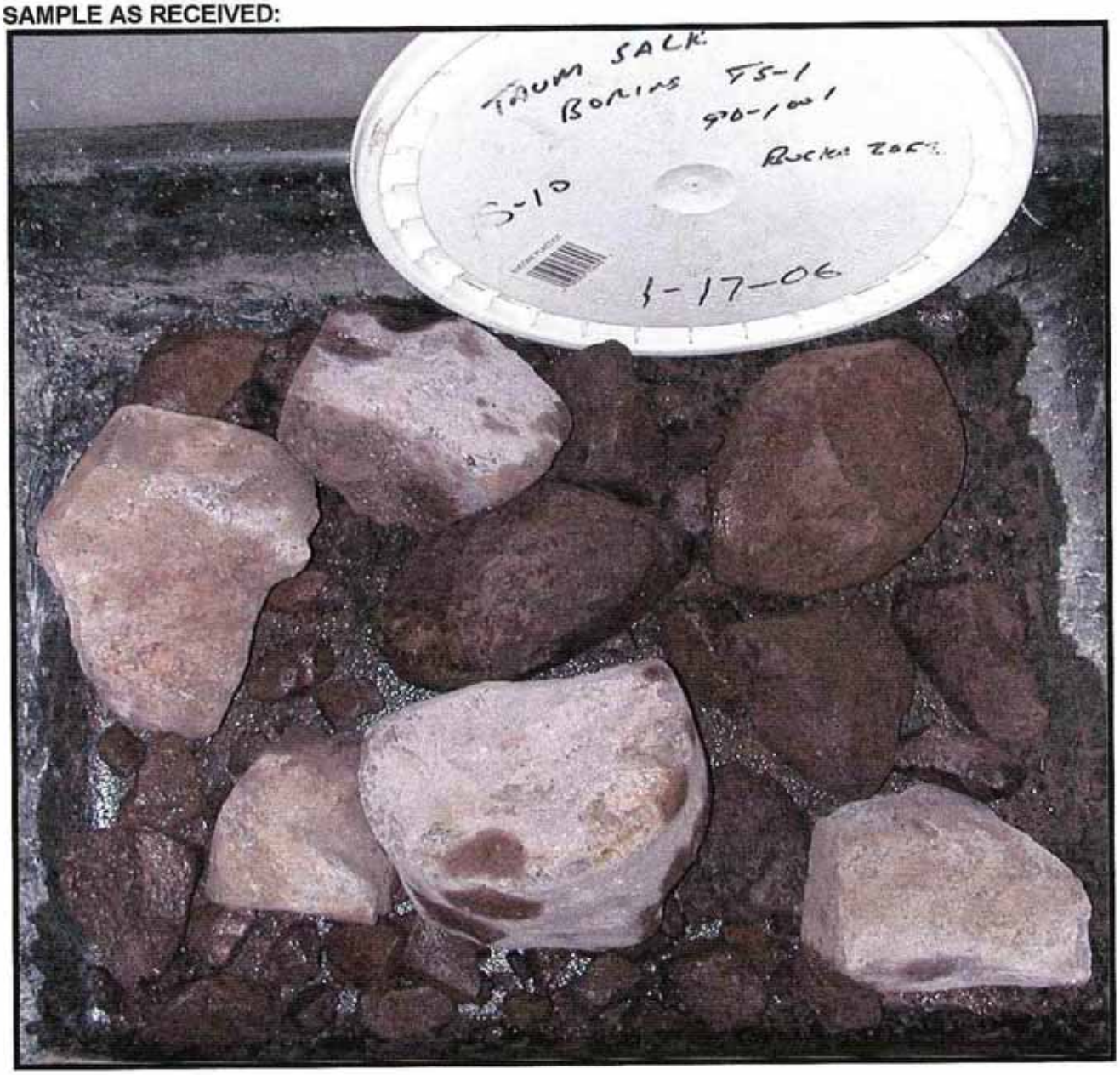
Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	90'-100'
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-10		

SAMPLE AS RECEIVED:



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SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	100'-103'
Project No.	2006-060-01	Sample No.	S-11
Lab ID	2006-060-01-11		

SAMPLE AS RECEIVED:

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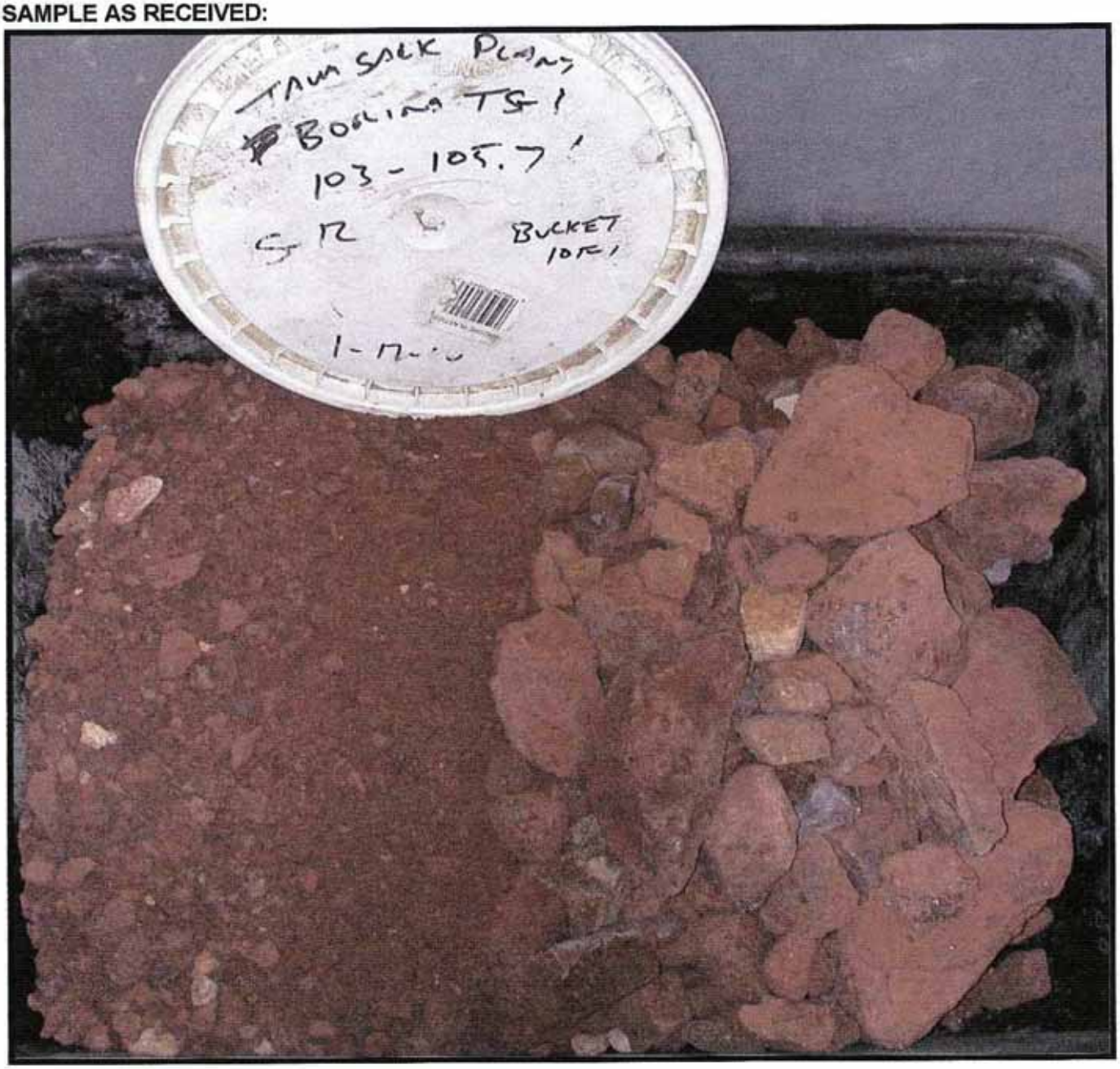
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-1
Client Project	TAUM SAUK 06-3551	Depth (ft.)	103'-105.7'
Project No.	2006-060-01	Sample No.	S-12
Lab ID	2006-060-01-12		

SAMPLE AS RECEIVED:



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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	0'-10'
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-13		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-20'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-14		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-30'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-15		

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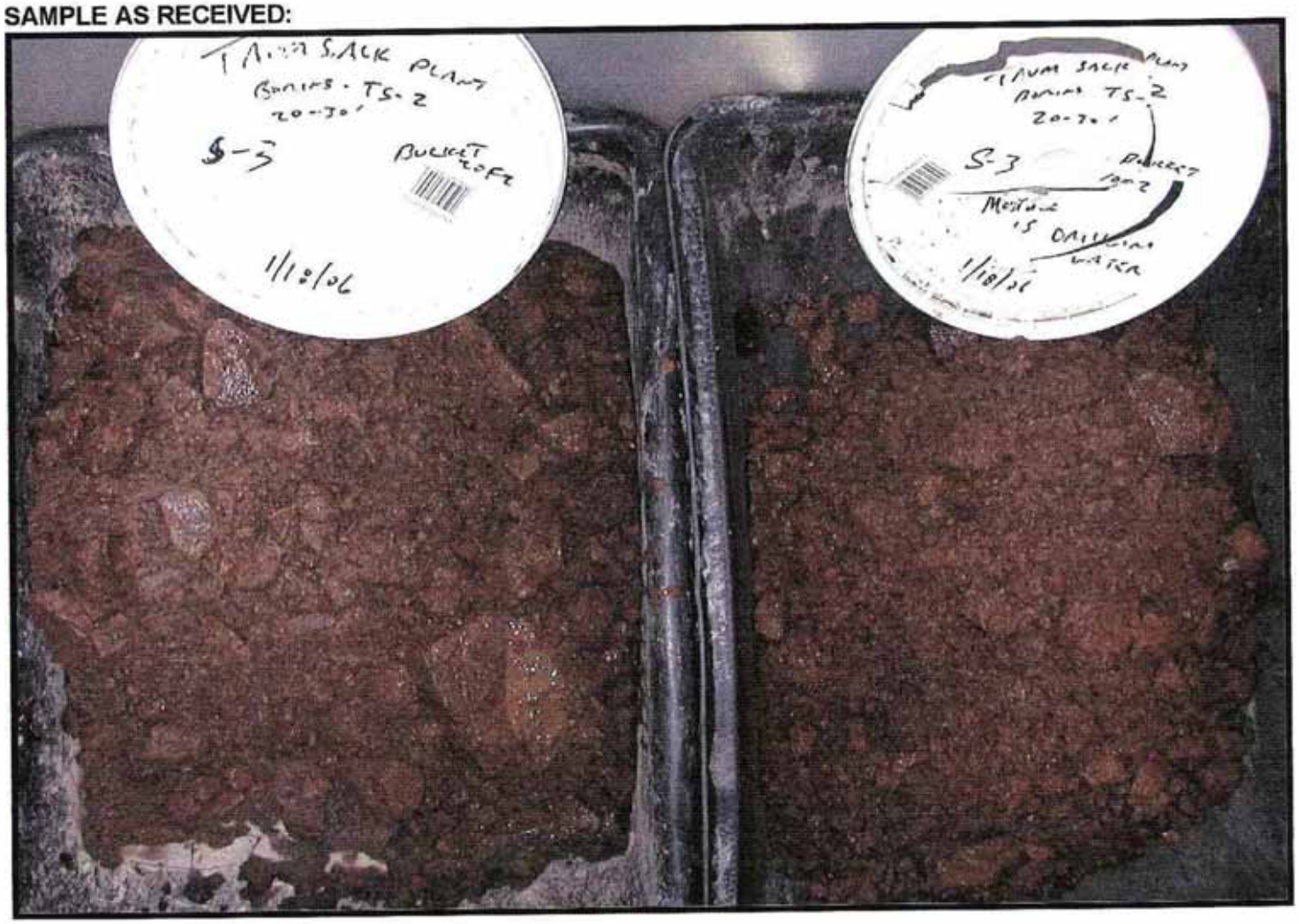

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	30'-40'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-16		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	40'-50'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-17		

SAMPLE AS RECEIVED:

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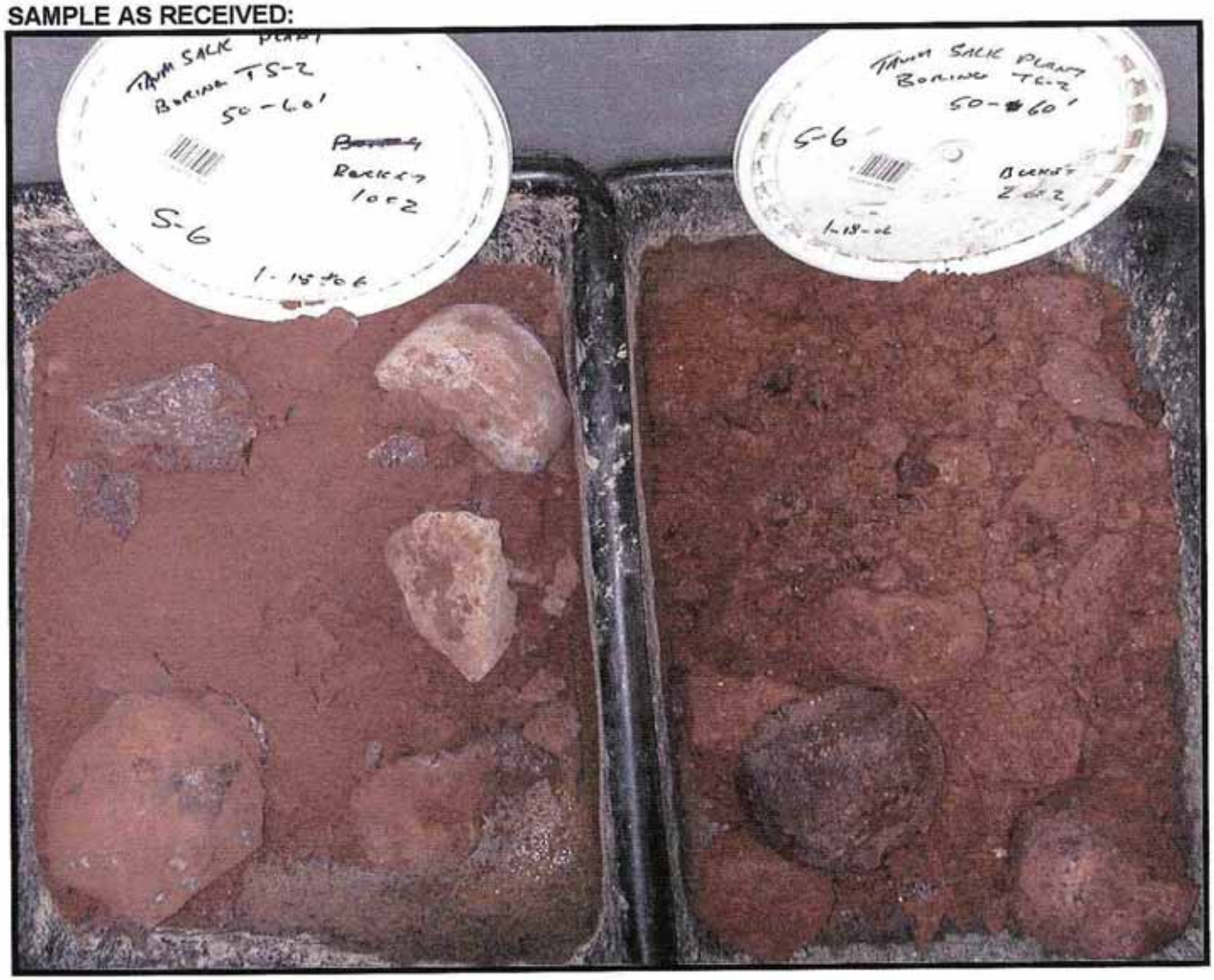
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-60'
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-18		

SAMPLE AS RECEIVED:



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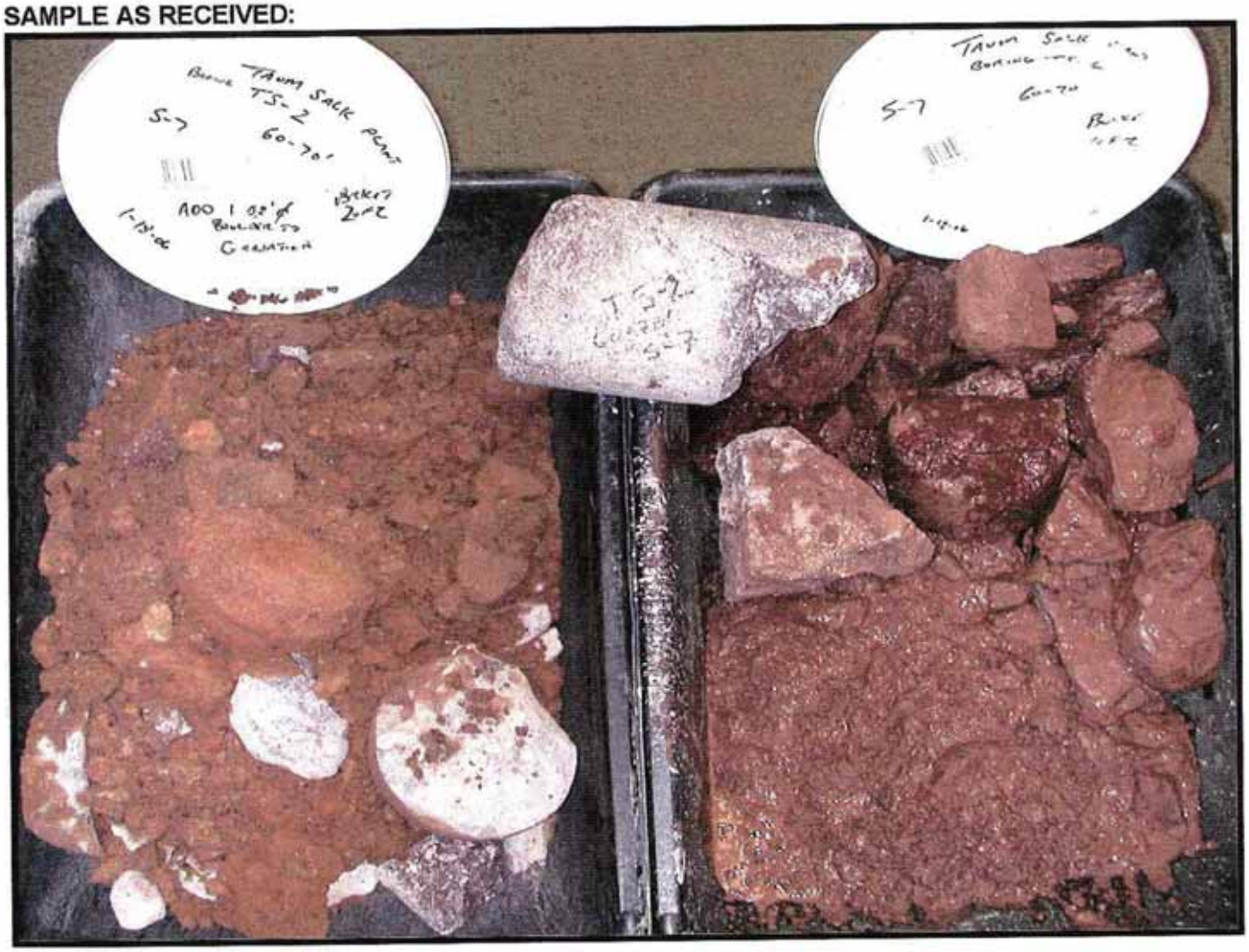
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	60'-70'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-19		

SAMPLE AS RECEIVED:



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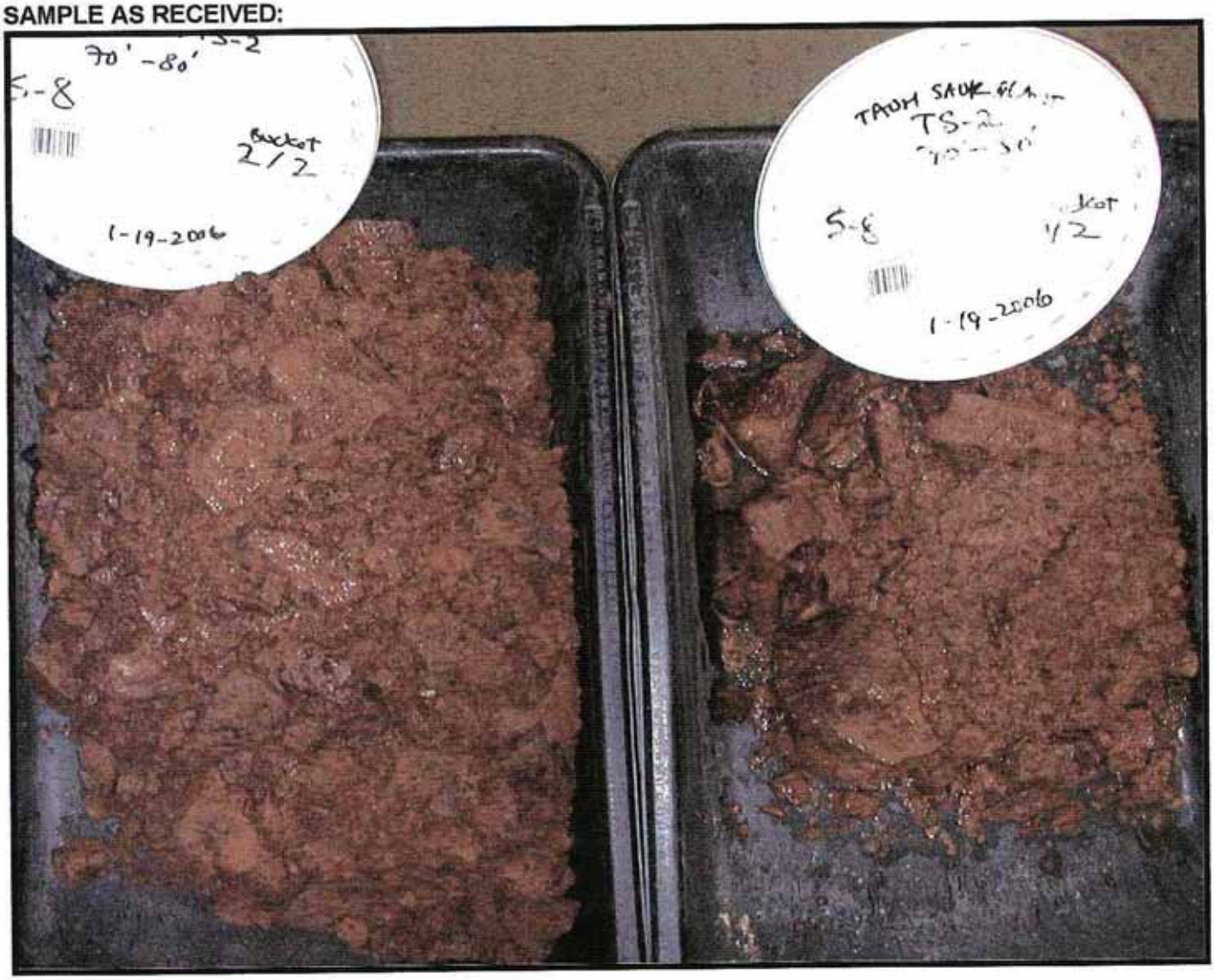
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	70'-80'
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-20		

SAMPLE AS RECEIVED:



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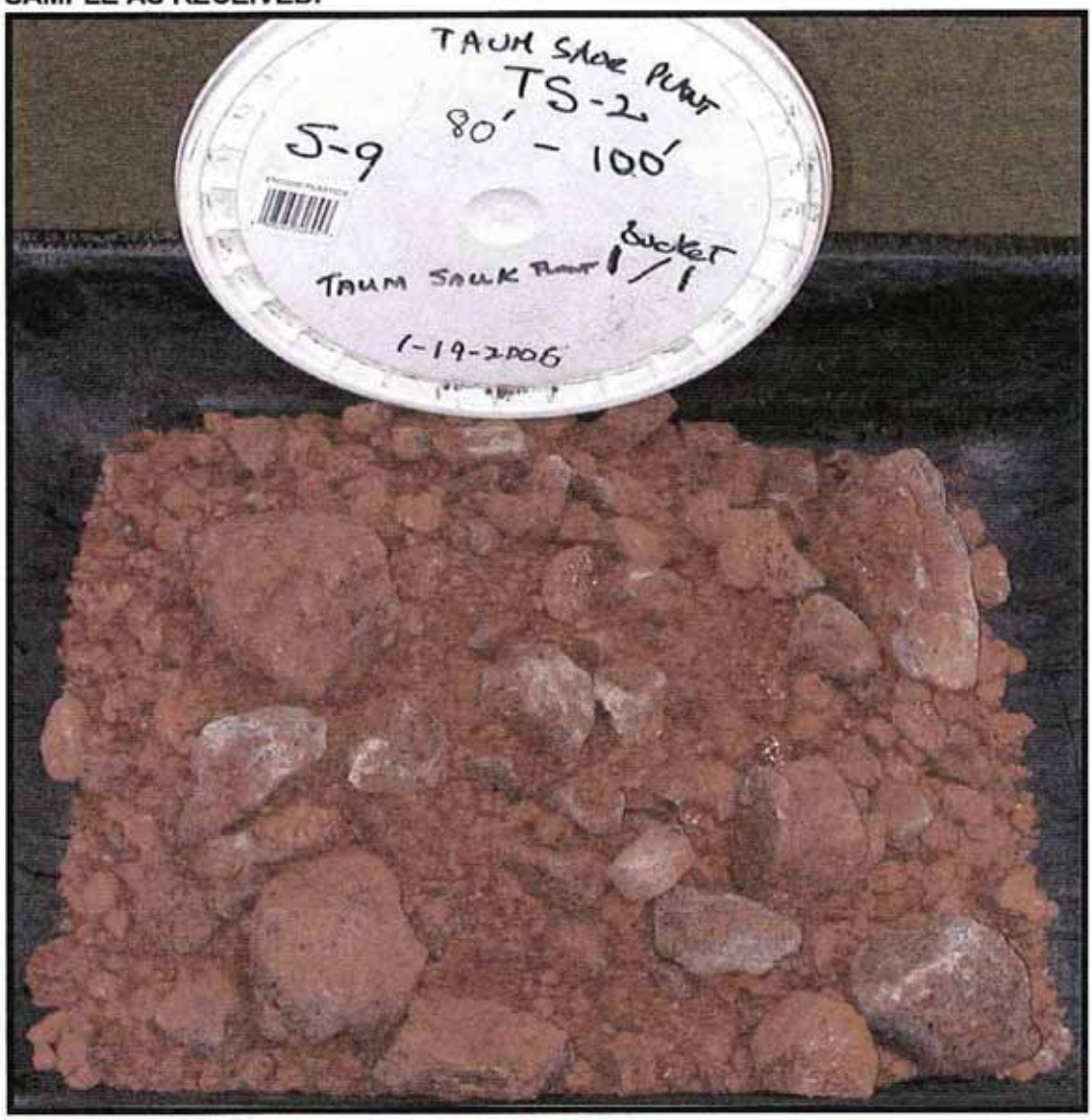
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	80'-100'
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-21		

SAMPLE AS RECEIVED:



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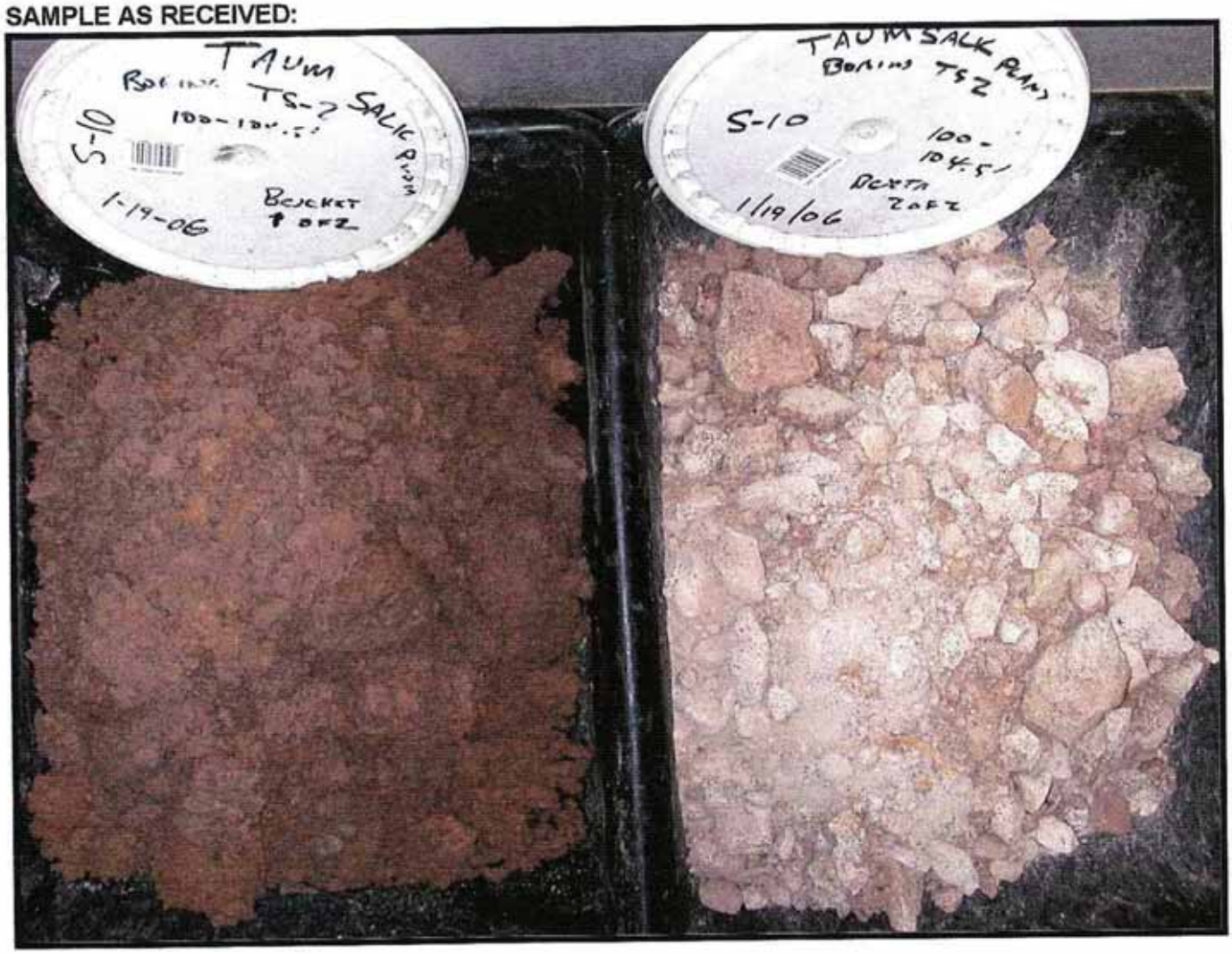
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-2
Client Project	TAUM SAUK 06-3551	Depth (ft.)	100'-104.5'
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-22		

SAMPLE AS RECEIVED:



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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	0'-10'
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-23		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-20'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-24		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-30'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-25		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	30'-40'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-26		

SAMPLE AS RECEIVED:

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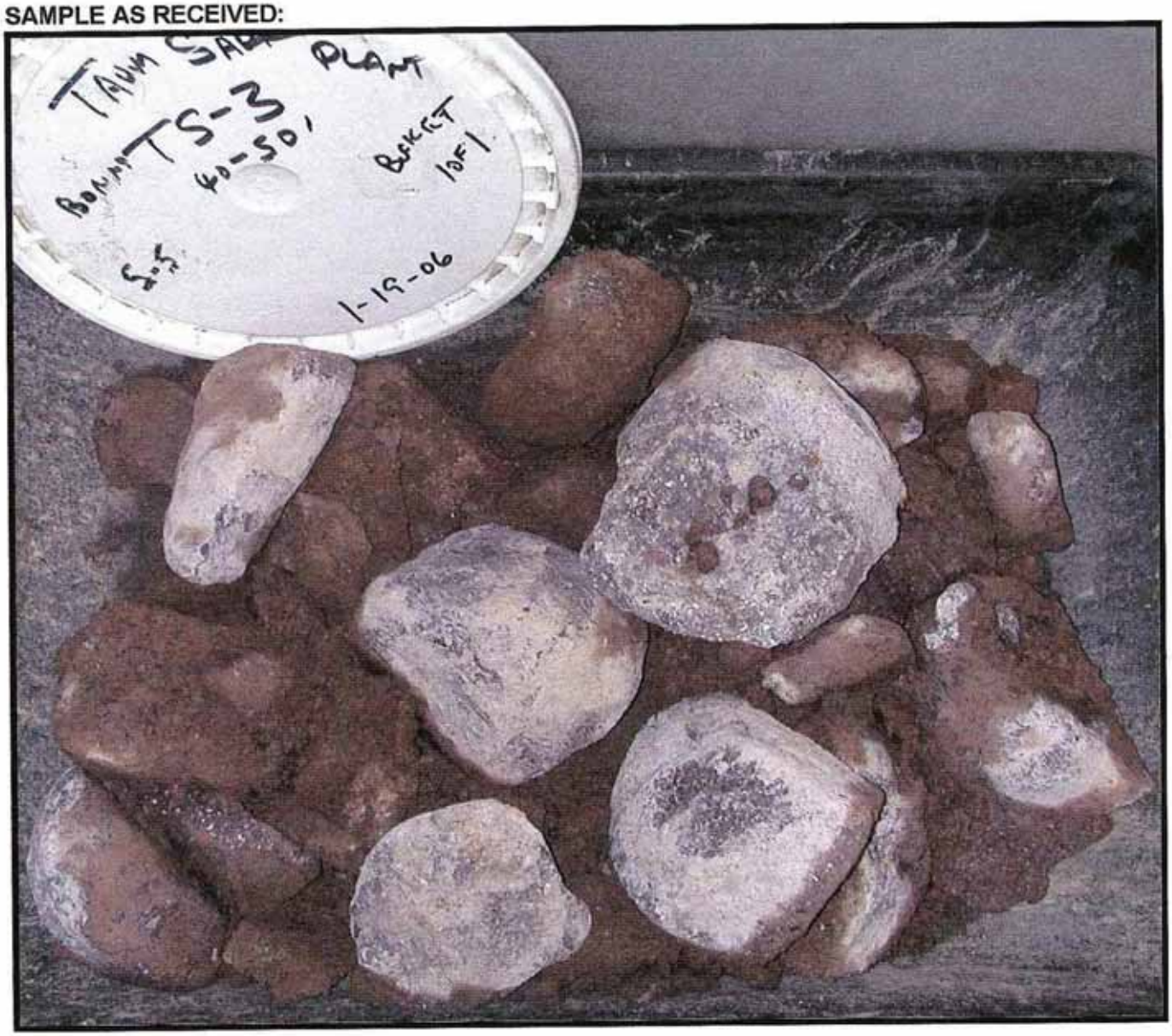
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	40'-50'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-27		

SAMPLE AS RECEIVED:



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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-60'
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-28		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	60'-70'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-29		

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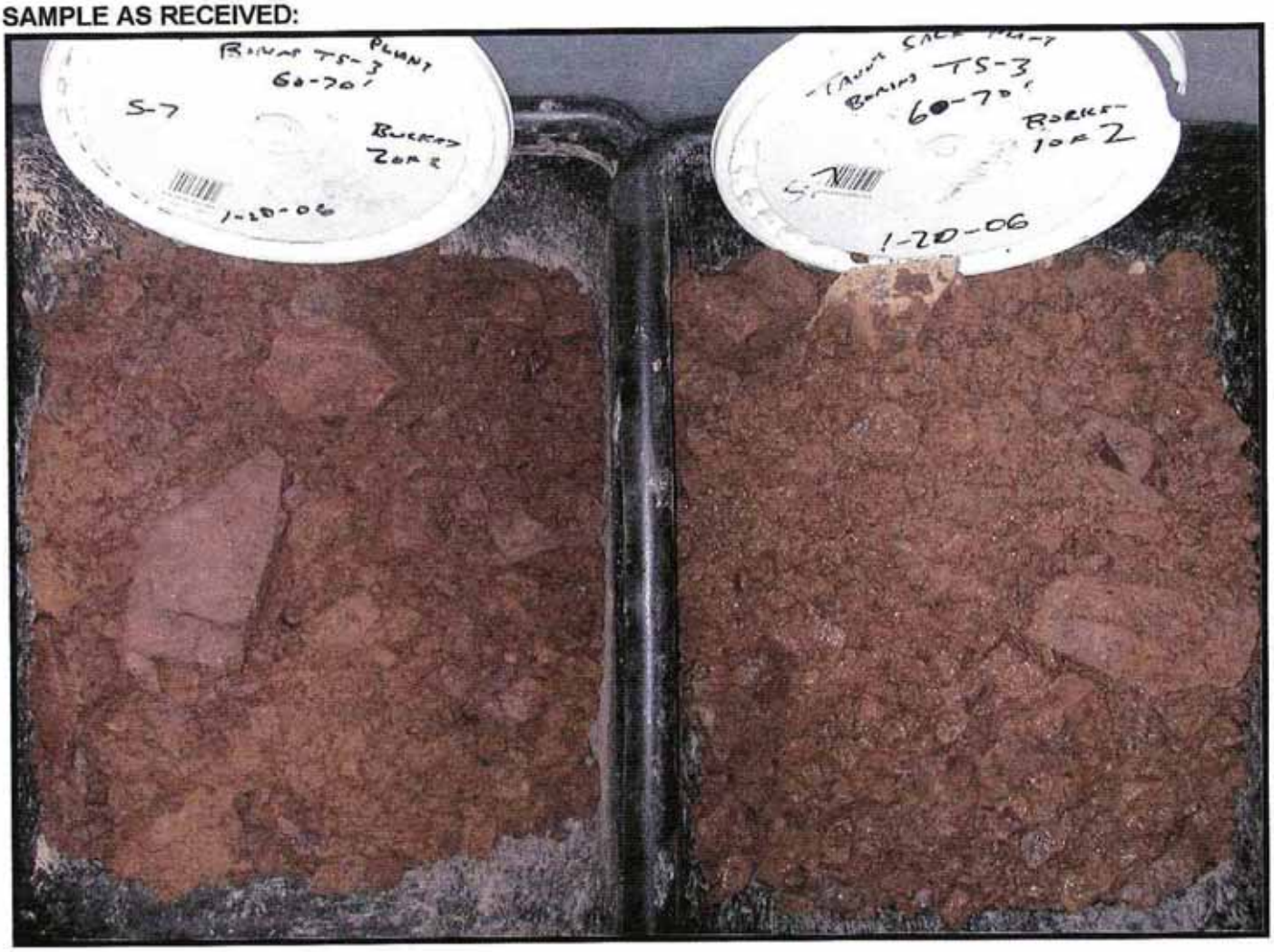

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	70'-80'
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-30		

SAMPLE AS RECEIVED:

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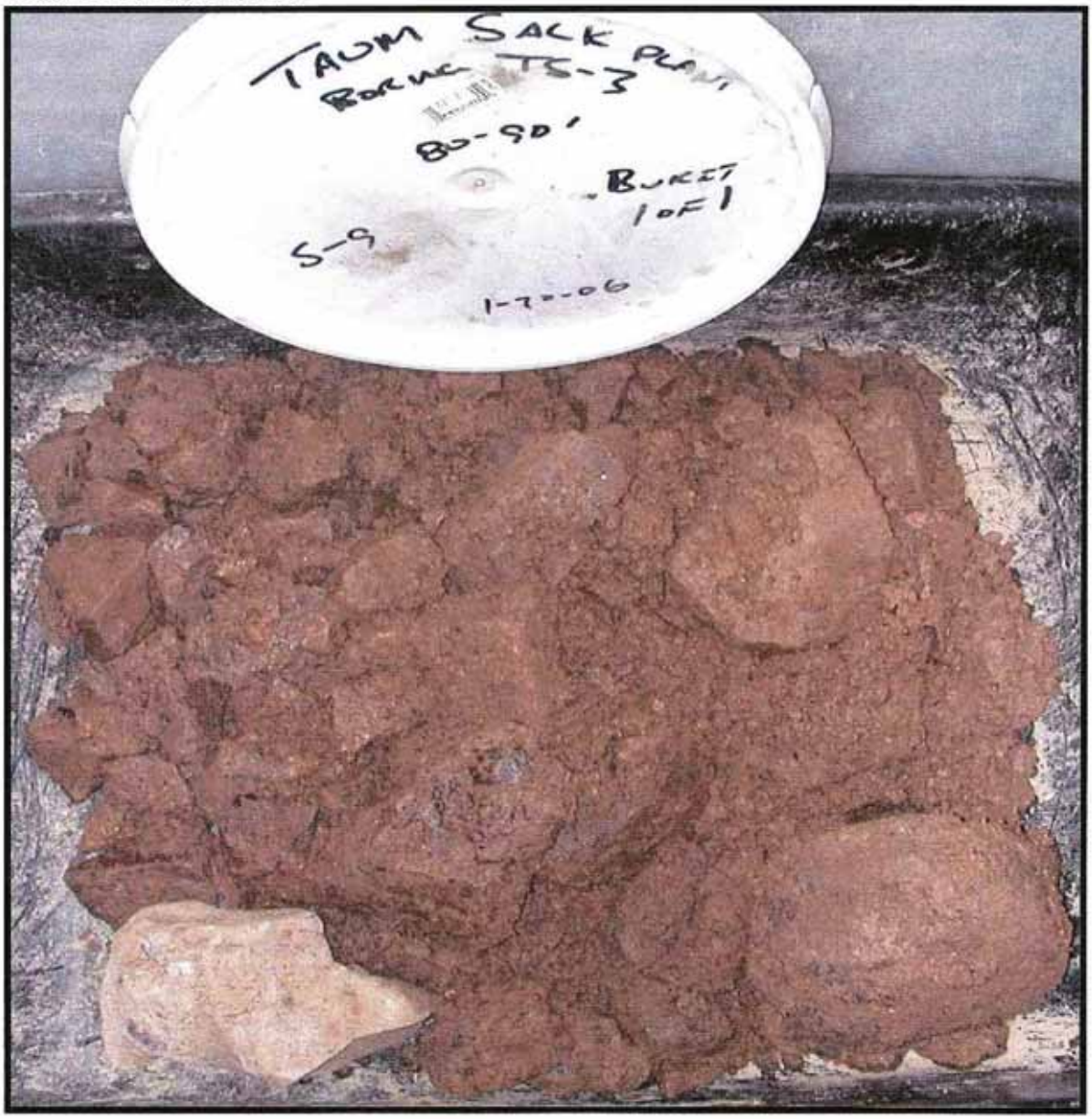
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	80'-90'
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-31		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-3
Client Project	TAUM SAUK 06-3551	Depth (ft.)	90'-95.7'
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-32		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	0'-10'
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-33		

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-13'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	13'-16'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34		

SAMPLE AS RECEIVED:

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SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	16'-20'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34		

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-30'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-35		

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SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	30'-36'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-36		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	36'-40'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-36		

SAMPLE AS RECEIVED:

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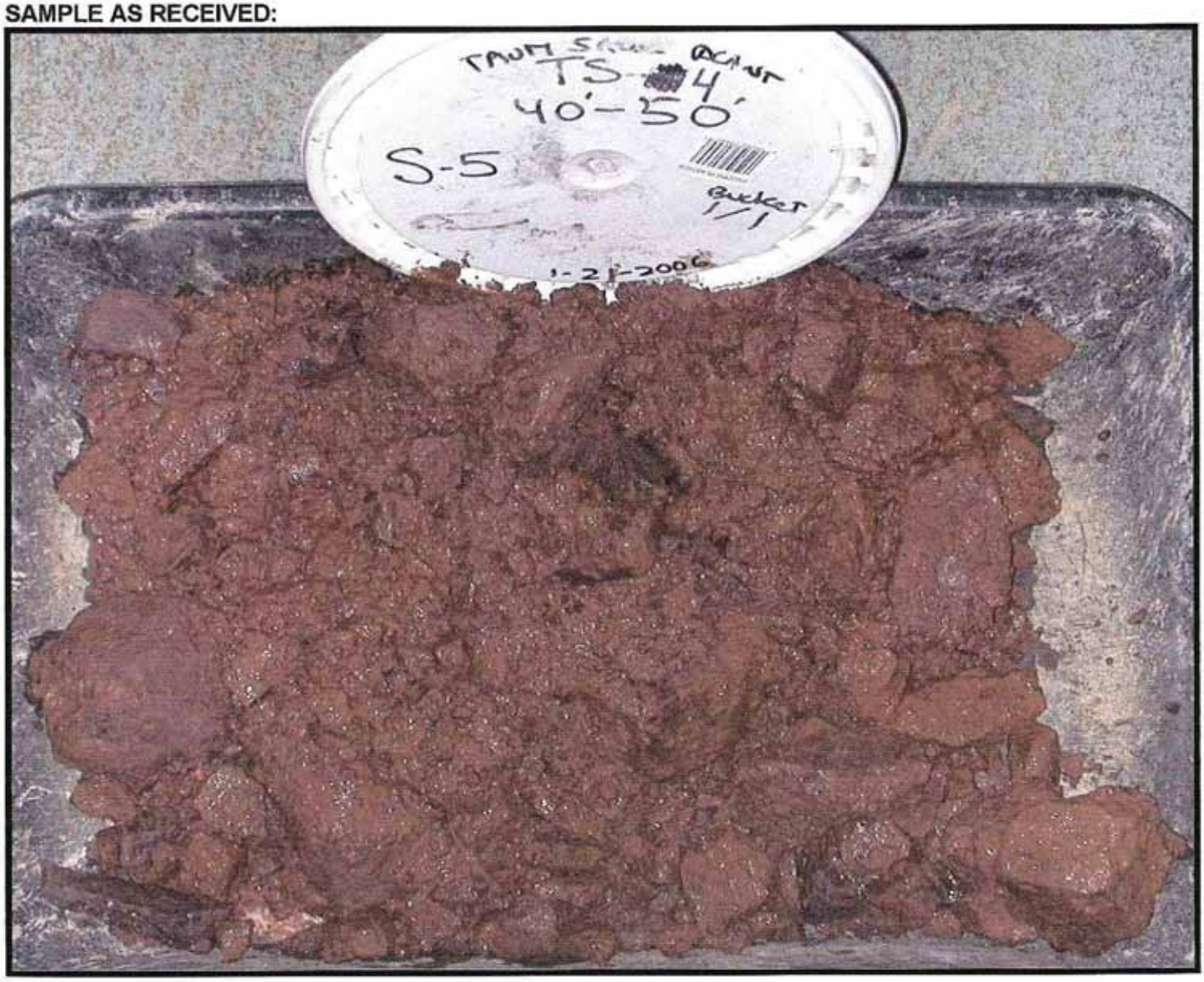
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	40'-50'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-37		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-60'
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-38		

SAMPLE AS RECEIVED:

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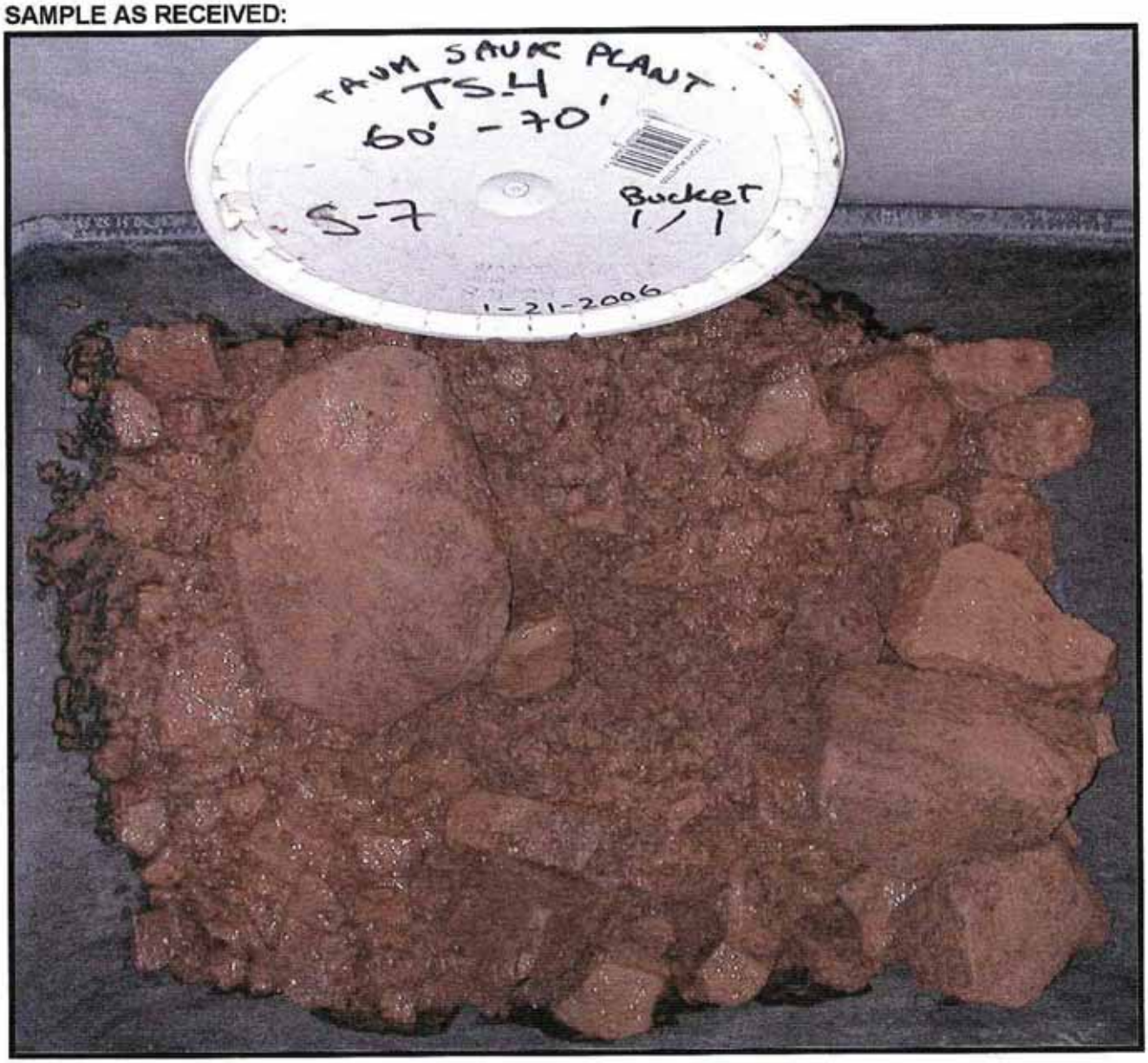
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	60'-70'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-39		

SAMPLE AS RECEIVED:

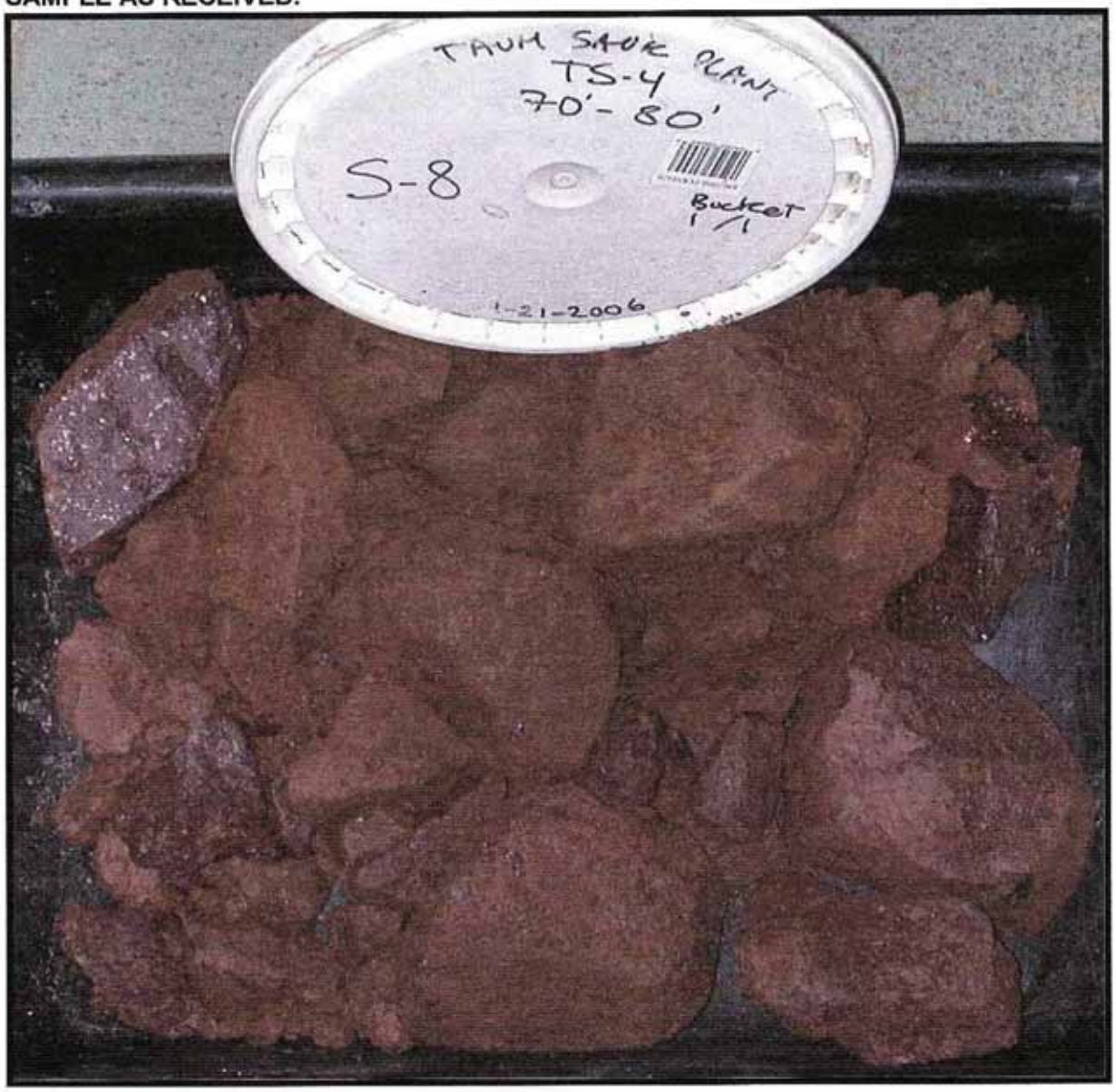


geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	70'-80'
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-40		

SAMPLE AS RECEIVED:

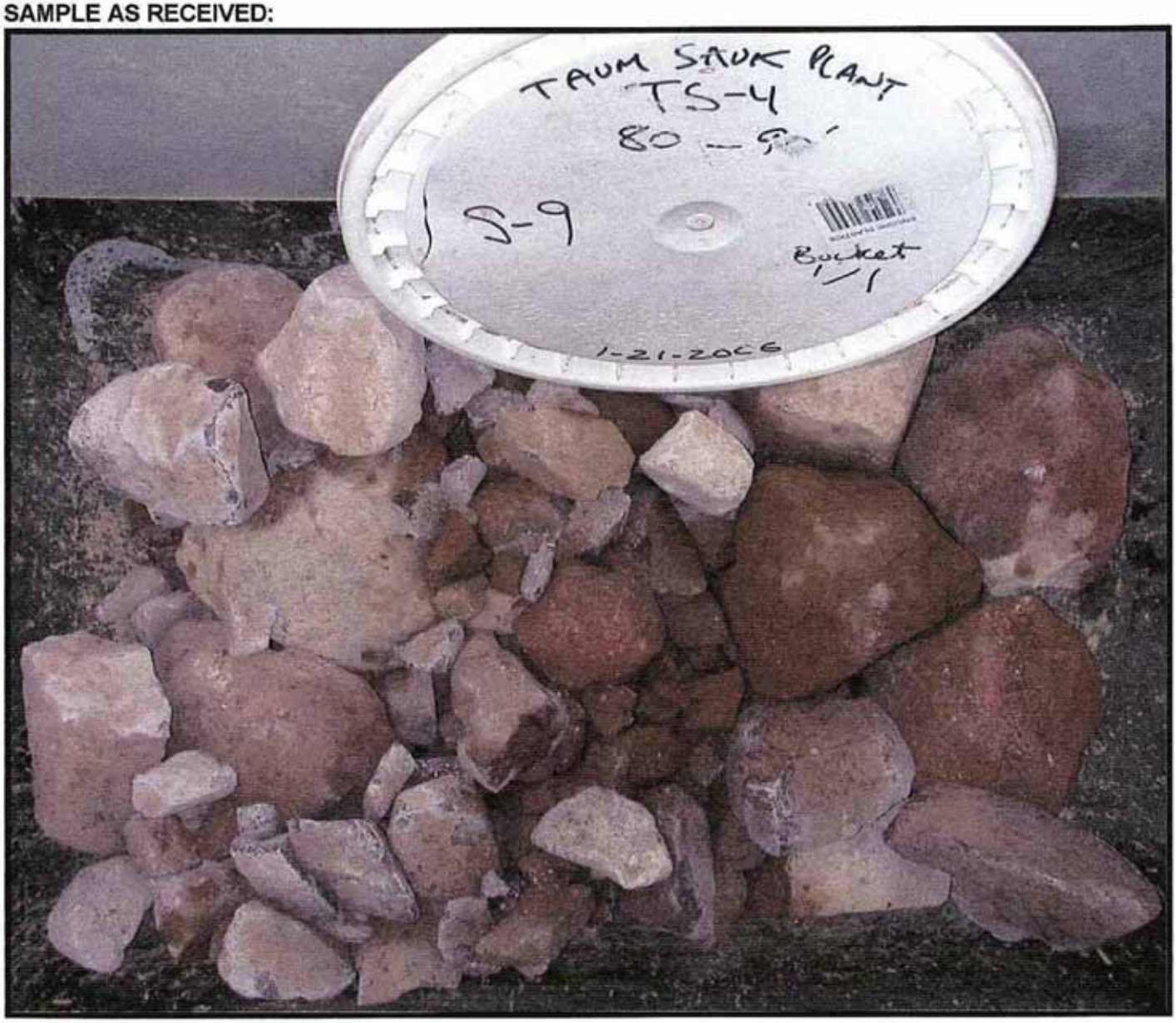


geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	80'-90'
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-41		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-4
Client Project	TAUM SAUK 06-3551	Depth (ft.)	90'-98.25'
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-42		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	0'-10'
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-43		

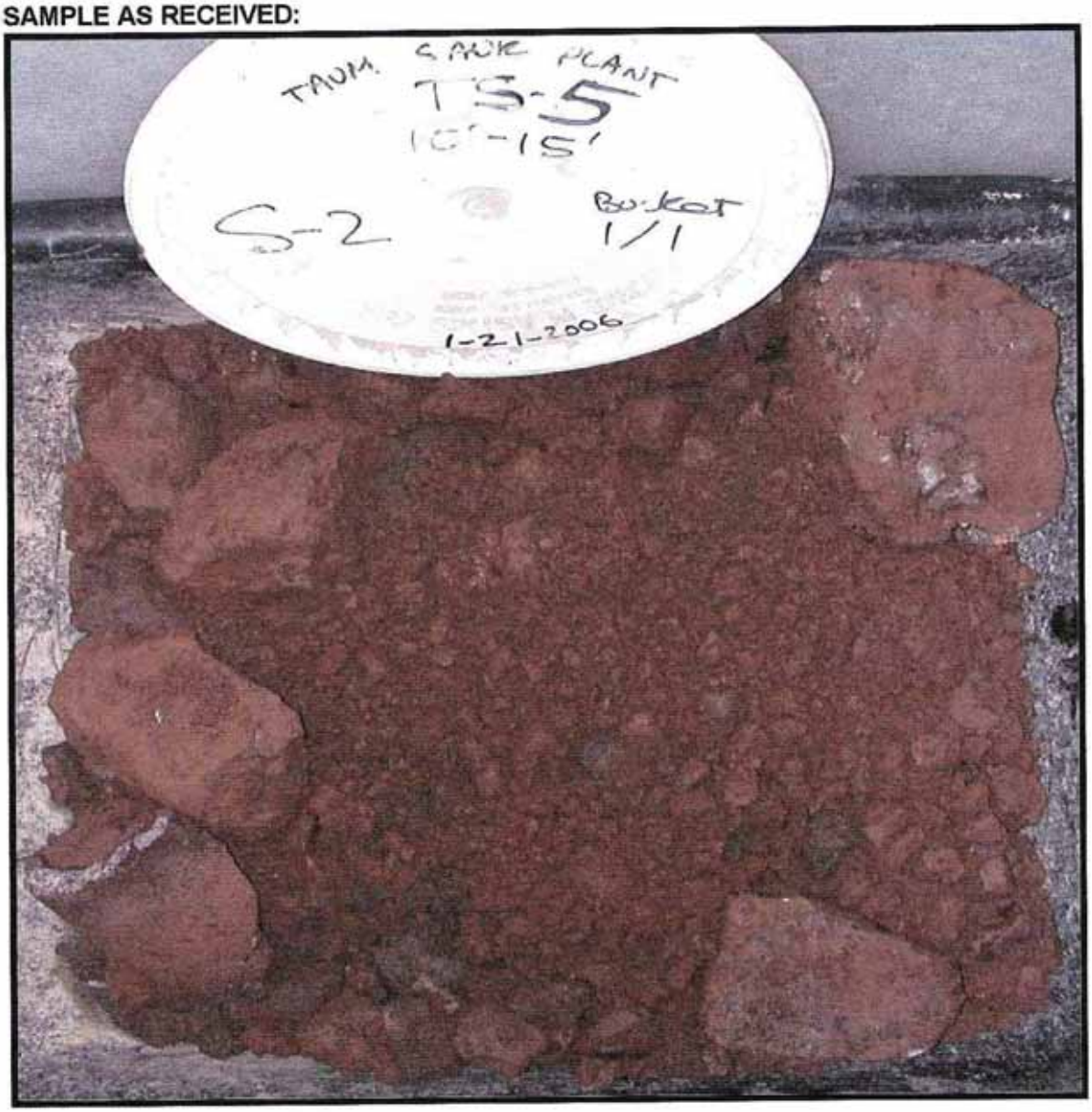
SAMPLE AS RECEIVED:

geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-15'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-44		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	15'-20'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-45		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-30'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-46		

SAMPLE AS RECEIVED:

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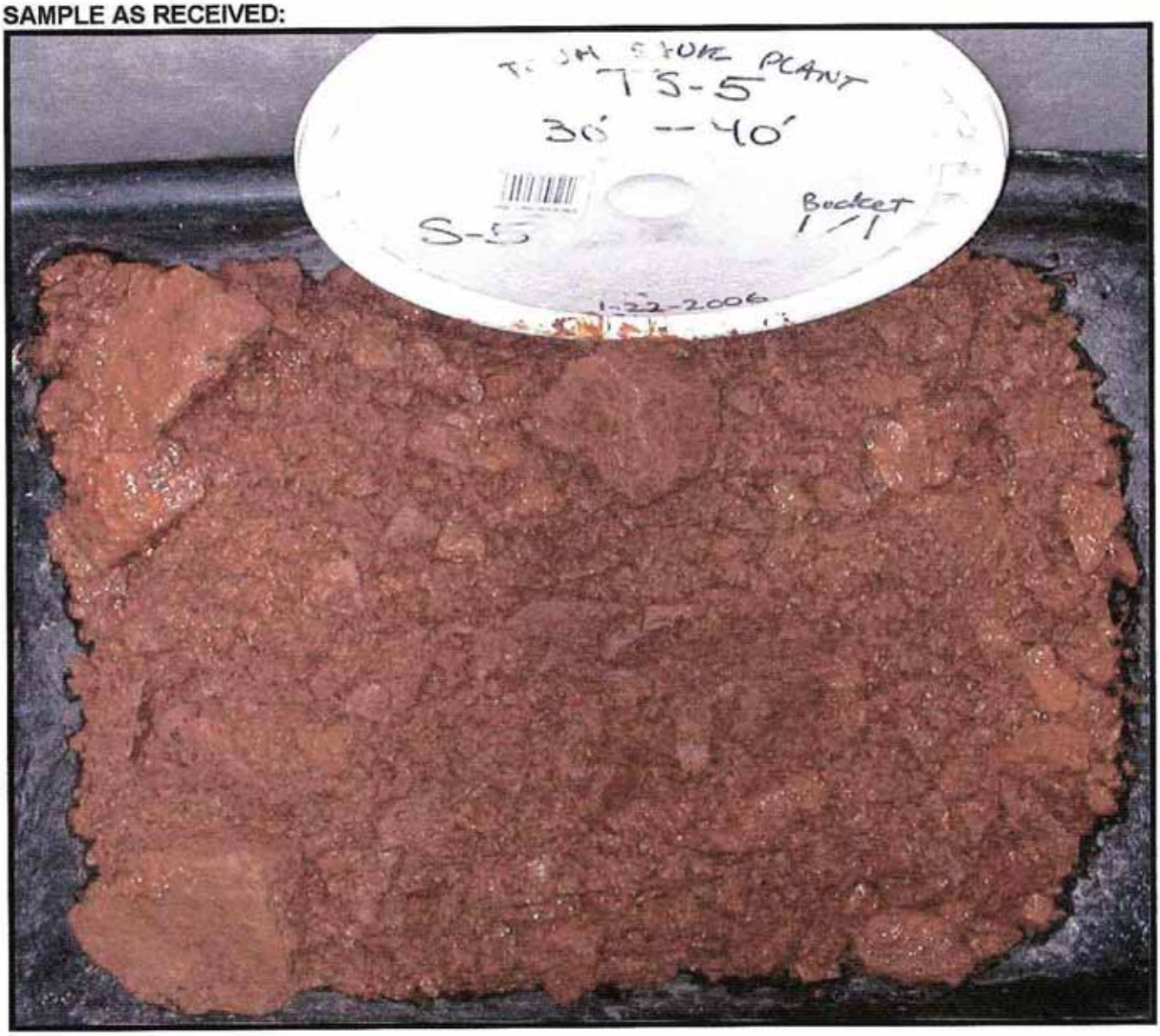
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	30'-40'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-47		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	40'-50'
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-48		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-60'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-49		

SAMPLE AS RECEIVED:

geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-5
Client Project	TAUM SAUK 06-3551	Depth (ft.)	60'-67'
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-50		

SAMPLE AS RECEIVED:

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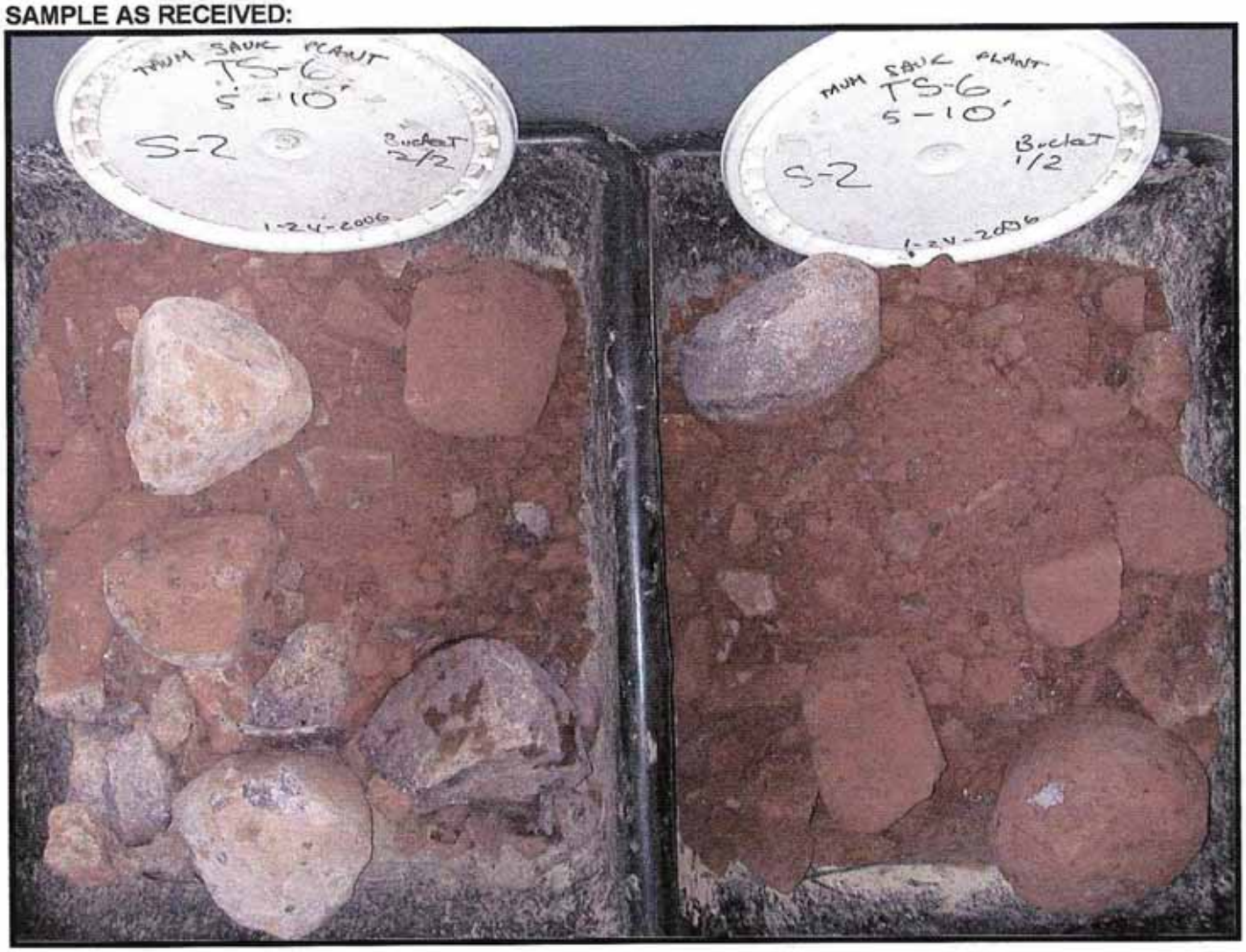
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-6
Client Project	TAUM SAUK 06-3551	Depth (ft.)	5'-10'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-52		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-6
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-20'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-53		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-6
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-30'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-54		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-6
Client Project	TAUM SAUK 06-3551	Depth (ft.)	30'-40'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-55		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	0'-10'
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-57		

SAMPLE AS RECEIVED:

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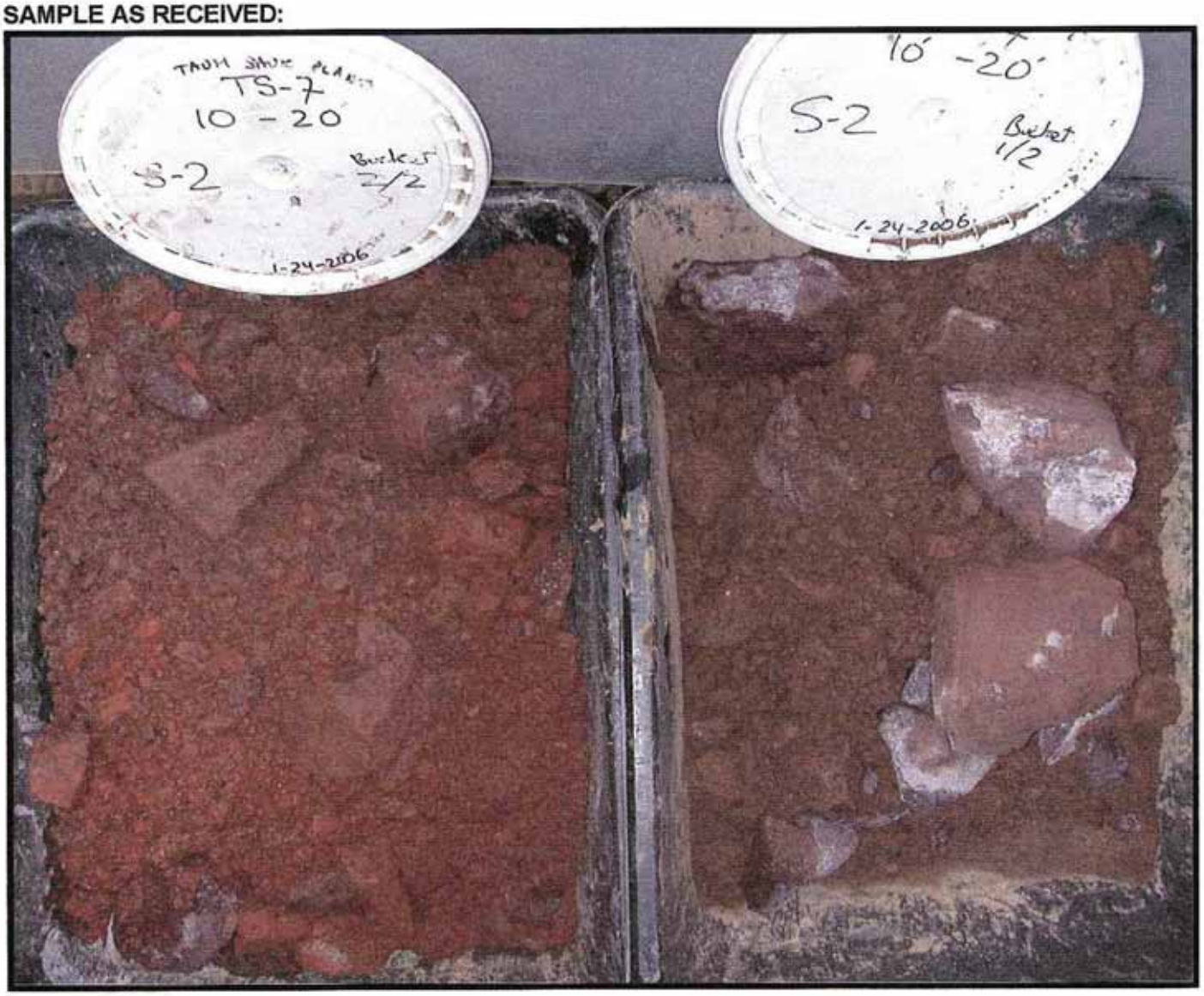
SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	10'-20'
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-58		

SAMPLE AS RECEIVED:

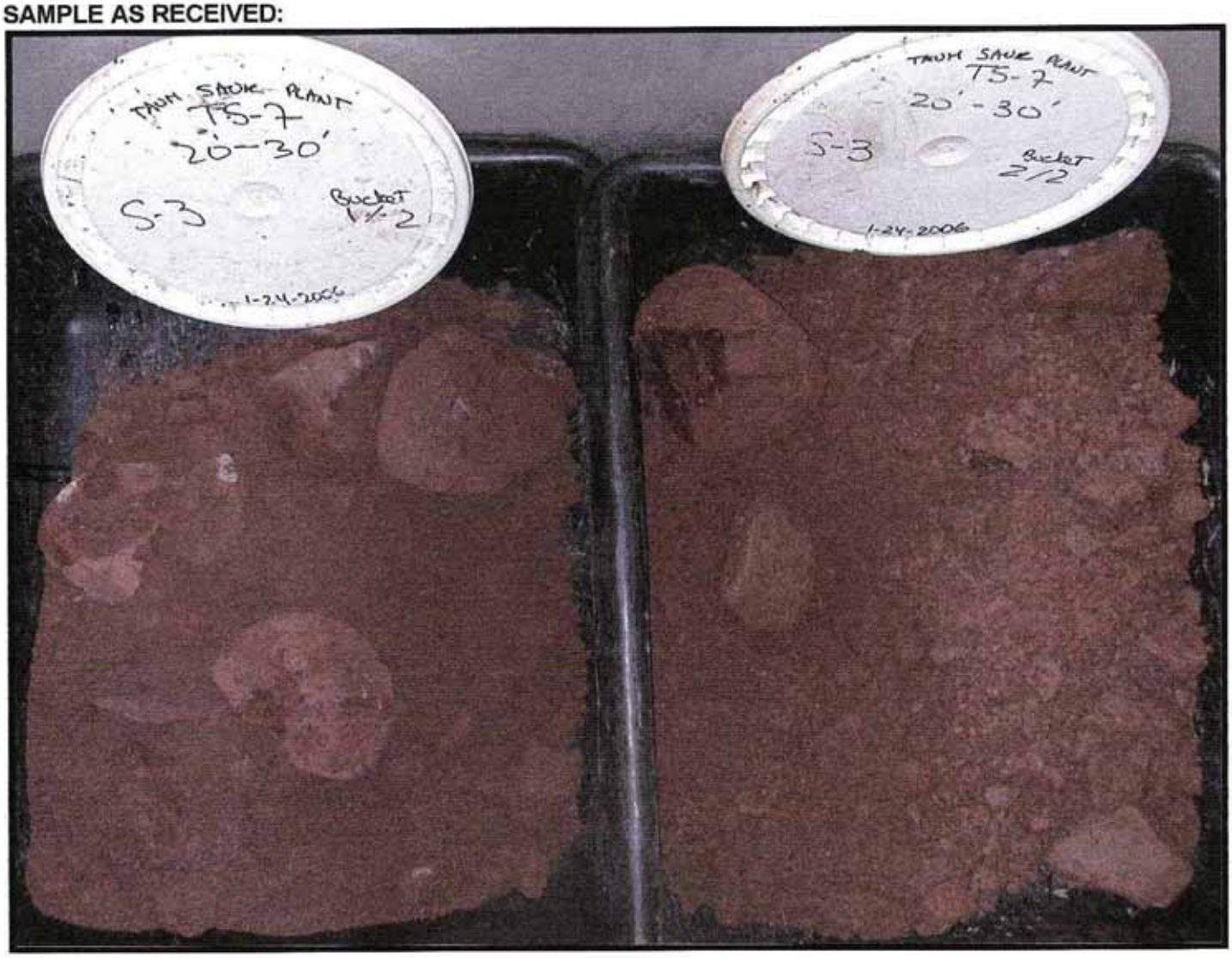


geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	20'-30'
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-59		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	30'-40'
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-60		

SAMPLE AS RECEIVED:

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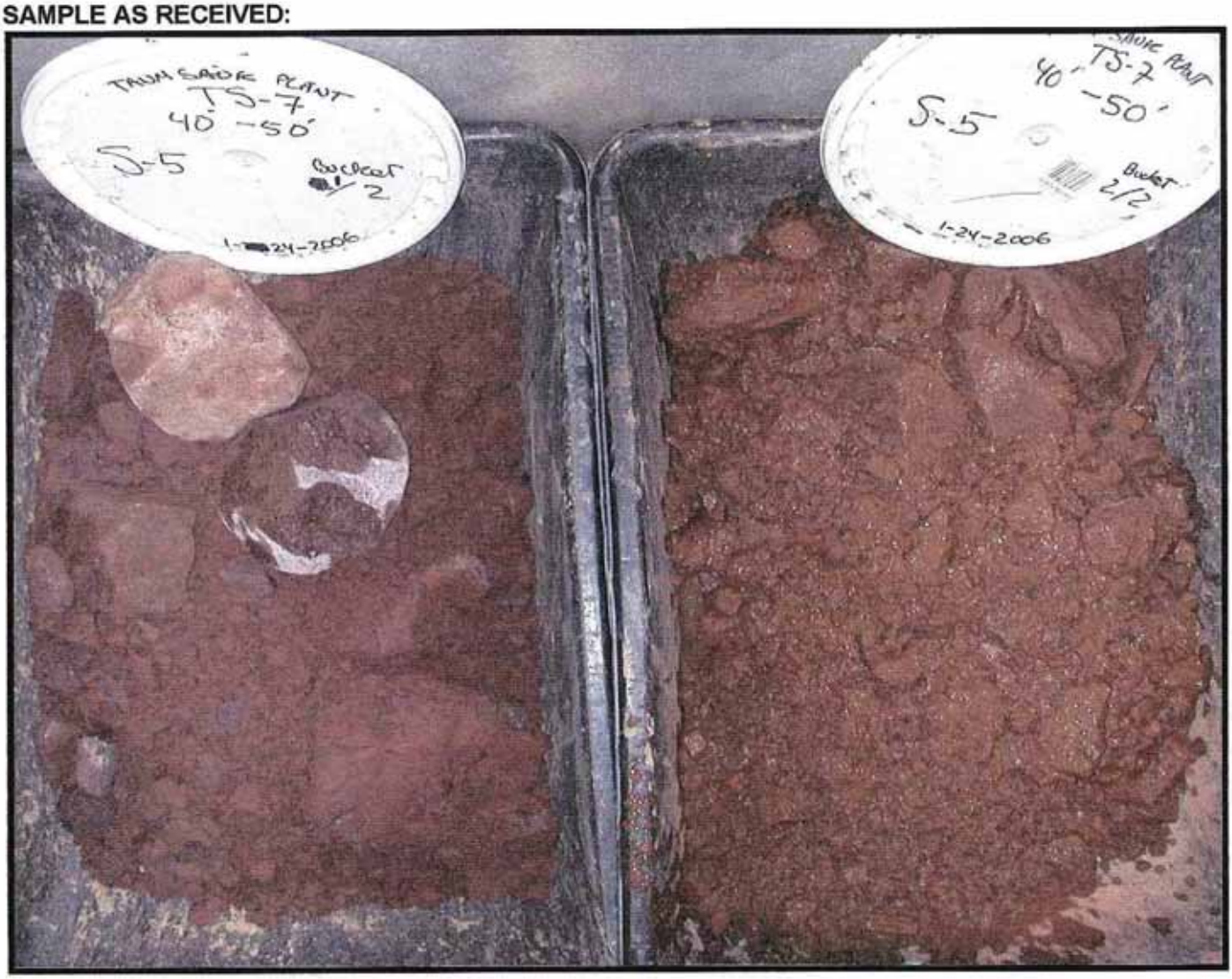
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	40'-50'
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-61		

SAMPLE AS RECEIVED:



geotechnics
INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-60'
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-62		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	60'-70'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-63		

SAMPLE AS RECEIVED:

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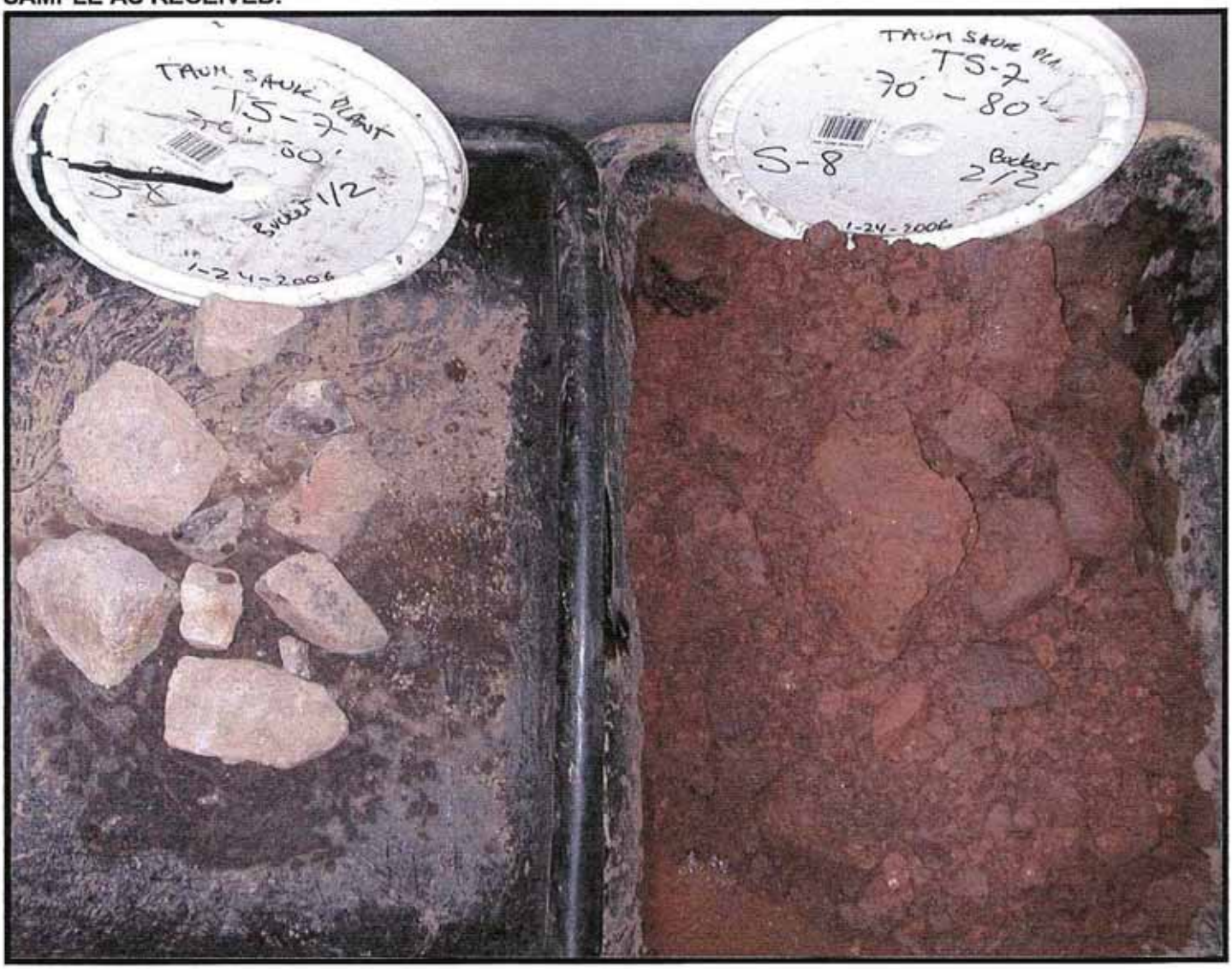
SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	70'-80'
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-64		

SAMPLE AS RECEIVED:



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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-7
Client Project	TAUM SAUK 06-3551	Depth (ft.)	80'-87'
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-65		

SAMPLE AS RECEIVED:

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SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-SOIL-01
Client Project	TAUM SAUK 06-3551	Depth (in.)	9"-14"
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-67		

SAMPLE AS RECEIVED:

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SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-SOIL-02
Client Project	TAUM SAUK 06-3551	Depth (in.)	7"-12"
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69		

SAMPLE AS RECEIVED:

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INTEGRITY IN TESTING

SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-6
Client Project	TAUM SAUK 06-3551	Depth (ft.)	50'-54'
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-02-01		

SAMPLE AS RECEIVED:

APPENDIX E3

LABORATORY DATA SHEETS

BORING TS-1

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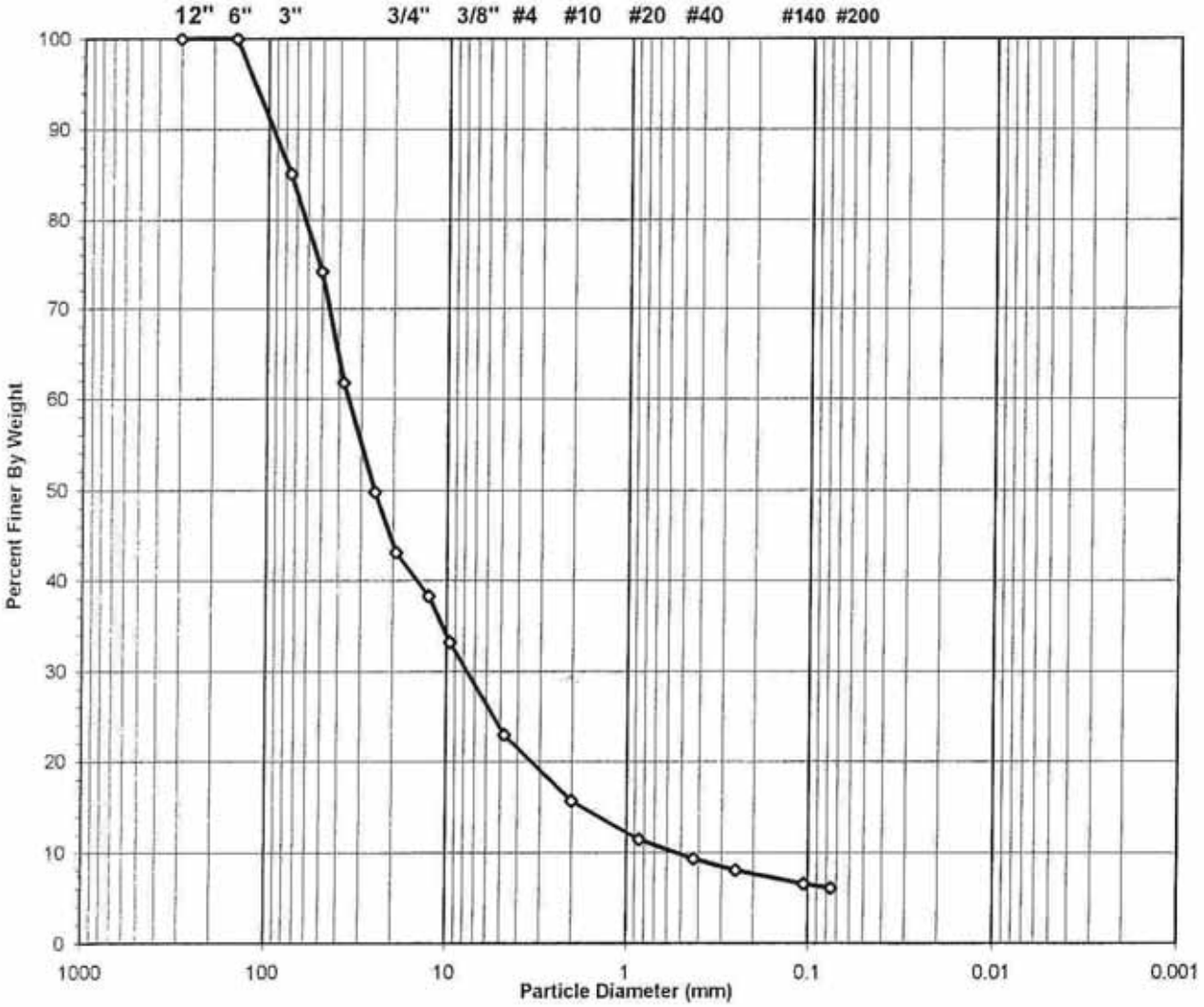
INTEGRITY IN TESTING

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-01	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	***gp-gm, ASSUMED***	**D60 =**	**35.3**	**CC =**	**3.1**
USCS Classification	***POORLY GRADED GRAVEL WITH SILT AND SAND***	**D30 =**	**7.7**	**CU =**	**66.4**
		D10 =	**0.5**		

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-53A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-01	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	656	Tare No.	1744
Wgt.Tare + Wet Specimen (gm)	1541.90	Wgt.Tare + Wet Specimen (gm)	1199.80
Wgt.Tare + Dry Specimen (gm)	1345.10	Wgt.Tare + Dry Specimen (gm)	1174.20
Weight of Tare (gm)	96.25	Weight of Tare (gm)	83.52
Weight of Water (gm)	196.80	Weight of Water (gm)	25.60
Weight of Dry Soil (gm)	1248.85	Weight of Dry Soil (gm)	1090.68
Moisture Content (%)	**15.8**	**Moisture Content (%)**	**2.3**

Wet Weight -3/4" Sample (gm)	12175	Weight of the Dry Specimen (gm)	1248.85
Dry Weight - 3/4" Sample (gm)	10517.6	Weight of minus #200 material (gm)	175.08
Wet Weight +3/4" Sample (gm)	14185.00	Weight of plus #200 material (gm)	1073.77
Dry Weight + 3/4" Sample (gm)	13859.69		
Total Dry Weight Sample (gm)	24377.3	**J - Factor (Percent Finer than 3/4")**	**0.4315**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	3722.00		14.92	14.92	85.08	**85.08**
2"	50	2740.00	(*)	10.98	25.90	74.10	**74.10**
1 1/2"	37.5	3073.00		12.32	38.22	61.78	**61.78**
1"	25	2990.00		11.98	50.20	49.80	**49.80**
3/4"	19	1660.00		6.65	56.85	43.15	**43.15**
1/2"	12.5	141.29		11.31	11.31	88.69	**38.26**
3/8"	9.5	147.11		11.78	23.09	76.91	**33.18**
#4	4.75	295.67		23.68	46.77	53.23	**22.97**
#10	2	209.70		16.79	63.56	36.44	**15.72**
#20	0.85	122.91	(**)	9.84	73.40	26.60	**11.48**
#40	0.425	63.08		5.05	78.45	21.55	**9.30**
#60	0.25	36.73		2.94	81.39	18.61	**8.03**
#140	0.106	44.50		3.56	84.96	15.04	**6.49**
#200	0.075	12.78		1.02	85.98	14.02	**6.05**
Pan	-	175.08		14.02	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By HB Date 2-23-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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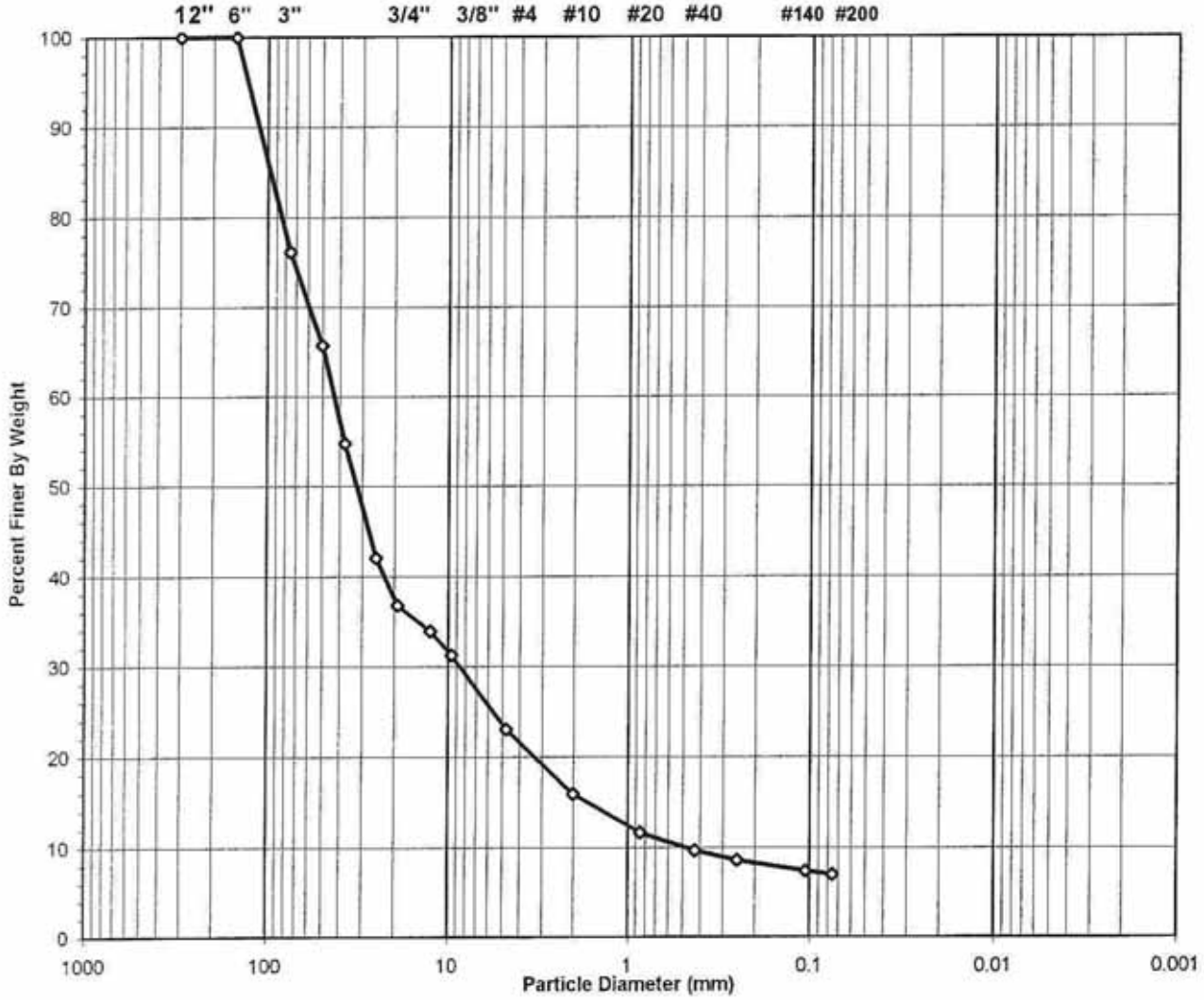
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-02	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gp-gm, ASSUMED*	D60 =	43.0	CC =	3.5
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND*	D30 =	8.5	CU =	90.0
		D10 =	0.5		

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

 DCN: CT-S3A DATE 6-26-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U246.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-02	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2485	Tare No.	591
Wgt.Tare + Wet Specimen (gm)	1337.20	Wgt.Tare + Wet Specimen (gm)	633.90
Wgt.Tare + Dry Specimen (gm)	1147.30	Wgt.Tare + Dry Specimen (gm)	615.90
Weight of Tare (gm)	99.92	Weight of Tare (gm)	87.50
Weight of Water (gm)	189.90	Weight of Water (gm)	18.00
Weight of Dry Soil (gm)	1047.38	Weight of Dry Soil (gm)	528.40
Moisture Content (%)	**18.1**	**Moisture Content (%)**	**3.4**

