

MATERIAL: Sed 11 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/21/11

TESTED BY: HS

$D_{60}$  (mm): 0.70

$D_{30}$  (mm): 0.36

$D_{10}$  (mm): 0.23

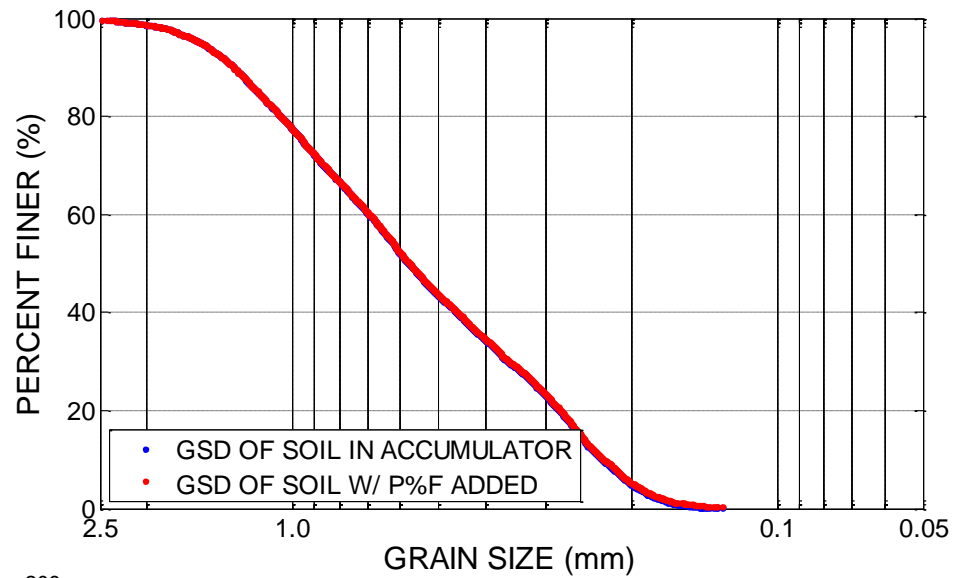
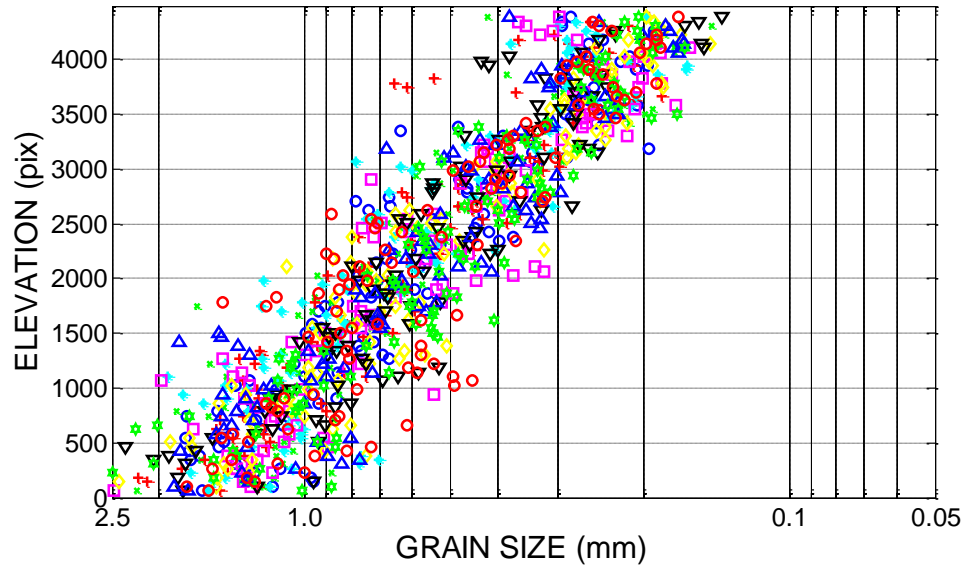
$C_u$ : 3.05