Wet Weight -3/4" Sample (gm)	20860	Weight of the Dry Specimen (gm)	1047.38
Dry Weight - 3/4" Sample (gm)	17658.4	Weight of minus #200 material (gm)	199.39
Wet Weight +3/4" Sample (gm)	31350.00	Weight of plus #200 material (gm)	847.99
Dry Weight + 3/4" Sample (gm)	30317.24		
Total Dry Weight Sample (gm)	47975.6	**J - Factor (Percent Finer than 3/4")**	**0.3681**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	11848.00		23.88	23.88	76.12	**76.12**
2"	50	5184.00	(*)	10.45	34.33	65.67	**65.67**
1 1/2"	37.5	5397.00		10.88	45.21	54.79	**54.79**
1"	25	6309.00		12.72	57.93	42.07	**42.07**
3/4"	19	2612.00		5.27	63.19	36.81	**36.81**
1/2"	12.5	81.12		7.75	7.75	92.25	**33.96**
3/8"	9.5	76.63		7.32	15.06	84.94	**31.26**
#4	4.75	232.35		22.18	37.25	62.75	**23.10**
#10	2	205.08		19.58	56.83	43.17	**15.89**
#20	0.85	120.90	(**)	11.54	68.37	31.63	**11.64**
#40	0.425	56.35		5.38	73.75	26.25	**9.66**
#60	0.25	30.14		2.88	76.63	23.37	**8.60**
#140	0.106	35.10		3.35	79.98	20.02	**7.37**
#200	0.075	10.32		0.99	80.96	19.04	**7.01**
Pan	-	199.39		19.04	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By YKB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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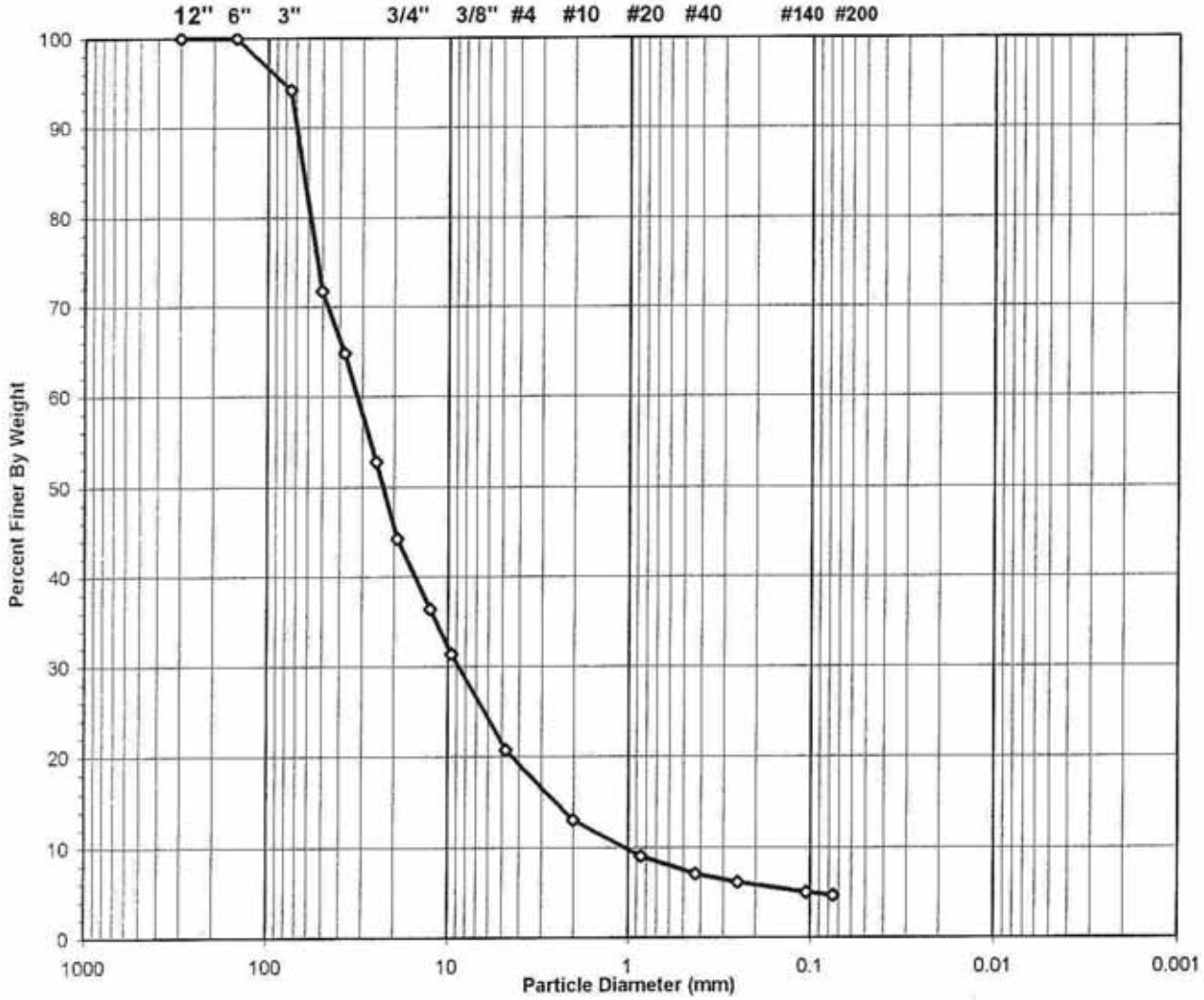
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-40
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-03	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gw, ASSUMED*	D60 =	31.9	CC =	2.3
USCS Classification	*WELL-GRADED GRAVEL WITH SAND*	D30 =	8.7	CU =	30.6
		D10 =	1.0		

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-40
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-03	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	708	Tare No.	579
Wgt.Tare + Wet Specimen (gm)	1260.40	Wgt.Tare + Wet Specimen (gm)	545.06
Wgt.Tare + Dry Specimen (gm)	1121.60	Wgt.Tare + Dry Specimen (gm)	533.49
Weight of Tare (gm)	98.76	Weight of Tare (gm)	83.85
Weight of Water (gm)	138.80	Weight of Water (gm)	11.57
Weight of Dry Soil (gm)	1022.84	Weight of Dry Soil (gm)	449.64
Moisture Content (%)	**13.6**	**Moisture Content (%)**	**2.6**

Wet Weight -3/4" Sample (gm)	6457	Weight of the Dry Specimen (gm)	1022.84
Dry Weight - 3/4" Sample (gm)	5685.5	Weight of minus #200 material (gm)	107.53
Wet Weight +3/4" Sample (gm)	7356.00	Weight of plus #200 material (gm)	915.31
Dry Weight + 3/4" Sample (gm)	7171.47		
Total Dry Weight Sample (gm)	12856.9	**J - Factor (Percent Finer than 3/4")**	**0.4422**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	767.00		5.82	5.82	94.18	**94.18**
2"	50	2962.00	(*)	22.46	28.28	71.72	**71.72**
1 1/2"	37.5	909.00		6.89	35.17	64.83	**64.83**
1"	25	1590.00		12.06	47.23	52.77	**52.77**
3/4"	19	1128.00		8.55	55.78	44.22	**44.22**
1/2"	12.5	181.09		17.70	17.70	82.30	**36.39**
3/8"	9.5	115.22		11.26	28.97	71.03	**31.41**
#4	4.75	245.70		24.02	52.99	47.01	**20.79**
#10	2	179.40		17.54	70.53	29.47	**13.03**
#20	0.85	92.05	(**)	9.00	79.53	20.47	**9.05**
#40	0.425	45.61		4.46	83.99	16.01	**7.08**
#60	0.25	21.97		2.15	86.14	13.86	**6.13**
#140	0.106	25.73		2.52	88.65	11.35	**5.02**
#200	0.075	8.54		0.83	89.49	10.51	**4.65**
Pan	-	107.53		10.51	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

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DCN: CT-S3A DATE 5-17-00 REVISION 3

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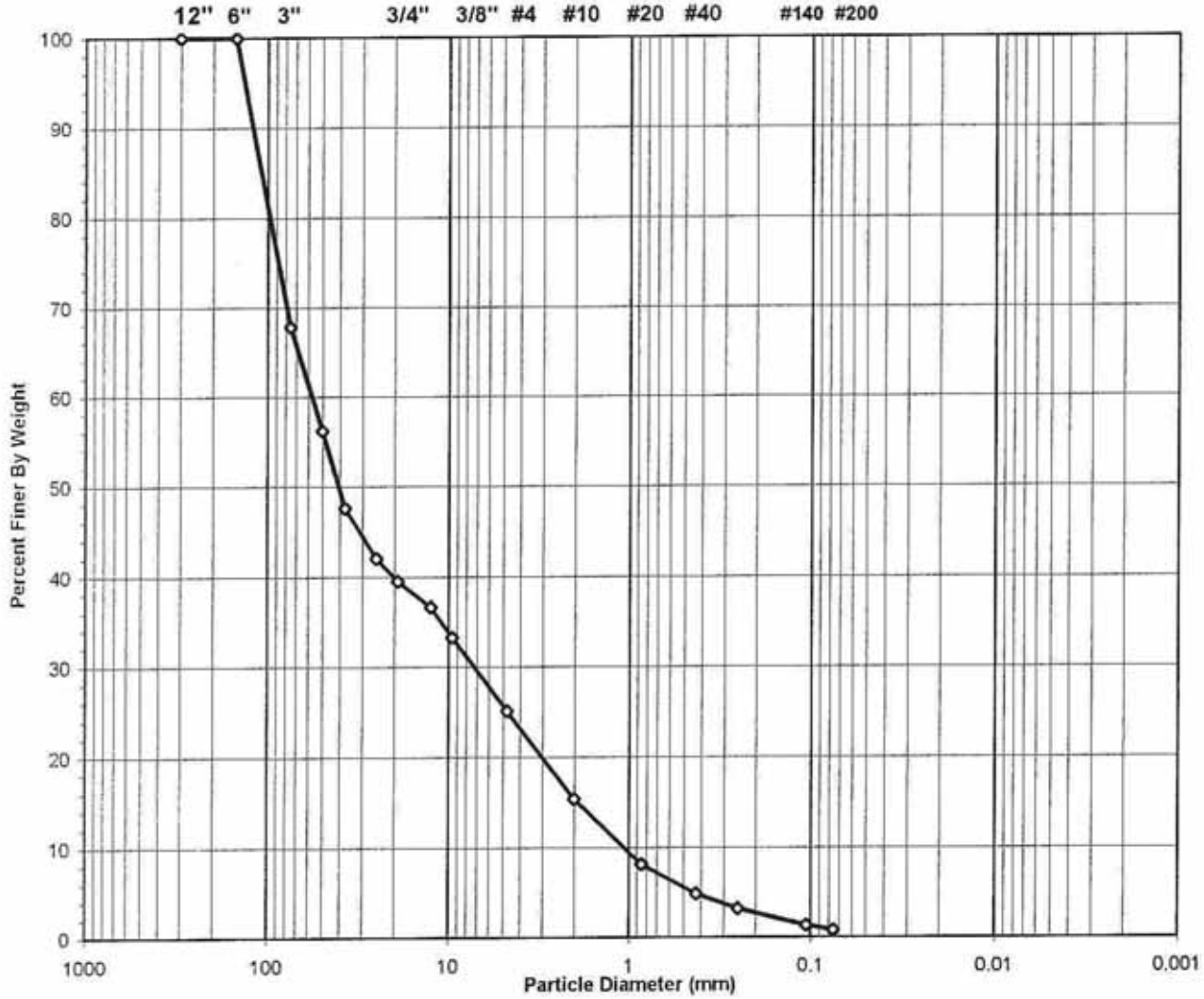
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-04	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	***gp, ASSUMED***	**D60 =**	**57.1**	**CC =**	**0.9**
USCS Classification	***POORLY GRADED GRAVEL WITH SAND***	**D30 =**	**7.2**	**CU =**	**53.7**
		D10 =	**1.1**		

Tested By PC Date 2/22/06 Checked By KVB Date 2-23-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U248.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-04	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2487	Tare No.	629
Wgt.Tare + Wet Specimen (gm)	1223.00	Wgt.Tare + Wet Specimen (gm)	487.62
Wgt.Tare + Dry Specimen (gm)	1015.20	Wgt.Tare + Dry Specimen (gm)	478.97
Weight of Tare (gm)	95.29	Weight of Tare (gm)	86.53
Weight of Water (gm)	207.80	Weight of Water (gm)	8.65
Weight of Dry Soil (gm)	919.91	Weight of Dry Soil (gm)	392.44
Moisture Content (%)	**22.6**	**Moisture Content (%)**	**2.2**

Wet Weight -3/4" Sample (gm)	2318	Weight of the Dry Specimen (gm)	919.91
Dry Weight - 3/4" Sample (gm)	1890.9	Weight of minus #200 material (gm)	19.15
Wet Weight +3/4" Sample (gm)	2955.00	Weight of plus #200 material (gm)	900.76
Dry Weight + 3/4" Sample (gm)	2891.27		
Total Dry Weight Sample (gm)	4782.1	**J - Factor (Percent Finer than 3/4")**	**0.3954**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	1575.00		32.22	32.22	67.78	**67.78**
2"	50	566.00	(*)	11.58	43.81	56.19	**56.19**
1 1/2"	37.5	423.00		8.65	52.46	47.54	**47.54**
1"	25	267.00		5.46	57.92	42.08	**42.08**
3/4"	19	124.00		2.54	60.46	39.54	**39.54**
1/2"	12.5	67.43		7.33	7.33	92.67	**36.64**
3/8"	9.5	78.56		8.54	15.87	84.13	**33.27**
#4	4.75	188.53		20.49	36.36	63.64	**25.16**
#10	2	227.52		24.73	61.10	38.90	**15.38**
#20	0.85	169.55	(**)	18.43	79.53	20.47	**8.09**
#40	0.425	75.71		8.23	87.76	12.24	**4.84**
#60	0.25	38.29		4.16	91.92	8.08	**3.19**
#140	0.106	43.52		4.73	96.65	3.35	**1.32**
#200	0.075	11.65		1.27	97.92	2.08	**0.82**
Pan	-	19.15		2.08	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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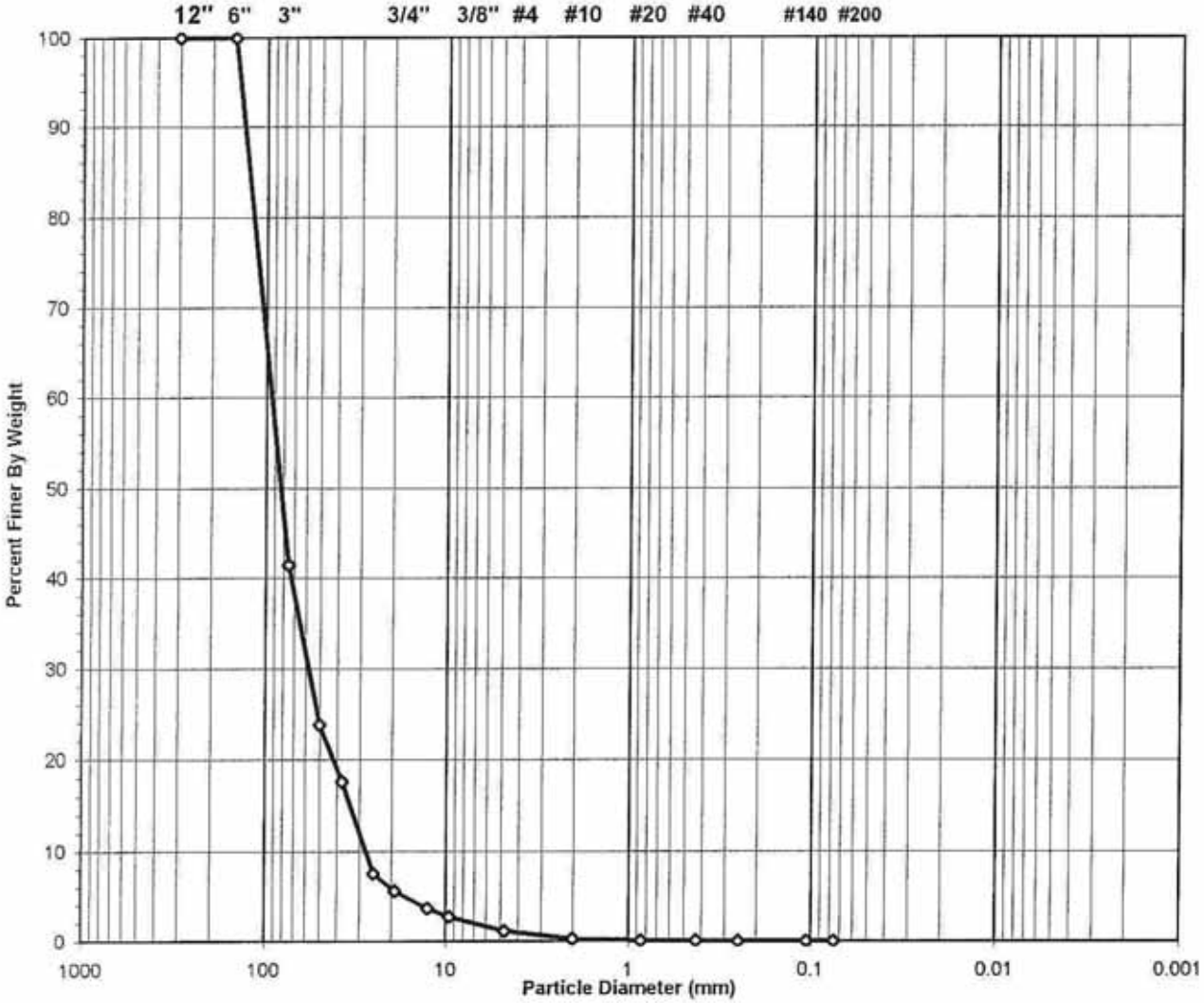
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-05	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/22/06 Checked By KYB Date 2-23-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-05	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	707	Tare No.	543
Wgt.Tare + Wet Specimen (gm)	339.80	Wgt.Tare + Wet Specimen (gm)	462.40
Wgt.Tare + Dry Specimen (gm)	332.80	Wgt.Tare + Dry Specimen (gm)	453.01
Weight of Tare (gm)	99.53	Weight of Tare (gm)	82.28
Weight of Water (gm)	7.00	Weight of Water (gm)	9.39
Weight of Dry Soil (gm)	233.27	Weight of Dry Soil (gm)	370.73
Moisture Content (%)	**3.0**	**Moisture Content (%)**	**2.5**

Wet Weight -3/4" Sample (gm)	251	Weight of the Dry Specimen (gm)	233.27
Dry Weight - 3/4" Sample (gm)	243.7	Weight of minus #200 material (gm)	0.94
Wet Weight +3/4" Sample (gm)	4226.00	Weight of plus #200 material (gm)	232.33
Dry Weight + 3/4" Sample (gm)	4121.61		
Total Dry Weight Sample (gm)	4365.3	**J - Factor (Percent Finer than 3/4")**	**0.0558**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	2620.00		58.54	58.54	41.46	**41.46**
2"	50	790.00	(*)	17.65	76.19	23.81	**23.81**
1 1/2"	37.5	277.00		6.19	82.38	17.62	**17.62**
1"	25	453.00		10.12	92.50	7.50	**7.50**
3/4"	19	86.00		1.92	94.42	5.58	**5.58**
1/2"	12.5	80.80		34.64	34.64	65.36	**3.65**
3/8"	9.5	37.49		16.07	50.71	49.29	**2.75**
#4	4.75	69.06		29.61	80.31	19.69	**1.10**
#10	2	35.08		15.04	95.35	4.65	**0.26**
#20	0.85	7.74	(**)	3.32	98.67	1.33	**0.07**
#40	0.425	1.46		0.63	99.30	0.70	**0.04**
#60	0.25	0.34		0.15	99.44	0.56	**0.03**
#140	0.106	0.20		0.09	99.53	0.47	**0.03**
#200	0.075	0.16		0.07	99.60	0.40	**0.02**
Pan	-	0.94		0.40	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KYB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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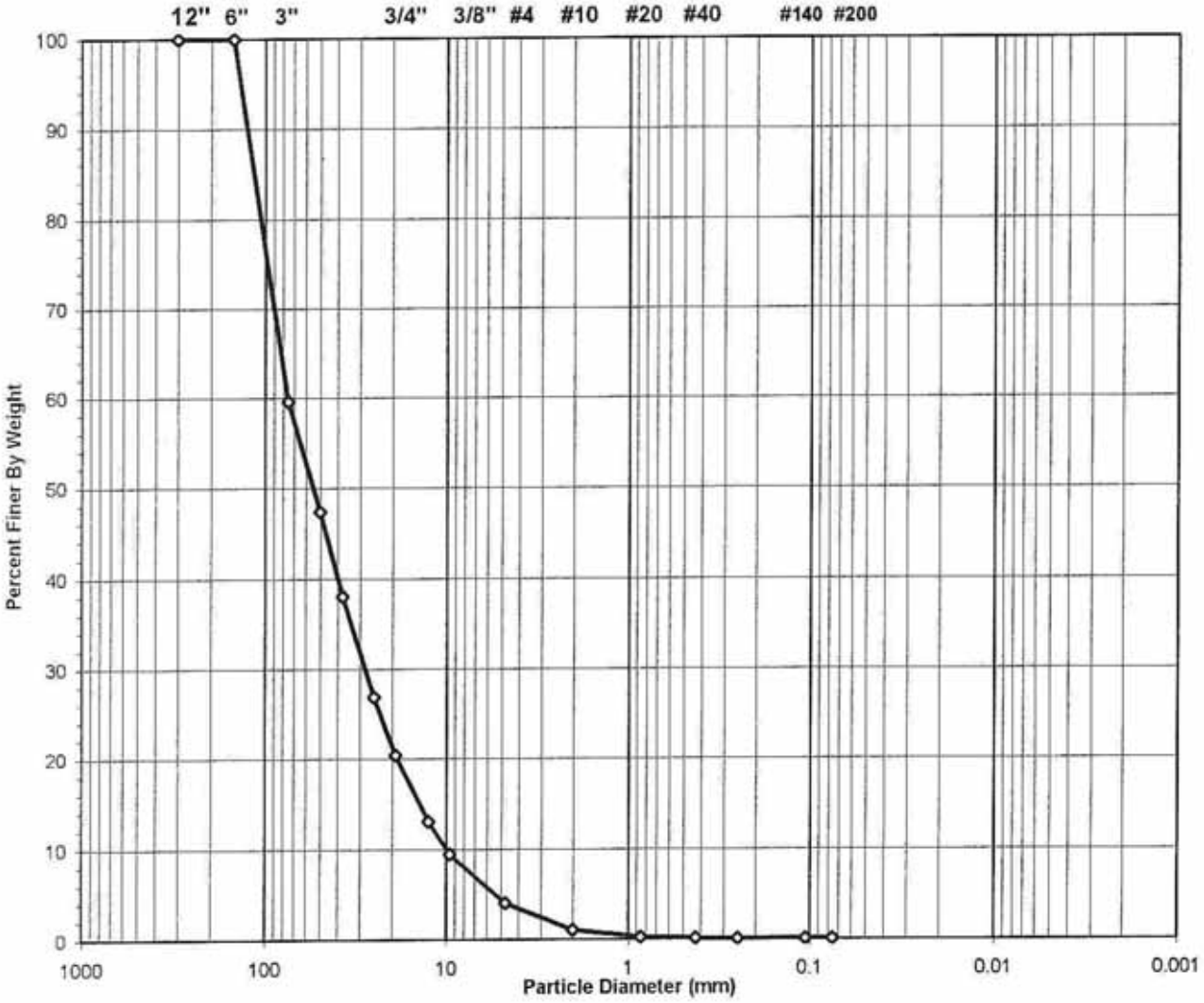
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-06	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/22/06 Checked By KLB Date 2-23-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U250.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-06	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	970	Tare No.	565
Wgt.Tare + Wet Specimen (gm)	1216.30	Wgt.Tare + Wet Specimen (gm)	882.00
Wgt.Tare + Dry Specimen (gm)	1175.30	Wgt.Tare + Dry Specimen (gm)	873.80
Weight of Tare (gm)	102.84	Weight of Tare (gm)	82.93
Weight of Water (gm)	41.00	Weight of Water (gm)	8.20
Weight of Dry Soil (gm)	1072.46	Weight of Dry Soil (gm)	790.87
Moisture Content (%)	**3.8**	**Moisture Content (%)**	**1.0**

Wet Weight -3/4" Sample (gm)	4626	Weight of the Dry Specimen (gm)	1072.46
Dry Weight - 3/4" Sample (gm)	4455.7	Weight of minus #200 material (gm)	2.83
Wet Weight +3/4" Sample (gm)	17547.00	Weight of plus #200 material (gm)	1069.63
Dry Weight + 3/4" Sample (gm)	17366.93		
Total Dry Weight Sample (gm)	21822.6	**J - Factor (Percent Finer than 3/4")**	**0.2042**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	8911.00		40.41	40.41	59.59	**59.59**
2"	50	2708.00	(*)	12.28	52.70	47.30	**47.30**
1 1/2"	37.5	2035.00		9.23	61.93	38.07	**38.07**
1"	25	2461.00		11.16	73.09	26.91	**26.91**
3/4"	19	1432.00		6.49	79.58	20.42	**20.42**
1/2"	12.5	385.91		35.98	35.98	64.02	**13.07**
3/8"	9.5	190.72		17.78	53.77	46.23	**9.44**
#4	4.75	283.16		26.40	80.17	19.83	**4.05**
#10	2	157.09		14.65	94.82	5.18	**1.06**
#20	0.85	42.59	(**)	3.97	98.79	1.21	**0.25**
#40	0.425	7.38		0.69	99.48	0.52	**0.11**
#60	0.25	1.47		0.14	99.61	0.39	**0.08**
#140	0.106	1.01		0.09	99.71	0.29	**0.06**
#200	0.075	0.30		0.03	99.74	0.26	**0.05**
Pan	-	2.83		0.26	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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Dry Density

Client	PC RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-02	Sample No.	S-7
Lab ID	2006-060-01	Test Type	CORE

Visual Description: Reddish Gray Rock

Weight of Wet Soil + Tare (gm)	8389.00
Weight of Tare (gm)	0.00
Volume (cm^3)	3192.00

MOISTURE / DENSITY

Tare Number	X
Wt. of Tare & WS (gm)	8389.00
Wt. of Tare & DS (gm)	8382.00
Wt. of Tare (gm)	0.00
Wt. of Water (gm)	7.00
Wt. of DS (gm)	8382.00
Wet Density (gm/cc)	2.63
Wet Density (pcf)	164.1
Moisture Content (%)	**0.1**
Dry Density (pcf)	**163.9**

Tested By DB *Date* 3/23/06 *Checked By* KB *Date* 3-23-06

 DCN: LD Date: 4/26/04 Revision: 1 I:\Excel\Excel Qa\Spreadsheets\[Bucket Density.XLS]Sheet1

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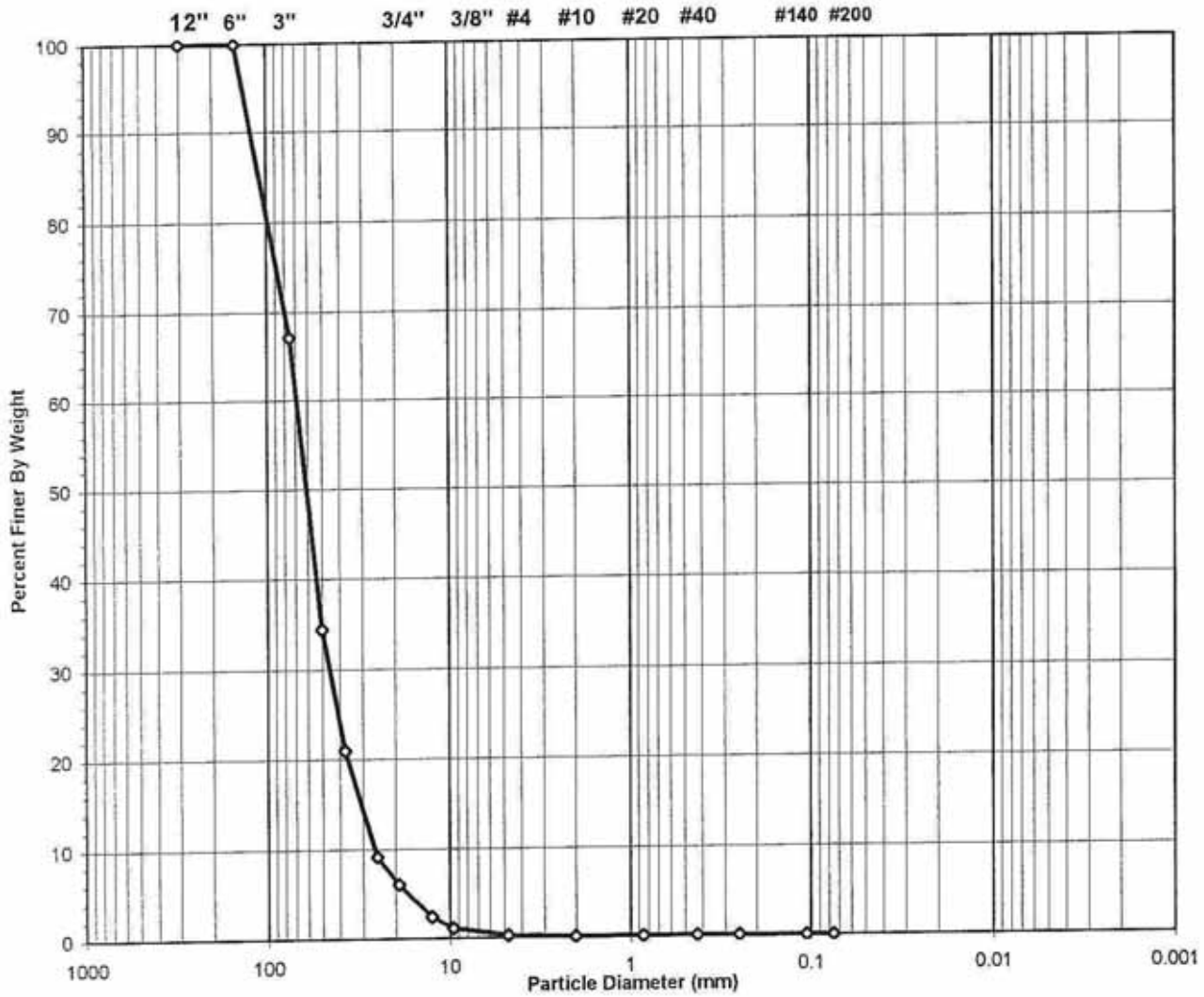
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-07	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	68.7	CC =	1.2
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	45.5	CU =	2.7
		D10 =	25.8		

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-07	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2327	Tare No.	628
Wgt.Tare + Wet Specimen (gm)	825.80	Wgt.Tare + Wet Specimen (gm)	397.57
Wgt.Tare + Dry Specimen (gm)	813.20	Wgt.Tare + Dry Specimen (gm)	392.85
Weight of Tare (gm)	98.51	Weight of Tare (gm)	85.22
Weight of Water (gm)	12.60	Weight of Water (gm)	4.72
Weight of Dry Soil (gm)	714.69	Weight of Dry Soil (gm)	307.63
Moisture Content (%)	**1.8**	**Moisture Content (%)**	**1.5**

Wet Weight -3/4" Sample (gm)	748	Weight of the Dry Specimen (gm)	714.69
Dry Weight - 3/4" Sample (gm)	735.0	Weight of minus #200 material (gm)	2.72
Wet Weight +3/4" Sample (gm)	11690.00	Weight of plus #200 material (gm)	711.97
Dry Weight + 3/4" Sample (gm)	11513.35		
Total Dry Weight Sample (gm)	12248.4	**J - Factor (Percent Finer than 3/4")**	**0.0600**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	4090.00		32.89	32.89	67.11	**67.11**
2"	50	4060.00	(*)	32.65	65.53	34.47	**34.47**
1 1/2"	37.5	1680.00		13.51	79.04	20.96	**20.96**
1"	25	1471.00		11.83	90.87	9.13	**9.13**
3/4"	19	389.00		3.13	94.00	6.00	**6.00**
1/2"	12.5	425.86		59.59	59.59	40.41	**2.43**
3/8"	9.5	151.91		21.26	80.84	19.16	**1.15**
#4	4.75	107.80		15.08	95.93	4.07	**0.24**
#10	2	19.85		2.78	98.70	1.30	**0.08**
#20	0.85	3.35	(**)	0.47	99.17	0.83	**0.05**
#40	0.425	1.20		0.17	99.34	0.66	**0.04**
#60	0.25	0.64		0.09	99.43	0.57	**0.03**
#140	0.106	1.00		0.14	99.57	0.43	**0.03**
#200	0.075	0.36		0.05	99.62	0.38	**0.02**
Pan	-	2.72		0.38	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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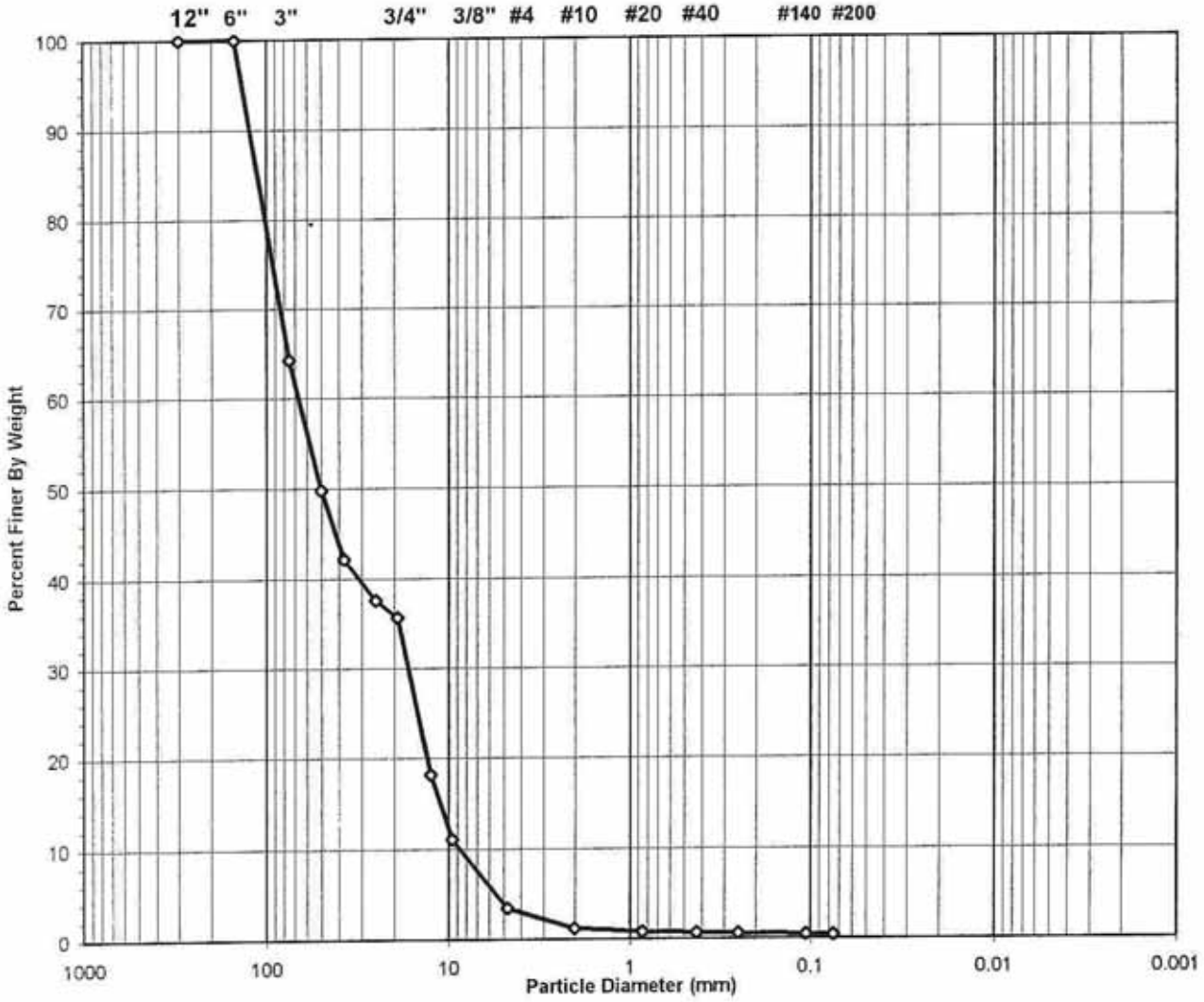
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-90
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-08	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	66.5	CC =	0.5
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	16.6	CU =	7.7
		D10 =	8.6		

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\U252.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-90
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-08	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	637	Tare No.	673
Wgt.Tare + Wet Specimen (gm)	1338.70	Wgt.Tare + Wet Specimen (gm)	547.31
Wgt.Tare + Dry Specimen (gm)	1291.50	Wgt.Tare + Dry Specimen (gm)	538.89
Weight of Tare (gm)	101.40	Weight of Tare (gm)	72.66
Weight of Water (gm)	47.20	Weight of Water (gm)	8.42
Weight of Dry Soil (gm)	1190.10	Weight of Dry Soil (gm)	466.23
Moisture Content (%)	**4.0**	**Moisture Content (%)**	**1.8**

Wet Weight -3/4" Sample (gm)	13864	Weight of the Dry Specimen (gm)	1190.10
Dry Weight - 3/4" Sample (gm)	13335.1	Weight of minus #200 material (gm)	14.00
Wet Weight +3/4" Sample (gm)	24495.00	Weight of plus #200 material (gm)	1176.10
Dry Weight + 3/4" Sample (gm)	24060.47		
Total Dry Weight Sample (gm)	37395.6	**J - Factor (Percent Finer than 3/4")**	**0.3566**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	13593.00		35.70	35.70	64.30	**64.30**
2"	50	5532.00	(*)	14.53	50.24	49.76	**49.76**
1 1/2"	37.5	2881.00		7.57	57.80	42.20	**42.20**
1"	25	1760.00		4.62	62.43	37.57	**37.57**
3/4"	19	729.00		1.91	64.34	35.66	**35.66**
1/2"	12.5	583.50		49.03	49.03	50.97	**18.18**
3/8"	9.5	237.61		19.97	69.00	31.00	**11.06**
#4	4.75	253.79		21.33	90.32	9.68	**3.45**
#10	2	75.37		6.33	96.65	3.35	**1.19**
#20	0.85	13.38	(**)	1.12	97.78	2.22	**0.79**
#40	0.425	4.24		0.36	98.13	1.87	**0.67**
#60	0.25	2.69		0.23	98.36	1.64	**0.58**
#140	0.106	4.14		0.35	98.71	1.29	**0.46**
#200	0.075	1.38		0.12	98.82	1.18	**0.42**
Pan	-	14.00		1.18	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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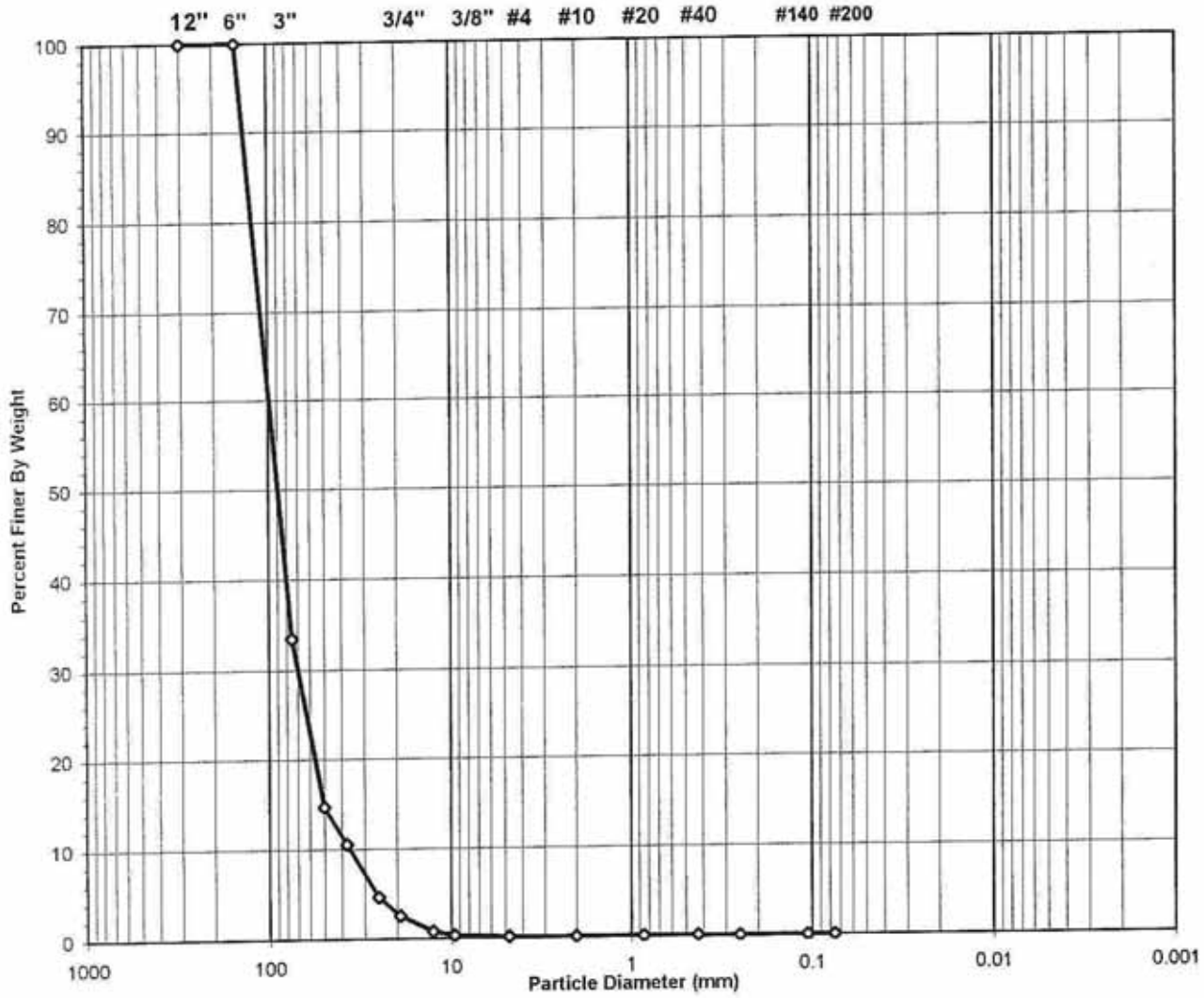
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-100
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-09	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/22/06 Checked By KYB Date 2-23-06

DCN: CT-S3A DATE 6-25-08 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-100
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-09	Soil Color	**REDDISH BROWN AND GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1619	Tare No.	604
Wgt.Tare + Wet Specimen (gm)	482.50	Wgt.Tare + Wet Specimen (gm)	891.30
Wgt.Tare + Dry Specimen (gm)	479.15	Wgt.Tare + Dry Specimen (gm)	888.20
Weight of Tare (gm)	95.51	Weight of Tare (gm)	87.13
Weight of Water (gm)	3.35	Weight of Water (gm)	3.10
Weight of Dry Soil (gm)	383.64	Weight of Dry Soil (gm)	801.07
Moisture Content (%)	**0.9**	**Moisture Content (%)**	**0.4**

Wet Weight -3/4" Sample (gm)	493	Weight of the Dry Specimen (gm)	383.64
Dry Weight - 3/4" Sample (gm)	488.7	Weight of minus #200 material (gm)	3.87
Wet Weight +3/4" Sample (gm)	18976.00	Weight of plus #200 material (gm)	379.77
Dry Weight + 3/4" Sample (gm)	18902.85		
Total Dry Weight Sample (gm)	19391.6	**J - Factor (Percent Finer than 3/4")**	**0.0252**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	12942.00		66.48	66.48	33.52	**33.52**
2"	50	3660.00	(*)	18.80	85.28	14.72	**14.72**
1 1/2"	37.5	812.00		4.17	89.46	10.54	**10.54**
1"	25	1162.00		5.97	95.42	4.58	**4.58**
3/4"	19	400.00		2.05	97.48	2.52	**2.52**
1/2"	12.5	259.58		67.66	67.66	32.34	**0.82**
3/8"	9.5	69.50		18.12	85.78	14.22	**0.36**
#4	4.75	38.90		10.14	95.92	4.08	**0.10**
#10	2	6.96		1.81	97.73	2.27	**0.06**
#20	0.85	2.33	(**)	0.61	98.34	1.66	**0.04**
#40	0.425	0.89		0.23	98.57	1.43	**0.04**
#60	0.25	0.52		0.14	98.71	1.29	**0.03**
#140	0.106	0.77		0.20	98.91	1.09	**0.03**
#200	0.075	0.32		0.08	98.99	1.01	**0.03**
Pan	-	3.87		1.01	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

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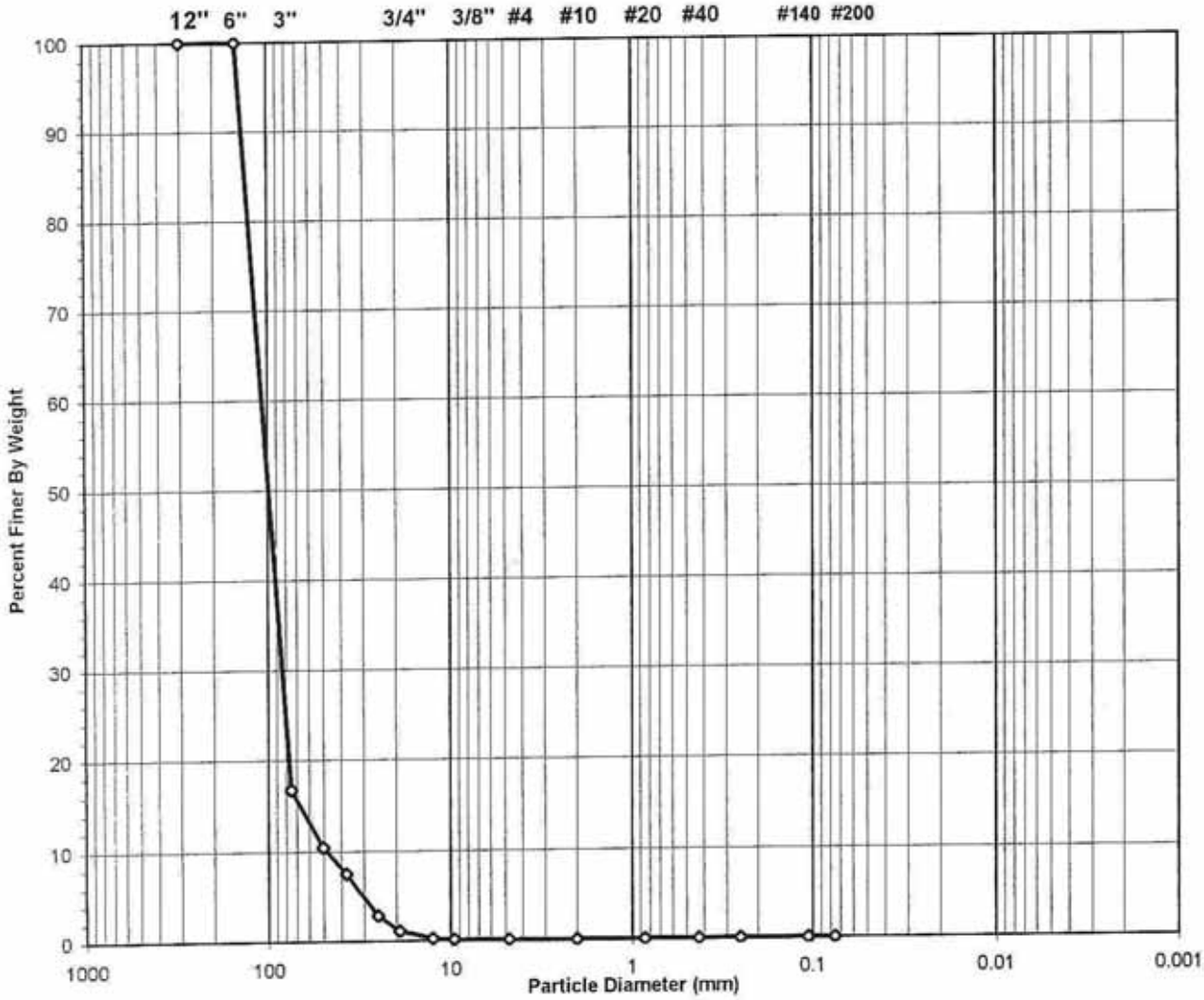
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-10	Soil Color	REDDISH BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol *gp, ASSUMED*

USCS Classification *POORLY GRADED GRAVEL*

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DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-10	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	669	Tare No.	607
Wgt.Tare + Wet Specimen (gm)	323.19	Wgt.Tare + Wet Specimen (gm)	422.02
Wgt.Tare + Dry Specimen (gm)	320.14	Wgt.Tare + Dry Specimen (gm)	419.52
Weight of Tare (gm)	96.83	Weight of Tare (gm)	83.05
Weight of Water (gm)	3.05	Weight of Water (gm)	2.50
Weight of Dry Soil (gm)	223.31	Weight of Dry Soil (gm)	336.47
Moisture Content (%)	**1.4**	**Moisture Content (%)**	**0.7**

Wet Weight -3/4" Sample (gm)	230	Weight of the Dry Specimen (gm)	223.31
Dry Weight - 3/4" Sample (gm)	226.9	Weight of minus #200 material (gm)	0.67
Wet Weight +3/4" Sample (gm)	19751.00	Weight of plus #200 material (gm)	222.64
Dry Weight + 3/4" Sample (gm)	19605.33		
Total Dry Weight Sample (gm)	19832.2	**J - Factor (Percent Finer than 3/4")**	**0.0114**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	16632.00		83.24	83.24	16.76	**16.76**
2"	50	1265.00	(*)	6.33	89.58	10.42	**10.42**
1 1/2"	37.5	574.00		2.87	92.45	7.55	**7.55**
1"	25	937.00		4.69	97.14	2.86	**2.86**
3/4"	19	343.00		1.72	98.86	1.14	**1.14**
1/2"	12.5	167.57		75.04	75.04	24.96	**0.29**
3/8"	9.5	28.75		12.87	87.91	12.09	**0.14**
#4	4.75	19.43		8.70	96.61	3.39	**0.04**
#10	2	5.35		2.40	99.01	0.99	**0.01**
#20	0.85	0.72	(**)	0.32	99.33	0.67	**0.01**
#40	0.425	0.31		0.14	99.47	0.53	**0.01**
#60	0.25	0.17		0.08	99.55	0.45	**0.01**
#140	0.106	0.22		0.10	99.65	0.35	**0.00**
#200	0.075	0.12		0.05	99.70	0.30	**0.00**
Pan	-	0.67		0.30	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By PC Date 2/22/06 Checked By KYB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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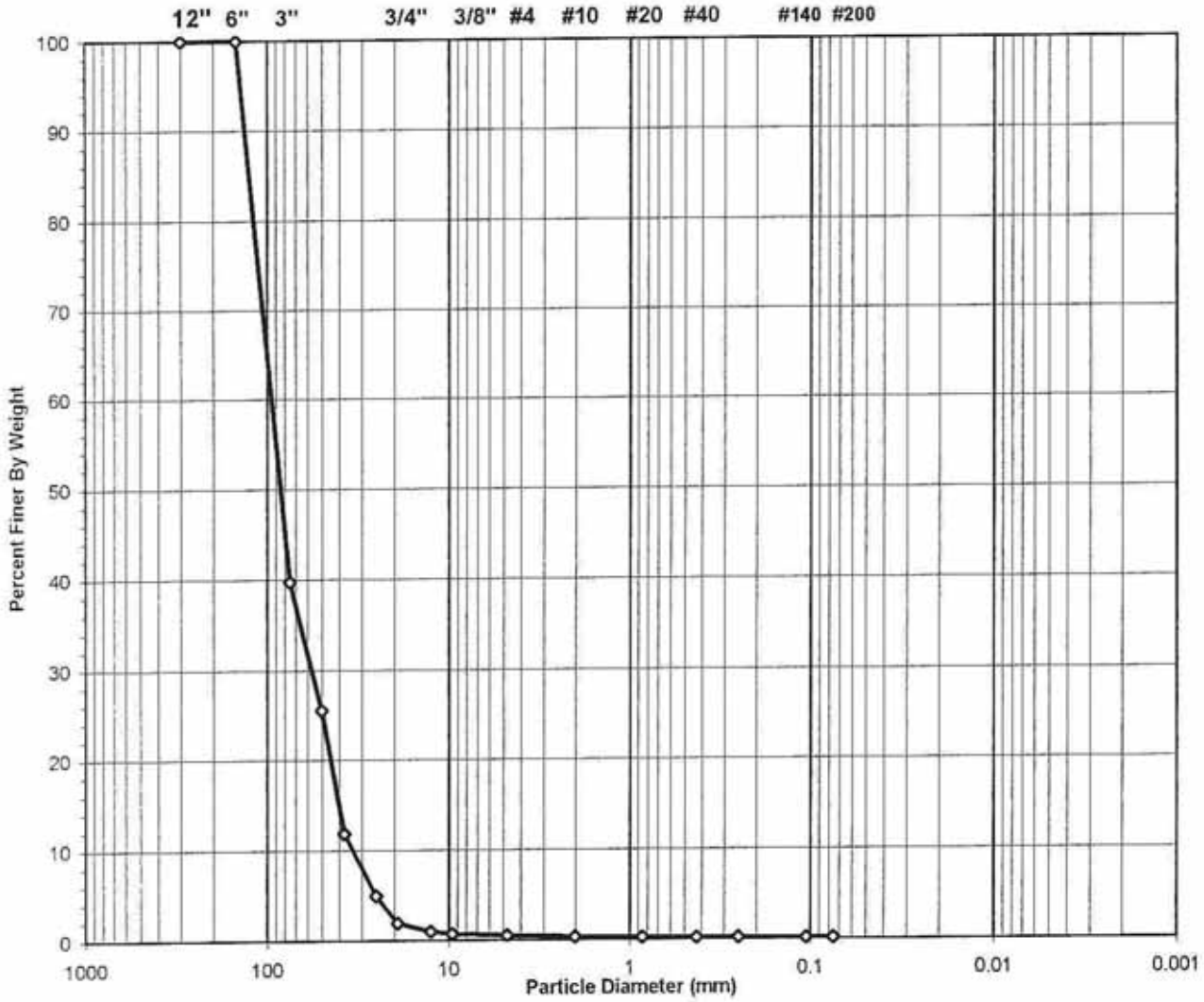
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	100-103
Project No.	2006-060-01	Sample No.	S-11
Lab ID	2006-060-01-11	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/22/06 Checked By KYB Date 2-23-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U255.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	100-103
Project No.	2006-060-01	Sample No.	S-11
Lab ID	2006-060-01-11	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	950	Tare No.	872
Wgt.Tare + Wet Specimen (gm)	372.60	Wgt.Tare + Wet Specimen (gm)	983.40
Wgt.Tare + Dry Specimen (gm)	361.77	Wgt.Tare + Dry Specimen (gm)	974.10
Weight of Tare (gm)	102.82	Weight of Tare (gm)	110.55
Weight of Water (gm)	10.83	Weight of Water (gm)	9.30
Weight of Dry Soil (gm)	258.95	Weight of Dry Soil (gm)	863.55
Moisture Content (%)	**4.2**	**Moisture Content (%)**	**1.1**

Wet Weight -3/4" Sample (gm)	303	Weight of the Dry Specimen (gm)	258.95
Dry Weight - 3/4" Sample (gm)	290.8	Weight of minus #200 material (gm)	20.96
Wet Weight +3/4" Sample (gm)	15087.00	Weight of plus #200 material (gm)	237.99
Dry Weight + 3/4" Sample (gm)	14926.25		
Total Dry Weight Sample (gm)	15217.1	**J - Factor (Percent Finer than 3/4")**	**0.0191**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	9275.00		60.30	60.30	39.70	**39.70**
2"	50	2175.00	(*)	14.14	74.44	25.56	**25.56**
1 1/2"	37.5	2105.00		13.69	88.13	11.87	**11.87**
1"	25	1068.00		6.94	95.07	4.93	**4.93**
3/4"	19	464.00		3.02	98.09	1.91	**1.91**
1/2"	12.5	123.84		47.82	47.82	52.18	**1.00**
3/8"	9.5	37.88		14.63	62.45	37.55	**0.72**
#4	4.75	29.15		11.26	73.71	26.29	**0.50**
#10	2	21.22		8.19	81.90	18.10	**0.35**
#20	0.85	11.48	(**)	4.43	86.34	13.66	**0.26**
#40	0.425	6.01		2.32	88.66	11.34	**0.22**
#60	0.25	2.89		1.12	89.77	10.23	**0.20**
#140	0.106	4.10		1.58	91.36	8.64	**0.17**
#200	0.075	1.42		0.55	91.91	8.09	**0.15**
Pan	-	20.96		8.09	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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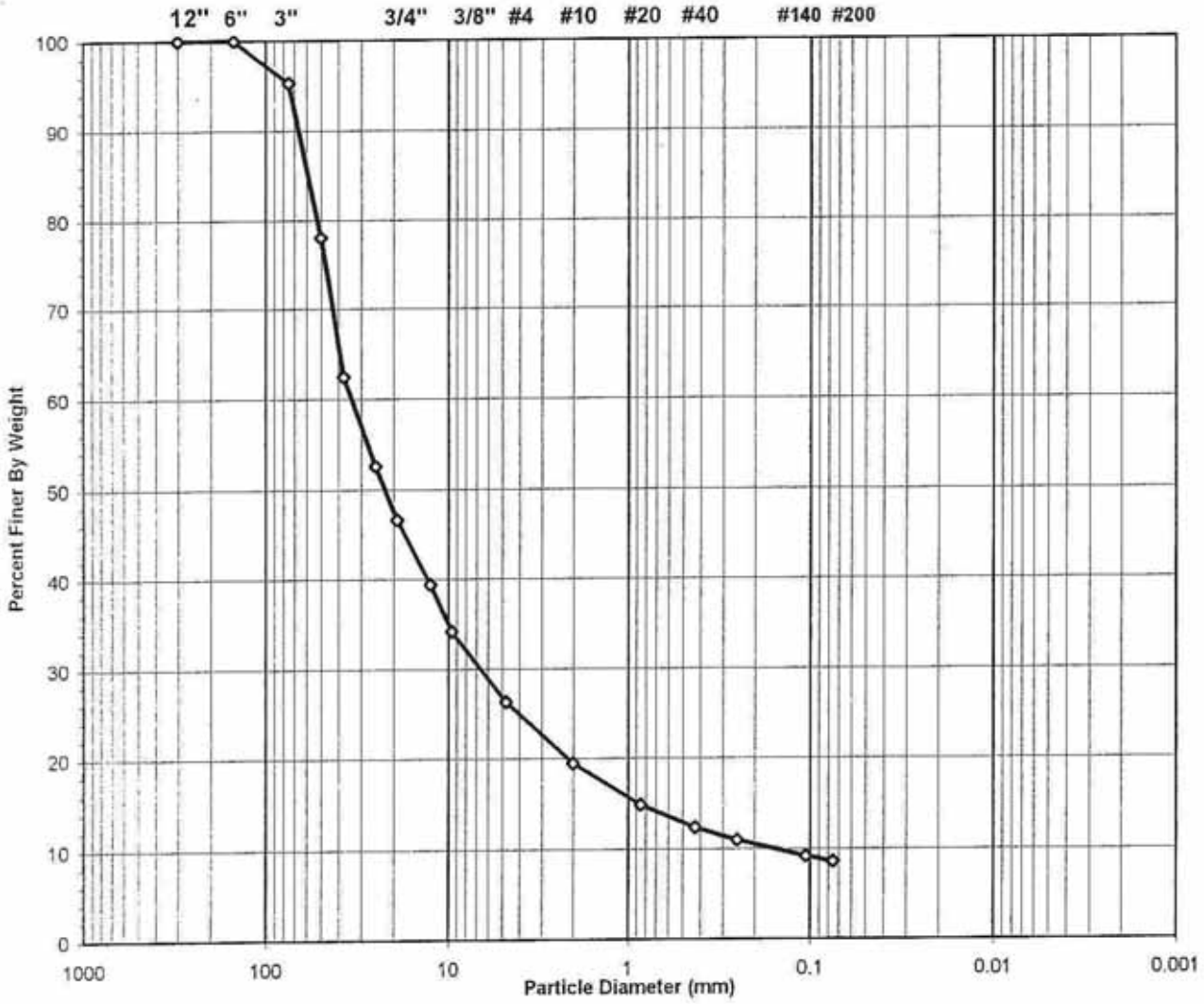
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	103-105
Project No.	2006-060-01	Sample No.	S-12
Lab ID	2006-060-01-12	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	***GP-GM, TESTED***	**D60 =**	**33.9**	**CC =**	**8.1**
USCS Classification	***POORLY GRADED GRAVEL WITH SILT AND SAND (NON-PLASTIC FINES)***	**D30 =**	**6.5**	**CU =**	**216.3**
		D10 =	**0.2**		

Tested By PC Date 2/22/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	103-105
Project No.	2006-060-01	Sample No.	S-12
Lab ID	2006-060-01-12	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	658	Tare No.	615
Wgt.Tare + Wet Specimen (gm)	1333.80	Wgt.Tare + Wet Specimen (gm)	591.33
Wgt.Tare + Dry Specimen (gm)	1273.90	Wgt.Tare + Dry Specimen (gm)	581.89
Weight of Tare (gm)	97.61	Weight of Tare (gm)	84.25
Weight of Water (gm)	59.90	Weight of Water (gm)	9.44
Weight of Dry Soil (gm)	1176.29	Weight of Dry Soil (gm)	497.64
Moisture Content (%)	**5.1**	**Moisture Content (%)**	**1.9**

Wet Weight -3/4" Sample (gm)	15756	Weight of the Dry Specimen (gm)	1176.29
Dry Weight - 3/4" Sample (gm)	14992.5	Weight of minus #200 material (gm)	215.70
Wet Weight +3/4" Sample (gm)	17482.00	Weight of plus #200 material (gm)	960.59
Dry Weight + 3/4" Sample (gm)	17156.55		
Total Dry Weight Sample (gm)	32149.1	**J - Factor (Percent Finer than 3/4")**	**0.4663**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	1534.00		4.68	4.68	95.32	**95.32**
2"	50	5663.00	(*)	17.29	21.97	78.03	**78.03**
1 1/2"	37.5	5088.00		15.53	37.50	62.50	**62.50**
1"	25	3257.00		9.94	47.44	52.56	**52.56**
3/4"	19	1940.00		5.92	53.37	46.63	**46.63**
1/2"	12.5	183.50		15.60	15.60	84.40	**39.36**
3/8"	9.5	129.55		11.01	26.61	73.39	**34.22**
#4	4.75	197.94		16.83	43.44	56.56	**26.38**
#10	2	173.93		14.79	58.23	41.77	**19.48**
#20	0.85	114.81	(**)	9.76	67.99	32.01	**14.93**
#40	0.425	64.90		5.52	73.50	26.50	**12.36**
#60	0.25	34.90		2.97	76.47	23.53	**10.97**
#140	0.106	44.95		3.82	80.29	19.71	**9.19**
#200	0.075	16.11		1.37	81.66	18.34	**8.55**
Pan	-	215.70		18.34	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KLB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-1
Client Reference	TAUM SAUK 06-3551	Depth (ft)	103-105
Project No.	2006-060-01	Sample No.	S-12
Lab ID	2006-060-01-12	Visual Description	**BROWN SILT**
			(Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By DB Date 2/24/06 Checked By YKB Date 2-27-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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BORING TS-2

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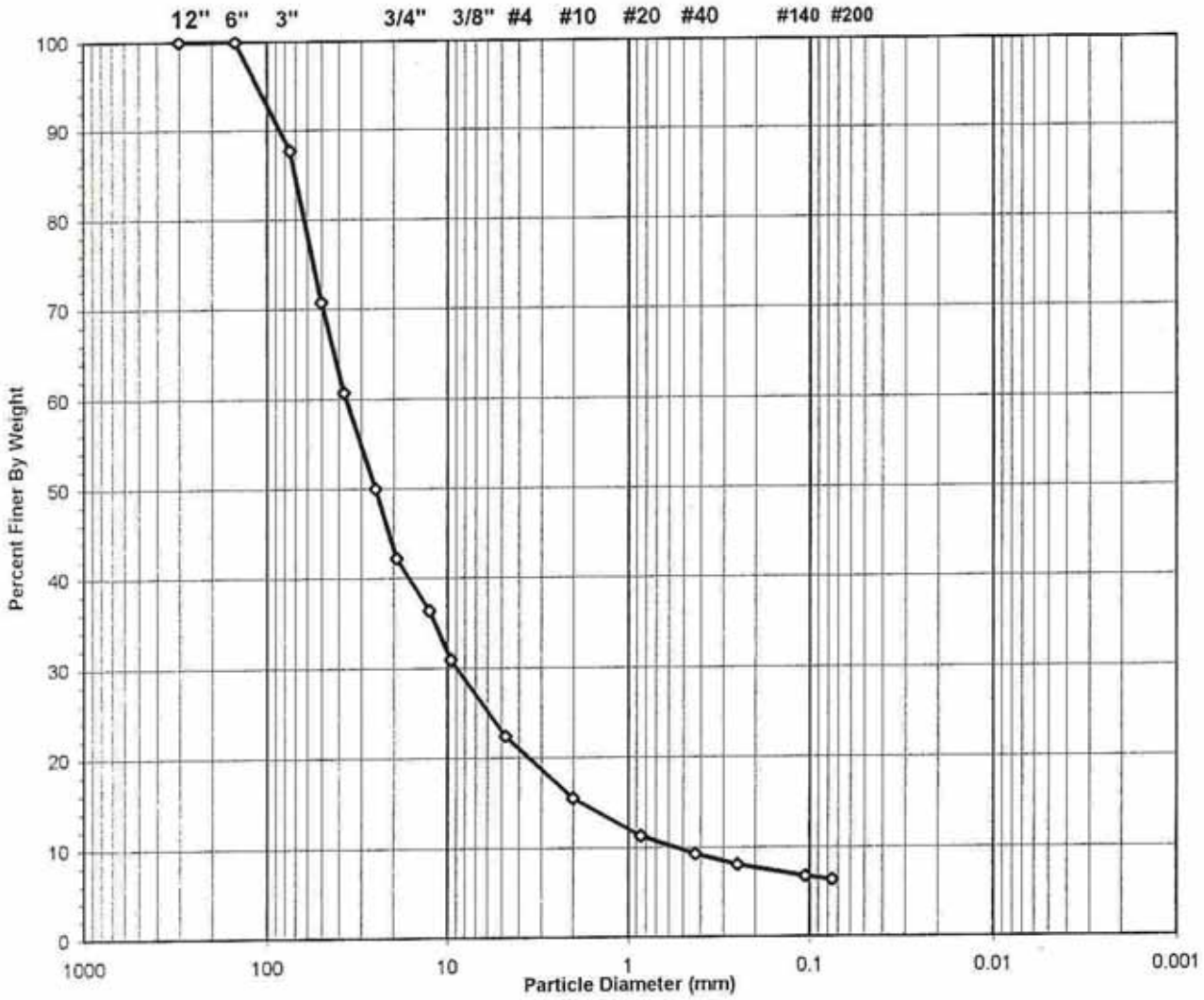
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	0-10
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-13	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*GP-GM, TESTED*	D60 =	36.5	CC =	3.9
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND (NON-PLASTIC FINES)*	D30 =	8.8	CU =	67.3
		D10 =	0.5		

Tested By PC Date 2/24/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	0-10
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-13	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	951	Tare No.	548
Wgt.Tare + Wet Specimen (gm)	1191.70	Wgt.Tare + Wet Specimen (gm)	923.30
Wgt.Tare + Dry Specimen (gm)	1105.30	Wgt.Tare + Dry Specimen (gm)	899.20
Weight of Tare (gm)	102.74	Weight of Tare (gm)	80.68
Weight of Water (gm)	86.40	Weight of Water (gm)	24.10
Weight of Dry Soil (gm)	1002.56	Weight of Dry Soil (gm)	818.52
Moisture Content (%)	**8.6**	**Moisture Content (%)**	**2.9**

Wet Weight -3/4" Sample (gm)	21120	Weight of the Dry Specimen (gm)	1002.56
Dry Weight - 3/4" Sample (gm)	19444.3	Weight of minus #200 material (gm)	149.71
Wet Weight +3/4" Sample (gm)	27400.00	Weight of plus #200 material (gm)	852.85
Dry Weight + 3/4" Sample (gm)	26616.33		
Total Dry Weight Sample (gm)	46060.6	**J - Factor (Percent Finer than 3/4")**	**0.4221**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	5832.00		12.30	12.30	87.70	**87.70**
2"	50	8044.00	(*)	16.96	29.26	70.74	**70.74**
1 1/2"	37.5	4741.00		10.00	39.26	60.74	**60.74**
1"	25	5098.00		10.75	50.01	49.99	**49.99**
3/4"	19	3685.00		7.77	57.79	42.21	**42.21**
1/2"	12.5	140.58		14.02	14.02	85.98	**36.30**
3/8"	9.5	127.43		12.71	26.73	73.27	**30.93**
#4	4.75	201.40		20.09	46.82	53.18	**22.45**
#10	2	165.66		16.52	63.34	36.66	**15.47**
#20	0.85	98.28	(**)	9.80	73.15	26.85	**11.34**
#40	0.425	48.90		4.88	78.03	21.97	**9.28**
#60	0.25	28.55		2.85	80.87	19.13	**8.07**
#140	0.106	32.75		3.27	84.14	15.86	**6.70**
#200	0.075	9.30		0.93	85.07	14.93	**6.30**
Pan	-	149.71		14.93	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By PC Date 2/24/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	0-10
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-13	Soil Description	**REDDISH BROWN LEAN CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

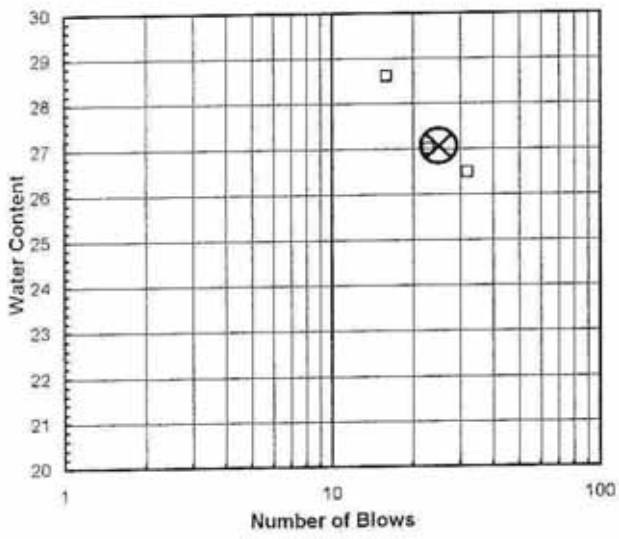
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	183	225	238	MULTIPOINT
Wt. of Tare & WS (gm)	41.41	39.80	41.64	
Wt. of Tare & DS (gm)	37.11	35.50	37.01	
Wt. of Tare (gm)	20.87	19.57	20.83	
Wt. of Water (gm)	4.3	4.3	4.6	
Wt. of DS (gm)	16.2	15.9	16.2	
Moisture Content (%)	**26.5**	**27.0**	**28.6**	
Number of Blows	**32**	**23**	**16**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	248	249	
Wt. of Tare & WS (gm)	25.64	26.39	
Wt. of Tare & DS (gm)	24.69	25.60	
Wt. of Tare (gm)	19.21	20.97	
Wt. of Water (gm)	0.9	0.8	
Wt. of DS (gm)	5.5	4.6	
Moisture Content (%)	**17.3**	**17.1**	**0.3**

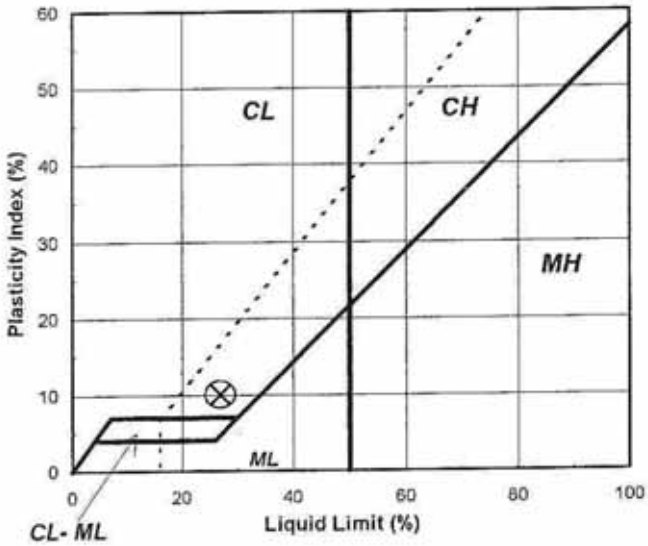
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**27**
Plastic Limit (%)	**17**
Plasticity Index (%)	**10**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By TO *Date* 2/24/06 *Checked By* KB *Date* 2-27-06

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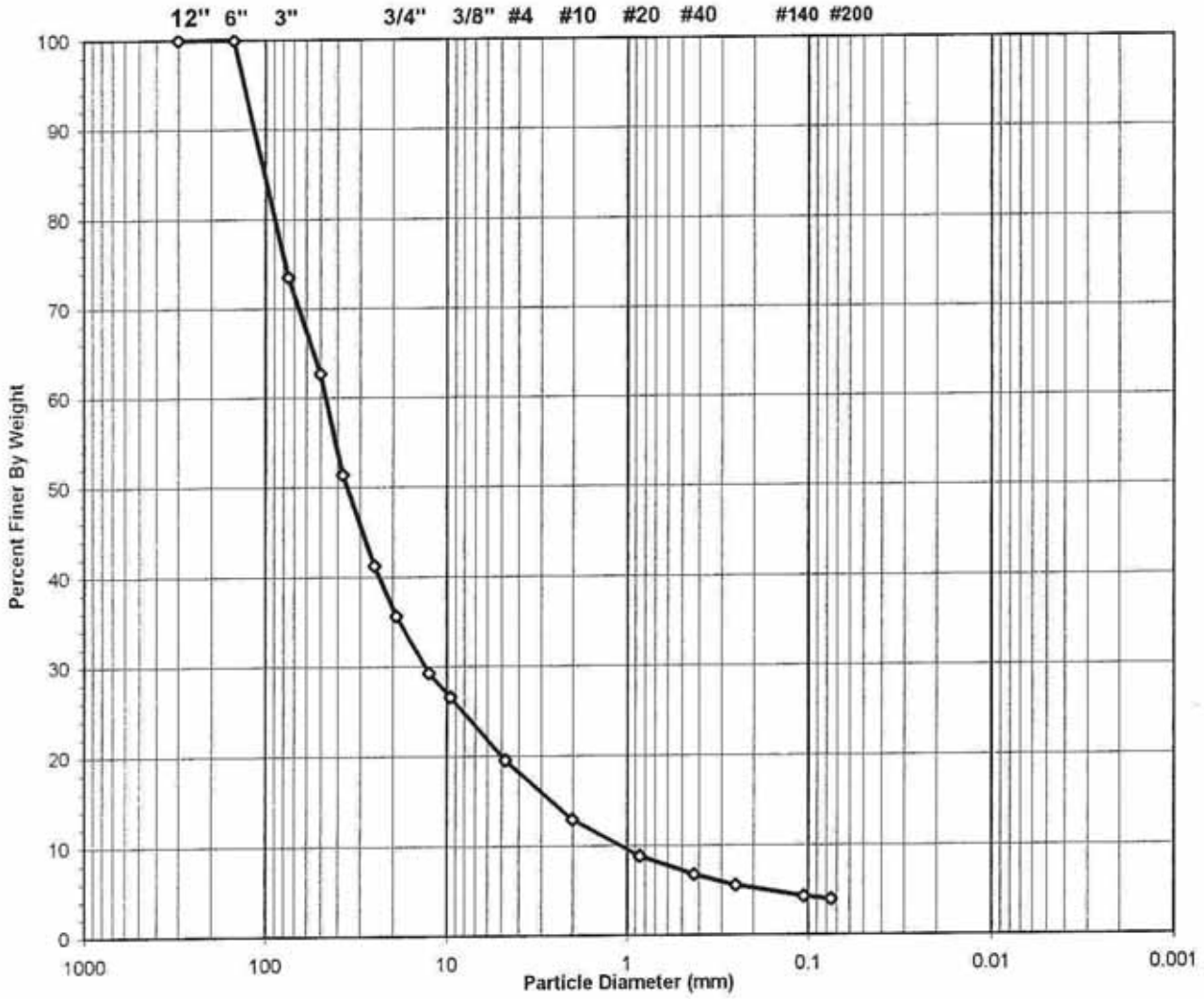
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-14	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	46.7	CC =	3.4
USCS Classification	*POORLY GRADED GRAVEL WITH SAND*	D30 =	13.1	CU =	43.0
		D10 =	1.1		

Tested By PC Date 2/24/06 Checked By KYB Date 2-24-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U316.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-14	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	964	Tare No.	617
Wgt.Tare + Wet Specimen (gm)	1406.30	Wgt.Tare + Wet Specimen (gm)	986.70
Wgt.Tare + Dry Specimen (gm)	1314.00	Wgt.Tare + Dry Specimen (gm)	973.70
Weight of Tare (gm)	102.92	Weight of Tare (gm)	83.94
Weight of Water (gm)	92.30	Weight of Water (gm)	13.00
Weight of Dry Soil (gm)	1211.08	Weight of Dry Soil (gm)	889.76
Moisture Content (%)	**7.6**	**Moisture Content (%)**	**1.5**

Wet Weight -3/4" Sample (gm)	18684	Weight of the Dry Specimen (gm)	1211.08
Dry Weight - 3/4" Sample (gm)	17360.9	Weight of minus #200 material (gm)	135.30
Wet Weight +3/4" Sample (gm)	31737.00	Weight of plus #200 material (gm)	1075.78
Dry Weight + 3/4" Sample (gm)	31279.98		
Total Dry Weight Sample (gm)	48640.9	**J - Factor (Percent Finer than 3/4")**	**0.3569**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	13079.00		26.50	26.50	73.50	**73.50**
2"	50	5342.00	(*)	10.82	37.33	62.67	**62.67**
1 1/2"	37.5	5571.00		11.29	48.61	51.39	**51.39**
1"	25	4989.00		10.11	58.72	41.28	**41.28**
3/4"	19	2756.00		5.58	64.31	35.69	**35.69**
1/2"	12.5	217.72		17.98	17.98	82.02	**29.28**
3/8"	9.5	90.49		7.47	25.45	74.55	**26.61**
#4	4.75	239.71		19.79	45.24	54.76	**19.54**
#10	2	225.80		18.64	63.89	36.11	**12.89**
#20	0.85	137.62	(**)	11.36	75.25	24.75	**8.83**
#40	0.425	69.87		5.77	81.02	18.98	**6.77**
#60	0.25	39.13		3.23	84.25	15.75	**5.62**
#140	0.106	44.08		3.64	87.89	12.11	**4.32**
#200	0.075	11.36		0.94	88.83	11.17	**3.99**
Pan	-	135.30		11.17	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/24/06 Checked By KB Date 2-24-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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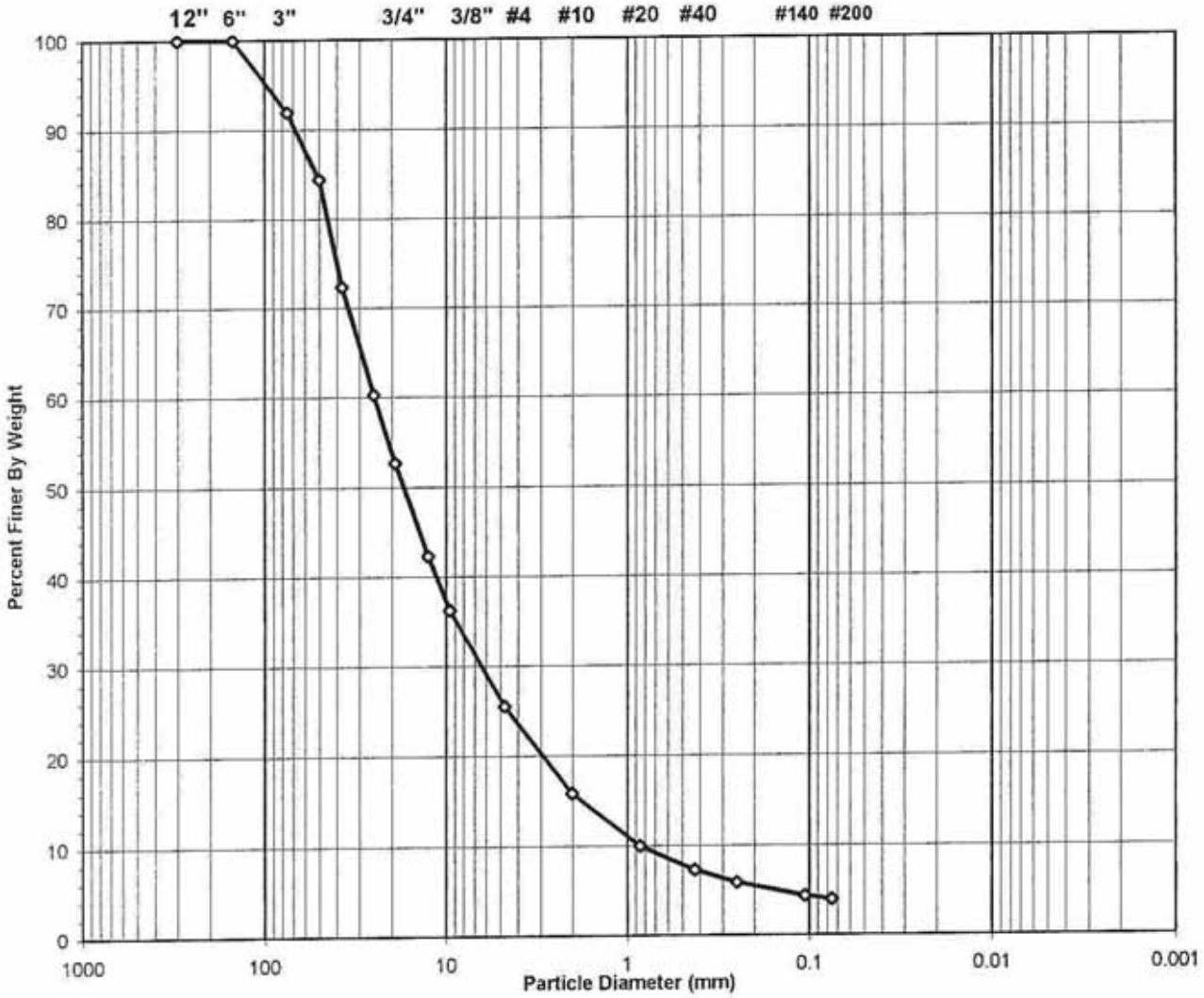
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-15	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gw, ASSUMED*	D60 =	24.7	CC =	1.9
USCS Classification	*WELL-GRADED GRAVEL WITH SAND*	D30 =	6.3	CU =	28.9
		D10 =	0.9		

Tested By PC Date 2/24/06 Checked By KB Date 2-24-06

 DCN: CT-S3A DATE 6-26-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U312.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-15	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	665	Tare No.	883
Wgt.Tare + Wet Specimen (gm)	1578.10	Wgt.Tare + Wet Specimen (gm)	1223.90
Wgt.Tare + Dry Specimen (gm)	1462.80	Wgt.Tare + Dry Specimen (gm)	1201.10
Weight of Tare (gm)	95.86	Weight of Tare (gm)	110.38
Weight of Water (gm)	115.30	Weight of Water (gm)	22.80
Weight of Dry Soil (gm)	1366.94	Weight of Dry Soil (gm)	1090.72
Moisture Content (%)	**8.4**	**Moisture Content (%)**	**2.1**

Wet Weight -3/4" Sample (gm)	26121	Weight of the Dry Specimen (gm)	1366.94
Dry Weight - 3/4" Sample (gm)	24089.1	Weight of minus #200 material (gm)	103.46
Wet Weight +3/4" Sample (gm)	22093.00	Weight of plus #200 material (gm)	1263.48
Dry Weight + 3/4" Sample (gm)	21640.63		
Total Dry Weight Sample (gm)	45729.7	**J - Factor (Percent Finer than 3/4")**	**0.5268**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	3759.00		8.05	8.05	91.95	**91.95**
2"	50	3528.00	(*)	7.56	15.61	84.39	**84.39**
1 1/2"	37.5	5620.00		12.04	27.65	72.35	**72.35**
1"	25	5626.00		12.05	39.70	60.30	**60.30**
3/4"	19	3560.00		7.63	47.32	52.68	**52.68**
1/2"	12.5	269.14		19.69	19.69	80.31	**42.31**
3/8"	9.5	157.30		11.51	31.20	68.80	**36.24**
#4	4.75	278.31		20.36	51.56	48.44	**25.52**
#10	2	251.36		18.39	69.95	30.05	**15.83**
#20	0.85	152.42	(**)	11.15	81.10	18.90	**9.96**
#40	0.425	68.58		5.02	86.11	13.89	**7.32**
#60	0.25	35.79		2.62	88.73	11.27	**5.94**
#140	0.106	39.71		2.91	91.64	8.36	**4.41**
#200	0.075	10.87		0.80	92.43	7.57	**3.99**
Pan	-	103.46		7.57	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/24/06 Checked By YAB Date 2-24-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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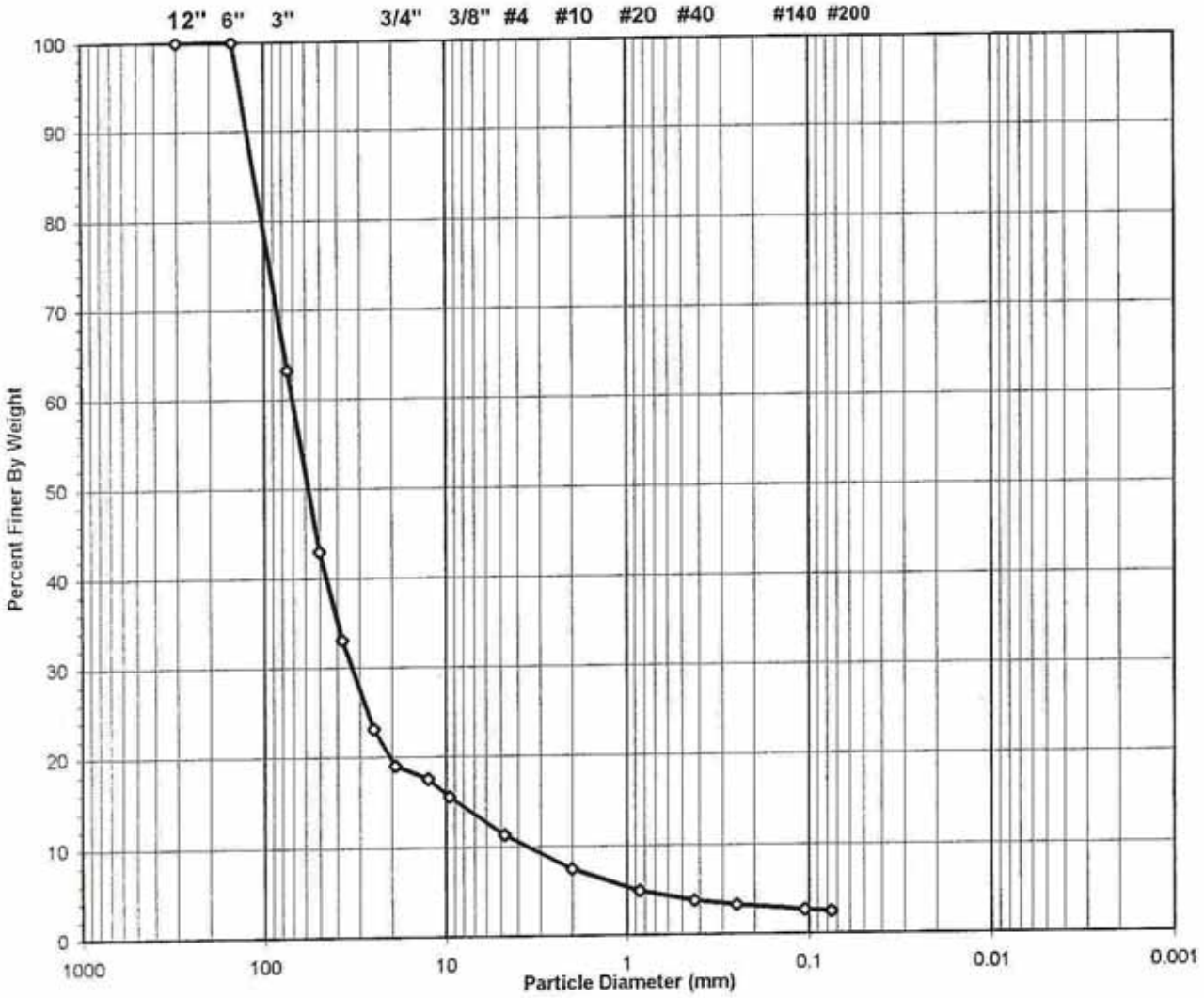
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-16	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	*gp, ASSUMED*	D60 =	70.2	CC =	4.4
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	33.1	CU =	19.8
		D10 =	3.5		

Tested By PC Date 2/24/06 Checked By KYB Date 2-27-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-16	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	700	Tare No.	553
Wgt.Tare + Wet Specimen (gm)	1242.80	Wgt.Tare + Wet Specimen (gm)	440.70
Wgt.Tare + Dry Specimen (gm)	1195.20	Wgt.Tare + Dry Specimen (gm)	436.45
Weight of Tare (gm)	98.36	Weight of Tare (gm)	84.33
Weight of Water (gm)	47.60	Weight of Water (gm)	4.25
Weight of Dry Soil (gm)	1096.84	Weight of Dry Soil (gm)	352.12
Moisture Content (%)	**4.3**	**Moisture Content (%)**	**1.2**

Wet Weight -3/4" Sample (gm)	8814	Weight of the Dry Specimen (gm)	1096.84
Dry Weight - 3/4" Sample (gm)	8447.4	Weight of minus #200 material (gm)	141.02
Wet Weight +3/4" Sample (gm)	36416.00	Weight of plus #200 material (gm)	955.82
Dry Weight + 3/4" Sample (gm)	35981.71		
Total Dry Weight Sample (gm)	44429.1	**J - Factor (Percent Finer than 3/4")**	**0.1901**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	16503.00		36.70	36.70	63.30	**63.30**
2"	50	9144.00	(*)	20.34	57.04	42.96	**42.96**
1 1/2"	37.5	4448.00		9.89	66.93	33.07	**33.07**
1"	25	4451.00		9.90	76.83	23.17	**23.17**
3/4"	19	1870.00		4.16	80.99	19.01	**19.01**
1/2"	12.5	82.16		7.49	7.49	92.51	**17.59**
3/8"	9.5	115.18		10.50	17.99	82.01	**15.59**
#4	4.75	247.87		22.60	40.59	59.41	**11.30**
#10	2	220.73		20.12	60.71	39.29	**7.47**
#20	0.85	145.28	(**)	13.25	73.96	26.04	**4.95**
#40	0.425	66.35		6.05	80.01	19.99	**3.80**
#60	0.25	29.77		2.71	82.72	17.28	**3.28**
#140	0.106	35.90		3.27	86.00	14.00	**2.66**
#200	0.075	12.58		1.15	87.14	12.86	**2.44**
Pan	-	141.02		12.86	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/24/06 Checked By YAB Date 2-27-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-16	Visual Description	**BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By TO *Date* 3/5/06 *Checked By* KB *Date* 3-6-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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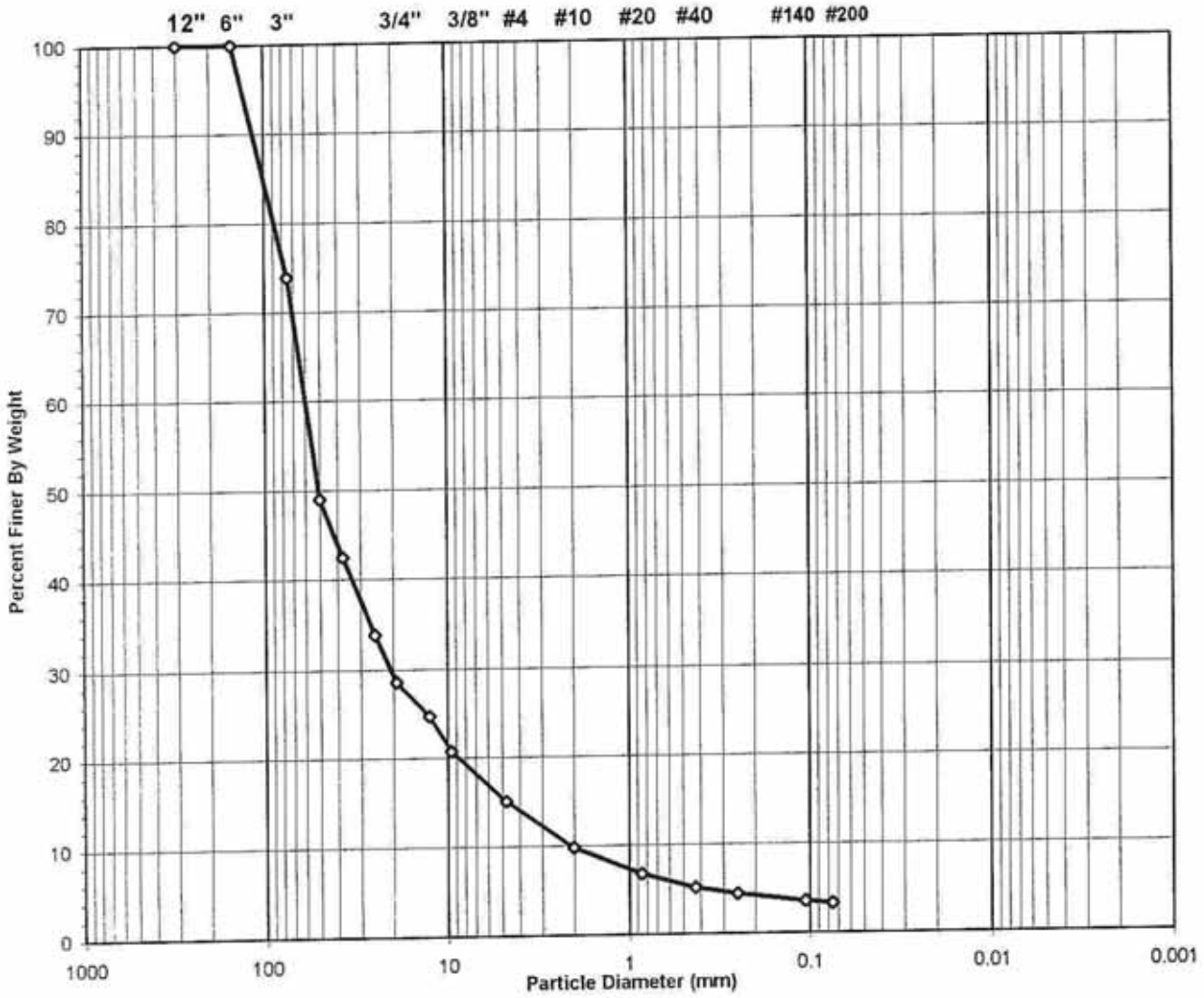
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-17	Soil Color	REDDISH BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	59.9	CC =	3.4
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	20.4	CU =	28.8
		D10 =	2.1		

Tested By PC Date 2/24/06 Checked By KB Date 2-24-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-17	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	846	Tare No.	599
Wgt.Tare + Wet Specimen (gm)	1219.50	Wgt.Tare + Wet Specimen (gm)	756.80
Wgt.Tare + Dry Specimen (gm)	1137.40	Wgt.Tare + Dry Specimen (gm)	727.70
Weight of Tare (gm)	100.49	Weight of Tare (gm)	84.15
Weight of Water (gm)	82.10	Weight of Water (gm)	29.10
Weight of Dry Soil (gm)	1036.91	Weight of Dry Soil (gm)	643.55
Moisture Content (%)	**7.9**	**Moisture Content (%)**	**4.5**

Wet Weight -3/4" Sample (gm)	11848	Weight of the Dry Specimen (gm)	1036.91
Dry Weight - 3/4" Sample (gm)	10978.7	Weight of minus #200 material (gm)	117.57
Wet Weight +3/4" Sample (gm)	28615.00	Weight of plus #200 material (gm)	919.34
Dry Weight + 3/4" Sample (gm)	27377.07		
Total Dry Weight Sample (gm)	38355.8	**J - Factor (Percent Finer than 3/4")**	**0.2862**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	10490.00		26.17	26.17	73.83	**73.83**
2"	50	9974.00	(*)	24.88	51.04	48.96	**48.96**
1 1/2"	37.5	2613.00		6.52	57.56	42.44	**42.44**
1"	25	3441.00		8.58	66.15	33.85	**33.85**
3/4"	19	2097.00		5.23	71.38	28.62	**28.62**
1/2"	12.5	139.10		13.41	13.41	86.59	**24.78**
3/8"	9.5	145.50		14.03	27.45	72.55	**20.77**
#4	4.75	205.41		19.81	47.26	52.74	**15.10**
#10	2	193.08		18.62	65.88	34.12	**9.77**
#20	0.85	111.07	(**)	10.71	76.59	23.41	**6.70**
#40	0.425	55.96		5.40	81.99	18.01	**5.16**
#60	0.25	26.69		2.57	84.56	15.44	**4.42**
#140	0.106	31.79		3.07	87.63	12.37	**3.54**
#200	0.075	10.74		1.04	88.66	11.34	**3.25**
Pan	-	117.57		11.34	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/24/06 Checked By YHB Date 2-24-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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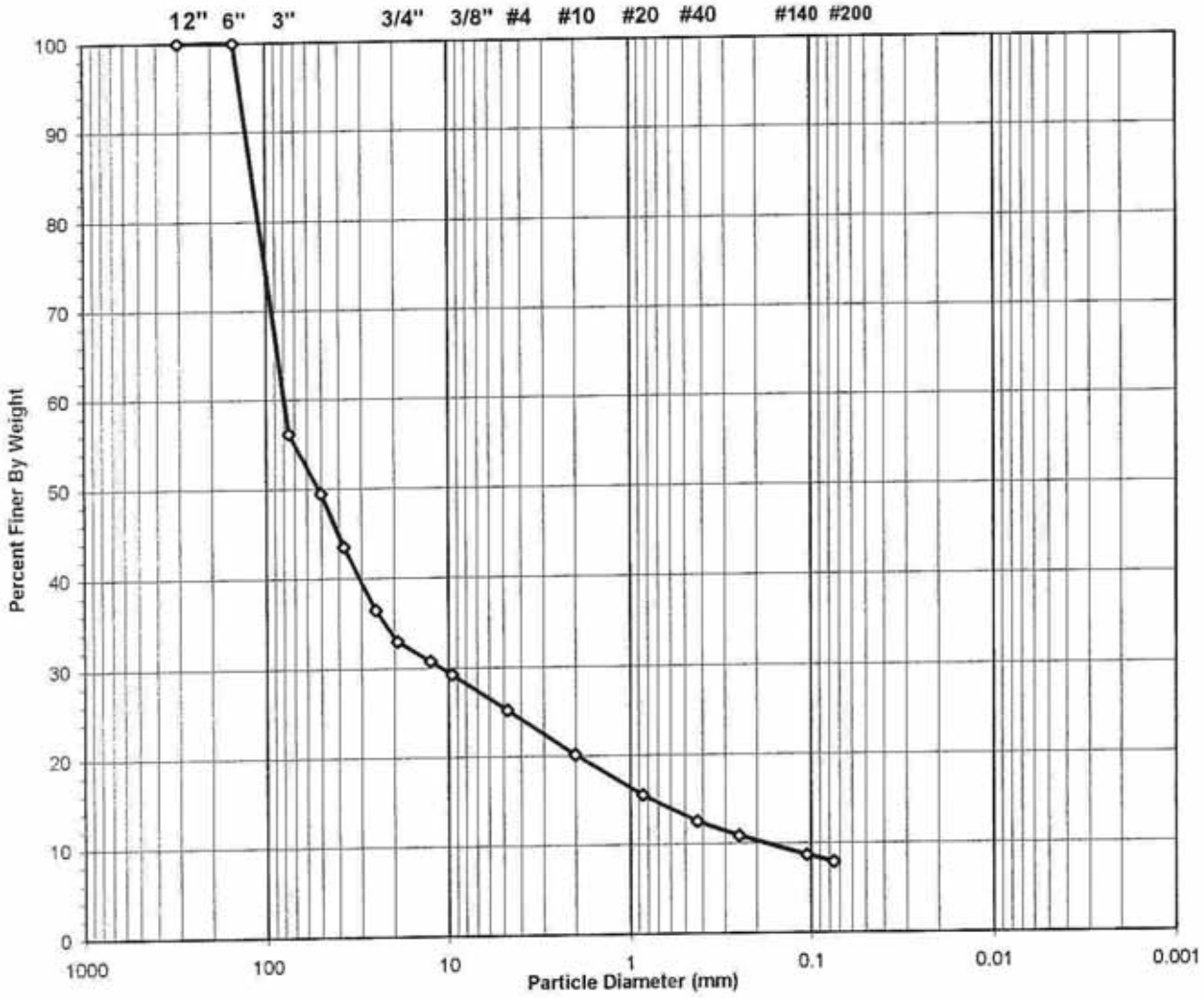
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-18	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***gp-gm, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL WITH SILT AND SAND***

Tested By PC Date 2/24/06 Checked By KKB Date 2-27-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-18	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	663	Tare No.	607
Wgt.Tare + Wet Specimen (gm)	1259.20	Wgt.Tare + Wet Specimen (gm)	543.41
Wgt.Tare + Dry Specimen (gm)	1184.00	Wgt.Tare + Dry Specimen (gm)	533.30
Weight of Tare (gm)	98.31	Weight of Tare (gm)	82.96
Weight of Water (gm)	75.20	Weight of Water (gm)	10.11
Weight of Dry Soil (gm)	1085.69	Weight of Dry Soil (gm)	450.34
Moisture Content (%)	**6.9**	**Moisture Content (%)**	**2.2**

Wet Weight -3/4" Sample (gm)	16549	Weight of the Dry Specimen (gm)	1085.69
Dry Weight - 3/4" Sample (gm)	15477.0	Weight of minus #200 material (gm)	259.10
Wet Weight +3/4" Sample (gm)	32110.00	Weight of plus #200 material (gm)	826.59
Dry Weight + 3/4" Sample (gm)	31404.97		
Total Dry Weight Sample (gm)	46882.0	**J - Factor (Percent Finer than 3/4")**	**0.3301**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	21017.00		43.85	43.85	56.15	**56.15**
2"	50	3210.00	(*)	6.70	50.54	49.46	**49.46**
1 1/2"	37.5	2880.00		6.01	56.55	43.45	**43.45**
1"	25	3363.00		7.02	63.57	36.43	**36.43**
3/4"	19	1640.00		3.42	66.99	33.01	**33.01**
1/2"	12.5	73.26		6.75	6.75	93.25	**30.79**
3/8"	9.5	50.66		4.67	11.41	88.59	**29.24**
#4	4.75	132.53		12.21	23.62	76.38	**25.21**
#10	2	166.05		15.29	38.92	61.08	**20.17**
#20	0.85	150.98	(**)	13.91	52.82	47.18	**15.57**
#40	0.425	99.91		9.20	62.02	37.98	**12.54**
#60	0.25	55.43		5.11	67.13	32.87	**10.85**
#140	0.106	72.66		6.69	73.82	26.18	**8.64**
#200	0.075	25.11		2.31	76.13	23.87	**7.88**
Pan	-	259.10		23.87	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/24/06 Checked By KVB Date 2-27-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-18	Soil Description	**BROWN SILT**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

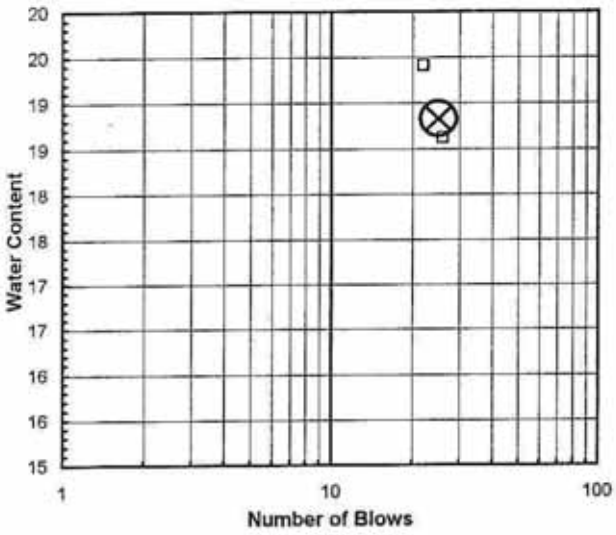
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	2289	2314	2305	MULTIPOINT
Wt. of Tare & WS (gm)	44.70	43.23	42.60	
Wt. of Tare & DS (gm)	40.89	39.17	38.89	
Wt. of Tare (gm)	20.43	18.25	20.95	
Wt. of Water (gm)	3.8	4.1	3.7	
Wt. of DS (gm)	20.5	20.9	17.9	
Moisture Content (%)	**18.6**	**19.4**	**20.7**	
Number of Blows	**26**	**22**	**15**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	119	2298	
Wt. of Tare & WS (gm)	23.72	24.50	
Wt. of Tare & DS (gm)	22.90	23.60	
Wt. of Tare (gm)	17.69	17.92	
Wt. of Water (gm)	0.8	0.9	
Wt. of DS (gm)	5.2	5.7	
Moisture Content (%)	**15.7**	**15.8**	**-0.1**

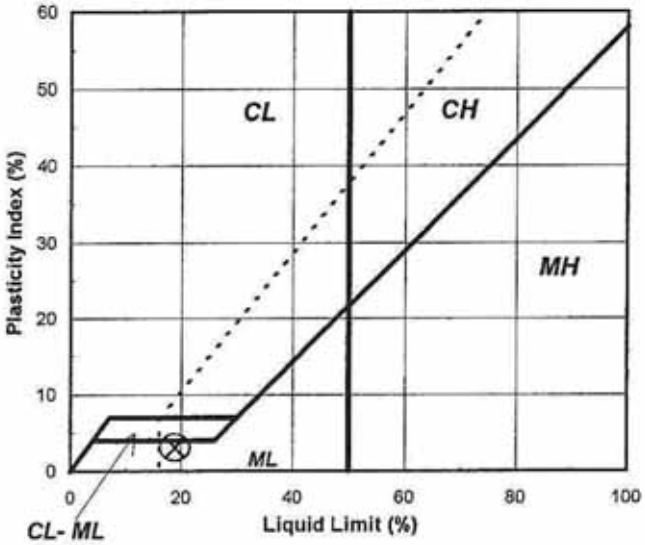
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**19**
Plastic Limit (%)	**16**
Plasticity Index (%)	**3**
USCS Symbol	**ML**

Flow Curve



Plasticity Chart



Tested By TO *Date* 3/5/06 *Checked By* YKB *Date* 3-6-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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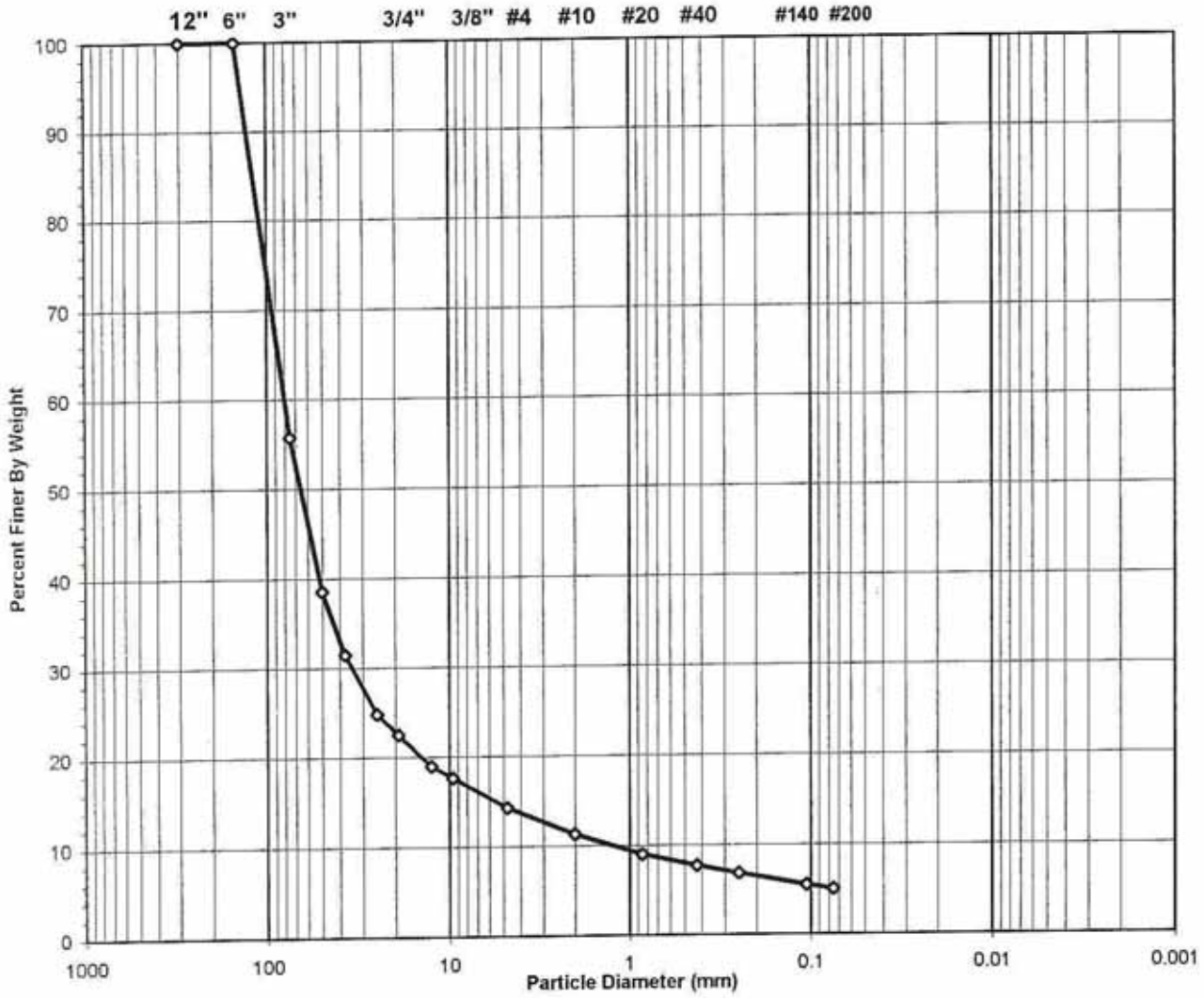
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-19	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***GP-GM, TESTED***

USCS Classification ***POORLY GRADED GRAVEL WITH SILT (NON-PLASTIC FINES)***

Tested By JP Date 2/27/06 Checked By YKB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-19	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	952	Tare No.	578
Wgt.Tare + Wet Specimen (gm)	1378.00	Wgt.Tare + Wet Specimen (gm)	1294.40
Wgt.Tare + Dry Specimen (gm)	1287.00	Wgt.Tare + Dry Specimen (gm)	1283.60
Weight of Tare (gm)	103.51	Weight of Tare (gm)	84.45
Weight of Water (gm)	91.00	Weight of Water (gm)	10.80
Weight of Dry Soil (gm)	1183.49	Weight of Dry Soil (gm)	1199.15
Moisture Content (%)	**7.7**	**Moisture Content (%)**	**0.9**

Wet Weight -3/4" Sample (gm)	15973	Weight of the Dry Specimen (gm)	1183.49
Dry Weight - 3/4" Sample (gm)	14832.5	Weight of minus #200 material (gm)	264.62
Wet Weight +3/4" Sample (gm)	51579.00	Weight of plus #200 material (gm)	918.87
Dry Weight + 3/4" Sample (gm)	51118.61		
Total Dry Weight Sample (gm)	65951.1	**J - Factor (Percent Finer than 3/4")**	**0.2249**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	29424.00		44.22	44.22	55.78	**55.78**
2"	50	11476.00	(*)	17.25	61.46	38.54	**38.54**
1 1/2"	37.5	4688.00		7.04	68.51	31.49	**31.49**
1"	25	4437.00		6.67	75.17	24.83	**24.83**
3/4"	19	1554.00		2.34	77.51	22.49	**22.49**
1/2"	12.5	185.19		15.65	15.65	84.35	**18.97**
3/8"	9.5	71.00		6.00	21.65	78.35	**17.62**
#4	4.75	177.15		14.97	36.62	63.38	**14.26**
#10	2	158.12		13.36	49.98	50.02	**11.25**
#20	0.85	119.15	(**)	10.07	60.04	39.96	**8.99**
#40	0.425	67.41		5.70	65.74	34.26	**7.71**
#60	0.25	44.80		3.79	69.52	30.48	**6.85**
#140	0.106	70.83		5.98	75.51	24.49	**5.51**
#200	0.075	25.22		2.13	77.64	22.36	**5.03**
Pan	-	264.62		22.36	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-19	Visual Description	**REDDISH BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By TO *Date* 2/28/06 *Checked By* KB *Date* 3-1-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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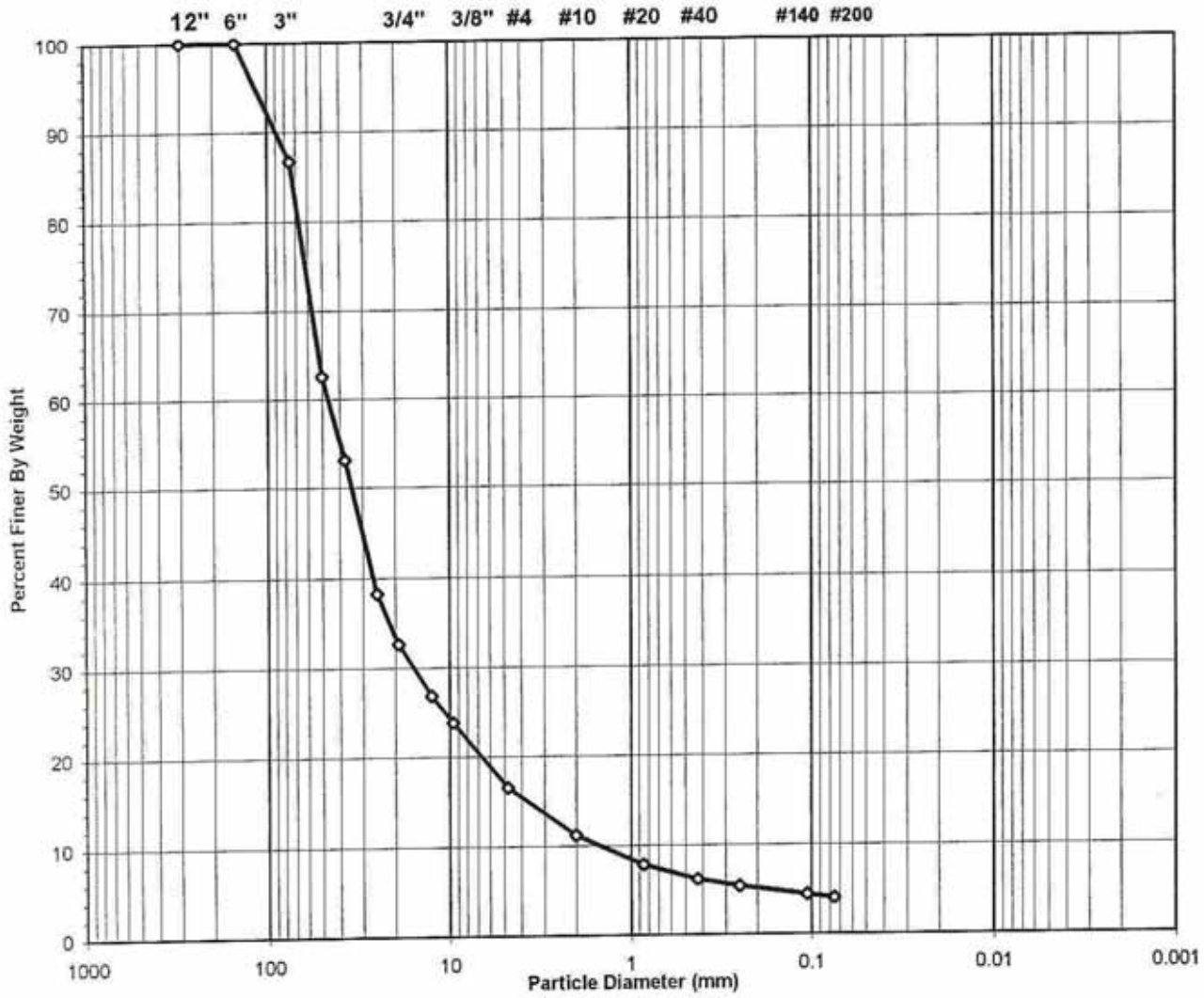
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	70-80
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-20	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*GP, TESTED*	D60 =	46.3	CC =	3.6
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	15.7	CU =	31.2
		D10 =	1.5		

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	70-80
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-20	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	703	Tare No.	564
Wgt.Tare + Wet Specimen (gm)	1395.40	Wgt.Tare + Wet Specimen (gm)	1165.00
Wgt.Tare + Dry Specimen (gm)	1303.20	Wgt.Tare + Dry Specimen (gm)	1142.30
Weight of Tare (gm)	100.66	Weight of Tare (gm)	82.56
Weight of Water (gm)	92.20	Weight of Water (gm)	22.70
Weight of Dry Soil (gm)	1202.54	Weight of Dry Soil (gm)	1059.74
Moisture Content (%)	**7.7**	**Moisture Content (%)**	**2.1**

Wet Weight -3/4" Sample (gm)	14665	Weight of the Dry Specimen (gm)	1202.54
Dry Weight - 3/4" Sample (gm)	13620.7	Weight of minus #200 material (gm)	150.51
Wet Weight +3/4" Sample (gm)	28702.00	Weight of plus #200 material (gm)	1052.03
Dry Weight + 3/4" Sample (gm)	28100.09		
Total Dry Weight Sample (gm)	41720.8	**J - Factor (Percent Finer than 3/4")**	**0.3265**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	5672.00		13.31	13.31	86.69	**86.69**
2"	50	10282.00	(*)	24.13	37.44	62.56	**62.56**
1 1/2"	37.5	4041.00		9.48	46.92	53.08	**53.08**
1"	25	6325.00		14.84	61.76	38.24	**38.24**
3/4"	19	2382.00		5.59	67.35	32.65	**32.65**
1/2"	12.5	211.89		17.62	17.62	82.38	**26.89**
3/8"	9.5	110.25		9.17	26.79	73.21	**23.90**
#4	4.75	273.79		22.77	49.56	50.44	**16.47**
#10	2	195.87		16.29	65.84	34.16	**11.15**
#20	0.85	121.11	(**)	10.07	75.92	24.08	**7.86**
#40	0.425	60.73		5.05	80.97	19.03	**6.21**
#60	0.25	29.71		2.47	83.44	16.56	**5.41**
#140	0.106	36.09		3.00	86.44	13.56	**4.43**
#200	0.075	12.59		1.05	87.48	12.52	**4.09**
Pan	-	150.51		12.52	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	70-80
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-20	Soil Description	**REDDISH BROWN SILTY CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

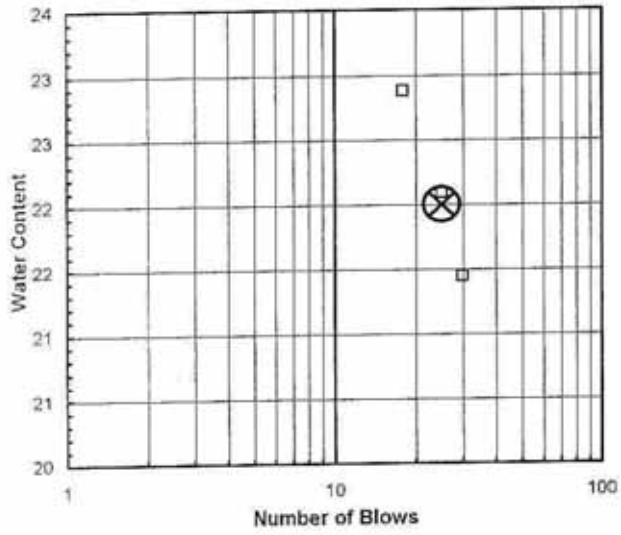
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	2	58	137	MULTIPOINT
Wt. of Tare & WS (gm)	38.82	41.56	42.91	
Wt. of Tare & DS (gm)	34.55	37.19	38.37	
Wt. of Tare (gm)	14.64	17.41	18.53	
Wt. of Water (gm)	4.3	4.4	4.5	
Wt. of DS (gm)	19.9	19.8	19.8	
Moisture Content (%)	**21.4**	**22.1**	**22.9**	
Number of Blows	**30**	**25**	**18**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	217	240	
Wt. of Tare & WS (gm)	25.97	26.06	
Wt. of Tare & DS (gm)	25.05	25.12	
Wt. of Tare (gm)	19.94	19.87	
Wt. of Water (gm)	0.9	0.9	
Wt. of DS (gm)	5.1	5.3	
Moisture Content (%)	**18.0**	**17.9**	**0.1**

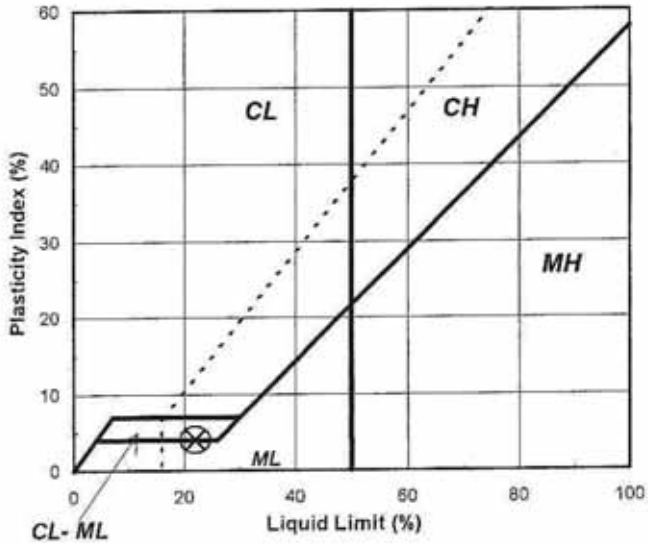
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**22**
Plastic Limit (%)	**18**
Plasticity Index (%)	**4**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/28/06 *Checked By* KB *Date* 3-1-06

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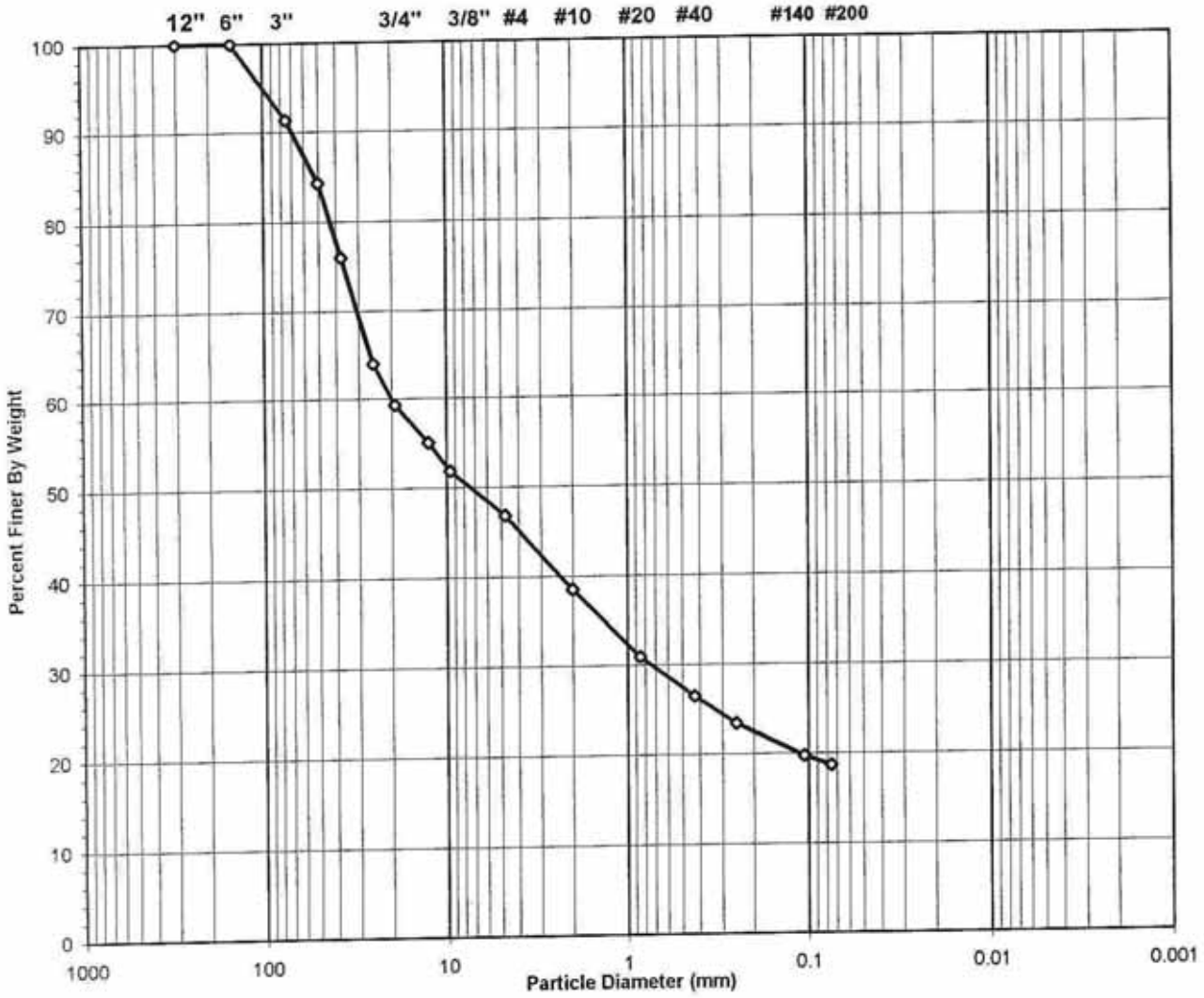
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-100
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-21	Soil Color	**REDDISH BROWN**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***GC, TESTED***

USCS Classification ***CLAYEY GRAVEL WITH SAND***

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-100
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-21	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1644	Tare No.	1123
Wgt.Tare + Wet Specimen (gm)	1126.70	Wgt.Tare + Wet Specimen (gm)	1171.00
Wgt.Tare + Dry Specimen (gm)	1048.90	Wgt.Tare + Dry Specimen (gm)	1156.90
Weight of Tare (gm)	93.09	Weight of Tare (gm)	85.27
Weight of Water (gm)	77.80	Weight of Water (gm)	14.10
Weight of Dry Soil (gm)	955.81	Weight of Dry Soil (gm)	1071.63
Moisture Content (%)	**8.1**	**Moisture Content (%)**	**1.3**

Wet Weight -3/4" Sample (gm)	12388	Weight of the Dry Specimen (gm)	955.81
Dry Weight - 3/4" Sample (gm)	11455.6	Weight of minus #200 material (gm)	301.55
Wet Weight +3/4" Sample (gm)	7963.00	Weight of plus #200 material (gm)	654.26
Dry Weight + 3/4" Sample (gm)	7859.59		
Total Dry Weight Sample (gm)	19315.1	**J - Factor (Percent Finer than 3/4")**	**0.5931**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	1688.00		8.63	8.63	91.37	**91.37**
2"	50	1386.00	(*)	7.08	15.71	84.29	**84.29**
1 1/2"	37.5	1627.00		8.31	24.02	75.98	**75.98**
1"	25	2340.00		11.96	35.98	64.02	**64.02**
3/4"	19	922.00		4.71	40.69	59.31	**59.31**
1/2"	12.5	69.45		7.27	7.27	92.73	**55.00**
3/8"	9.5	50.85		5.32	12.59	87.41	**51.84**
#4	4.75	81.83		8.56	21.15	78.85	**46.77**
#10	2	132.74		13.89	35.04	64.96	**38.53**
#20	0.85	121.85	(**)	12.75	47.78	52.22	**30.97**
#40	0.425	72.71		7.61	55.39	44.61	**26.46**
#60	0.25	48.76		5.10	60.49	39.51	**23.43**
#140	0.106	59.03		6.18	66.67	33.33	**19.77**
#200	0.075	17.04		1.78	68.45	31.55	**18.71**
Pan	-	301.55		31.55	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By JP Date 2/27/06 Checked By YKB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-100
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-21	Soil Description	**REDDISH BROWN LEAN CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

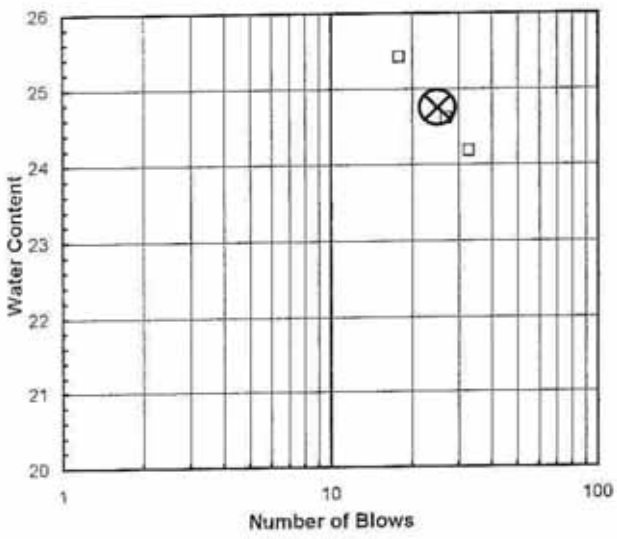
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	29	O2	246	MULTIPOINT
Wt. of Tare & WS (gm)	38.42	37.34	38.76	
Wt. of Tare & DS (gm)	34.29	32.80	34.48	
Wt. of Tare (gm)	17.21	14.35	17.64	
Wt. of Water (gm)	4.1	4.5	4.3	
Wt. of DS (gm)	17.1	18.5	16.8	
Moisture Content (%)	**24.2**	**24.6**	**25.4**	
Number of Blows	**33**	**27**	**18**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	68	224	
Wt. of Tare & WS (gm)	22.41	26.26	
Wt. of Tare & DS (gm)	21.53	25.22	
Wt. of Tare (gm)	16.41	19.15	
Wt. of Water (gm)	0.9	1.0	
Wt. of DS (gm)	5.1	6.1	
Moisture Content (%)	**17.2**	**17.1**	**0.1**

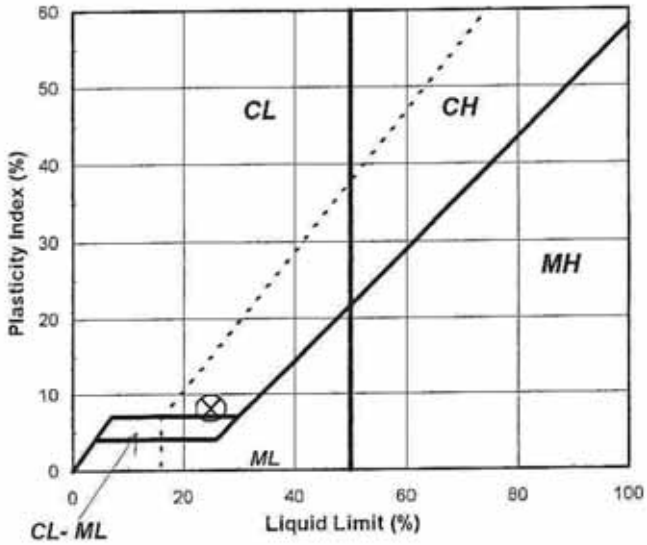
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**25**
Plastic Limit (%)	**17**
Plasticity Index (%)	**8**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



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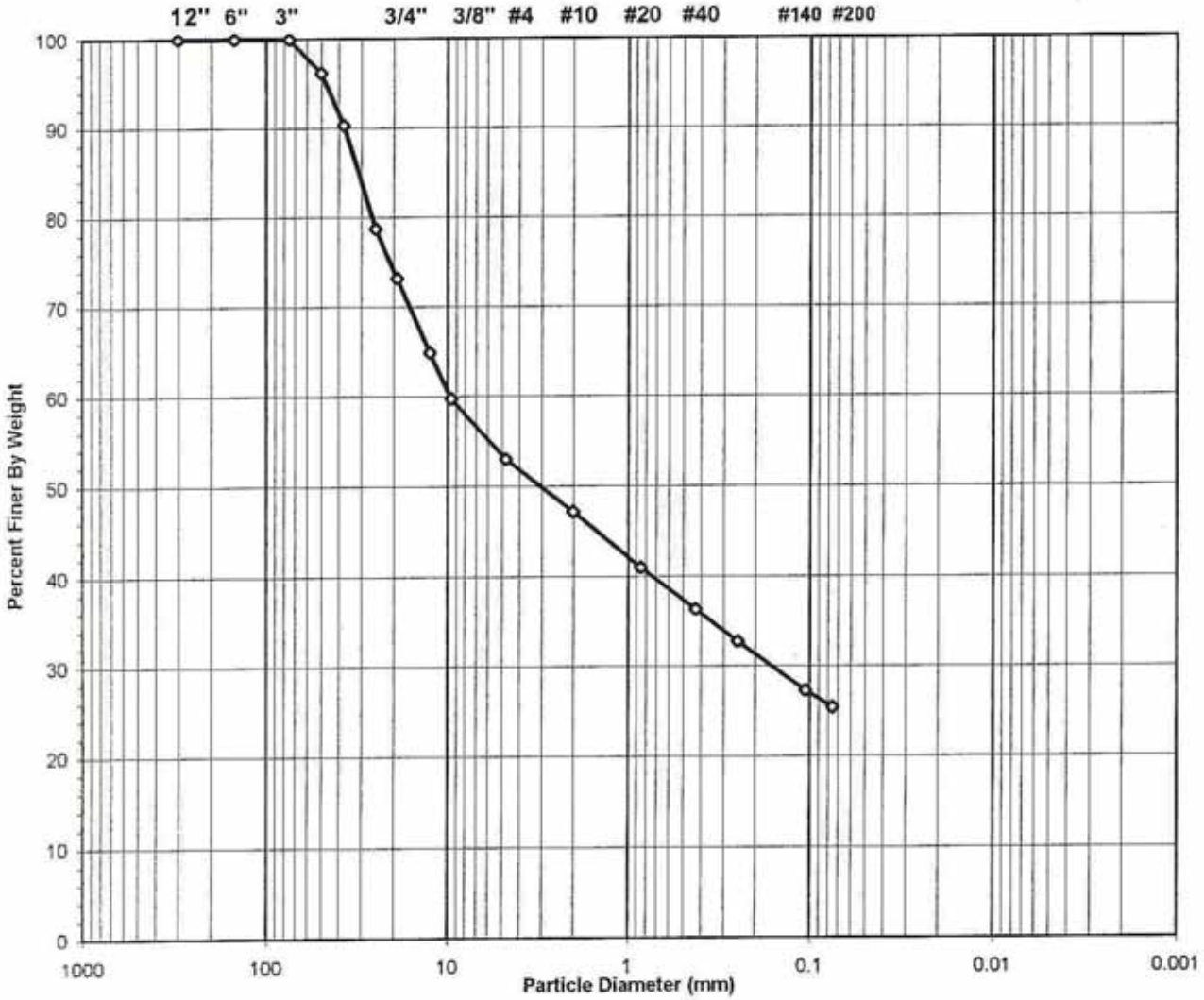
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	100-104.5
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-22	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***GC, TESTED***

USCS Classification ***CLAYEY GRAVEL WITH SAND***

Tested By JP Date 2/27/06 Checked By KYB Date 3-1-06

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	100-104.5
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-22	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	701	Tare No.	602
Wgt.Tare + Wet Specimen (gm)	1276.70	Wgt.Tare + Wet Specimen (gm)	1154.80
Wgt.Tare + Dry Specimen (gm)	1182.30	Wgt.Tare + Dry Specimen (gm)	1131.30
Weight of Tare (gm)	100.37	Weight of Tare (gm)	85.69
Weight of Water (gm)	94.40	Weight of Water (gm)	23.50
Weight of Dry Soil (gm)	1081.93	Weight of Dry Soil (gm)	1045.61
Moisture Content (%)	**8.7**	**Moisture Content (%)**	**2.2**

Wet Weight -3/4" Sample (gm)	35182	Weight of the Dry Specimen (gm)	1081.93
Dry Weight - 3/4" Sample (gm)	32358.7	Weight of minus #200 material (gm)	375.69
Wet Weight +3/4" Sample (gm)	12117.00	Weight of plus #200 material (gm)	706.24
Dry Weight + 3/4" Sample (gm)	11850.66		
Total Dry Weight Sample (gm)	44209.3	**J - Factor (Percent Finer than 3/4")**	**0.7319**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	0.00		0.00	0.00	100.00	**100.00**
2"	50	1722.00	(*)	3.81	3.81	96.19	**96.19**
1 1/2"	37.5	2646.00		5.85	9.66	90.34	**90.34**
1"	25	5258.00		11.63	21.30	78.70	**78.70**
3/4"	19	2491.00		5.51	26.81	73.19	**73.19**
1/2"	12.5	123.27		11.39	11.39	88.61	**64.85**
3/8"	9.5	75.86		7.01	18.41	81.59	**59.72**
#4	4.75	100.04		9.25	27.65	72.35	**52.95**
#10	2	86.62		8.01	35.66	64.34	**47.09**
#20	0.85	90.70	(**)	8.38	44.04	55.96	**40.96**
#40	0.425	68.17		6.30	50.34	49.66	**36.35**
#60	0.25	53.14		4.91	55.25	44.75	**32.75**
#140	0.106	80.86		7.47	62.73	37.27	**27.28**
#200	0.075	27.58		2.55	65.28	34.72	**25.42**
Pan	-	375.69		34.72	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-2
Client Reference	TAUM SAUK 06-3551	Depth (ft)	100-104.5
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-22	Soil Description	**REDDISH BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

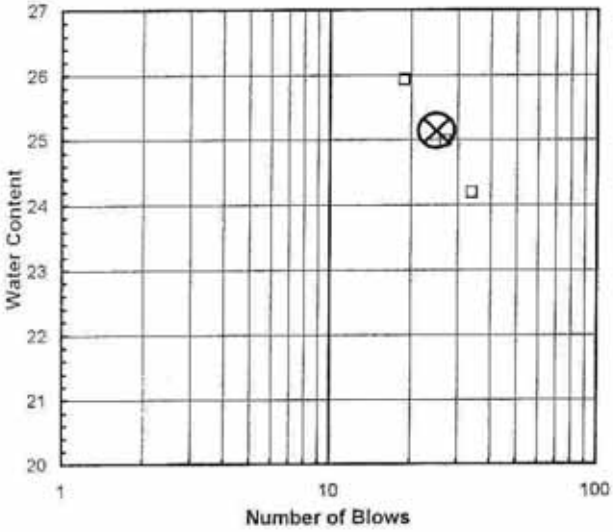
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	226	252	259	M U L T I P O I N T
Wt. of Tare & WS (gm)	44.31	41.65	44.50	
Wt. of Tare & DS (gm)	39.19	37.06	38.91	
Wt. of Tare (gm)	18.02	18.69	17.35	
Wt. of Water (gm)	5.1	4.6	5.6	
Wt. of DS (gm)	21.2	18.4	21.6	
Moisture Content (%)	**24.2**	**25.0**	**25.9**	
Number of Blows	**34**	**27**	**19**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	2254	2301	
Wt. of Tare & WS (gm)	22.95	26.14	
Wt. of Tare & DS (gm)	22.13	25.28	
Wt. of Tare (gm)	16.82	19.78	
Wt. of Water (gm)	0.8	0.9	
Wt. of DS (gm)	5.3	5.5	
Moisture Content (%)	**15.4**	**15.6**	**-0.2**

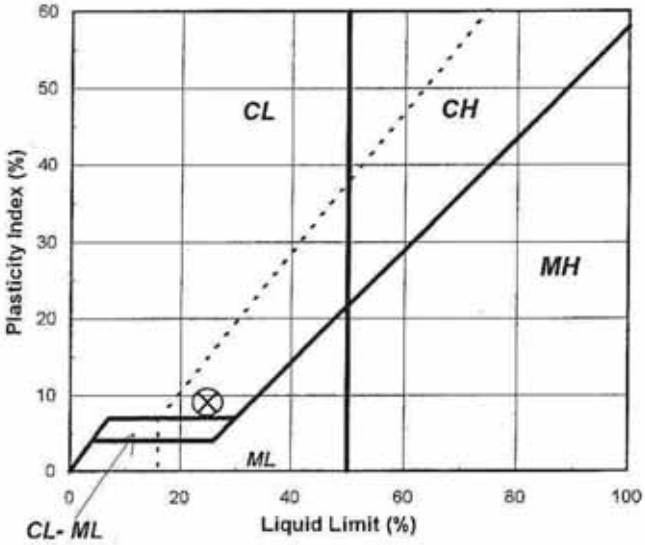
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**25**
Plastic Limit (%)	**16**
Plasticity Index (%)	**9**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/28/06 *Checked By* YKB *Date* 3-1-06

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BORING TS-3

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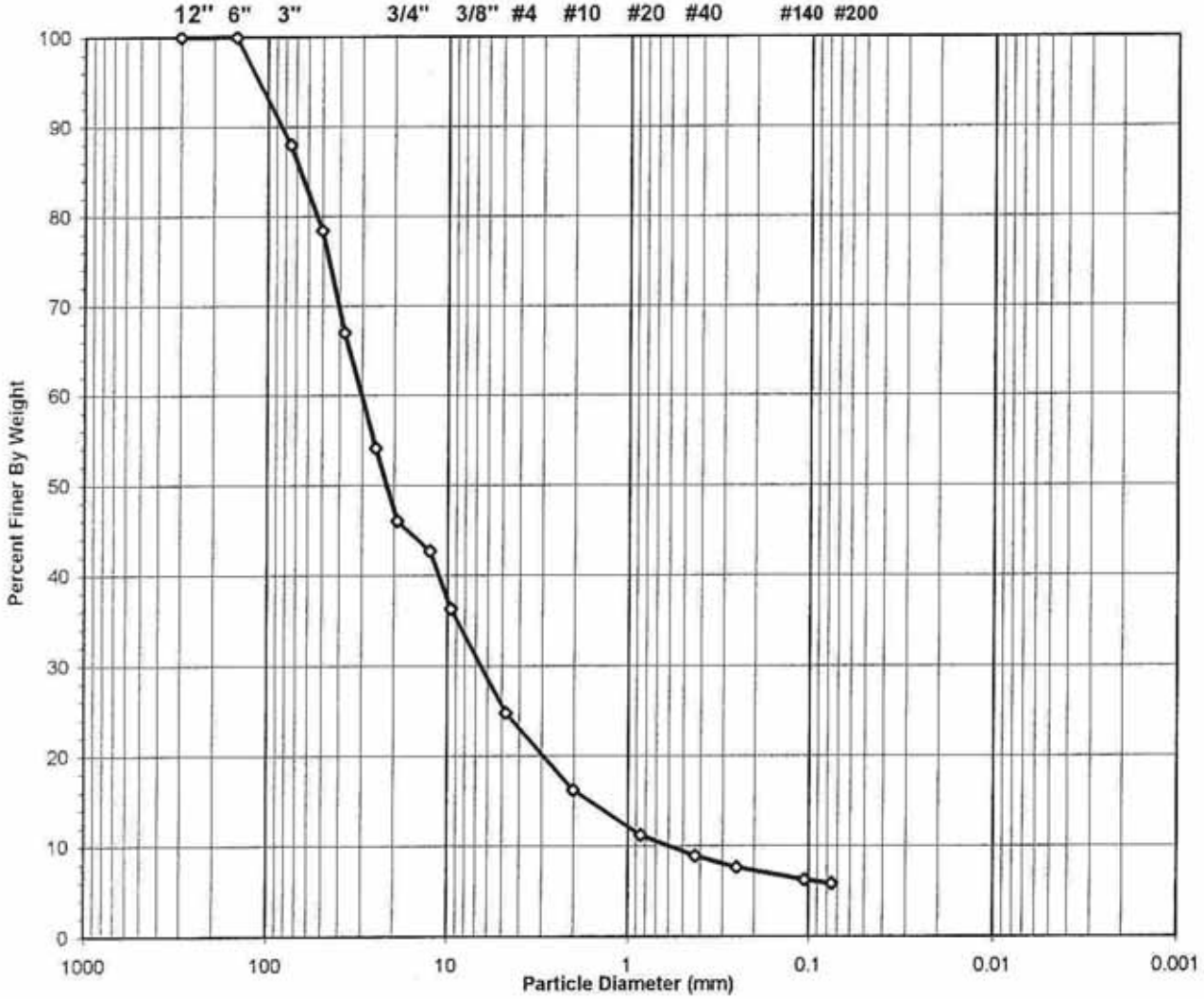
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-23	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	***gw-gm, ASSUMED***	**D60 =**	**30.1**	**CC =**	**2.3**
USCS Classification	***WELL-GRADED GRAVEL WITH SILT AND SAND***	**D30 =**	**6.5**	**CU =**	**50.3**
		D10 =	**0.6**		

Tested By PC Date 2/22/06 Checked By KLB Date 2-23-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-23	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2344	Tare No.	555
Wgt.Tare + Wet Specimen (gm)	1372.80	Wgt.Tare + Wet Specimen (gm)	544.93
Wgt.Tare + Dry Specimen (gm)	1282.80	Wgt.Tare + Dry Specimen (gm)	533.37
Weight of Tare (gm)	95.59	Weight of Tare (gm)	81.98
Weight of Water (gm)	90.00	Weight of Water (gm)	11.56
Weight of Dry Soil (gm)	1187.21	Weight of Dry Soil (gm)	451.39
Moisture Content (%)	**7.6**	**Moisture Content (%)**	**2.6**

Wet Weight -3/4" Sample (gm)	23345	Weight of the Dry Specimen (gm)	1187.21
Dry Weight - 3/4" Sample (gm)	21700.0	Weight of minus #200 material (gm)	149.97
Wet Weight +3/4" Sample (gm)	26166.00	Weight of plus #200 material (gm)	1037.24
Dry Weight + 3/4" Sample (gm)	25512.63		
Total Dry Weight Sample (gm)	47212.6	**J - Factor (Percent Finer than 3/4")**	**0.4596**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	5797.00		11.97	11.97	88.03	**88.03**
2"	50	4670.00	(*)	9.64	21.62	78.38	**78.38**
1 1/2"	37.5	5511.00		11.38	33.00	67.00	**67.00**
1"	25	6264.00		12.94	45.93	54.07	**54.07**
3/4"	19	3924.00		8.10	54.04	45.96	**45.96**
1/2"	12.5	85.60		7.21	7.21	92.79	**42.65**
3/8"	9.5	163.37		13.76	20.97	79.03	**36.32**
#4	4.75	298.86		25.17	46.14	53.86	**24.75**
#10	2	220.44		18.57	64.71	35.29	**16.22**
#20	0.85	130.05	(**)	10.95	75.67	24.33	**11.18**
#40	0.425	60.40		5.09	80.75	19.25	**8.85**
#60	0.25	31.95		2.69	83.45	16.55	**7.61**
#140	0.106	36.36		3.06	86.51	13.49	**6.20**
#200	0.075	10.21		0.86	87.37	12.63	**5.81**
Pan	-	149.97		12.63	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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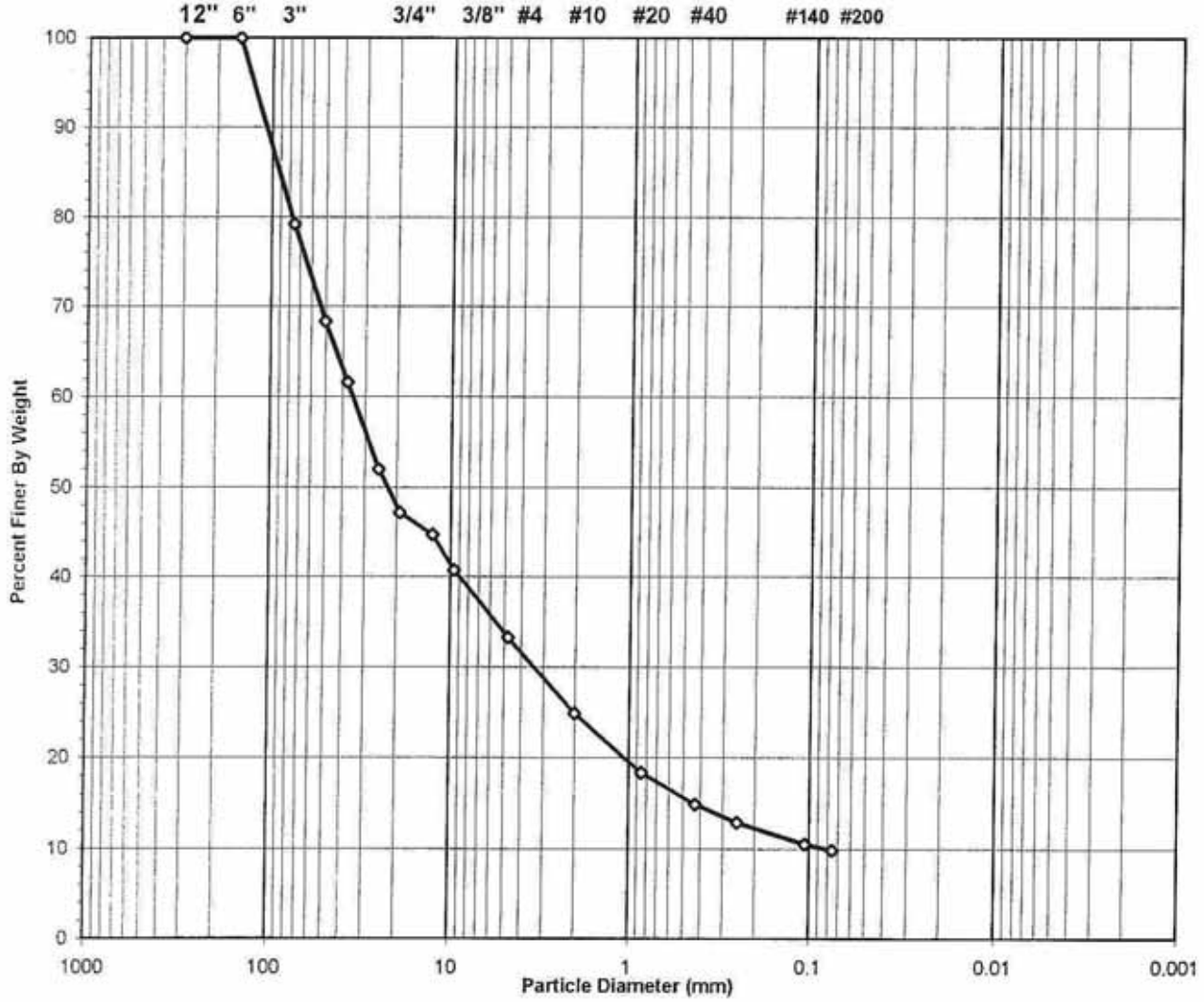
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-24	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*GP-GC, TESTED*	D60 =	35.1	CC =	4.0
USCS Classification	*POORLY GRADED GRAVEL WITH CLAY AND SAND*	D30 =	3.4	CU =	431.7
		D10 =	0.1		

Tested By PC Date 2/22/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 8-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-24	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	686	Tare No.	585
Wgt.Tare + Wet Specimen (gm)	1227.90	Wgt.Tare + Wet Specimen (gm)	1185.20
Wgt.Tare + Dry Specimen (gm)	1158.50	Wgt.Tare + Dry Specimen (gm)	1169.10
Weight of Tare (gm)	97.42	Weight of Tare (gm)	85.61
Weight of Water (gm)	69.40	Weight of Water (gm)	16.10
Weight of Dry Soil (gm)	1061.08	Weight of Dry Soil (gm)	1083.49
Moisture Content (%)	**6.5**	**Moisture Content (%)**	**1.5**

Wet Weight -3/4" Sample (gm)	24936	Weight of the Dry Specimen (gm)	1061.08
Dry Weight - 3/4" Sample (gm)	23405.2	Weight of minus #200 material (gm)	221.55
Wet Weight +3/4" Sample (gm)	26632.00	Weight of plus #200 material (gm)	839.53
Dry Weight + 3/4" Sample (gm)	26242.06		
Total Dry Weight Sample (gm)	49647.2	**J - Factor (Percent Finer than 3/4")**	**0.4714**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	10481.00		20.80	20.80	79.20	**79.20**
2"	50	5489.00	(*)	10.89	31.70	68.30	**68.30**
1 1/2"	37.5	3386.00		6.72	38.42	61.58	**61.58**
1"	25	4858.00		9.64	48.06	51.94	**51.94**
3/4"	19	2418.00		4.80	52.86	47.14	**47.14**
1/2"	12.5	55.31		5.21	5.21	94.79	**44.69**
3/8"	9.5	89.90		8.47	13.69	86.31	**40.69**
#4	4.75	167.07		15.75	29.43	70.57	**33.27**
#10	2	188.00		17.72	47.15	52.85	**24.92**
#20	0.85	147.54	(**)	13.90	61.05	38.95	**18.36**
#40	0.425	78.42		7.39	68.44	31.56	**14.88**
#60	0.25	44.68		4.21	72.65	27.35	**12.89**
#140	0.106	53.39		5.03	77.69	22.31	**10.52**
#200	0.075	15.22		1.43	79.12	20.88	**9.84**
Pan	-	221.55		20.88	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-24	Soil Description	**REDDISH BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

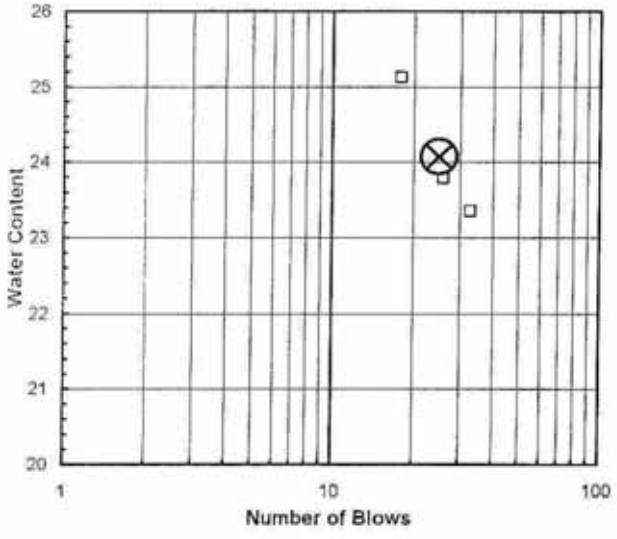
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	174	250	252	MULTIPOINT
Wt. of Tare & WS (gm)	42.99	43.54	43.43	
Wt. of Tare & DS (gm)	37.81	38.54	38.46	
Wt. of Tare (gm)	15.63	17.52	18.68	
Wt. of Water (gm)	5.2	5.0	5.0	
Wt. of DS (gm)	22.2	21.0	19.8	
Moisture Content (%)	**23.4**	**23.8**	**25.1**	
Number of Blows	**33**	**26**	**18**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	253	254	
Wt. of Tare & WS (gm)	24.69	24.45	
Wt. of Tare & DS (gm)	23.79	23.65	
Wt. of Tare (gm)	17.82	18.38	
Wt. of Water (gm)	0.9	0.8	
Wt. of DS (gm)	6.0	5.3	
Moisture Content (%)	**15.1**	**15.2**	**-0.1**

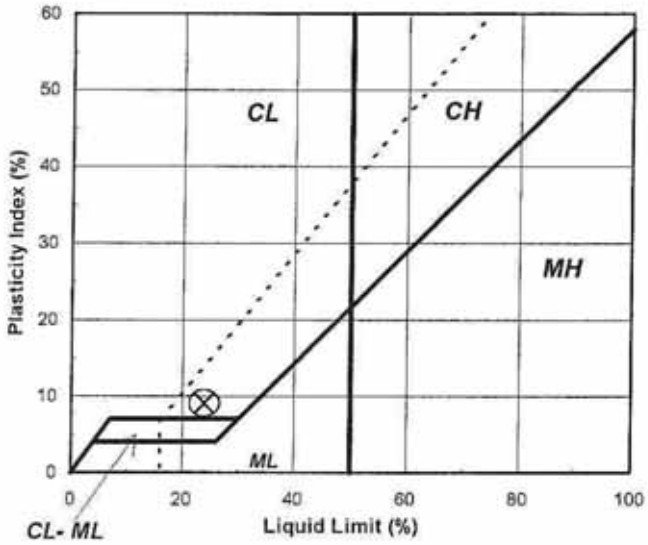
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**24**
Plastic Limit (%)	**15**
Plasticity Index (%)	**9**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/24/06 *Checked By* KB *Date* 2-27-06

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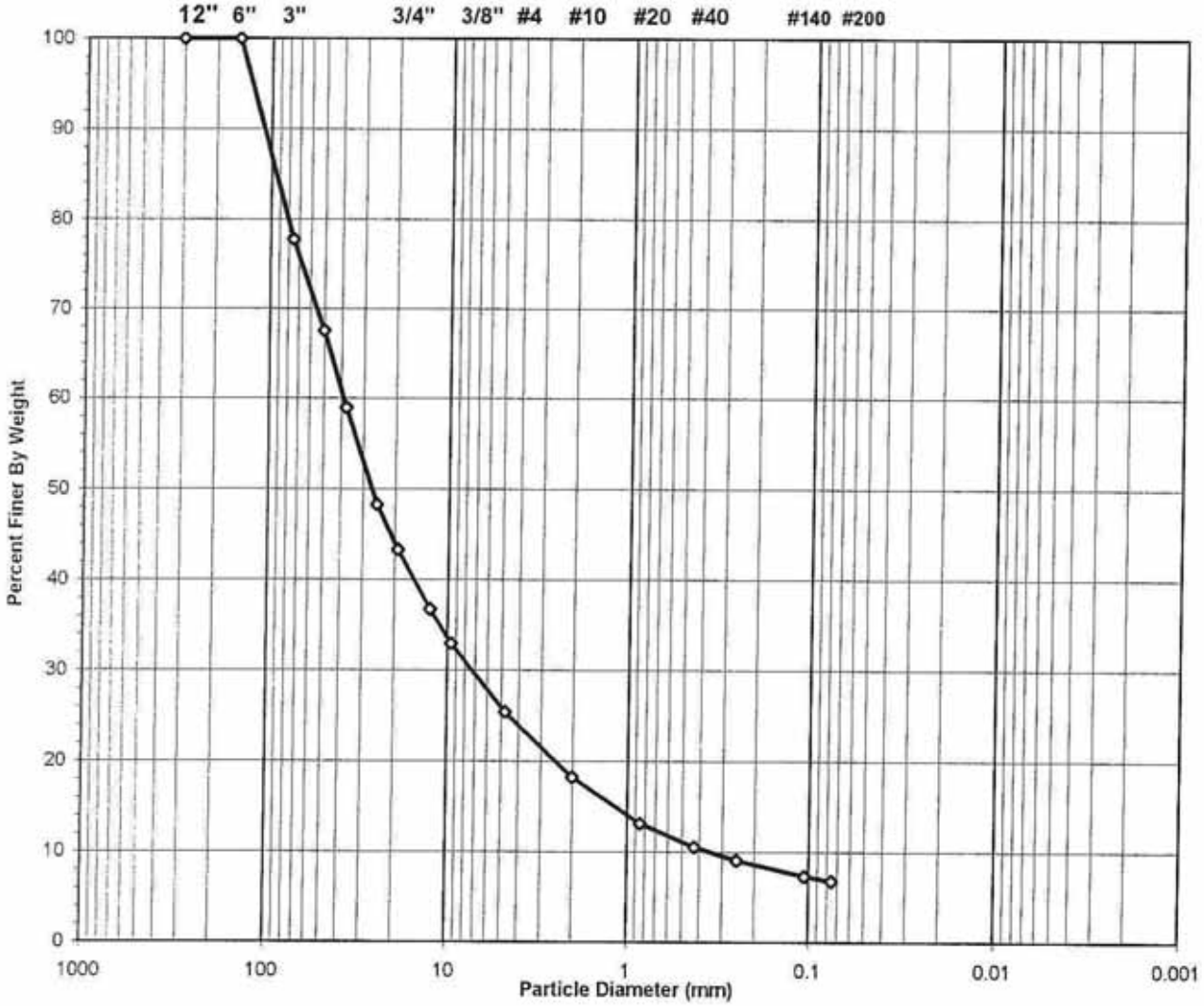
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-25	Soil Color	**REDDISH BROWN**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol	*GP-GC, TESTED*	D60 =	38.9	CC =	3.8
USCS Classification	*POORLY GRADED GRAVEL WITH CLAY AND SAND*	D30 =	7.2	CU =	109.9
		D10 =	0.4		

Tested By PC Date 2/23/06 Checked By KLB Date 2-28-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-25	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	706	Tare No.	892
Wgt.Tare + Wet Specimen (gm)	1368.50	Wgt.Tare + Wet Specimen (gm)	1327.20
Wgt.Tare + Dry Specimen (gm)	1265.30	Wgt.Tare + Dry Specimen (gm)	1293.40
Weight of Tare (gm)	100.96	Weight of Tare (gm)	109.93
Weight of Water (gm)	103.20	Weight of Water (gm)	33.80
Weight of Dry Soil (gm)	1164.34	Weight of Dry Soil (gm)	1183.47
Moisture Content (%)	**8.9**	**Moisture Content (%)**	**2.9**

Wet Weight -3/4" Sample (gm)	22425	Weight of the Dry Specimen (gm)	1164.34
Dry Weight - 3/4" Sample (gm)	20599.2	Weight of minus #200 material (gm)	183.29
Wet Weight +3/4" Sample (gm)	27796.00	Weight of plus #200 material (gm)	981.05
Dry Weight + 3/4" Sample (gm)	27024.19		
Total Dry Weight Sample (gm)	47623.4	**J - Factor (Percent Finer than 3/4")**	**0.4325**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	10917.00		22.29	22.29	77.71	**77.71**
2"	50	5002.00	(*)	10.21	32.50	67.50	**67.50**
1 1/2"	37.5	4195.00		8.56	41.06	58.94	**58.94**
1"	25	5229.00		10.68	51.74	48.26	**48.26**
3/4"	19	2453.00		5.01	56.75	43.25	**43.25**
1/2"	12.5	176.46		15.16	15.16	84.84	**36.70**
3/8"	9.5	101.19		8.69	23.85	76.15	**32.94**
#4	4.75	202.52		17.39	41.24	58.76	**25.42**
#10	2	193.77		16.64	57.88	42.12	**18.22**
#20	0.85	137.56	(**)	11.81	69.70	30.30	**13.11**
#40	0.425	70.23		6.03	75.73	24.27	**10.50**
#60	0.25	38.82		3.33	79.06	20.94	**9.06**
#140	0.106	46.46		3.99	83.05	16.95	**7.33**
#200	0.075	14.04		1.21	84.26	15.74	**6.81**
Pan	-	183.29		15.74	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KYB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-25	Soil Description	**REDDISH BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

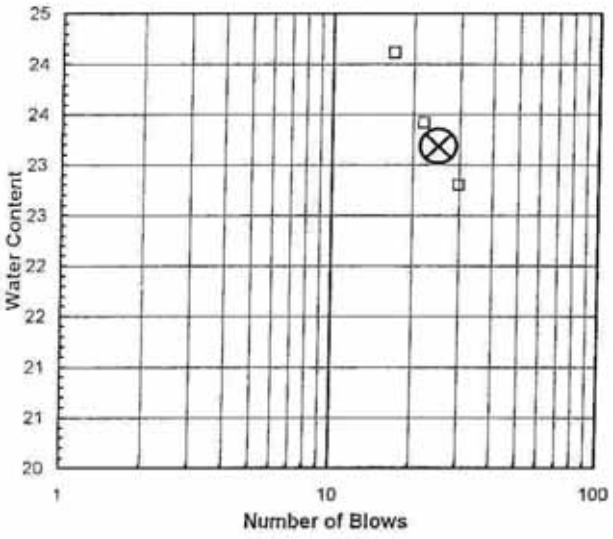
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	68	182	219	MULTIPOINT
Wt. of Tare & WS (gm)	40.62	44.07	45.40	
Wt. of Tare & DS (gm)	36.13	39.23	40.41	
Wt. of Tare (gm)	16.42	18.56	19.72	
Wt. of Water (gm)	4.5	4.8	5.0	
Wt. of DS (gm)	19.7	20.7	20.7	
Moisture Content (%)	**22.8**	**23.4**	**24.1**	
Number of Blows	**30**	**22**	**17**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	234	2294	
Wt. of Tare & WS (gm)	25.11	26.22	
Wt. of Tare & DS (gm)	24.29	25.34	
Wt. of Tare (gm)	18.98	19.68	
Wt. of Water (gm)	0.8	0.9	
Wt. of DS (gm)	5.3	5.7	
Moisture Content (%)	**15.4**	**15.5**	**-0.1**

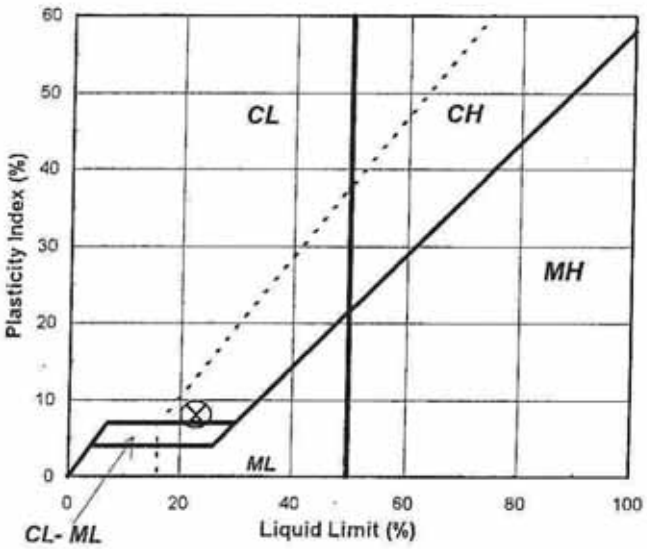
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**23**
Plastic Limit (%)	**15**
Plasticity Index (%)	**8**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By JP *Date* 2/24/06 *Checked By* YHB *Date* 2-27-06

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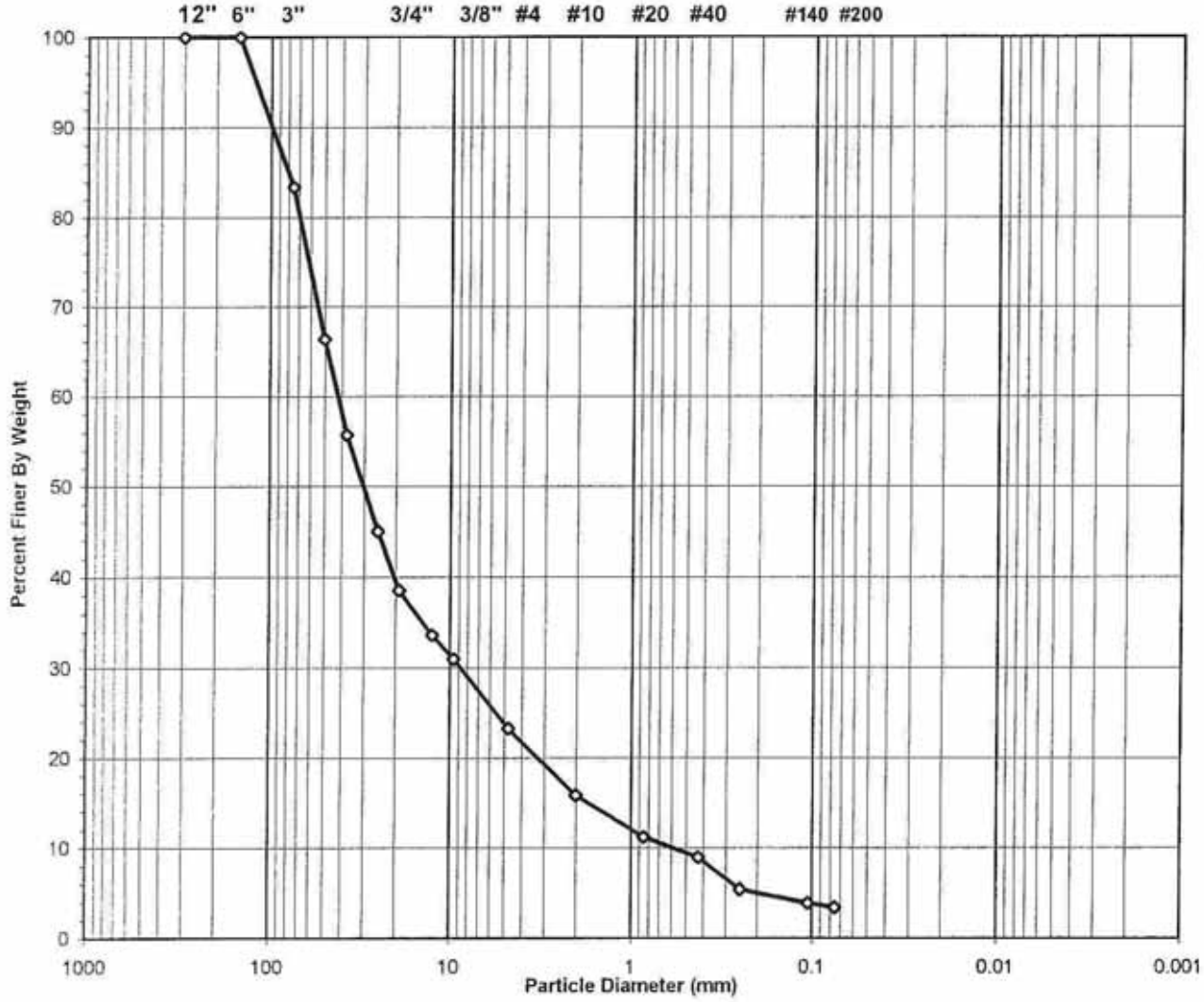
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-26	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*GW, TESTED*	D60 =	42.1	CC =	3.0
USCS Classification	*WELL-GRADED GRAVEL WITH SAND*	D30 =	8.7	CU =	70.4
		D10 =	0.6		

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-26	Soil Color	BROWN

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2338	Tare No.	1694
Wgt.Tare + Wet Specimen (gm)	1262.30	Wgt.Tare + Wet Specimen (gm)	405.99
Wgt.Tare + Dry Specimen (gm)	1157.30	Wgt.Tare + Dry Specimen (gm)	390.36
Weight of Tare (gm)	97.56	Weight of Tare (gm)	83.80
Weight of Water (gm)	105.00	Weight of Water (gm)	15.63
Weight of Dry Soil (gm)	1059.74	Weight of Dry Soil (gm)	306.56
Moisture Content (%)	**9.9**	**Moisture Content (%)**	**5.1**

Wet Weight -3/4" Sample (gm)	15003	Weight of the Dry Specimen (gm)	1059.74
Dry Weight - 3/4" Sample (gm)	13650.5	Weight of minus #200 material (gm)	92.92
Wet Weight +3/4" Sample (gm)	22855.00	Weight of plus #200 material (gm)	966.82
Dry Weight + 3/4" Sample (gm)	21746.26		
Total Dry Weight Sample (gm)	35396.8	**J - Factor (Percent Finer than 3/4")**	**0.3856**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	6195.00		16.65	16.65	83.35	**83.35**
2"	50	6316.00	(*)	16.98	33.63	66.37	**66.37**
1 1/2"	37.5	3958.00		10.64	44.27	55.73	**55.73**
1"	25	3976.00		10.69	54.96	45.04	**45.04**
3/4"	19	2410.00		6.48	61.44	38.56	**38.56**
1/2"	12.5	134.98		12.74	12.74	87.26	**33.65**
3/8"	9.5	73.04		6.89	19.63	80.37	**30.99**
#4	4.75	211.36		19.94	39.57	60.43	**23.30**
#10	2	204.95		19.34	58.91	41.09	**15.84**
#20	0.85	129.30	(**)	12.20	71.11	28.89	**11.14**
#40	0.425	61.64		5.82	76.93	23.07	**8.90**
#60	0.25	95.99		9.06	85.99	14.01	**5.40**
#140	0.106	42.57		4.02	90.01	9.99	**3.85**
#200	0.075	12.99		1.23	91.23	8.77	**3.38**
Pan	-	92.92		8.77	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KYB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-26	Soil Description	**BROWN SILTY CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

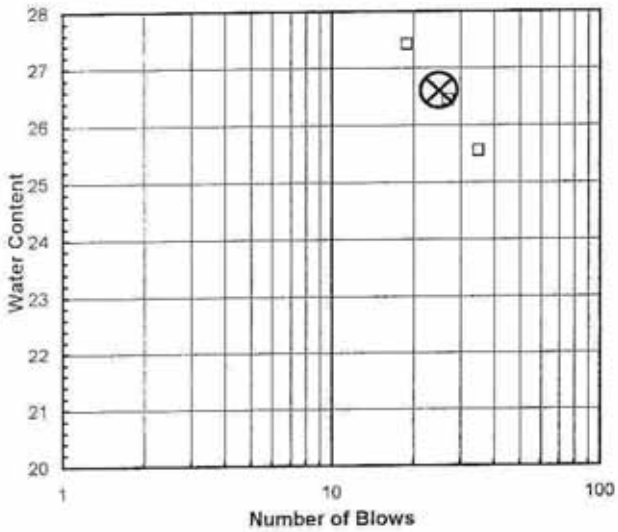
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	O2	95	189	MULTIPOINT
Wt. of Tare & WS (gm)	27.96	28.78	36.29	
Wt. of Tare & DS (gm)	25.19	26.16	32.71	
Wt. of Tare (gm)	14.35	16.25	19.65	
Wt. of Water (gm)	2.8	2.6	3.6	
Wt. of DS (gm)	10.8	9.9	13.1	
Moisture Content (%)	**25.6**	**26.4**	**27.4**	
Number of Blows	**35**	**27**	**19**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	240	245	
Wt. of Tare & WS (gm)	25.52	26.09	
Wt. of Tare & DS (gm)	24.54	25.05	
Wt. of Tare (gm)	19.88	20.03	
Wt. of Water (gm)	1.0	1.0	
Wt. of DS (gm)	4.7	5.0	
Moisture Content (%)	**21.0**	**20.7**	**0.3**

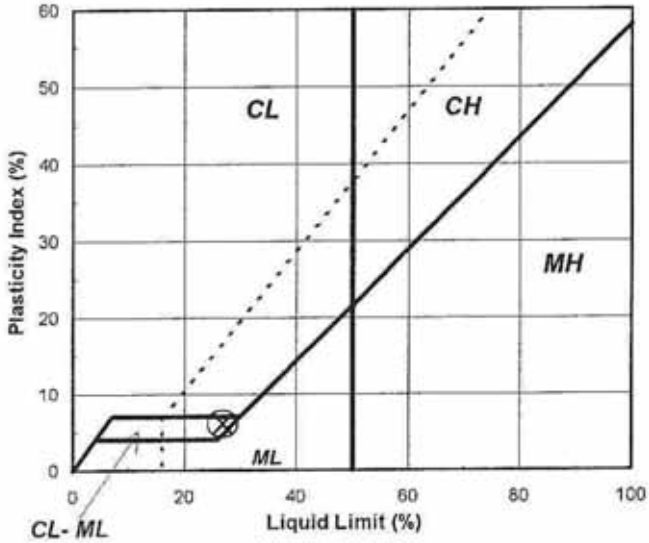
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**27**
Plastic Limit (%)	**21**
Plasticity Index (%)	**6**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/24/06 *Checked By* KLB *Date* 2-27-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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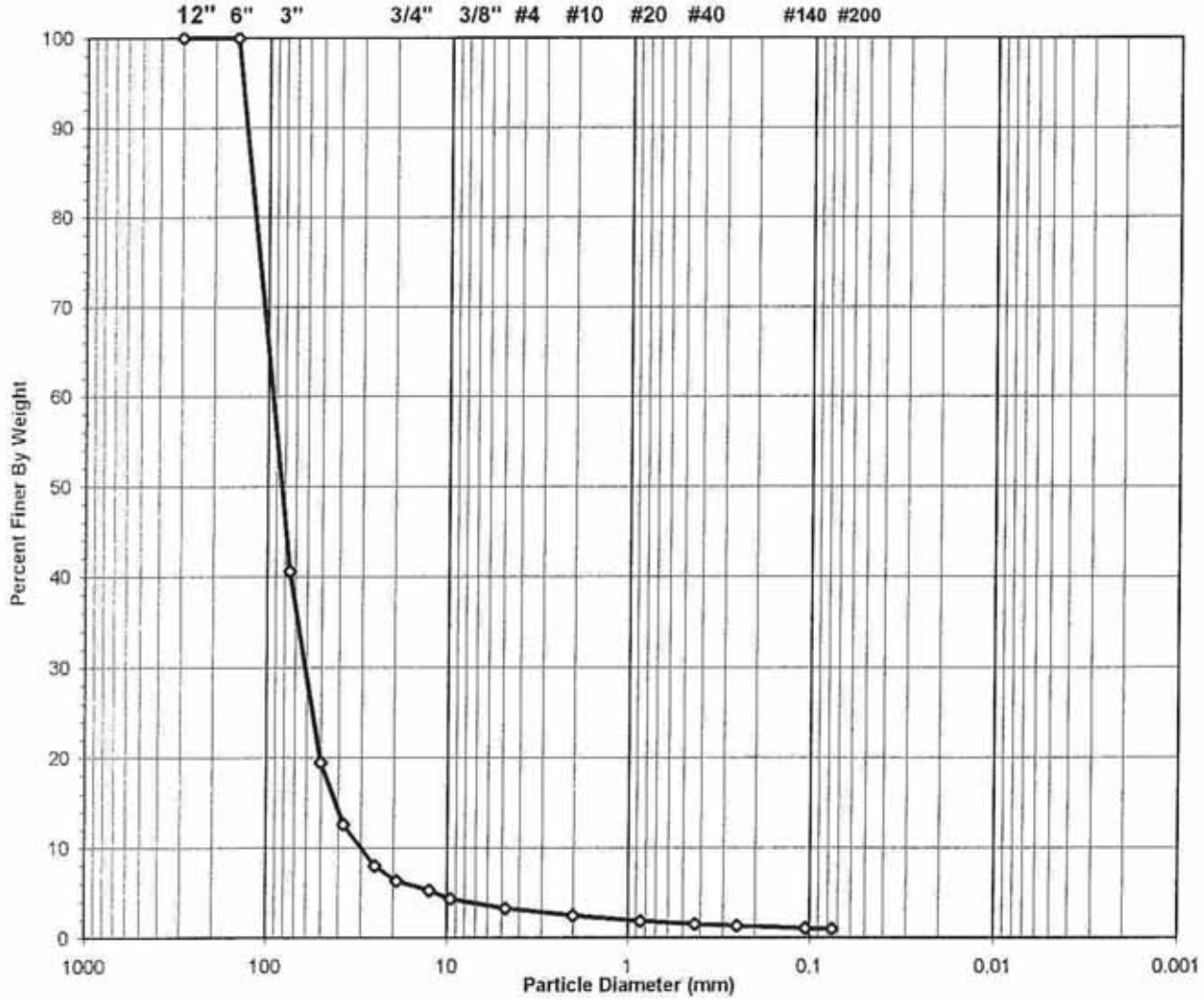
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-27	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***GP, TESTED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-27	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	928	Tare No.	900
Wgt.Tare + Wet Specimen (gm)	925.10	Wgt.Tare + Wet Specimen (gm)	1116.30
Wgt.Tare + Dry Specimen (gm)	864.40	Wgt.Tare + Dry Specimen (gm)	1075.90
Weight of Tare (gm)	103.43	Weight of Tare (gm)	110.09
Weight of Water (gm)	60.70	Weight of Water (gm)	40.40
Weight of Dry Soil (gm)	760.97	Weight of Dry Soil (gm)	965.81
Moisture Content (%)	**8.0**	**Moisture Content (%)**	**4.2**

Wet Weight -3/4" Sample (gm)	1792	Weight of the Dry Specimen (gm)	760.97
Dry Weight - 3/4" Sample (gm)	1659.6	Weight of minus #200 material (gm)	120.12
Wet Weight +3/4" Sample (gm)	25584.00	Weight of plus #200 material (gm)	640.85
Dry Weight + 3/4" Sample (gm)	24556.79		
Total Dry Weight Sample (gm)	26216.4	**J - Factor (Percent Finer than 3/4")**	**0.0633**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	16226.00		59.41	59.41	40.59	**40.59**
2"	50	5765.00	(*)	21.11	80.51	19.49	**19.49**
1 1/2"	37.5	1891.00		6.92	87.44	12.56	**12.56**
1"	25	1250.00		4.58	92.01	7.99	**7.99**
3/4"	19	452.00		1.65	93.67	6.33	**6.33**
1/2"	12.5	127.44		16.75	16.75	83.25	**5.27**
3/8"	9.5	109.85		14.44	31.18	68.82	**4.36**
#4	4.75	127.88		16.80	47.99	52.01	**3.29**
#10	2	98.07		12.89	60.87	39.13	**2.48**
#20	0.85	74.36	(**)	9.77	70.65	29.35	**1.86**
#40	0.425	40.24		5.29	75.93	24.07	**1.52**
#60	0.25	23.25		3.06	78.99	21.01	**1.33**
#140	0.106	29.97		3.94	82.93	17.07	**1.08**
#200	0.075	9.79		1.29	84.21	15.79	**1.00**
Pan	-	120.12		15.79	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-27	Soil Description	**REDDISH BROWN SILTY CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

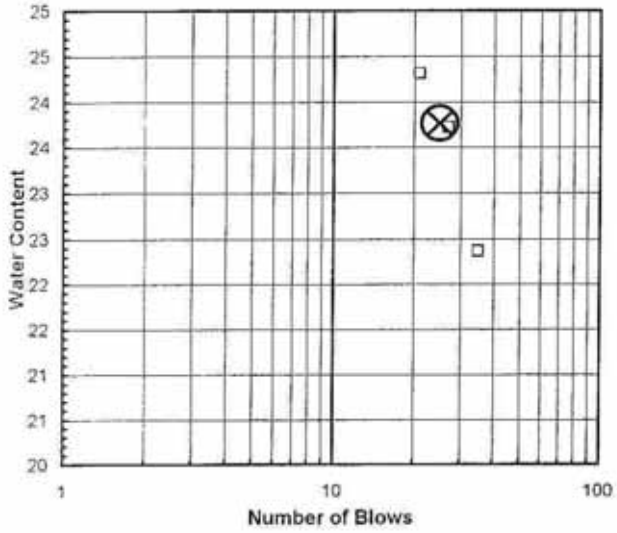
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	119	194	226	M U L T I P O I N T
Wt. of Tare & WS (gm)	40.06	36.86	39.75	
Wt. of Tare & DS (gm)	35.97	32.99	35.50	
Wt. of Tare (gm)	17.68	16.67	18.02	
Wt. of Water (gm)	4.1	3.9	4.3	
Wt. of DS (gm)	18.3	16.3	17.5	
Moisture Content (%)	**22.4**	**23.7**	**24.3**	
Number of Blows	**35**	**27**	**21**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	232	259	
Wt. of Tare & WS (gm)	24.02	25.50	
Wt. of Tare & DS (gm)	23.03	24.18	
Wt. of Tare (gm)	17.91	17.36	
Wt. of Water (gm)	1.0	1.3	
Wt. of DS (gm)	5.1	6.8	
Moisture Content (%)	**19.3**	**19.4**	**0.0**

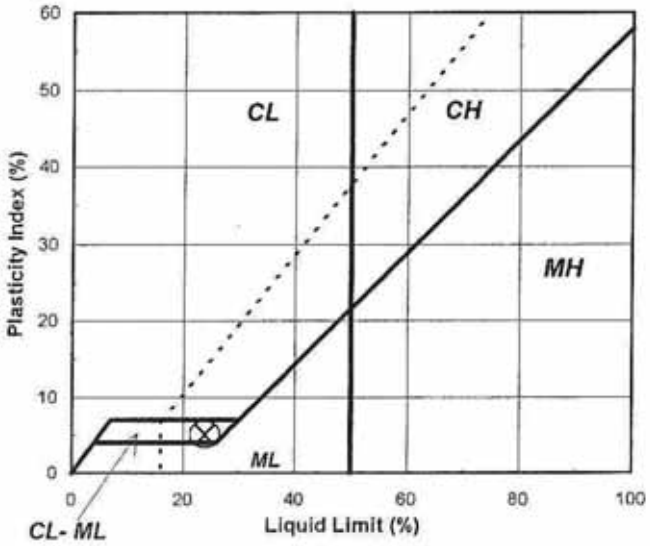
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**24**
Plastic Limit (%)	**19**
Plasticity Index (%)	**5**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



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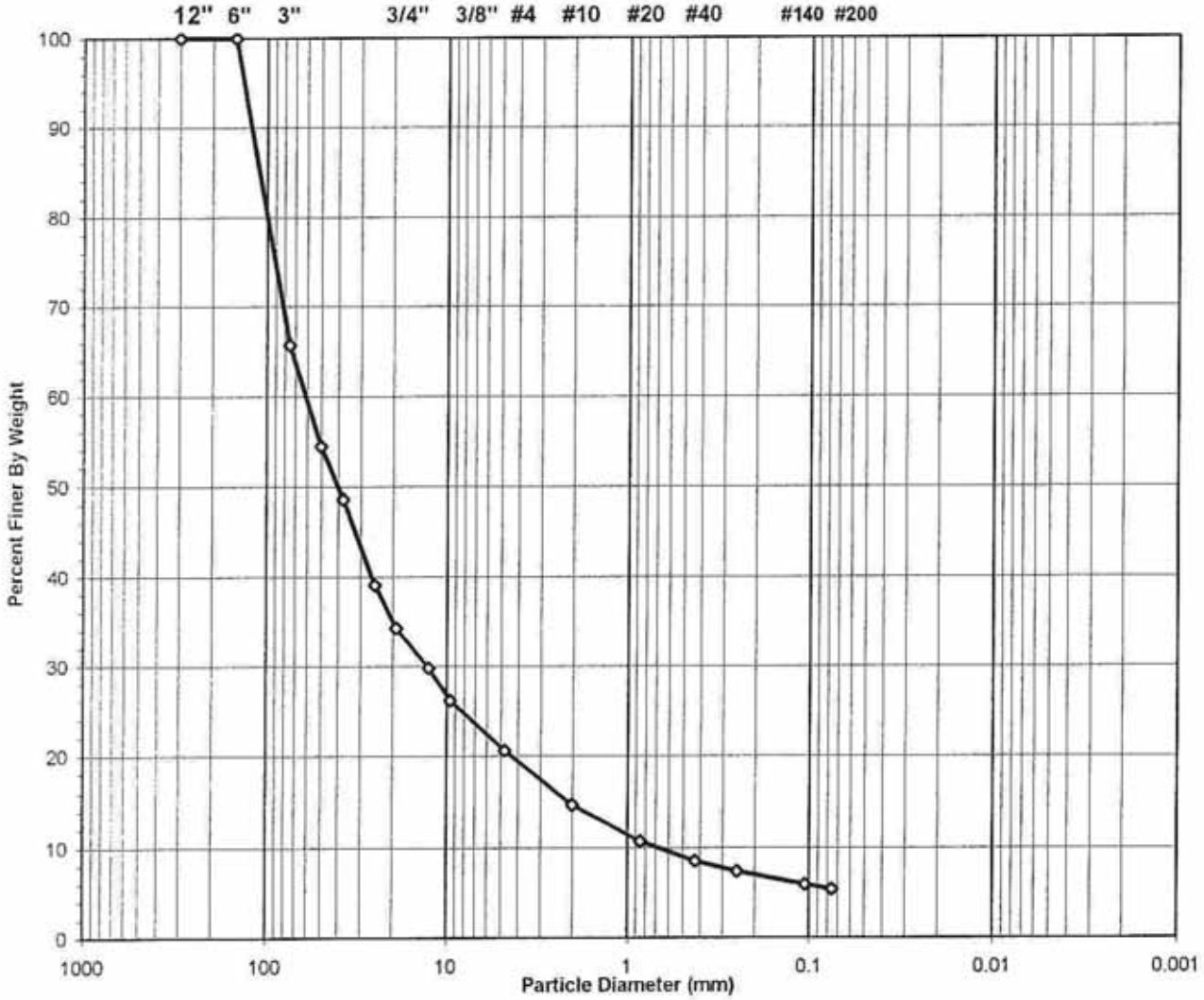
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-28	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*GP-GM, TESTED*	D60 =	61.0	CC =	3.9
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND (NON-PLASTIC FINES)*	D30 =	12.7	CU =	90.7
		D10 =	0.7		

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-28	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1005	Tare No.	901
Wgt.Tare + Wet Specimen (gm)	1337.20	Wgt.Tare + Wet Specimen (gm)	1064.40
Wgt.Tare + Dry Specimen (gm)	1266.90	Wgt.Tare + Dry Specimen (gm)	1054.70
Weight of Tare (gm)	100.15	Weight of Tare (gm)	110.39
Weight of Water (gm)	70.30	Weight of Water (gm)	9.70
Weight of Dry Soil (gm)	1166.75	Weight of Dry Soil (gm)	944.31
Moisture Content (%)	**6.0**	**Moisture Content (%)**	**1.0**

Wet Weight -3/4" Sample (gm)	20239	Weight of the Dry Specimen (gm)	1166.75
Dry Weight - 3/4" Sample (gm)	19088.8	Weight of minus #200 material (gm)	183.52
Wet Weight +3/4" Sample (gm)	36945.00	Weight of plus #200 material (gm)	983.23
Dry Weight + 3/4" Sample (gm)	36569.36		
Total Dry Weight Sample (gm)	55658.2	**J - Factor (Percent Finer than 3/4")**	**0.3430**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	19274.00		34.28	34.28	65.72	**65.72**
2"	50	6337.00	(*)	11.27	45.55	54.45	**54.45**
1 1/2"	37.5	3299.00		5.87	51.41	48.59	**48.59**
1"	25	5373.00		9.56	60.97	39.03	**39.03**
3/4"	19	2662.00		4.73	65.70	34.30	**34.30**
1/2"	12.5	152.98		13.11	13.11	86.89	**29.80**
3/8"	9.5	122.09		10.46	23.58	76.42	**26.21**
#4	4.75	190.74		16.35	39.92	60.08	**20.60**
#10	2	201.50		17.27	57.19	42.81	**14.68**
#20	0.85	134.16	(**)	11.50	68.69	31.31	**10.74**
#40	0.425	74.52		6.39	75.08	24.92	**8.55**
#60	0.25	39.08		3.35	78.43	21.57	**7.40**
#140	0.106	50.48		4.33	82.76	17.24	**5.91**
#200	0.075	17.68		1.52	84.27	15.73	**5.39**
Pan	-	183.52		15.73	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-28	Visual Description	**REDDISH BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By BS *Date* 2/24/06 *Checked By* YKB *Date* 2-27-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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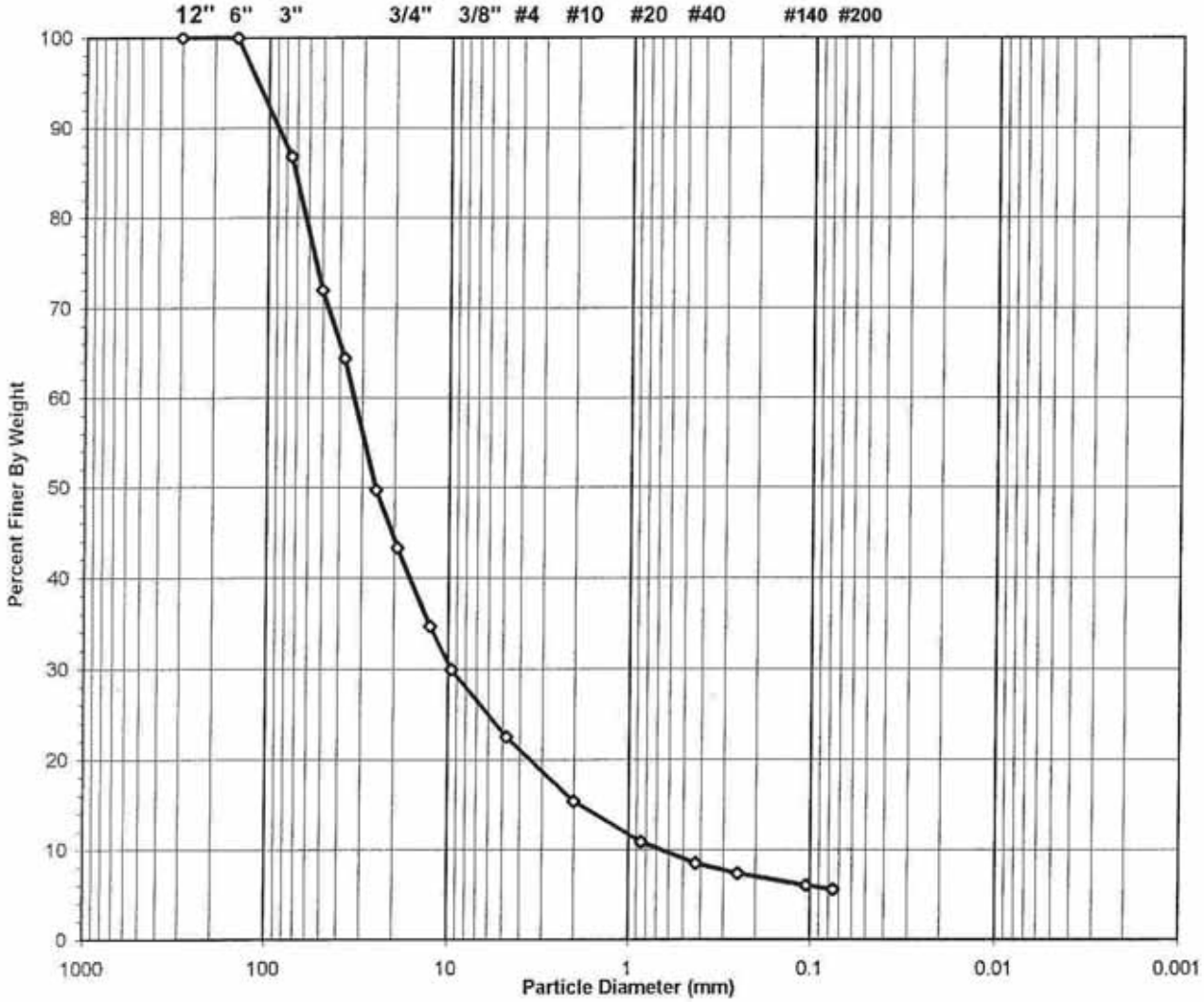
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-29	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	*GP-GM, TESTED*	**D60 =**	**33.2**	**CC =**	**4.1**
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND (NON-PLASTIC FINES)*	**D30 =**	**9.5**	**CU =**	**49.7**
		D10 =	**0.7**		

Tested By PC Date 2/23/06 Checked By KB Date 3-8-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-29	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	705	Tare No.	898
Wgt.Tare + Wet Specimen (gm)	1420.10	Wgt.Tare + Wet Specimen (gm)	440.01
Wgt.Tare + Dry Specimen (gm)	1346.40	Wgt.Tare + Dry Specimen (gm)	432.66
Weight of Tare (gm)	101.30	Weight of Tare (gm)	110.00
Weight of Water (gm)	73.70	Weight of Water (gm)	7.35
Weight of Dry Soil (gm)	1245.10	Weight of Dry Soil (gm)	322.66
Moisture Content (%)	**5.9**	**Moisture Content (%)**	**2.3**