$C_g$ : 0.80

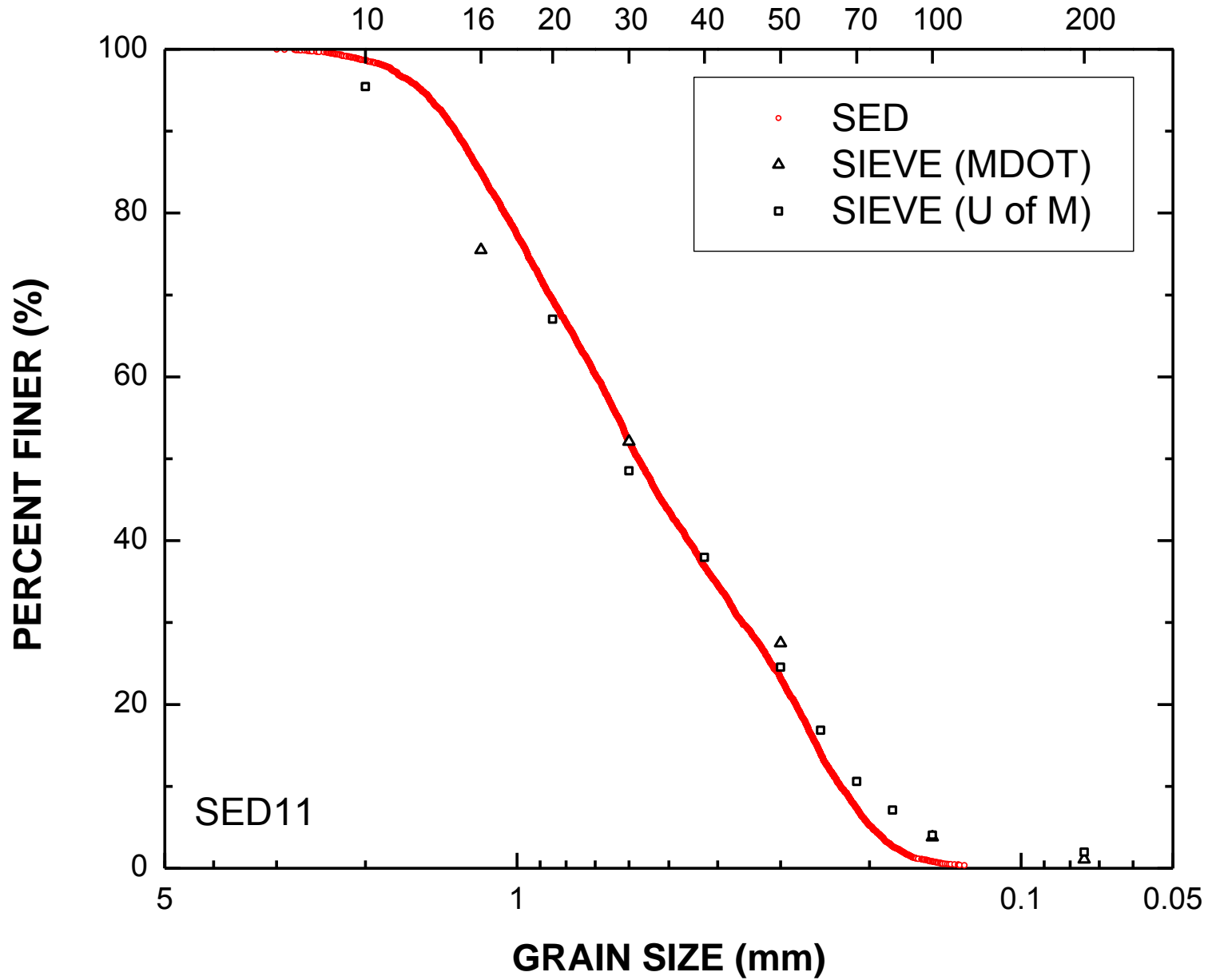
MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4488 x 1280

IMAGE SIZE (mm): 121.6 x 34.7



# U. S. STANDARD SIEVE NUMBERS



MATERIAL: Sed 12 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/22/11

TESTED BY: HS

$D_{60}$  (mm): 1.08

$D_{30}$  (mm): 0.39

$D_{10}$  (mm): 0.22

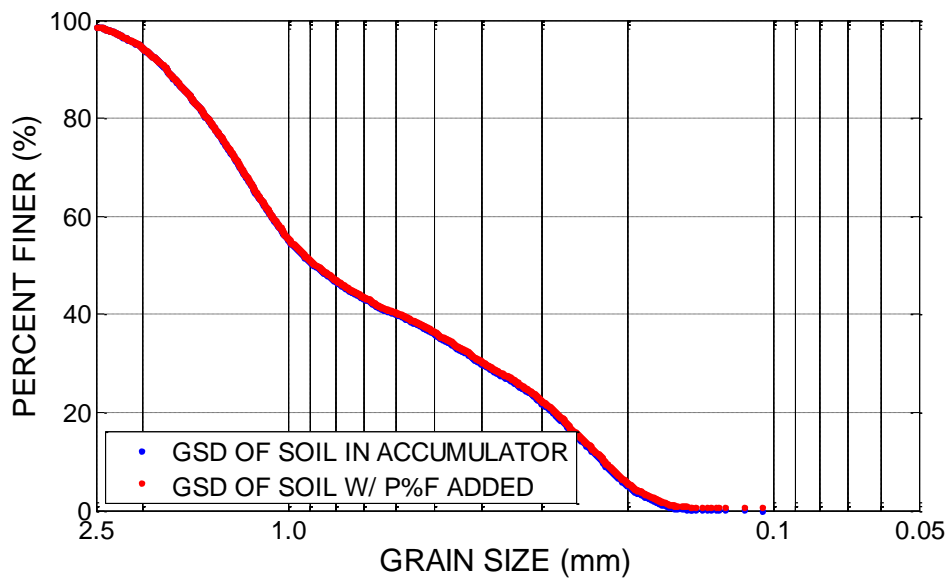
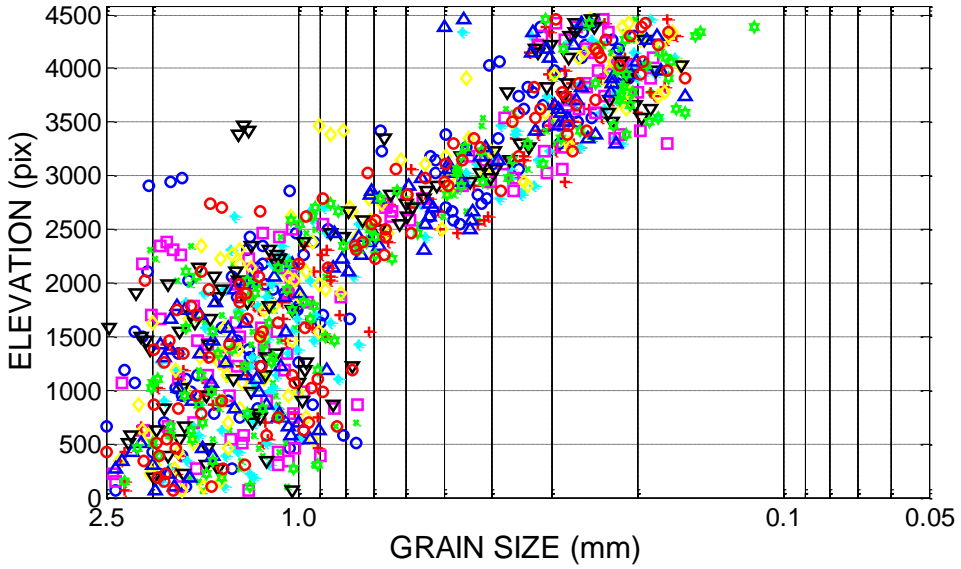
$C_u$ : 4.85

$C_g$ : 0.64

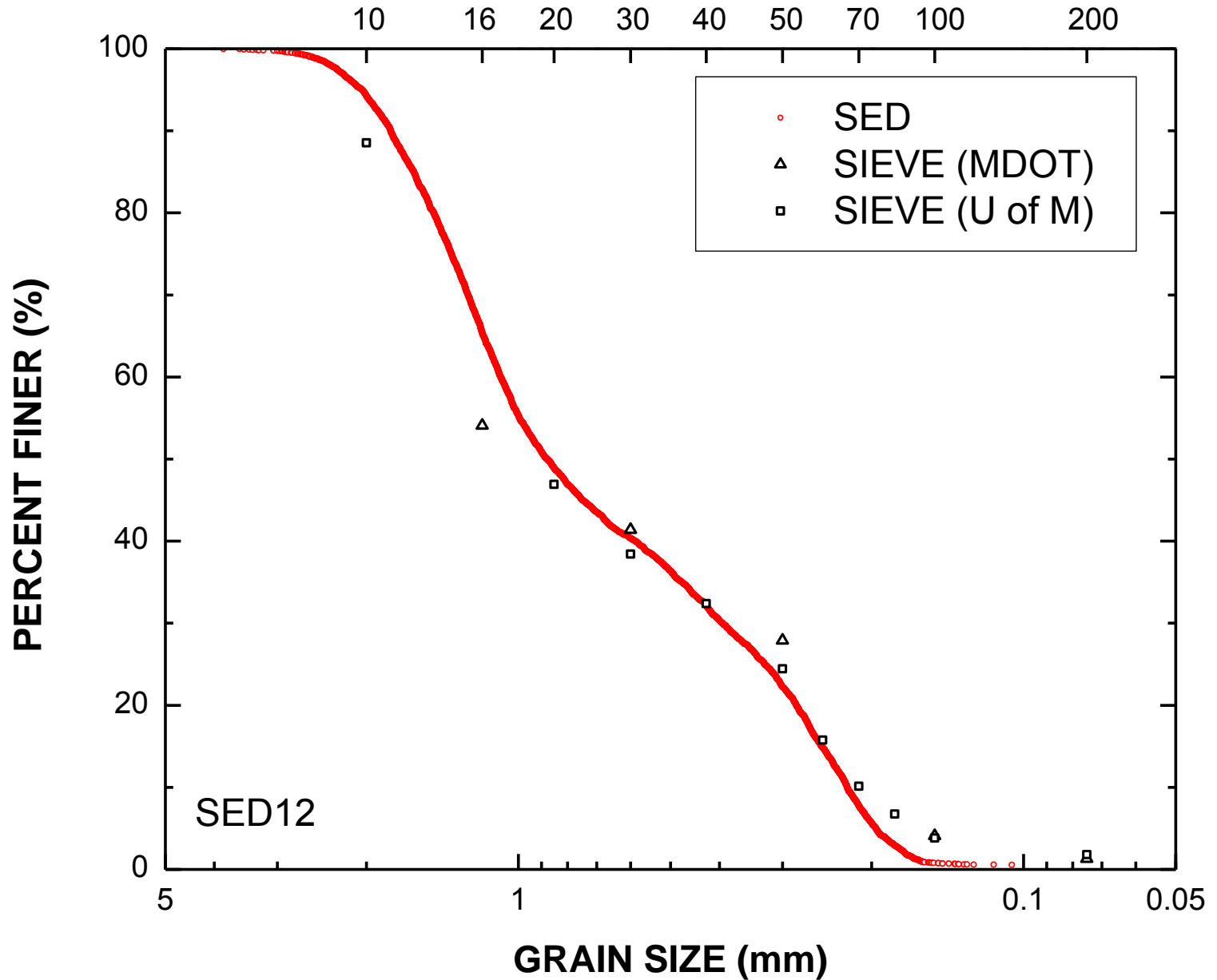
MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4584 x 1280