Wet Weight -3/4" Sample (gm)	19959	Weight of the Dry Specimen (gm)	1245.10
Dry Weight - 3/4" Sample (gm)	18843.6	Weight of minus #200 material (gm)	159.37
Wet Weight +3/4" Sample (gm)	25301.00	Weight of plus #200 material (gm)	1085.73
Dry Weight + 3/4" Sample (gm)	24737.49		
Total Dry Weight Sample (gm)	43581.1	**J - Factor (Percent Finer than 3/4")**	**0.4324**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	5871.00		13.17	13.17	86.83	**86.83**
2"	50	6609.00	(*)	14.83	28.00	72.00	**72.00**
1 1/2"	37.5	3379.00		7.58	35.58	64.42	**64.42**
1"	25	6596.00		14.80	50.38	49.62	**49.62**
3/4"	19	2846.00		6.38	56.76	43.24	**43.24**
1/2"	12.5	247.73		19.90	19.90	80.10	**34.64**
3/8"	9.5	134.58		10.81	30.71	69.29	**29.96**
#4	4.75	213.52		17.15	47.85	52.15	**22.55**
#10	2	206.62		16.59	64.45	35.55	**15.37**
#20	0.85	131.31	(**)	10.55	74.99	25.01	**10.81**
#40	0.425	67.27		5.40	80.40	19.60	**8.48**
#60	0.25	32.74		2.63	83.03	16.97	**7.34**
#140	0.106	39.17		3.15	86.17	13.83	**5.98**
#200	0.075	12.79		1.03	87.20	12.80	**5.53**
Pan	-	159.37		12.80	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KB Date 3-8-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-29	Visual Description	**REDDISH BROWN SILT**
			(Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By BS *Date* 3/1/06 *Checked By* HB *Date* 3-7-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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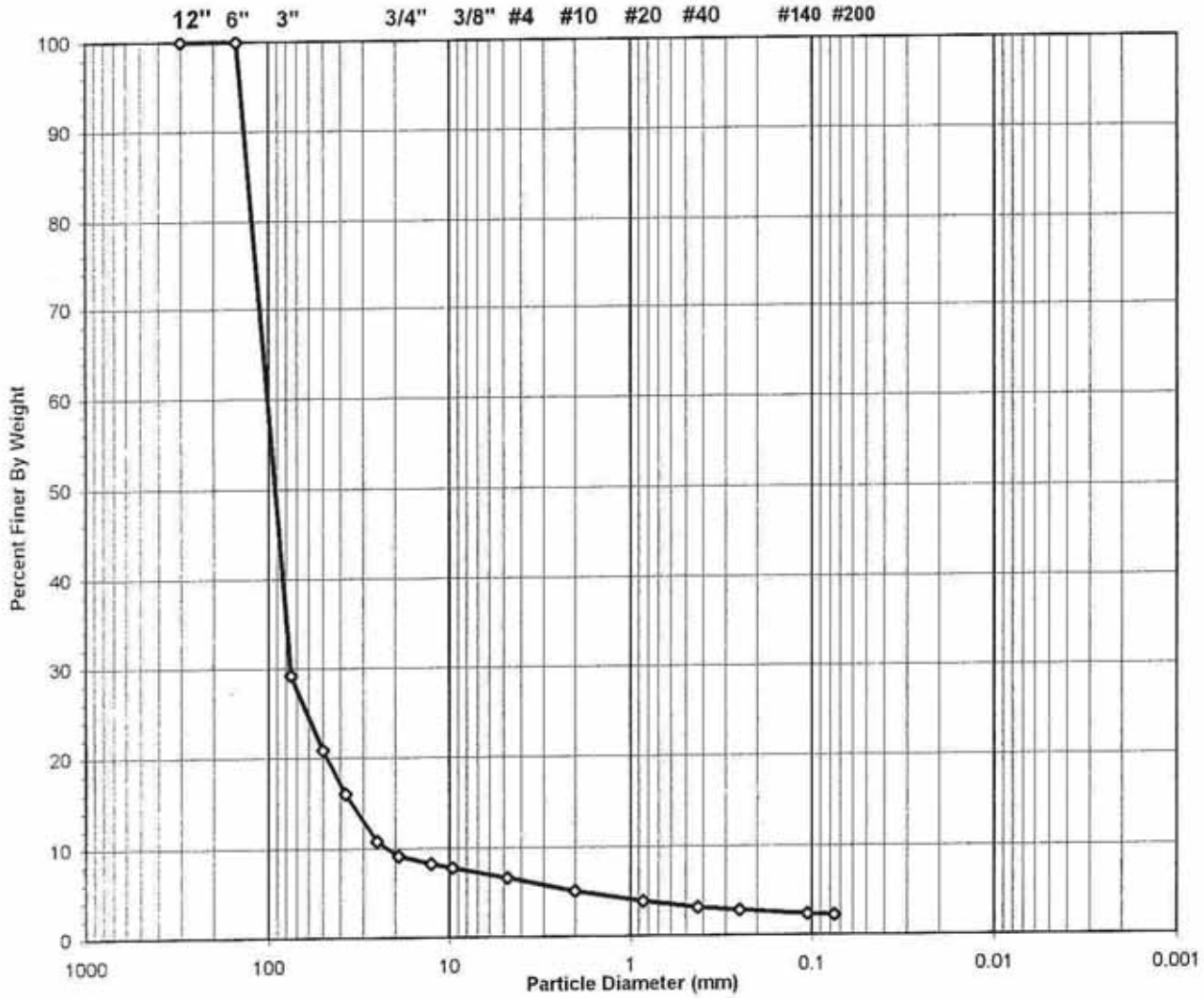
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	70-80
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-30	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol *GP, TESTED*

USCS Classification *POORLY GRADED GRAVEL*

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	70-80
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-30	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2471	Tare No.	913
Wgt.Tare + Wet Specimen (gm)	1267.80	Wgt.Tare + Wet Specimen (gm)	551.71
Wgt.Tare + Dry Specimen (gm)	1192.40	Wgt.Tare + Dry Specimen (gm)	546.61
Weight of Tare (gm)	100.33	Weight of Tare (gm)	110.77
Weight of Water (gm)	75.40	Weight of Water (gm)	5.10
Weight of Dry Soil (gm)	1092.07	Weight of Dry Soil (gm)	435.84
Moisture Content (%)	**6.9**	**Moisture Content (%)**	**1.2**

Wet Weight -3/4" Sample (gm)	3360	Weight of the Dry Specimen (gm)	1092.07
Dry Weight - 3/4" Sample (gm)	3143.0	Weight of minus #200 material (gm)	260.17
Wet Weight +3/4" Sample (gm)	31781.00	Weight of plus #200 material (gm)	831.90
Dry Weight + 3/4" Sample (gm)	31413.41		
Total Dry Weight Sample (gm)	34556.4	**J - Factor (Percent Finer than 3/4")**	**0.0910**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	24758.00		70.82	70.82	29.18	**29.18**
2"	50	2908.00	(*)	8.32	79.13	20.87	**20.87**
1 1/2"	37.5	1696.00		4.85	83.99	16.01	**16.01**
1"	25	1833.00		5.24	89.23	10.77	**10.77**
3/4"	19	586.00		1.68	90.90	9.10	**9.10**
1/2"	12.5	101.71		9.31	9.31	90.69	**8.25**
3/8"	9.5	58.99		5.40	14.72	85.28	**7.76**
#4	4.75	143.89		13.18	27.89	72.11	**6.56**
#10	2	179.73		16.46	44.35	55.65	**5.06**
#20	0.85	144.15	(**)	13.20	57.55	42.45	**3.86**
#40	0.425	85.43		7.82	65.37	34.63	**3.15**
#60	0.25	43.60		3.99	69.36	30.64	**2.79**
#140	0.106	54.52		4.99	74.36	25.64	**2.33**
#200	0.075	19.88		1.82	76.18	23.82	**2.17**
Pan	-	260.17		23.82	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	70-80
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-30	Soil Description	**BROWN SILTY CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

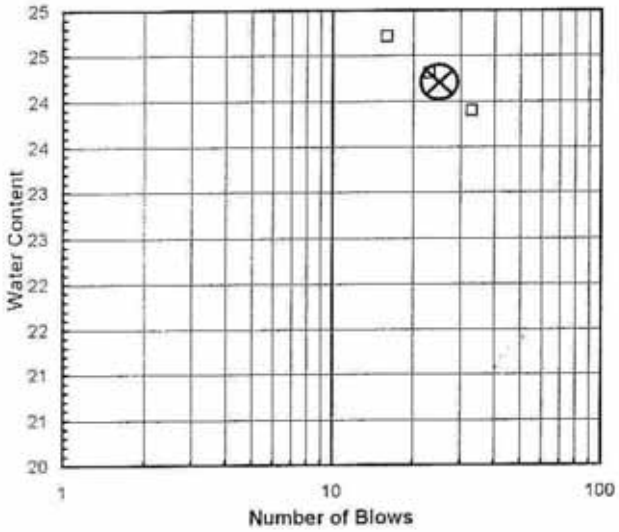
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	O	40A	142	M U L T I P O I N T
Wt. of Tare & WS (gm)	42.80	45.04	48.47	
Wt. of Tare & DS (gm)	38.43	39.64	42.94	
Wt. of Tare (gm)	20.14	17.42	20.56	
Wt. of Water (gm)	4.4	5.4	5.5	
Wt. of DS (gm)	18.3	22.2	22.4	
Moisture Content (%)	**23.9**	**24.3**	**24.7**	
Number of Blows	**33**	**23**	**16**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	209	213	
Wt. of Tare & WS (gm)	23.71	24.93	
Wt. of Tare & DS (gm)	22.79	24.05	
Wt. of Tare (gm)	17.42	18.88	
Wt. of Water (gm)	0.9	0.9	
Wt. of DS (gm)	5.4	5.2	
Moisture Content (%)	**17.1**	**17.0**	**0.1**

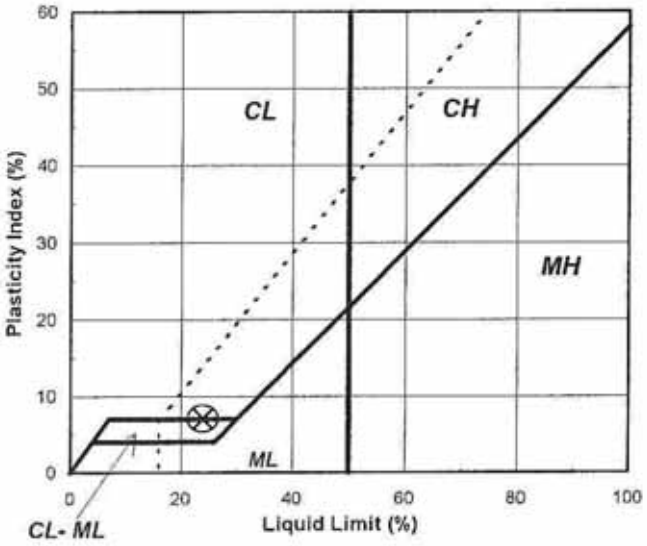
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**24**
Plastic Limit (%)	**17**
Plasticity Index (%)	**7**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/24/06 *Checked By* YKB *Date* 2-27-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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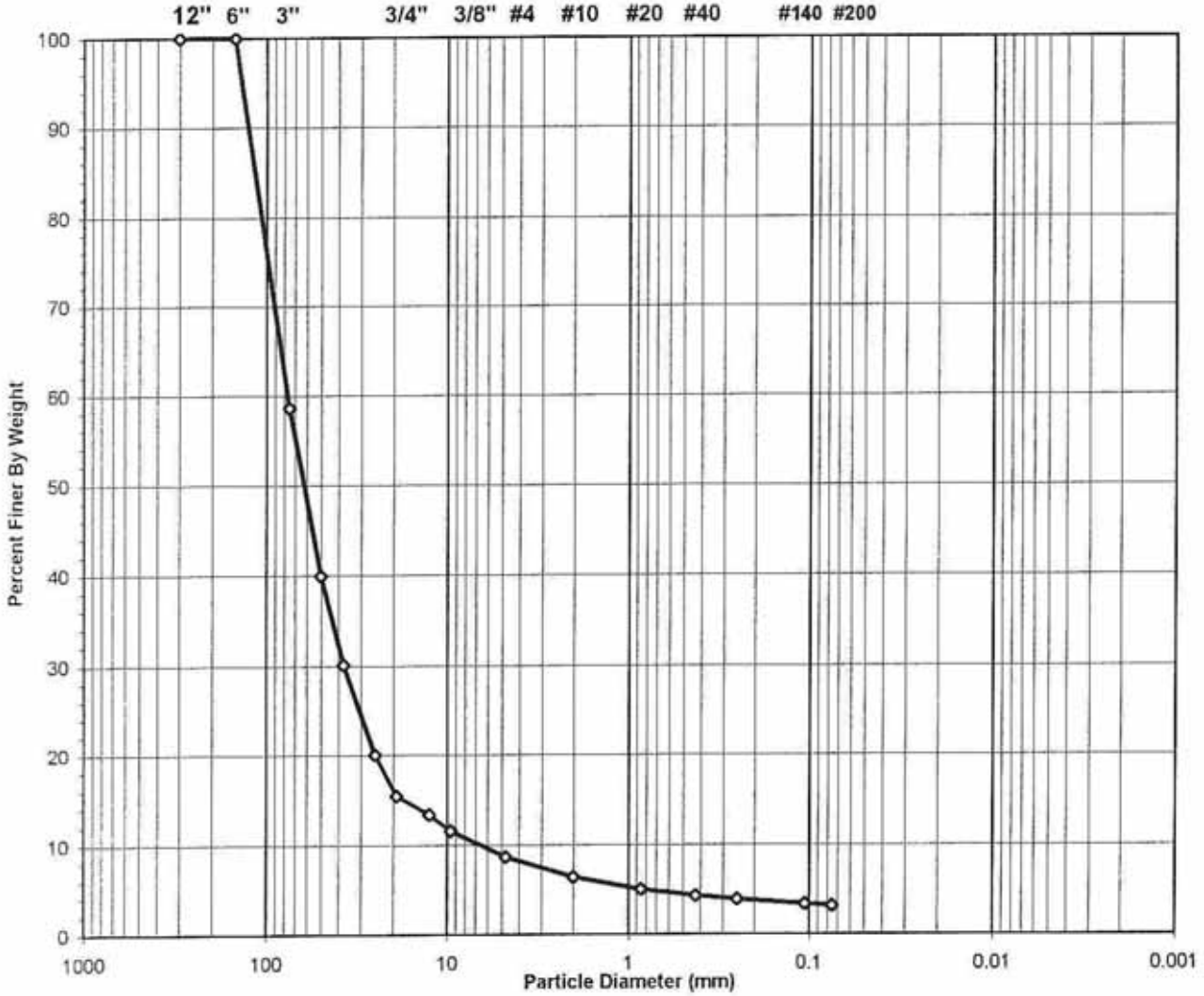
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-90
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-31	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/23/06 Checked By KYB Date 2-24-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-90
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-31	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	635	Tare No.	888
Wgt.Tare + Wet Specimen (gm)	1300.70	Wgt.Tare + Wet Specimen (gm)	538.89
Wgt.Tare + Dry Specimen (gm)	1196.70	Wgt.Tare + Dry Specimen (gm)	521.60
Weight of Tare (gm)	100.06	Weight of Tare (gm)	110.50
Weight of Water (gm)	104.00	Weight of Water (gm)	17.29
Weight of Dry Soil (gm)	1096.64	Weight of Dry Soil (gm)	411.10
Moisture Content (%)	**9.5**	**Moisture Content (%)**	**4.2**

Wet Weight -3/4" Sample (gm)	3647	Weight of the Dry Specimen (gm)	1096.64
Dry Weight - 3/4" Sample (gm)	3331.1	Weight of minus #200 material (gm)	220.08
Wet Weight +3/4" Sample (gm)	19023.00	Weight of plus #200 material (gm)	876.56
Dry Weight + 3/4" Sample (gm)	18255.22		
Total Dry Weight Sample (gm)	21586.3	**J - Factor (Percent Finer than 3/4")**	**0.1543**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	9316.00		41.42	41.42	58.58	**58.58**
2"	50	4196.00	(*)	18.65	60.07	39.93	**39.93**
1 1/2"	37.5	2200.00		9.78	69.85	30.15	**30.15**
1"	25	2282.00		10.14	79.99	20.01	**20.01**
3/4"	19	1029.00		4.57	84.57	15.43	**15.43**
1/2"	12.5	144.02		13.13	13.13	86.87	**13.40**
3/8"	9.5	130.48		11.90	25.03	74.97	**11.57**
#4	4.75	205.87		18.77	43.80	56.20	**8.67**
#10	2	163.33		14.89	58.70	41.30	**6.37**
#20	0.85	100.28	(**)	9.14	67.84	32.16	**4.96**
#40	0.425	51.36		4.68	72.53	27.47	**4.24**
#60	0.25	26.55		2.42	74.95	25.05	**3.87**
#140	0.106	38.27		3.49	78.44	21.56	**3.33**
#200	0.075	16.40		1.50	79.93	20.07	**3.10**
Pan	-	220.08		20.07	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By PC Date 2/23/06 Checked By KAB Date 2-24-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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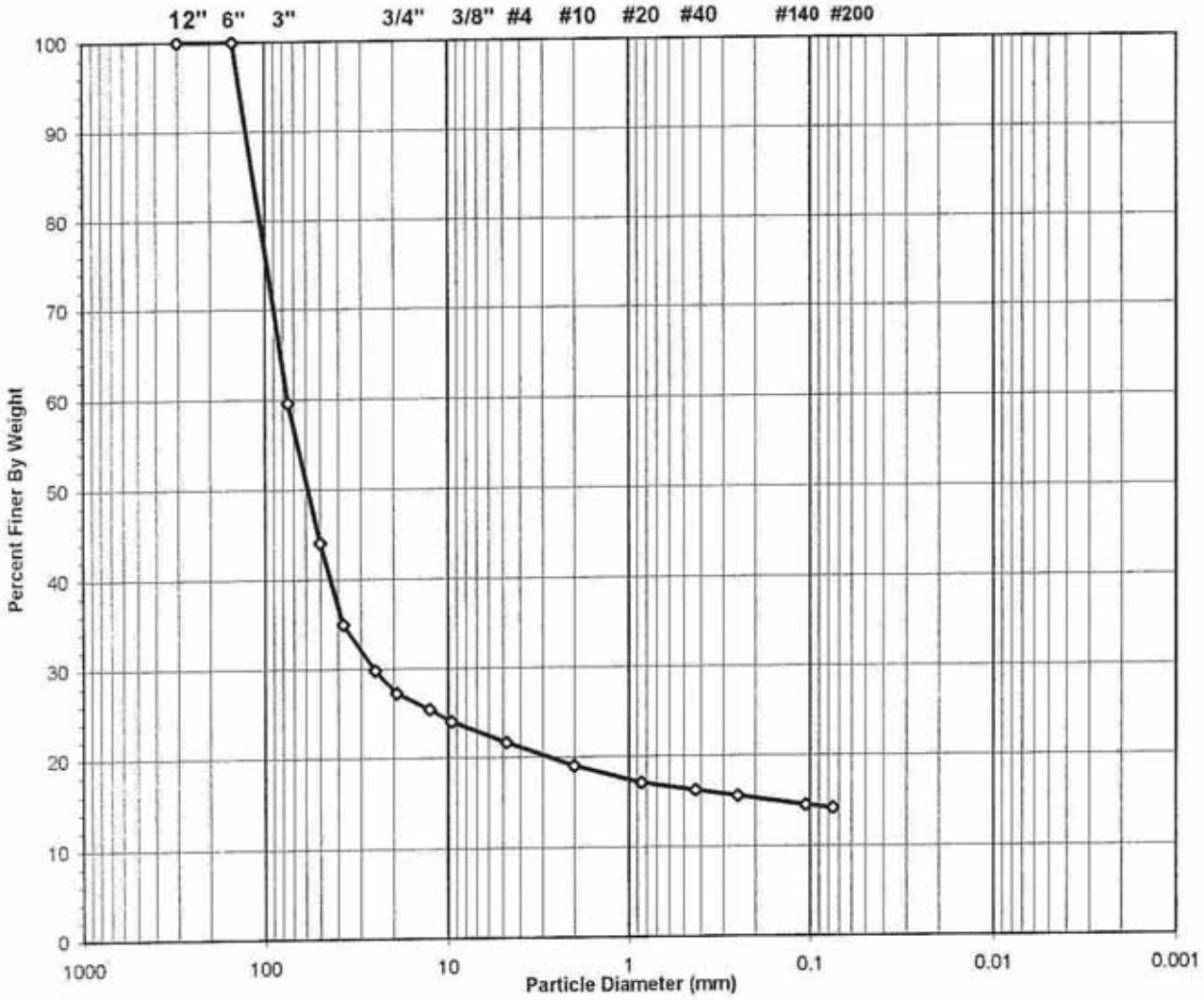
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-95.7
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-32	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***GC, TESTED***

USCS Classification ***CLAYEY GRAVEL***

Tested By PC Date 2/23/06 Checked By KLB Date 2-28-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\U286.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-95.7
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-32	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1913	Tare No.	882
Wgt.Tare + Wet Specimen (gm)	1169.40	Wgt.Tare + Wet Specimen (gm)	1038.30
Wgt.Tare + Dry Specimen (gm)	1020.90	Wgt.Tare + Dry Specimen (gm)	1015.20
Weight of Tare (gm)	101.80	Weight of Tare (gm)	110.42
Weight of Water (gm)	148.50	Weight of Water (gm)	23.10
Weight of Dry Soil (gm)	919.10	Weight of Dry Soil (gm)	904.78
Moisture Content (%)	**16.2**	**Moisture Content (%)**	**2.6**

Wet Weight -3/4" Sample (gm)	9783	Weight of the Dry Specimen (gm)	919.10
Dry Weight - 3/4" Sample (gm)	8422.2	Weight of minus #200 material (gm)	476.71
Wet Weight +3/4" Sample (gm)	23029.00	Weight of plus #200 material (gm)	442.39
Dry Weight + 3/4" Sample (gm)	22455.68		
Total Dry Weight Sample (gm)	30877.9	**J - Factor (Percent Finer than 3/4")**	**0.2728**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	12787.00		40.38	40.38	59.62	**59.62**
2"	50	4926.00	(*)	15.56	55.94	44.06	**44.06**
1 1/2"	37.5	2892.00		9.13	65.07	34.93	**34.93**
1"	25	1621.00		5.12	70.19	29.81	**29.81**
3/4"	19	803.00		2.54	72.72	27.28	**27.28**
1/2"	12.5	60.60		6.59	6.59	93.41	**25.48**
3/8"	9.5	46.17		5.02	11.62	88.38	**24.11**
#4	4.75	80.87		8.80	20.42	79.58	**21.71**
#10	2	89.52		9.74	30.16	69.84	**19.05**
#20	0.85	65.11	(**)	7.08	37.24	62.76	**17.12**
#40	0.425	30.46		3.31	40.55	59.45	**16.21**
#60	0.25	21.74		2.37	42.92	57.08	**15.57**
#140	0.106	35.00		3.81	46.73	53.27	**14.53**
#200	0.075	12.92		1.41	48.13	51.87	**14.15**
Pan	-	476.71		51.87	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KVB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-3
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-95.7
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-32	Soil Description	**REDDISH BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description. (Minus No. 40 sieve material, Airdried)

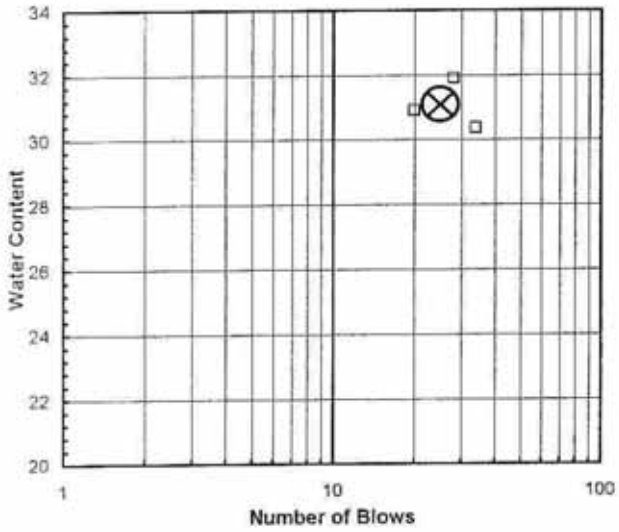
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	44	12	37	M U L T I P O I N T
Wt. of Tare & WS (gm)	39.99	41.33	35.99	
Wt. of Tare & DS (gm)	34.41	35.07	30.99	
Wt. of Tare (gm)	16.02	15.44	14.81	
Wt. of Water (gm)	5.6	6.3	5.0	
Wt. of DS (gm)	18.4	19.6	16.2	
Moisture Content (%)	**30.3**	**31.9**	**30.9**	
Number of Blows	**34**	**28**	**20**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	2298	2305	
Wt. of Tare & WS (gm)	24.12	26.79	
Wt. of Tare & DS (gm)	23.18	25.91	
Wt. of Tare (gm)	17.92	20.94	
Wt. of Water (gm)	0.9	0.9	
Wt. of DS (gm)	5.3	5.0	
Moisture Content (%)	**17.9**	**17.7**	**0.2**

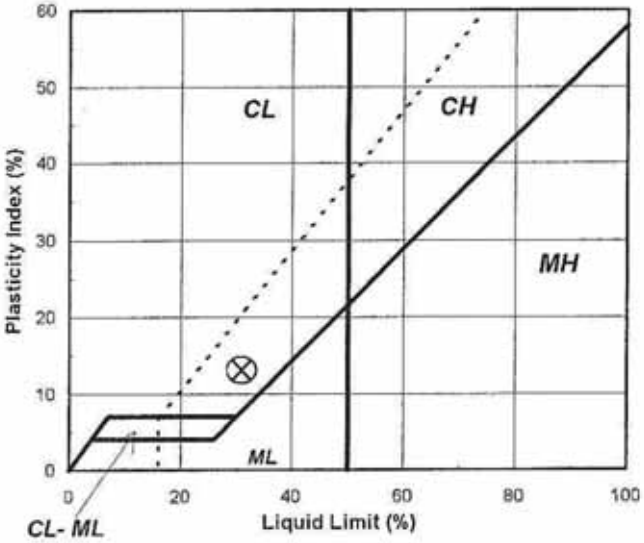
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**31**
Plastic Limit (%)	**18**
Plasticity Index (%)	**13**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



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BORING TS-4

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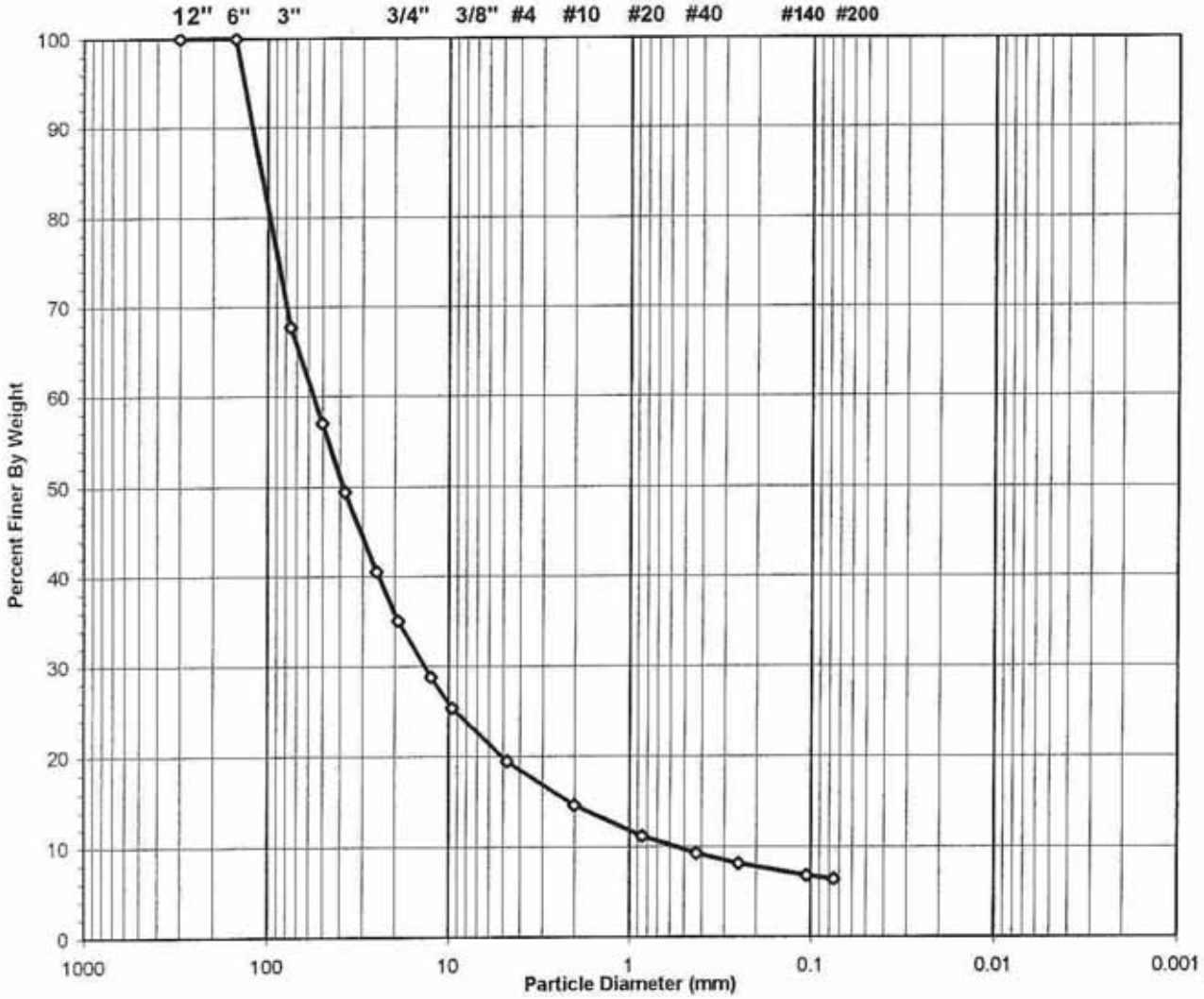
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-33	Soil Color	**REDDISH GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gp-gm, ASSUMED*	D60 =	55.9	CC =	5.8
USCS Classification	*POORLY GRADED GRAVEL WITH SILT*	D30 =	13.5	CU =	99.4
		D10 =	0.6		

Tested By JP Date 2/20/06 Checked By KVB Date 2-20-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U140.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-33	Soil Color	**REDDISH GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	934	Tare No.	973
Wgt.Tare + Wet Specimen (gm)	1078.50	Wgt.Tare + Wet Specimen (gm)	1043.20
Wgt.Tare + Dry Specimen (gm)	1013.90	Wgt.Tare + Dry Specimen (gm)	1024.20
Weight of Tare (gm)	189.56	Weight of Tare (gm)	102.34
Weight of Water (gm)	64.60	Weight of Water (gm)	19.00
Weight of Dry Soil (gm)	824.34	Weight of Dry Soil (gm)	921.86
Moisture Content (%)	**7.8**	**Moisture Content (%)**	**2.1**

Wet Weight -3/4" Sample (gm)	18552	Weight of the Dry Specimen (gm)	824.34
Dry Weight - 3/4" Sample (gm)	17203.8	Weight of minus #200 material (gm)	150.90
Wet Weight +3/4" Sample (gm)	32506.00	Weight of plus #200 material (gm)	673.44
Dry Weight + 3/4" Sample (gm)	31849.56		
Total Dry Weight Sample (gm)	49053.4	**J - Factor (Percent Finer than 3/4")**	**0.3507**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	16145.00		32.25	32.25	67.75	**67.75**
2"	50	5368.00	(*)	10.72	42.97	57.03	**57.03**
1 1/2"	37.5	3803.00		7.60	50.57	49.43	**49.43**
1"	25	4450.00		8.89	59.46	40.54	**40.54**
3/4"	19	2740.00		5.47	64.93	35.07	**35.07**
1/2"	12.5	147.52		17.90	17.90	82.10	**28.80**
3/8"	9.5	80.88		9.81	27.71	72.29	**25.35**
#4	4.75	137.63		16.70	44.40	55.60	**19.50**
#10	2	114.15		13.85	58.25	41.75	**14.64**
#20	0.85	82.17	(**)	9.97	68.22	31.78	**11.15**
#40	0.425	45.25		5.49	73.71	26.29	**9.22**
#60	0.25	26.33		3.19	76.90	23.10	**8.10**
#140	0.106	30.73		3.73	80.63	19.37	**6.79**
#200	0.075	8.78		1.07	81.69	18.31	**6.42**
Pan	-	150.90		18.31	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By JP Date 2/20/06 Checked By AB Date 2-20-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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RIGID WALL CONSTANT HEAD PERMEABILITY

ASTM D 2434-68 (SOP-S35) Modified

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 03-3551	Depth(ft.)	0-20
Project No.	2006-060-02	Sample No.	S1+S2A,B,C
Lab ID	2006-060-02-02	Visual Description	BROWN CLAYEY SAND AND ROCK FRAGMENTS

Unit Weight

Wt. of Wet Material (gm)	15558
Average Length (in)	11.6
Permeameter Diameter (in)	7.5
Sample Volume (cc)	8426.9
Unit Dry Weight (gm/cc)	1.75
Unit Dry Weight (pcf)	109.1

Water Content

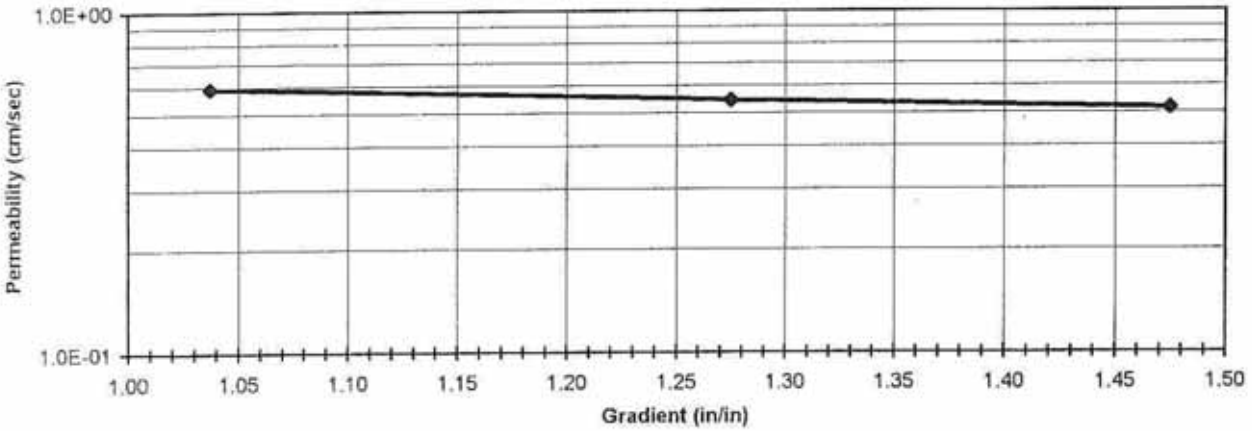
Tare Number	915
Wt. of Tare & Wet Mat.(gm)	674.20
Wt. of Tare & Dry Mat.(gm)	644.20
Wt. of Tare (gm)	110.17
Wt. Water (gm)	30.00
Wt. of Dry Material (gm)	534.03

	Test 1	Test 2	Test 3
Piezometer Spacing (in)	*8*	*8*	*8*
Temperature (° C)	*20.3*	*20.5*	*20.5*
Temp. Correction Factor	*0.9926*	*0.9879*	*0.9879*

Water Content (%) ***5.6*** *(Measured)*

Load (psf) ***NA***

Test No.	Replicate No.	Head (in)	Gradient (in/in)	Elapsed Time (sec)	Collection Tube (divisions)	Collected Volume (cc)	Permeability 20° C (cm/s)	Average Permeability (cm/s)
1	1	8.30	1.04	40.9	5	7220.5	5.9E-01	
1	2	8.30	1.04	40.8	5	7220.5	5.9E-01	**5.9E-01**
1	3	8.30	1.04	41.1	5	7220.5	5.9E-01	
2	1	10.20	1.28	36.1	5	7220.5	5.4E-01	
2	2	10.20	1.28	36.2	5	7220.5	5.4E-01	**5.4E-01**
2	3	10.20	1.28	36.1	5	7220.5	5.4E-01	
3	1	11.80	1.48	32.8	5	7220.5	5.2E-01	
3	2	11.80	1.48	33.0	5	7220.5	5.1E-01	**5.1E-01**
3	3	11.80	1.48	33.1	5	7220.5	5.1E-01	



Tested By DDA Date 2/24/06 Checked By KB Date 3-2-06

DCN: CT-S35 DATE: 12/30/03 REVISION: 6 C:\My Documents\BIG DAM\2006 RIGID WALL PERM\[2006-060-02-02.xls]Sheet1

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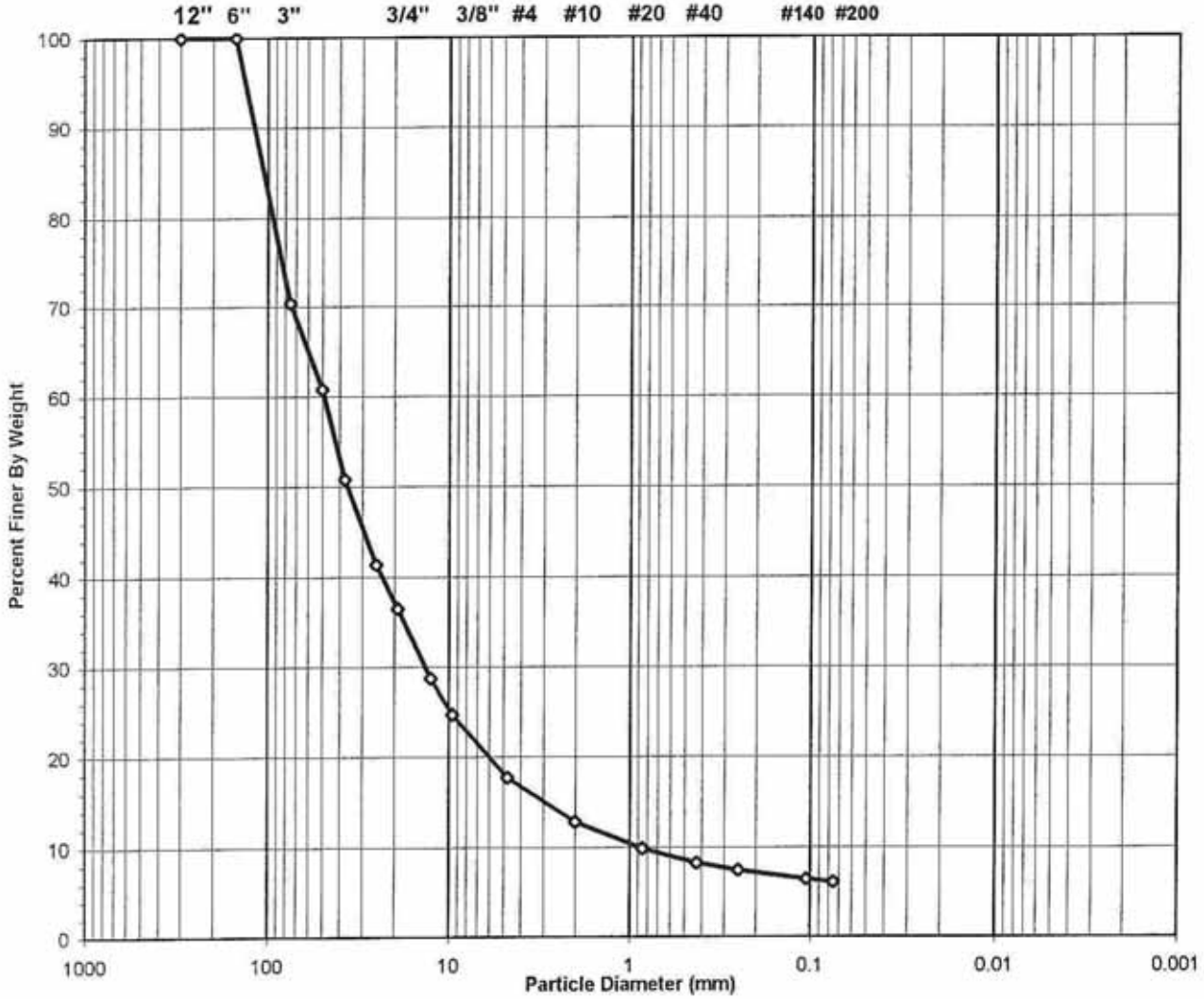
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-13
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34	Soil Color	**REDDISH GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gp-gm, ASSUMED*	D60 =	48.8	CC =	4.1
USCS Classification	*POORLY GRADED GRAVEL WITH SILT*	D30 =	13.4	CU =	55.1
		D10 =	0.9		

Tested By JP Date 2/20/06 Checked By KVB Date 2-20-06

 DCN: CT-S3A DATE 6-25-99 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U141.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-13
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34	Soil Color	**REDDISH GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	697	Tare No.	915
Wgt.Tare + Wet Specimen (gm)	1284.10	Wgt.Tare + Wet Specimen (gm)	716.20
Wgt.Tare + Dry Specimen (gm)	1205.00	Wgt.Tare + Dry Specimen (gm)	703.70
Weight of Tare (gm)	101.40	Weight of Tare (gm)	110.21
Weight of Water (gm)	79.10	Weight of Water (gm)	12.50
Weight of Dry Soil (gm)	1103.60	Weight of Dry Soil (gm)	593.49
Moisture Content (%)	**7.2**	**Moisture Content (%)**	**2.1**

Wet Weight -3/4" Sample (gm)	9039	Weight of the Dry Specimen (gm)	1103.60
Dry Weight - 3/4" Sample (gm)	8434.5	Weight of minus #200 material (gm)	184.46
Wet Weight +3/4" Sample (gm)	15012.00	Weight of plus #200 material (gm)	919.14
Dry Weight + 3/4" Sample (gm)	14702.34		
Total Dry Weight Sample (gm)	23136.8	**J - Factor (Percent Finer than 3/4")**	**0.3645**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	6997.00		29.62	29.62	70.38	**70.38**
2"	50	2254.00	(*)	9.54	39.16	60.84	**60.84**
1 1/2"	37.5	2382.00		10.08	49.24	50.76	**50.76**
1"	25	2215.00		9.38	58.62	41.38	**41.38**
3/4"	19	1164.00		4.93	63.55	36.45	**36.45**
1/2"	12.5	234.27		21.23	21.23	78.77	**28.72**
3/8"	9.5	119.39		10.82	32.05	67.95	**24.77**
#4	4.75	214.13		19.40	51.45	48.55	**17.70**
#10	2	149.40		13.54	64.99	35.01	**12.76**
#20	0.85	88.03	(**)	7.98	72.96	27.04	**9.86**
#40	0.425	48.84		4.43	77.39	22.61	**8.24**
#60	0.25	24.77		2.24	79.63	20.37	**7.42**
#140	0.106	30.12		2.73	82.36	17.64	**6.43**
#200	0.075	10.19		0.92	83.29	16.71	**6.09**
Pan	-	184.46		16.71	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By JP Date 2/20/06 Checked By KB Date 2-20-06

DCN: CT-53A DATE 5-17-00 REVISION 3

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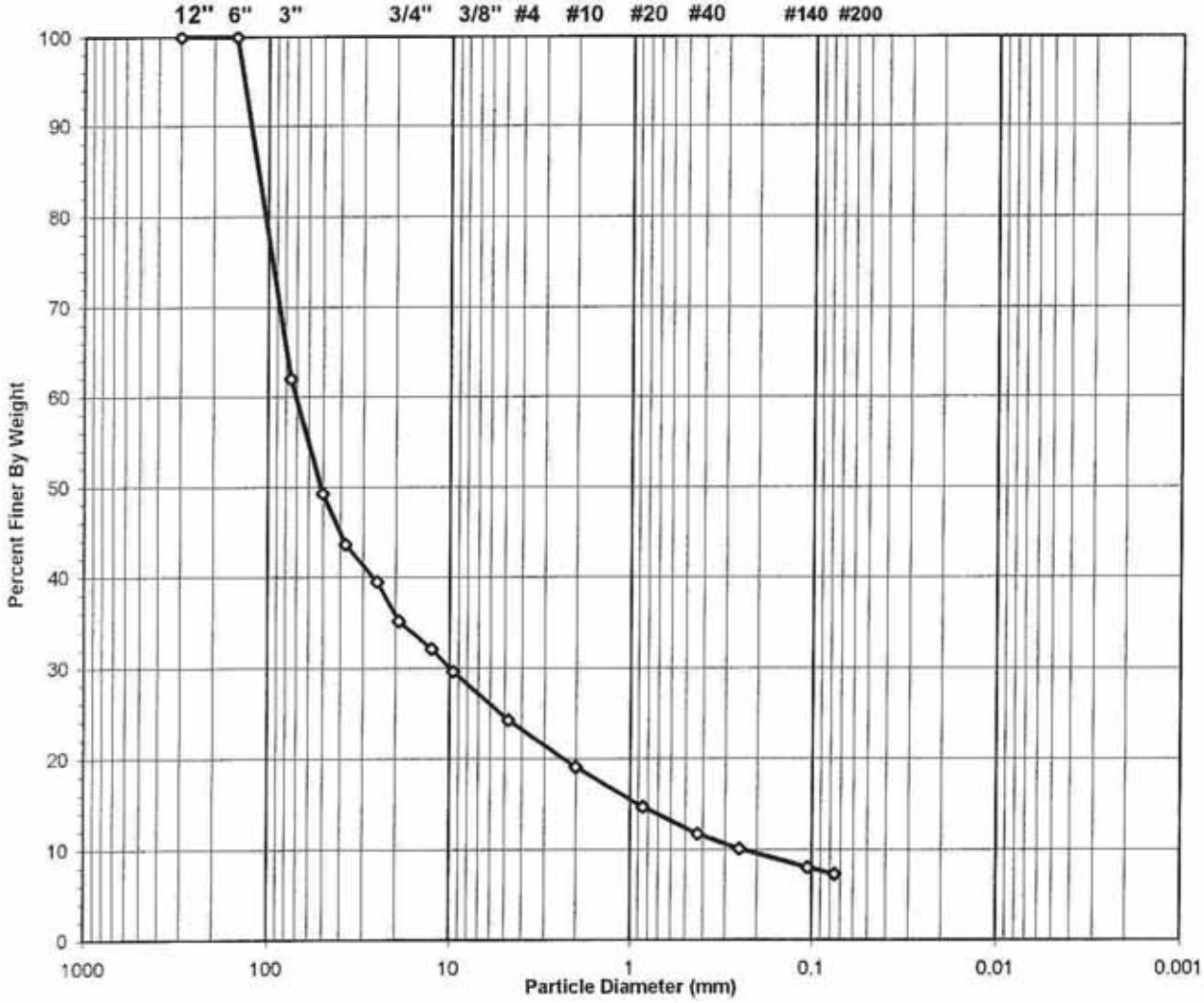
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	13-16
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34	Soil Color	**REDDISH GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	*gp-gm, ASSUMED*	D60 =	70.4	CC =	5.7
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND*	D30 =	9.9	CU =	289.2
		D10 =	0.2		

Tested By JP Date 2/20/06 Checked By KWB Date 2-20-06

 DCN: CT-S3A DATE 6-26-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\U142.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	13-16
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34	Soil Color	**REDDISH GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	631	Tare No.	894
Wgt.Tare + Wet Specimen (gm)	1196.90	Wgt.Tare + Wet Specimen (gm)	701.50
Wgt.Tare + Dry Specimen (gm)	1149.30	Wgt.Tare + Dry Specimen (gm)	696.40
Weight of Tare (gm)	100.57	Weight of Tare (gm)	110.40
Weight of Water (gm)	47.60	Weight of Water (gm)	5.10
Weight of Dry Soil (gm)	1048.73	Weight of Dry Soil (gm)	586.00
Moisture Content (%)	**4.5**	**Moisture Content (%)**	**0.9**

Wet Weight -3/4" Sample (gm)	6425	Weight of the Dry Specimen (gm)	1048.73
Dry Weight - 3/4" Sample (gm)	6146.0	Weight of minus #200 material (gm)	216.95
Wet Weight +3/4" Sample (gm)	11410.00	Weight of plus #200 material (gm)	831.78
Dry Weight + 3/4" Sample (gm)	11311.55		
Total Dry Weight Sample (gm)	17457.6	**J - Factor (Percent Finer than 3/4")**	**0.3521**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	6689.00		37.99	37.99	62.01	**62.01**
2"	50	2254.00	(*)	12.80	50.78	49.22	**49.22**
1 1/2"	37.5	990.00		5.62	56.41	43.59	**43.59**
1"	25	732.00		4.16	60.56	39.44	**39.44**
3/4"	19	745.00		4.23	64.79	35.21	**35.21**
1/2"	12.5	91.08		8.68	8.68	91.32	**32.15**
3/8"	9.5	75.49		7.20	15.88	84.12	**29.61**
#4	4.75	161.42		15.39	31.27	68.73	**24.20**
#10	2	152.78		14.57	45.84	54.16	**19.07**
#20	0.85	129.64	(**)	12.36	58.20	41.80	**14.71**
#40	0.425	88.99		8.49	66.69	33.31	**11.73**
#60	0.25	49.47		4.72	71.41	28.59	**10.07**
#140	0.106	62.18		5.93	77.34	22.66	**7.98**
#200	0.075	20.73		1.98	79.31	20.69	**7.28**
Pan	-	216.95		20.69	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/20/06 Checked By [illegible] Date 2-20-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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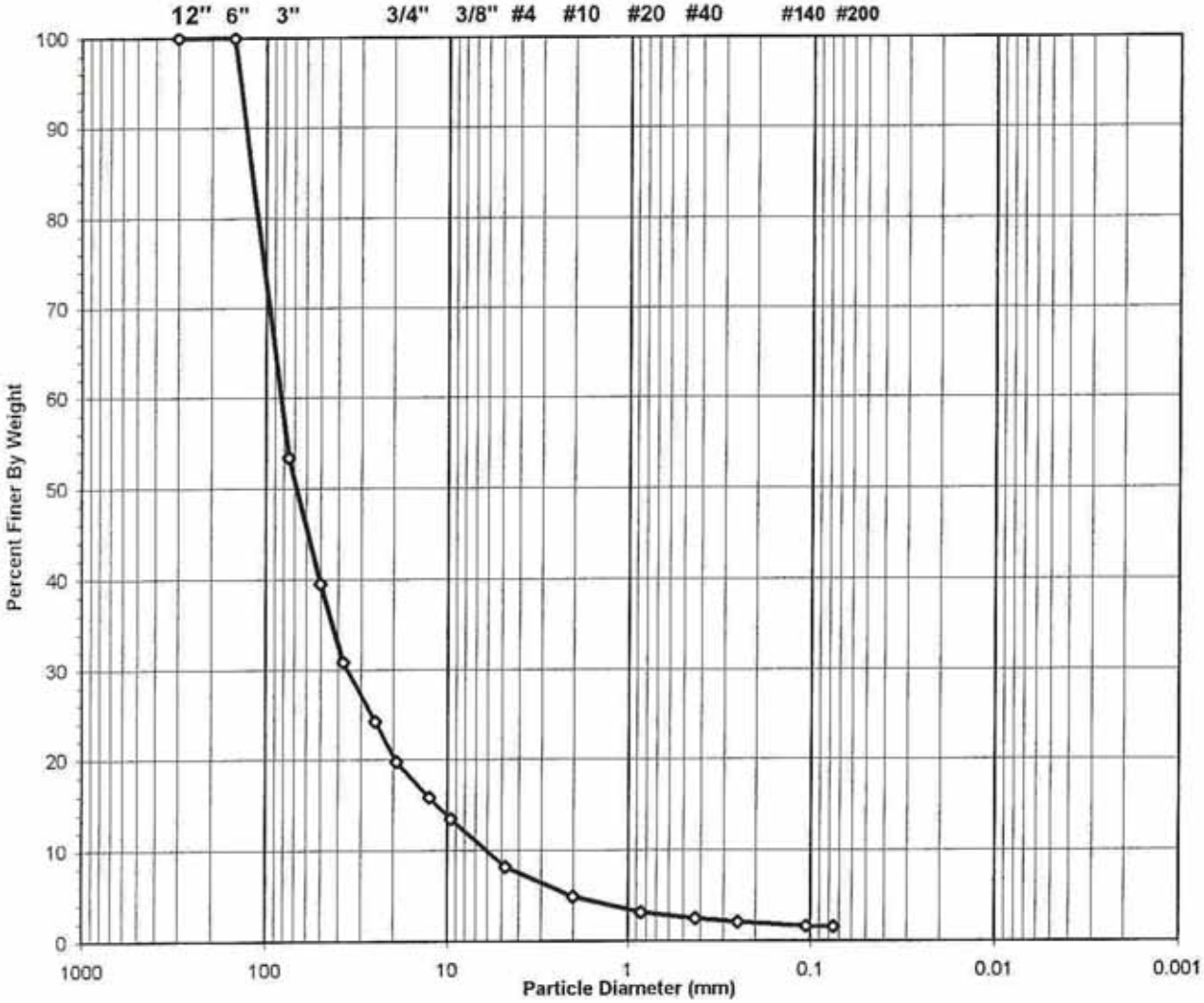
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	16-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34	Soil Color	**REDDISH GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By JP Date 2/20/06 Checked By KLB Date 2-20-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U143.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	16-20
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-34	Soil Color	**REDDISH GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1920	Tare No.	927
Wgt.Tare + Wet Specimen (gm)	1359.30	Wgt.Tare + Wet Specimen (gm)	1327.30
Wgt.Tare + Dry Specimen (gm)	1274.00	Wgt.Tare + Dry Specimen (gm)	1314.90
Weight of Tare (gm)	100.08	Weight of Tare (gm)	102.84
Weight of Water (gm)	85.30	Weight of Water (gm)	12.40
Weight of Dry Soil (gm)	1173.92	Weight of Dry Soil (gm)	1212.06
Moisture Content (%)	**7.3**	**Moisture Content (%)**	**1.0**

Wet Weight -3/4" Sample (gm)	11273	Weight of the Dry Specimen (gm)	1173.92
Dry Weight - 3/4" Sample (gm)	10509.4	Weight of minus #200 material (gm)	89.46
Wet Weight +3/4" Sample (gm)	43119.00	Weight of plus #200 material (gm)	1084.46
Dry Weight + 3/4" Sample (gm)	42682.34		
Total Dry Weight Sample (gm)	53191.7	**J - Factor (Percent Finer than 3/4")**	**0.1976**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	25053.00		46.62	46.62	53.38	**53.38**
2"	50	7441.00	(*)	13.85	60.47	39.53	**39.53**
1 1/2"	37.5	4638.00		8.63	69.10	30.90	**30.90**
1"	25	3605.00		6.71	75.81	24.19	**24.19**
3/4"	19	2382.00		4.43	80.24	19.76	**19.76**
1/2"	12.5	231.96		19.76	19.76	80.24	**15.85**
3/8"	9.5	141.99		12.10	31.85	68.15	**13.46**
#4	4.75	318.58		27.14	58.99	41.01	**8.10**
#10	2	194.61		16.58	75.57	24.43	**4.83**
#20	0.85	99.82	(**)	8.50	84.07	15.93	**3.15**
#40	0.425	41.52		3.54	87.61	12.39	**2.45**
#60	0.25	22.29		1.90	89.51	10.49	**2.07**
#140	0.106	26.32		2.24	91.75	8.25	**1.63**
#200	0.075	7.37		0.63	92.38	7.62	**1.51**
Pan	-	89.46		7.62	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/20/06 Checked By YKB Date 2-20-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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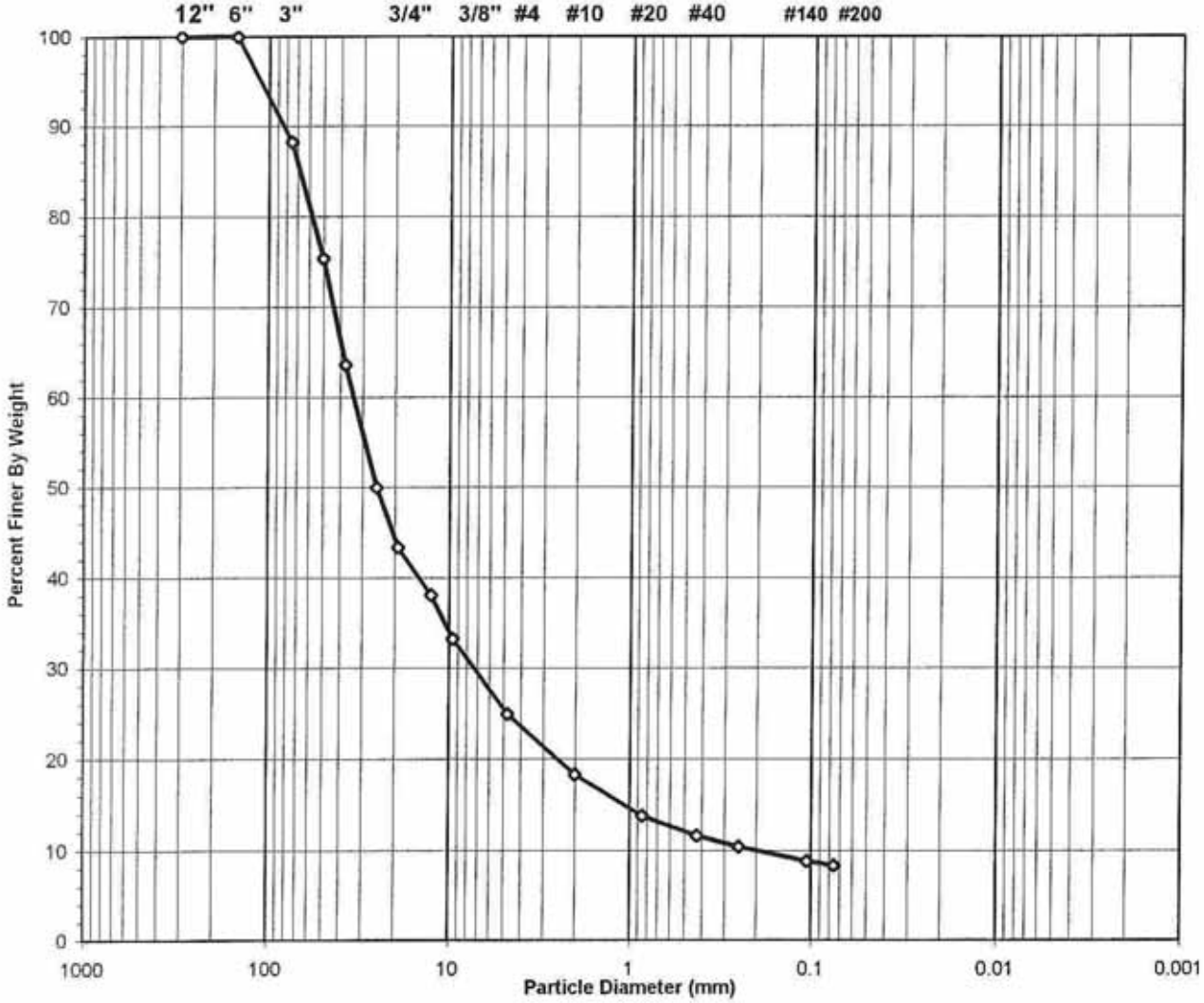
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-35	Soil Color	**REDDISH GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol	***gp-gm, ASSUMED***	**D60 =**	**33.7**	**CC =**	**7.7**
USCS Classification	***POORLY GRADED GRAVEL WITH SILT AND SAND***	**D30 =**	**7.3**	**CU =**	**164.9**
		D10 =	**0.2**		

Tested By JP Date 2/20/06 Checked By KB Date 2-20-06

DCN: CT-53A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-35	Soil Color	**REDDISH GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2334	Tare No.	902
Wgt.Tare + Wet Specimen (gm)	1075.30	Wgt.Tare + Wet Specimen (gm)	1133.40
Wgt.Tare + Dry Specimen (gm)	967.10	Wgt.Tare + Dry Specimen (gm)	1090.90
Weight of Tare (gm)	100.97	Weight of Tare (gm)	110.75
Weight of Water (gm)	108.20	Weight of Water (gm)	42.50
Weight of Dry Soil (gm)	866.13	Weight of Dry Soil (gm)	980.15
Moisture Content (%)	**12.5**	**Moisture Content (%)**	**4.3**

Wet Weight -3/4" Sample (gm)	19184	Weight of the Dry Specimen (gm)	866.13
Dry Weight - 3/4" Sample (gm)	17053.6	Weight of minus #200 material (gm)	166.00
Wet Weight +3/4" Sample (gm)	23275.00	Weight of plus #200 material (gm)	700.13
Dry Weight + 3/4" Sample (gm)	22307.72		
Total Dry Weight Sample (gm)	39361.3	**J - Factor (Percent Finer than 3/4")**	**0.4333**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	4834.00		11.77	11.77	88.23	**88.23**
2"	50	5295.00	(*)	12.89	24.66	75.34	**75.34**
1 1/2"	37.5	4807.00		11.70	36.37	63.63	**63.63**
1"	25	5652.00		13.76	50.13	49.87	**49.87**
3/4"	19	2687.00		6.54	56.67	43.33	**43.33**
1/2"	12.5	105.35		12.16	12.16	87.84	**38.06**
3/8"	9.5	97.51		11.26	23.42	76.58	**33.18**
#4	4.75	164.69		19.01	42.44	57.56	**24.94**
#10	2	132.45		15.29	57.73	42.27	**18.31**
#20	0.85	91.40	(**)	10.55	68.28	31.72	**13.74**
#40	0.425	43.29		5.00	73.28	26.72	**11.58**
#60	0.25	24.19		2.79	76.07	23.93	**10.37**
#140	0.106	31.20		3.60	79.67	20.33	**8.81**
#200	0.075	10.05		1.16	80.83	19.17	**8.30**
Pan	-	166.00		19.17	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/20/06 Checked By KB Date 2-20-06

DCN: CT-53A DATE 5-17-00 REVISION 3

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RIGID WALL CONSTANT HEAD PERMEABILITY

ASTM D 2434-68 (SOP-S35) Modified

Client	Paul C. Rizzo & Associates, Inc.	Boring No.	TS-4
Client Reference	TRUM SAUK 06-3551	Depth(ft.)	20-40
Project No.	2006-060-02	Sample No.	S3+S4A,B
Lab ID	2006-060-02-03	Visual Description	BROWN CLAYEY SAND W/ ROCK

Unit Weight

Wt. of Wet Material (gm)	16448
Average Length (in)	11.7
Permeameter Diameter (in)	7.5
Sample Volume (cc)	8455.8
Unit Dry Weight (gm/cc)	1.76
Unit Dry Weight (pcf)	110.1

Water Content

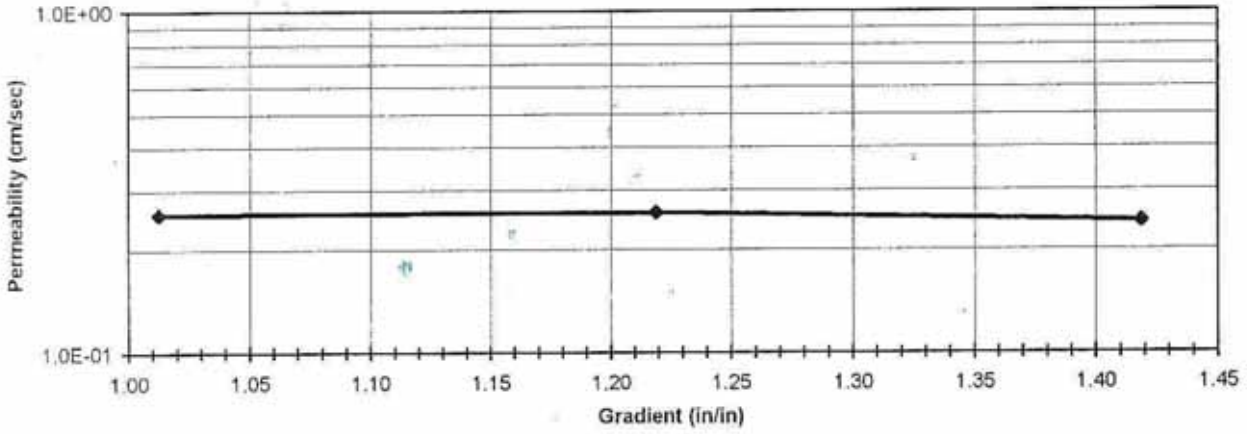
Tare Number	503
Wt. of Tare & Wet Mat.(gm)	1037.00
Wt. of Tare & Dry Mat.(gm)	949.40
Wt. of Tare (gm)	96.15
Wt. Water (gm)	87.60
Wt. of Dry Material (gm)	853.25

	Test 1	Test 2	Test 3
Piezometer Spacing (in)	*8*	*8*	*8*
Temperature (° C)	*23.5*	*23.6*	*23.7*
Temp. Correction Factor	*0.9203*	*0.9182*	*0.9160*

Water Content (%) ***10.3*** *(Measured)*

Load (psf) ***NA***

Test No.	Replicate No.	Head (in)	Gradient (in/in)	Elapsed Time (sec)	Collection Tube (divisions)	Collected Volume (cc)	Permeability 20° C (cm/s)	Average Permeability (cm/s)
1	1	8.10	1.01	54.3	3	4332.3	2.5E-01	
1	2	8.10	1.01	54.3	3	4332.3	2.5E-01	**2.5E-01**
1	3	8.10	1.01	54.5	3	4332.3	2.5E-01	
2	1	9.75	1.22	44.6	3	4332.3	2.6E-01	
2	2	9.75	1.22	44.2	3	4332.3	2.6E-01	**2.6E-01**
2	3	9.75	1.22	44.5	3	4332.3	2.6E-01	
3	1	11.35	1.42	40.5	3	4332.3	2.4E-01	
3	2	11.35	1.42	40.6	3	4332.3	2.4E-01	**2.4E-01**
3	3	11.35	1.42	40.4	3	4332.3	2.4E-01	



Tested By DDA Date 3/2/06 Checked By KB Date 3-3-06

DCN: CT-S35 DATE: 12/30/03 REVISION: 8

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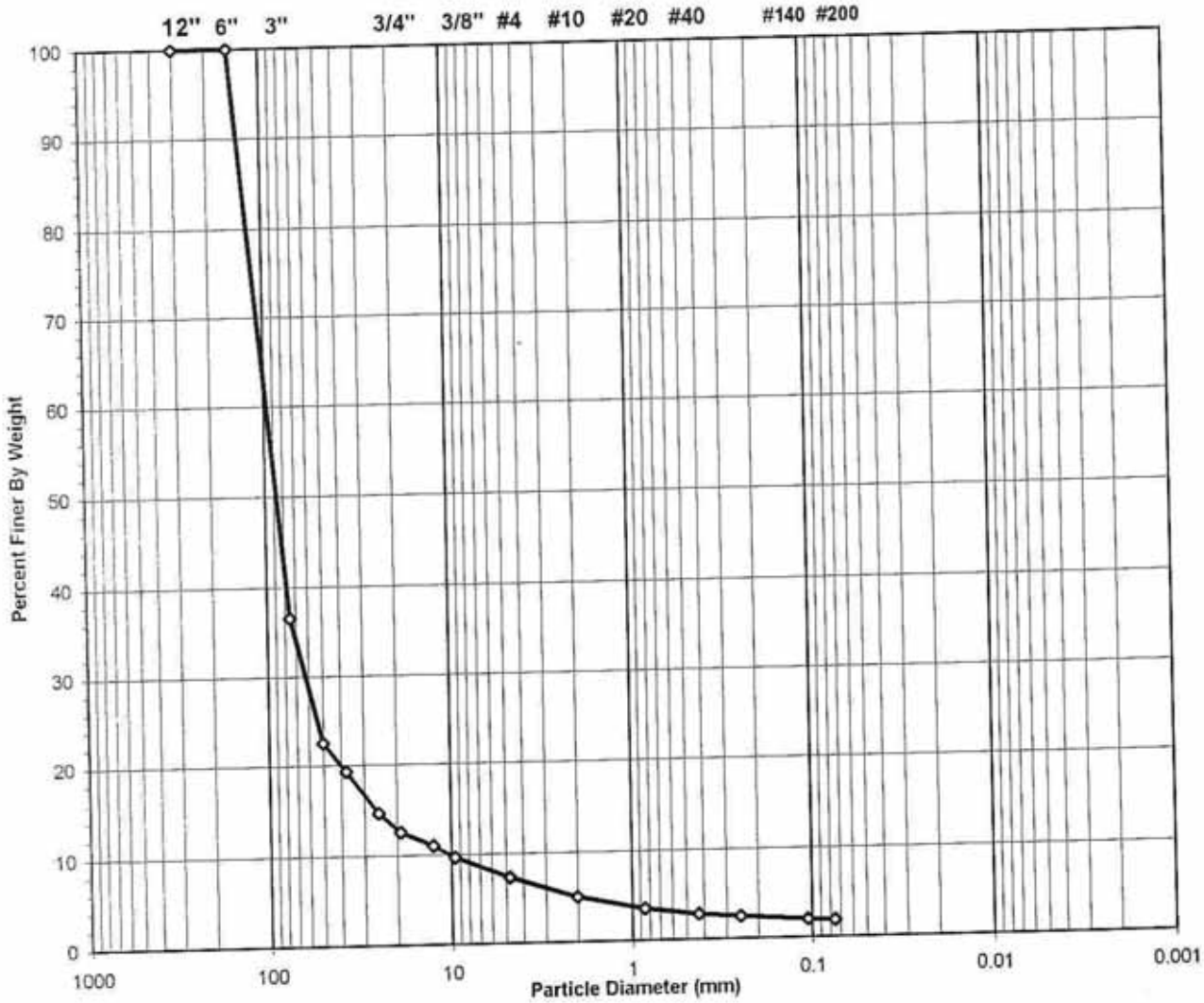
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-36
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-36	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/18/06 Checked By YKB Date 2-20-06

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DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-36
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-36	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	701	Tare No.	903
Wgt.Tare + Wet Specimen (gm)	1471.50	Wgt.Tare + Wet Specimen (gm)	705.40
Wgt.Tare + Dry Specimen (gm)	1297.10	Wgt.Tare + Dry Specimen (gm)	687.60
Weight of Tare (gm)	100.33	Weight of Tare (gm)	109.67
Weight of Water (gm)	174.40	Weight of Water (gm)	17.80
Weight of Dry Soil (gm)	1196.77	Weight of Dry Soil (gm)	577.93
Moisture Content (%)	**14.6**	**Moisture Content (%)**	**3.1**

Wet Weight -3/4" Sample (gm)	4066	Weight of the Dry Specimen (gm)	1196.77
Dry Weight - 3/4" Sample (gm)	3548.8	Weight of minus #200 material (gm)	179.33
Wet Weight +3/4" Sample (gm)	25535.00	Weight of plus #200 material (gm)	1017.44
Dry Weight + 3/4" Sample (gm)	24772.03		
Total Dry Weight Sample (gm)	28320.9	**J - Factor (Percent Finer than 3/4")**	**0.1253**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	18529.00		63.47	63.47	36.53	**36.53**
2"	50	4087.00	(*)	14.00	77.47	22.53	**22.53**
1 1/2"	37.5	936.00		3.21	80.68	19.32	**19.32**
1"	25	1359.00		4.66	85.33	14.67	**14.67**
3/4"	19	624.00		2.14	87.47	12.53	**12.53**
1/2"	12.5	146.63		12.25	12.25	87.75	**11.00**
3/8"	9.5	126.45		10.57	22.82	77.18	**9.67**
#4	4.75	225.80		18.87	41.69	58.31	**7.31**
#10	2	220.46		18.42	60.11	39.89	**5.00**
#20	0.85	140.30	(**)	11.72	71.83	28.17	**3.53**
#40	0.425	69.59		5.81	77.64	22.36	**2.80**
#60	0.25	33.66		2.81	80.46	19.54	**2.45**
#140	0.106	40.54		3.39	83.84	16.16	**2.02**
#200	0.075	14.01		1.17	85.02	14.98	**1.88**
Pan	-	179.33		14.98	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/18/06 Checked By KB Date 2-20-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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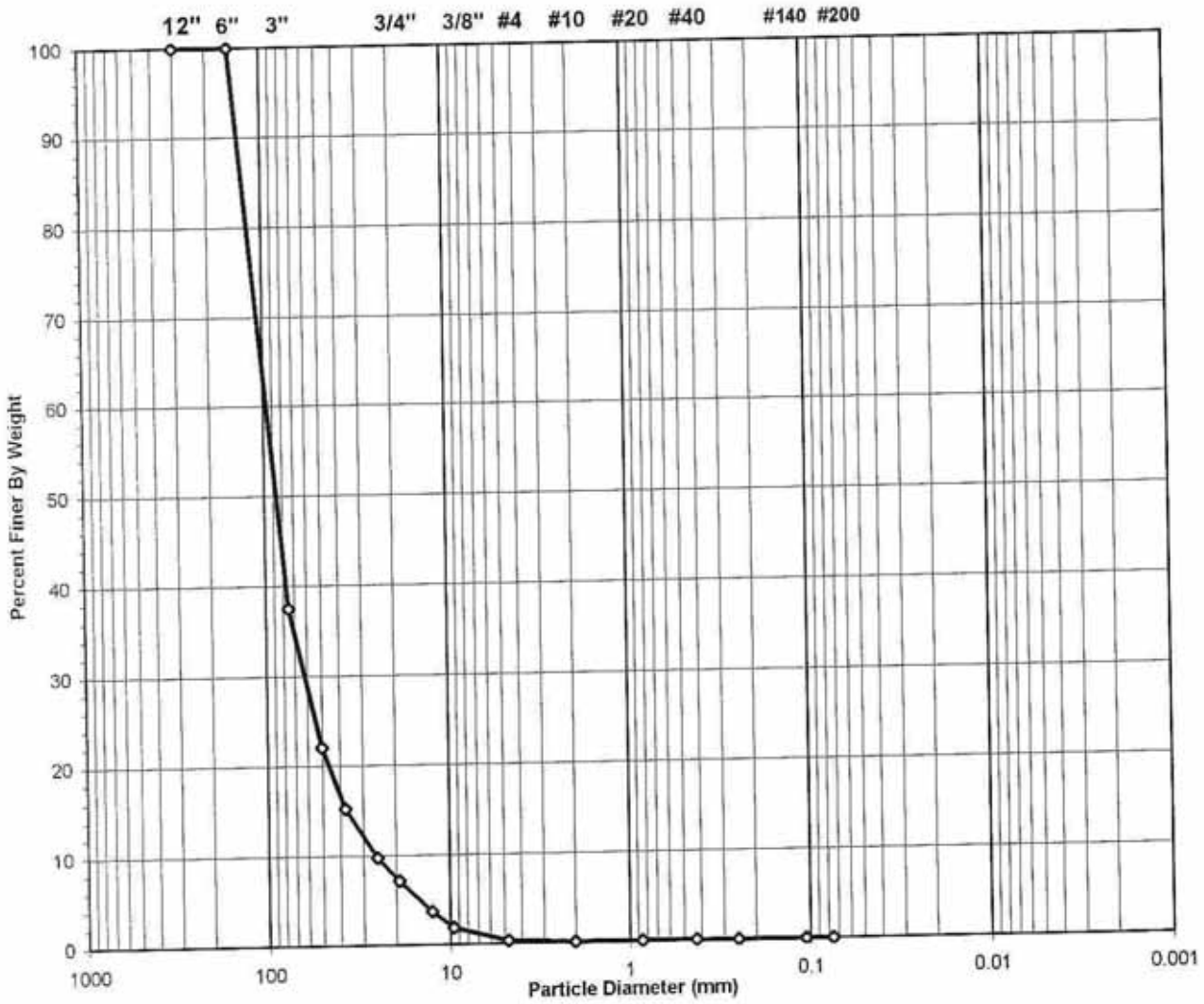
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	36-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-36	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/18/06 Checked By KKB Date 2-20-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	36-40
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-36	Soil Color	BROWN

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	967	Tare No.	883
Wgt.Tare + Wet Specimen (gm)	1256.70	Wgt.Tare + Wet Specimen (gm)	1204.80
Wgt.Tare + Dry Specimen (gm)	1242.50	Wgt.Tare + Dry Specimen (gm)	1199.00
Weight of Tare (gm)	103.71	Weight of Tare (gm)	110.31
Weight of Water (gm)	14.20	Weight of Water (gm)	5.80
Weight of Dry Soil (gm)	1138.79	Weight of Dry Soil (gm)	1088.69
Moisture Content (%)	**1.2**	**Moisture Content (%)**	**0.5**

Wet Weight -3/4" Sample (gm)	2648	Weight of the Dry Specimen (gm)	1138.79
Dry Weight - 3/4" Sample (gm)	2615.4	Weight of minus #200 material (gm)	3.29
Wet Weight +3/4" Sample (gm)	34311.00	Weight of plus #200 material (gm)	1135.50
Dry Weight + 3/4" Sample (gm)	34129.18		
Total Dry Weight Sample (gm)	36744.6	**J - Factor (Percent Finer than 3/4")**	**0.0712**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	23098.00		62.53	62.53	37.47	**37.47**
2"	50	5701.00	(*)	15.43	77.96	22.04	**22.04**
1 1/2"	37.5	2519.00		6.82	84.78	15.22	**15.22**
1"	25	2039.00		5.52	90.30	9.70	**9.70**
3/4"	19	954.00		2.58	92.88	7.12	**7.12**
1/2"	12.5	553.20		48.58	48.58	51.42	**3.66**
3/8"	9.5	291.33		25.58	74.16	25.84	**1.84**
#4	4.75	236.09		20.73	94.89	5.11	**0.36**
#10	2	46.48		4.08	98.97	1.03	**0.07**
#20	0.85	4.18	(**)	0.37	99.34	0.66	**0.05**
#40	0.425	1.50		0.13	99.47	0.53	**0.04**
#60	0.25	0.94		0.08	99.55	0.45	**0.03**
#140	0.106	1.35		0.12	99.67	0.33	**0.02**
#200	0.075	0.43		0.04	99.71	0.29	**0.02**
Pan	-	3.29		0.29	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/18/06 Checked By YKB Date 2-20-06

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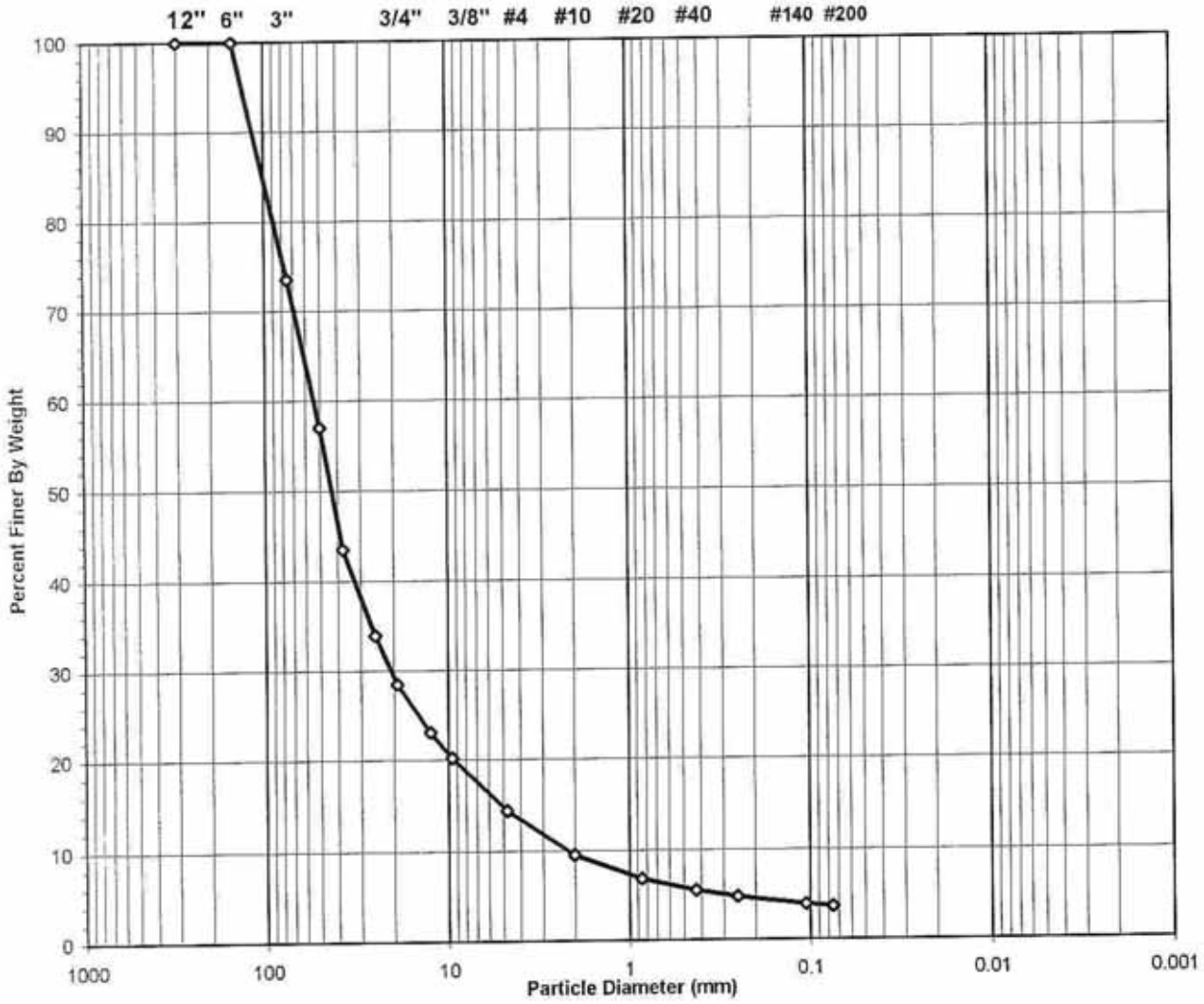
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-37	Soil Color	BROWN

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	53.8	CC =	3.6
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	20.5	CU =	24.7
		D10 =	2.2		

Tested By PC Date 2/18/06 Checked By KKB Date 2-20-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-37	Soil Color	BROWN

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	677	Tare No.	875
Wgt.Tare + Wet Specimen (gm)	1260.40	Wgt.Tare + Wet Specimen (gm)	1228.80
Wgt.Tare + Dry Specimen (gm)	1165.40	Wgt.Tare + Dry Specimen (gm)	1215.10
Weight of Tare (gm)	98.85	Weight of Tare (gm)	110.50
Weight of Water (gm)	95.00	Weight of Water (gm)	13.70
Weight of Dry Soil (gm)	1066.55	Weight of Dry Soil (gm)	1104.60
Moisture Content (%)	**8.9**	**Moisture Content (%)**	**1.2**

Wet Weight -3/4" Sample (gm)	9824	Weight of the Dry Specimen (gm)	1066.55
Dry Weight - 3/4" Sample (gm)	9020.5	Weight of minus #200 material (gm)	135.93
Wet Weight +3/4" Sample (gm)	22909.00	Weight of plus #200 material (gm)	930.62
Dry Weight + 3/4" Sample (gm)	22628.35		
Total Dry Weight Sample (gm)	31648.9	**J - Factor (Percent Finer than 3/4")**	**0.2850**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated **Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	8490.00		26.50	26.50	73.50	**73.50**
2"	50	5283.00	(*)	16.49	42.99	57.01	**57.01**
1 1/2"	37.5	4332.00		13.52	56.51	43.49	**43.49**
1"	25	3068.00		9.58	66.08	33.92	**33.92**
3/4"	19	1736.00		5.42	71.50	28.50	**28.50**
1/2"	12.5	202.11		18.95	18.95	81.05	**23.10**
3/8"	9.5	106.86		10.02	28.97	71.03	**20.25**
#4	4.75	219.99		20.63	49.60	50.40	**14.37**
#10	2	180.94		16.96	66.56	33.44	**9.53**
#20	0.85	99.77	(**)	9.35	75.91	24.09	**6.86**
#40	0.425	50.82		4.76	80.68	19.32	**5.51**
#60	0.25	25.86		2.42	83.10	16.90	**4.82**
#140	0.106	32.41		3.04	86.14	13.86	**3.95**
#200	0.075	11.86		1.11	87.26	12.74	**3.63**
Pan	-	135.93		12.74	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/18/06 Checked By YKB Date 2-20-06

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DCN: CT-S3A DATE 5-17-00 REVISION 3

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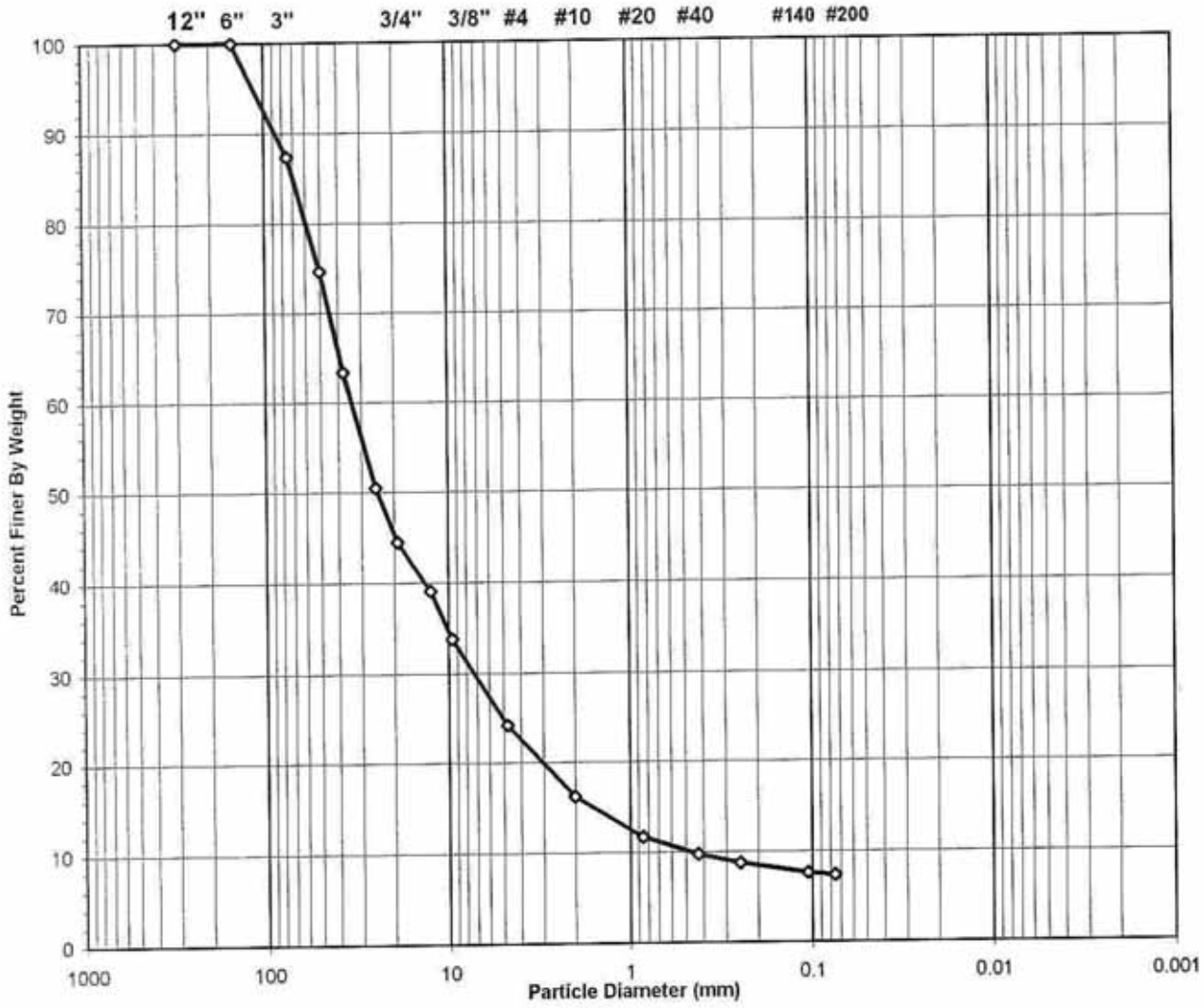
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-38	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gp-gm, ASSUMED*	D60 =	33.8	CC =	3.3
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND*	D30 =	7.2	CU =	72.2
		D10 =	0.5		

Tested By PC Date 2/18/06 Checked By YKB Date 2-20-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-38	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	946	Tare No.	873
Wgt.Tare + Wet Specimen (gm)	1621.70	Wgt.Tare + Wet Specimen (gm)	860.80
Wgt.Tare + Dry Specimen (gm)	1475.00	Wgt.Tare + Dry Specimen (gm)	847.30
Weight of Tare (gm)	188.34	Weight of Tare (gm)	109.56
Weight of Water (gm)	146.70	Weight of Water (gm)	13.50
Weight of Dry Soil (gm)	1286.66	Weight of Dry Soil (gm)	737.74
Moisture Content (%)	**11.4**	**Moisture Content (%)**	**1.8**

Wet Weight -3/4" Sample (gm)	15633	Weight of the Dry Specimen (gm)	1286.66
Dry Weight - 3/4" Sample (gm)	14033.0	Weight of minus #200 material (gm)	211.28
Wet Weight +3/4" Sample (gm)	17868.00	Weight of plus #200 material (gm)	1075.38
Dry Weight + 3/4" Sample (gm)	17546.91		
Total Dry Weight Sample (gm)	31579.9	**J - Factor (Percent Finer than 3/4")**	**0.4444**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	4070.00		12.66	12.66	87.34	**87.34**
2"	50	4089.00	(*)	12.72	25.37	74.63	**74.63**
1 1/2"	37.5	3626.00		11.28	36.65	63.35	**63.35**
1"	25	4164.00		12.95	49.60	50.40	**50.40**
3/4"	19	1919.00		5.97	55.56	44.44	**44.44**
1/2"	12.5	156.20		12.14	12.14	87.86	**39.04**
3/8"	9.5	151.81		11.80	23.94	76.06	**33.80**
#4	4.75	277.85		21.59	45.53	54.47	**24.20**
#10	2	232.92		18.10	63.64	36.36	**16.16**
#20	0.85	129.94	(**)	10.10	73.74	26.26	**11.67**
#40	0.425	56.16		4.36	78.10	21.90	**9.73**
#60	0.25	29.15		2.27	80.37	19.63	**8.72**
#140	0.106	32.10		2.49	82.86	17.14	**7.62**
#200	0.075	9.25		0.72	83.58	16.42	**7.30**
Pan	-	211.28		16.42	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/18/06 Checked By YKB Date 2-20-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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RIGID WALL CONSTANT HEAD PERMEABILITY

ASTM D 2434-68 (SOP-S35) Modified

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	50-70
Project No.	2006-060-02	Sample No.	S6+S7
Lab ID	2006-060-02-04	Visual Description	BROWN CLAYEY SAND WITH ROCK FRAGMENTS

Unit Weight

Wt. of Wet Material (gm)	17626
Average Length (in)	11.6
Permeameter Diameter (in)	7.5
Sample Volume (cc)	8426.9
Unit Dry Weight (gm/cc)	1.93
Unit Dry Weight (pcf)	120.2

Water Content

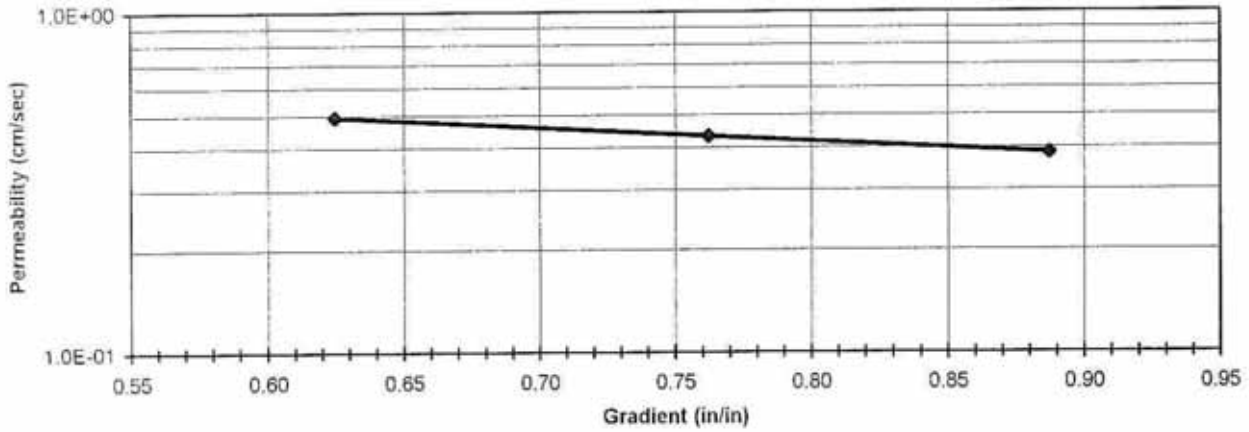
Tare Number	892
Wt. of Tare & Wet Mat.(gm)	779.40
Wt. of Tare & Dry Mat.(gm)	726.40
Wt. of Tare (gm)	110.00
Wt. Water (gm)	53.00
Wt. of Dry Material (gm)	616.40

	Test 1	Test 2	Test 3
Piezometer Spacing (in)	*8*	*8*	*8*
Temperature (° C)	*22.5*	*22.9*	*23.5*
Temp. Correction Factor	*0.9421*	*0.9333*	*0.9203*

Water Content (%) ***8.6*** *(Measured)*

Load (psf) ***NA***

Test No.	Replicate No.	Head (in)	Gradient (in/in)	Elapsed Time (sec)	Collection Tube (divisions)	Collected Volume (cc)	Permeability 20° C (cm/s)	Average Permeability (cm/s)
1	1	5.00	0.63	46.6	3	4332.3	4.9E-01	
1	2	5.00	0.63	46.4	3	4332.3	4.9E-01	**4.9E-01**
1	3	5.00	0.63	46.3	3	4332.3	4.9E-01	
2	1	6.10	0.76	43.1	3	4332.3	4.3E-01	
2	2	6.10	0.76	43.0	3	4332.3	4.3E-01	**4.3E-01**
2	3	6.10	0.76	43.0	3	4332.3	4.3E-01	
3	1	7.10	0.89	41.0	3	4332.3	3.8E-01	
3	2	7.10	0.89	41.0	3	4332.3	3.8E-01	**3.8E-01**
3	3	7.10	0.89	41.1	3	4332.3	3.8E-01	



Tested By DDA Date 2/27/06 Checked By YKB Date 3-2-06

 DCN: CT-S35 DATE: 12/30/03 REVISION: 8 C:\My Documents\BIG DAN\2006 RIGID WALL PERM\[2006-060-02-04.xls]Sheet1

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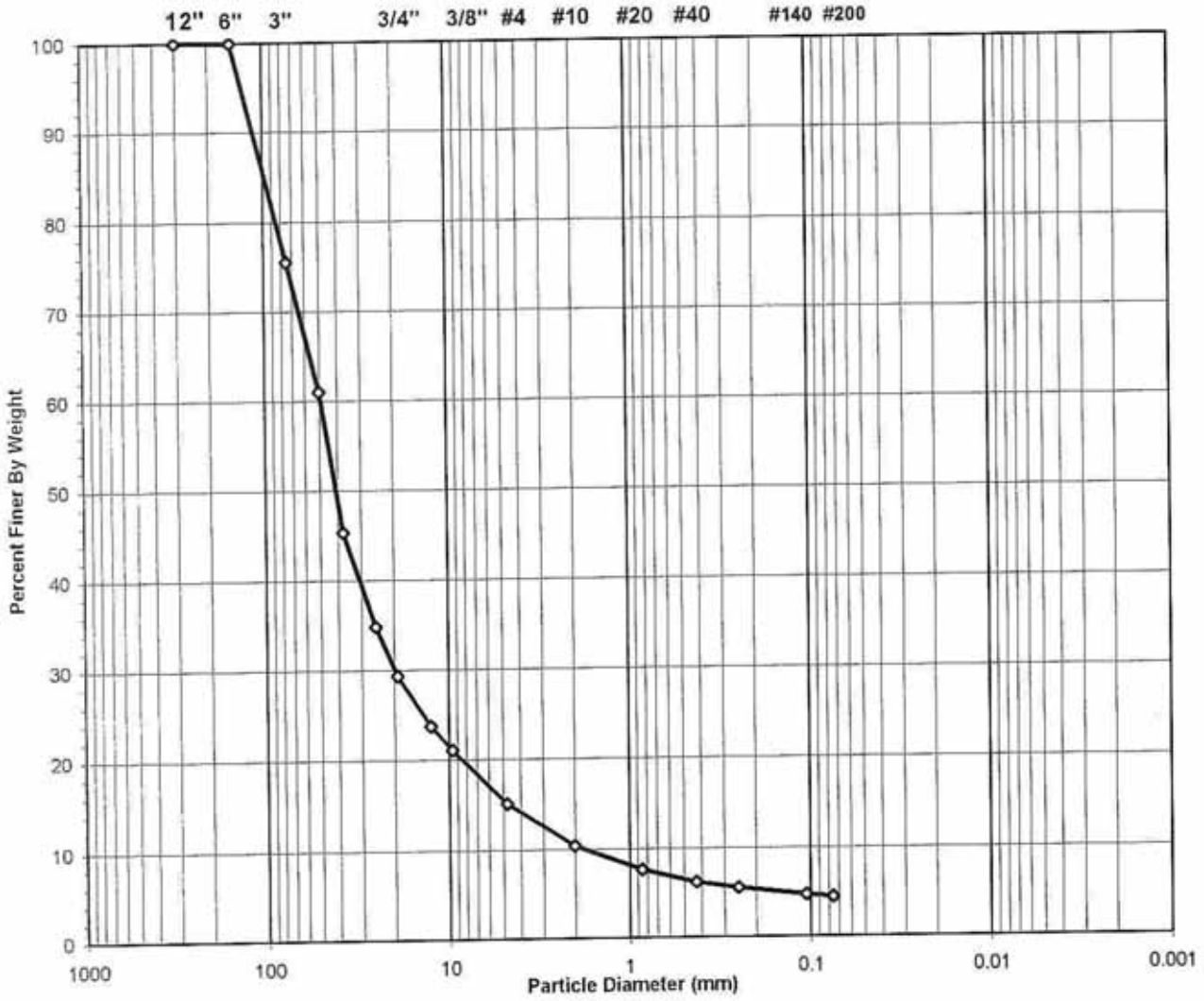
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-39	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	49.1	CC =	4.4
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	19.7	CU =	27.4
		D10 =	1.8		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-70
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-39	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	927	Tare No.	542
Wgt.Tare + Wet Specimen (gm)	1273.70	Wgt.Tare + Wet Specimen (gm)	486.30
Wgt.Tare + Dry Specimen (gm)	1176.90	Wgt.Tare + Dry Specimen (gm)	474.14
Weight of Tare (gm)	102.88	Weight of Tare (gm)	82.36
Weight of Water (gm)	96.80	Weight of Water (gm)	12.16
Weight of Dry Soil (gm)	1074.02	Weight of Dry Soil (gm)	391.78
Moisture Content (%)	**9.0**	**Moisture Content (%)**	**3.1**