IMAGE SIZE (mm): 124.2 x 34.7



# U. S. STANDARD SIEVE NUMBERS



MATERIAL: Sed 13 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/20/11

TESTED BY: HS

$D_{60}$  (mm): 0.81

$D_{30}$  (mm): 0.46

$D_{10}$  (mm): 0.23

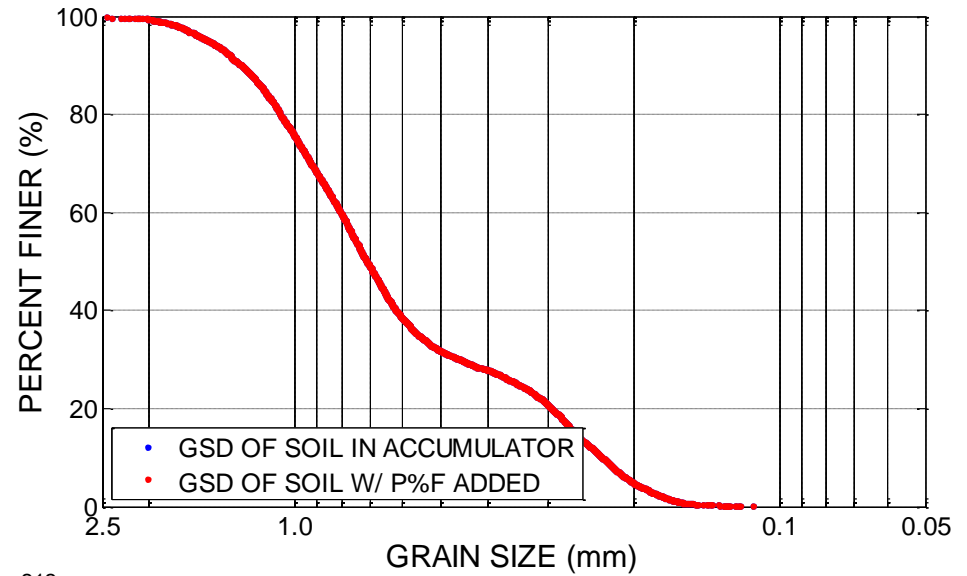
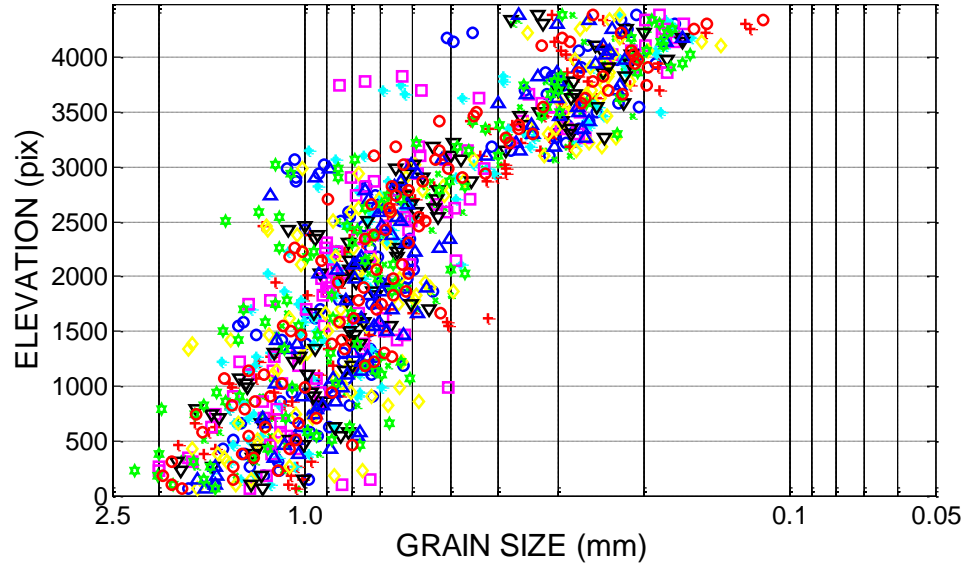
$C_u$ : 3.46