Wet Weight -3/4" Sample (gm)	10360	Weight of the Dry Specimen (gm)	1074.02
Dry Weight - 3/4" Sample (gm)	9503.5	Weight of minus #200 material (gm)	162.76
Wet Weight +3/4" Sample (gm)	23629.00	Weight of plus #200 material (gm)	911.26
Dry Weight + 3/4" Sample (gm)	22917.68		
Total Dry Weight Sample (gm)	32421.2	**J - Factor (Percent Finer than 3/4")**	**0.2931**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	8176.00		24.46	24.46	75.54	**75.54**
2"	50	4847.00	(*)	14.50	38.96	61.04	**61.04**
1 1/2"	37.5	5258.00		15.73	54.69	45.31	**45.31**
1"	25	3512.00		10.51	65.19	34.81	**34.81**
3/4"	19	1836.00		5.49	70.69	29.31	**29.31**
1/2"	12.5	203.24		18.92	18.92	81.08	**23.77**
3/8"	9.5	99.03		9.22	28.14	71.86	**21.06**
#4	4.75	219.33		20.42	48.57	51.43	**15.08**
#10	2	173.11		16.12	64.68	35.32	**10.35**
#20	0.85	99.06	(**)	9.22	73.91	26.09	**7.65**
#40	0.425	52.65		4.90	78.81	21.19	**6.21**
#60	0.25	25.64		2.39	81.20	18.80	**5.51**
#140	0.106	29.49		2.75	83.94	16.06	**4.71**
#200	0.075	9.71		0.90	84.85	15.15	**4.44**
Pan	-	162.76		15.15	100.00	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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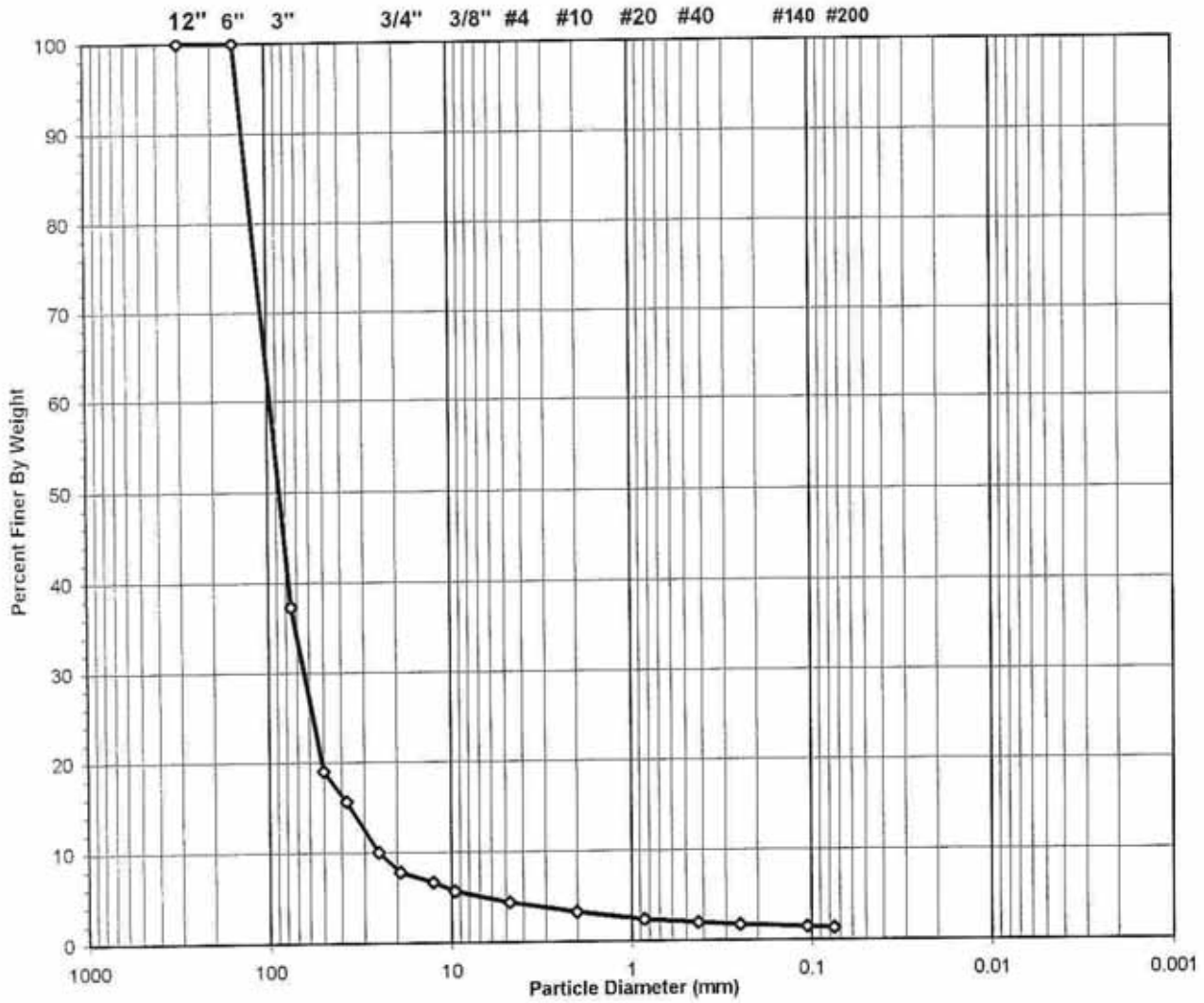
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-40	Soil Color	**BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By JP Date 2/21/06 Checked By KJB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-40	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	973	Tare No.	899
Wgt.Tare + Wet Specimen (gm)	1239.30	Wgt.Tare + Wet Specimen (gm)	971.60
Wgt.Tare + Dry Specimen (gm)	1165.20	Wgt.Tare + Dry Specimen (gm)	964.70
Weight of Tare (gm)	102.42	Weight of Tare (gm)	110.10
Weight of Water (gm)	74.10	Weight of Water (gm)	6.90
Weight of Dry Soil (gm)	1062.78	Weight of Dry Soil (gm)	854.60
Moisture Content (%)	**7.0**	**Moisture Content (%)**	**0.8**

Wet Weight -3/4" Sample (gm)	2186	Weight of the Dry Specimen (gm)	1062.78
Dry Weight - 3/4" Sample (gm)	2043.5	Weight of minus #200 material (gm)	182.74
Wet Weight +3/4" Sample (gm)	24387.00	Weight of plus #200 material (gm)	880.04
Dry Weight + 3/4" Sample (gm)	24191.68		
Total Dry Weight Sample (gm)	26235.2	**J - Factor (Percent Finer than 3/4")**	**0.0779**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	16581.00		62.70	62.70	37.30	**37.30**
2"	50	4831.00	(*)	18.27	80.96	19.04	**19.04**
1 1/2"	37.5	908.00		3.43	84.40	15.60	**15.60**
1"	25	1485.00		5.61	90.01	9.99	**9.99**
3/4"	19	582.00		2.20	92.21	7.79	**7.79**
1/2"	12.5	158.29		14.89	14.89	85.11	**6.63**
3/8"	9.5	128.91		12.13	27.02	72.98	**5.68**
#4	4.75	173.07		16.28	43.31	56.69	**4.42**
#10	2	162.01		15.24	58.55	41.45	**3.23**
#20	0.85	110.32	(**)	10.38	68.93	31.07	**2.42**
#40	0.425	56.43		5.31	74.24	25.76	**2.01**
#60	0.25	33.75		3.18	77.42	22.58	**1.76**
#140	0.106	43.97		4.14	81.55	18.45	**1.44**
#200	0.075	13.29		1.25	82.81	17.19	**1.34**
Pan	-	182.74		17.19	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By KJS Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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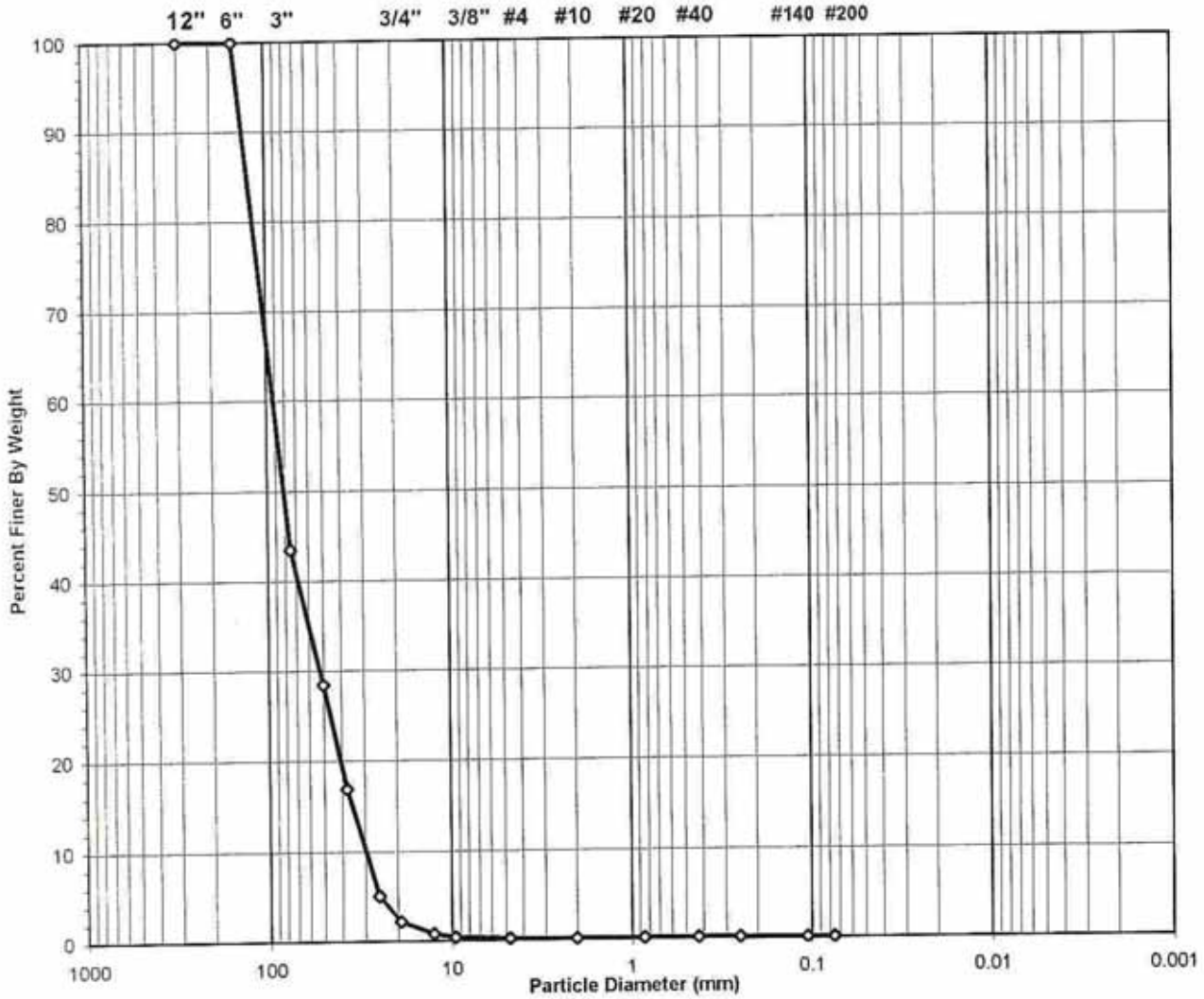
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-90
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-41	Soil Color	**BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	80-90
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-41	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	674	Tare No.	897
Wgt.Tare + Wet Specimen (gm)	739.00	Wgt.Tare + Wet Specimen (gm)	814.20
Wgt.Tare + Dry Specimen (gm)	731.00	Wgt.Tare + Dry Specimen (gm)	809.50
Weight of Tare (gm)	99.64	Weight of Tare (gm)	109.86
Weight of Water (gm)	8.00	Weight of Water (gm)	4.70
Weight of Dry Soil (gm)	631.36	Weight of Dry Soil (gm)	699.64
Moisture Content (%)	**1.3**	**Moisture Content (%)**	**0.7**

Wet Weight -3/4" Sample (gm)	641	Weight of the Dry Specimen (gm)	631.36
Dry Weight - 3/4" Sample (gm)	633.0	Weight of minus #200 material (gm)	22.46
Wet Weight +3/4" Sample (gm)	28728.40	Weight of plus #200 material (gm)	608.90
Dry Weight + 3/4" Sample (gm)	28536.70		
Total Dry Weight Sample (gm)	29169.7	**J - Factor (Percent Finer than 3/4")**	**0.0217**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	16599.00		56.53	56.53	43.47	**43.47**
2"	50	4424.00	(*)	15.07	71.59	28.41	**28.41**
1 1/2"	37.5	3385.00		11.53	83.12	16.88	**16.88**
1"	25	3468.40		11.81	94.93	5.07	**5.07**
3/4"	19	852.00		2.90	97.83	2.17	**2.17**
1/2"	12.5	405.41		64.21	64.21	35.79	**0.78**
3/8"	9.5	118.74		18.81	83.02	16.98	**0.37**
#4	4.75	51.71		8.19	91.21	8.79	**0.19**
#10	2	11.20		1.77	92.98	7.02	**0.15**
#20	0.85	7.37	(**)	1.17	94.15	5.85	**0.13**
#40	0.425	4.46		0.71	94.86	5.14	**0.11**
#60	0.25	3.30		0.52	95.38	4.62	**0.10**
#140	0.106	5.09		0.81	96.19	3.81	**0.08**
#200	0.075	1.62		0.26	96.44	3.56	**0.08**
Pan	-	22.46		3.56	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By HB Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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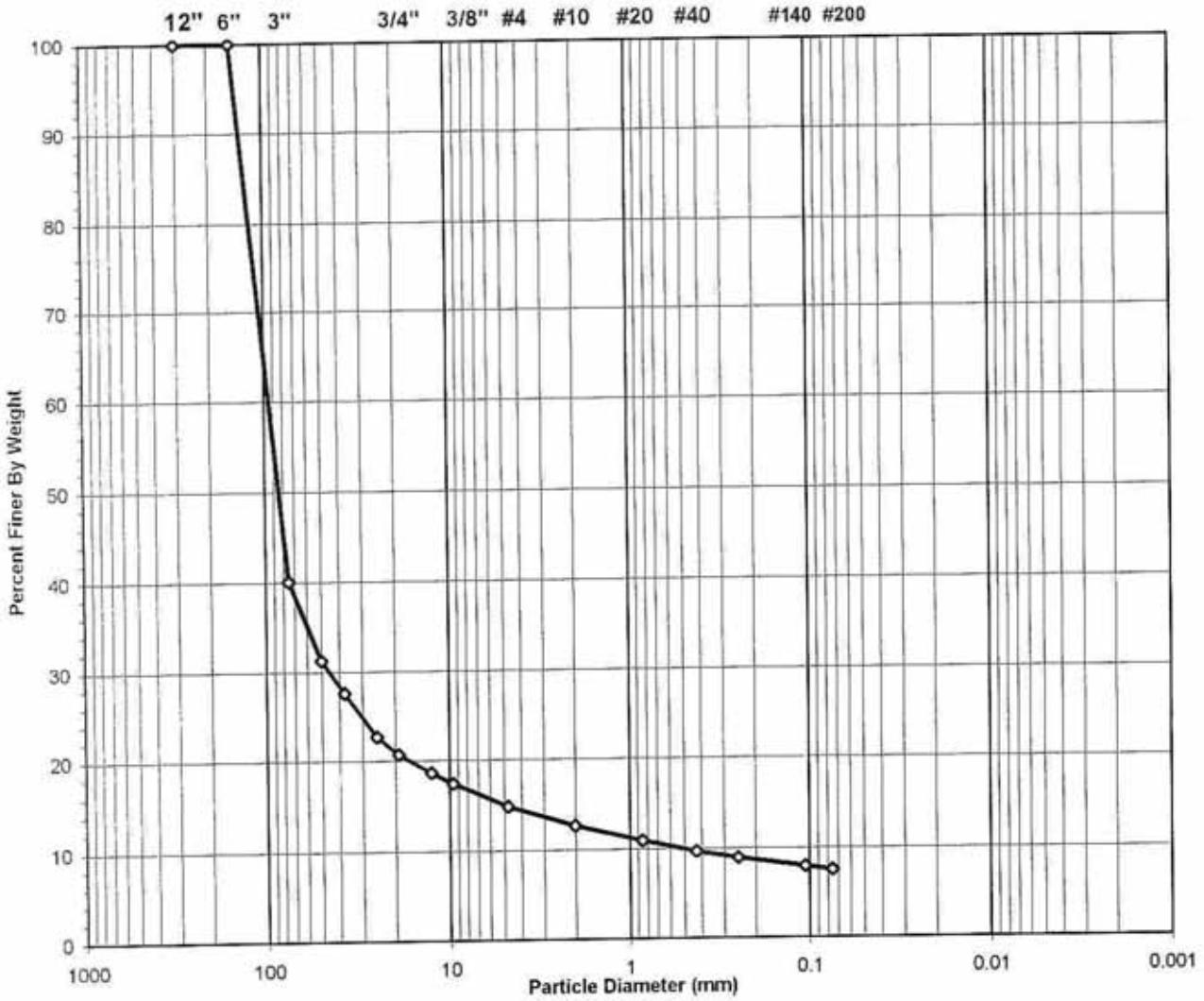
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-98.25
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-42	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***gp-gm, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL WITH SILT***

Tested By JP Date 2/21/06 Checked By KYB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-4
Client Reference	TAUM SAUK 06-3551	Depth (ft)	90-98.25
Project No.	2006-060-01	Sample No.	S-10
Lab ID	2006-060-01-42	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	683	Tare No.	879
Wgt.Tare + Wet Specimen (gm)	1305.80	Wgt.Tare + Wet Specimen (gm)	504.57
Wgt.Tare + Dry Specimen (gm)	1217.60	Wgt.Tare + Dry Specimen (gm)	499.80
Weight of Tare (gm)	99.83	Weight of Tare (gm)	110.15
Weight of Water (gm)	88.20	Weight of Water (gm)	4.77
Weight of Dry Soil (gm)	1117.77	Weight of Dry Soil (gm)	389.65
Moisture Content (%)	**7.9**	**Moisture Content (%)**	**1.2**

Wet Weight -3/4" Sample (gm)	12073	Weight of the Dry Specimen (gm)	1117.77
Dry Weight - 3/4" Sample (gm)	11190.0	Weight of minus #200 material (gm)	408.45
Wet Weight +3/4" Sample (gm)	43487.00	Weight of plus #200 material (gm)	709.32
Dry Weight + 3/4" Sample (gm)	42961.08		
Total Dry Weight Sample (gm)	54151.1	**J - Factor (Percent Finer than 3/4")**	**0.2066**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	32862.00		59.95	59.95	40.05	**40.05**
2"	50	4825.00	(*)	8.80	68.75	31.25	**31.25**
1 1/2"	37.5	1991.00		3.63	72.39	27.61	**27.61**
1"	25	2710.00		4.94	77.33	22.67	**22.67**
3/4"	19	1099.00		2.00	79.34	20.66	**20.66**
1/2"	12.5	111.70		9.99	9.99	90.01	**18.60**
3/8"	9.5	62.74		5.61	15.61	84.39	**17.44**
#4	4.75	139.44		12.47	28.08	71.92	**14.86**
#10	2	118.87		10.63	38.72	61.28	**12.66**
#20	0.85	95.58	(**)	8.55	47.27	52.73	**10.90**
#40	0.425	66.43		5.94	53.21	46.79	**9.67**
#60	0.25	39.90		3.57	56.78	43.22	**8.93**
#140	0.106	54.24		4.85	61.63	38.37	**7.93**
#200	0.075	20.42		1.83	63.46	36.54	**7.55**
Pan	-	408.45		36.54	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By YHB Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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BORING TS-5

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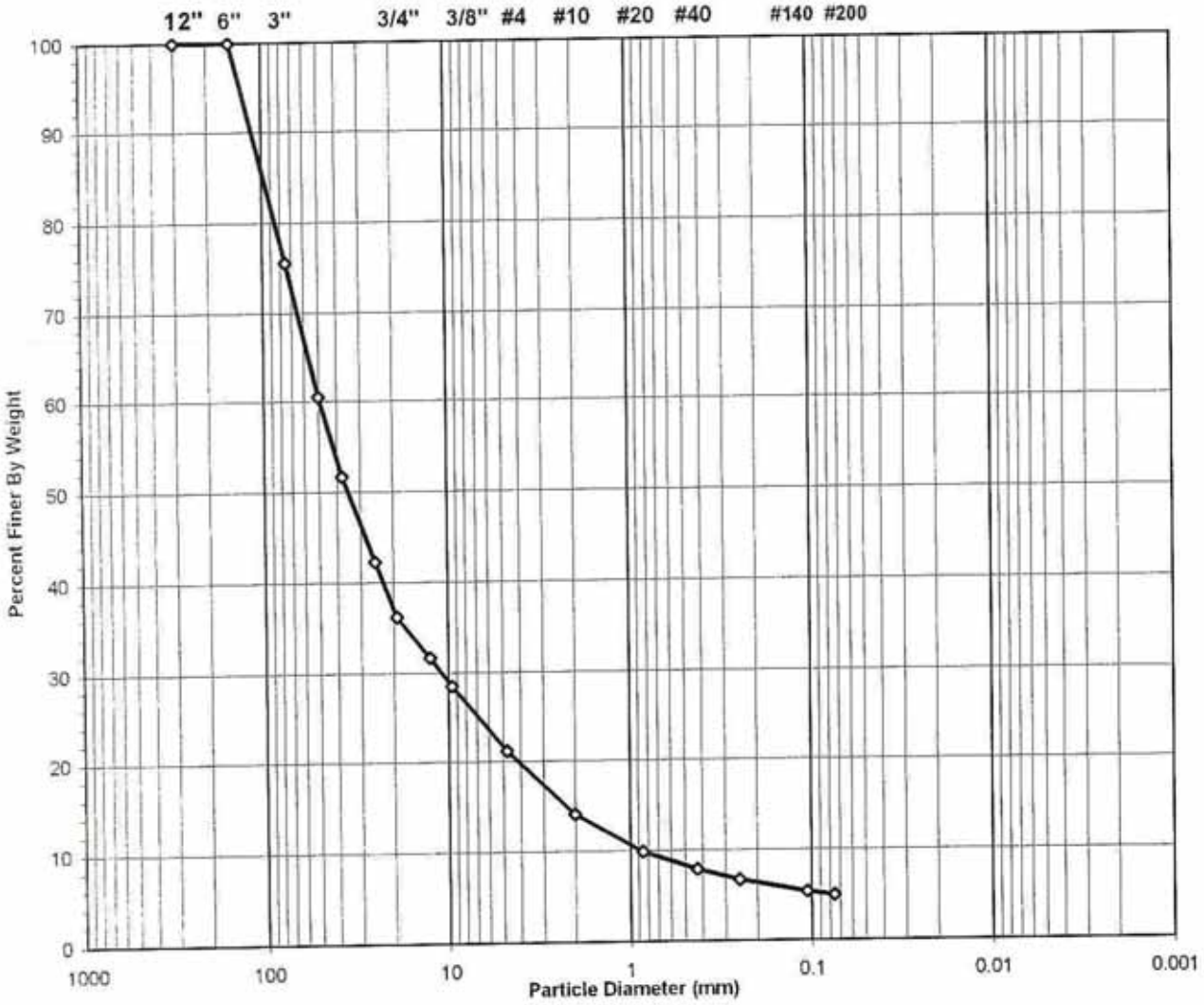
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	0-10
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-43	Soil Color	**REDDISH BROWN**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol	*GW, TESTED*	D60 =	49.2	CC =	2.7
USCS Classification	*WELL-GRADED GRAVEL WITH SAND*	D30 =	10.9	CU =	56.4
		D10 =	0.9		

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	0-10
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-43	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	932	Tare No.	537
Wgt.Tare + Wet Specimen (gm)	1335.50	Wgt.Tare + Wet Specimen (gm)	532.37
Wgt.Tare + Dry Specimen (gm)	1261.20	Wgt.Tare + Dry Specimen (gm)	522.83
Weight of Tare (gm)	103.11	Weight of Tare (gm)	82.48
Weight of Water (gm)	74.30	Weight of Water (gm)	9.54
Weight of Dry Soil (gm)	1158.09	Weight of Dry Soil (gm)	440.35
Moisture Content (%)	**6.4**	**Moisture Content (%)**	**2.2**

Wet Weight -3/4" Sample (gm)	23953	Weight of the Dry Specimen (gm)	1158.09
Dry Weight - 3/4" Sample (gm)	22508.9	Weight of minus #200 material (gm)	158.29
Wet Weight +3/4" Sample (gm)	40558.00	Weight of plus #200 material (gm)	999.80
Dry Weight + 3/4" Sample (gm)	39697.96		
Total Dry Weight Sample (gm)	62206.8	**J - Factor (Percent Finer than 3/4")**	**0.3618**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	15571.00		24.50	24.50	75.50	**75.50**
2"	50	9545.00	(*)	15.02	39.52	60.48	**60.48**
1 1/2"	37.5	5629.00		8.86	48.38	51.62	**51.62**
1"	25	5974.00		9.40	57.78	42.22	**42.22**
3/4"	19	3839.00		6.04	63.82	36.18	**36.18**
1/2"	12.5	145.17		12.54	12.54	87.46	**31.65**
3/8"	9.5	102.54		8.85	21.39	78.61	**28.44**
#4	4.75	233.55		20.17	41.56	58.44	**21.15**
#10	2	227.87		19.68	61.23	38.77	**14.03**
#20	0.85	133.02	(**)	11.49	72.72	27.28	**9.87**
#40	0.425	65.26		5.64	78.35	21.65	**7.83**
#60	0.25	37.89		3.27	81.63	18.37	**6.65**
#140	0.106	42.89		3.70	85.33	14.67	**5.31**
#200	0.075	11.61		1.00	86.33	13.67	**4.95**
Pan	-	158.29		13.67	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	0-10
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-43	Soil Description	**BROWN SILTY CLAY**
			(Minus No. 40 sieve material, Airdried)

***Note:** The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.*

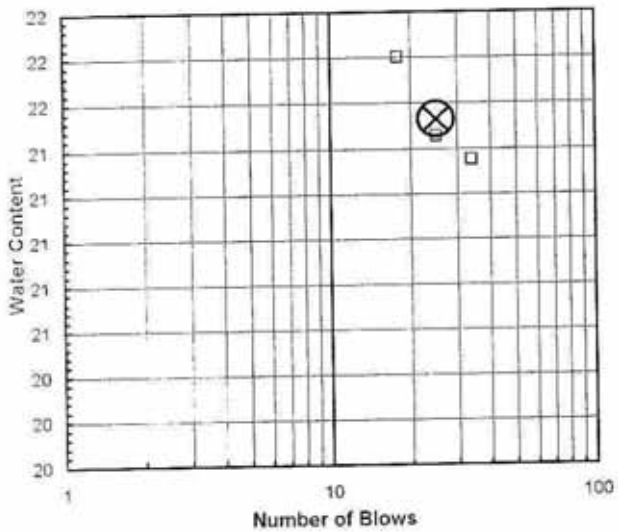
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	OO1	2045	2223	MULTIPOINT
Wt. of Tare & WS (gm)	35.29	41.72	40.04	
Wt. of Tare & DS (gm)	31.50	37.71	36.31	
Wt. of Tare (gm)	13.75	19.02	19.20	
Wt. of Water (gm)	3.8	4.0	3.7	
Wt. of DS (gm)	17.8	18.7	17.1	
Moisture Content (%)	**21.4**	**21.5**	**21.8**	
Number of Blows	**34**	**25**	**18**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	2294	2303	
Wt. of Tare & WS (gm)	25.71	24.66	
Wt. of Tare & DS (gm)	24.83	23.74	
Wt. of Tare (gm)	19.68	18.38	
Wt. of Water (gm)	0.9	0.9	
Wt. of DS (gm)	5.2	5.4	
Moisture Content (%)	**17.1**	**17.2**	**-0.1**

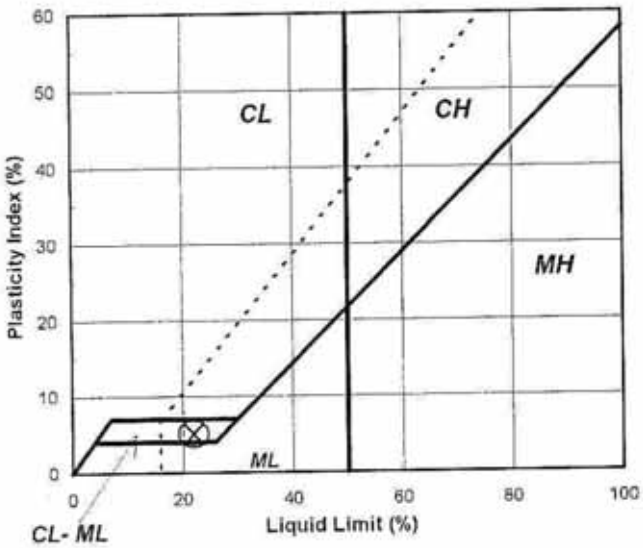
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**22**
Plastic Limit (%)	**17**
Plasticity Index (%)	**5**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/27/06 *Checked By* KR *Date* 2-28-06

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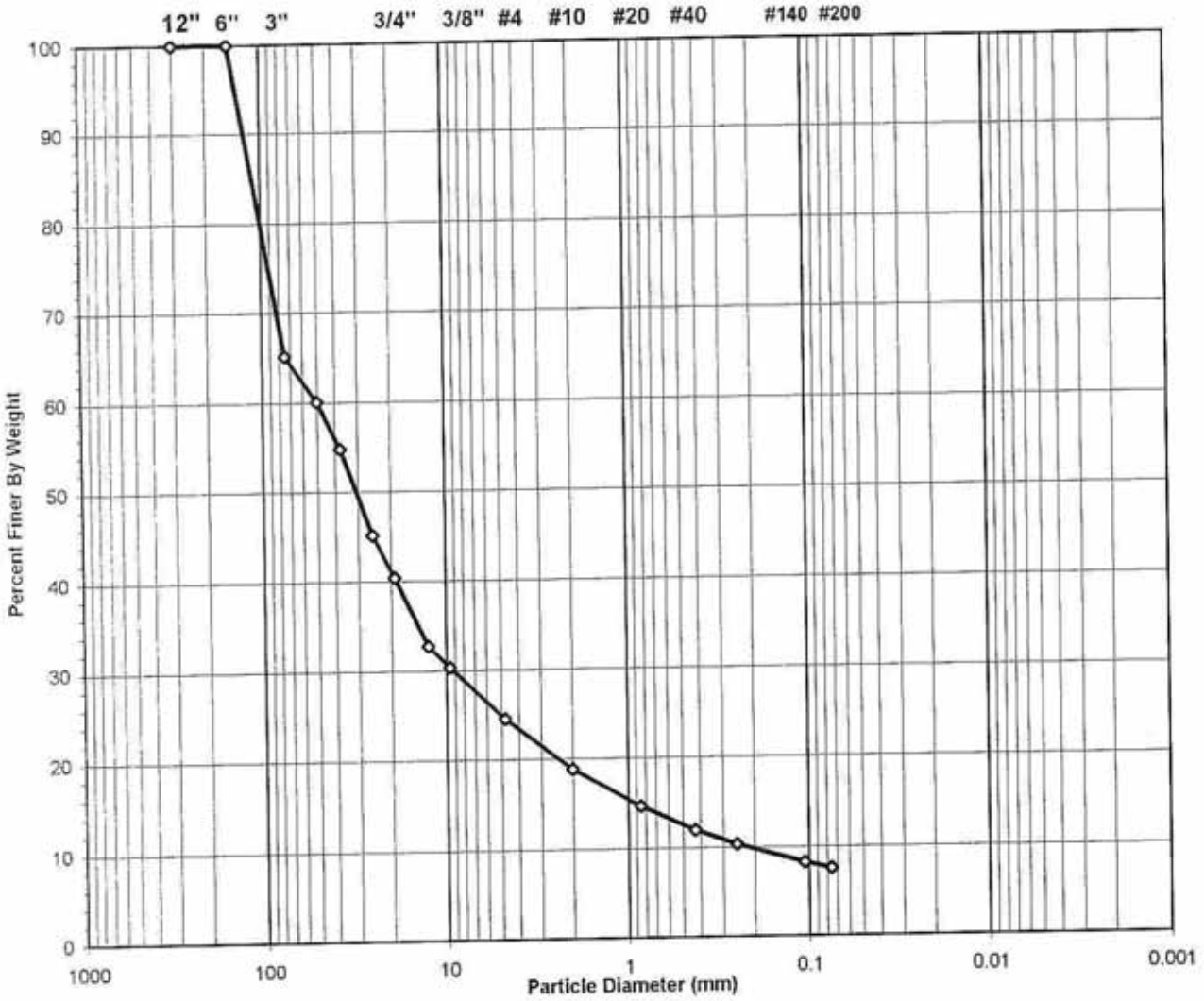
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-44	Soil Color	**REDDISH BROWN**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol	*GP-GM, TESTED*	D60 =	49.9	CC =	7.6
USCS Classification	*POORLY GRADED GRAVEL WITH SILT AND SAND (NON-PLASTIC FINES)*	D30 =	9.1	CU =	227.0
		D10 =	0.2		

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-44	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2337	Tare No.	883
Wgt.Tare + Wet Specimen (gm)	1356.60	Wgt.Tare + Wet Specimen (gm)	472.93
Wgt.Tare + Dry Specimen (gm)	1293.70	Wgt.Tare + Dry Specimen (gm)	466.42
Weight of Tare (gm)	98.48	Weight of Tare (gm)	110.52
Weight of Water (gm)	62.90	Weight of Water (gm)	6.51
Weight of Dry Soil (gm)	1195.22	Weight of Dry Soil (gm)	355.90
Moisture Content (%)	**5.3**	**Moisture Content (%)**	**1.8**

Wet Weight -3/4" Sample (gm)	11279	Weight of the Dry Specimen (gm)	1195.22
Dry Weight - 3/4" Sample (gm)	10715.1	Weight of minus #200 material (gm)	223.48
Wet Weight +3/4" Sample (gm)	16091.00	Weight of plus #200 material (gm)	971.74
Dry Weight + 3/4" Sample (gm)	15801.96		
Total Dry Weight Sample (gm)	26517.1	**J - Factor (Percent Finer than 3/4")**	**0.4041**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	9414.00		34.86	34.86	65.14	**65.14**
2"	50	1374.00	(*)	5.09	39.95	60.05	**60.05**
1 1/2"	37.5	1436.00		5.32	45.27	54.73	**54.73**
1"	25	2591.00		9.60	54.87	45.13	**45.13**
3/4"	19	1276.00		4.73	59.59	40.41	**40.41**
1/2"	12.5	226.19		18.92	18.92	81.08	**32.76**
3/8"	9.5	71.64		5.99	24.92	75.08	**30.34**
#4	4.75	171.68		14.36	39.28	60.72	**24.54**
#10	2	169.64		14.19	53.48	46.52	**18.80**
#20	0.85	123.12	(**)	10.30	63.78	36.22	**14.64**
#40	0.425	80.70		6.75	70.53	29.47	**11.91**
#60	0.25	47.26		3.95	74.48	25.52	**10.31**
#140	0.106	61.14		5.12	79.60	20.40	**8.24**
#200	0.075	20.37		1.70	81.30	18.70	**7.56**
Pan	-	223.48		18.70	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-44	Visual Description	**BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By BS *Date* 2/28/06 *Checked By* KB *Date* 2-28-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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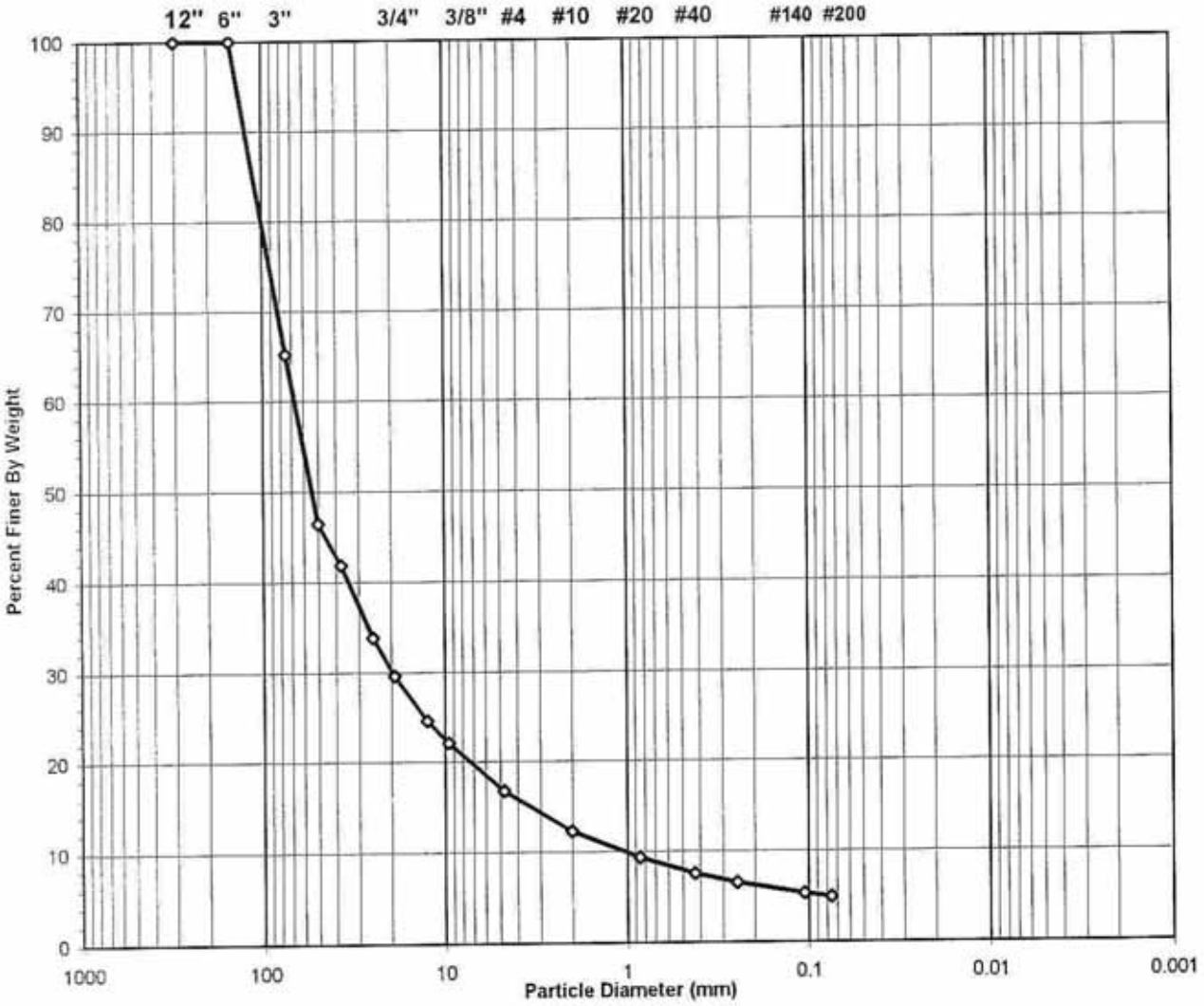
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	15-20
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-45	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	***GP, TESTED***	**D60 =**	**67.1**	**CC =**	**5.4**
USCS Classification	***POORLY GRADED GRAVEL***	**D30 =**	**19.5**	**CU =**	**64.2**
		D10 =	**1.0**		

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	15-20
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-45	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1343	Tare No.	612
Wgt.Tare + Wet Specimen (gm)	1351.60	Wgt.Tare + Wet Specimen (gm)	494.86
Wgt.Tare + Dry Specimen (gm)	1300.90	Wgt.Tare + Dry Specimen (gm)	490.77
Weight of Tare (gm)	96.83	Weight of Tare (gm)	83.00
Weight of Water (gm)	50.70	Weight of Water (gm)	4.09
Weight of Dry Soil (gm)	1204.07	Weight of Dry Soil (gm)	407.77
Moisture Content (%)	**4.2**	**Moisture Content (%)**	**1.0**

Wet Weight -3/4" Sample (gm)	18096	Weight of the Dry Specimen (gm)	1204.07
Dry Weight - 3/4" Sample (gm)	17364.8	Weight of minus #200 material (gm)	199.45
Wet Weight +3/4" Sample (gm)	41639.00	Weight of plus #200 material (gm)	1004.62
Dry Weight + 3/4" Sample (gm)	41225.50		
Total Dry Weight Sample (gm)	58590.3	**J - Factor (Percent Finer than 3/4")**	**0.2964**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	20601.00		34.81	34.81	65.19	**65.19**
2"	50	11121.00	(*)	18.79	53.60	46.40	**46.40**
1 1/2"	37.5	2691.00		4.55	58.15	41.85	**41.85**
1"	25	4725.00		7.98	66.14	33.86	**33.86**
3/4"	19	2501.00		4.23	70.36	29.64	**29.64**
1/2"	12.5	206.55		17.15	17.15	82.85	**24.55**
3/8"	9.5	100.23		8.32	25.48	74.52	**22.09**
#4	4.75	216.64		17.99	43.47	56.53	**16.75**
#10	2	183.60		15.25	58.72	41.28	**12.23**
#20	0.85	119.58	(**)	9.93	68.65	31.35	**9.29**
#40	0.425	73.30		6.09	74.74	25.26	**7.49**
#60	0.25	39.69		3.30	78.03	21.97	**6.51**
#140	0.106	48.89		4.06	82.09	17.91	**5.31**
#200	0.075	16.14		1.34	83.44	16.56	**4.91**
Pan	-	199.45		16.56	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By YKB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	15-20
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-45	Soil Description	**REDDISH BROWN SILTY CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

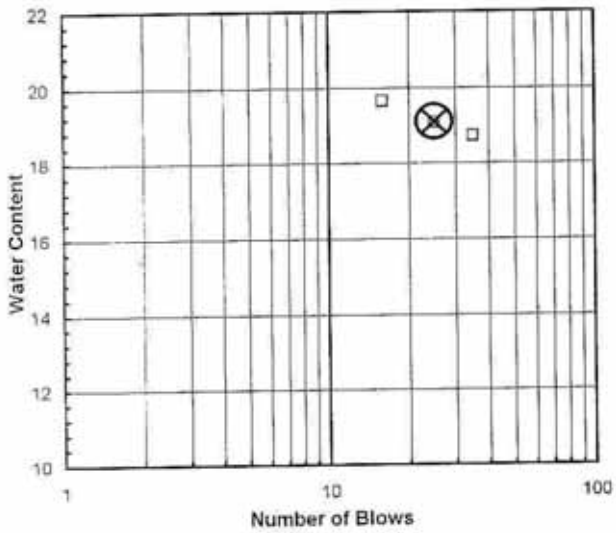
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	2305	2298	2289	MULTIPOINT
Wt. of Tare & WS (gm)	43.09	40.59	44.62	
Wt. of Tare & DS (gm)	39.60	36.96	40.65	
Wt. of Tare (gm)	20.95	17.93	20.43	
Wt. of Water (gm)	3.5	3.6	4.0	
Wt. of DS (gm)	18.7	19.0	20.2	
Moisture Content (%)	**18.7**	**19.1**	**19.6**	
Number of Blows	**35**	**25**	**16**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	43	53	
Wt. of Tare & WS (gm)	25.16	25.20	
Wt. of Tare & DS (gm)	24.35	24.36	
Wt. of Tare (gm)	19.03	18.80	
Wt. of Water (gm)	0.8	0.8	
Wt. of DS (gm)	5.3	5.6	
Moisture Content (%)	**15.2**	**15.1**	**0.1**

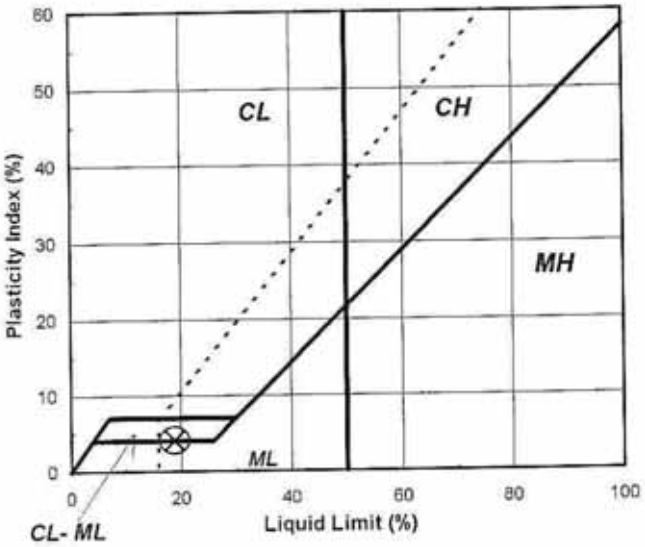
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**19**
Plastic Limit (%)	**15**
Plasticity Index (%)	**4**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By TO *Date* 2/28/06 *Checked By* KLB *Date* 3-1-06

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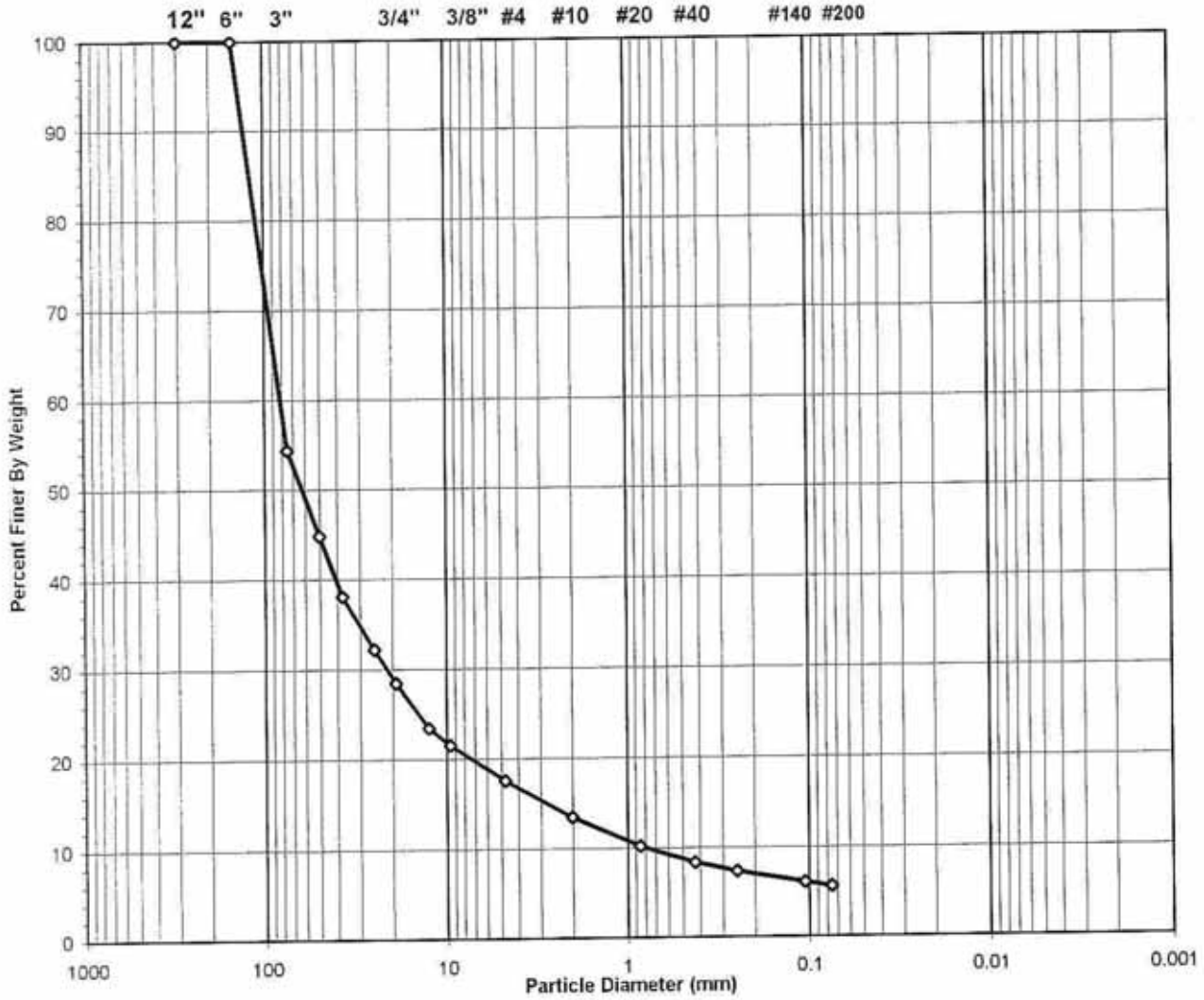
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-46	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***GP-GC, TESTED***

USCS Classification ***POORLY GRADED GRAVEL WITH SILTY CLAY***

Tested By JP Date 2/28/06 Checked By KJB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-46	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1653	Tare No.	599
Wgt.Tare + Wet Specimen (gm)	1269.70	Wgt.Tare + Wet Specimen (gm)	1036.90
Wgt.Tare + Dry Specimen (gm)	1197.80	Wgt.Tare + Dry Specimen (gm)	1029.50
Weight of Tare (gm)	94.11	Weight of Tare (gm)	84.33
Weight of Water (gm)	71.90	Weight of Water (gm)	7.40
Weight of Dry Soil (gm)	1103.69	Weight of Dry Soil (gm)	945.17
Moisture Content (%)	**6.5**	**Moisture Content (%)**	**0.8**

Wet Weight -3/4" Sample (gm)	18606	Weight of the Dry Specimen (gm)	1103.69
Dry Weight - 3/4" Sample (gm)	17468.0	Weight of minus #200 material (gm)	217.77
Wet Weight +3/4" Sample (gm)	44251.00	Weight of plus #200 material (gm)	885.92
Dry Weight + 3/4" Sample (gm)	43907.24		
Total Dry Weight Sample (gm)	61375.3	**J - Factor (Percent Finer than 3/4")**	**0.2846**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	28251.00		45.67	45.67	54.33	**54.33**
2"	50	5921.00	(*)	9.57	55.24	44.76	**44.76**
1 1/2"	37.5	4146.00		6.70	61.95	38.05	**38.05**
1"	25	3618.00		5.85	67.80	32.20	**32.20**
3/4"	19	2315.00		3.74	71.54	28.46	**28.46**
1/2"	12.5	192.58		17.45	17.45	82.55	**23.49**
3/8"	9.5	74.34		6.74	24.18	75.82	**21.58**
#4	4.75	155.05		14.05	38.23	61.77	**17.58**
#10	2	159.41		14.44	52.68	47.32	**13.47**
#20	0.85	126.50	(**)	11.46	64.14	35.86	**10.21**
#40	0.425	73.16		6.63	70.77	29.23	**8.32**
#60	0.25	38.56		3.49	74.26	25.74	**7.33**
#140	0.106	48.74		4.42	78.68	21.32	**6.07**
#200	0.075	17.58		1.59	80.27	19.73	**5.62**
Pan	-	217.77		19.73	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-46	Soil Description	**REDDISH BROWN SILTY CLAY**
			(Minus No. 40 sieve material, Airdried)

***Note:** The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.*

Liquid Limit Test	**1**	**2**	**3**
Tare Number	261	2232	2253
Wt. of Tare & WS (gm)	40.76	38.70	47.78
Wt. of Tare & DS (gm)	36.96	35.19	42.92
Wt. of Tare (gm)	16.93	17.43	19.14
Wt. of Water (gm)	3.8	3.5	4.9
Wt. of DS (gm)	20.0	17.8	23.8
Moisture Content (%)	**19.0**	**19.8**	**20.4**
Number of Blows	**35**	**28**	**18**

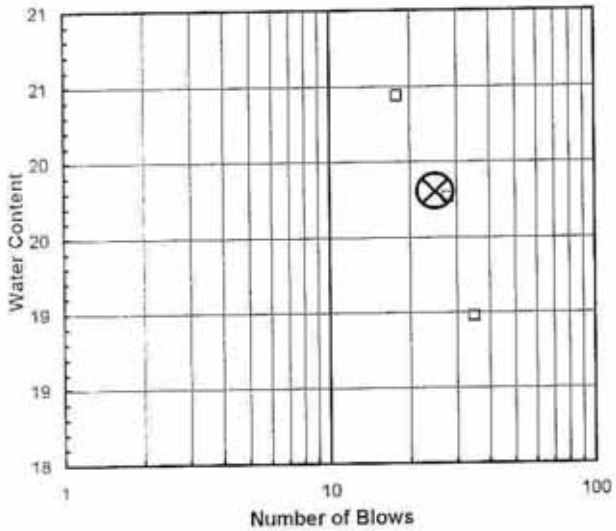
MULTIPOINT

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	2303	2314	
Wt. of Tare & WS (gm)	24.41	25.22	
Wt. of Tare & DS (gm)	23.58	24.25	
Wt. of Tare (gm)	18.37	18.26	
Wt. of Water (gm)	0.8	1.0	
Wt. of DS (gm)	5.2	6.0	
Moisture Content (%)	**15.9**	**16.2**	**-0.3**

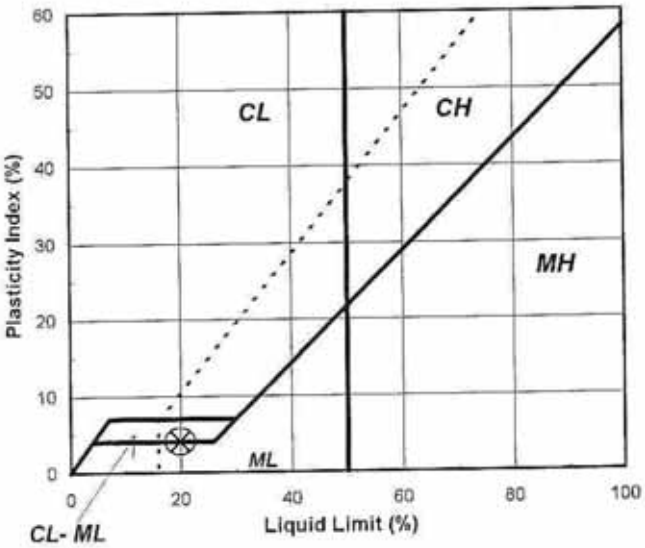
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**20**
Plastic Limit (%)	**16**
Plasticity Index (%)	**4**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/28/06 *Checked By* KLB *Date* 3-1-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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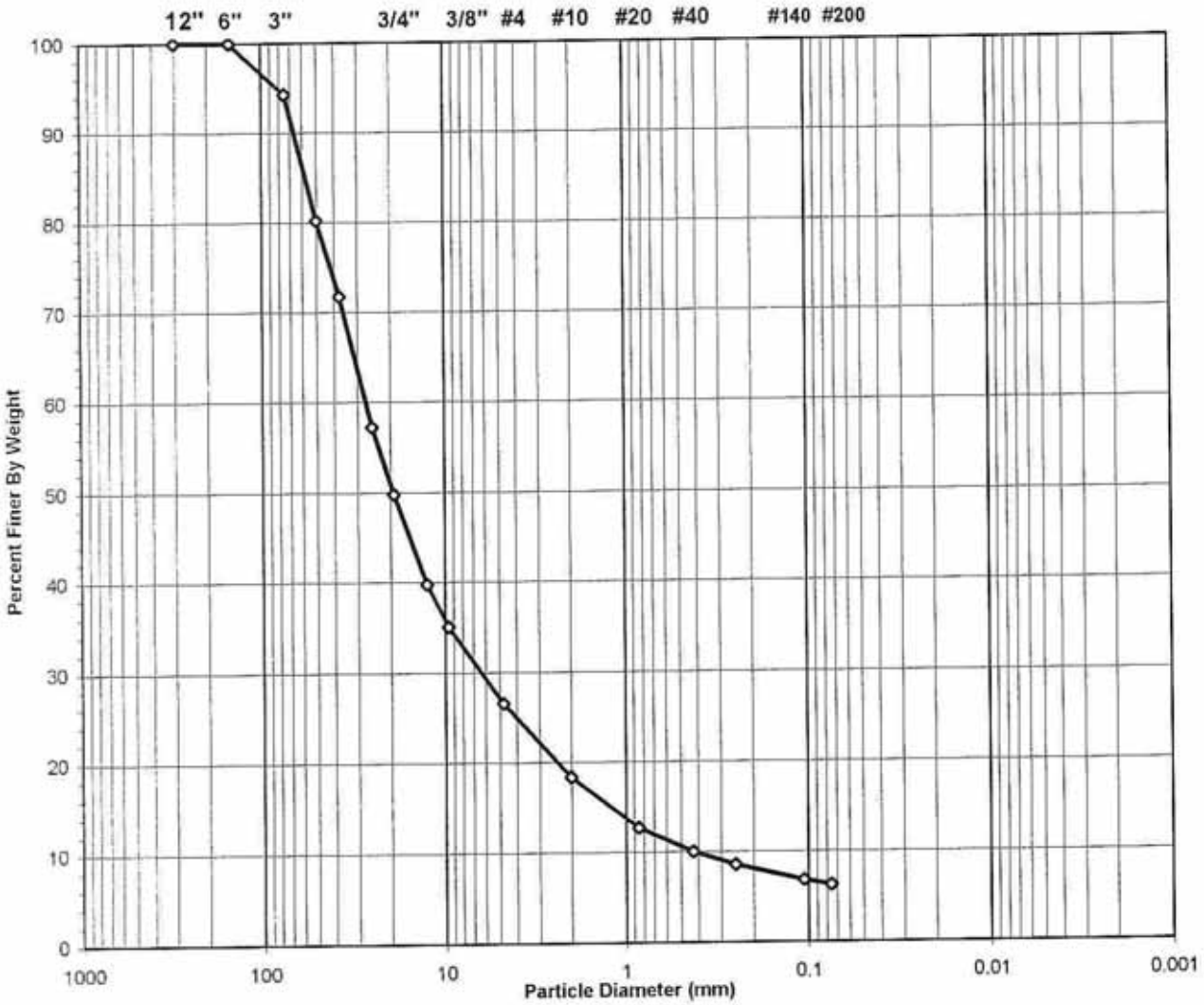
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-47	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*GP-GC, TESTED*	D60 =	27.0	CC =	3.4
USCS Classification	*POORLY GRADED GRAVEL WITH SILTY CLAY AND SAND*	D30 =	6.3	CU =	63.1
		D10 =	0.4		

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQN\U423.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-47	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	517	Tare No.	910
Wgt.Tare + Wet Specimen (gm)	1187.40	Wgt.Tare + Wet Specimen (gm)	707.90
Wgt.Tare + Dry Specimen (gm)	1101.00	Wgt.Tare + Dry Specimen (gm)	687.40
Weight of Tare (gm)	98.58	Weight of Tare (gm)	110.34
Weight of Water (gm)	86.40	Weight of Water (gm)	20.50
Weight of Dry Soil (gm)	1002.42	Weight of Dry Soil (gm)	577.06
Moisture Content (%)	**8.6**	**Moisture Content (%)**	**3.6**

Wet Weight -3/4" Sample (gm)	18861	Weight of the Dry Specimen (gm)	1002.42
Dry Weight - 3/4" Sample (gm)	17364.3	Weight of minus #200 material (gm)	126.57
Wet Weight +3/4" Sample (gm)	18157.00	Weight of plus #200 material (gm)	875.85
Dry Weight + 3/4" Sample (gm)	17534.10		
Total Dry Weight Sample (gm)	34898.4	**J - Factor (Percent Finer than 3/4")**	**0.4976**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	2062.00		5.71	5.71	94.29	**94.29**
2"	50	5094.00	(*)	14.10	19.80	80.20	**80.20**
1 1/2"	37.5	3059.00		8.46	28.27	71.73	**71.73**
1"	25	5250.00		14.53	42.79	57.21	**57.21**
3/4"	19	2692.00		7.45	50.24	49.76	**49.76**
1/2"	12.5	202.08		20.16	20.16	79.84	**39.73**
3/8"	9.5	93.70		9.35	29.51	70.49	**35.08**
#4	4.75	171.67		17.13	46.63	53.37	**26.55**
#10	2	164.35		16.40	63.03	36.97	**18.40**
#20	0.85	114.81	(**)	11.45	74.48	25.52	**12.70**
#40	0.425	55.01		5.49	79.97	20.03	**9.97**
#60	0.25	29.52		2.94	82.91	17.09	**8.50**
#140	0.106	34.61		3.45	86.37	13.63	**6.78**
#200	0.075	10.10		1.01	87.37	12.63	**6.28**
Pan	-	126.57		12.63	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-47	Soil Description	**REDDISH BROWN SILTY CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

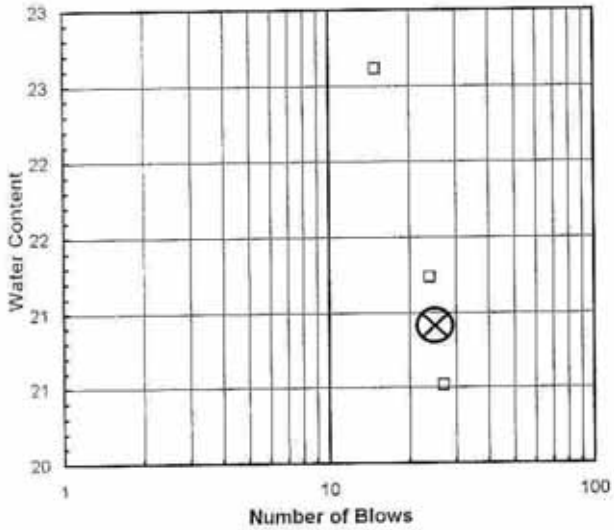
Liquid Limit Test	**1**	**2**	**3**	MULTIPOINT
Tare Number	242	2184	40A	
Wt. of Tare & WS (gm)	42.65	41.05	37.71	
Wt. of Tare & DS (gm)	38.81	37.40	33.97	
Wt. of Tare (gm)	20.09	20.21	17.43	
Wt. of Water (gm)	3.8	3.7	3.7	
Wt. of DS (gm)	18.7	17.2	16.5	
Moisture Content (%)	**20.5**	**21.2**	**22.6**	
Number of Blows	**27**	**24**	**15**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	225	142	
Wt. of Tare & WS (gm)	26.08	26.81	
Wt. of Tare & DS (gm)	25.19	25.94	
Wt. of Tare (gm)	19.58	20.57	
Wt. of Water (gm)	0.9	0.9	
Wt. of DS (gm)	5.6	5.4	
Moisture Content (%)	**15.9**	**16.2**	**-0.3**

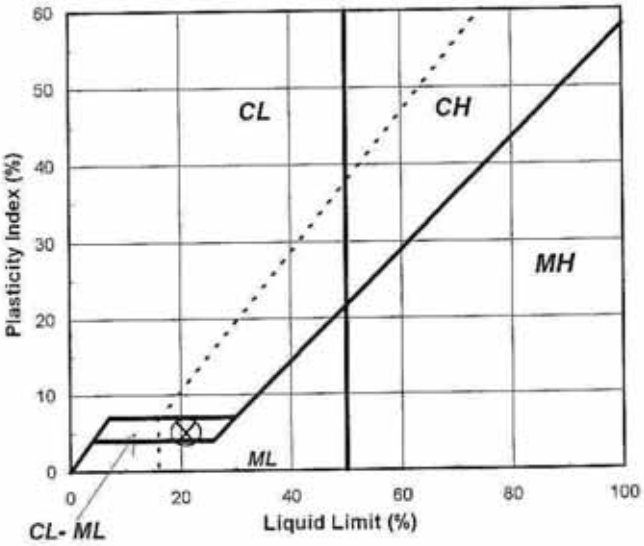
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**21**
Plastic Limit (%)	**16**
Plasticity Index (%)	**5**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By TO *Date* 2/28/06 *Checked By* YKB *Date* 3-1-06

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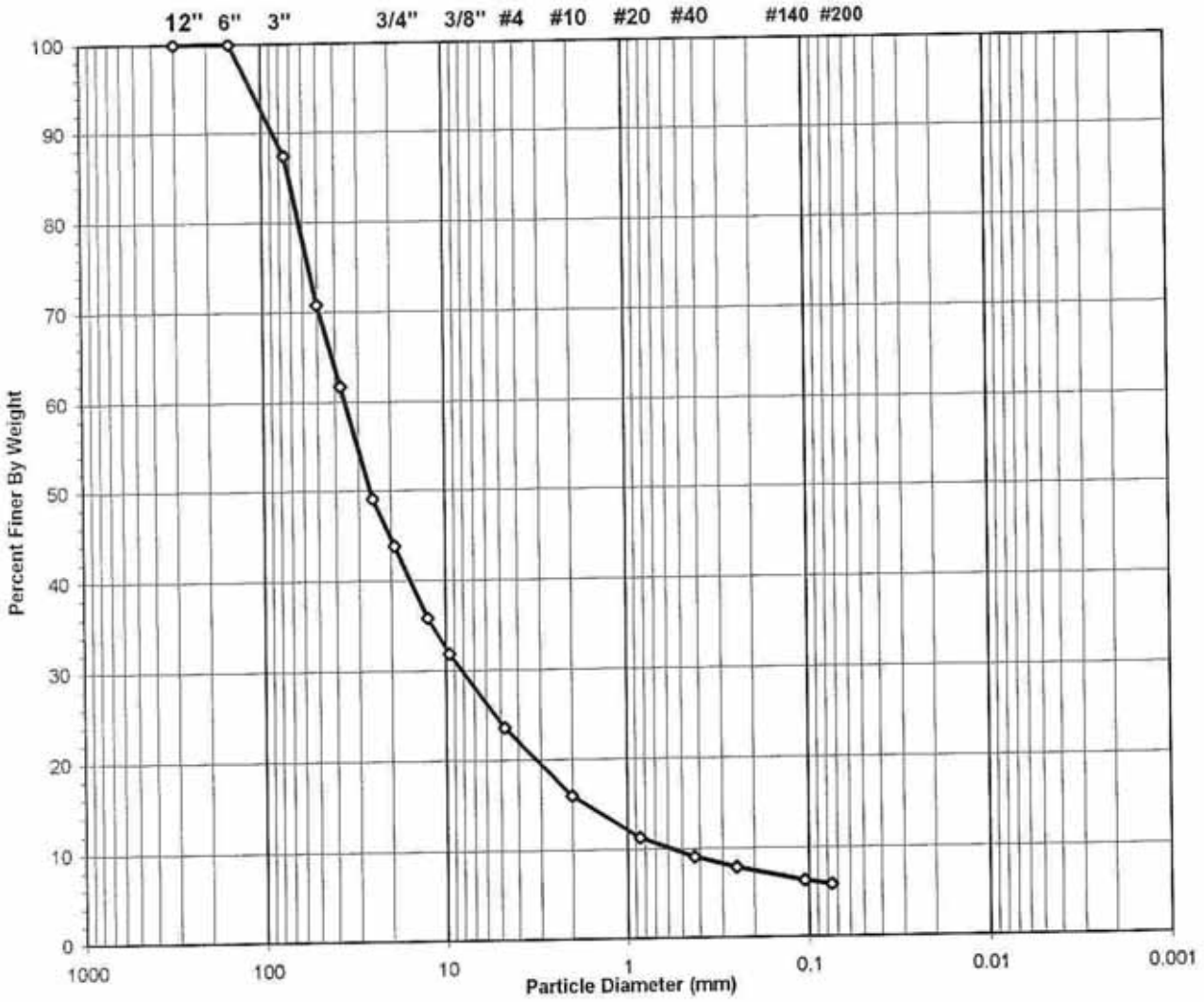
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-48	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*gp-gc, ASSUMED*	D60 =	35.5	CC =	3.3
USCS Classification	*POORLY GRADED GRAVEL WITH SILTY CLAY AND SAND*	D30 =	8.1	CU =	61.9
		D10 =	0.6		

Tested By JP Date 2/28/06 Checked By KB Date 3-8-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	40-50
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-48	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	514	Tare No.	552
Wgt.Tare + Wet Specimen (gm)	1196.70	Wgt.Tare + Wet Specimen (gm)	698.30
Wgt.Tare + Dry Specimen (gm)	1055.70	Wgt.Tare + Dry Specimen (gm)	683.50
Weight of Tare (gm)	96.71	Weight of Tare (gm)	81.59
Weight of Water (gm)	141.00	Weight of Water (gm)	14.80
Weight of Dry Soil (gm)	958.99	Weight of Dry Soil (gm)	601.91
Moisture Content (%)	**14.7**	**Moisture Content (%)**	**2.5**

Wet Weight -3/4" Sample (gm)	17195	Weight of the Dry Specimen (gm)	958.99
Dry Weight - 3/4" Sample (gm)	14990.9	Weight of minus #200 material (gm)	127.37
Wet Weight +3/4" Sample (gm)	19695.00	Weight of plus #200 material (gm)	831.62
Dry Weight + 3/4" Sample (gm)	19222.35		
Total Dry Weight Sample (gm)	34213.2	**J - Factor (Percent Finer than 3/4")**	**0.4382**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	4440.00		12.67	12.67	87.33	**87.33**
2"	50	5786.00	(*)	16.51	29.17	70.83	**70.83**
1 1/2"	37.5	3189.00		9.10	38.27	61.73	**61.73**
1"	25	4442.00		12.67	50.94	49.06	**49.06**
3/4"	19	1838.00		5.24	56.18	43.82	**43.82**
1/2"	12.5	174.27		18.17	18.17	81.83	**35.85**
3/8"	9.5	88.10		9.19	27.36	72.64	**31.83**
#4	4.75	179.94		18.76	46.12	53.88	**23.61**
#10	2	167.00		17.41	63.54	36.46	**15.98**
#20	0.85	103.29	(**)	10.77	74.31	25.69	**11.26**
#40	0.425	48.42		5.05	79.36	20.64	**9.05**
#60	0.25	26.92		2.81	82.16	17.84	**7.82**
#140	0.106	33.51		3.49	85.66	14.34	**6.28**
#200	0.075	10.17		1.06	86.72	13.28	**5.82**
Pan	-	127.37		13.28	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By JP Date 2/28/06 Checked By KB Date 3-8-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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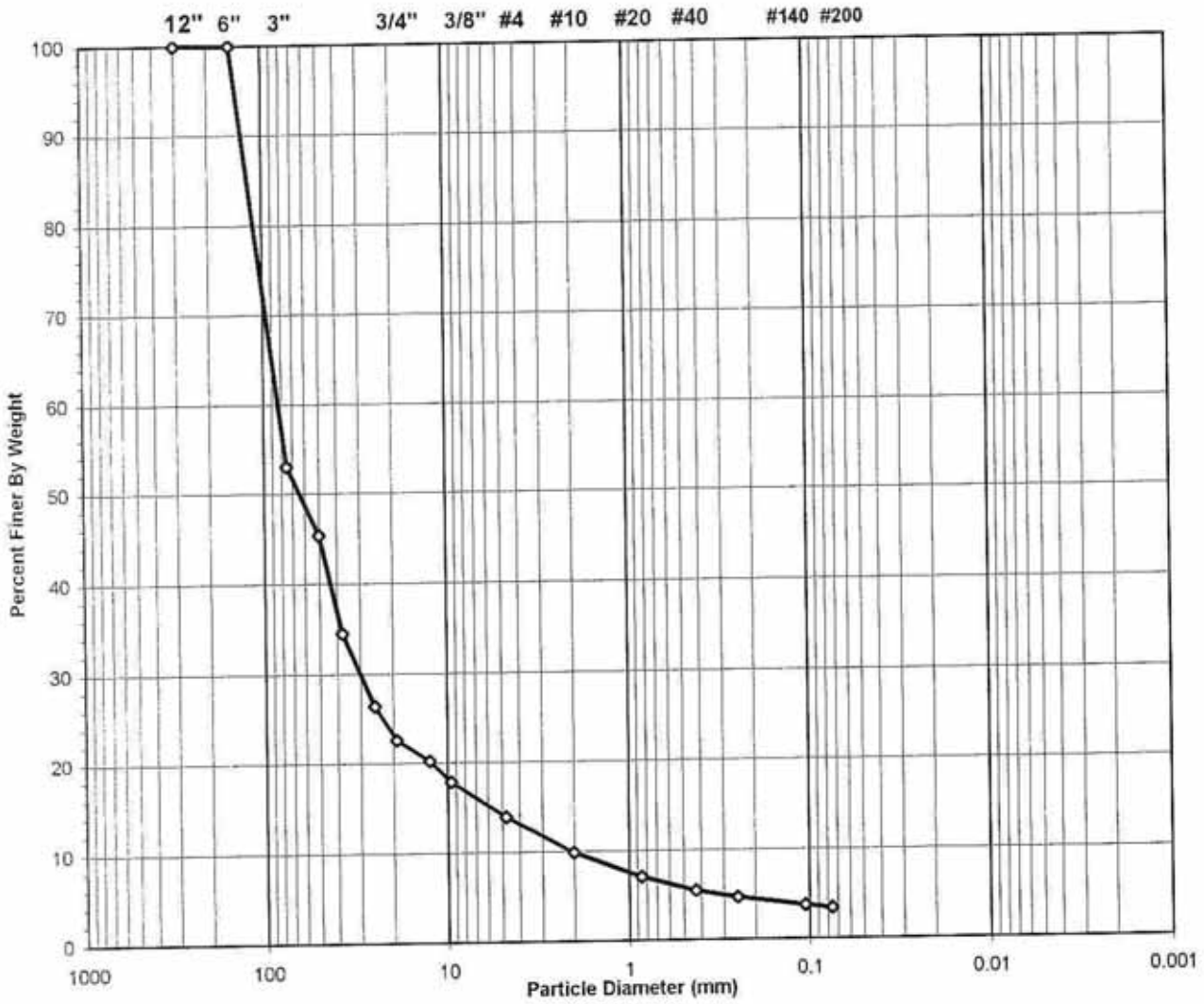
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-49	Soil Color	**REDDISH BROWN**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***GP, TESTED***

USCS Classification ***POORLY GRADED GRAVEL (NON-PLASTIC FINES)***

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-49	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1923	Tare No.	615
Wgt.Tare + Wet Specimen (gm)	1196.00	Wgt.Tare + Wet Specimen (gm)	600.20
Wgt.Tare + Dry Specimen (gm)	1143.10	Wgt.Tare + Dry Specimen (gm)	593.10
Weight of Tare (gm)	100.21	Weight of Tare (gm)	84.38
Weight of Water (gm)	52.90	Weight of Water (gm)	7.10
Weight of Dry Soil (gm)	1042.89	Weight of Dry Soil (gm)	508.72
Moisture Content (%)	**5.1**	**Moisture Content (%)**	**1.4**

Wet Weight -3/4" Sample (gm)	9529	Weight of the Dry Specimen (gm)	1042.89
Dry Weight - 3/4" Sample (gm)	9069.0	Weight of minus #200 material (gm)	157.45
Wet Weight +3/4" Sample (gm)	31510.00	Weight of plus #200 material (gm)	885.44
Dry Weight + 3/4" Sample (gm)	31076.28		
Total Dry Weight Sample (gm)	40145.3	**J - Factor (Percent Finer than 3/4")**	**0.2259**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	19144.00		47.03	47.03	52.97	**52.97**
2"	50	3124.00	(*)	7.67	54.71	45.29	**45.29**
1 1/2"	37.5	4422.00		10.86	65.57	34.43	**34.43**
1"	25	3258.00		8.00	73.57	26.43	**26.43**
3/4"	19	1562.00		3.84	77.41	22.59	**22.59**
1/2"	12.5	110.14		10.56	10.56	89.44	**20.20**
3/8"	9.5	109.92		10.54	21.10	78.90	**17.82**
#4	4.75	183.12		17.56	38.66	61.34	**13.86**
#10	2	184.13		17.66	56.32	43.68	**9.87**
#20	0.85	131.10	(**)	12.57	68.89	31.11	**7.03**
#40	0.425	71.69		6.87	75.76	24.24	**5.48**
#60	0.25	36.26		3.48	79.24	20.76	**4.69**
#140	0.106	43.94		4.21	83.45	16.55	**3.74**
#200	0.075	15.14		1.45	84.90	15.10	**3.41**
Pan	-	157.45		15.10	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By KYB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-49	Visual Description	**REDDISH BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By BS *Date* 2/28/06 *Checked By* KLB *Date* 3-1-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

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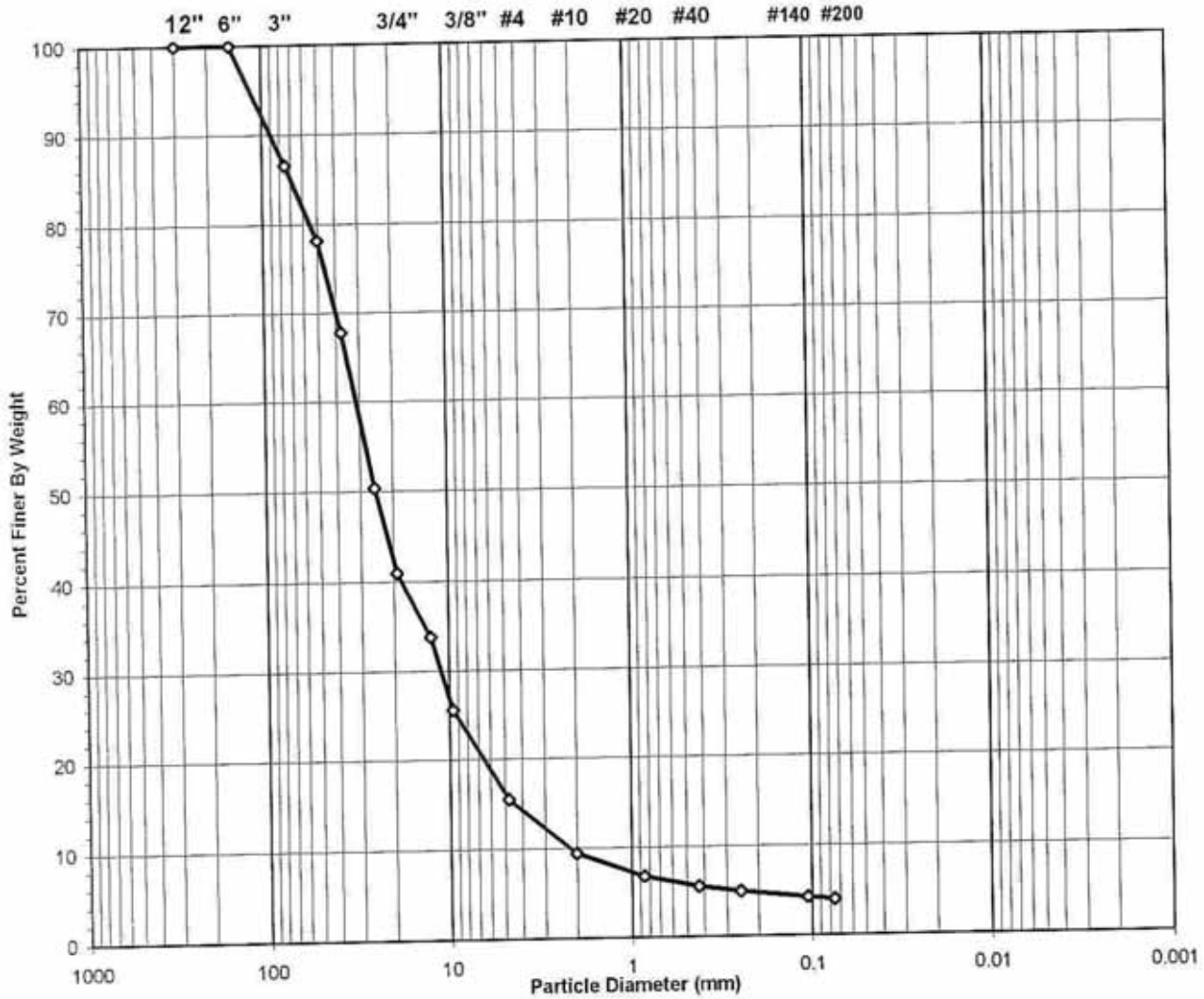
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-67
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-50	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gw, ASSUMED*	D60 =	31.3	CC =	1.8
USCS Classification	*WELL-GRADED GRAVEL*	D30 =	11.0	CU =	14.3
		D10 =	2.2		

Tested By PC Date 2/23/06 Checked By KLR Date 3-8-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U588.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-5
Client Reference	TAUM SAUK 06-3551	Depth (ft)	60-67
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-50	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	959	Tare No.	728
Wgt.Tare + Wet Specimen (gm)	1212.70	Wgt.Tare + Wet Specimen (gm)	691.50
Wgt.Tare + Dry Specimen (gm)	1161.90	Wgt.Tare + Dry Specimen (gm)	677.30
Weight of Tare (gm)	103.11	Weight of Tare (gm)	86.47
Weight of Water (gm)	50.80	Weight of Water (gm)	14.20
Weight of Dry Soil (gm)	1058.79	Weight of Dry Soil (gm)	590.83
Moisture Content (%)	**4.8**	**Moisture Content (%)**	**2.4**

Wet Weight -3/4" Sample (gm)	14209	Weight of the Dry Specimen (gm)	1058.79
Dry Weight - 3/4" Sample (gm)	13558.5	Weight of minus #200 material (gm)	101.93
Wet Weight +3/4" Sample (gm)	20027.00	Weight of plus #200 material (gm)	956.86
Dry Weight + 3/4" Sample (gm)	19556.97		
Total Dry Weight Sample (gm)	33115.4	**J - Factor (Percent Finer than 3/4")**	**0.4094**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	4552.00		13.42	13.42	86.58	**86.58**
2"	50	2881.00	(*)	8.50	21.92	78.08	**78.08**
1 1/2"	37.5	3482.00		10.27	32.19	67.81	**67.81**
1"	25	5940.00		17.52	49.70	50.30	**50.30**
3/4"	19	3172.00		9.35	59.06	40.94	**40.94**
1/2"	12.5	183.94		17.37	17.37	82.63	**33.83**
3/8"	9.5	214.71		20.28	37.65	62.35	**25.53**
#4	4.75	258.70		24.43	62.09	37.91	**15.52**
#10	2	159.13		15.03	77.11	22.89	**9.37**
#20	0.85	68.55	(**)	6.47	83.59	16.41	**6.72**
#40	0.425	30.17		2.85	86.44	13.56	**5.55**
#60	0.25	16.37		1.55	87.98	12.02	**4.92**
#140	0.106	19.29		1.82	89.81	10.19	**4.17**
#200	0.075	6.00		0.57	90.37	9.63	**3.94**
Pan	-	101.93		9.63	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KB Date 3-8-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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BORING TS-6

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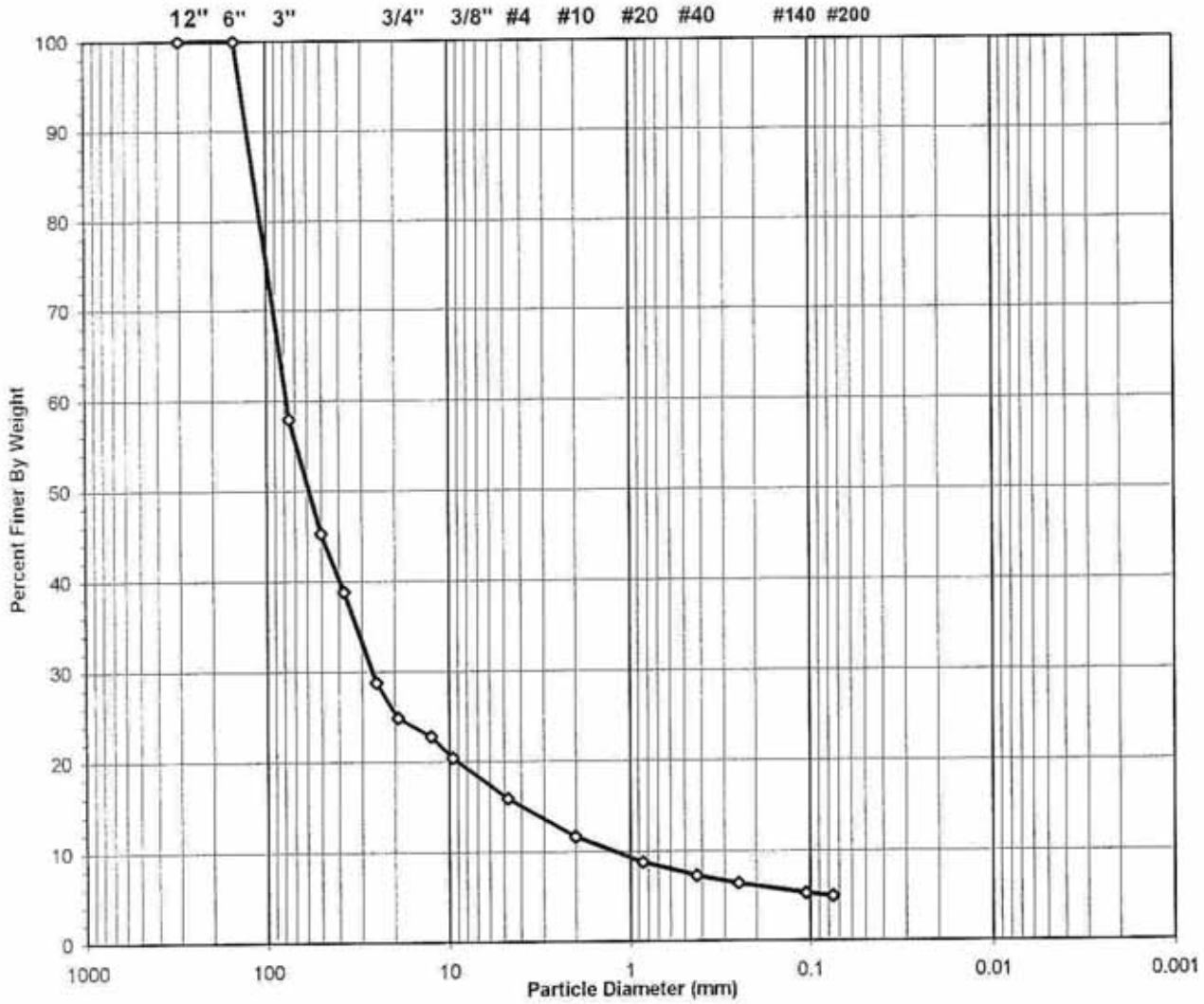
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	5-10
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-52	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/23/06 Checked By KYB Date 2-24-06

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	5-10
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-52	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2492	Tare No.	729
Wgt.Tare + Wet Specimen (gm)	1425.50	Wgt.Tare + Wet Specimen (gm)	636.40
Wgt.Tare + Dry Specimen (gm)	1368.60	Wgt.Tare + Dry Specimen (gm)	629.70
Weight of Tare (gm)	97.16	Weight of Tare (gm)	86.39
Weight of Water (gm)	56.90	Weight of Water (gm)	6.70
Weight of Dry Soil (gm)	1271.44	Weight of Dry Soil (gm)	543.31
Moisture Content (%)	**4.5**	**Moisture Content (%)**	**1.2**

Wet Weight -3/4" Sample (gm)	14720	Weight of the Dry Specimen (gm)	1271.44
Dry Weight - 3/4" Sample (gm)	14089.5	Weight of minus #200 material (gm)	251.78
Wet Weight +3/4" Sample (gm)	43118.00	Weight of plus #200 material (gm)	1019.66
Dry Weight + 3/4" Sample (gm)	42592.75		
Total Dry Weight Sample (gm)	56682.2	**J - Factor (Percent Finer than 3/4")**	**0.2486**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated **Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	24132.00		42.06	42.06	57.94	**57.94**
2"	50	7284.00	(*)	12.69	54.75	45.25	**45.25**
1 1/2"	37.5	3702.00		6.45	61.20	38.80	**38.80**
1"	25	5734.00		9.99	71.19	28.81	**28.81**
3/4"	19	2266.00		3.95	75.14	24.86	**24.86**
1/2"	12.5	102.81		8.09	8.09	91.91	**22.85**
3/8"	9.5	123.93		9.75	17.83	82.17	**20.42**
#4	4.75	231.34		18.20	36.03	63.97	**15.90**
#10	2	217.00		17.07	53.10	46.90	**11.66**
#20	0.85	148.23	(**)	11.66	64.75	35.25	**8.76**
#40	0.425	76.80		6.04	70.79	29.21	**7.26**
#60	0.25	44.92		3.53	74.33	25.67	**6.38**
#140	0.106	56.70		4.46	78.79	21.21	**5.27**
#200	0.075	17.93		1.41	80.20	19.80	**4.92**
Pan	-	251.78		19.80	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By KLB Date 2-24-06

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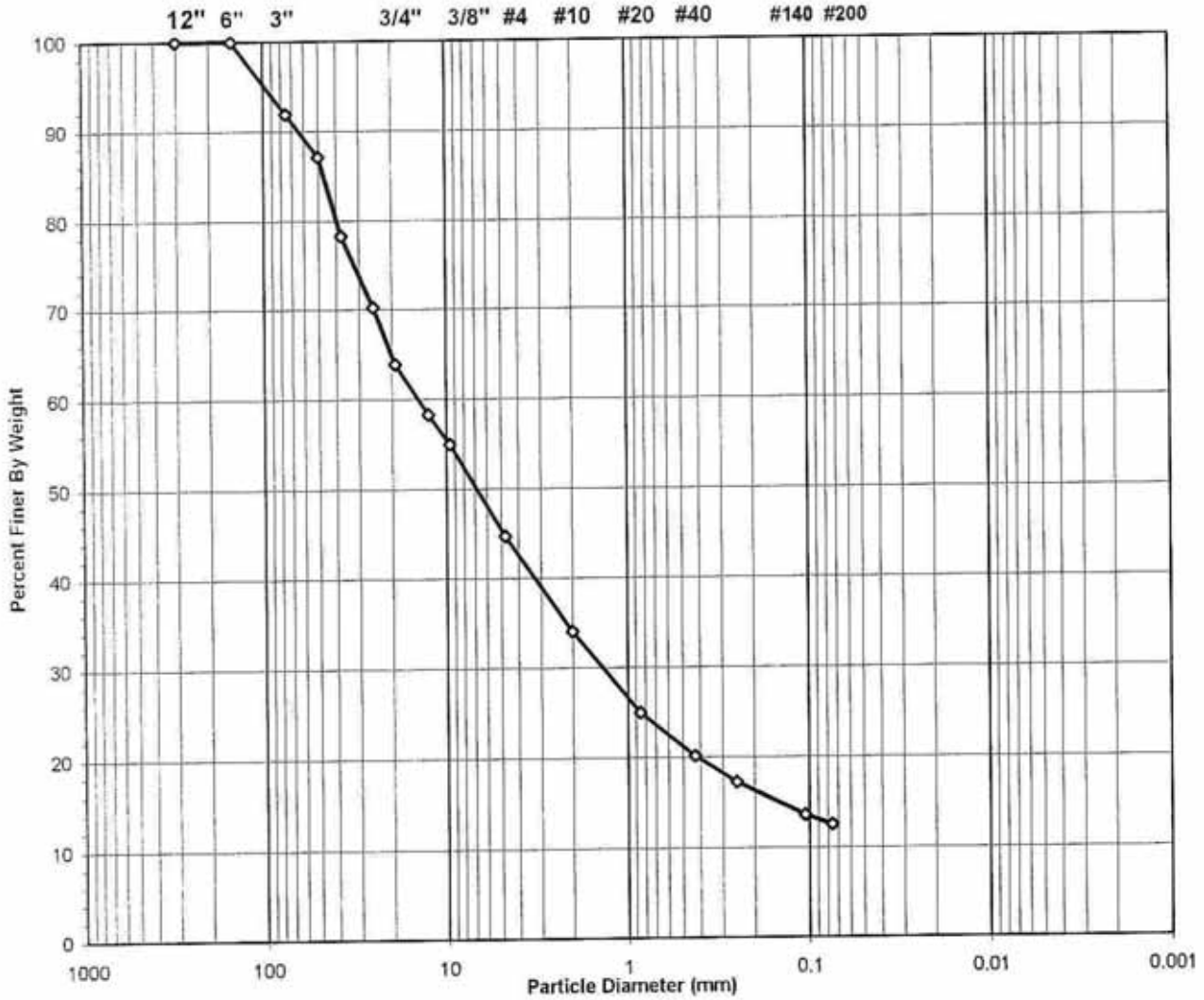
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-53	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***GM, TESTED***

USCS Classification ***SILTY GRAVEL WITH SAND (NON-PLASTIC FINES)***

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-53	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	674	Tare No.	584
Wgt.Tare + Wet Specimen (gm)	1244.30	Wgt.Tare + Wet Specimen (gm)	517.24
Wgt.Tare + Dry Specimen (gm)	1196.20	Wgt.Tare + Dry Specimen (gm)	510.66
Weight of Tare (gm)	99.76	Weight of Tare (gm)	82.30
Weight of Water (gm)	48.10	Weight of Water (gm)	6.58
Weight of Dry Soil (gm)	1096.44	Weight of Dry Soil (gm)	428.36
Moisture Content (%)	**4.4**	**Moisture Content (%)**	**1.5**

Wet Weight -3/4" Sample (gm)	15231	Weight of the Dry Specimen (gm)	1096.44
Dry Weight - 3/4" Sample (gm)	14590.9	Weight of minus #200 material (gm)	214.65
Wet Weight +3/4" Sample (gm)	8371.00	Weight of plus #200 material (gm)	881.79
Dry Weight + 3/4" Sample (gm)	8244.36		
Total Dry Weight Sample (gm)	22835.3	**J - Factor (Percent Finer than 3/4")**	**0.6390**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	1863.00		8.04	8.04	91.96	**91.96**
2"	50	1124.00	(*)	4.85	12.88	87.12	**87.12**
1 1/2"	37.5	2058.00		8.88	21.76	78.24	**78.24**
1"	25	1863.00		8.04	29.79	70.21	**70.21**
3/4"	19	1463.00		6.31	36.10	63.90	**63.90**
1/2"	12.5	96.40		8.79	8.79	91.21	**58.28**
3/8"	9.5	57.57		5.25	14.04	85.96	**54.92**
#4	4.75	175.03		15.96	30.01	69.99	**44.72**
#10	2	183.88		16.77	46.78	53.22	**34.01**
#20	0.85	153.78	(**)	14.03	60.80	39.20	**25.05**
#40	0.425	84.39		7.70	68.50	31.50	**20.13**
#60	0.25	50.08		4.57	73.07	26.93	**17.21**
#140	0.106	62.44		5.69	78.76	21.24	**13.57**
#200	0.075	18.22		1.66	80.42	19.58	**12.51**
Pan	-	214.65		19.58	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By KYB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	10-20
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-53	Visual Description	**REDDISH BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By TO Date 2/28/06 Checked By KLB Date 3-1-06

DCN: CT-S4C DATE: 7-11-97 REVISION : 2

C:\MSOFFICE\Excel\PrintQ\[U397.xls]Sheet1

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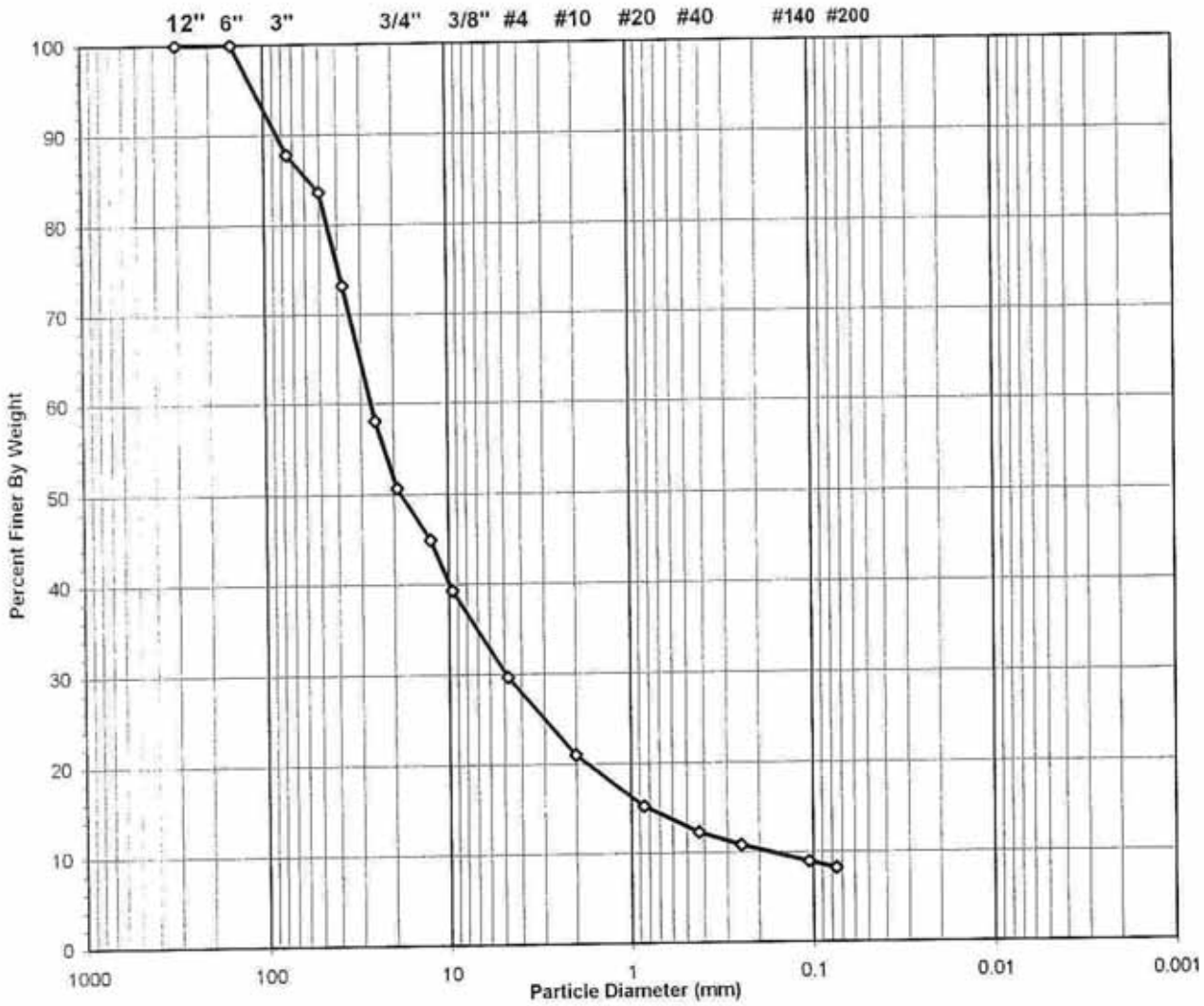
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-54	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	*GP-GC, TESTED*	D60 =	26.3	CC =	5.1
USCS Classification	*POORLY GRADED GRAVEL WITH SILTY CLAY AND SAND*	D30 =	4.9	CU =	150.3
		D10 =	0.2		