$C_g$ : 1.11

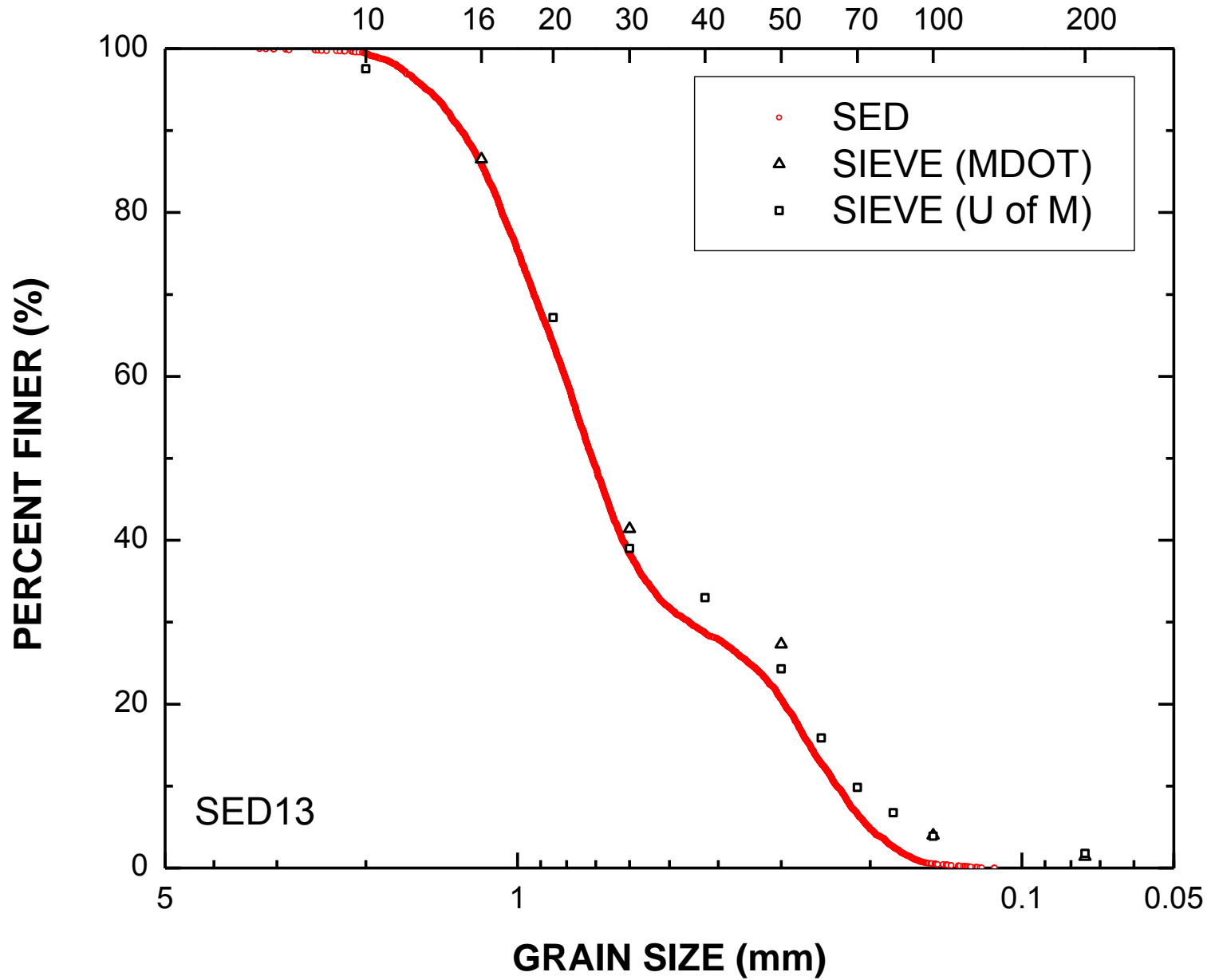
MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4488 x 1280

IMAGE SIZE (mm): 121.6 x 34.7



# U. S. STANDARD SIEVE NUMBERS

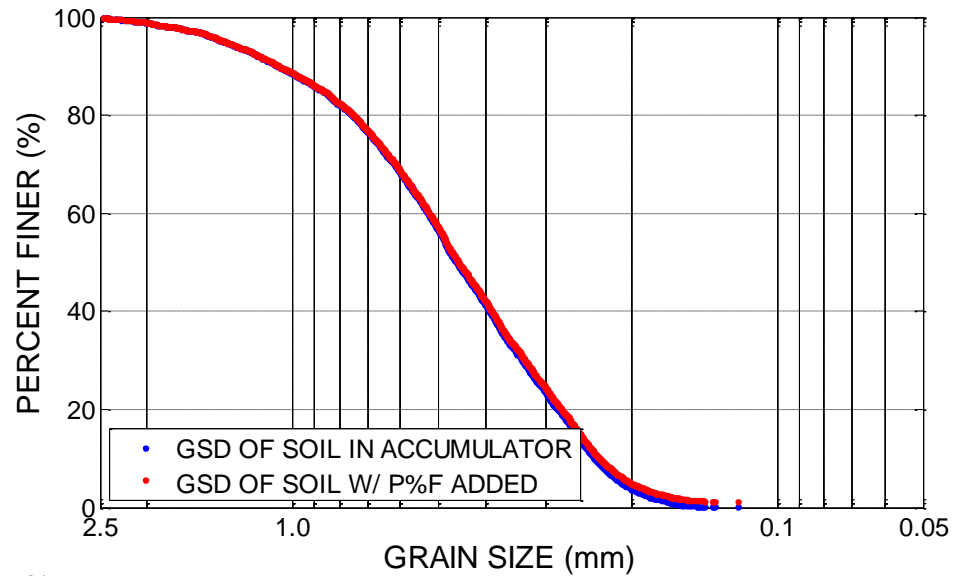
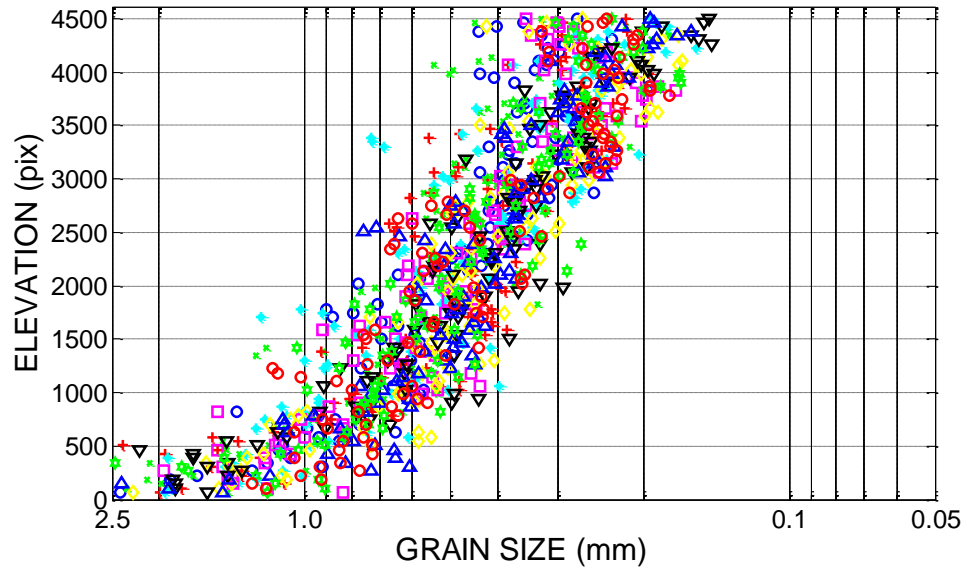




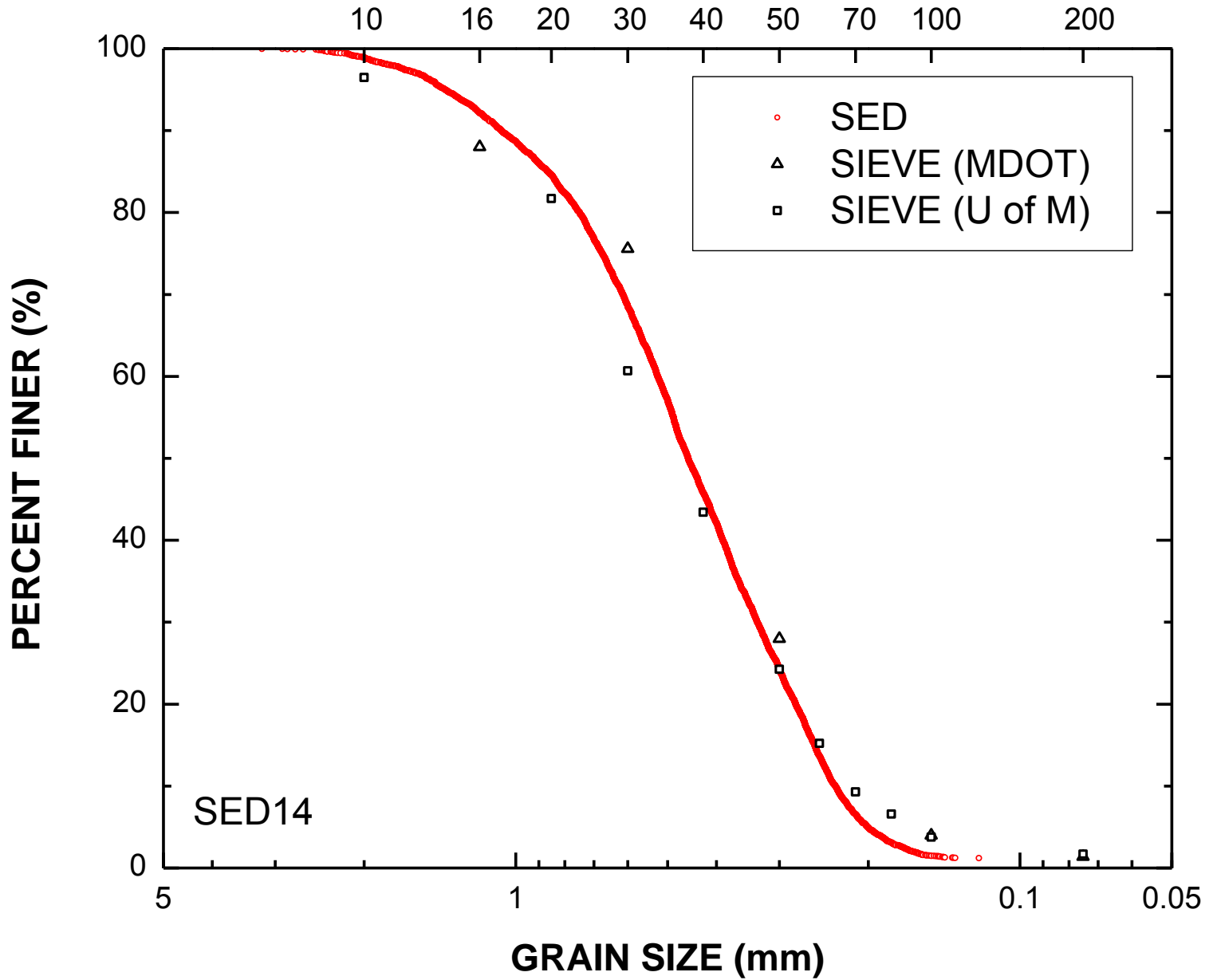
MATERIAL: Sed 14 U of M  
 PIT NUMBER:  
 PIT NAME:  
 DATE SAMPLED:  
 SAMPLED BY:  
 DATE TESTED: 09/23/11  
 TESTED BY: HS