Tested By PC Date 2/22/06 Checked By KB Date 2-28-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-54	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2445	Tare No.	604
Wgt.Tare + Wet Specimen (gm)	1230.30	Wgt.Tare + Wet Specimen (gm)	1037.90
Wgt.Tare + Dry Specimen (gm)	1143.10	Wgt.Tare + Dry Specimen (gm)	1014.80
Weight of Tare (gm)	93.29	Weight of Tare (gm)	87.11
Weight of Water (gm)	87.20	Weight of Water (gm)	23.10
Weight of Dry Soil (gm)	1049.81	Weight of Dry Soil (gm)	927.69
Moisture Content (%)	**8.3**	**Moisture Content (%)**	**2.5**

Wet Weight -3/4" Sample (gm)	22977	Weight of the Dry Specimen (gm)	1049.81
Dry Weight - 3/4" Sample (gm)	21214.8	Weight of minus #200 material (gm)	170.29
Wet Weight +3/4" Sample (gm)	21189.00	Weight of plus #200 material (gm)	879.52
Dry Weight + 3/4" Sample (gm)	20674.20		
Total Dry Weight Sample (gm)	41889.0	**J - Factor (Percent Finer than 3/4")**	**0.5065**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	5228.00		12.18	12.18	87.82	**87.82**
2"	50	1792.00	(*)	4.17	16.35	83.65	**83.65**
1 1/2"	37.5	4496.00		10.47	26.82	73.18	**73.18**
1"	25	6482.00		15.10	41.92	58.08	**58.08**
3/4"	19	3191.00		7.43	49.35	50.65	**50.65**
1/2"	12.5	120.79		11.51	11.51	88.49	**44.82**
3/8"	9.5	114.79		10.93	22.44	77.56	**39.28**
#4	4.75	198.88		18.94	41.38	58.62	**29.69**
#10	2	180.15		17.16	58.54	41.46	**21.00**
#20	0.85	119.80	(**)	11.41	69.96	30.04	**15.22**
#40	0.425	61.13		5.82	75.78	24.22	**12.27**
#60	0.25	30.73		2.93	78.71	21.29	**10.78**
#140	0.106	39.20		3.73	82.44	17.56	**8.89**
#200	0.075	14.05		1.34	83.78	16.22	**8.22**
Pan	-	170.29		16.22	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KYB Date 2-28-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-54	Soil Description	**REDDISH BROWN SILTY CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

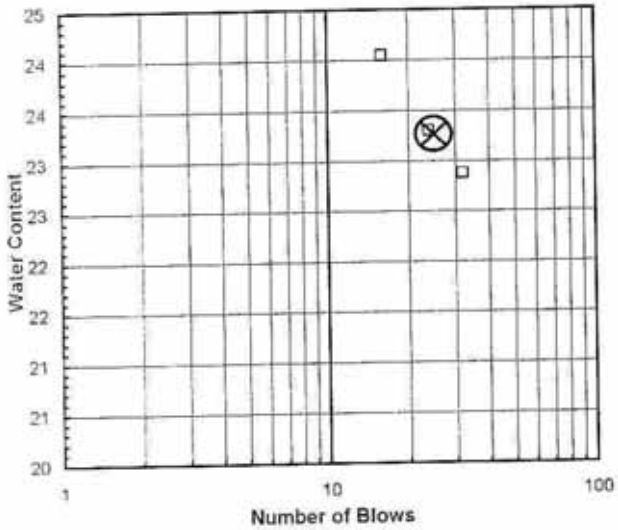
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	224	4000	84	MULTIPOINT
Wt. of Tare & WS (gm)	42.24	45.98	41.44	
Wt. of Tare & DS (gm)	37.94	41.15	36.90	
Wt. of Tare (gm)	19.14	20.42	18.02	
Wt. of Water (gm)	4.3	4.8	4.5	
Wt. of DS (gm)	18.8	20.7	18.9	
Moisture Content (%)	**22.9**	**23.3**	**24.0**	
Number of Blows	**32**	**24**	**16**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	OO1	2223	
Wt. of Tare & WS (gm)	19.80	25.60	
Wt. of Tare & DS (gm)	18.98	24.74	
Wt. of Tare (gm)	13.76	19.21	
Wt. of Water (gm)	0.8	0.9	
Wt. of DS (gm)	5.2	5.5	
Moisture Content (%)	**15.7**	**15.6**	**0.2**

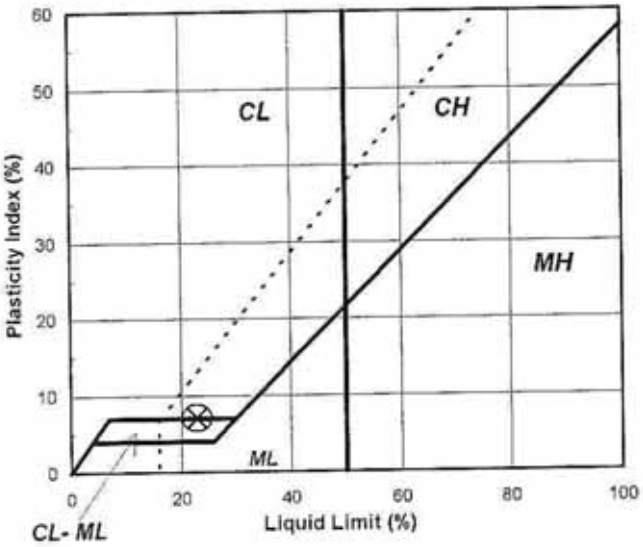
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**23**
Plastic Limit (%)	**16**
Plasticity Index (%)	**7**
USCS Symbol	**CL-ML**

Flow Curve



Plasticity Chart



Tested By JP *Date* 2/24/06 *Checked By* KB *Date* 2-27-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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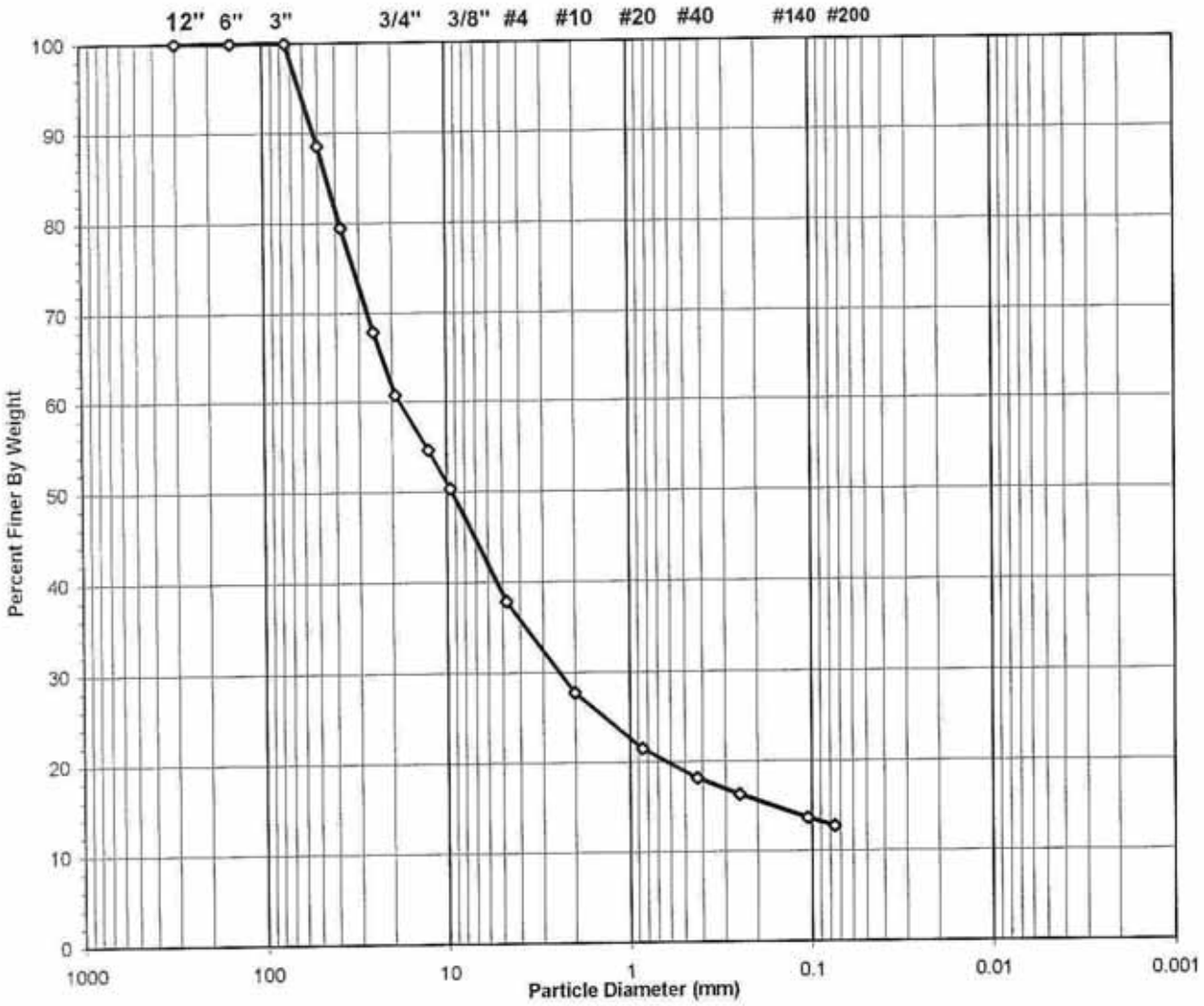
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-55	Soil Color	**BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***GC-GM, TESTED***

USCS Classification ***SILTY, CLAYEY GRAVEL WITH SAND***

Tested By PC Date 2/23/06 Checked By YKB Date 3-8-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\[U288.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-55	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	660	Tare No.	577
Wgt.Tare + Wet Specimen (gm)	1200.50	Wgt.Tare + Wet Specimen (gm)	502.76
Wgt.Tare + Dry Specimen (gm)	1068.20	Wgt.Tare + Dry Specimen (gm)	481.43
Weight of Tare (gm)	98.66	Weight of Tare (gm)	84.51
Weight of Water (gm)	132.30	Weight of Water (gm)	21.33
Weight of Dry Soil (gm)	969.54	Weight of Dry Soil (gm)	396.92
Moisture Content (%)	**13.6**	**Moisture Content (%)**	**5.4**

Wet Weight -3/4" Sample (gm)	20485	Weight of the Dry Specimen (gm)	969.54
Dry Weight - 3/4" Sample (gm)	18025.3	Weight of minus #200 material (gm)	202.36
Wet Weight +3/4" Sample (gm)	12276.00	Weight of plus #200 material (gm)	767.18
Dry Weight + 3/4" Sample (gm)	11649.95		
Total Dry Weight Sample (gm)	29675.3	**J - Factor (Percent Finer than 3/4")**	**0.6074**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	0.00		0.00	0.00	100.00	**100.00**
2"	50	3584.00	(*)	11.46	11.46	88.54	**88.54**
1 1/2"	37.5	2854.00		9.13	20.59	79.41	**79.41**
1"	25	3602.00		11.52	32.11	67.89	**67.89**
3/4"	19	2236.00		7.15	39.26	60.74	**60.74**
1/2"	12.5	97.15		10.02	10.02	89.98	**54.66**
3/8"	9.5	69.39		7.16	17.18	82.82	**50.31**
#4	4.75	198.38		20.46	37.64	62.36	**37.88**
#10	2	161.51		16.66	54.30	45.70	**27.76**
#20	0.85	100.48	(**)	10.36	64.66	35.34	**21.47**
#40	0.425	53.19		5.49	70.15	29.85	**18.13**
#60	0.25	29.45		3.04	73.18	26.82	**16.29**
#140	0.106	41.87		4.32	77.50	22.50	**13.67**
#200	0.075	15.76		1.63	79.13	20.87	**12.68**
Pan	-	202.36		20.87	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/23/06 Checked By HB Date 3-8-06

DCN: CT-S3A DATE 6-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	30-40
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-55	Soil Description	BROWN SILTY CLAY

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

Liquid Limit Test	1	2	3
Tare Number	162	253	254
Wt. of Tare & WS (gm)	44.58	40.73	40.61
Wt. of Tare & DS (gm)	38.89	35.61	35.56
Wt. of Tare (gm)	18.13	17.85	18.39
Wt. of Water (gm)	5.7	5.1	5.1
Wt. of DS (gm)	20.8	17.8	17.2
Moisture Content (%)	**27.4**	**28.8**	**29.4**
Number of Blows	**33**	**24**	**18**

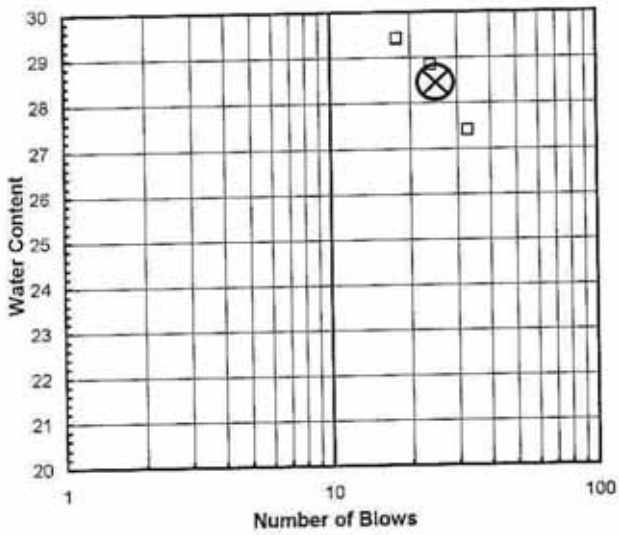
MULTIPOINT

Plastic Limit Test	1	2	Range
Tare Number	2228	2288	
Wt. of Tare & WS (gm)	23.11	25.53	
Wt. of Tare & DS (gm)	22.06	24.46	
Wt. of Tare (gm)	17.05	19.35	
Wt. of Water (gm)	1.1	1.1	
Wt. of DS (gm)	5.0	5.1	
Moisture Content (%)	**21.0**	**20.9**	**0.0**

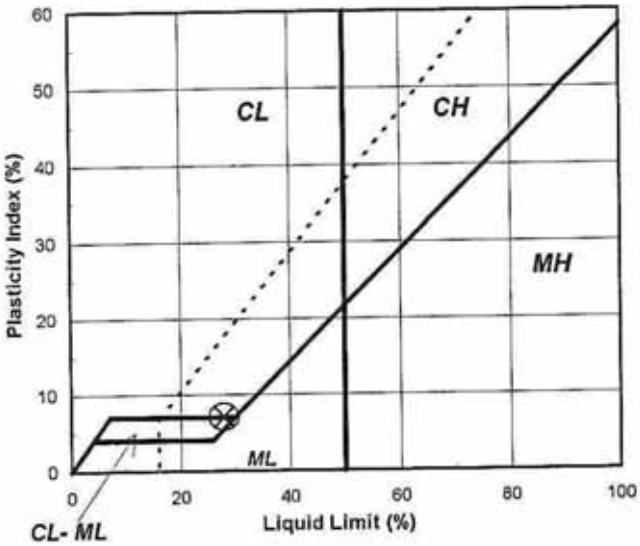
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	28
Plastic Limit (%)	21
Plasticity Index (%)	7
USCS Symbol	CL-ML

Flow Curve



Plasticity Chart



Tested By BS *Date* 3/3/06 *Checked By* KYB *Date* 3-6-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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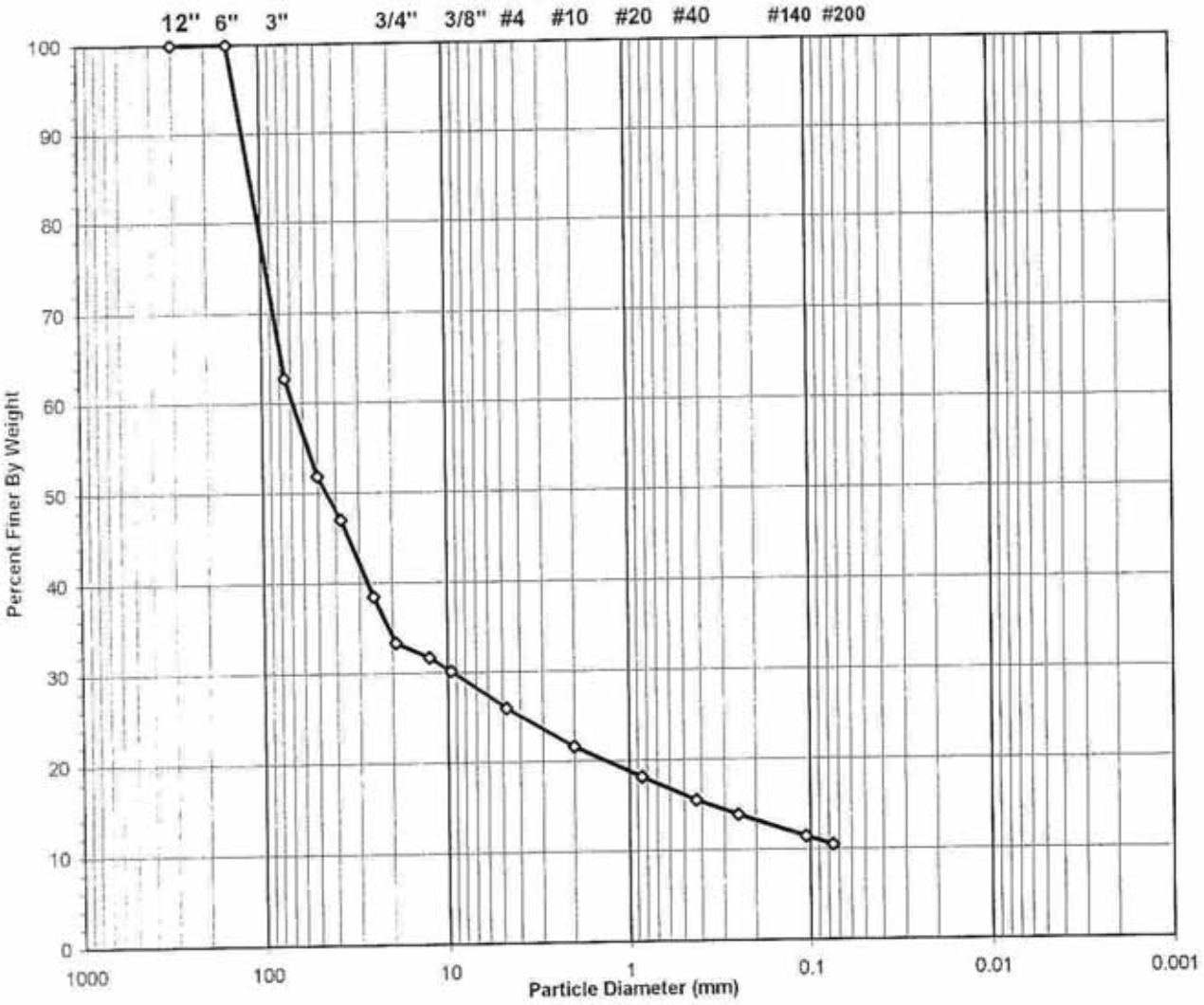
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-54
Project No.	2006-060-02	Sample No.	S-7
Lab ID	2006-060-02-01	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***GP-GM, TESTED***

USCS Classification ***POORLY GRADED GRAVEL WITH SILT AND SAND (NON-PLASTIC FINES)***

Tested By PC Date 2/24/06 Checked By KB Date 3-2-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-54
Project No.	2006-060-02	Sample No.	S-7
Lab ID	2006-060-02-01	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	502	Tare No.	906
Wgt.Tare + Wet Specimen (gm)	1090.10	Wgt.Tare + Wet Specimen (gm)	1015.00
Wgt.Tare + Dry Specimen (gm)	998.00	Wgt.Tare + Dry Specimen (gm)	996.90
Weight of Tare (gm)	102.31	Weight of Tare (gm)	110.78
Weight of Water (gm)	92.10	Weight of Water (gm)	18.10
Weight of Dry Soil (gm)	895.69	Weight of Dry Soil (gm)	886.12
Moisture Content (%)	**10.3**	**Moisture Content (%)**	**2.0**

Wet Weight -3/4" Sample (gm)	5524	Weight of the Dry Specimen (gm)	895.69
Dry Weight - 3/4" Sample (gm)	5009.0	Weight of minus #200 material (gm)	281.61
Wet Weight +3/4" Sample (gm)	10229.00	Weight of plus #200 material (gm)	614.08
Dry Weight + 3/4" Sample (gm)	10024.24		
Total Dry Weight Sample (gm)	15033.2	**J - Factor (Percent Finer than 3/4")**	**0.3332**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated **Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	5713.00		37.24	37.24	62.76	**62.76**
2"	50	1680.00	(*)	10.95	48.19	51.81	**51.81**
1 1/2"	37.5	751.00		4.90	53.09	46.91	**46.91**
1"	25	1293.00		8.43	61.52	38.48	**38.48**
3/4"	19	792.00		5.16	66.68	33.32	**33.32**
1/2"	12.5	43.50		4.86	4.86	95.14	**31.70**
3/8"	9.5	41.76		4.66	9.52	90.48	**30.15**
#4	4.75	113.18		12.64	22.15	77.85	**25.94**
#10	2	115.91		12.94	35.10	64.90	**21.63**
#20	0.85	93.70	(**)	10.46	45.56	54.44	**18.14**
#40	0.425	71.55		7.99	53.55	46.45	**15.48**
#60	0.25	44.94		5.02	58.56	41.44	**13.81**
#140	0.106	65.35		7.30	65.86	34.14	**11.38**
#200	0.075	24.19		2.70	68.56	31.44	**10.48**
Pan	-	281.61		31.44	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

Tested By PC Date 2/24/06 Checked By KB Date 3-2-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMIT

ASTM D 4318-00 (SOP - S4)

Client	PAUL C. RIZZO	Boring No.	TS-6
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-54
Project No.	2006-060-02	Sample No.	S-7
Lab ID	2006-060-02-01	Visual Description	**REDDISH BROWN SILT** (Minus No. 40 sieve material, Airdried)

NON - PLASTIC MATERIAL

Tested By BS *Date* 2/24/06 *Checked By* YKB *Date* 2-27-06

DCN: CT-S4C DATE: 7-11-87 REVISION : 2

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BORING TS-7

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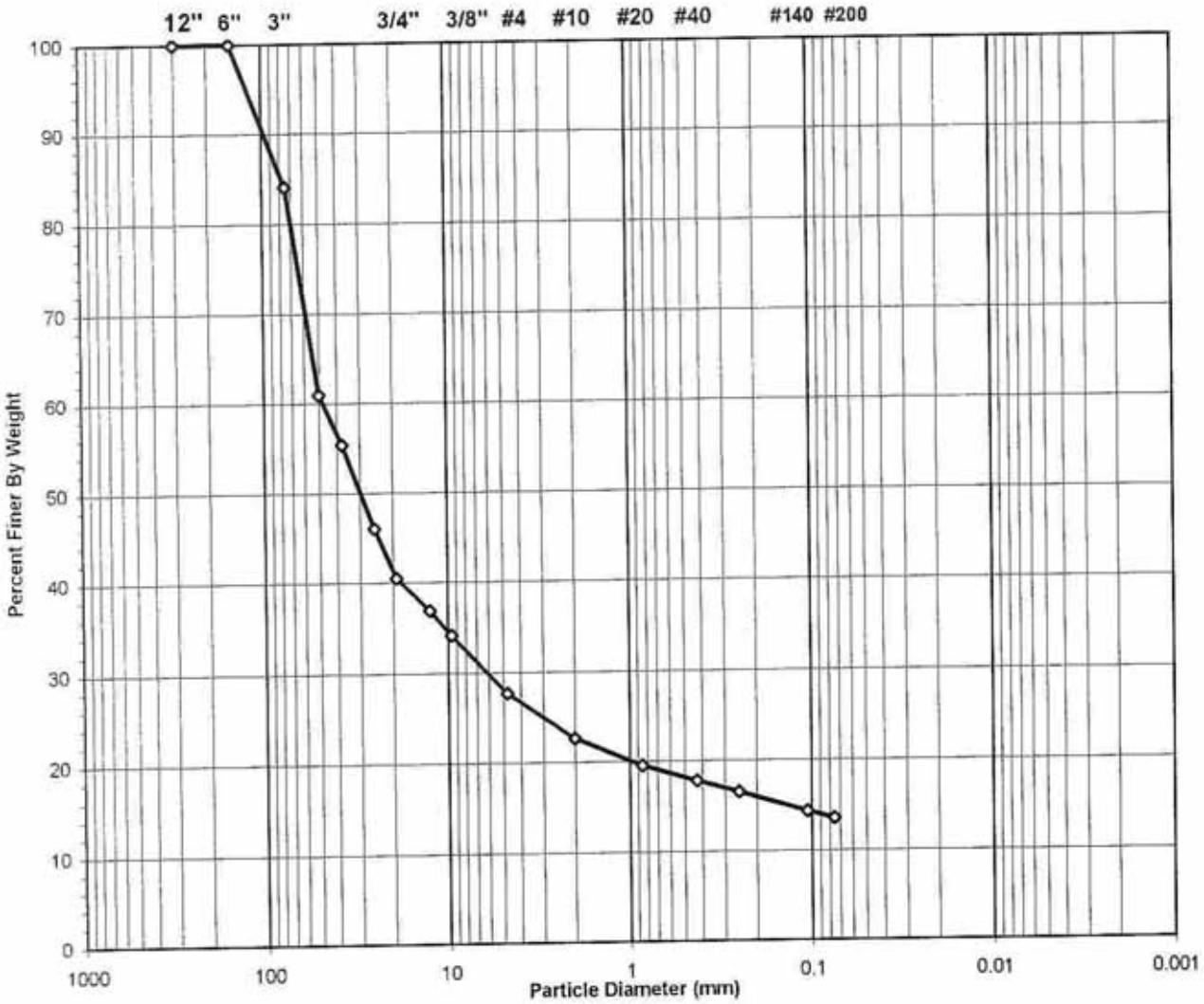
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-57	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol *gm, ASSUMED*

USCS Classification *SILTY GRAVEL*

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-53A DATE 6-26-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-1
Lab ID	2006-060-01-57	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	931	Tare No.	885
Wgt.Tare + Wet Specimen (gm)	1347.50	Wgt.Tare + Wet Specimen (gm)	462.74
Wgt.Tare + Dry Specimen (gm)	1237.70	Wgt.Tare + Dry Specimen (gm)	449.67
Weight of Tare (gm)	103.37	Weight of Tare (gm)	110.13
Weight of Water (gm)	109.80	Weight of Water (gm)	13.07
Weight of Dry Soil (gm)	1134.33	Weight of Dry Soil (gm)	339.54
Moisture Content (%)	**9.7**	**Moisture Content (%)**	**3.8**

Wet Weight -3/4" Sample (gm)	9630	Weight of the Dry Specimen (gm)	1134.33
Dry Weight - 3/4" Sample (gm)	8780.1	Weight of minus #200 material (gm)	381.09
Wet Weight +3/4" Sample (gm)	13420.00	Weight of plus #200 material (gm)	753.24
Dry Weight + 3/4" Sample (gm)	12922.57		
Total Dry Weight Sample (gm)	21702.7	**J - Factor (Percent Finer than 3/4")**	**0.4046**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated **Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	3583.00		15.90	15.90	84.10	**84.10**
2"	50	5221.00	(*)	23.17	39.06	60.94	**60.94**
1 1/2"	37.5	1263.00		5.60	44.67	55.33	**55.33**
1"	25	2105.00		9.34	54.01	45.99	**45.99**
3/4"	19	1248.00		5.54	59.54	40.46	**40.46**
1/2"	12.5	100.39		8.85	8.85	91.15	**36.88**
3/8"	9.5	77.05		6.79	15.64	84.36	**34.13**
#4	4.75	181.39		15.99	31.63	68.37	**27.66**
#10	2	141.36		12.46	44.10	55.90	**22.62**
#20	0.85	85.18	(**)	7.51	51.60	48.40	**19.58**
#40	0.425	49.59		4.37	55.98	44.02	**17.81**
#60	0.25	34.39		3.03	59.01	40.99	**16.58**
#140	0.106	61.30		5.40	64.41	35.59	**14.40**
#200	0.075	22.59		1.99	66.40	33.60	**13.59**
Pan	-	381.09		33.60	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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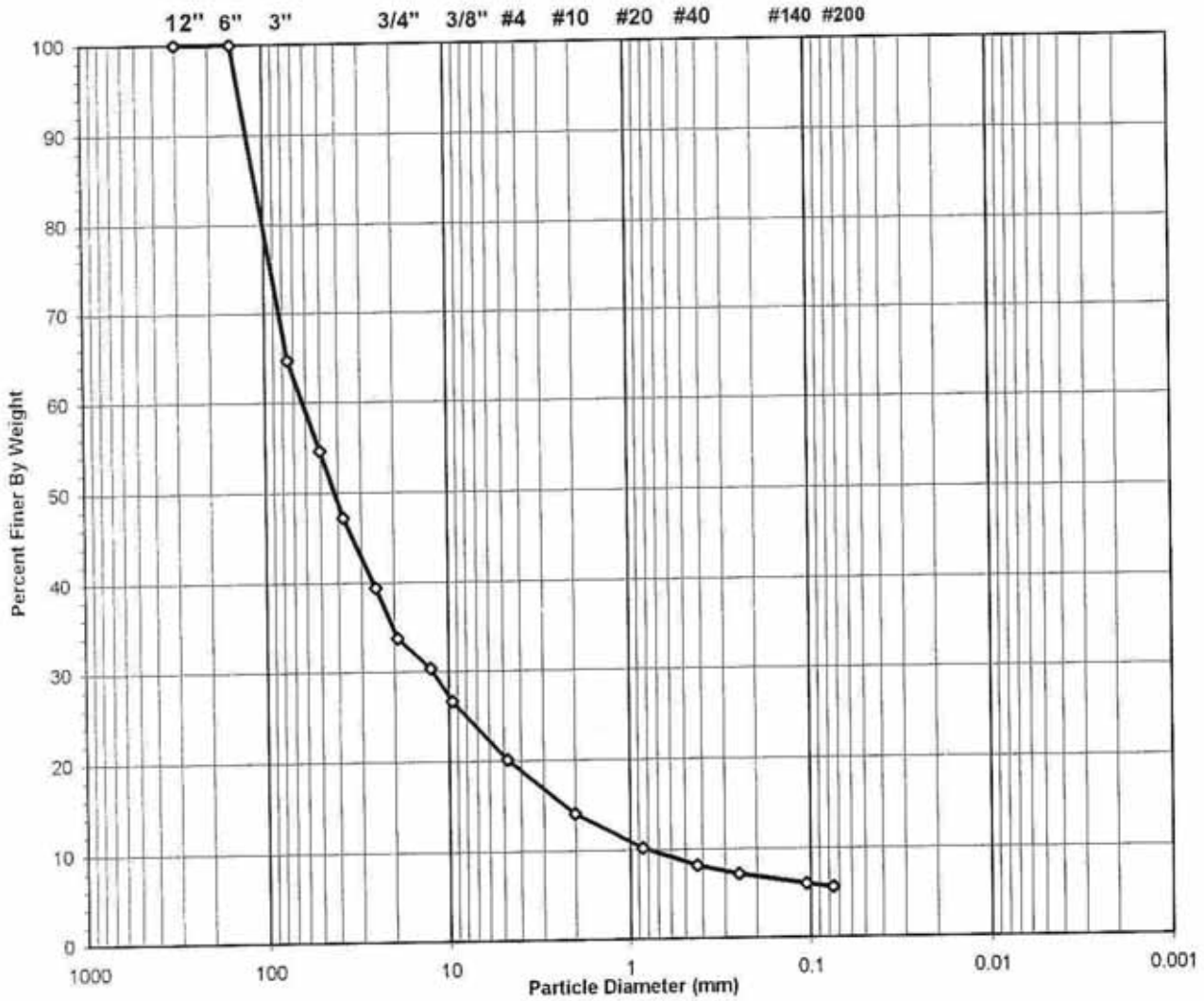
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-58	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gw-gm, ASSUMED*	D60 =	62.1	CC =	3.0
USCS Classification	*WELL-GRADED GRAVEL WITH SILT*	D30 =	12.2	CU =	76.9
		D10 =	0.8		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

 DCN: CT-S3A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\U203.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-58	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	2349	Tare No.	891
Wgt.Tare + Wet Specimen (gm)	1357.70	Wgt.Tare + Wet Specimen (gm)	735.20
Wgt.Tare + Dry Specimen (gm)	1277.70	Wgt.Tare + Dry Specimen (gm)	723.70
Weight of Tare (gm)	97.76	Weight of Tare (gm)	110.45
Weight of Water (gm)	80.00	Weight of Water (gm)	11.50
Weight of Dry Soil (gm)	1179.94	Weight of Dry Soil (gm)	613.25
Moisture Content (%)	**6.8**	**Moisture Content (%)**	**1.9**

Wet Weight -3/4" Sample (gm)	21937	Weight of the Dry Specimen (gm)	1179.94
Dry Weight - 3/4" Sample (gm)	20544.1	Weight of minus #200 material (gm)	197.16
Wet Weight +3/4" Sample (gm)	41120.00	Weight of plus #200 material (gm)	982.78
Dry Weight + 3/4" Sample (gm)	40363.09		
Total Dry Weight Sample (gm)	60907.2	**J - Factor (Percent Finer than 3/4")**	**0.3373**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	21922.00		35.33	35.33	64.67	**64.67**
2"	50	6229.00	(*)	10.04	45.37	54.63	**54.63**
1 1/2"	37.5	4639.00		7.48	52.85	47.15	**47.15**
1"	25	4823.00		7.77	60.62	39.38	**39.38**
3/4"	19	3507.00		5.65	66.27	33.73	**33.73**
1/2"	12.5	117.75		9.98	9.98	90.02	**30.36**
3/8"	9.5	129.48		10.97	20.95	79.05	**26.66**
#4	4.75	227.46		19.28	40.23	59.77	**20.16**
#10	2	213.47		18.09	58.32	41.68	**14.06**
#20	0.85	136.81	(**)	11.59	69.92	30.08	**10.15**
#40	0.425	69.28		5.87	75.79	24.21	**8.17**
#60	0.25	33.42		2.83	78.62	21.38	**7.21**
#140	0.106	40.52		3.43	82.05	17.95	**6.05**
#200	0.075	14.59		1.24	83.29	16.71	**5.64**
Pan	-	197.16		16.71	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By YKB Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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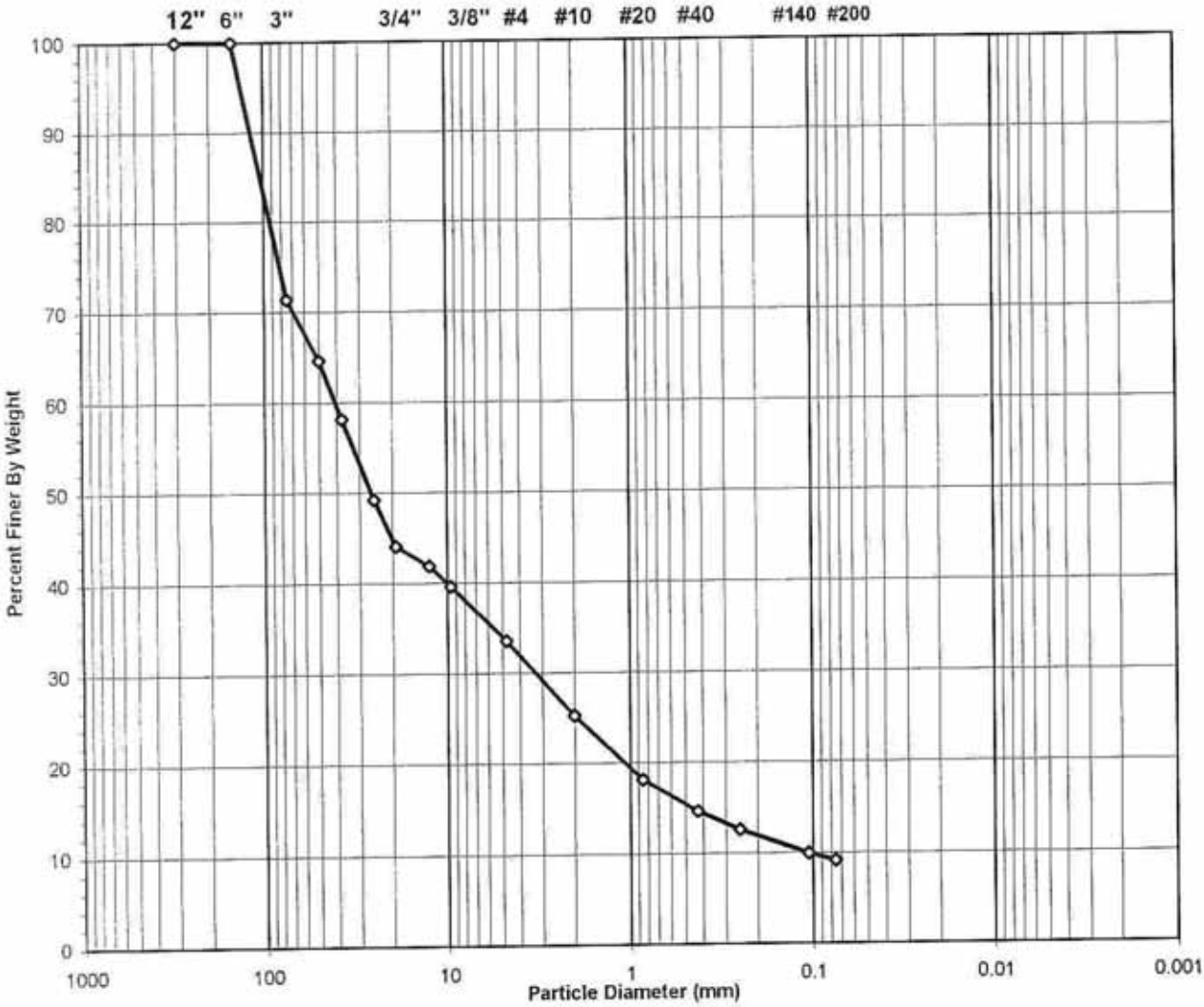
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-59	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gw-gm, ASSUMED*	D60 =	40.7	CC =	2.4
USCS Classification	*WELL-GRADED GRAVEL WITH SILT AND SAND*	D30 =	3.3	CU =	374.3
		D10 =	0.1		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-59	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	633	Tare No.	614
Wgt.Tare + Wet Specimen (gm)	1350.40	Wgt.Tare + Wet Specimen (gm)	602.70
Wgt.Tare + Dry Specimen (gm)	1271.50	Wgt.Tare + Dry Specimen (gm)	595.01
Weight of Tare (gm)	100.49	Weight of Tare (gm)	84.64
Weight of Water (gm)	78.90	Weight of Water (gm)	7.69
Weight of Dry Soil (gm)	1171.01	Weight of Dry Soil (gm)	510.37
Moisture Content (%)	**6.7**	**Moisture Content (%)**	**1.5**

Wet Weight -3/4" Sample (gm)	18125	Weight of the Dry Specimen (gm)	1171.01
Dry Weight - 3/4" Sample (gm)	16980.9	Weight of minus #200 material (gm)	242.35
Wet Weight +3/4" Sample (gm)	21892.00	Weight of plus #200 material (gm)	928.66
Dry Weight + 3/4" Sample (gm)	21567.04		
Total Dry Weight Sample (gm)	38547.9	**J - Factor (Percent Finer than 3/4")**	**0.4405**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	11200.00		28.62	28.62	71.38	**71.38**
2"	50	2655.00	(*)	6.79	35.41	64.59	**64.59**
1 1/2"	37.5	2516.00		6.43	41.84	58.16	**58.16**
1"	25	3523.00		9.00	50.84	49.16	**49.16**
3/4"	19	1998.00		5.11	55.95	44.05	**44.05**
1/2"	12.5	59.07		5.04	5.04	94.96	**41.83**
3/8"	9.5	60.28		5.15	10.19	89.81	**39.56**
#4	4.75	159.43		13.61	23.81	76.19	**33.56**
#10	2	219.61		18.75	42.56	57.44	**25.30**
#20	0.85	191.13	(**)	16.32	58.88	41.12	**18.11**
#40	0.425	94.10		8.04	66.92	33.08	**14.57**
#60	0.25	54.63		4.67	71.58	28.42	**12.52**
#140	0.106	69.02		5.89	77.48	22.52	**9.92**
#200	0.075	21.39		1.83	79.30	20.70	**9.12**
Pan	-	242.35		20.70	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By YWB Date 2-22-06

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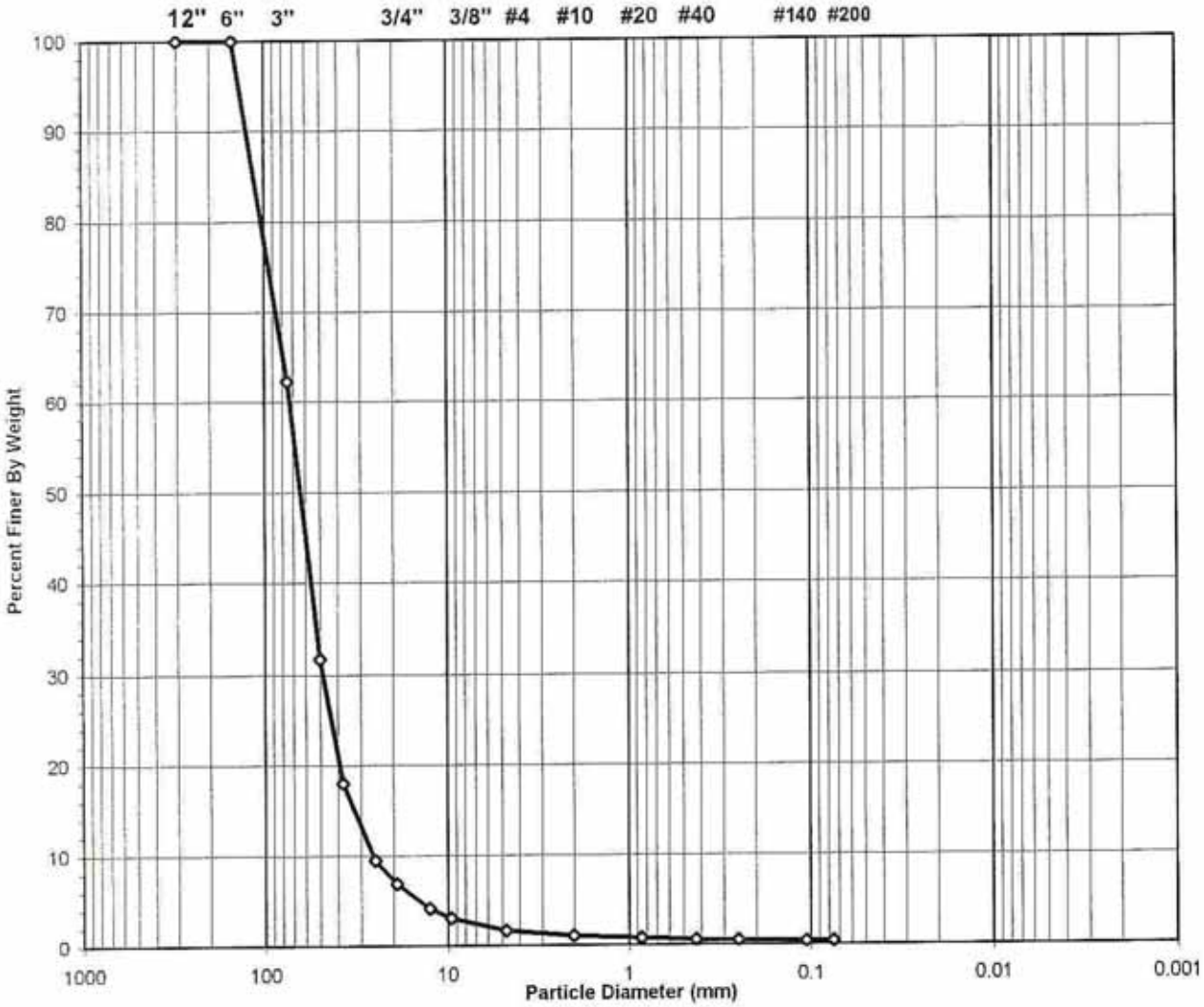
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-60	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	72.7	CC =	1.2
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	48.2	CU =	2.8
		D10 =	25.6		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	20-30
Project No.	2006-060-01	Sample No.	S-4
Lab ID	2006-060-01-60	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	955	Tare No.	876
Wgt.Tare + Wet Specimen (gm)	1197.00	Wgt.Tare + Wet Specimen (gm)	840.50
Wgt.Tare + Dry Specimen (gm)	1179.50	Wgt.Tare + Dry Specimen (gm)	837.90
Weight of Tare (gm)	102.34	Weight of Tare (gm)	110.07
Weight of Water (gm)	17.50	Weight of Water (gm)	2.60
Weight of Dry Soil (gm)	1077.16	Weight of Dry Soil (gm)	727.83
Moisture Content (%)	**1.6**	**Moisture Content (%)**	**0.4**

Wet Weight -3/4" Sample (gm)	1946	Weight of the Dry Specimen (gm)	1077.16
Dry Weight - 3/4" Sample (gm)	1914.9	Weight of minus #200 material (gm)	58.72
Wet Weight +3/4" Sample (gm)	26128.00	Weight of plus #200 material (gm)	1018.44
Dry Weight + 3/4" Sample (gm)	26035.00		
Total Dry Weight Sample (gm)	27949.9	**J - Factor (Percent Finer than 3/4")**	**0.0685**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	10573.00		37.69	37.69	62.31	**62.31**
2"	50	8579.00	(*)	30.58	68.28	31.72	**31.72**
1 1/2"	37.5	3836.00		13.68	81.95	18.05	**18.05**
1"	25	2407.00		8.58	90.54	9.46	**9.46**
3/4"	19	733.00		2.61	93.15	6.85	**6.85**
1/2"	12.5	426.92		39.63	39.63	60.37	**4.14**
3/8"	9.5	172.11		15.98	55.61	44.39	**3.04**
#4	4.75	213.66		19.84	75.45	24.55	**1.68**
#10	2	96.00		8.91	84.36	15.64	**1.07**
#20	0.85	44.26	(**)	4.11	88.47	11.53	**0.79**
#40	0.425	25.76		2.39	90.86	9.14	**0.63**
#60	0.25	14.59		1.35	92.21	7.79	**0.53**
#140	0.106	18.78		1.74	93.96	6.04	**0.41**
#200	0.075	6.36		0.59	94.55	5.45	**0.37**
Pan	-	58.72		5.45	100.00	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

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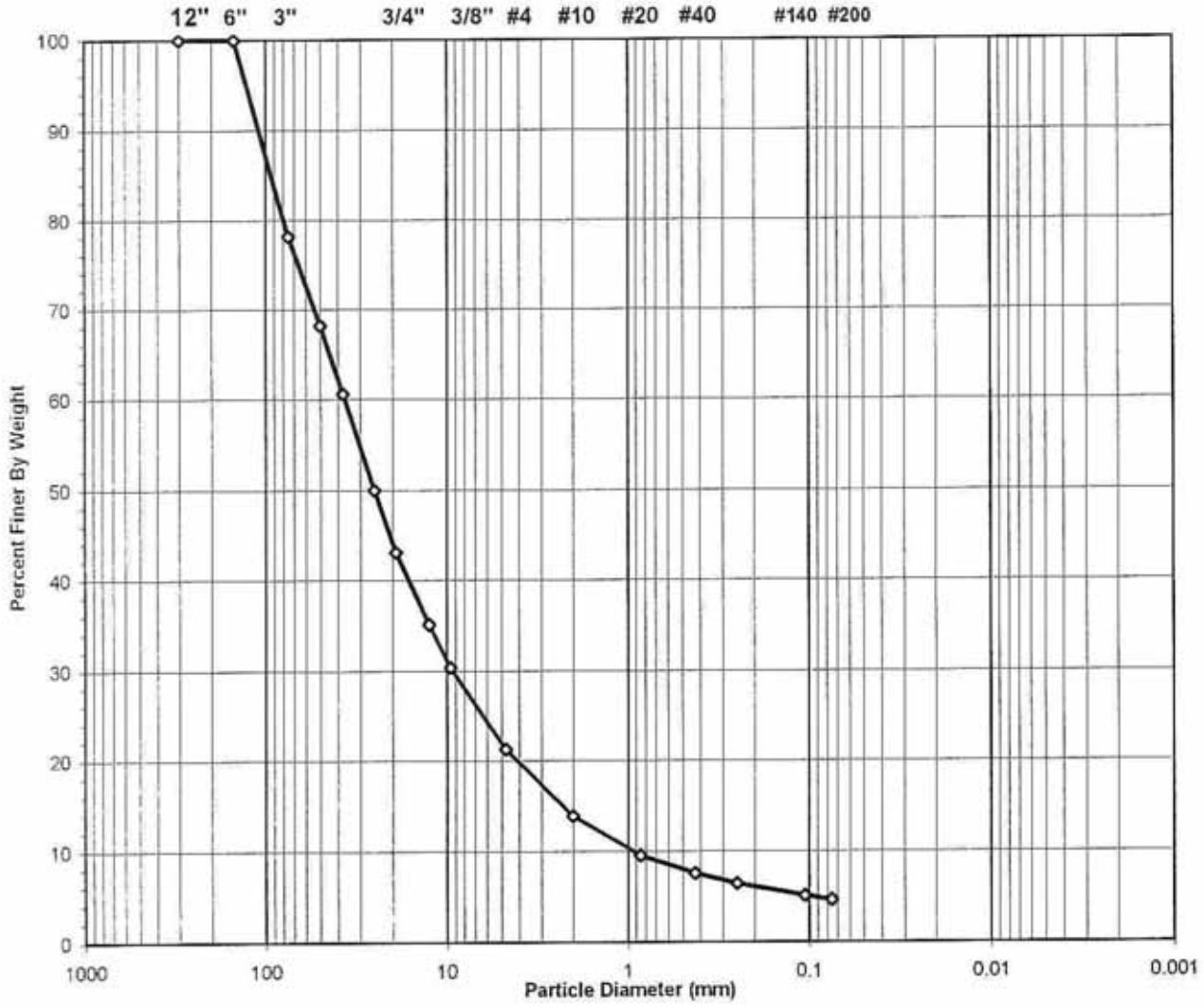
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-61	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gw, ASSUMED*	D60 =	36.7	CC =	2.5
USCS Classification	*WELL-GRADED GRAVEL WITH SAND*	D30 =	9.2	CU =	39.4
		D10 =	0.9		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-25-98 REVISION 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-5
Lab ID	2006-060-01-61	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	662	Tare No.	729
Wgt.Tare + Wet Specimen (gm)	1199.20	Wgt.Tare + Wet Specimen (gm)	665.70
Wgt.Tare + Dry Specimen (gm)	1199.20	Wgt.Tare + Dry Specimen (gm)	647.40
Weight of Tare (gm)	95.10	Weight of Tare (gm)	86.38
Weight of Water (gm)	0.00	Weight of Water (gm)	18.30
Weight of Dry Soil (gm)	1104.10	Weight of Dry Soil (gm)	561.02
Moisture Content (%)	**0.0**	**Moisture Content (%)**	**3.3**

Wet Weight -3/4" Sample (gm)	20481	Weight of the Dry Specimen (gm)	1104.10
Dry Weight - 3/4" Sample (gm)	20481.0	Weight of minus #200 material (gm)	118.08
Wet Weight +3/4" Sample (gm)	27988.00	Weight of plus #200 material (gm)	986.02
Dry Weight + 3/4" Sample (gm)	27103.89		
Total Dry Weight Sample (gm)	47584.9	**J - Factor (Percent Finer than 3/4")**	**0.4304**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	10757.00		21.89	21.89	78.11	**78.11**
2"	50	4873.00	(*)	9.92	31.81	68.19	**68.19**
1 1/2"	37.5	3740.00		7.61	39.42	60.58	**60.58**
1"	25	5219.00		10.62	50.04	49.96	**49.96**
3/4"	19	3399.00		6.92	56.96	43.04	**43.04**
1/2"	12.5	203.12		18.40	18.40	81.60	**35.12**
3/8"	9.5	120.60		10.92	29.32	70.68	**30.42**
#4	4.75	234.97		21.28	50.60	49.40	**21.26**
#10	2	189.21		17.14	67.74	32.26	**13.89**
#20	0.85	111.51	(**)	10.10	77.84	22.16	**9.54**
#40	0.425	51.19		4.64	82.47	17.53	**7.54**
#60	0.25	29.06		2.63	85.11	14.89	**6.41**
#140	0.106	35.36		3.20	88.31	11.69	**5.03**
#200	0.075	11.00		1.00	89.31	10.69	**4.60**
Pan	-	118.08		10.69	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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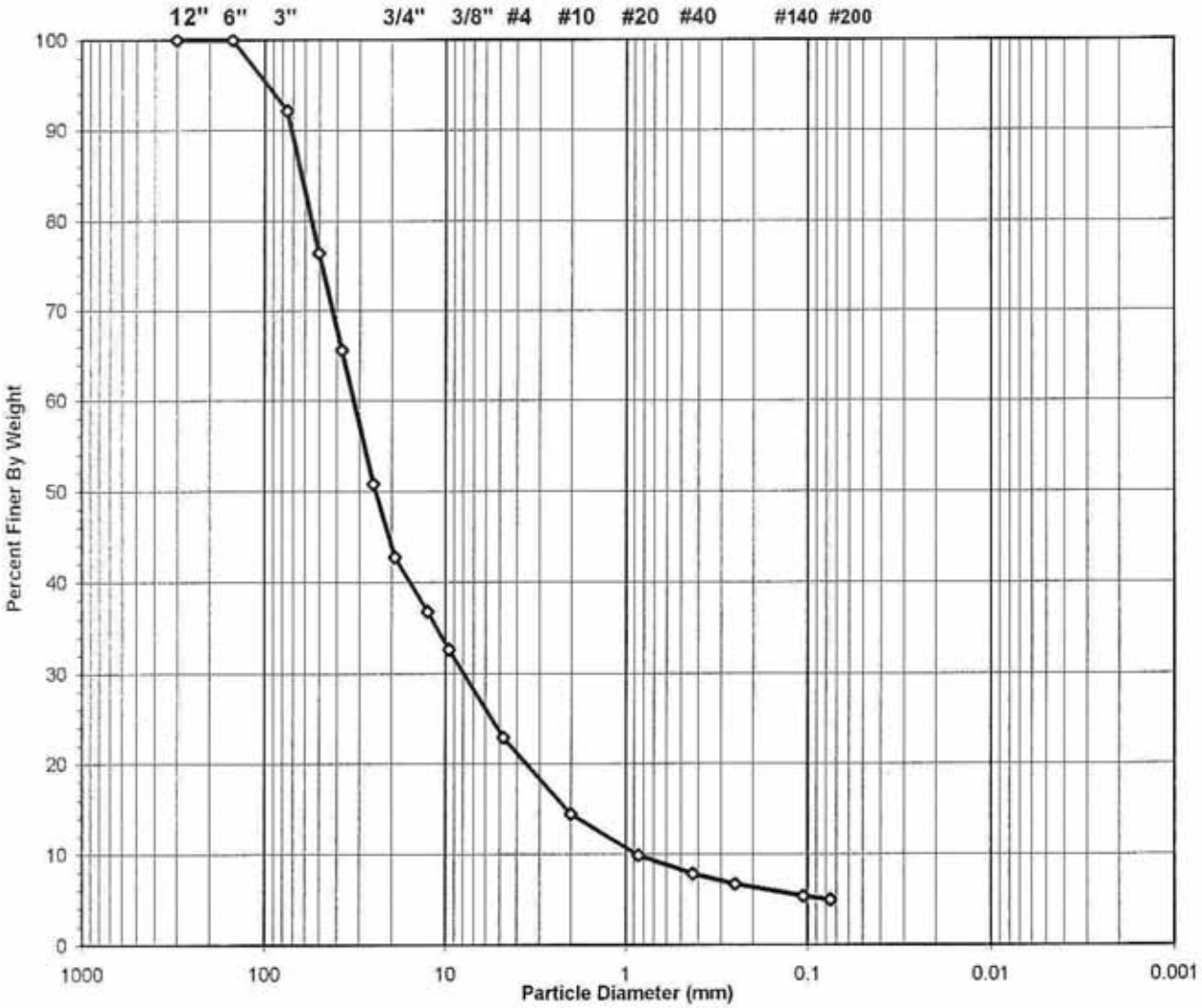
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-62	Soil Color	**BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol	***gw, ASSUMED***	**D60 =**	**32.2**	**CC =**	**2.2**
USCS Classification	***WELL-GRADED GRAVEL WITH SAND***	**D30 =**	**7.9**	**CU =**	**36.7**
		D10 =	**0.9**		

Tested By JP Date 2/21/06 Checked By YKB Date 2-22-06

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	50-60
Project No.	2006-060-01	Sample No.	S-6
Lab ID	2006-060-01-62	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	861	Tare No.	603
Wgt.Tare + Wet Specimen (gm)	1445.80	Wgt.Tare + Wet Specimen (gm)	705.40
Wgt.Tare + Dry Specimen (gm)	1351.90	Wgt.Tare + Dry Specimen (gm)	683.80
Weight of Tare (gm)	100.80	Weight of Tare (gm)	84.40
Weight of Water (gm)	93.90	Weight of Water (gm)	21.60
Weight of Dry Soil (gm)	1251.10	Weight of Dry Soil (gm)	599.40
Moisture Content (%)	**7.5**	**Moisture Content (%)**	**3.6**

Wet Weight -3/4" Sample (gm)	20450	Weight of the Dry Specimen (gm)	1251.10
Dry Weight - 3/4" Sample (gm)	19022.3	Weight of minus #200 material (gm)	144.05
Wet Weight +3/4" Sample (gm)	26457.00	Weight of plus #200 material (gm)	1107.05
Dry Weight + 3/4" Sample (gm)	25536.76		
Total Dry Weight Sample (gm)	44559.1	**J - Factor (Percent Finer than 3/4")**	**0.4269**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	3630.00		7.86	7.86	92.14	**92.14**
2"	50	7265.00	(*)	15.74	23.60	76.40	**76.40**
1 1/2"	37.5	4985.00		10.80	34.40	65.60	**65.60**
1"	25	6860.00		14.86	49.26	50.74	**50.74**
3/4"	19	3717.00		8.05	57.31	42.69	**42.69**
1/2"	12.5	172.91		13.82	13.82	86.18	**36.79**
3/8"	9.5	120.96		9.67	23.49	76.51	**32.66**
#4	4.75	287.06		22.94	46.43	53.57	**22.87**
#10	2	247.47		19.78	66.21	33.79	**14.42**
#20	0.85	134.62	(**)	10.76	76.97	23.03	**9.83**
#40	0.425	59.60		4.76	81.74	18.26	**7.80**
#60	0.25	32.87		2.63	84.36	15.64	**6.67**
#140	0.106	39.26		3.14	87.50	12.50	**5.33**
#200	0.075	12.30		0.98	88.49	11.51	**4.92**
Pan	-	144.05		11.51	100.00	-	**-**

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

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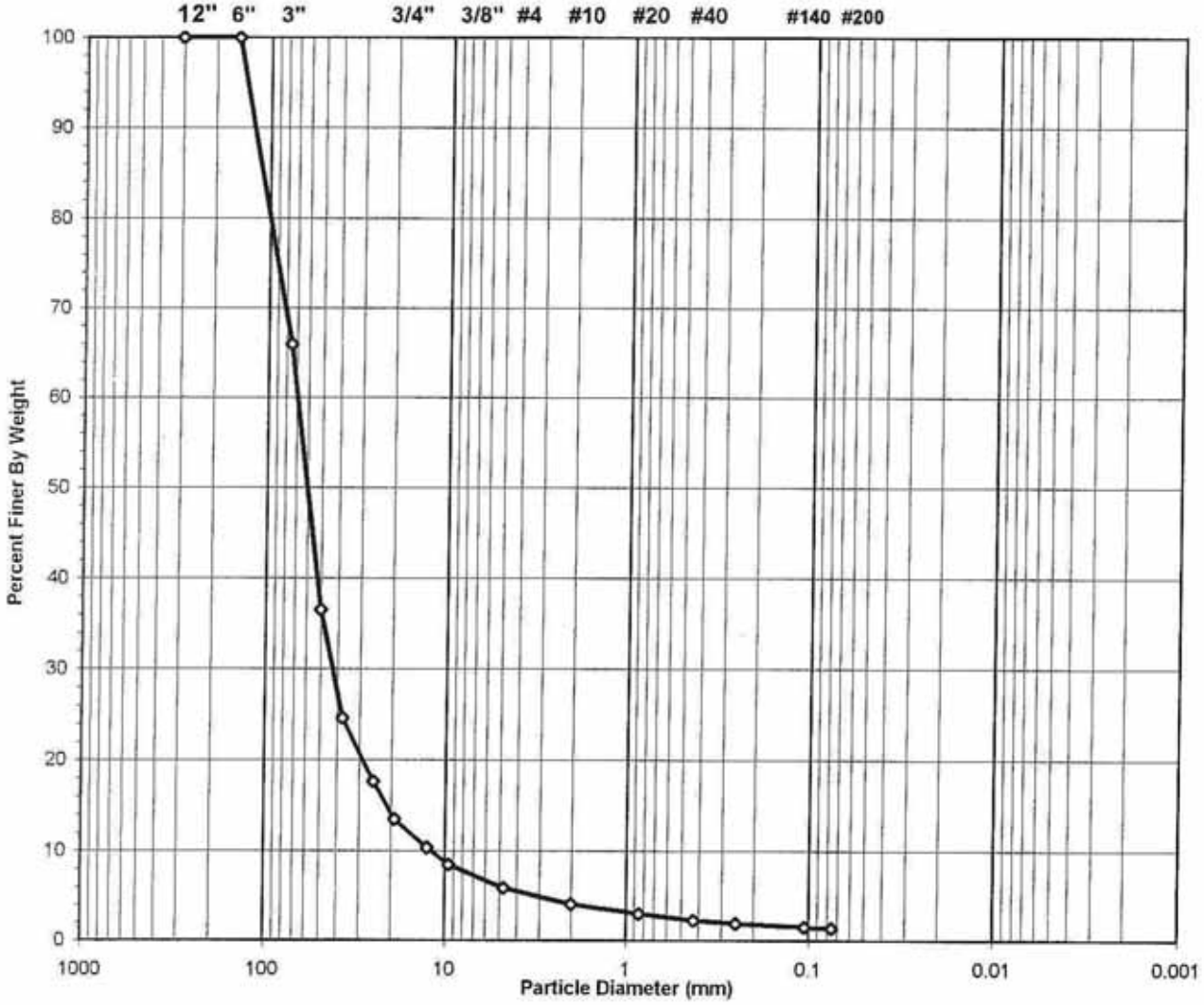
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-63	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	***gw, ASSUMED***	**D60 =**	**69.1**	**CC =**	**2.2**
USCS Classification	***WELL-GRADED GRAVEL***	**D30 =**	**42.7**	**CU =**	**5.8**
		D10 =	**11.9**		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-53A DATE 6-26-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-7
Lab ID	2006-060-01-63	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	1221	Tare No.	548
Wgt.Tare + Wet Specimen (gm)	1235.40	Wgt.Tare + Wet Specimen (gm)	919.40
Wgt.Tare + Dry Specimen (gm)	1164.40	Wgt.Tare + Dry Specimen (gm)	897.50
Weight of Tare (gm)	97.91	Weight of Tare (gm)	80.54
Weight of Water (gm)	71.00	Weight of Water (gm)	21.90
Weight of Dry Soil (gm)	1066.49	Weight of Dry Soil (gm)	816.96
Moisture Content (%)	**6.7**	**Moisture Content (%)**	**2.7**

Wet Weight -3/4" Sample (gm)	2820	Weight of the Dry Specimen (gm)	1066.49
Dry Weight - 3/4" Sample (gm)	2644.0	Weight of minus #200 material (gm)	111.81
Wet Weight +3/4" Sample (gm)	17477.00	Weight of plus #200 material (gm)	954.68
Dry Weight + 3/4" Sample (gm)	17020.73		
Total Dry Weight Sample (gm)	19664.7	**J - Factor (Percent Finer than 3/4")**	**0.1345**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	6883.00		34.09	34.09	65.91	**65.91**
2"	50	5928.00	(*)	29.36	63.45	36.55	**36.55**
1 1/2"	37.5	2412.00		11.95	75.39	24.61	**24.61**
1"	25	1410.00		6.98	82.37	17.63	**17.63**
3/4"	19	844.00		4.18	86.55	13.45	**13.45**
1/2"	12.5	247.57		23.21	23.21	76.79	**10.32**
3/8"	9.5	147.67		13.85	37.06	62.94	**8.46**
#4	4.75	207.41		19.45	56.51	43.49	**5.85**
#10	2	139.46		13.08	69.58	30.42	**4.09**
#20	0.85	88.93	(**)	8.34	77.92	22.08	**2.97**
#40	0.425	53.38		5.01	82.93	17.07	**2.30**
#60	0.25	27.07		2.54	85.47	14.53	**1.95**
#140	0.106	32.02		3.00	88.47	11.53	**1.55**
#200	0.075	11.17		1.05	89.52	10.48	**1.41**
Pan	-	111.81		10.48	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen

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DCN: CT-S3A DATE 5-17-00 REVISION 3

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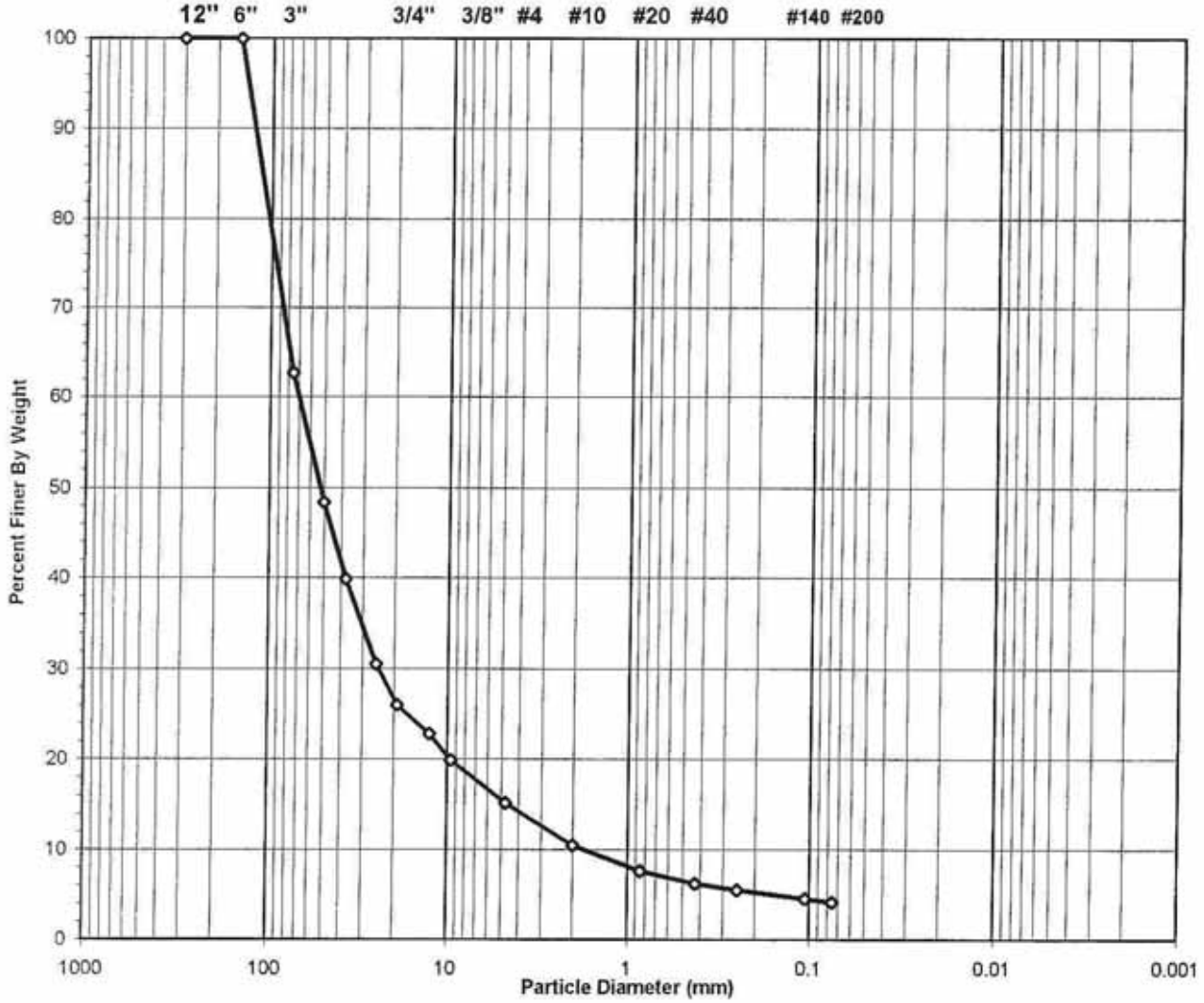
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-64	Soil Color	**BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol	*gp, ASSUMED*	D60 =	69.5	CC =	4.8
USCS Classification	*POORLY GRADED GRAVEL*	D30 =	24.2	CU =	39.8
		D10 =	1.7		

Tested By JP Date 2/21/06 Checked By KB Date 2-22-06

DCN: CT-S3A DATE 6-26-98 REVISION 2
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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-8
Lab ID	2006-060-01-64	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	650	Tare No.	9
Wgt.Tare + Wet Specimen (gm)	1176.30	Wgt.Tare + Wet Specimen (gm)	735.60
Wgt.Tare + Dry Specimen (gm)	1107.50	Wgt.Tare + Dry Specimen (gm)	719.70
Weight of Tare (gm)	98.60	Weight of Tare (gm)	74.29
Weight of Water (gm)	68.80	Weight of Water (gm)	15.90
Weight of Dry Soil (gm)	1008.90	Weight of Dry Soil (gm)	645.41
Moisture Content (%)	**6.8**	**Moisture Content (%)**	**2.5**

Wet Weight -3/4" Sample (gm)	9677	Weight of the Dry Specimen (gm)	1008.90
Dry Weight - 3/4" Sample (gm)	9059.2	Weight of minus #200 material (gm)	160.18
Wet Weight +3/4" Sample (gm)	26433.00	Weight of plus #200 material (gm)	848.72
Dry Weight + 3/4" Sample (gm)	25797.47		
Total Dry Weight Sample (gm)	34856.7	**J - Factor (Percent Finer than 3/4")**	**0.2599**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	13331.00		37.33	37.33	62.67	**62.67**
2"	50	5098.00	(*)	14.27	51.60	48.40	**48.40**
1 1/2"	37.5	3048.00		8.53	60.13	39.87	**39.87**
1"	25	3343.00		9.36	69.49	30.51	**30.51**
3/4"	19	1613.00		4.52	74.01	25.99	**25.99**
1/2"	12.5	122.87		12.18	12.18	87.82	**22.82**
3/8"	9.5	112.62		11.16	23.34	76.66	**19.92**
#4	4.75	185.81		18.42	41.76	58.24	**15.14**
#10	2	181.86		18.03	59.78	40.22	**10.45**
#20	0.85	110.05	(**)	10.91	70.69	29.31	**7.62**
#40	0.425	54.88		5.44	76.13	23.87	**6.20**
#60	0.25	28.72		2.85	78.98	21.02	**5.46**
#140	0.106	37.51		3.72	82.70	17.30	**4.50**
#200	0.075	14.40		1.43	84.12	15.88	**4.13**
Pan	-	160.18		15.88	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/21/06 Checked By YAB Date 2-22-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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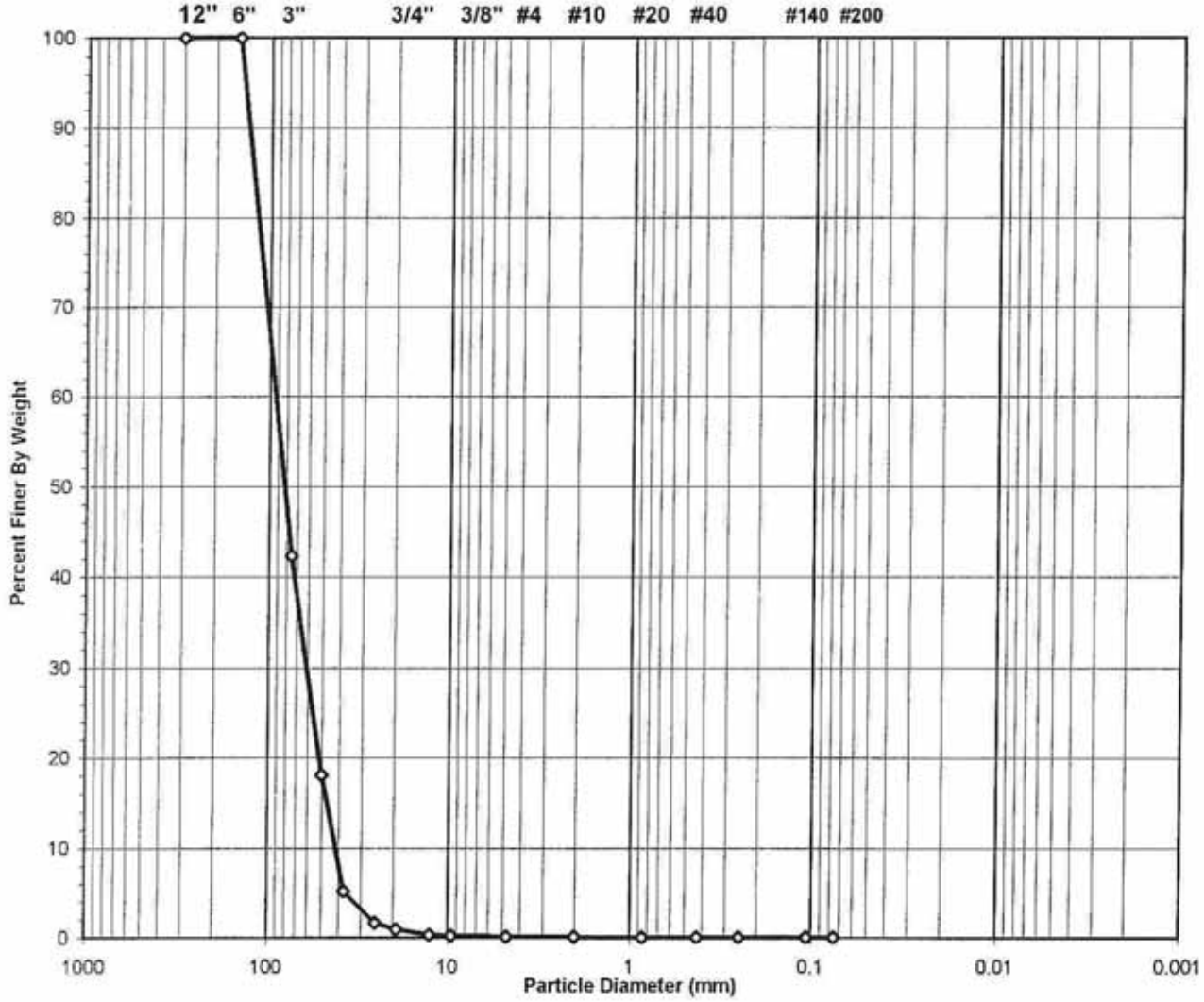
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-65	Soil Color	**REDDISH GRAY**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	**gravel**	**sand**	**silt and clay**



USCS Symbol ***gp, ASSUMED***

USCS Classification ***POORLY GRADED GRAVEL***

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

 DCN: CT-53A DATE 6-25-98 REVISION 2 C:\MSOFFICE\Excel\PrintQ\U260.xls]Sheet1

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-7
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	S-9
Lab ID	2006-060-01-65	Soil Color	**REDDISH GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	667	Tare No.	641
Wgt.Tare + Wet Specimen (gm)	322.03	Wgt.Tare + Wet Specimen (gm)	1301.80
Wgt.Tare + Dry Specimen (gm)	321.79	Wgt.Tare + Dry Specimen (gm)	1299.40
Weight of Tare (gm)	95.80	Weight of Tare (gm)	98.50
Weight of Water (gm)	0.24	Weight of Water (gm)	2.40
Weight of Dry Soil (gm)	225.99	Weight of Dry Soil (gm)	1200.90
Moisture Content (%)	**0.1**	**Moisture Content (%)**	**0.2**

Wet Weight -3/4" Sample (gm)	228	Weight of the Dry Specimen (gm)	225.99
Dry Weight - 3/4" Sample (gm)	227.8	Weight of minus #200 material (gm)	15.28
Wet Weight +3/4" Sample (gm)	24310.90	Weight of plus #200 material (gm)	210.71
Dry Weight + 3/4" Sample (gm)	24262.41		
Total Dry Weight Sample (gm)	24490.2	**J - Factor (Percent Finer than 3/4")**	**0.0093**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	14148.00		57.65	57.65	42.35	**42.35**
2"	50	5956.00	(*)	24.27	81.93	18.07	**18.07**
1 1/2"	37.5	3163.00		12.89	94.82	5.18	**5.18**
1"	25	858.00		3.50	98.31	1.69	**1.69**
3/4"	19	185.90		0.76	99.07	0.93	**0.93**
1/2"	12.5	150.09		66.41	66.41	33.59	**0.31**
3/8"	9.5	15.62		6.91	73.33	26.67	**0.25**
#4	4.75	26.96		11.93	85.26	14.74	**0.14**
#10	2	7.62		3.37	88.63	11.37	**0.11**
#20	0.85	3.30	(**)	1.46	90.09	9.91	**0.09**
#40	0.425	2.09		0.92	91.01	8.99	**0.08**
#60	0.25	1.28		0.57	91.58	8.42	**0.08**
#140	0.106	2.61		1.15	92.73	7.27	**0.07**
#200	0.075	1.14		0.50	93.24	6.76	**0.06**
Pan	-	15.28		6.76	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By PC Date 2/22/06 Checked By KB Date 2-23-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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SHELBY TUBE SAMPLE

TS-ST01

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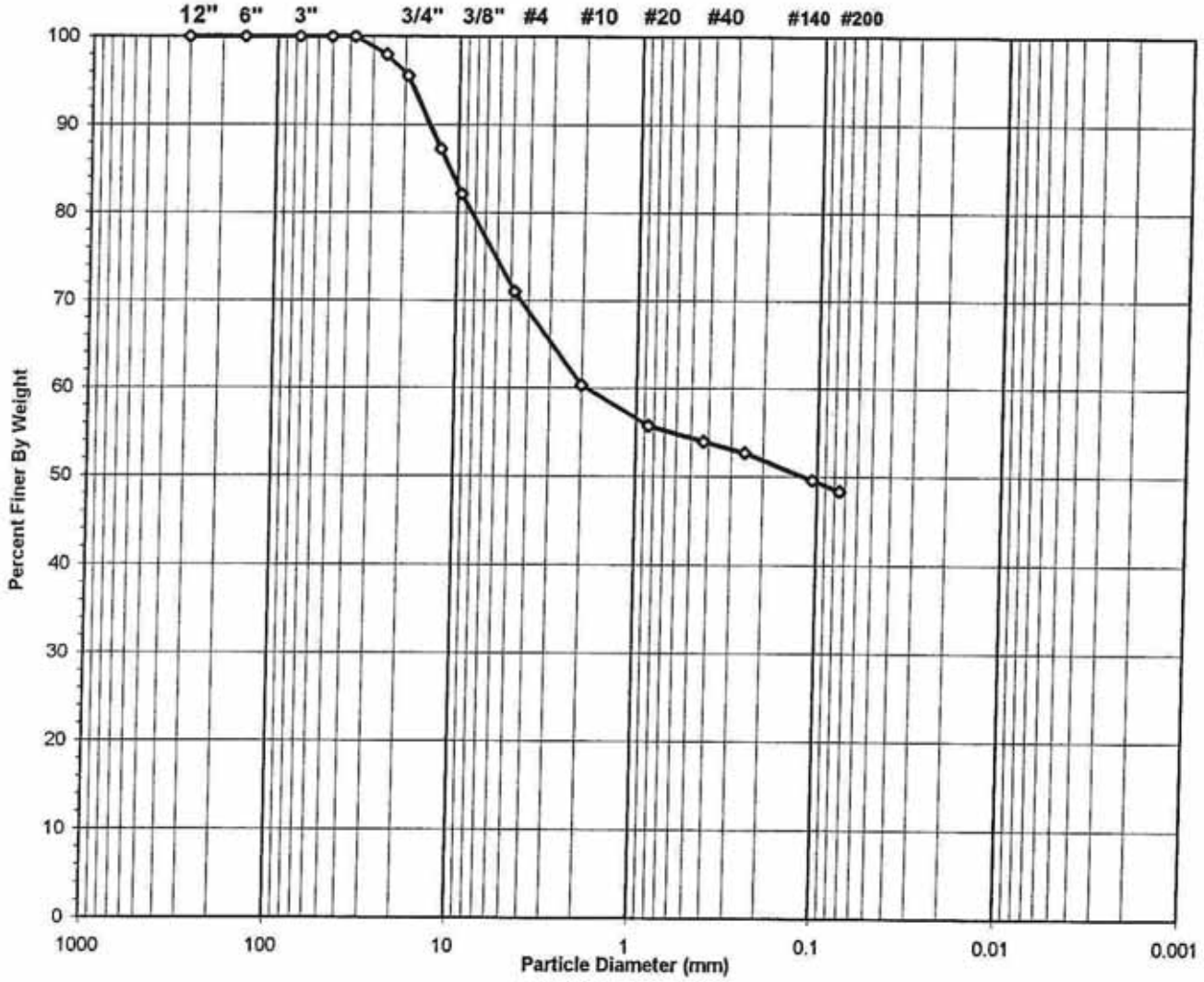
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75	Soil Color	**BROWN AND GRAY**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***GC, TESTED***

USCS Classification ***CLAYEY GRAVEL WITH SAND***

Tested By JP Date 3/1/06 Checked By KYB Date 3-6-06

DCN: CT-S3C DATE 6-26-98 REVISION: 2

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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75	Soil Color	BROWN AND GRAY

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	920	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	856.04	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	738.50	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	103.00	Weight of Tare (gm)	NA
Weight of Water (gm)	117.54	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	635.50	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**18.5**	**Moisture Content (%)**	NA

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	635.50
Dry Weight - 3/4" Sample (gm)	300.3	Weight of minus #200 material (gm)	306.92
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	328.58
Dry Weight + 3/4" Sample (gm)	28.28		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	12.96	2.04	2.04	97.96	**97.96**
3/4"	19.0	15.32	2.41	4.45	95.55	**95.55**
1/2"	12.50	52.44	8.25	12.70	87.30	**87.30**
3/8"	9.50	33.21	5.23	17.93	82.07	**82.07**
#4	4.75	70.63	11.11	29.04	70.96	**70.96**
#10	2.00	67.37	10.60	39.64	60.36	**60.36**
#20	0.850	29.39	4.62	44.27	55.73	**55.73**
#40	0.425	11.32	1.78	46.05	53.95	**53.95**
#60	0.250	8.10	1.27	47.32	52.68	**52.68**
#140	0.106	19.69	3.10	50.42	49.58	**49.58**
#200	0.075	8.15	1.28	51.70	48.30	**48.30**
Pan	-	306.92	48.30	100.00	-	-

Tested By JP Date 3/1/06 Checked By KB Date 3-6-06

DCN: CT-S3C DATE 6-26-98 REVISION: 2

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75	Soil Description	BROWN AND GRAY LEAN CLAY

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

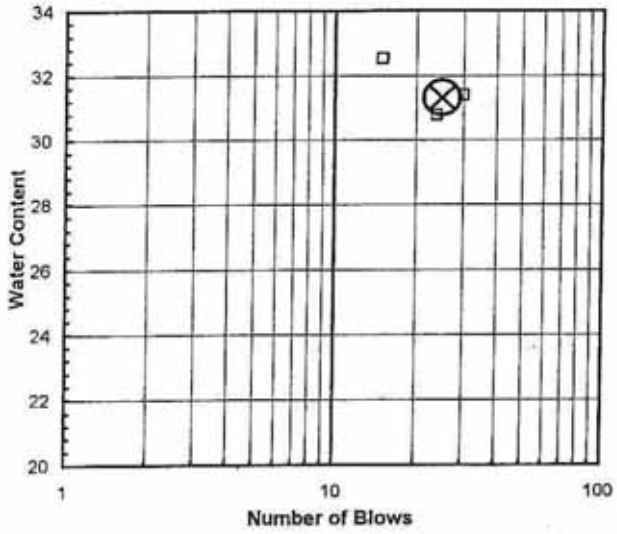
Liquid Limit Test	1	2	3	
Tare Number	45	O	9	MULTIPOINT
Wt. of Tare & WS (gm)	40.08	40.31	36.55	
Wt. of Tare & DS (gm)	34.71	35.56	31.45	
Wt. of Tare (gm)	17.60	20.13	15.77	
Wt. of Water (gm)	5.4	4.8	5.1	
Wt. of DS (gm)	17.1	15.4	15.7	
Moisture Content (%)	**31.4**	**30.8**	**32.5**	
Number of Blows	**30**	**24**	**15**	

Plastic Limit Test	1	2	Range
Tare Number	58	4000	
Wt. of Tare & WS (gm)	23.65	26.75	
Wt. of Tare & DS (gm)	22.61	25.68	
Wt. of Tare (gm)	17.41	20.43	
Wt. of Water (gm)	1.0	1.1	
Wt. of DS (gm)	5.2	5.3	
Moisture Content (%)	**20.0**	**20.4**	**-0.4**

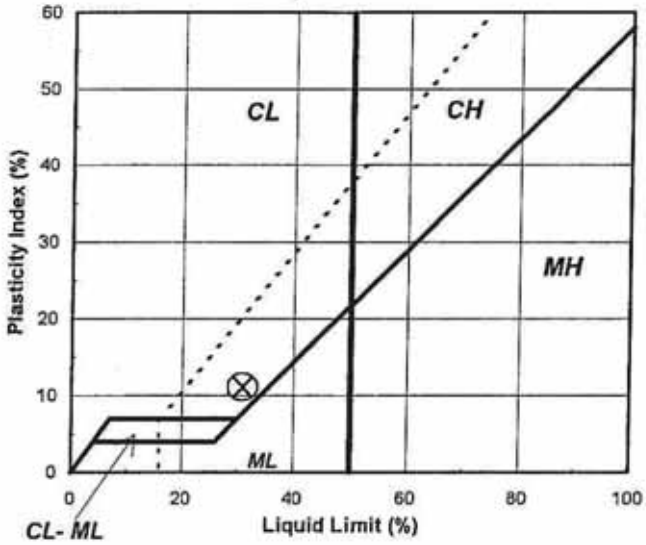
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**31**
Plastic Limit (%)	**20**
Plasticity Index (%)	**11**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By TO *Date* 3/5/06 *Checked By* KLB *Date* 3-6-06

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

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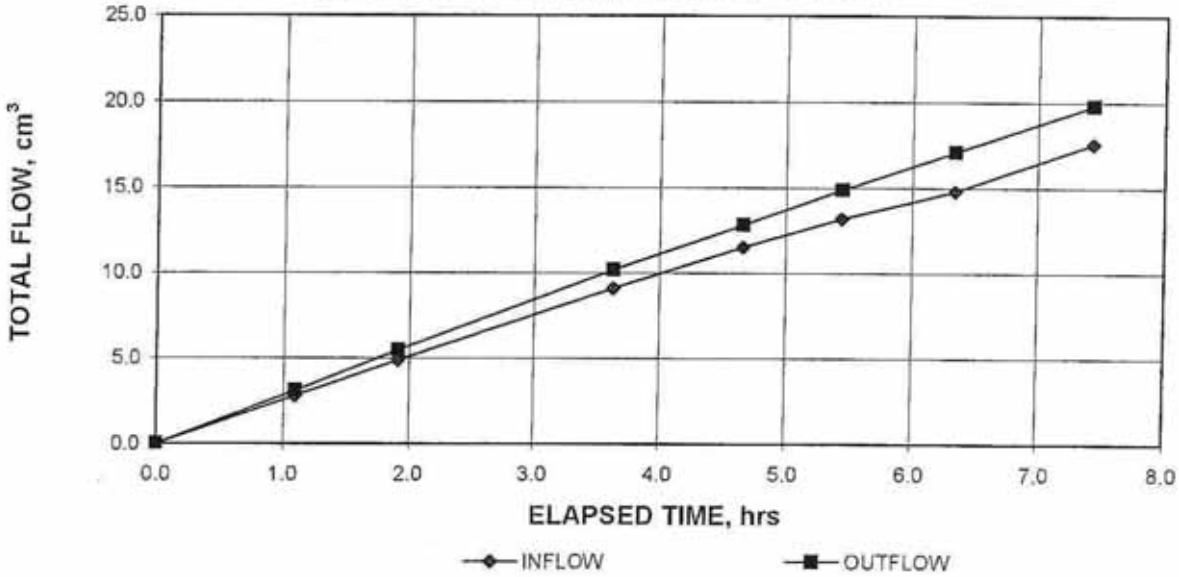
INTEGRITY IN TESTING

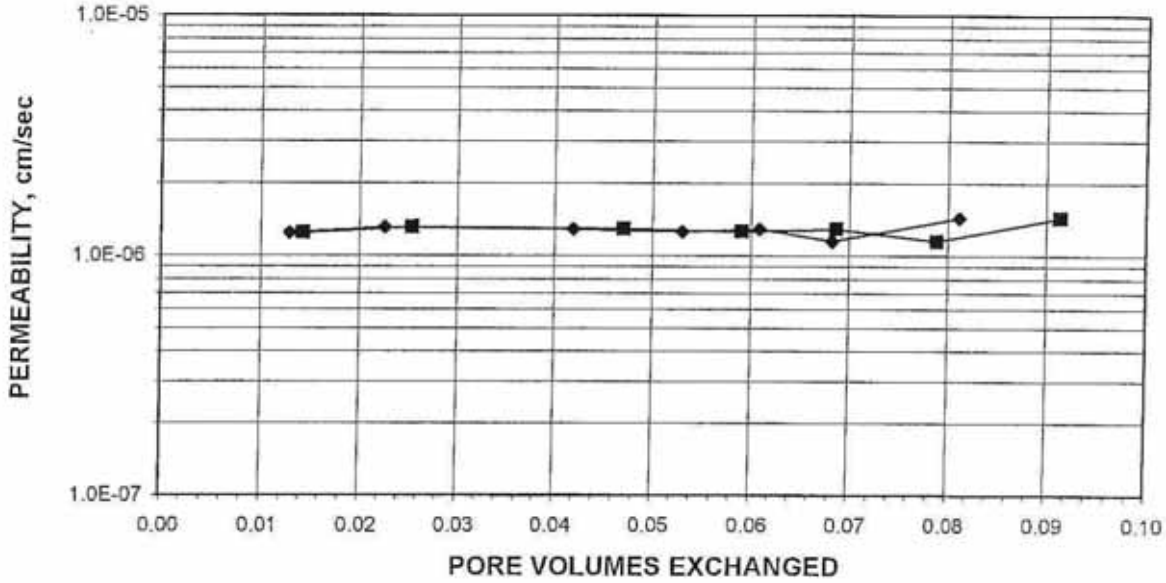
Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Project	TAUM SAUK 06-3551	Depth (ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID No.	2006-060-01-75		

AVERAGE PERMEABILITY = 1.3E-06 cm/sec @ 20°C
AVERAGE PERMEABILITY = 1.3E-08 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JCM Date: 02/17/06 Checked By: KB Date: 2-24-06

DCN: CT-22C DATE: 2-22-06 REVISION:7 C:\MSOFFICE\Excel\Perms\February2006\[060P1.XLS]Sheet1

PERMEABILITY TEST

ASTM D 5084-03
(SOP-S22A & S22B)

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INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Project	TAUM SAUK 06-3551	Depth (ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID No.	2006-060-01-75		

Specific Gravity 2.70 Assumed
Sample Condition Undisturbed

Visual Description: BROWN AND GRAY MOTTLED CLAY AND SAND

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	621	NO AFTER
Wt. of Tare & WS (gm.)	164.59	TEST WATER
Wt. of Tare & DS (gm.)	152.43	CONTENT,
Wt. of Tare (gm.)	86.94	SAMPLE
Wt. of Water (gm.)	12.16	USED FOR
Wt. of DS (gm.)	65.49	CU
Moisture Content (%)	**18.6**	

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	1219.13	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc)(gm.)	1219.13	1219.13
Length 1 (in.)	5.775	5.659
Length 2 (in.)	5.764	5.703
Length 3 (in.)	5.801	5.707
Top Diameter (in.)	2.876	2.850
Middle Diameter (in.)	2.853	2.850
Bottom Diameter (in.)	2.876	2.869
Average Length (in.)	5.78	5.69
Average Area (in.^{2})	6.46	6.41
Sample Volume (cm^3)	612.04	597.44
Unit Wet Wt. (gm./ cm^3)	1.99	2.04
Unit Wet Wt. (pcf)	124.3	127.4
Unit Dry Wt. (pcf)	104.9	
Unit Dry Wt. (gm./ cm^3)	1.68	
Void Ratio, e	0.61	
Porosity, n	0.38	
Pore Volume (cm^3)	231.2	
Total Wgt. Of Sample After Test		1230.9

Tested By: JCM Date: 02/17/06 Checked By: KVB Date: 2-24-06

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

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INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Project	TAUM SAUK 06-3551	Depth (ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID No.	2006-060-01-75		

Pressure Heads (Constant)

Top Cap (psi)	67.5
Bottom Cap (psi)	70.0
Cell (psi)	75.0
Total Pressure Head (cm)	175.8
Hydraulic Gradient	12.16

Final Sample Dimensions

Sample Length (cm), L	14.45
Sample Diameter (cm)	7.26
Sample Area (cm^2), A	41.34
Inflow Burette Area (cm^2), a-in	0.877
Outflow Burette Area (cm^2), a-out	0.904
B Parameter (%)	97

AVERAGE PERMEABILITY = 1.3E-06 cm/sec @ 20°C
AVERAGE PERMEABILITY = 1.3E-08 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	TIME (min)	ELAPSED TIME t (hr)	TOTAL INFLOW (cm^3)	TOTAL OUTFLOW (cm^3)	TOTAL HEAD h (cm)	FLOW (0 flow) (1 stop)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
02/20/06	8	57	0.0	0.0	0.0	200.9	0	22.6	NA
02/20/06	10	3	1.1	2.8	3.1	194.4	0	22.0	1.2E-06
02/20/06	10	52	1.9	4.9	5.5	189.4	0	22.0	1.3E-06
02/20/06	12	35	3.6	9.1	10.2	179.5	0	22.0	1.3E-06
02/20/06	13	37	4.7	11.5	12.8	173.9	0	22.0	1.3E-06
02/20/06	14	24	5.5	13.2	14.9	169.7	0	22.0	1.3E-06
02/20/06	15	18	6.4	14.8	17.1	165.4	0	22.0	1.2E-06
02/20/06	16	23	7.4	17.6	19.8	159.3	1	22.0	1.4E-06

Tested By: JCM Date: 02/17/06 Checked By: YKB Date: 2-24-06

SHELBY TUBE SAMPLE

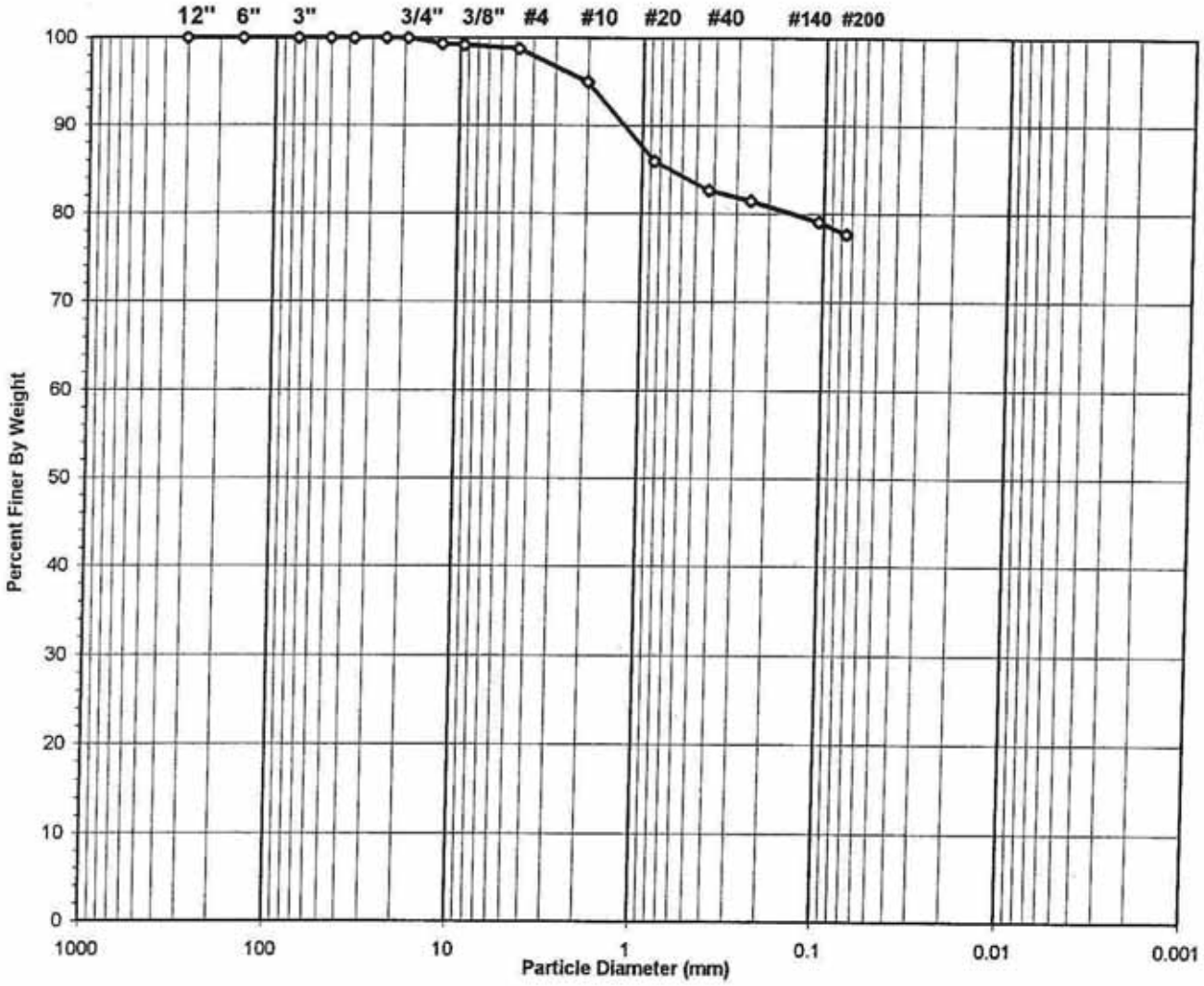
TS-ST02

geotechnics
INTEGRITY IN TESTING

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76	Soil Color	**BROWN AND GRAY**