$D_{60}$  (mm): 0.52  
 $D_{30}$  (mm): 0.33  
 $D_{10}$  (mm): 0.23  
 $C_u$ : 2.25  
 $C_g$ : 0.91

MAGNIFICATION (pix/mm): 36.9  
 IMAGE SIZE (pix): 4600 x 1280  
 IMAGE SIZE (mm): 124.7 x 34.7



# U. S. STANDARD SIEVE NUMBERS







MATERIAL: Sed 15 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/22/11

TESTED BY: HS

$D_{60}$  (mm): 0.64

$D_{30}$  (mm): 0.29

$D_{10}$  (mm): 0.22

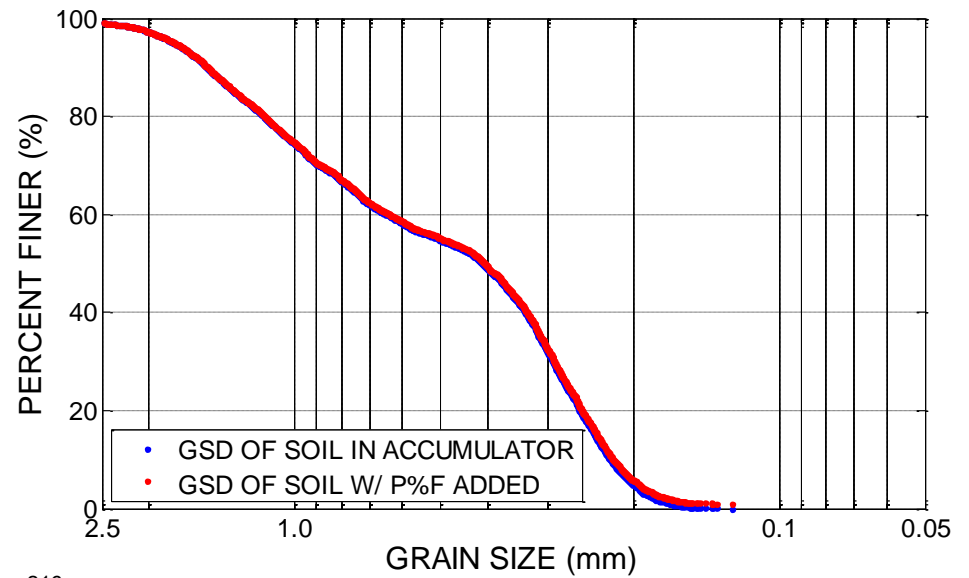
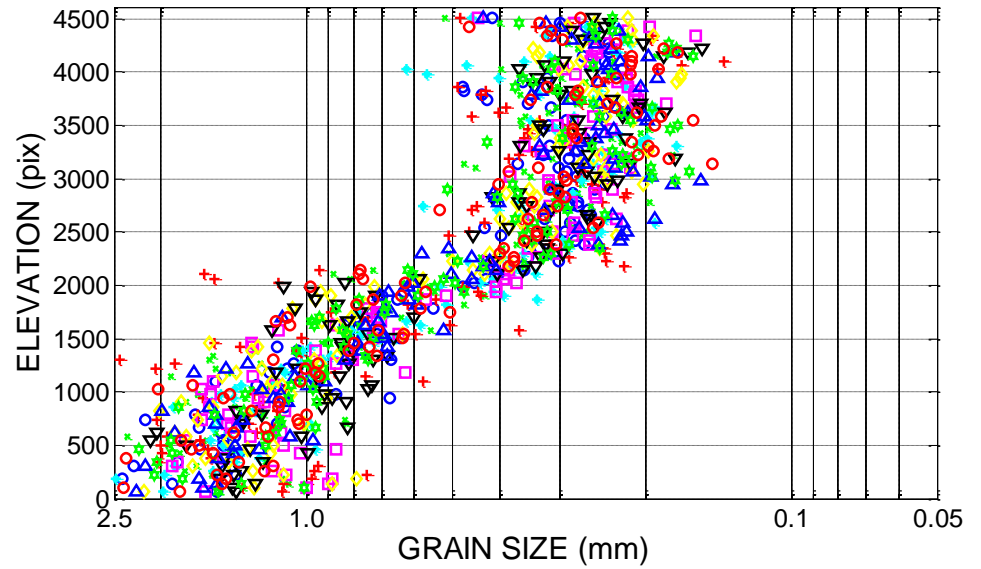
$C_u$ : 2.89