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***CH, TESTED***

USCS Classification ***FAT CLAY WITH SAND***

Tested By JP Date 3/1/06 Checked By KB Date 3-6-06

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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INTEGRITY IN TESTING

WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76	Soil Color	**BROWN AND GRAY**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	966	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	683.25	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	553.90	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	103.11	Weight of Tare (gm)	NA
Weight of Water (gm)	129.35	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	450.79	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**28.7**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	450.79
Dry Weight - 3/4" Sample (gm)	100.9	Weight of minus #200 material (gm)	349.91
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	100.88
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	2.93	0.65	0.65	99.35	**99.35**
3/8"	9.50	0.80	0.18	0.83	99.17	**99.17**
#4	4.75	1.55	0.34	1.17	98.83	**98.83**
#10	2.00	17.10	3.79	4.96	95.04	**95.04**
#20	0.850	40.93	9.08	14.04	85.96	**85.96**
#40	0.425	15.10	3.35	17.39	82.61	**82.61**
#60	0.250	5.36	1.19	18.58	81.42	**81.42**
#140	0.106	10.57	2.34	20.93	79.07	**79.07**
#200	0.075	6.54	1.45	22.38	77.62	**77.62**
Pan	-	349.91	77.62	100.00	-	-

Tested By JP Date 3/1/06 Checked By YKB Date 3-6-06

DCN: CT-S3C DATE 6-26-98 REVISION: 2

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth (ft)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76	Soil Description	**BROWN AND GRAY FAT CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

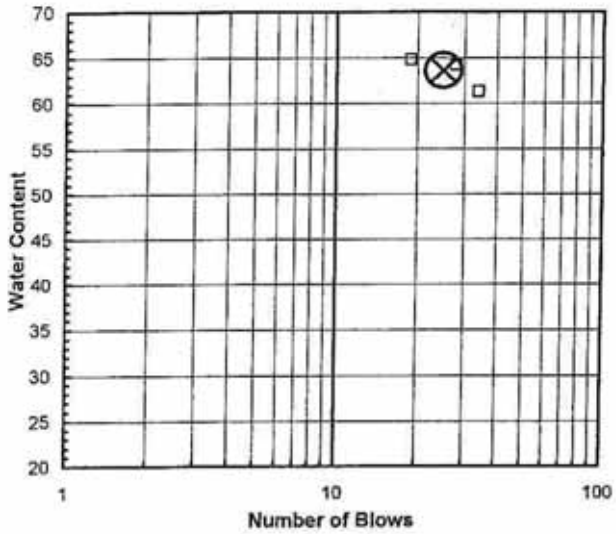
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	4	1158	222	MULTIPOINT
Wt. of Tare & WS (gm)	28.79	38.27	39.48	
Wt. of Tare & DS (gm)	23.34	30.86	31.97	
Wt. of Tare (gm)	14.45	19.32	20.38	
Wt. of Water (gm)	5.5	7.4	7.5	
Wt. of DS (gm)	8.9	11.5	11.6	
Moisture Content (%)	**61.3**	**64.2**	**64.8**	
Number of Blows	**34**	**28**	**19**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	246	242	
Wt. of Tare & WS (gm)	23.70	26.53	
Wt. of Tare & DS (gm)	22.52	25.26	
Wt. of Tare (gm)	17.65	20.14	
Wt. of Water (gm)	1.2	1.3	
Wt. of DS (gm)	4.9	5.1	
Moisture Content (%)	**24.2**	**24.8**	**-0.6**

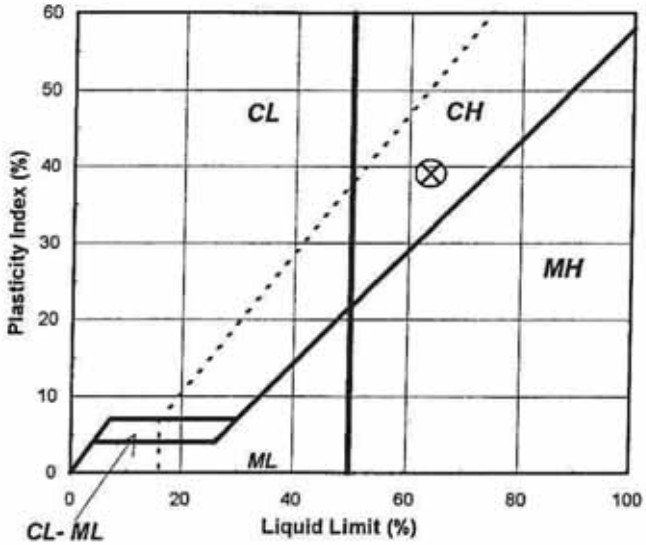
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**64**
Plastic Limit (%)	**25**
Plasticity Index (%)	**39**
USCS Symbol	**CH**

Flow Curve



Plasticity Chart



Tested By JAC *Date* 3/3/06 *Checked By* YB *Date* 3-6-06

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PERMEABILITY TEST

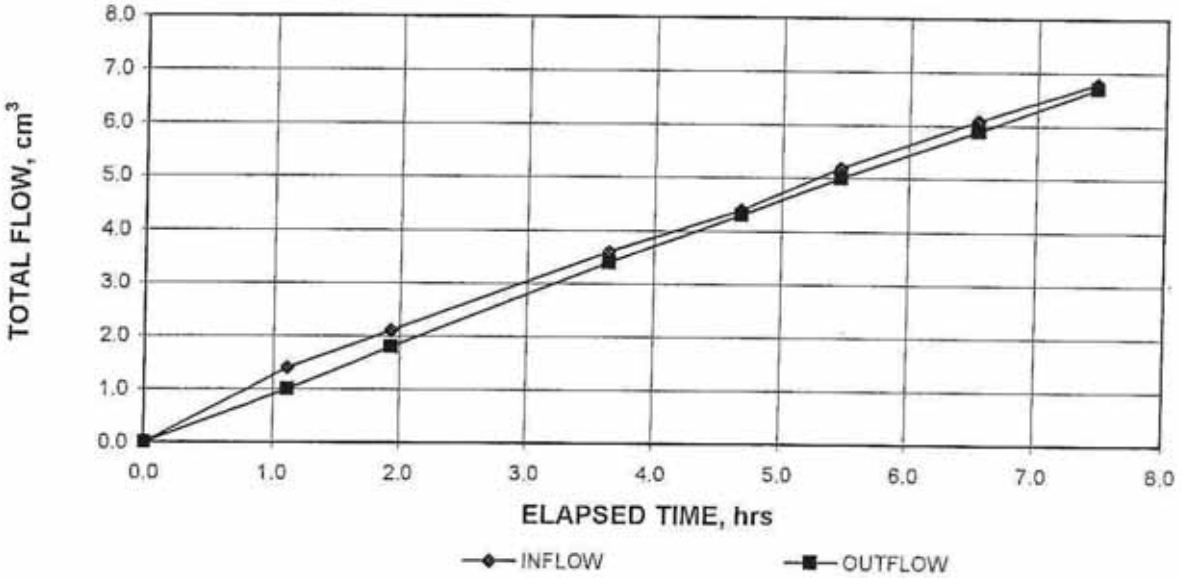
ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

geotechnics
INTEGRITY IN TESTING

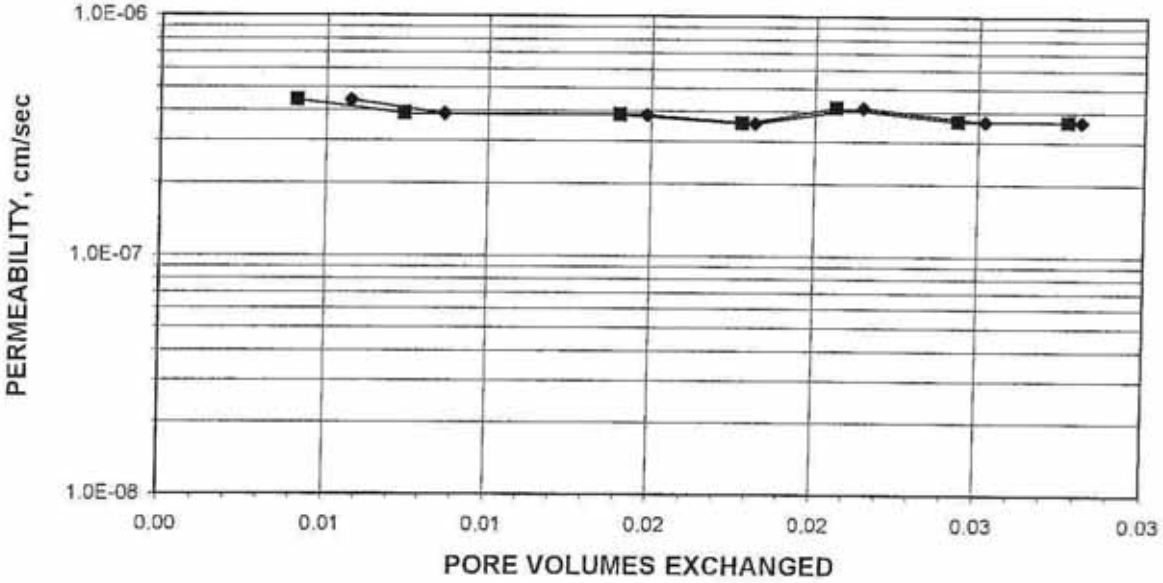
Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Project	TAUM SAUK 06-3551	Depth (ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID No.	2006-060-01-76		

AVERAGE PERMEABILITY = 3.8E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.8E-09 m/sec @ 20°C

TOTAL FLOW vs. ELAPSED TIME



PORE VOLUMES EXCHANGED vs. PERMEABILITY



Tested By: JCM Date: 02/16/06 Checked By: KLB Date: 2-24-06

DCN: CT-22C DATE: 2-22-06 REVISION:7 C:\MSOFFICE\Excel\Permis\February2006\[060P2.XLS]Sheet1

PERMEABILITY TEST

ASTM D 5084-03
(SOP-S22A & S22B)

geotechnics
INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Project	TAUM SAUK 06-3551	Depth (ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID No.	2006-060-01-76		

Specific Gravity 2.70 Assumed
Sample Condition Undisturbed

Visual Description: BROWN SANDY CLAY

MOISTURE CONTENT:	BEFORE TEST	AFTER TEST
Tare Number	1710	NO AFTER TEST WATER CONTENT, SAMPLE USED FOR CU
Wt. of Tare & WS (gm.)	96.73	
Wt. of Tare & DS (gm.)	93.53	
Wt. of Tare (gm.)	82.33	
Wt. of Water (gm.)	3.20	
Wt. of DS (gm.)	11.20	
Moisture Content (%)	**28.6**	

SPECIMEN:	BEFORE TEST	AFTER TEST
Wt. of Tube & WS (gm.)	1006.30	NA
Wt. of Tube (gm.)	0.00	NA
Wt. of WS (calc.)(gm.)	1006.30	1006.30
Length 1 (in.)	5.083	5.064
Length 2 (in.)	5.070	5.072
Length 3 (in.)	5.060	5.065
Top Diameter (in.)	2.852	2.857
Middle Diameter (in.)	2.852	2.853
Bottom Diameter (in.)	2.856	2.857
Average Length (in.)	5.07	5.07
Average Area (in.^{2})	6.39	6.40
Sample Volume (cm^3)	531.36	531.81
Unit Wet Wt. (gm./ cm^3)	1.89	1.89
Unit Wet Wt. (pcf)	118.2	118.1
Unit Dry Wt. (pcf)	91.9	
Unit Dry Wt. (gm./ cm^3)	1.47	
Void Ratio, e	0.83	
Porosity, n	0.45	
Pore Volume (cm^3)	241.5	
Total Wgt. Of Sample After Test		1014.1

Tested By: JCM Date: 02/16/06 Checked By: KB Date: 2-24-06

PERMEABILITY TEST

ASTM D 5084-90(Reapproved 1997)
(SOP-S22A & S22B)

geotechnics
INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Project	TAUM SAUK 06-3551	Depth (ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID No.	2006-060-01-76		

Pressure Heads (Constant)		Final Sample Dimensions	
Top Cap (psi)	67.5	Sample Length (cm), L	12.87
Bottom Cap (psi)	70.0	Sample Diameter (cm)	7.25
Cell (psi)	75.0	Sample Area (cm^2), A	41.32
Total Pressure Head (cm)	175.8	Inflow Burette Area (cm^2), a-in	0.984
Hydraulic Gradient	13.66	Outflow Burette Area (cm^2), a-out	0.842
		B Parameter (%)	98

AVERAGE PERMEABILITY = 3.8E-07 cm/sec @ 20°C
AVERAGE PERMEABILITY = 3.8E-09 m/sec @ 20°C

DATE (mm/dd/yy)	TIME (hr)	TIME (min)	ELAPSED TIME t (hr)	TOTAL INFLOW (cm^3)	TOTAL OUTFLOW (cm^3)	TOTAL HEAD h (cm)	FLOW (0 flow) (1 stop)	TEMP. (°C)	INCREMENTAL PERMEABILITY @ 20°C (cm/sec)
02/20/06	8	57	0.0	0.0	0.0	199.7	0	22.6	NA
02/20/06	10	4	1.1	1.4	1.0	197.1	0	22.0	4.4E-07
02/20/06	10	53	1.9	2.1	1.8	195.5	0	22.0	3.9E-07
02/20/06	12	36	3.7	3.6	3.4	192.0	0	22.0	3.9E-07
02/20/06	13	38	4.7	4.4	4.3	190.2	0	22.0	3.6E-07
02/20/06	14	25	5.5	5.2	5.0	188.5	0	22.0	4.2E-07
02/20/06	15	30	6.6	6.1	5.9	186.5	0	22.0	3.7E-07
02/20/06	16	25	7.5	6.8	6.7	184.9	1	22.0	3.7E-07

Tested By: JCM Date: 02/16/06 Checked By: KLB Date: 2-24-06

SHELBY TUBE SAMPLE

TS-ST01 & 02

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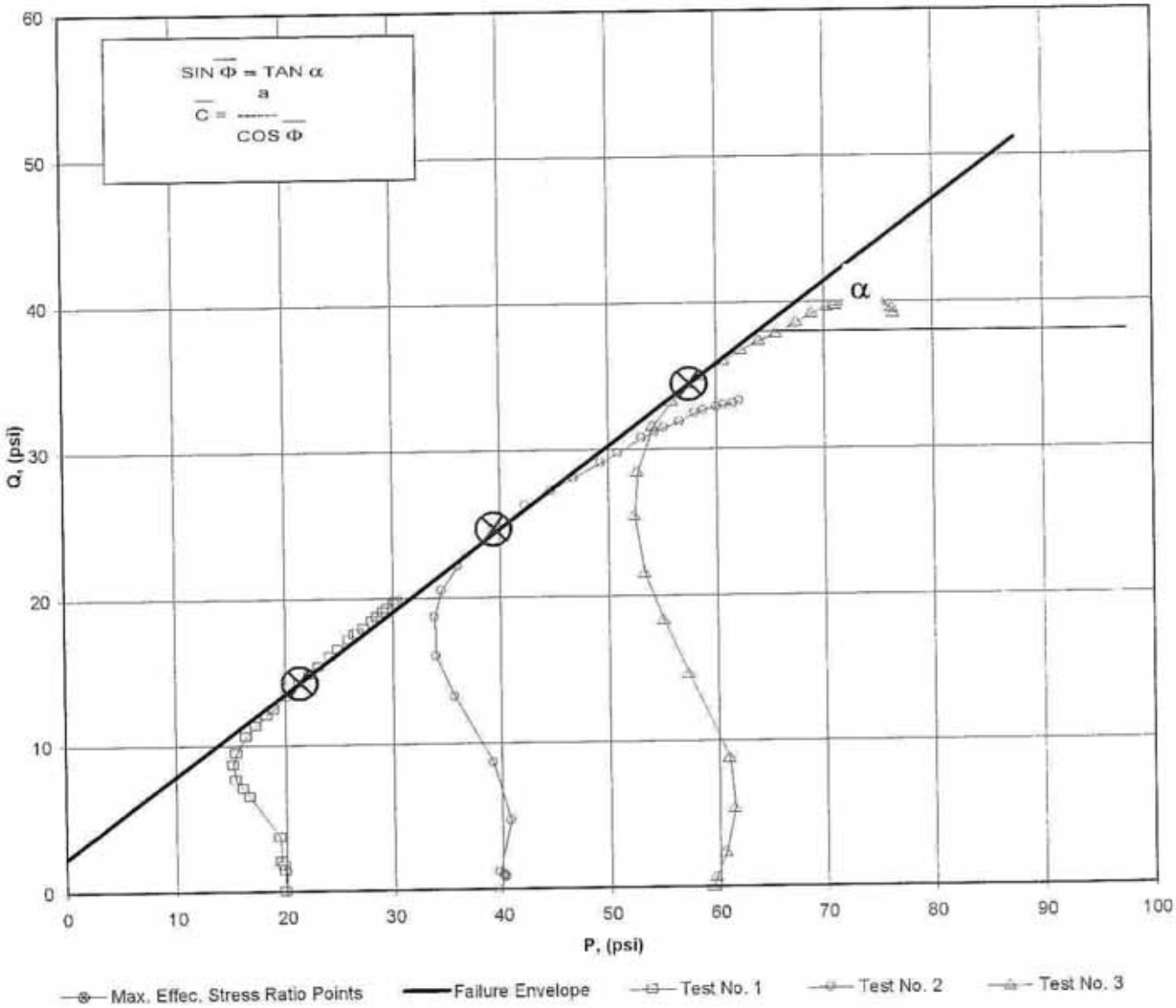
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-ST-01 & 02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75& 76		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	2.30	$\overline{C}$	=	2.78
α	=	29.2	$\overline{\Phi}$	=	33.96

Tested By JCM Date 02/22/06 Approved By DB Date 2/27/06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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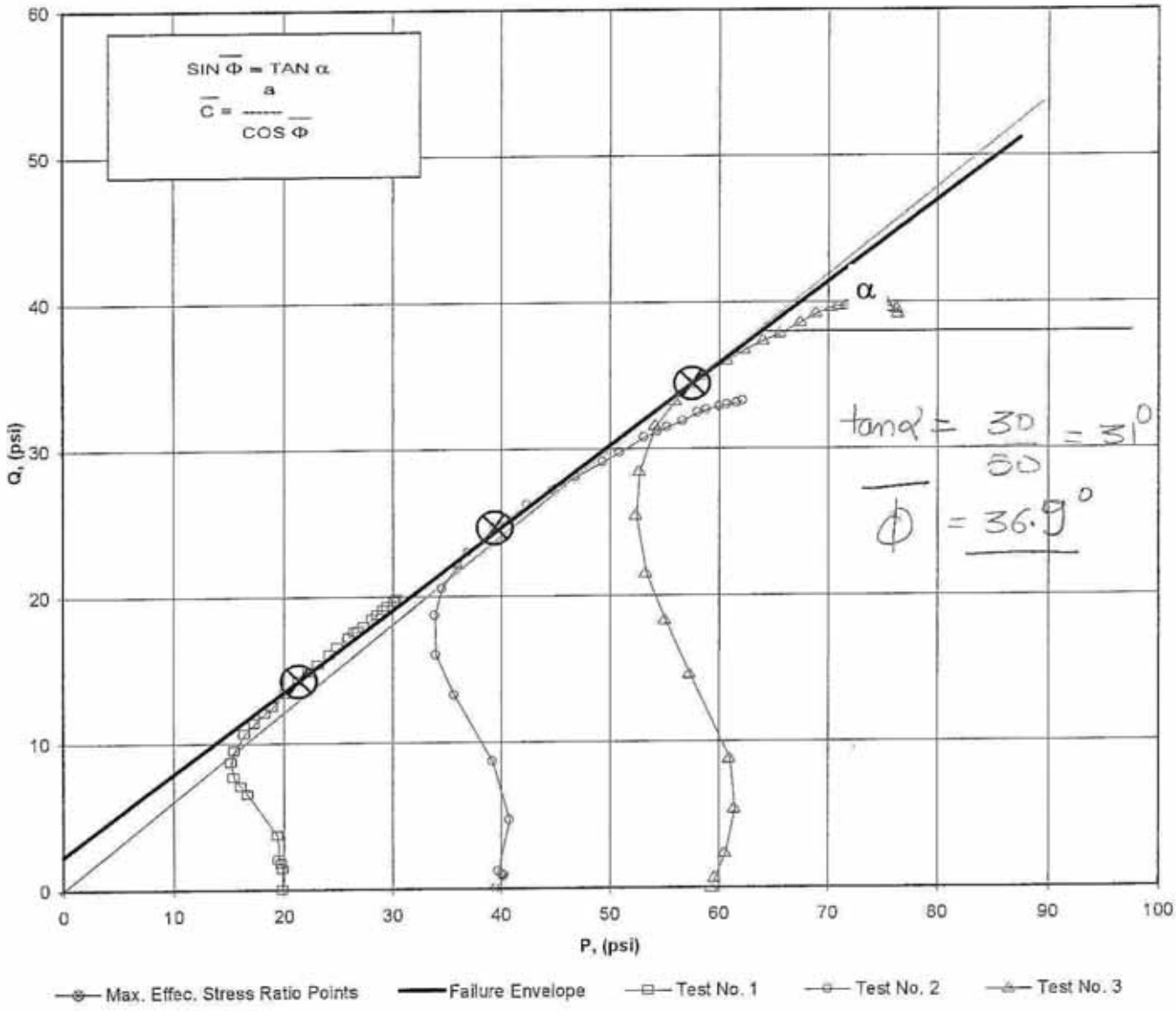
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-ST-01 & 02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75& 76		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	2.30	$\overline{C}$	=	2.78
α	=	29.2	$\overline{\Phi}$	=	33.96

Tested By JCM Date 02/22/06 Approved By DB Date 2/27/06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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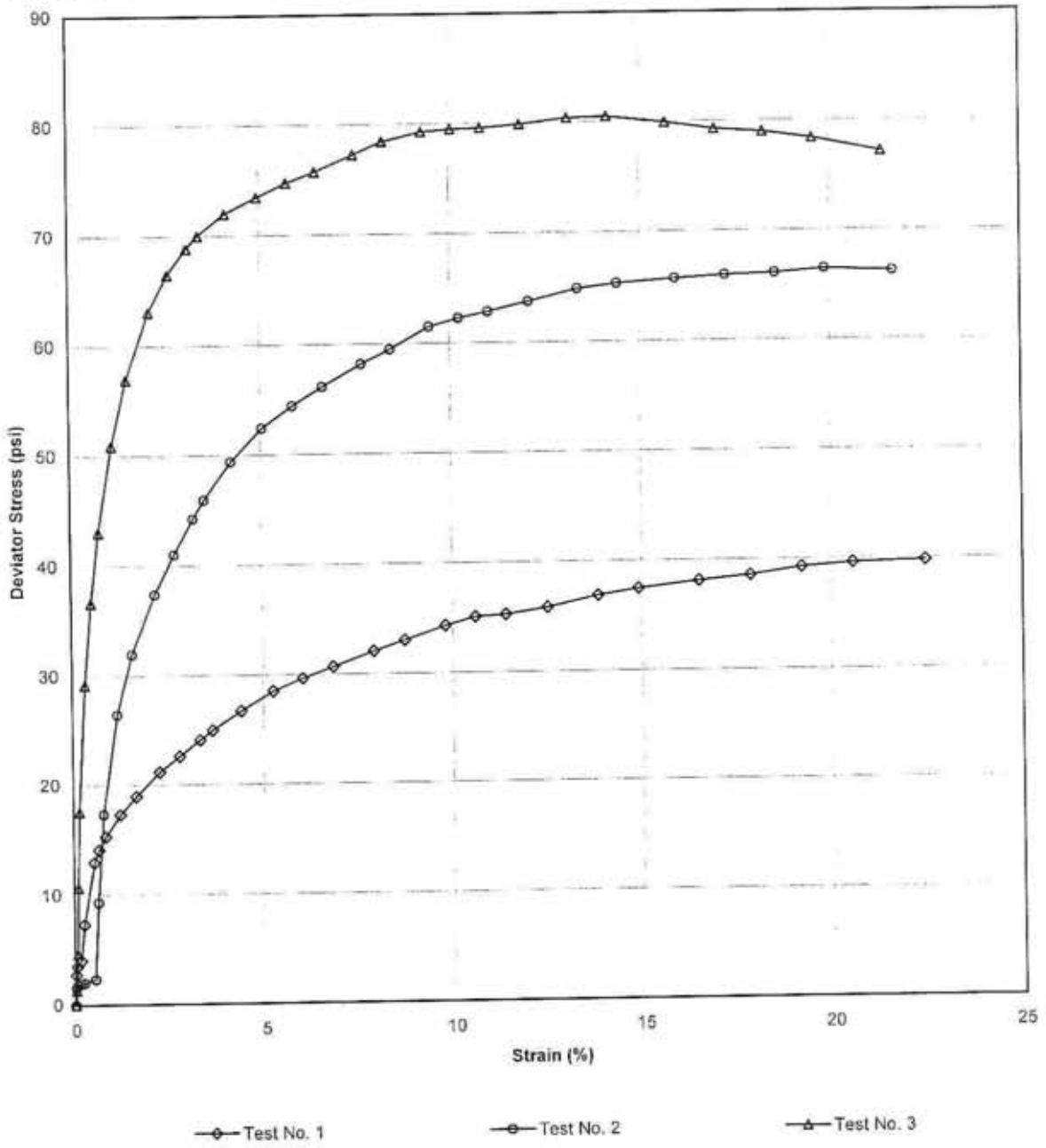
CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-ST-01& 02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75&76		
Visual Description:	BROWN & GRAY MOTTLED CLAY & SAND (UNDISTURBED & AFTER PERMEABILITY)		



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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75		

Visual Description: BROWN & GRAY MOTTLED CLAY & SAND (AFTER PERMEABILITY)

Stage No.	1
Test No	1

PRESSURES (psi)

Cell Pressure(psi)	60.0
Back Pressure(psi)	40.1
Eff. Cons. Pressure(psi)	19.9
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	21.37
Q	=	14.24

INITIAL SAMPLE DIMENSIONS (in)

Length 1	5.659	Diameter 1	2.850
Length 2	5.703	Diameter 2	2.850
Length 3	5.707	Diameter 3	2.869
Avg Leng.=	5.690	Avg. Diam.=	2.856

VOLUME CHANGE

Initial Burette Reading (ml)	72.0
Final Burette Reading (ml)	48.7
Final Change (ml)	23.3

Initial Dial Reading (D.R.), mils	45
D.R. After Saturation, mils	101
D.R. After Consolidation, mils	139

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
14.1	0.000	40.1
31.0	0.001	41.5
35.6	0.003	41.9
38.8	0.009	42.5
58.8	0.014	44.2
93.2	0.030	49.7
100.3	0.037	50.9
107.9	0.047	52.2
120.5	0.069	53.5
131.1	0.092	54.0
145.7	0.127	54.2
155.3	0.156	54.0
165.3	0.187	53.7
171.3	0.205	53.5
183.7	0.248	53.2
196.5	0.295	52.9
205.5	0.339	52.5
213.9	0.384	52.2
225.4	0.444	51.8
233.7	0.490	51.6
244.9	0.550	51.2
252.2	0.594	51.0
255.7	0.639	50.8
262.8	0.700	50.6
273.8	0.775	50.3
281.2	0.835	50.1
291.1	0.925	49.9
299.1	1.001	49.8
309.0	1.076	49.5
316.7	1.151	49.5
325.7	1.257	49.3

Tested By JCM Date 02/22/06 Input Checked By YAB Date 2-27-06

DCN: CT-S28 DATE 8-25-98 REVISION 1
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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics
INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-01
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-75		

Visual Description: BROWN & GRAY MOTTLED CLAY & SAND (AFTER PERMEABILITY)

Effective Confining Pressure (psi)	19.9	*Stage No.*	1
		Test No	1

INITIAL DIMENSIONS

Initial Sample Length (in.)	5.69
Initial Sample Diameter (in.)	2.86
Initial Sample Area (in^2)	6.41
Initial Sample Volume (in^3)	36.46

VOLUME CHANGE

Volume After Consolidation (in^3)	33.96
Length After Consolidation (in)	5.60
Area After Consolidation (in^2)	6.069

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	2.78	1.38	21.29	18.5	1.150	0.51	19.90	1.39
0.05	3.54	1.85	21.59	18.1	1.196	0.53	19.82	1.77
0.15	4.07	2.36	21.61	17.5	1.232	0.59	19.58	2.03
0.25	7.34	4.10	23.14	15.8	1.464	0.57	19.47	3.67
0.53	12.97	9.64	23.22	10.3	2.264	0.76	16.74	6.48
0.66	14.12	10.85	23.17	9.1	2.560	0.78	16.11	7.06
0.84	15.32	12.07	23.15	7.8	2.958	0.80	15.49	7.66
1.23	17.32	13.36	23.86	6.5	3.647	0.79	15.20	8.66
1.65	18.96	13.87	24.99	6.0	4.142	0.75	15.51	9.48
2.26	21.19	14.07	27.02	5.8	4.633	0.68	16.43	10.59
2.79	22.62	13.86	28.66	6.0	4.744	0.63	17.35	11.31
3.34	24.09	13.65	30.34	6.3	4.854	0.58	18.30	12.05
3.67	24.95	13.44	31.42	6.5	4.861	0.55	18.94	12.48
4.42	26.72	13.06	33.55	6.8	4.907	0.50	20.20	13.36
5.27	28.48	12.77	35.60	7.1	4.995	0.46	21.37	14.24
6.06	29.63	12.43	37.10	7.5	4.965	0.43	22.29	14.81
6.86	30.66	12.06	38.49	7.8	4.913	0.40	23.16	15.33
7.94	32.05	11.72	40.23	8.2	4.920	0.37	24.20	16.03
8.75	33.02	11.47	41.45	8.4	4.918	0.35	24.94	16.51
9.82	34.29	11.10	43.09	8.8	4.898	0.33	25.94	17.15
10.62	35.06	10.94	44.02	9.0	4.914	0.32	26.49	17.53
11.42	35.26	10.71	44.45	9.2	4.836	0.31	26.82	17.63
12.51	35.85	10.51	45.24	9.4	4.818	0.30	27.32	17.93
13.86	36.87	10.21	46.55	9.7	4.805	0.28	28.12	18.43
14.92	37.45	10.05	47.30	9.9	4.801	0.27	28.58	18.73
16.53	38.10	9.82	48.18	10.1	4.778	0.26	29.13	19.05
17.88	38.56	9.72	48.74	10.2	4.789	0.26	29.46	19.28
19.22	39.25	9.42	49.73	10.5	4.745	0.24	30.11	19.63
20.57	39.60	9.36	50.15	10.5	4.757	0.24	30.34	19.80
22.47	39.80	9.16	50.54	10.7	4.708	0.23	30.64	19.90

Tested By JCM Date 02/22/06 Input Checked By KB Date 2-27-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76		

Visual Description: BROWN & GRAY MOTTLED CLAY & SAND (UNDISTURBED)

Stage No.	1
Test No	2

PRESSURES (psi)

Cell Pressure(psi)	89.9
Back Pressure(psi)	50.3
Eff. Cons. Pressure(ps	39.6
Pore Pressure Response (%)	96

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	39.45
Q	=	24.68

INITIAL SAMPLE DIMENSIONS (in)

Length 1	4.682	Diameter 1	2.864
Length 2	4.759	Diameter 2	2.862
Length 3	4.730	Diameter 3	2.897
Avg Leng.=	4.724	Avg. Diam.=	2.874

VOLUME CHANGE

Initial Burette Reading (ml)	72.0
Final Burette Reading (ml)	49.2
Final Change (ml)	22.8

Initial Dial Reading (D.R.), mils	74
D.R. After Saturation, mils	127
D.R. After Consolidation, mils	232

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
17.2	0.000	50.3
26.8	0.001	50.4
28.4	0.003	50.5
29.0	0.006	50.7
29.7	0.011	50.8
31.6	0.024	51.3
75.1	0.028	53.7
125.3	0.036	59.3
182.5	0.053	67.4
217.9	0.072	71.9
253.4	0.100	74.7
277.7	0.123	75.9
299.6	0.146	76.0
311.5	0.160	75.9
335.8	0.192	75.1
358.5	0.230	73.7
374.5	0.267	72.4
389.0	0.303	71.1
406.9	0.350	69.7
418.9	0.385	68.7
437.4	0.432	67.5
446.2	0.467	66.7
454.0	0.503	66.1
465.4	0.551	65.1
479.9	0.611	64.3
488.6	0.658	63.7
500.2	0.729	62.7
510.0	0.789	62.2
519.2	0.849	61.3
530.1	0.908	60.9
539.9	0.990	60.2

Tested By JCM Date 02/22/06 Input Checked By YKB Date 2-27-06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76		

Visual Description: BROWN & GRAY MOTTLED CLAY & SAND (UNDISTURBED)

Effective Confining Pressure (psi)	39.6	*Stage No.*	1
		Test No	2

INITIAL DIMENSIONS

Initial Sample Length (in.)	4.72
Initial Sample Diameter (in.)	2.87
Initial Sample Area (in^2)	6.49
Initial Sample Volume (in^3)	30.65

VOLUME CHANGE

Volume After Consolidation (in^3)	28.23
Length After Consolidation (in)	4.57
Area After Consolidation (in^2)	6.183

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.01	1.56	0.13	41.02	39.5	1.039	0.09	40.24	0.78
0.06	1.82	0.16	41.26	39.4	1.046	0.09	40.35	0.91
0.14	1.90	0.38	41.12	39.2	1.048	0.21	40.17	0.95
0.24	2.02	0.54	41.08	39.1	1.052	0.28	40.07	1.01
0.52	2.32	1.02	40.90	38.6	1.060	0.46	39.74	1.16
0.62	9.31	3.44	45.47	36.2	1.257	0.38	40.82	4.66
0.79	17.35	9.05	47.90	30.6	1.568	0.54	39.22	8.67
1.17	26.43	17.10	48.92	22.5	2.175	0.67	35.71	13.21
1.58	31.95	21.59	49.96	18.0	2.774	0.70	33.98	15.97
2.19	37.37	24.40	52.57	15.2	3.459	0.68	33.88	18.69
2.70	41.00	25.59	55.01	14.0	3.926	0.65	34.51	20.50
3.20	44.22	25.65	58.16	13.9	4.171	0.60	36.06	22.11
3.50	45.93	25.59	59.94	14.0	4.277	0.58	36.98	22.97
4.21	49.35	24.83	64.13	14.8	4.341	0.52	39.45	24.68
5.04	52.42	23.43	68.59	16.2	4.242	0.47	42.38	26.21
5.84	54.41	22.09	71.92	17.5	4.107	0.42	44.72	27.21
6.64	56.14	20.81	74.93	18.8	3.988	0.39	46.86	28.07
7.67	58.20	19.36	78.44	20.2	3.875	0.35	49.34	29.10
8.43	59.50	18.43	80.67	21.2	3.811	0.32	50.92	29.75
9.46	61.53	17.25	83.89	22.4	3.752	0.29	53.12	30.77
10.24	62.29	16.41	85.48	23.2	3.686	0.27	54.34	31.15
11.02	62.87	15.80	86.66	23.8	3.642	0.26	55.23	31.43
12.08	63.73	14.80	88.53	24.8	3.570	0.24	56.66	31.87
13.37	64.83	13.99	90.45	25.6	3.531	0.22	58.03	32.42
14.41	65.26	13.37	91.48	26.2	3.488	0.21	58.86	32.63
15.96	65.65	12.38	92.87	27.2	3.412	0.20	60.05	32.83
17.28	65.93	11.87	93.66	27.7	3.378	0.19	60.70	32.97
18.59	66.10	11.04	94.66	28.6	3.315	0.17	61.61	33.05
19.89	66.46	10.65	95.41	29.0	3.295	0.17	62.18	33.23
21.68	66.22	9.92	95.89	29.7	3.231	0.16	62.79	33.11

Tested By JCM Date 02/22/06 Input Checked By KB Date 2-27-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76		

Visual Description: BROWN & GRAY MOTTLED CLAY & SAND (AFTER PERMEABILITY)

Stage No.	1
Test No	3

PRESSURES (psi)

Cell Pressure(psi)	99.7
Back Pressure(psi)	40.3
Eff. Cons. Pressure(ps	59.4
Pore Pressure Response (%)	98

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	57.51
Q	=	34.43

INITIAL SAMPLE DIMENSIONS (in)

Length 1	5.064	Diameter 1	2.857
Length 2	5.072	Diameter 2	2.853
Length 3	5.060	Diameter 3	2.857
Avg Leng.=	5.065	Avg. Diam.=	2.856

VOLUME CHANGE

Initial Burette Reading (ml)	48.0
Final Burette Reading (ml)	28.2
Final Change (ml)	19.8

Initial Dial Reading (D.R.), mils	49
D.R. After Saturation, mils	59
D.R. After Consolidation, mils	160

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
18.8	0.000	40.3
27.3	0.001	40.7
48.1	0.003	41.4
85.8	0.005	43.6
129.1	0.008	47.5
202.1	0.016	56.9
249.4	0.025	63.0
290.5	0.036	67.9
341.2	0.054	72.7
380.8	0.074	75.4
422.5	0.104	77.1
446.4	0.129	76.9
464.0	0.153	76.6
472.9	0.168	76.0
489.2	0.204	74.9
503.0	0.245	74.0
515.4	0.284	72.9
526.2	0.322	71.9
541.9	0.372	70.8
554.4	0.410	69.9
566.2	0.461	69.0
572.6	0.499	68.4
577.9	0.537	67.7
586.7	0.589	67.0
598.8	0.651	65.9
606.3	0.702	65.3
612.9	0.779	64.3
617.3	0.844	63.7
624.4	0.906	62.9
629.2	0.970	62.4
633.5	1.060	61.8

Tested By JCM Date 02/22/06 Input Checked By KAB Date 2-27-06

DCN: CT-528 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-ST-02
Client Reference	TAUM SAUK 06-3551	Depth(ft.)	NA
Project No.	2006-060-01	Sample No.	NA
Lab ID	2006-060-01-76		

Visual Description: BROWN & GRAY MOTTLED CLAY & SAND (AFTER PERMEABILITY)

Effective Confining Pressure (psi)	59.4	*Stage No.*	1
		Test No	3

INITIAL DIMENSIONS

Initial Sample Length (in.)	5.07
Initial Sample Diameter (in.)	2.86
Initial Sample Area (in^2)	6.40
Initial Sample Volume (in^3)	32.44

VOLUME CHANGE

Volume After Consolidation (in^3)	31.04
Length After Consolidation (in)	4.95
Area After Consolidation (in^2)	6.266

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	1.36	0.39	60.37	59.0	1.023	0.29	59.69	0.68
0.06	4.67	1.11	62.96	58.3	1.080	0.24	60.63	2.33
0.10	10.69	3.28	66.81	56.1	1.190	0.31	61.47	5.34
0.16	17.57	7.15	69.82	52.2	1.336	0.42	61.03	8.78
0.33	29.16	16.63	71.93	42.8	1.682	0.58	57.35	14.58
0.51	36.62	22.67	73.35	36.7	1.997	0.63	55.04	18.31
0.73	43.04	27.59	74.86	31.8	2.353	0.65	53.33	21.52
1.10	50.90	32.44	77.86	27.0	2.888	0.65	52.41	25.45
1.50	56.92	35.13	81.18	24.3	3.345	0.63	52.72	28.46
2.10	63.07	36.76	85.71	22.6	3.786	0.59	54.18	31.54
2.60	66.47	36.62	89.25	22.8	3.917	0.56	56.02	33.23
3.10	68.86	36.32	91.94	23.1	3.983	0.54	57.51	34.43
3.40	70.01	35.69	93.72	23.7	3.953	0.52	58.71	35.01
4.11	71.99	34.62	96.77	24.8	3.905	0.49	60.78	36.00
4.95	73.45	33.72	99.13	25.7	3.860	0.47	62.40	36.72
5.73	74.71	32.64	101.47	26.8	3.792	0.45	64.11	37.35
6.49	75.72	31.60	103.52	27.8	3.724	0.43	65.66	37.86
7.50	77.22	30.49	106.13	28.9	3.671	0.40	67.52	38.61
8.27	78.41	29.64	108.18	29.8	3.635	0.39	68.97	39.21
9.30	79.25	28.66	109.99	30.7	3.578	0.37	70.36	39.62
10.07	79.49	28.05	110.84	31.3	3.536	0.36	71.09	39.74
10.85	79.55	27.37	111.59	32.0	3.483	0.35	71.81	39.78
11.89	79.86	26.70	112.56	32.7	3.442	0.34	72.63	39.93
13.14	80.41	25.59	114.22	33.8	3.378	0.32	74.02	40.20
14.18	80.47	24.98	114.89	34.4	3.338	0.32	74.66	40.24
15.73	79.90	23.97	115.33	35.4	3.255	0.31	75.38	39.95
17.03	79.26	23.41	115.25	36.0	3.203	0.30	75.62	39.63
18.29	78.98	22.56	115.82	36.8	3.144	0.29	76.33	39.49
19.58	78.34	22.15	115.59	37.3	3.103	0.29	76.42	39.17
21.39	77.12	21.52	115.00	37.9	3.036	0.28	76.44	38.56

Tested By JCM Date 02/22/06 Input Checked By KLB Date 2-27-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO		
Client Reference	TAUM SAUK 06-3551		
Project No.	2006-060-01		
Lab ID	2006-060-01-75 & 76	Specific Gravity (assumed)	2.7

Visual Description: BROWN AND GRAY MOTTLED CLAY AND SAND (UNDISTURBED)

SAMPLE CONDITION SUMMARY

Boring No.	TS-ST-01	TS-ST-02	TS-ST-02
Depth (ft)	NA	NA	NA
Sample No.	NA	NA	NA
Test No.	T1	T2	T3
Deformation Rate (in/min)	0.002	0.002	0.002
Back Pressure (psi)	40.1	50.3	40.3
Consolidation Time (days)	1	1	1
Initial State (w%)	18.6	26.5	28.6
Total Unit Weight (pcf)	124.4	114.9	118.2
Dry Unit Weight (pcf)	104.9	90.8	92.0
Final State (w%)	18.5	27.2	28.7
Initial State Void Ratio,e	0.607	0.856	0.833

Tested By JCM Date 02/22/06 Input Checked By YMB Date 2-28-06

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DCN: CT-S28 DATE 6-25-98 REVISION: 1

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SOIL SAMPLE TS-SOIL 01

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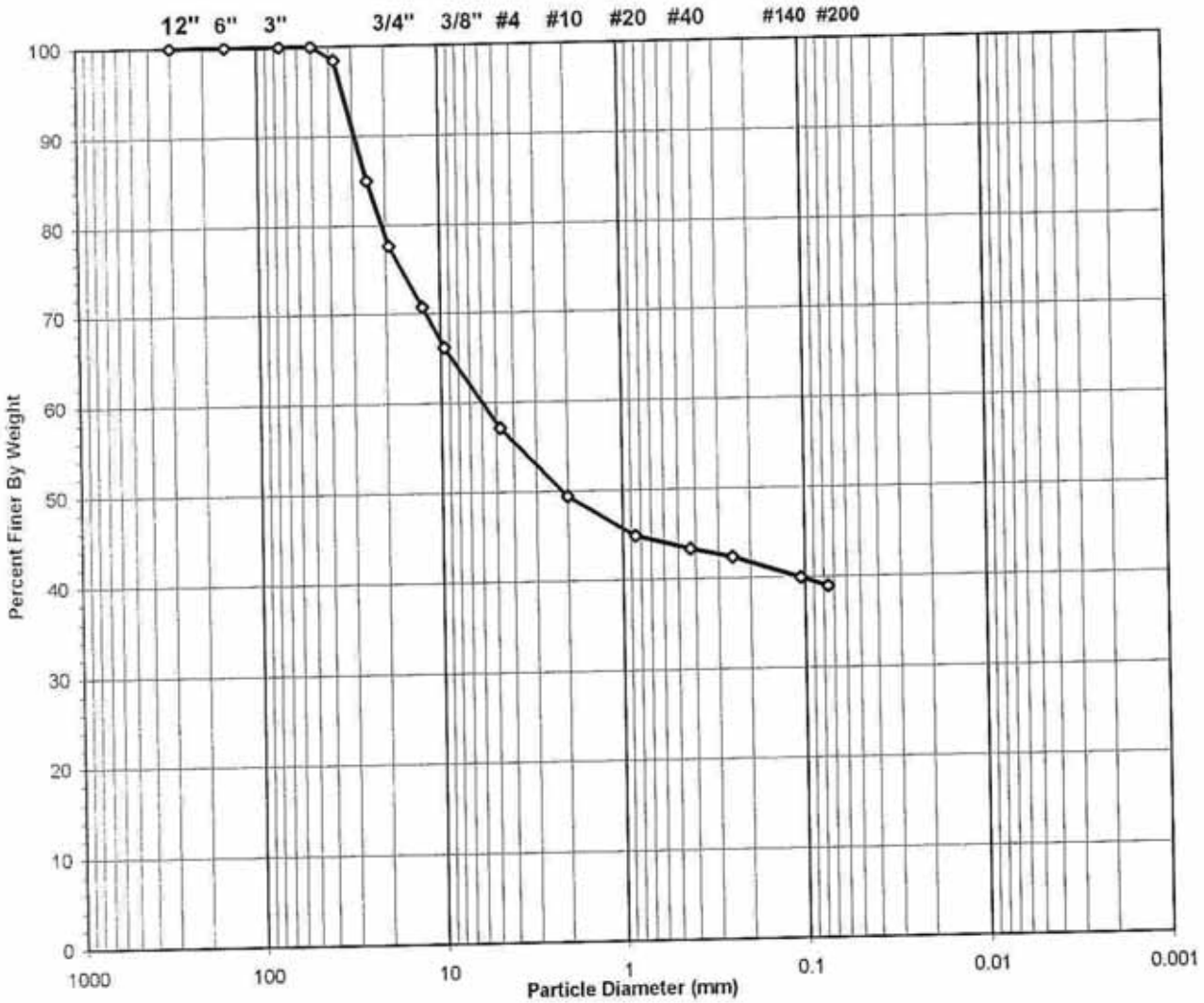
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-01
Client Reference	TAUM SAUK 06-3551	Depth (in)	9-14
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-67	Soil Color	BROWN

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***GC, TESTED***

USCS Classification ***CLAYEY GRAVEL WITH SAND***

Tested By JP Date 2/28/06 Checked By KB Date 3-1-06

DCN: CT-S3A DATE 6-25-98 REVISION 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-01
Client Reference	TAUM SAUK 06-3551	Depth (in)	9-14
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-67	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	967	Tare No.	1126
Wgt.Tare + Wet Specimen (gm)	1111.50	Wgt.Tare + Wet Specimen (gm)	383.04
Wgt.Tare + Dry Specimen (gm)	975.60	Wgt.Tare + Dry Specimen (gm)	358.34
Weight of Tare (gm)	103.44	Weight of Tare (gm)	84.82
Weight of Water (gm)	135.90	Weight of Water (gm)	24.70
Weight of Dry Soil (gm)	872.16	Weight of Dry Soil (gm)	273.52
Moisture Content (%)	**15.6**	**Moisture Content (%)**	**9.0**

Wet Weight -3/4" Sample (gm)	3141	Weight of the Dry Specimen (gm)	872.16
Dry Weight - 3/4" Sample (gm)	2717.6	Weight of minus #200 material (gm)	437.28
Wet Weight +3/4" Sample (gm)	854.72	Weight of plus #200 material (gm)	434.88
Dry Weight + 3/4" Sample (gm)	783.93		
Total Dry Weight Sample (gm)	3501.5	**J - Factor (Percent Finer than 3/4")**	**0.7761**

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)		Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00		0.00	0.00	100.00	**100.00**
6"	150	0.00		0.00	0.00	100.00	**100.00**
3"	75	0.00		0.00	0.00	100.00	**100.00**
2"	50	0.00	(*)	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	59.19		1.55	1.55	98.45	**98.45**
1"	25	514.80		13.48	15.04	84.96	**84.96**
3/4"	19	280.73		7.35	22.39	77.61	**77.61**
1/2"	12.5	77.24		8.86	8.86	91.14	**70.74**
3/8"	9.5	51.02		5.85	14.71	85.29	**66.20**
#4	4.75	101.30		11.61	26.32	73.68	**57.18**
#10	2	87.62		10.05	36.37	63.63	**49.39**
#20	0.85	51.28	(**)	5.88	42.25	57.75	**44.82**
#40	0.425	16.62		1.91	44.15	55.85	**43.34**
#60	0.25	11.19		1.28	45.44	54.56	**42.35**
#140	0.106	27.36		3.14	48.57	51.43	**39.91**
#200	0.075	11.25		1.29	49.86	50.14	**38.91**
Pan	-	437.28		50.14	100.00	-	-

Notes : *(*) The + 3/4" sieve analysis is based on the Total Dry Weight of the Sample*
*(**) The - 3/4" sieve analysis is based on the Weight of the Dry Specimen*

Tested By JP Date 2/28/06 Checked By YKB Date 3-1-06

DCN: CT-S3A DATE 5-17-00 REVISION 3

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-01
Client Reference	TAUM SAUK 06-3551	Depth (in)	9-14
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-67	Soil Description	**BROWN LEAN CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

Liquid Limit Test	**1**	**2**	**3**
Tare Number	119	230	250
Wt. of Tare & WS (gm)	42.20	41.68	37.78
Wt. of Tare & DS (gm)	36.08	35.75	32.39
Wt. of Tare (gm)	17.69	18.28	17.52
Wt. of Water (gm)	6.1	5.9	5.4
Wt. of DS (gm)	18.4	17.5	14.9
Moisture Content (%)	**33.3**	**33.9**	**36.2**
Number of Blows	**35**	**28**	**19**

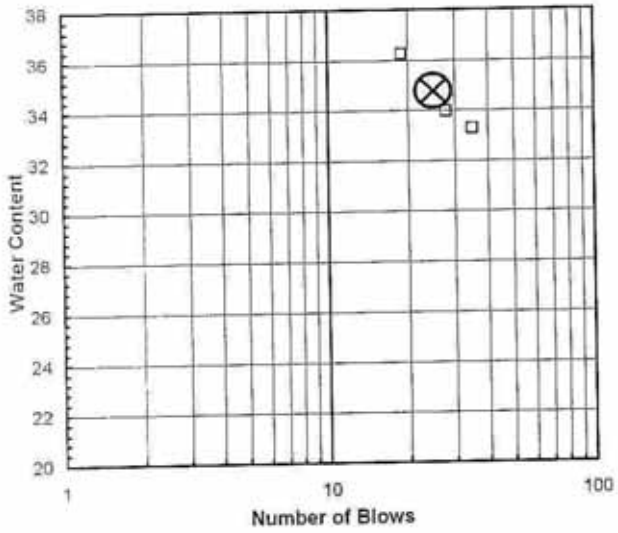
MULTIPOINT

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	2294	2365	
Wt. of Tare & WS (gm)	25.73	23.92	
Wt. of Tare & DS (gm)	24.72	22.87	
Wt. of Tare (gm)	19.68	17.61	
Wt. of Water (gm)	1.0	1.1	
Wt. of DS (gm)	5.0	5.3	
Moisture Content (%)	**20.0**	**20.0**	**0.1**

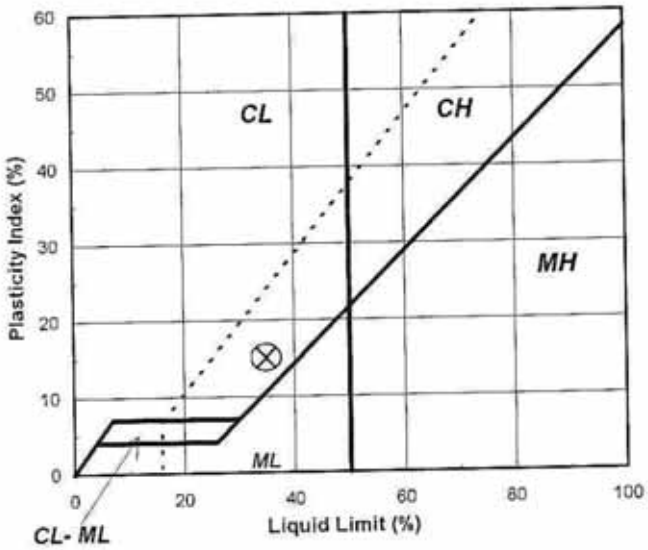
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**35**
Plastic Limit (%)	**20**
Plasticity Index (%)	**15**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/28/06 *Checked By* KYB *Date* 3-1-06

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SOIL SAMPLE TS-SOIL 02

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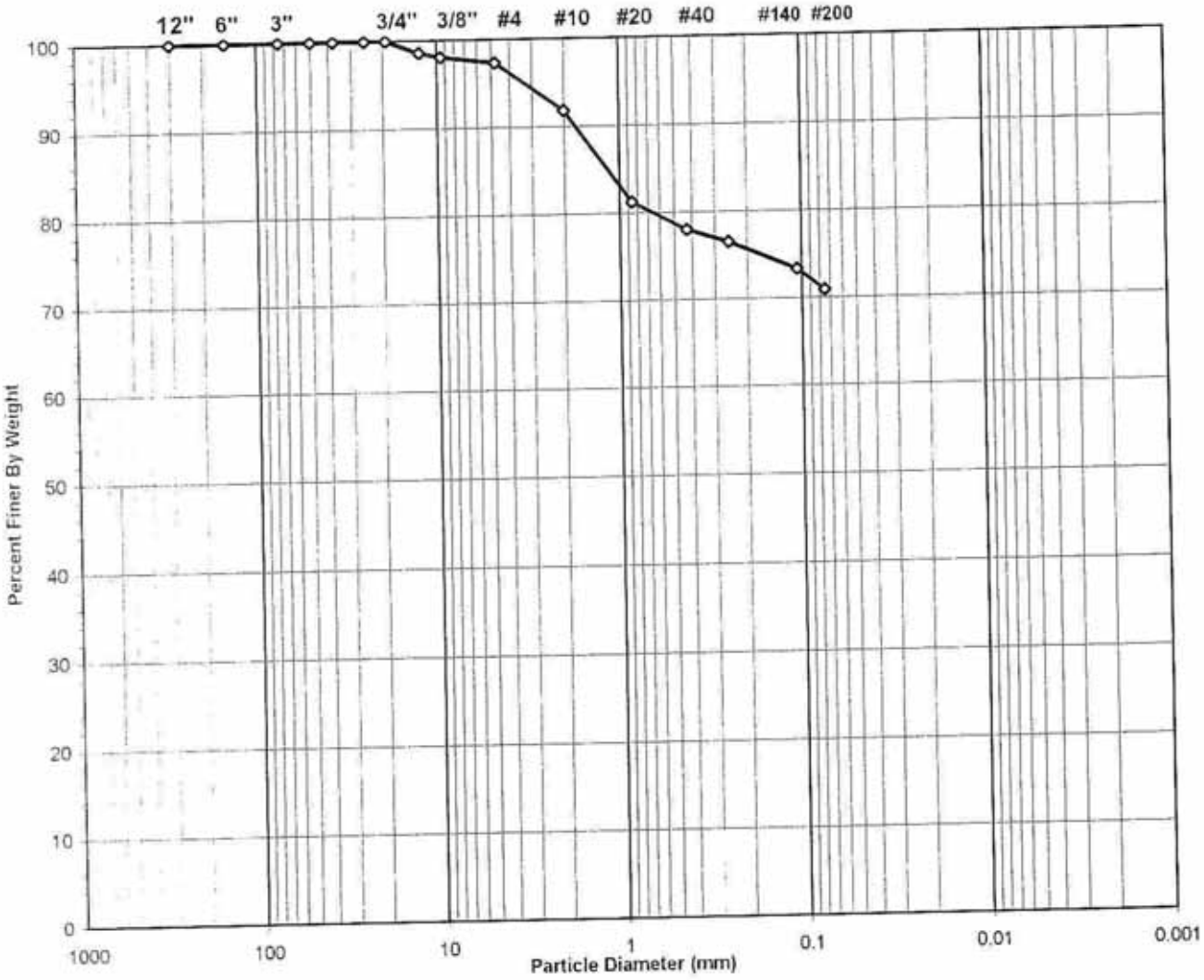
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		*HYDROMETER*
USCS	gravel	sand	silt and clay



USCS Symbol ***CH, TESTED***

USCS Classification ***FAT CLAY WITH SAND***

Tested By JP Date 2/28/06 Checked By KB Date 3-2-06

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	690	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	715.89	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	580.28	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	99.39	Weight of Tare (gm)	NA
Weight of Water (gm)	135.61	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	480.89	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**28.2**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	480.89
Dry Weight - 3/4" Sample (gm)	139.8	Weight of minus #200 material (gm)	341.05
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	139.84
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	6.61	1.37	1.37	98.63	**98.63**
3/8"	9.50	2.67	0.56	1.93	98.07	**98.07**
#4	4.75	3.52	0.73	2.66	97.34	**97.34**
#10	2.00	26.41	5.49	8.15	91.85	**91.85**
#20	0.850	50.94	10.59	18.75	81.25	**81.25**
#40	0.425	15.84	3.29	22.04	77.96	**77.96**
#60	0.250	6.89	1.43	23.47	76.53	**76.53**
#140	0.106	15.34	3.19	26.66	73.34	**73.34**
#200	0.075	11.62	2.42	29.08	70.92	**70.92**
Pan	-	341.05	70.92	100.00	-	-

Tested By JP Date 2/28/06 Checked By KYB Date 3-2-06

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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INTEGRITY IN TESTING

ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Soil Description	**REDDISH BROWN FAT CLAY**
			(Minus No. 40 sieve material, Airdried)

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

Liquid Limit Test	**1**	**2**	**3**
Tare Number	16	26	27
Wt. of Tare & WS (gm)	39.30	42.18	42.97
Wt. of Tare & DS (gm)	32.01	33.31	34.55
Wt. of Tare (gm)	19.06	17.90	20.48
Wt. of Water (gm)	7.3	8.9	8.4
Wt. of DS (gm)	13.0	15.4	14.1
Moisture Content (%)	**56.3**	**57.6**	**59.8**
Number of Blows	**35**	**28**	**22**

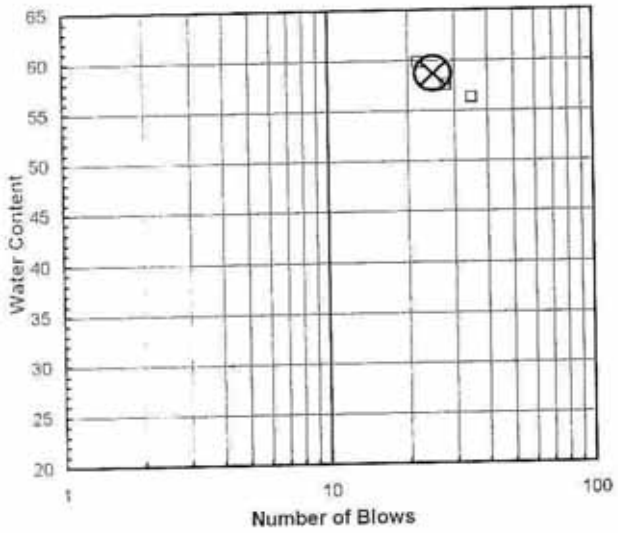
MULTIPOINT

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	48	53	
Wt. of Tare & WS (gm)	24.27	25.48	
Wt. of Tare & DS (gm)	23.11	24.21	
Wt. of Tare (gm)	18.15	18.82	
Wt. of Water (gm)	1.2	1.3	
Wt. of DS (gm)	5.0	5.4	
Moisture Content (%)	**23.4**	**23.6**	**-0.2**

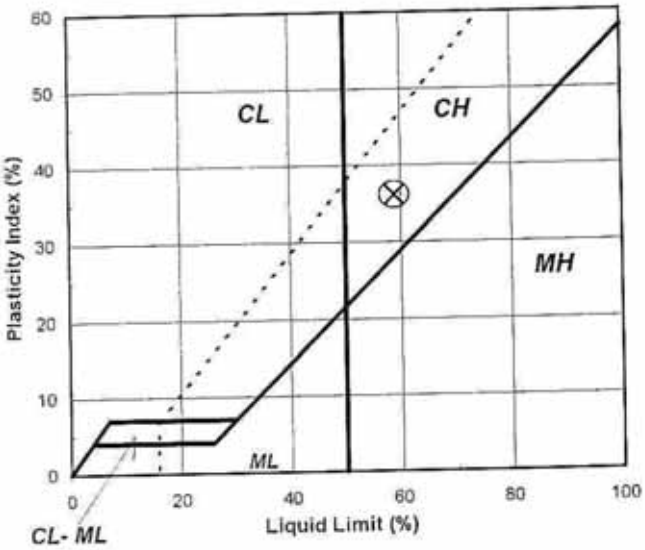
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**59**
Plastic Limit (%)	**23**
Plasticity Index (%)	**36**
USCS Symbol	**CH**

Flow Curve



Plasticity Chart



Tested By BS *Date* 3/1/06 *Checked By* YKB *Date* 3-2-06

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Visual Description	BROWN AND REDDISH GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Maximum Shear Stress (psi)		Normal Stress (psi)
15.37	(1)	20
25.87	(2)	40
30.97	(3)	60

Overall Regression Analysis

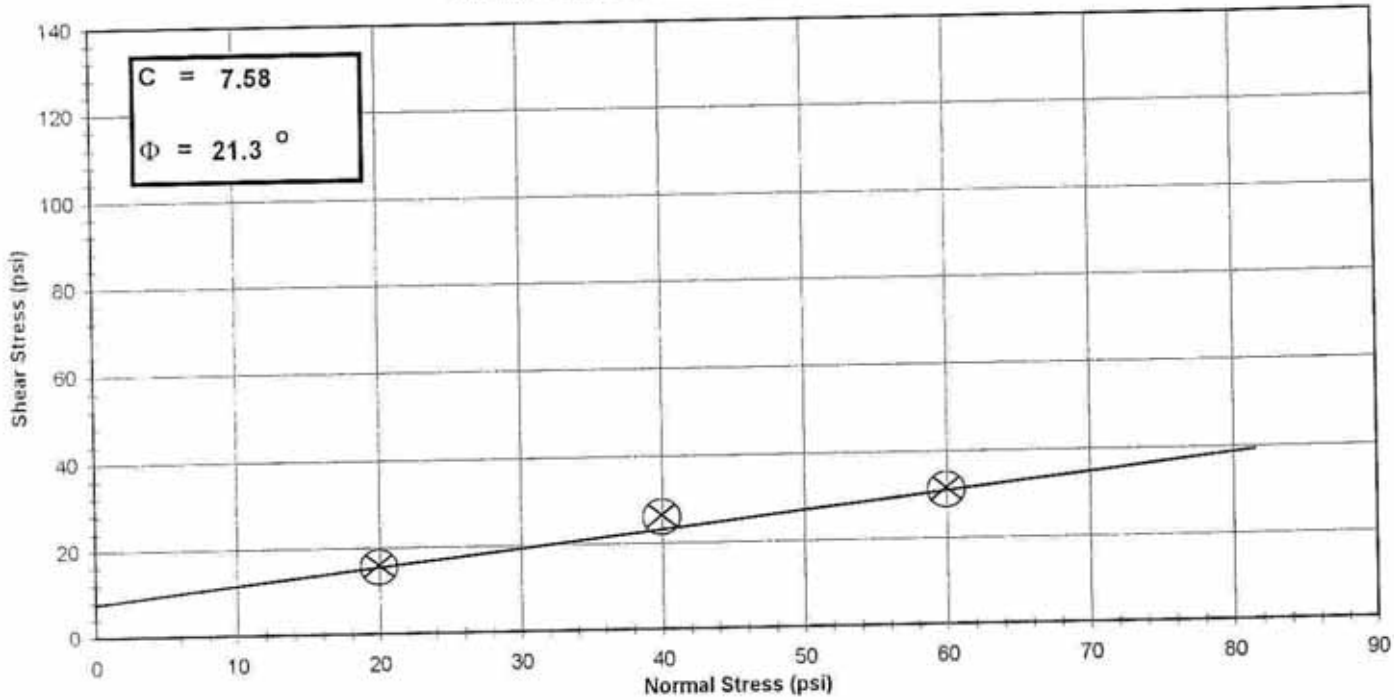
Slope	=	0.39	
C	=	8.48	
Φ	=	21.3	degrees

Selected Points	Shear Stress (psi)	Normal Stress (psi)
1	15.37	20
3	30.97	60

Selected Points Regression

Slope	=	0.39	
C	=	7.58	
Φ	=	21.3	degrees

SHEAR STRESS vs. NORMAL STRESS



Note: Graph not to scale

Tested By TM *Date* 2/28/06 *Approved By* DB *Date* 2/28/06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Visual Description	BROWN AND REDDISH GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Maximum Shear Stress (psi)		Normal Stress (psi)
15.37	(1)	**20**
25.87	(2)	**40**
30.97	(3)	**60**

Overall Regression Analysis

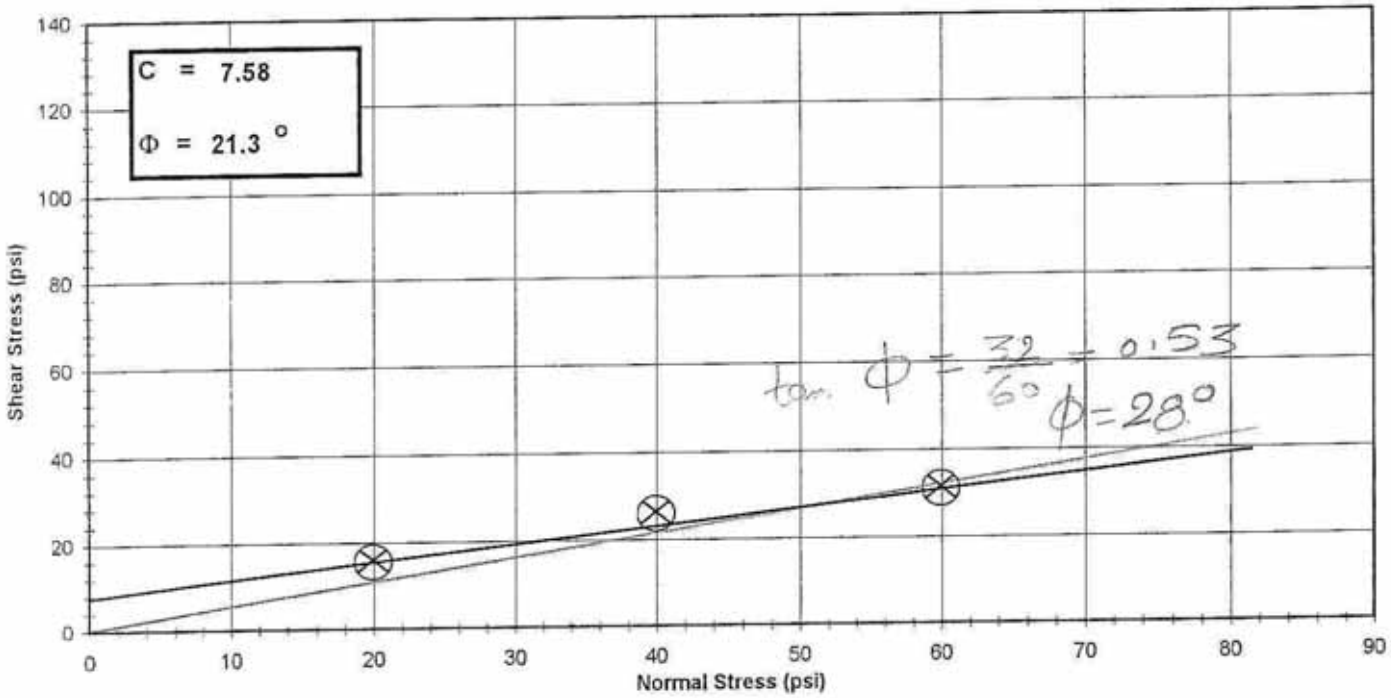
Slope	=	0.39	
C	=	**8.48**	
Φ	=	**21.3**	**degrees**

Selected Points	Shear Stress (psi)	Normal Stress (psi)
1	15.37	20
3	30.97	60

Selected Points Regression

Slope	=	0.39	
C	=	**7.58**	
Φ	=	**21.3**	**degrees**

SHEAR STRESS vs. NORMAL STRESS



Note: Graph not to scale

Tested By TM *Date* 2/28/06 *Approved By* DB *Date* 2/28/06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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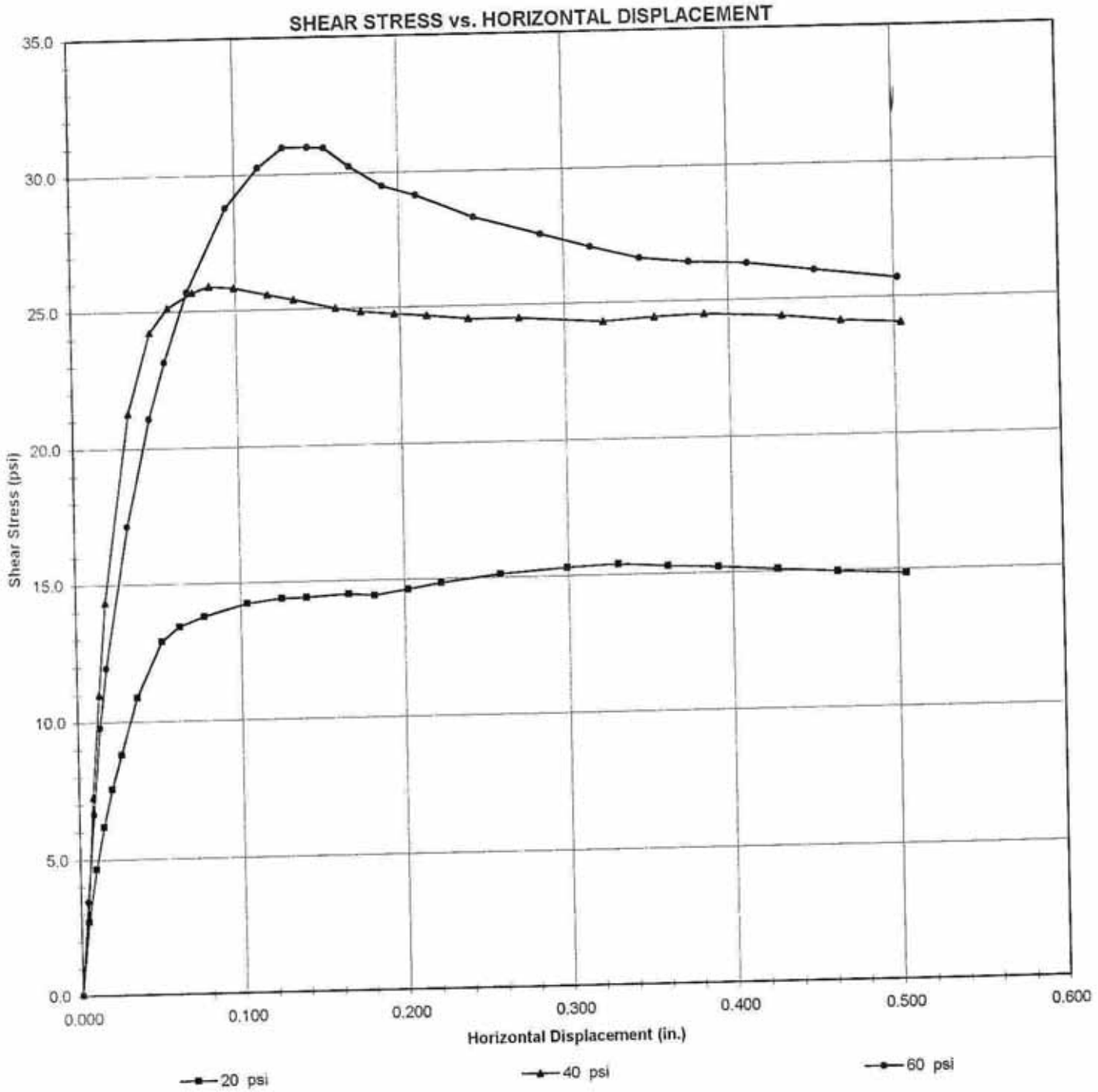
ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Visual Description	BROWN AND REDDISH GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By TM *Date* 2/28/06 *Approved By* DS *Date* 2/28/06

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DCN: CT-S21 DATE: 12/12/05 REV: 4

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Visual Description	BROWN AND REDDISH GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Machine ID # G 783

SHEAR BOX DATA

Wt.of Wet Specimen & Ring(gm)	605.83	Specific Gravity (Assumed)	2.70
Weight of Ring (gm)	457.26	Volume of Solids(cc)	43.2
Weight of Wet Specimen (gm)	148.57	Initial Consolidation Dial Reading (in.)	0.0
Initial Specimen Height (in)	1	Final Consolidation Dial Reading (in.)	0.0266
Specimen Diameter (in)	2.5	Corrected Final Cons. Reading (in.)	0.0208
Wet Density (pcf)	115.3	Void Ratio Before Consolidation	0.86
Dry Density (pcf)	**90.5**	**Void Ratio After Consolidation**	0.82

Moisture Content	*Before Test*	*After Test*
Tare ID	1399	D-1
Wt. Wet Soil & Tare (gm)	165.81	183.64
Wt. Dry Soil & Tare (gm)	138.38	148.06
Wt. Tare (gm)	38.19	34.68
Wt. of Water (gm)	27.43	35.58
Wt. of Dry Soil (gm)	100.19	113.38
Moisture Content (%)	**27.4**	**31.4**

Testing Parameters	
Normal Stress(psi)	20
Strain Rate(in/min)	0.00144
Machine Deflection (in.)	0.0058

Horizontal Displacement (in)	Shear Force (lbs)	Shear Stress (psi)	Vertical Dial Reading (in)	Vertical Displacement (+)incr,(-)decr (in)	Shear To Normal Ratio
0.000	0.0	**0.00**	0.0000	0.0000	0.00
0.005	13.3	**2.72**	-0.0002	0.0002	0.14
0.010	22.7	**4.63**	-0.0002	0.0002	0.23
0.015	30.3	**6.18**	0.0003	-0.0003	0.31
0.020	37.0	**7.53**	0.0005	-0.0005	0.38
0.026	43.2	**8.80**	0.0008	-0.0008	0.44
0.036	53.4	**10.89**	0.0012	-0.0012	0.54
0.052	63.3	**12.89**	0.0016	-0.0016	0.64
0.063	65.9	**13.42**	0.0019	-0.0019	0.67
0.078	67.6	**13.78**	0.0021	-0.0021	0.69
0.104	69.8	**14.22**	0.0023	-0.0023	0.71
0.125	70.7	**14.40**	0.0026	-0.0026	0.72
0.140	70.7	**14.41**	0.0031	-0.0031	0.72
0.166	71.1	**14.49**	0.0034	-0.0034	0.72
0.182	70.8	**14.42**	0.0034	-0.0034	0.72
0.202	71.8	**14.62**	0.0033	-0.0033	0.73
0.223	72.8	**14.83**	0.0034	-0.0034	0.74
0.259	74.2	**15.12**	0.0034	-0.0034	0.76
0.299	75.0	**15.29**	0.0034	-0.0034	0.76
0.331	75.5	**15.37**	0.0033	-0.0033	0.77
0.361	75.0	**15.27**	0.0035	-0.0035	0.76
0.391	74.6	**15.20**	0.0034	-0.0034	0.76
0.427	74.0	**15.07**	0.0033	-0.0033	0.75
0.463	73.4	**14.95**	0.0032	-0.0032	0.75
0.505	72.9	**14.85**	0.0031	-0.0031	0.74

Tested By TM *Date* 2/24/06 *Input Checked By* CJU *Date* 2-28-06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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INTEGRITY IN TESTING

DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Visual Description	BROWN AND REDDISH GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Machine ID # G 783

SHEAR BOX DATA

Wt.of Wet Specimen & Ring(gm)	348.4	Specific Gravity (Assumed)	2.70
Weight of Ring (gm)	203.55	Volume of Solids(cc)	42.0
Weight of Wet Specimen (gm)	144.85	Initial Consolidation Dial Reading (in.)	0.0
Initial Specimen Height (in)	1	Final Consolidation Dial Reading (in.)	0.0334
Specimen Diameter (in)	2.5	Corrected Final Cons. Reading (in.)	0.0260
Wet Density (pcf)	112.4	Void Ratio Before Consolidation	0.92
Dry Density (pcf)	**87.9**	**Void Ratio After Consolidation**	0.87

Moisture Content	*Before Test*	*After Test*
Tare ID	D-3	T-16
Wt. Wet Soil & Tare (gm)	215.14	236.48
Wt. Dry Soil & Tare (gm)	176.12	201.92
Wt. Tare (gm)	36.06	92.68
Wt. of Water (gm)	39.02	34.56
Wt. of Dry Soil (gm)	140.06	109.24
Moisture Content (%)	**27.9**	**31.6**

Testing Parameters	
Normal Stress(psi)	**40**
Strain Rate(in/min)	0.00144
Machine Deflection (in.)	0.0074

Horizontal Displacement (in)	Shear Force (lbs)	Shear Stress (psi)	Vertical Dial Reading (in)	Vertical Displacement (+)incr,(-)decr (in)	Shear To Normal Ratio
0.000	0.0	**0.00**	0.0000	0.0000	0.00
0.004	13.6	**2.78**	0.0003	-0.0003	0.07
0.008	35.7	**7.27**	0.0003	-0.0003	0.18
0.013	53.9	**10.98**	0.0001	-0.0001	0.27
0.018	70.4	**14.33**	0.0001	-0.0001	0.36
0.033	104.3	**21.26**	-0.0001	0.0001	0.53
0.048	119.0	**24.23**	0.0000	0.0000	0.61
0.059	123.3	**25.11**	-0.0002	0.0002	0.63
0.074	126.0	**25.67**	0.0007	-0.0007	0.64
0.084	127.0	**25.87**	0.0012	-0.0012	0.65
0.099	126.7	**25.80**	0.0018	-0.0018	0.65
0.119	125.3	**25.53**	0.0023	-0.0023	0.64
0.135	124.4	**25.34**	0.0026	-0.0026	0.63
0.161	122.7	**25.00**	0.0030	-0.0030	0.63
0.176	122.0	**24.85**	0.0032	-0.0032	0.62
0.197	121.5	**24.75**	0.0034	-0.0034	0.62
0.216	121.0	**24.66**	0.0038	-0.0038	0.62
0.242	120.3	**24.52**	0.0042	-0.0042	0.61
0.273	120.3	**24.50**	0.0042	-0.0042	0.61
0.324	119.3	**24.30**	0.0045	-0.0045	0.61
0.355	119.9	**24.43**	0.0046	-0.0046	0.61
0.386	120.2	**24.49**	0.0044	-0.0044	0.61
0.432	119.7	**24.38**	0.0059	-0.0059	0.61
0.468	118.6	**24.16**	0.0062	-0.0062	0.60
0.504	118.0	**24.05**	0.0062	-0.0062	0.60

Tested By TM *Date* 2/27/06 *Input Checked By* GU *Date* 2-28-06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-12
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-69	Visual Description	BROWN AND REDDISH GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Machine ID # G 783

SHEAR BOX DATA

Wt.of Wet Specimen & Ring(gm)	601.13	Specific Gravity (Assumed)	2.70
Weight of Ring (gm)	457.26	Volume of Solids(cc)	41.6
Weight of Wet Specimen (gm)	143.87	Initial Consolidation Dial Reading (in.)	0.0
Initial Specimen Height (in)	1	Final Consolidation Dial Reading (in.)	0.0391
Specimen Diameter (in)	2.5	Corrected Final Cons. Reading (in.)	0.0303
Wet Density (pcf)	111.7	Void Ratio Before Consolidation	0.93
Dry Density (pcf)	**87.1**	**Void Ratio After Consolidation**	0.88

Moisture Content	*Before Test*	*After Test*
Tare ID	1399	D-7
Wt. Wet Soil & Tare (gm)	140.74	185.75
Wt. Dry Soil & Tare (gm)	118.20	152.19
Wt. Tare (gm)	38.18	42.24
Wt. of Water (gm)	22.54	33.56
Wt. of Dry Soil (gm)	80.02	109.95
Moisture Content (%)	**28.2**	**30.5**

Testing Parameters	
Normal Stress(psi)	**60**
Strain Rate(in/min)	0.00144
Machine Deflection (in.)	0.0088

Horizontal Displacement (in)	Shear Force (lbs)	Shear Stress (psi)	Vertical Dial Reading (in)	Vertical Displacement (+)incr,(-)decr (in)	Shear To Normal Ratio
0.000	0.0	**0.00**	0.0000	0.0000	0.00
0.004	17.0	**3.46**	0.0001	-0.0001	0.06
0.009	32.6	**6.63**	0.0001	-0.0001	0.11
0.013	48.0	**9.78**	0.0001	-0.0001	0.16
0.018	58.7	**11.95**	0.0001	-0.0001	0.20
0.032	84.0	**17.12**	0.0030	-0.0030	0.29
0.046	103.4	**21.06**	0.0062	-0.0062	0.35
0.056	113.6	**23.14**	0.0081	-0.0081	0.39
0.070	126.1	**25.69**	0.0105	-0.0105	0.43
0.095	141.4	**28.80**	0.0149	-0.0149	0.48
0.115	148.5	**30.25**	0.0170	-0.0170	0.50
0.130	152.0	**30.97**	0.0184	-0.0184	0.52
0.145	152.0	**30.97**	0.0195	-0.0195	0.52
0.155	151.8	**30.93**	0.0199	-0.0199	0.52
0.170	148.4	**30.23**	0.0203	-0.0203	0.50
0.190	144.8	**29.50**	0.0208	-0.0208	0.49
0.211	143.0	**29.13**	0.0212	-0.0212	0.49
0.246	138.8	**28.28**	0.0217	-0.0217	0.47
0.286	135.4	**27.58**	0.0222	-0.0222	0.46
0.317	132.9	**27.07**	0.0223	-0.0223	0.45
0.347	130.6	**26.60**	0.0225	-0.0225	0.44
0.377	129.7	**26.42**	0.0226	-0.0226	0.44
0.412	129.3	**26.33**	0.0227	-0.0227	0.44
0.452	127.8	**26.03**	0.0228	-0.0228	0.43
0.503	126.1	**25.69**	0.0229	-0.0229	0.43

Tested By TM *Date* 2/23/06 *Input Checked By* GU *Date* 2-28-06

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DCN: CT-S21 DATE: 12/12/05 REV: 4

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PHOTOGRAPH

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-SOIL-02
Client Project	TAUM SAUK 06-3551	Depth (ft.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

SAMPLE: AFTER CU

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INTEGRITY IN TESTING

PHOTOGRAPH

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-SOIL-02
Client Project	TAUM SAUK 06-3551	Depth (ft.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

SAMPLE: AFTER CU

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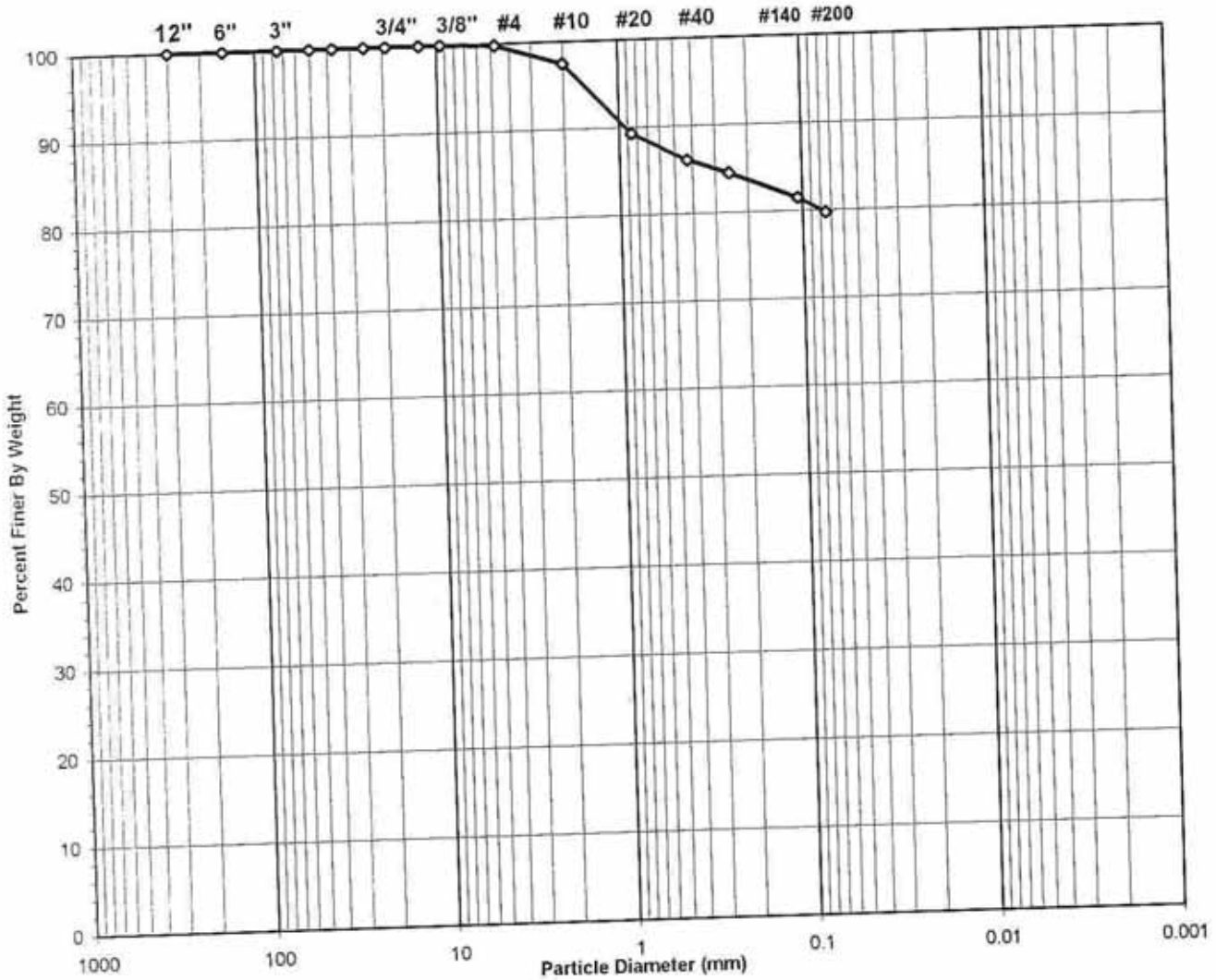
INTEGRITY IN TESTING

SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70	Soil Color	**REDDISH BROWN**

	SIEVE ANALYSIS		HYDROMETER
USCS	gravel	sand	silt and clay



USCS Symbol ***CH, TESTED***

USCS Classification ***FAT CLAY WITH SAND***

Tested By JP Date 2/27/06 Checked By KB Date 3-1-06

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DCN: CT-S3C DATE 6-25-98 REVISION: 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	685	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	790.40	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	669.10	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	98.37	Weight of Tare (gm)	NA
Weight of Water (gm)	121.30	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	570.73	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**21.3**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	570.73
Dry Weight - 3/4" Sample (gm)	115.7	Weight of minus #200 material (gm)	454.99
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	115.74
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated **Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	0.00	0.00	0.00	100.00	**100.00**
#4	4.75	1.12	0.20	0.20	99.80	**99.80**
#10	2.00	13.41	2.35	2.55	97.45	**97.45**
#20	0.850	46.54	8.15	10.70	89.30	**89.30**
#40	0.425	18.27	3.20	13.90	86.10	**86.10**
#60	0.250	8.95	1.57	15.47	84.53	**84.53**
#140	0.106	17.54	3.07	18.54	81.46	**81.46**
#200	0.075	9.91	1.74	20.28	79.72	**79.72**
Pan	-	454.99	79.72	100.00	-	-

Tested By JP Date 2/27/06 Checked By KYB Date 3-1-06

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DCN: CT-S3C DATE 6-26-98 REVISION: 2

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth (in)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70	Soil Description	**REDDISH BROWN FAT CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

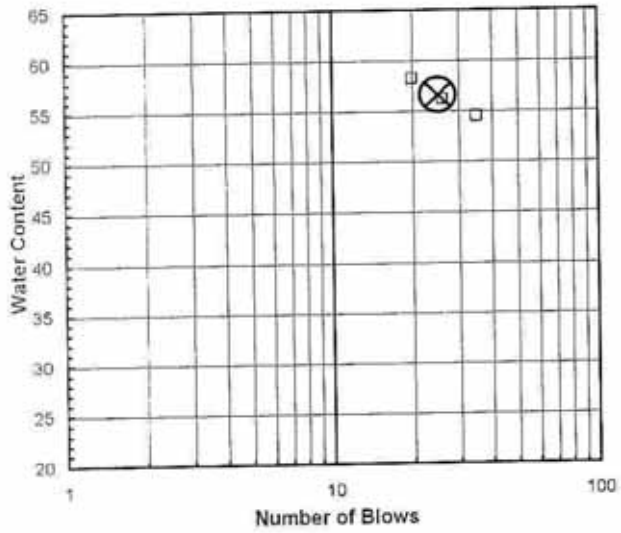
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	19	21	22	MULTIPOINT
Wt. of Tare & WS (gm)	40.14	40.95	40.97	
Wt. of Tare & DS (gm)	32.86	32.41	32.31	
Wt. of Tare (gm)	19.50	17.21	17.44	
Wt. of Water (gm)	7.3	8.5	8.7	
Wt. of DS (gm)	13.4	15.2	14.9	
Moisture Content (%)	**54.5**	**56.2**	**58.2**	
Number of Blows	**35**	**26**	**20**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	27	38	
Wt. of Tare & WS (gm)	26.55	24.38	
Wt. of Tare & DS (gm)	25.28	23.11	
Wt. of Tare (gm)	20.49	18.34	
Wt. of Water (gm)	1.3	1.3	
Wt. of DS (gm)	4.8	4.8	
Moisture Content (%)	**26.5**	**26.6**	**-0.1**

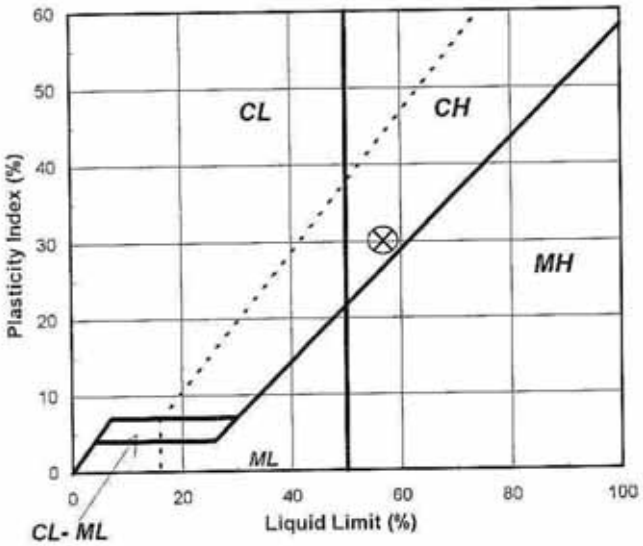
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**57**
Plastic Limit (%)	**27**
Plasticity Index (%)	**30**
USCS Symbol	**CH**

Flow Curve



Plasticity Chart



Tested By BS *Date* 2/28/06 *Checked By* KLB *Date* 3-1-06

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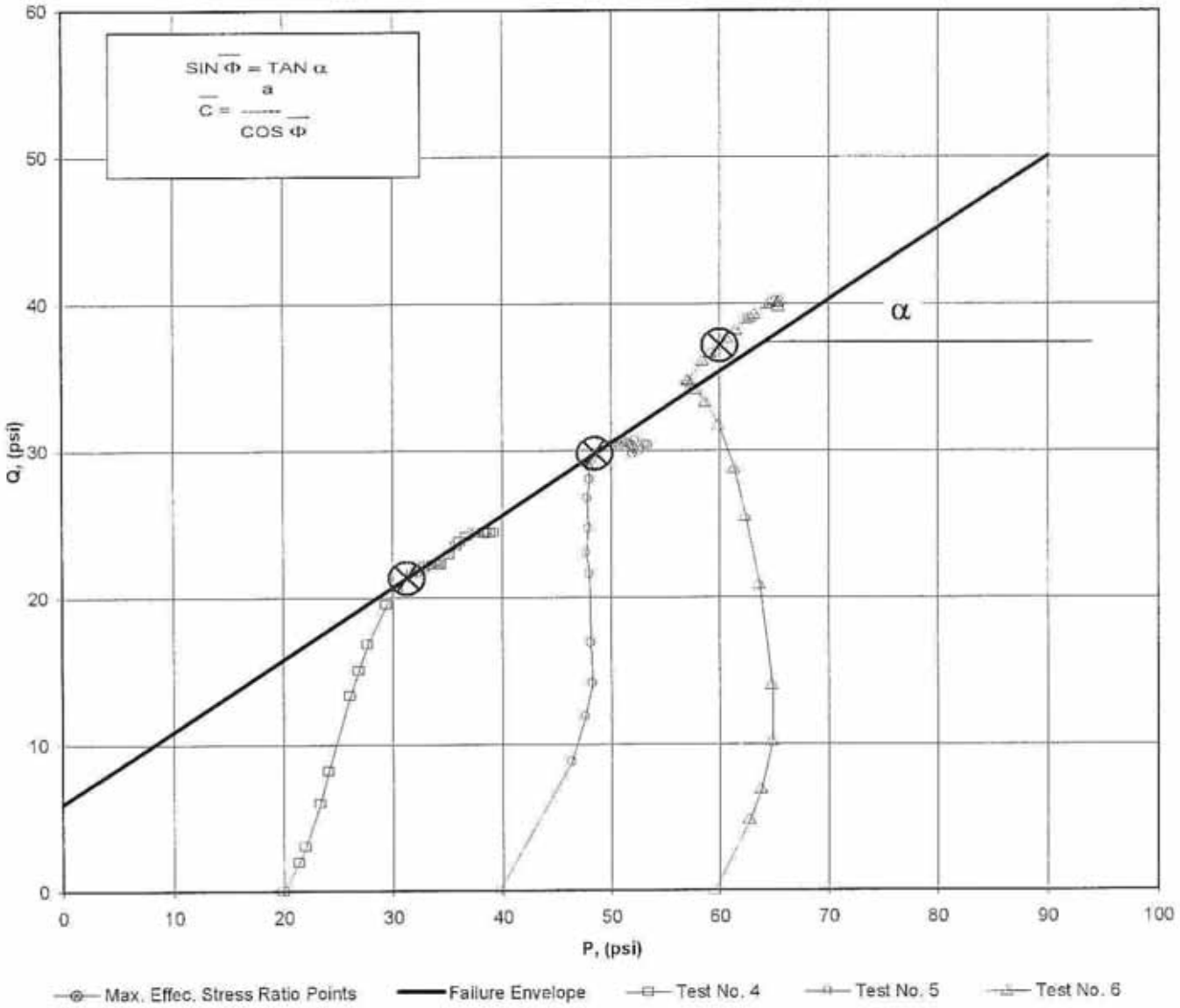
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	5.97	$\overline{C}$	=	6.85
α	=	26.1	$\overline{\Phi}$	=	29.35

Tested By JCM Date 02/23/06 Approved By DB Date 3/2/06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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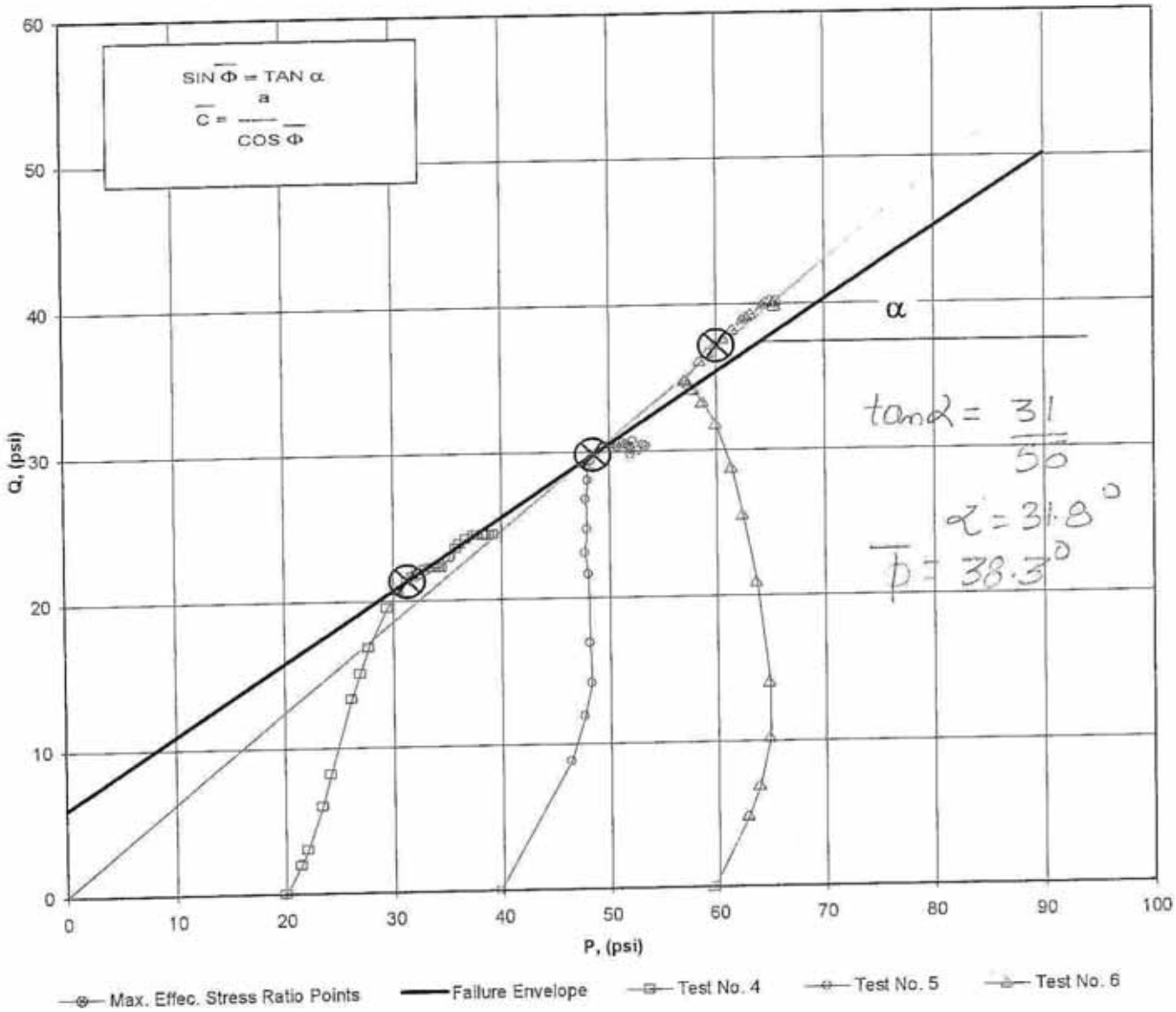
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	5.97	$\overline{C}$	=	6.85
α	=	26.1	$\overline{\Phi}$	=	29.35

Tested By JCM Date 02/23/06 Approved By DB Date 3/2/06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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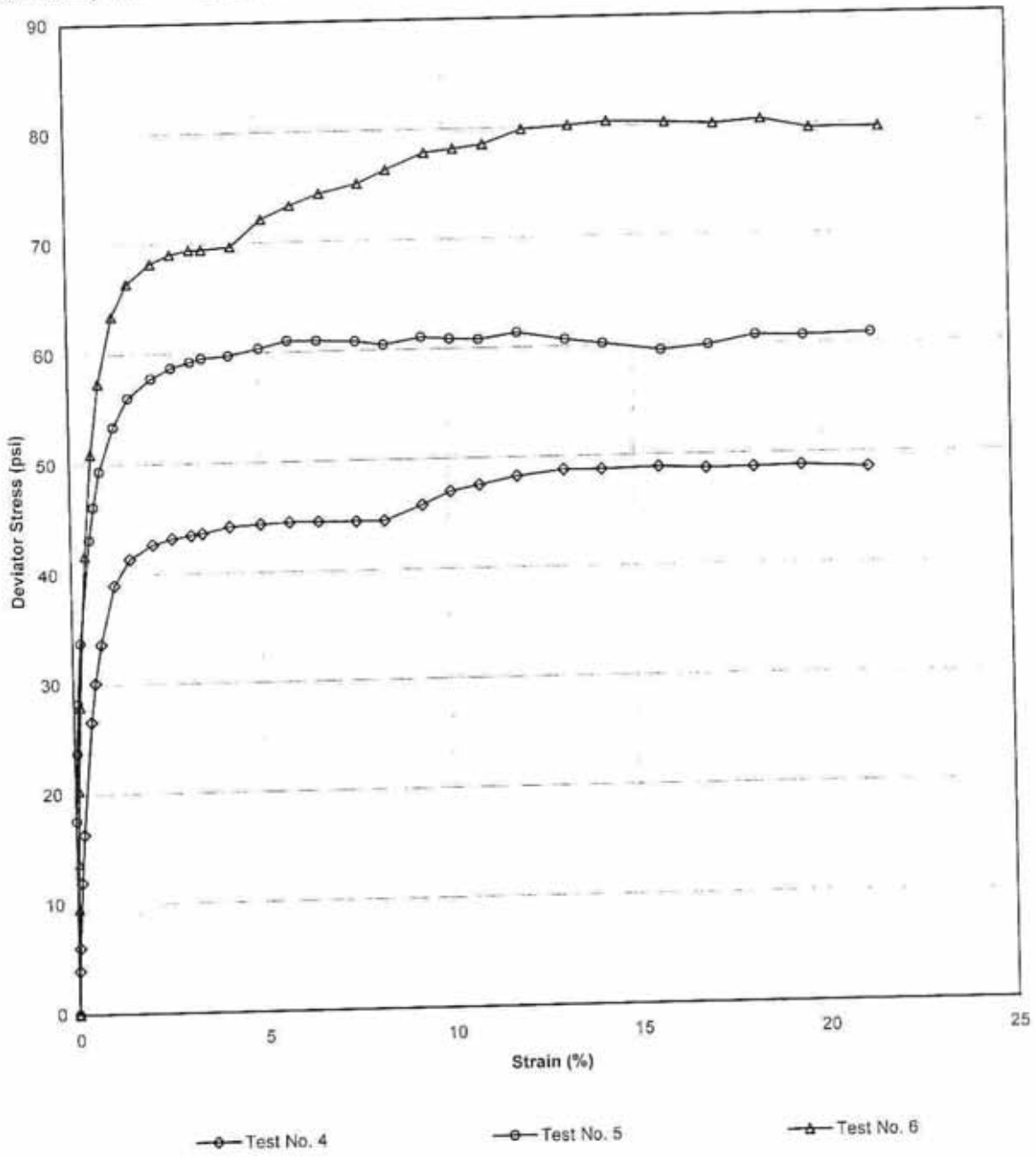
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		
Visual Description:	BROWN & GRAY MOTTLED CLAY (UNDISTURBED)		



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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Visual Description: BROWN & GRAY MOTTLED CLAY (UNDISTURBED)

Stage No.	1
Test No	4

PRESSURES (psi)

Cell Pressure(psi)	55.4
Back Pressure(psi)	35.4
Eff. Cons. Pressure(psi)	20.0
Pore Pressure Response (%)	99

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	31.35
Q	=	21.34

INITIAL SAMPLE DIMENSIONS (in)

Length 1	2.988	Diameter 1	1.461
Length 2	2.991	Diameter 2	1.402
Length 3	2.966	Diameter 3	1.403
Avg Leng.=	2.982	Avg. Diam.=	1.422

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	22.4
Final Change (ml)	1.6

Initial Dial Reading (D.R.), mils	83
D.R. After Saturation, mils	94
D.R. After Consolidation, mils	108

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
12.1	0.000	35.4
18.2	0.001	35.9
21.5	0.001	36.4
30.7	0.004	38.0
37.5	0.006	39.4
53.6	0.014	42.6
59.1	0.017	43.5
64.7	0.023	44.5
73.3	0.034	45.5
77.3	0.046	45.6
79.7	0.064	45.4
80.9	0.079	45.2
81.7	0.094	44.9
82.2	0.103	44.8
83.6	0.124	44.5
84.5	0.148	44.2
85.3	0.171	43.9
85.9	0.194	43.7
86.7	0.223	43.4
87.3	0.246	43.2
90.4	0.276	43.1
93.2	0.298	43.1
94.8	0.321	43.0
97.0	0.351	42.8
99.2	0.388	42.3
100.1	0.418	41.9
102.0	0.463	41.4
103.0	0.500	41.1
104.5	0.538	40.8
106.1	0.575	40.6
107.7	0.628	40.2

Tested By JCM Date 02/23/06 Input Checked By KB Date 3-2-06

DCN: CT-S28 DATE 6-25-98 REVISION 1
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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Visual Description: BROWN & GRAY MOTTLED CLAY (UNDISTURBED)

Effective Confining Pressure (psi)	20.0	*Stage No.*	1
		Test No	4

INITIAL DIMENSIONS

Initial Sample Length (in.)	2.98
Initial Sample Diameter (in.)	1.42
Initial Sample Area (in^2)	1.59
Initial Sample Volume (in^3)	4.74

VOLUME CHANGE

Volume After Consolidation (in^3)	4.59
Length After Consolidation (in)	2.96
Area After Consolidation (in^2)	1.551

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	3.94	0.55	23.40	19.5	1.203	0.14	21.42	1.97
0.04	6.04	0.97	25.07	19.0	1.317	0.16	22.05	3.02
0.13	11.96	2.58	29.38	17.4	1.687	0.22	23.40	5.98
0.22	16.34	4.03	32.31	16.0	2.023	0.25	24.14	8.17
0.46	26.62	7.16	39.46	12.8	3.073	0.27	26.15	13.31
0.59	30.12	8.13	41.99	11.9	3.538	0.27	26.93	15.06
0.76	33.65	9.11	44.54	10.9	4.090	0.27	27.72	16.83
1.14	39.00	10.05	48.95	9.9	4.921	0.26	29.45	19.50
1.55	41.38	10.21	51.18	9.8	5.225	0.25	30.49	20.69
2.16	42.67	9.99	52.68	10.0	5.264	0.24	31.35	21.34
2.67	43.17	9.75	53.42	10.2	5.212	0.23	31.84	21.59
3.18	43.45	9.52	53.93	10.5	5.148	0.22	32.20	21.73
3.48	43.62	9.38	54.24	10.6	5.109	0.22	32.43	21.81
4.20	44.19	9.09	55.10	10.9	5.050	0.21	33.01	22.09
5.02	44.36	8.80	55.57	11.2	4.960	0.20	33.38	22.18
5.79	44.48	8.54	55.93	11.5	4.883	0.19	33.69	22.24
6.55	44.48	8.31	56.18	11.7	4.804	0.19	33.94	22.24
7.56	44.45	8.00	56.44	12.0	4.705	0.18	34.22	22.22
8.32	44.47	7.80	56.67	12.2	4.644	0.18	34.44	22.24
9.33	45.81	7.68	58.13	12.3	4.718	0.17	35.23	22.90
10.09	47.00	7.65	59.35	12.3	4.807	0.16	35.85	23.50
10.86	47.54	7.57	59.97	12.4	4.824	0.16	36.20	23.77
11.86	48.25	7.35	60.90	12.6	4.816	0.15	36.77	24.13
13.12	48.78	6.90	61.88	13.1	4.723	0.14	37.49	24.39
14.13	48.75	6.53	62.22	13.5	4.619	0.14	37.85	24.38
15.65	48.89	6.04	62.85	14.0	4.502	0.12	38.40	24.44
16.92	48.68	5.74	62.94	14.3	4.415	0.12	38.60	24.34
18.18	48.75	5.45	63.30	14.6	4.350	0.11	38.93	24.38
19.46	48.84	5.17	63.68	14.8	4.292	0.11	39.26	24.42
21.22	48.57	4.79	63.77	15.2	4.194	0.10	39.49	24.28

Tested By JCM Date 02/23/06 Input Checked By YKB Date 3-2-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Visual Description: BROWN & GRAY MOTTLED CLAY (UNDISTURBED)

Stage No.	1
Test No	5

PRESSURES (psi)

Cell Pressure(psi)	75.6
Back Pressure(psi)	35.9
Eff. Cons. Pressure(ps	39.7
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	48.57
Q	=	29.78

INITIAL SAMPLE DIMENSIONS (in)

Length 1	3.048	Diameter 1	1.380
Length 2	3.052	Diameter 2	1.407
Length 3	3.057	Diameter 3	1.385
Avg Leng.=	3.052	Avg. Diam.=	1.391

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	21.0
Final Change (ml)	3.0

Initial Dial Reading (D.R.), mils	54
D.R. After Saturation, mils	65
D.R. After Consolidation, mils	94

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
13.8	0.000	35.9
39.5	0.001	38.0
48.5	0.002	39.8
55.2	0.003	41.5
63.3	0.006	44.3
77.2	0.015	49.1
81.7	0.019	50.9
86.6	0.024	52.3
92.8	0.035	54.4
97.0	0.048	55.6
100.2	0.066	56.5
102.0	0.082	56.6
103.3	0.097	56.8
104.0	0.106	56.8
105.0	0.128	56.6
106.7	0.152	56.1
108.5	0.175	55.8
109.2	0.198	55.5
110.0	0.229	55.2
110.3	0.252	54.9
112.3	0.282	54.7
112.8	0.305	54.5
113.5	0.328	54.2
115.6	0.359	54.0
115.9	0.398	53.9
116.4	0.428	53.5
117.1	0.475	53.3
119.4	0.513	52.8
122.5	0.551	52.8
124.0	0.589	52.5
126.8	0.643	52.0

Tested By JCM Date 02/23/06 Input Checked By KLB Date 3-2-06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Visual Description: BROWN & GRAY MOTTLED CLAY (UNDISTURBED)

Effective Confining Pressure (psi)	39.7	*Stage No.*	1
		Test No	5

INITIAL DIMENSIONS

Initial Sample Length (in.)	3.05
Initial Sample Diameter (in.)	1.39
Initial Sample Area (in^2)	1.52
Initial Sample Volume (in^3)	4.64

VOLUME CHANGE

Volume After Consolidation (in^3)	4.40
Length After Consolidation (in)	3.01
Area After Consolidation (in^2)	1.462

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	17.57	2.12	55.15	37.6	1.468	0.12	46.36	8.79
0.07	23.76	3.93	59.53	35.8	1.664	0.17	47.65	11.88
0.11	28.29	5.57	62.43	34.1	1.829	0.20	48.28	14.15
0.21	33.79	8.44	65.05	31.3	2.081	0.25	48.15	16.89
0.49	43.16	13.25	69.62	26.5	2.632	0.31	48.03	21.58
0.62	46.15	15.01	70.85	24.7	2.869	0.33	47.77	23.08
0.79	49.38	16.42	72.66	23.3	3.122	0.33	47.97	24.69
1.17	53.42	18.54	74.59	21.2	3.524	0.35	47.88	26.71
1.58	56.05	19.68	76.07	20.0	3.800	0.35	48.04	28.03
2.19	57.81	20.59	76.92	19.1	4.025	0.36	48.02	28.90
2.71	58.72	20.69	77.73	19.0	4.089	0.35	48.37	29.36
3.22	59.25	20.88	78.07	18.8	4.147	0.35	48.45	29.62
3.52	59.56	20.91	78.35	18.8	4.170	0.35	48.57	29.78
4.23	59.75	20.68	78.76	19.0	4.141	0.35	48.89	29.87
5.04	60.35	20.25	79.81	19.5	4.102	0.34	49.63	30.18
5.81	61.02	19.88	80.84	19.8	4.079	0.33	50.33	30.51
6.58	60.95	19.58	81.08	20.1	4.029	0.32	50.60	30.48
7.60	60.82	19.31	81.21	20.4	3.983	0.32	50.80	30.41
8.36	60.48	19.05	81.14	20.7	3.928	0.31	50.89	30.24
9.37	61.09	18.82	81.98	20.9	3.926	0.31	51.43	30.55
10.13	60.88	18.57	82.01	21.1	3.881	0.31	51.57	30.44
10.89	60.78	18.31	82.17	21.4	3.842	0.30	51.78	30.39
11.92	61.35	18.11	82.94	21.6	3.841	0.30	52.27	30.67
13.21	60.61	18.02	82.29	21.7	3.796	0.30	51.99	30.31
14.22	60.22	17.64	82.28	22.1	3.730	0.29	52.17	30.11
15.76	59.53	17.41	81.82	22.3	3.670	0.29	52.06	29.77
17.02	59.93	16.94	82.69	22.8	3.633	0.28	52.73	29.97
18.28	60.76	16.88	83.59	22.8	3.662	0.28	53.21	30.38
19.54	60.65	16.57	83.78	23.1	3.622	0.27	53.46	30.32
21.33	60.80	16.09	84.42	23.6	3.575	0.26	54.02	30.40

Tested By JCM Date 02/23/06 Input Checked By KB Date 3-2-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Visual Description: BROWN & GRAY MOTTLED CLAY (UNDISTURBED)

Stage No.	1
Test No	6

PRESSURES (psi)

Cell Pressure(psi)	95.4
Back Pressure(psi)	35.8
Eff. Cons. Pressure(ps	59.6
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	60.01
Q	=	37.17

INITIAL SAMPLE DIMENSIONS (in)

Length 1	3.088	Diameter 1	1.407
Length 2	3.078	Diameter 2	1.385
Length 3	3.075	Diameter 3	1.418
Avg Leng.=	3.080	Avg. Diam.=	1.403

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	20.3
Final Change (ml)	3.7

Initial Dial Reading (D.R.), mils	57
D.R. After Saturation, mils	70
D.R. After Consolidation, mils	112

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
16.0	0.000	35.8
30.2	0.001	37.4
36.3	0.002	38.5
46.1	0.003	40.7
57.5	0.005	44.6
78.0	0.011	52.6
91.9	0.017	58.5
101.7	0.024	62.7
111.0	0.036	67.2
115.9	0.048	69.8
119.3	0.067	71.6
121.1	0.083	72.4
122.2	0.098	72.8
122.6	0.108	73.0
123.7	0.131	73.1
128.5	0.156	72.9
131.3	0.179	72.8
134.0	0.203	72.6
136.6	0.234	72.3
139.6	0.257	72.1
143.4	0.288	71.8
145.0	0.312	71.6
146.7	0.336	71.4
150.5	0.367	70.9
152.9	0.405	70.7
155.0	0.436	70.5
157.3	0.483	70.1
159.2	0.522	70.0
162.0	0.560	69.9
162.8	0.599	69.7
166.2	0.654	69.4

Tested By JCM Date 02/23/06 Input Checked By KB Date 3-2-06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-02
Client Reference	TAUM SAUK 06-3551	Depth(in.)	12-19
Project No.	2006-060-01	Sample No.	S-3
Lab ID	2006-060-01-70		

Visual Description: BROWN & GRAY MOTTLED CLAY (UNDISTURBED)

Effective Confining Pressure (psi)	59.6	*Stage No.*	1
		Test No	6

INITIAL DIMENSIONS

Initial Sample Length (in.)	3.08
Initial Sample Diameter (in.)	1.40
Initial Sample Area (in^2)	1.55
Initial Sample Volume (in^3)	4.76

VOLUME CHANGE

Volume After Consolidation (in^3)	4.48
Length After Consolidation (in)	3.03
Area After Consolidation (in^2)	1.480

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.03	9.59	1.65	67.55	58.0	1.166	0.17	62.75	4.80
0.06	13.74	2.67	70.66	56.9	1.241	0.19	63.80	6.87
0.10	20.31	4.92	74.99	54.7	1.372	0.24	64.84	10.16
0.17	27.99	8.78	78.81	50.8	1.551	0.31	64.81	14.00
0.37	41.73	16.82	84.51	42.8	1.975	0.40	63.65	20.86
0.57	50.96	22.67	87.89	36.9	2.380	0.44	62.41	25.48
0.80	57.42	26.92	90.10	32.7	2.757	0.47	61.39	28.71
1.19	63.45	31.35	91.70	28.2	3.246	0.49	59.97	31.72
1.60	66.43	34.03	91.99	25.6	3.598	0.51	58.78	33.21
2.22	68.22	35.83	91.99	23.8	3.870	0.53	57.88	34.11
2.73	69.04	36.62	92.01	23.0	4.005	0.53	57.49	34.52
3.25	69.39	37.03	91.95	22.6	4.075	0.53	57.26	34.69
3.57	69.43	37.22	91.81	22.4	4.102	0.54	57.10	34.71
4.33	69.64	37.34	91.90	22.3	4.128	0.54	57.08	34.82
5.16	72.10	37.14	94.56	22.5	4.210	0.52	58.51	36.05
5.93	73.29	36.99	95.90	22.6	4.242	0.50	59.25	36.64
6.71	74.34	36.76	97.18	22.8	4.255	0.49	60.01	37.17
7.73	75.17	36.51	98.26	23.1	4.255	0.49	60.68	37.58
8.50	76.39	36.26	99.73	23.3	4.273	0.47	61.53	38.19
9.52	77.86	36.00	101.46	23.6	4.299	0.46	62.53	38.93
10.30	78.17	35.80	101.97	23.8	4.285	0.46	62.88	39.09
11.09	78.52	35.60	102.51	24.0	4.272	0.45	63.26	39.26
12.13	79.85	35.09	104.36	24.5	4.259	0.44	64.43	39.93
13.38	80.12	34.93	104.79	24.7	4.247	0.44	64.73	40.06
14.41	80.39	34.71	105.28	24.9	4.230	0.43	65.09	40.20
15.96	80.25	34.30	105.54	25.3	4.172	0.43	65.42	40.12
17.24	80.07	34.21	105.46	25.4	4.153	0.43	65.43	40.03
18.50	80.40	34.14	105.86	25.5	4.157	0.42	65.66	40.20
19.79	79.55	33.87	105.28	25.7	4.091	0.43	65.50	39.77
21.62	79.56	33.64	105.53	26.0	4.064	0.42	65.74	39.78

Tested By JCM Date 02/23/06 Input Checked By KB Date 3-2-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO		
Client Reference	TAUM SAUK 06-3551		
Project No.	2006-060-01		
Lab ID	2006-060-01-70	Specific Gravity (assumed)	2.7

Visual Description: BROWN AND GRAY MOTTLED CLAY (UNDISTURBED)

SAMPLE CONDITION SUMMARY

Boring No.	TS-SOIL-02	TS-SOIL-02	TS-SOIL-02
Depth (in)	12-19	12-19	12-19
Sample No.	S-3	S-3	S-3
Test No.	T4	T5	T6
Deformation Rate (in/min)	0.001	0.001	0.001
Back Pressure (psi)	35.4	35.9	35.8
Consolidation Time (days)	1	1	1
Initial State (w%)	30.2	30.2	30.2
Total Unit Weight (pcf)	115.7	113.4	111.8
Dry Unit Weight (pcf)	88.9	87.1	85.9
Final State (w%)	34.7	30.6	30.1
Initial State Void Ratio,e	0.897	0.934	0.963

Tested By JCM Date 02/23/06 Input Checked By KB Date 3-2-06

DCN: CT-S28 DATE 8-25-98 REVISION: 1

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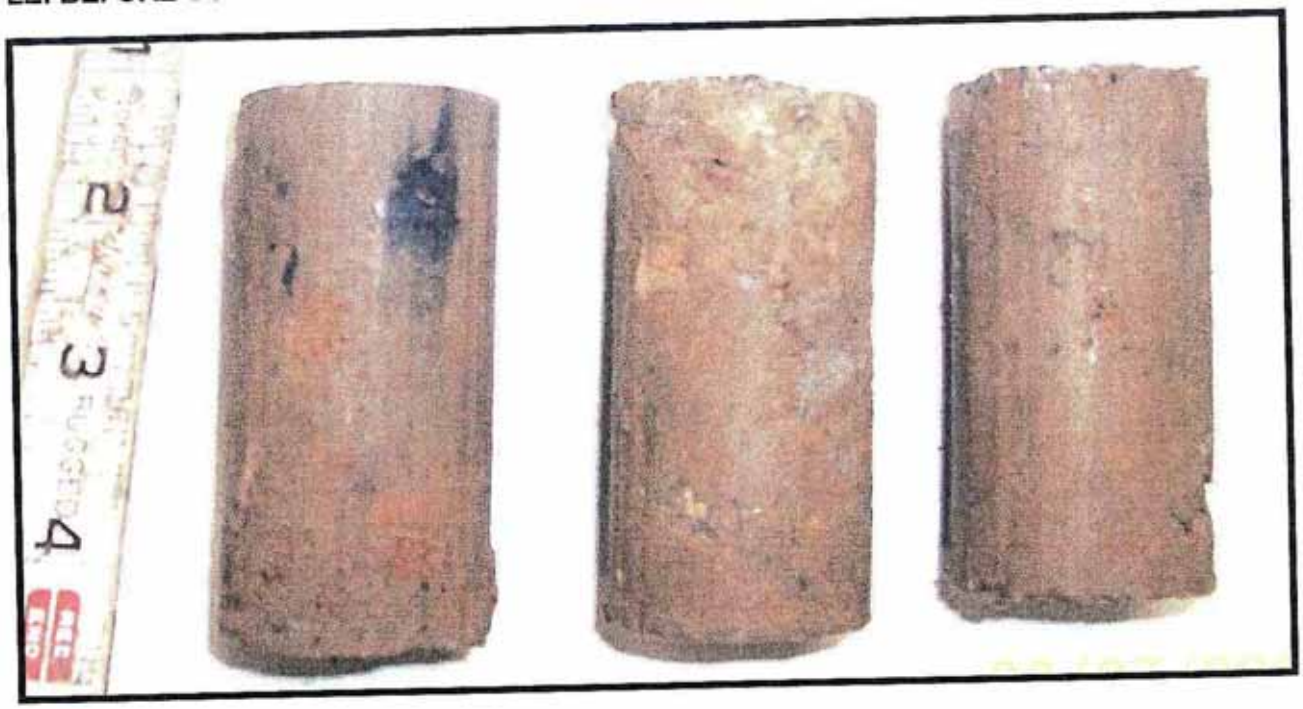
SOIL SAMPLE TS-SOIL 03

PHOTOGRAPH

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-SOIL-03
Client Project	TAUM SAUK 06-3551	Depth (in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

SAMPLE: BEFORE CU



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PHOTOGRAPH

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-SOIL-03
Client Project	TAUM SAUK 06-3551	Depth (in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

SAMPLE: AFTER CU TEST #7

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PHOTOGRAPH

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-SOIL-03
Client Project	TAUM SAUK 06-3551	Depth (in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

SAMPLE: AFTER CU TEST #8

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PHOTOGRAPH

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No..	TS-SOIL-03
Client Project	TAUM SAUK 06-3551	Depth (in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

SAMPLE: AFTER CU TEST #9

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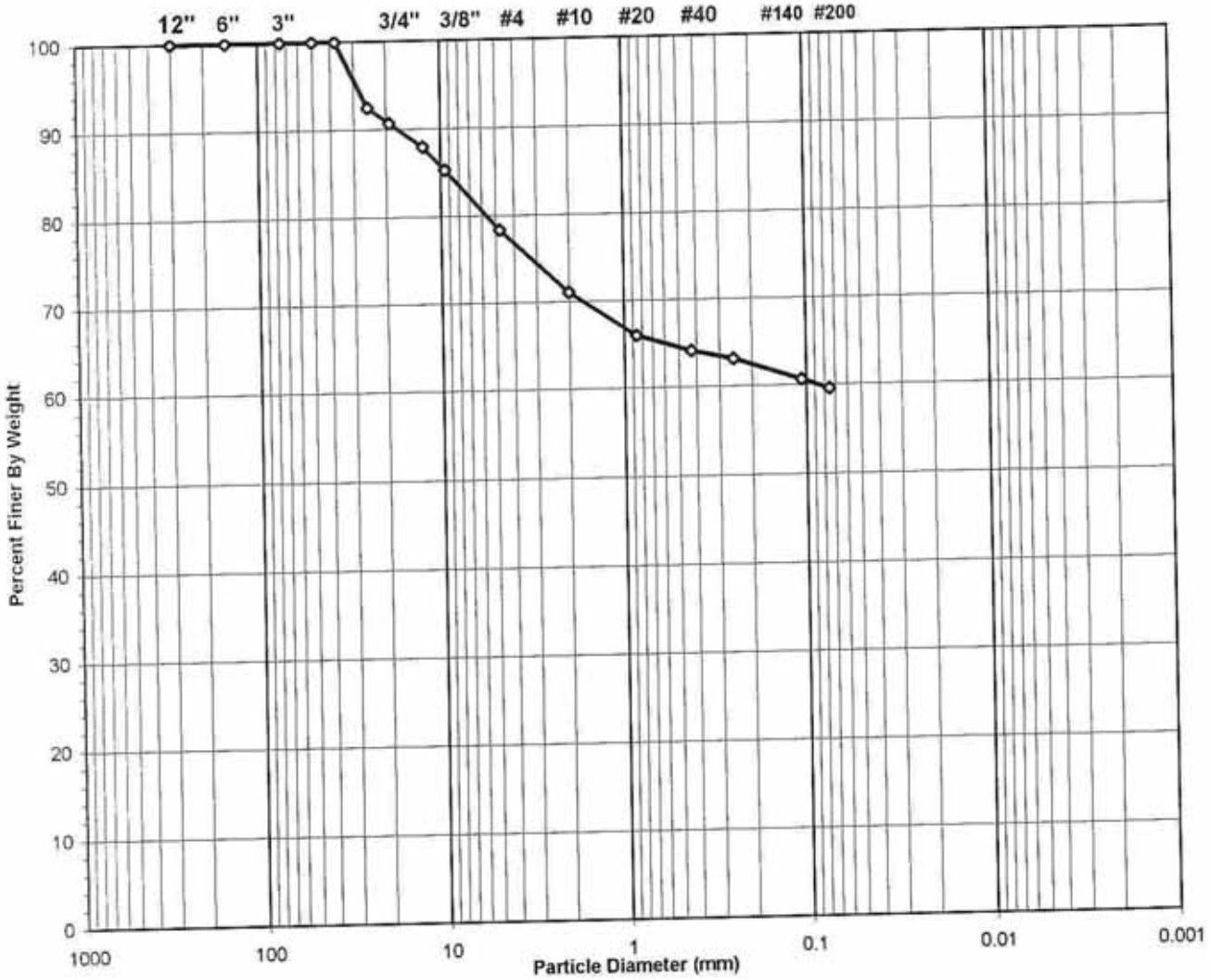
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72	Soil Color	BROWN

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***CL, TESTED***

USCS Classification ***GRAVELLY LEAN CLAY WITH SAND***

Tested By PC Date 3/10/06 Checked By KB Date 3-13-06

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DCN: CT-S3C DATE 6-25-98 REVISION: 2

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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72	Soil Color	**BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	653	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	879.37	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	763.40	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	96.56	Weight of Tare (gm)	NA
Weight of Water (gm)	115.97	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	666.84	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**17.4**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	666.84
Dry Weight - 3/4" Sample (gm)	207.6	Weight of minus #200 material (gm)	397.05
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	269.79
Dry Weight + 3/4" Sample (gm)	62.16		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	**Accumulated Percent Finer (%)**
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	49.97	7.49	7.49	92.51	**92.51**
3/4"	19.0	12.19	1.83	9.32	90.68	**90.68**
1/2"	12.50	18.29	2.74	12.06	87.94	**87.94**
3/8"	9.50	17.80	2.67	14.73	85.27	**85.27**
#4	4.75	46.54	6.98	21.71	78.29	**78.29**
#10	2.00	48.37	7.25	28.97	71.03	**71.03**
#20	0.850	33.92	5.09	34.05	65.95	**65.95**
#40	0.425	12.41	1.86	35.91	64.09	**64.09**
#60	0.250	6.94	1.04	36.95	63.05	**63.05**
#140	0.106	16.09	2.41	39.37	60.63	**60.63**
#200	0.075	7.27	1.09	40.46	59.54	**59.54**
Pan	-	397.05	59.54	100.00	-	-

Tested By PC Date 3/10/06 Checked By [illegible] Date 3-13-06

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth (in)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72	Soil Description	**BROWN LEAN CLAY**

Note: The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.

(Minus No. 40 sieve material, Airdried)

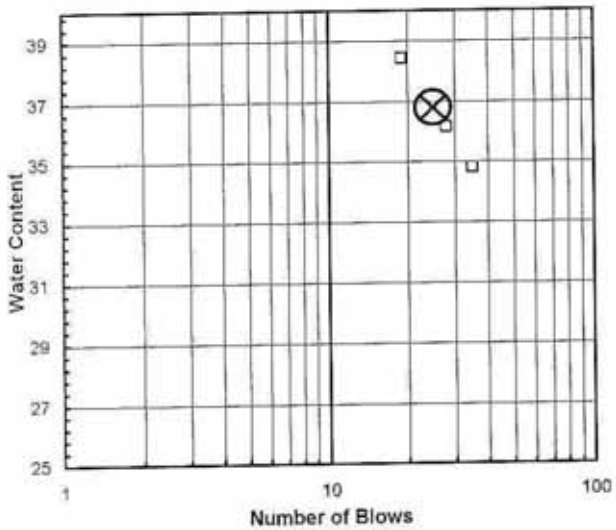
Liquid Limit Test	**1**	**2**	**3**	
Tare Number	3	5	8	MULTIPOINT
Wt. of Tare & WS (gm)	39.83	36.95	41.61	
Wt. of Tare & DS (gm)	33.68	30.85	34.22	
Wt. of Tare (gm)	16.01	13.98	15.00	
Wt. of Water (gm)	6.2	6.1	7.4	
Wt. of DS (gm)	17.7	16.9	19.2	
Moisture Content (%)	**34.8**	**36.2**	**38.4**	
Number of Blows	**35**	**28**	**19**	

Plastic Limit Test	**1**	**2**	**Range**
Tare Number	9	40	
Wt. of Tare & WS (gm)	21.91	22.11	
Wt. of Tare & DS (gm)	20.93	21.04	
Wt. of Tare (gm)	15.78	15.54	
Wt. of Water (gm)	1.0	1.1	
Wt. of DS (gm)	5.2	5.5	
Moisture Content (%)	**19.0**	**19.5**	**-0.4**

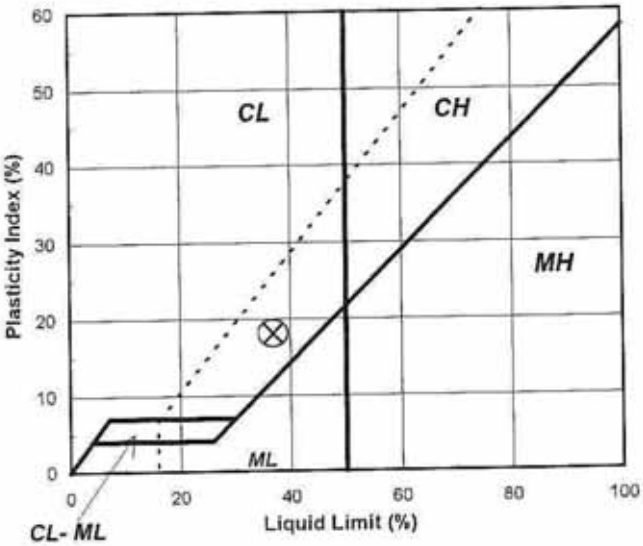
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	**37**
Plastic Limit (%)	**19**
Plasticity Index (%)	**18**
USCS Symbol	**CL**

Flow Curve



Plasticity Chart



Tested By BS *Date* 3/9/06 *Checked By* KB *Date* 3-13-06

page 1 of 1 **DCN:** CT-S4B **DATE:** 10/8/01 **REVISION:** 2

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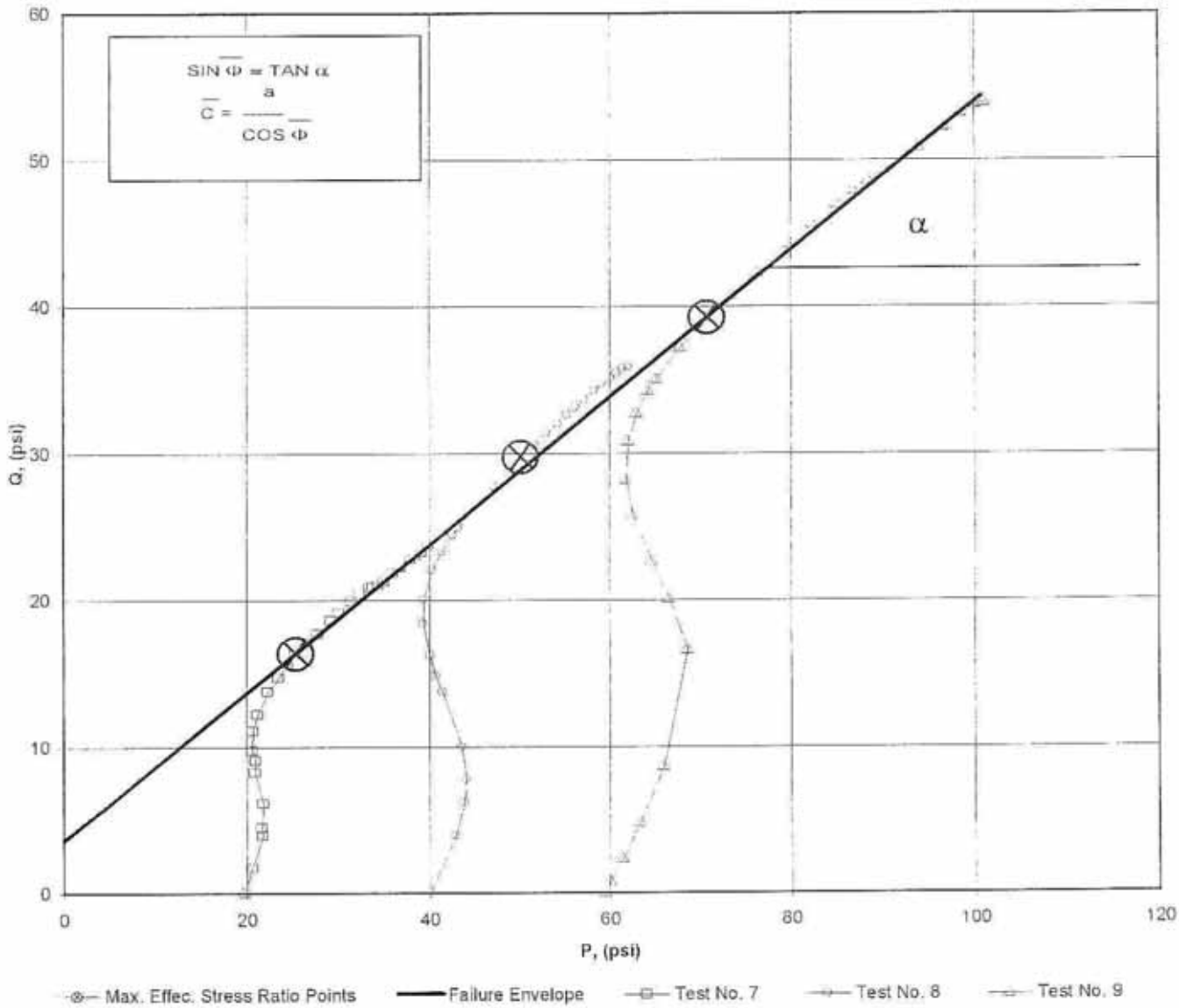
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	3.63	$\overline{C}$	=	4.20
α	=	26.7	$\overline{\Phi}$	=	30.22

Tested By JCM Date 03/07/06 Approved By DB Date 3/13/06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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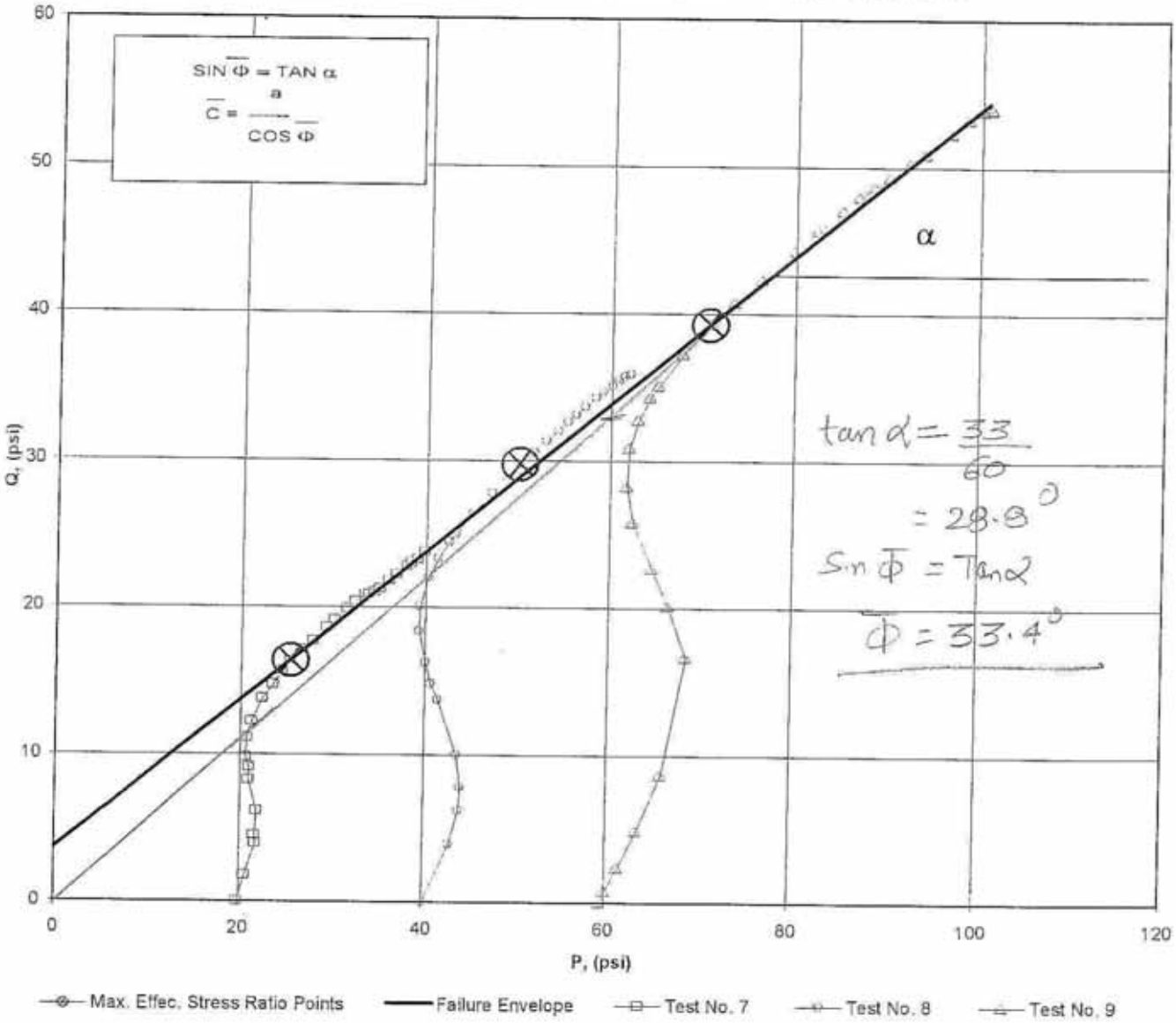
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Consolidated Undrained Triaxial Test with Pore Pressure



a	=	3.63	$\overline{C}$	=	4.20
α	=	26.7	$\overline{\Phi}$	=	30.22

Tested By JCM Date 03/07/06 Approved By DB Date 3/13/06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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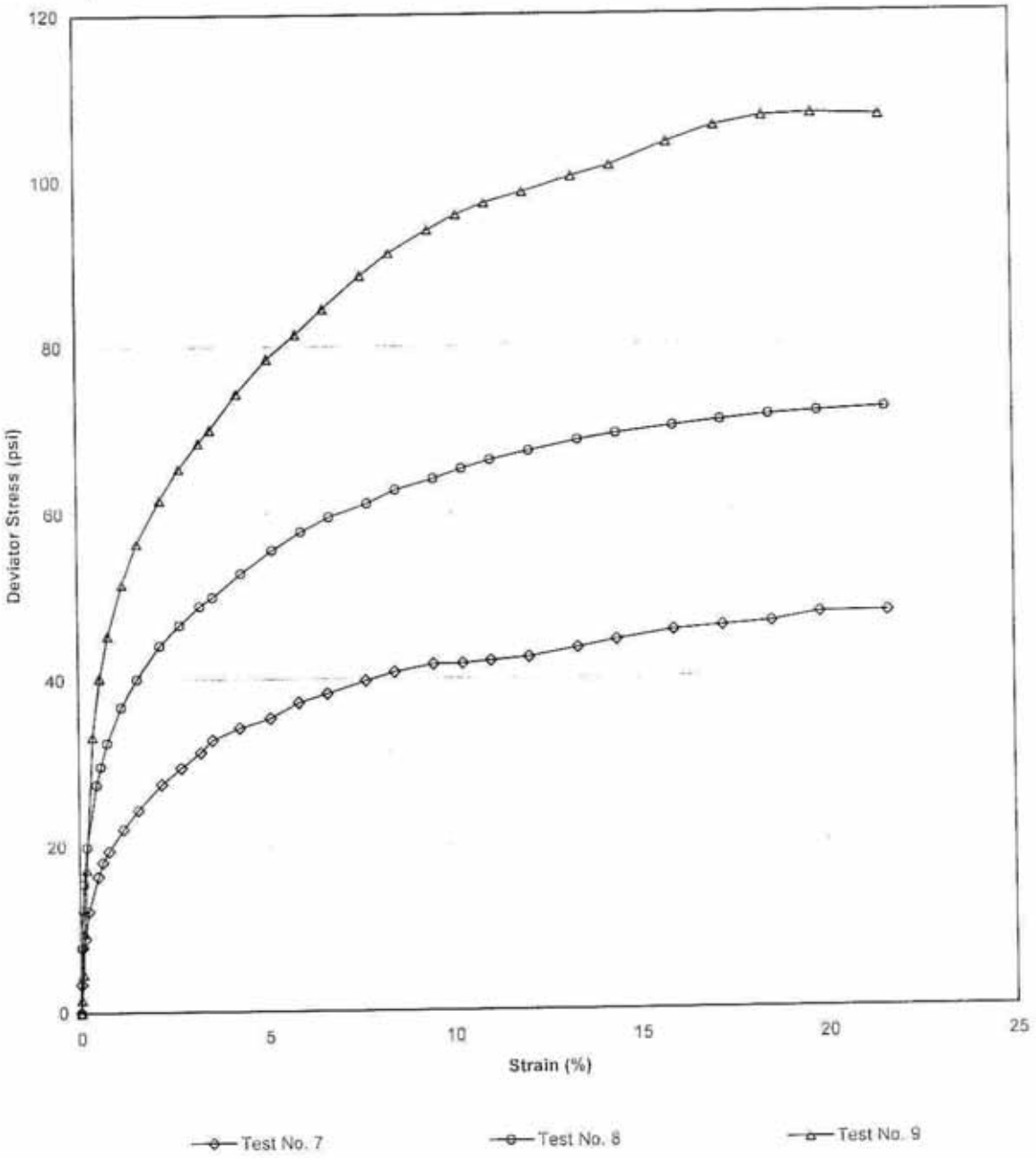
CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		
Visual Description:	BROWN SANDY CLAY, SOME ORGANIC MATERIAL (UNDISTURBED)		



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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Visual Description: BROWN SANDY CLAY, SOME ORGANIC MATERIAL (UNDISTURBED)

Stage No.	1
Test No	7

PRESSURES (psi)

Cell Pressure(psi)	60.1
Back Pressure(psi)	40.3
Eff. Cons. Pressure(psi)	19.8
Pore Pressure Response (%)	97

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	25.33
Q	=	16.38

INITIAL SAMPLE DIMENSIONS (in)

Length 1	3.113	Diameter 1	1.421
Length 2	3.147	Diameter 2	1.423
Length 3	3.152	Diameter 3	1.420
Avg Leng.=	3.137	Avg. Diam.=	1.421

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	22.0
Final Change (ml)	2.0

Initial Dial Reading (D.R.), mils	50
D.R. After Saturation, mils	109
D.R. After Consolidation, mils	126

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
12.4	0.000	40.3
17.6	0.001	41.2
24.2	0.002	42.3
25.8	0.004	43.0
30.7	0.007	44.4
37.1	0.015	47.4
39.7	0.019	48.2
41.8	0.024	49.3
45.9	0.036	50.5
49.5	0.048	51.1
54.4	0.067	51.5
57.6	0.083	51.4
60.7	0.099	51.3
63.1	0.108	51.2
65.8	0.131	50.7
68.1	0.156	50.0
71.4	0.179	49.4
73.6	0.203	49.1
76.7	0.234	48.5
78.9	0.259	48.1
81.3	0.291	47.6
82.0	0.315	47.1
83.1	0.339	46.7
84.6	0.370	46.3
87.6	0.410	45.9
90.1	0.441	45.6
93.5	0.488	45.0
95.6	0.528	44.7
97.8	0.568	44.3
101.1	0.608	43.9
103.2	0.663	43.6

Tested By JCM Date 03/07/06 Input Checked By KYB Date 3-13-06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics
INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Visual Description: BROWN SANDY CLAY, SOME ORGANIC MATERIAL (UNDISTURBED)

Effective Confining Pressure (psi)	19.8	*Stage No.*	1
		Test No	7

INITIAL DIMENSIONS

Initial Sample Length (in.)	3.14
Initial Sample Diameter (in.)	1.42
Initial Sample Area (in^2)	1.59
Initial Sample Volume (in^3)	4.98

VOLUME CHANGE

Volume After Consolidation (in^3)	4.57
Length After Consolidation (in)	3.06
Area After Consolidation (in^2)	1.494

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	3.47	0.94	22.33	18.9	1.184	0.28	20.60	1.74
0.06	7.90	1.97	25.72	17.8	1.443	0.26	21.78	3.95
0.13	8.94	2.65	26.09	17.1	1.521	0.31	21.62	4.47
0.23	12.23	4.10	27.93	15.7	1.779	0.35	21.82	6.12
0.49	16.46	7.10	29.16	12.7	2.296	0.44	20.93	8.23
0.61	18.17	7.89	30.08	11.9	2.525	0.45	21.00	9.08
0.79	19.50	8.95	30.35	10.8	2.798	0.47	20.60	9.75
1.17	22.13	10.18	31.76	9.6	3.300	0.47	20.69	11.07
1.57	24.42	10.80	33.42	9.0	3.713	0.46	21.21	12.21
2.19	27.51	11.23	36.08	8.6	4.211	0.42	22.33	13.76
2.71	29.45	11.06	38.19	8.7	4.371	0.39	23.46	14.73
3.23	31.30	10.99	40.11	8.8	4.555	0.36	24.46	15.65
3.54	32.76	10.85	41.70	8.9	4.661	0.34	25.33	16.38
4.27	34.20	10.37	43.64	9.4	4.626	0.31	26.53	17.10
5.10	35.35	9.70	45.45	10.1	4.500	0.28	27.78	17.68
5.86	37.18	9.14	47.84	10.7	4.486	0.25	29.25	18.59
6.63	38.24	8.84	49.20	11.0	4.491	0.24	30.08	19.12
7.66	39.75	8.18	51.37	11.6	4.420	0.21	31.50	19.87
8.45	40.76	7.79	52.77	12.0	4.395	0.20	32.39	20.38
9.50	41.71	7.27	54.24	12.5	4.329	0.18	33.38	20.85
10.29	41.78	6.83	54.75	13.0	4.221	0.17	33.86	20.89
11.06	42.06	6.42	55.44	13.4	4.143	0.16	34.41	21.03
12.08	42.48	6.00	56.27	13.8	4.079	0.15	35.04	21.24
13.38	43.60	5.60	57.79	14.2	4.071	0.13	35.99	21.80
14.41	44.50	5.26	59.04	14.5	4.060	0.12	36.79	22.25
15.94	45.60	4.67	60.73	15.1	4.014	0.11	37.93	22.80
17.25	46.07	4.40	61.47	15.4	3.991	0.10	38.44	23.03
18.57	46.52	3.97	62.35	15.8	3.939	0.09	39.09	23.26
19.86	47.55	3.65	63.70	16.2	3.944	0.08	39.92	23.77
21.66	47.60	3.27	64.13	16.5	3.880	0.07	40.33	23.80

Tested By JCM Date 03/07/06 Input Checked By HB Date 3-13-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

geotechnics INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Visual Description: BROWN SANDY CLAY (UNDISTURBED)

Stage No.	1
Test No	8

PRESSURES (psi)

Cell Pressure(psi)	80.2
Back Pressure(psi)	40.1
Eff. Cons. Pressure(ps	40.1
Pore Pressure Response (%)	100

MAXIMUM OBLIQUITY POINTS

$\overline{P}$	=	50.18
Q	=	29.75

INITIAL SAMPLE DIMENSIONS (in)

Length 1	3.033	Diameter 1	1.432
Length 2	3.026	Diameter 2	1.430
Length 3	3.023	Diameter 3	1.422
Avg Leng.=	3.027	Avg. Diam.=	1.428

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	20.6
Final Change (ml)	3.4

Initial Dial Reading (D.R.), mils	57
D.R. After Saturation, mils	68
D.R. After Consolidation, mils	117

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
17.6	0.000	40.1
29.8	0.001	41.2
36.7	0.002	42.5
41.7	0.003	43.9
48.6	0.006	46.6
60.3	0.014	52.4
63.7	0.017	54.3
68.2	0.022	56.4
75.1	0.034	59.2
80.6	0.046	60.8
87.3	0.064	61.9
91.6	0.080	62.1
95.7	0.096	62.1
97.6	0.106	61.9
102.9	0.129	61.5
108.2	0.153	60.9
112.5	0.176	60.3
116.2	0.199	59.8
120.0	0.229	59.0
123.5	0.252	58.6
127.0	0.283	57.9
130.0	0.305	57.5
132.7	0.328	57.1
136.0	0.359	56.6
140.0	0.398	56.2
142.9	0.428	55.8
146.7	0.473	55.2
149.9	0.511	54.8
153.1	0.550	54.4
156.0	0.588	54.0
160.0	0.642	53.5

Tested By JCM Date 03/07/06 Input Checked By KB Date 3-13-06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

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INTEGRITY IN TESTING

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Visual Description: BROWN SANDY CLAY (UNDISTURBED)

Effective Confining Pressure (psi)	40.1	*Stage No.*	1
		Test No	8

INITIAL DIMENSIONS

Initial Sample Length (in.)	3.03
Initial Sample Diameter (in.)	1.43
Initial Sample Area (in^2)	1.60
Initial Sample Volume (in^3)	4.85

VOLUME CHANGE

Volume After Consolidation (in^3)	4.59
Length After Consolidation (in)	2.97
Area After Consolidation (in^2)	1.546

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	7.87	1.08	46.89	39.0	1.202	0.14	42.96	3.93
0.06	12.37	2.40	50.07	37.7	1.328	0.19	43.89	6.18
0.10	15.57	3.81	51.86	36.3	1.429	0.24	44.08	7.79
0.20	19.98	6.52	53.56	33.6	1.595	0.33	43.57	9.99
0.46	27.48	12.35	55.23	27.8	1.990	0.45	41.49	13.74
0.58	29.64	14.21	55.54	25.9	2.145	0.48	40.71	14.82
0.75	32.50	16.29	56.30	23.8	2.365	0.50	40.06	16.25
1.14	36.78	19.11	57.77	21.0	2.753	0.52	39.38	18.39
1.55	40.08	20.74	59.44	19.4	3.071	0.52	39.40	20.04
2.17	44.12	21.82	62.40	18.3	3.414	0.49	40.34	22.06
2.69	46.57	22.03	64.64	18.1	3.578	0.47	41.35	23.29
3.23	48.85	21.96	66.99	18.1	3.693	0.45	42.57	24.43
3.57	49.89	21.82	68.18	18.3	3.729	0.44	43.23	24.95
4.34	52.78	21.38	71.50	18.7	3.819	0.41	45.11	26.39
5.17	55.55	20.76	74.89	19.3	3.872	0.37	47.12	27.77
5.94	57.75	20.22	77.63	19.9	3.905	0.35	48.75	28.88
6.70	59.50	19.67	79.93	20.4	3.913	0.33	50.18	29.75
7.73	61.08	18.95	82.24	21.2	3.888	0.31	51.69	30.54
8.49	62.70	18.45	84.34	21.6	3.897	0.29	52.99	31.35
9.52	63.99	17.85	86.25	22.3	3.876	0.28	54.25	32.00
10.29	65.19	17.42	87.86	22.7	3.874	0.27	55.27	32.59
11.07	66.22	17.01	89.31	23.1	3.868	0.26	56.20	33.11
12.10	67.28	16.55	90.84	23.6	3.857	0.25	57.20	33.64
13.40	68.53	16.05	92.58	24.0	3.850	0.23	58.31	34.27
14.43	69.33	15.66	93.77	24.4	3.837	0.23	59.10	34.66
15.96	70.19	15.07	95.22	25.0	3.804	0.21	60.12	35.10
17.23	70.84	14.67	96.27	25.4	3.786	0.21	60.85	35.42
18.52	71.42	14.29	97.22	25.8	3.768	0.20	61.51	35.71
19.82	71.77	13.88	98.00	26.2	3.737	0.19	62.11	35.89
21.62	72.19	13.40	98.89	26.7	3.704	0.19	62.79	36.09

Tested By JCM Date 03/07/06 Input Checked By KB Date 3-13-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Visual Description: BROWN SANDY CLAY (UNDISTURBED)

Stage No.	1
Test No	9

PRESSURES (psi)

Cell Pressure(psi)	100.4
Back Pressure(psi)	40.8
Eff. Cons. Pressure(ps	59.6
Pore Pressure Response (%)	99

MAXIMUM OBLIQUITY POINTS

$\bar{P}$	=	70.77
Q	=	39.25

INITIAL SAMPLE DIMENSIONS (in)

Length 1	3.117	Diameter 1	1.442
Length 2	3.107	Diameter 2	1.437
Length 3	3.078	Diameter 3	1.441
Avg Leng.=	3.101	Avg. Diam.=	1.440

VOLUME CHANGE

Initial Burette Reading (ml)	24.0
Final Burette Reading (ml)	19.5
Final Change (ml)	4.5

Initial Dial Reading (D.R.), mils	65
D.R. After Saturation, mils	75
D.R. After Consolidation, mils	127

LOAD (LBS)	DEFORMATION (INCHES)	PORE PRESSURE (PSI)
17.1	0.000	40.8
19.6	0.001	41.1
24.4	0.002	41.3
32.2	0.003	41.8
44.1	0.006	43.0
69.0	0.011	48.4
80.1	0.017	54.0
88.2	0.024	58.4
98.3	0.036	63.6
106.3	0.048	66.8
115.2	0.067	69.2
121.6	0.082	70.1
127.2	0.098	70.4
130.1	0.107	70.3
138.0	0.129	69.8
145.7	0.154	68.9
151.6	0.177	67.7
157.8	0.200	66.4
166.2	0.231	64.8
172.0	0.254	63.7
178.5	0.286	62.3
183.2	0.310	61.5
187.0	0.333	60.6
191.3	0.364	59.5
197.2	0.404	58.3
201.7	0.435	57.3
210.2	0.482	55.9
216.8	0.520	55.0
222.1	0.560	54.1
225.9	0.600	53.2
230.2	0.655	52.1

Tested By JCM Date 03/07/06 Input Checked By YHB Date 3-13-06

DCN: CT-S28 DATE 6-25-98 REVISION 1

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CONSOLIDATED UNDRAINED TRIAXIAL TEST
WITH PORE PRESSURE READINGS
ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-03
Client Reference	TAUM SAUK 06-3551	Depth(in.)	7-15
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-72		

Visual Description: BROWN SANDY CLAY (UNDISTURBED)

Effective Confining Pressure (psi)	59.6	*Stage No.*	1
		Test No	9

INITIAL DIMENSIONS

Initial Sample Length (in.)	3.10
Initial Sample Diameter (in.)	1.44
Initial Sample Area (in^2)	1.63
Initial Sample Volume (in^3)	5.05

VOLUME CHANGE

Volume After Consolidation (in^3)	4.73
Length After Consolidation (in)	3.04
Area After Consolidation (in^2)	1.555

Strain (%)	Deviation Stress	ΔU	$\overline{\sigma}_1$	$\overline{\sigma}_3$	Effective Principle Stress Ratio	$\overline{A}$	$\overline{P}$	Q
0.02	1.59	0.31	60.88	59.3	1.027	0.20	60.08	0.79
0.06	4.67	0.47	63.80	59.1	1.079	0.10	61.46	2.34
0.11	9.68	1.00	68.27	58.6	1.165	0.10	63.44	4.84
0.18	17.30	2.23	74.67	57.4	1.302	0.13	66.02	8.65
0.37	33.28	7.60	85.28	52.0	1.640	0.23	68.64	16.64
0.57	40.26	13.16	86.70	46.4	1.867	0.33	66.57	20.13
0.79	45.37	17.58	87.40	42.0	2.080	0.39	64.71	22.69
1.18	51.57	22.78	88.39	36.8	2.401	0.45	62.60	25.79
1.58	56.47	25.99	90.07	33.6	2.680	0.46	61.84	28.23
2.20	61.69	28.36	92.93	31.2	2.975	0.46	62.08	30.85
2.70	65.40	29.27	95.73	30.3	3.156	0.45	63.03	32.70
3.22	68.48	29.58	98.50	30.0	3.281	0.44	64.26	34.24
3.54	70.10	29.48	100.22	30.1	3.327	0.42	65.17	35.05
4.25	74.40	28.96	105.03	30.6	3.428	0.39	67.83	37.20
5.07	78.50	28.08	110.02	31.5	3.491	0.36	70.77	39.25
5.83	81.44	26.86	114.17	32.7	3.488	0.33	73.45	40.72
6.58	84.52	25.55	118.57	34.0	3.482	0.31	76.31	42.26
7.59	88.56	23.99	124.17	35.6	3.487	0.27	79.89	44.28
8.36	91.26	22.91	127.95	36.7	3.487	0.25	82.32	45.63
9.42	94.02	21.54	132.08	38.1	3.470	0.23	85.07	47.01
10.20	95.88	20.74	134.74	38.9	3.467	0.22	86.80	47.94
10.97	97.27	19.78	137.10	39.8	3.443	0.21	88.46	48.64
11.99	98.57	18.69	139.48	40.9	3.410	0.19	90.19	49.28
13.29	100.40	17.47	142.52	42.1	3.383	0.18	92.33	50.20
14.32	101.68	16.49	144.80	43.1	3.358	0.16	93.96	50.84
15.85	104.47	15.12	148.94	44.5	3.349	0.15	96.71	52.23
17.13	106.41	14.24	151.77	45.4	3.346	0.14	98.56	53.21
18.43	107.51	13.26	153.85	46.3	3.320	0.12	100.10	53.76
19.74	107.76	12.38	154.98	47.2	3.282	0.12	101.10	53.88
21.54	107.47	11.26	155.81	48.3	3.223	0.11	102.07	53.74

Tested By JCM Date 03/07/06 Input Checked By KLB Date 3-13-06

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CONSOLIDATED UNDRAINED TRIAXIAL TEST WITH PORE PRESSURE READINGS

ASTM D4767-95 / AASHTO T297-94 (SOP-S28)

Client	PAUL C. RIZZO		
Client Reference	TAUM SAUK 06-3551		
Project No.	2006-060-01		
Lab ID	2006-060-01-72	Specific Gravity (assumed)	2.7

Visual Description: BROWN SANDY CLAY, SOME ORGANIC MATERIAL (UNDISTURBED)

SAMPLE CONDITION SUMMARY

Boring No.	TS-SOIL-03	TS-SOIL-03	TS-SOIL-03
Depth (in)	7-15	7-15	7-15
Sample No.	S-2	S-2	S-2
Test No.	T7	T8	T9
Deformation Rate (in/min)	0.001	0.001	0.001
Back Pressure (psi)	40.3	40.1	40.8
Consolidation Time (days)	1	1	1
Initial State (w%)	17.8	19.2	19.6
Total Unit Weight (pcf)	127.8	126.9	123.2
Dry Unit Weight (pcf)	108.5	106.5	103.0
Final State (w%)	21.1	18.9	17.2
Initial State Void Ratio,e	0.554	0.582	0.636

Tested By JCM Date 03/07/06 Input Checked By KB Date 3-13-06

DCN: CT-S28 DATE 6-25-99 REVISION: 1

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SOIL SAMPLE TS-SOIL 04

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SIEVE SAMPLE

Client	PAUL C. RIZZO & ASSOCIATES, INC.	Boring No.	TS-SOIL-04
Client Project	TAUM SAUK 06-3551	Depth (in.)	5" - 11"
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74		

SAMPLE AS RECEIVED:

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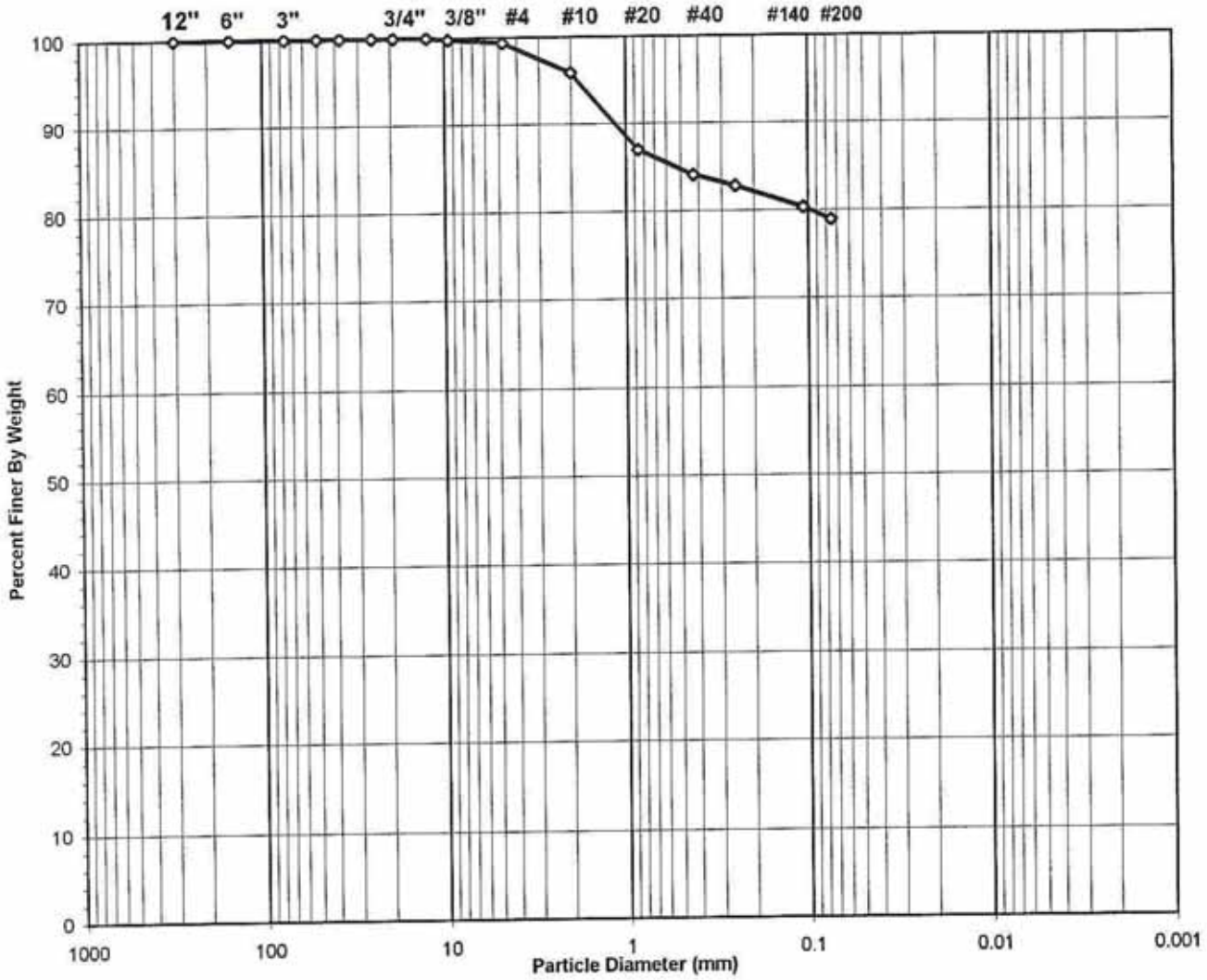
SIEVE ANALYSIS
ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Soil Color	REDDISH BROWN

USCS	SIEVE ANALYSIS		HYDROMETER
	gravel	sand	silt and clay



USCS Symbol ***CH, TESTED***

USCS Classification ***FAT CLAY WITH SAND***

Tested By JP Date 3/1/06 Checked By KYB Date 3-6-06

DCN: CT-S3C DATE 6-25-98 REVISION: 2
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WASH SIEVE ANALYSIS

ASTM D 422-63/AASHTO T88-00 (SOP-S3)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Soil Color	**REDDISH BROWN**

Moisture Content of Passing 3/4" Material		Water Content of Retained 3/4" Material	
Tare No.	527	Tare No.	NA
Wgt.Tare + Wet Specimen (gm)	1195.60	Wgt.Tare + Wet Specimen (gm)	NA
Wgt.Tare + Dry Specimen (gm)	949.80	Wgt.Tare + Dry Specimen (gm)	NA
Weight of Tare (gm)	96.35	Weight of Tare (gm)	NA
Weight of Water (gm)	245.80	Weight of Water (gm)	NA
Weight of Dry Soil (gm)	853.45	Weight of Dry Soil (gm)	NA
Moisture Content (%)	**28.8**	**Moisture Content (%)**	**NA**

Wet Weight -3/4" Sample (gm)	NA	Weight of the Dry Specimen (gm)	853.45
Dry Weight - 3/4" Sample (gm)	180.2	Weight of minus #200 material (gm)	673.26
Wet Weight +3/4" Sample (gm)	NA	Weight of plus #200 material (gm)	180.19
Dry Weight + 3/4" Sample (gm)	0.00		
Total Dry Weight Sample (gm)	NA		

Sieve Size	Sieve Opening (mm)	Wgt.of Soil Retained (gm)	Percent Retained (%)	Accumulated Percent Retained (%)	Percent Finer (%)	Accumulated Percent Finer (%)
12"	300	0.00	0.00	0.00	100.00	**100.00**
6"	150	0.00	0.00	0.00	100.00	**100.00**
3"	75	0.00	0.00	0.00	100.00	**100.00**
2"	50	0.00	0.00	0.00	100.00	**100.00**
1 1/2"	37.5	0.00	0.00	0.00	100.00	**100.00**
1"	25.0	0.00	0.00	0.00	100.00	**100.00**
3/4"	19.0	0.00	0.00	0.00	100.00	**100.00**
1/2"	12.50	0.00	0.00	0.00	100.00	**100.00**
3/8"	9.50	1.96	0.23	0.23	99.77	**99.77**
#4	4.75	3.12	0.37	0.60	99.40	**99.40**
#10	2.00	29.38	3.44	4.04	95.96	**95.96**
#20	0.850	76.57	8.97	13.01	86.99	**86.99**
#40	0.425	25.06	2.94	15.95	84.05	**84.05**
#60	0.250	10.83	1.27	17.21	82.79	**82.79**
#140	0.106	21.29	2.49	19.71	80.29	**80.29**
#200	0.075	11.98	1.40	21.11	78.89	**78.89**
Pan	-	673.26	78.89	100.00	-	-

Tested By JP Date 3/1/06 Checked By YKB Date 3-6-06

DCN: CT-S3C DATE 6-25-98 REVISION: 2

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ATTERBERG LIMITS

ASTM D 4318-98 / AASHTO T89 (SOP - S4A)

Client	PAUL C. RIZZO	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Soil Description	REDDISH BROWN FAT CLAY

***Note:** The USCS symbol used with this test refers only to the minus No. 40 sieve material. See the "Sieve and Hydrometer Analysis" graph page for the complete material description.*

(Minus No. 40 sieve material, Airdried)

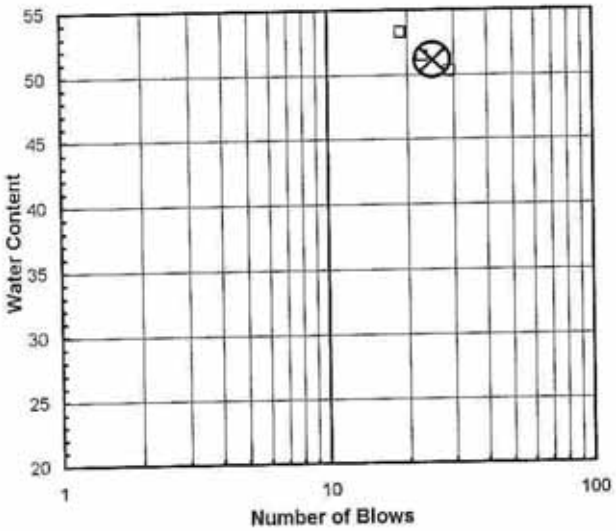
Liquid Limit Test	1	2	3	MULTIPOINT
Tare Number	1158	2184	189	
Wt. of Tare & WS (gm)	41.89	41.70	41.02	
Wt. of Tare & DS (gm)	34.34	34.40	33.60	
Wt. of Tare (gm)	19.32	20.21	19.67	
Wt. of Water (gm)	7.6	7.3	7.4	
Wt. of DS (gm)	15.0	14.2	13.9	
Moisture Content (%)	**50.3**	**51.4**	**53.3**	
Number of Blows	**29**	**23**	**19**	

Plastic Limit Test	1	2	Range
Tare Number	31	3	
Wt. of Tare & WS (gm)	22.54	22.43	
Wt. of Tare & DS (gm)	21.12	21.05	
Wt. of Tare (gm)	16.00	16.00	
Wt. of Water (gm)	1.4	1.4	
Wt. of DS (gm)	5.1	5.1	
Moisture Content (%)	**27.7**	**27.3**	**0.4**

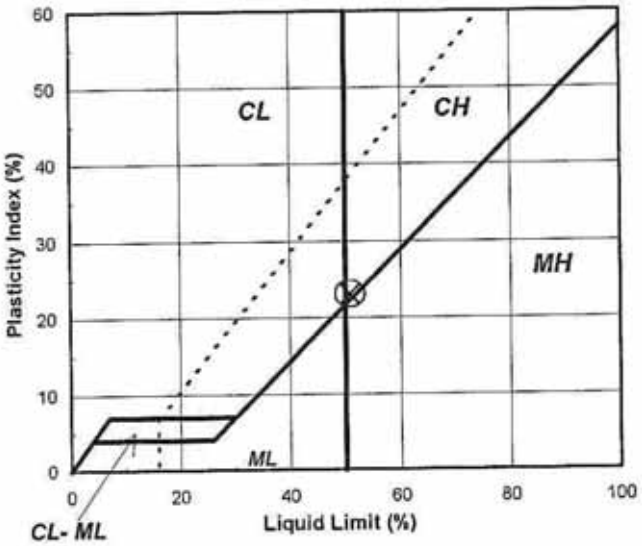
Note: The acceptable range of the two Moisture contents is ± 2.6

Test Results	
Liquid Limit (%)	51
Plastic Limit (%)	28
Plasticity Index (%)	23
USCS Symbol	CH

Flow Curve



Plasticity Chart



Tested By TO *Date* 3/5/06 *Checked By* HB *Date* 3-6-06

page 1 of 1 DCN: CT-S4B DATE: 10/8/01 REVISION: 2

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Visual Description	BROWN, REDDISH BROWN AND GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Maximum Shear Stress (psi)		Normal Stress (psi)
15.84	(1)	**20**
26.74	(2)	**40**
42.24	(3)	**60**

Overall Regression Analysis

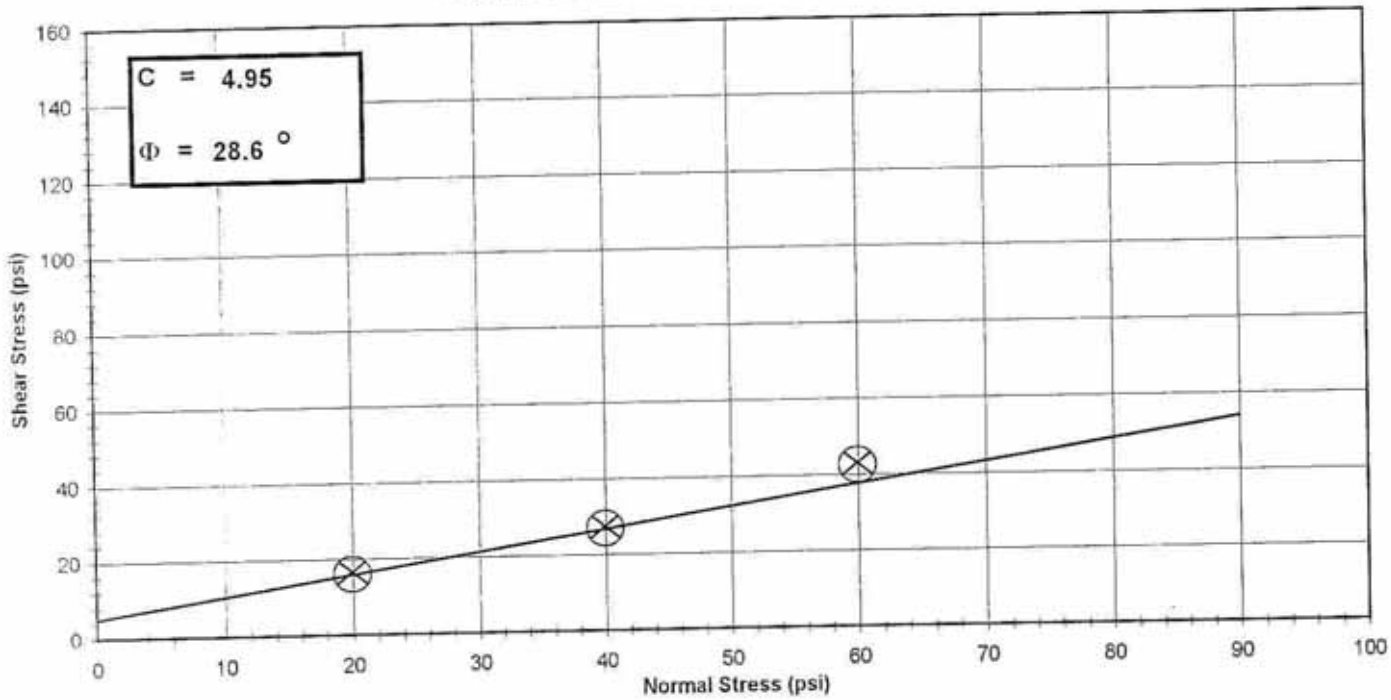
Slope	=	0.66	
C	**=**	**1.88**	
Φ	=	**33.4**	**degrees**

Selected Points	Shear Stress (psi)	Normal Stress (psi)
1	15.84	20
2	26.74	40

Selected Points Regression

Slope	=	0.54	
C	**=**	**4.95**	
Φ	=	**28.6**	**degrees**

SHEAR STRESS vs. NORMAL STRESS



Note: Graph not to scale

Tested By TM *Date* 3/3/06 *Approved By* DB *Date* 3/3/06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Visual Description	BROWN, REDDISH BROWN AND GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Maximum Shear Stress (psi)		Normal Stress (psi)
15.84	(1)	**20**
26.74	(2)	**40**
42.24	(3)	**60**

Overall Regression Analysis

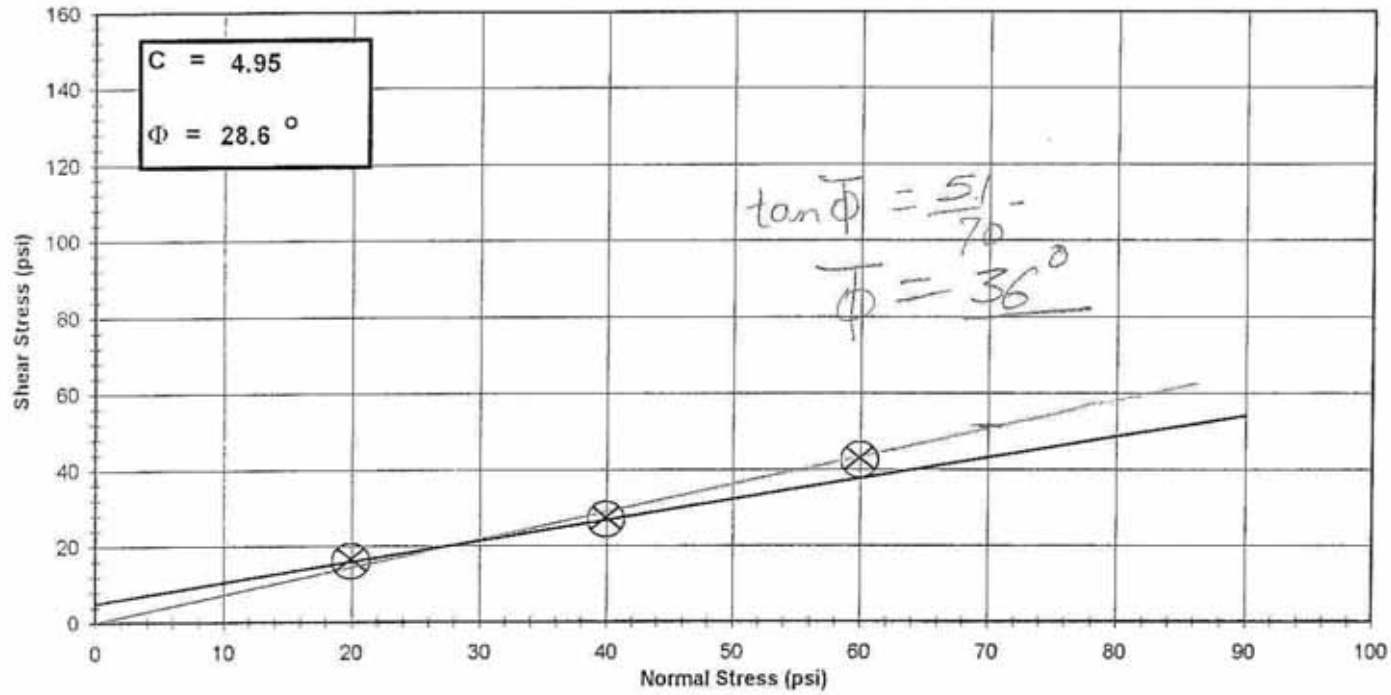
Slope	=	0.66	
C	**=**	**1.88**	
Φ	=	**33.4**	**degrees**

Selected Points	Shear Stress (psi)	Normal Stress (psi)
1	15.84	20
2	26.74	40

Selected Points Regression

Slope	=	0.54	
C	**=**	**4.95**	
Φ	=	**28.6**	**degrees**

SHEAR STRESS vs. NORMAL STRESS



Note: Graph not to scale

Tested By TM *Date* 3/3/06 *Approved By* DB *Date* 3/3/06

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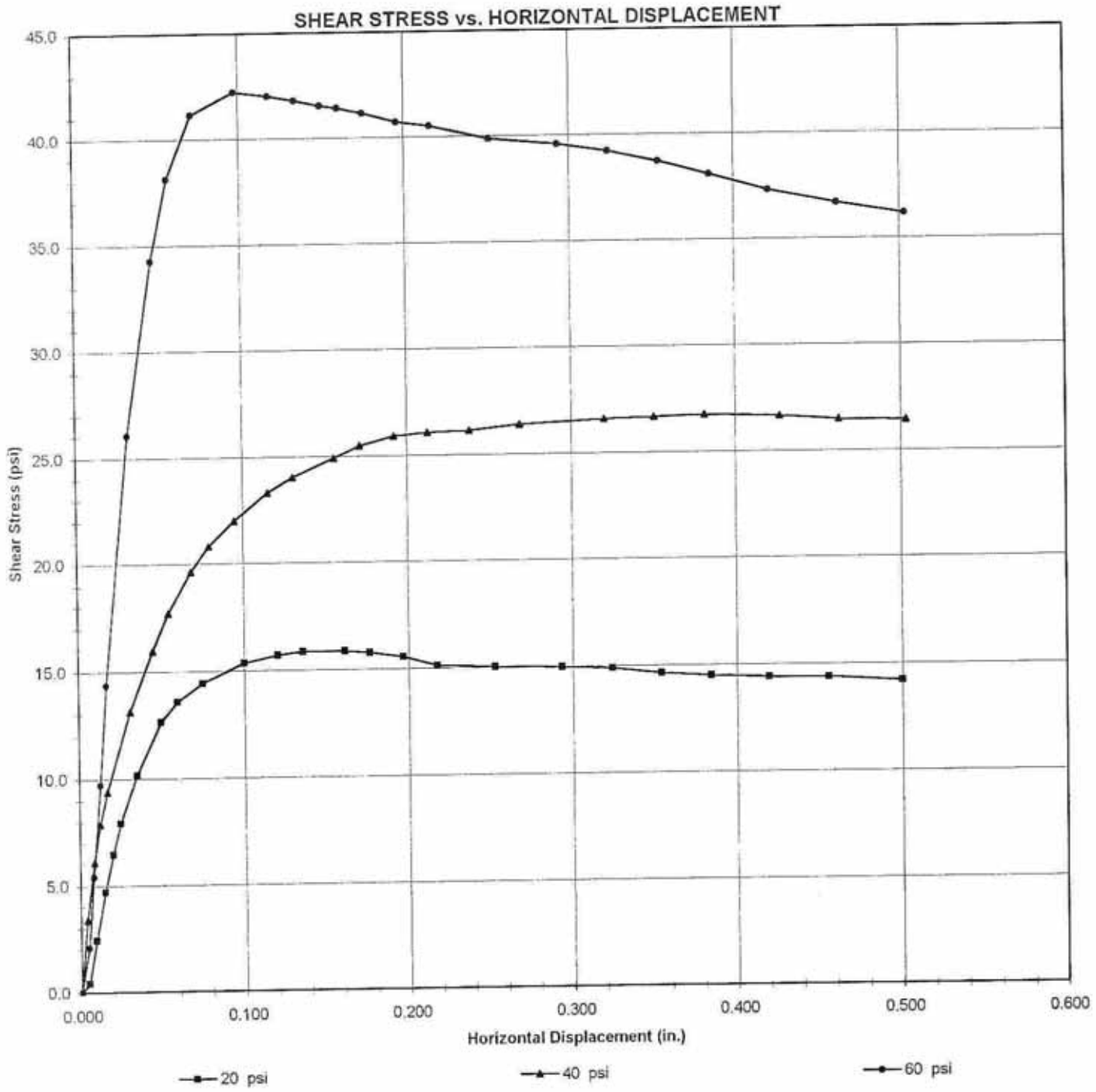
ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Visual Description	BROWN, REDDISH BROWN AND GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED



Tested By TM *Date* 3/3/06 *Approved By* DB *Date* 3/3/06

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DIRECT SHEAR
ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Visual Description	BROWN, REDDISH BROWN AND GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Machine ID # G 783

SHEAR BOX DATA

Wt.of Wet Specimen & Ring(gm)	609.02	Specific Gravity (Assumed)	2.70
Weight of Ring (gm)	457.26	Volume of Solids(cc)	44.5
Weight of Wet Specimen (gm)	151.76	Initial Consolidation Dial Reading (in.)	0.0
Initial Specimen Height (in)	1	Final Consolidation Dial Reading (in.)	0.0127
Specimen Diameter (in)	2.5	Corrected Final Cons. Reading (in.)	0.0069
Wet Density (pcf)	117.8	Void Ratio Before Consolidation	0.81
Dry Density (pcf)	**93.3**	**Void Ratio After Consolidation**	0.79

Moisture Content	*Before Test*	*After Test*
Tare ID	T-16	D-3
Wt. Wet Soil & Tare (gm)	258.13	189.25
Wt. Dry Soil & Tare (gm)	223.69	156.08
Wt. Tare (gm)	92.70	36.04
Wt. of Water (gm)	34.44	33.17
Wt. of Dry Soil (gm)	130.99	120.04
Moisture Content (%)	**26.3**	**27.6**

Testing Parameters	
Normal Stress(psi)	**20**
Strain Rate(in/min)	0.00144
Machine Deflection (in.)	0.0058

Horizontal Displacement (in)	Shear Force (lbs)	Shear Stress (psi)	Vertical Dial Reading (in)	Vertical Displacement (+)incr,(-)decr (in)	Shear To Normal Ratio
0.000	0.0	**0.00**	0.0000	0.0000	0.00
0.005	2.0	**0.41**	-0.0008	0.0008	0.02
0.009	11.9	**2.42**	-0.0024	0.0024	0.12
0.015	23.1	**4.71**	-0.0029	0.0029	0.24
0.020	31.6	**6.44**	-0.0029	0.0029	0.32
0.025	38.9	**7.92**	-0.0029	0.0029	0.40
0.035	49.9	**10.16**	-0.0029	0.0029	0.51
0.050	62.1	**12.64**	-0.0028	0.0028	0.63
0.060	66.6	**13.56**	-0.0026	0.0026	0.68
0.075	70.8	**14.42**	-0.0023	0.0023	0.72
0.100	75.2	**15.33**	-0.0021	0.0021	0.77
0.121	77.0	**15.69**	-0.0021	0.0021	0.78
0.136	77.8	**15.84**	-0.0021	0.0021	0.79
0.161	77.7	**15.84**	-0.0021	0.0021	0.79
0.177	77.3	**15.75**	-0.0021	0.0021	0.79
0.197	76.3	**15.54**	-0.0021	0.0021	0.78
0.217	74.2	**15.12**	-0.0022	0.0022	0.76
0.253	73.7	**15.01**	-0.0025	0.0025	0.75
0.294	73.5	**14.97**	-0.0025	0.0025	0.75
0.324	73.0	**14.88**	-0.0027	0.0027	0.74
0.354	71.7	**14.61**	-0.0026	0.0026	0.73
0.384	71.1	**14.49**	-0.0026	0.0026	0.72
0.420	70.6	**14.39**	-0.0026	0.0026	0.72
0.455	70.5	**14.36**	-0.0029	0.0029	0.72
0.500	69.6	**14.18**	-0.0028	0.0028	0.71

Tested By TM *Date* 3/1/06 *Input Checked By* GU *Date* 3-3-06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Visual Description	BROWN, REDDISH BROWN AND GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Machine ID # G 783

SHEAR BOX DATA

Wt.of Wet Specimen & Ring(gm)	349.48	Specific Gravity (Assumed)	2.70
Weight of Ring (gm)	203.58	Volume of Solids(cc)	42.0
Weight of Wet Specimen (gm)	145.9	Initial Consolidation Dial Reading (in.)	0.0
Initial Specimen Height (in)	1	Final Consolidation Dial Reading (in.)	0.0400
Specimen Diameter (in)	2.5	Corrected Final Cons. Reading (in.)	0.0326
Wet Density (pcf)	113.2	Void Ratio Before Consolidation	0.91
Dry Density (pcf)	**88.1**	**Void Ratio After Consolidation**	0.85

Moisture Content	*Before Test*	*After Test*
Tare ID	D-3	D-1
Wt. Wet Soil & Tare (gm)	235.13	181.63
Wt. Dry Soil & Tare (gm)	190.91	149.72
Wt. Tare (gm)	36.05	34.68
Wt. of Water (gm)	44.22	31.91
Wt. of Dry Soil (gm)	154.86	115.04
Moisture Content (%)	**28.6**	**27.7**

Testing Parameters	
Normal Stress(psi)	**40**
Strain Rate(in/min)	0.00144
Machine Deflection (in.)	0.0074

Horizontal Displacement (in)	Shear Force (lbs)	Shear Stress (psi)	Vertical Dial Reading (in)	Vertical Displacement (+)incr,(-)decr (in)	Shear To Normal Ratio
0.000	0.0	**0.00**	0.0000	0.0000	0.00
0.004	16.6	**3.38**	0.0002	-0.0002	0.08
0.008	29.8	**6.07**	0.0002	-0.0002	0.15
0.012	38.5	**7.84**	0.0002	-0.0002	0.20
0.017	46.0	**9.37**	0.0002	-0.0002	0.23
0.031	64.4	**13.12**	0.0000	0.0000	0.33
0.045	78.2	**15.94**	0.0025	-0.0025	0.40
0.055	86.9	**17.69**	0.0042	-0.0042	0.44
0.069	96.3	**19.61**	0.0067	-0.0067	0.49
0.080	102.2	**20.82**	0.0082	-0.0082	0.52
0.095	108.1	**22.02**	0.0093	-0.0093	0.55
0.115	114.4	**23.31**	0.0108	-0.0108	0.58
0.131	118.0	**24.03**	0.0114	-0.0114	0.60
0.156	122.3	**24.91**	0.0124	-0.0124	0.62
0.172	124.9	**25.45**	0.0126	-0.0126	0.64
0.192	127.1	**25.89**	0.0127	-0.0127	0.65
0.213	127.9	**26.06**	0.0127	-0.0127	0.65
0.238	128.3	**26.13**	0.0127	-0.0127	0.65
0.269	129.5	**26.39**	0.0126	-0.0126	0.66
0.320	130.6	**26.60**	0.0127	-0.0127	0.66
0.351	130.8	**26.65**	0.0126	-0.0126	0.67
0.381	131.3	**26.74**	0.0127	-0.0127	0.67
0.427	130.8	**26.65**	0.0127	-0.0127	0.67
0.463	129.9	**26.47**	0.0127	-0.0127	0.66
0.503	129.7	**26.43**	0.0127	-0.0127	0.66

Tested By TM *Date* 3/2/06 *Input Checked By* GU *Date* 3-3-06

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DIRECT SHEAR

ASTM D 3080-04 (SOP-S21)

Client	PAUL C. RIZZO & ASSOC.	Boring No.	TS-SOIL-04
Client Reference	TAUM SAUK 06-3551	Depth (in)	5-11
Project No.	2006-060-01	Sample No.	S-2
Lab ID	2006-060-01-74	Visual Description	BROWN, REDDISH BROWN AND GRAY MOTTLED CLAY

Sample Conditions: UNDISTURBED, INUNDATED AND DOUBLE DRAINED

Machine ID # G 783

SHEAR BOX DATA

Wt.of Wet Specimen & Ring(gm)	611.35	Specific Gravity (Assumed)	2.70
Weight of Ring (gm)	457.26	Volume of Solids(cc)	46.3
Weight of Wet Specimen (gm)	154.09	Initial Consolidation Dial Reading (in.)	0.0
Initial Specimen Height (in)	1	Final Consolidation Dial Reading (in.)	0.0516
Specimen Diameter (in)	2.5	Corrected Final Cons. Reading (in.)	0.0428
Wet Density (pcf)	119.6	Void Ratio Before Consolidation	0.74
Dry Density (pcf)	**96.9**	**Void Ratio After Consolidation**	0.66

Moisture Content	*Before Test*	*After Test*
Tare ID	01	1399
Wt. Wet Soil & Tare (gm)	154.55	190.84
Wt. Dry Soil & Tare (gm)	134.96	159.47
Wt. Tare (gm)	51.22	38.16
Wt. of Water (gm)	19.59	31.37
Wt. of Dry Soil (gm)	83.74	121.31
Moisture Content (%)	**23.4**	**25.9**

Testing Parameters	
Normal Stress(psi)	60
Strain Rate(in/min)	0.00144
Machine Deflection (in.)	0.0088

Horizontal Displacement (in)	Shear Force (lbs)	Shear Stress (psi)	Vertical Dial Reading (in)	Vertical Displacement (+)incr,(-)decr (in)	Shear To Normal Ratio
0.000	0.0	**0.00**	0.0000	0.0000	0.00
0.005	10.2	**2.07**	0.0000	0.0000	0.03
0.008	26.6	**5.41**	-0.0001	0.0001	0.09
0.013	47.8	**9.73**	0.0000	0.0000	0.16
0.017	70.4	**14.35**	-0.0001	0.0001	0.24
0.031	127.9	**26.06**	0.0000	0.0000	0.43
0.047	168.3	**34.29**	-0.0002	0.0002	0.57
0.057	187.1	**38.12**	-0.0002	0.0002	0.64
0.072	202.1	**41.16**	-0.0001	0.0001	0.69
0.098	207.3	**42.24**	-0.0001	0.0001	0.70
0.118	206.3	**42.02**	0.0002	-0.0002	0.70
0.134	205.2	**41.80**	0.0005	-0.0005	0.70
0.150	203.9	**41.54**	0.0011	-0.0011	0.69
0.160	203.3	**41.41**	0.0017	-0.0017	0.69
0.175	202.1	**41.16**	0.0023	-0.0023	0.69
0.196	200.0	**40.74**	0.0026	-0.0026	0.68
0.216	198.8	**40.51**	0.0034	-0.0034	0.68
0.252	195.8	**39.88**	0.0044	-0.0044	0.66
0.293	194.3	**39.57**	0.0055	-0.0055	0.66
0.324	192.4	**39.20**	0.0060	-0.0060	0.65
0.355	189.9	**38.69**	0.0063	-0.0063	0.64
0.385	186.7	**38.04**	0.0066	-0.0066	0.63
0.421	183.0	**37.28**	0.0072	-0.0072	0.62
0.462	180.0	**36.67**	0.0075	-0.0075	0.61
0.503	177.5	**36.16**	0.0081	-0.0081	0.60

Tested By TM *Date* 2/28/06 *Input Checked By* GU *Date* 3-3-06

DCN: CT-S21 DATE: 12/12/05 REV: 4

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MOISTURE CONTENT

ASTM D 2216 (SOP-S1)

Client	PAUL C. RIZZO
Client Reference	TAUM SAUK 06-3551
Project No.	2006-060-01

Lab ID	067	069	070	072	074
Boring No.	TS-SOIL-01	TS-SOIL-02	TS-SOIL-02	TS-SOIL-03	TS-SOIL-04
Depth (in)	9-14	7-12	12-19	7-15	5-11
Sample No.	S-2	S-2	S-3	S-2	S-2
Tare Number	1126	D-3	884	614	497
Wt. of Tare & WS (gm)	417.6	163.32	352.07	149.02	217.03
Wt. of Tare & DS (gm)	375.09	136.51	295.88	138.68	166.58
Wt. of Tare (gm)	84.89	36.05	109.76	84.69	8.24
Wt. of Water (gm)	42.51	26.81	56.19	10.34	50.45
Wt. of DS (gm)	290.2	100.46	186.12	53.99	158.34
Water Content (%)	**14.6**	**26.7**	**30.2**	**19.2**	**31.9**

Notes : *NA*

Tested By *TM* *Date* *2/21/06* *Checked By* KVB *Date* 3-13-06

DCN: CT-S1 DATE 6-30-98 REVISION: 2

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