$C_g$ : 0.61

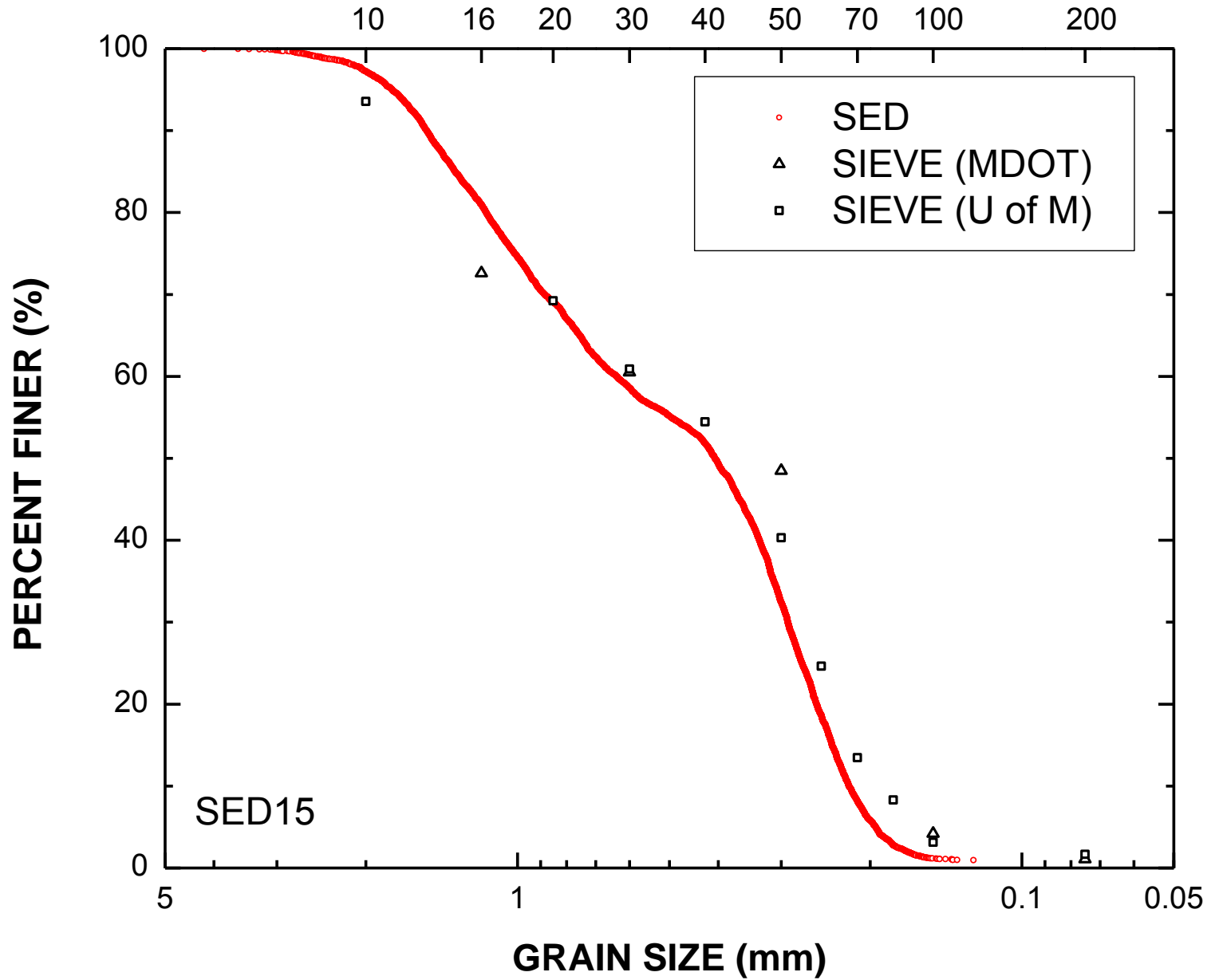
MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4608 x 1280

IMAGE SIZE (mm): 124.9 x 34.7



# U. S. STANDARD SIEVE NUMBERS



MATERIAL: Sed 16 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/15/11

TESTED BY: HS

$D_{60}$  (mm): 0.43

$D_{30}$  (mm): 0.18

$D_{10}$  (mm): 0.11

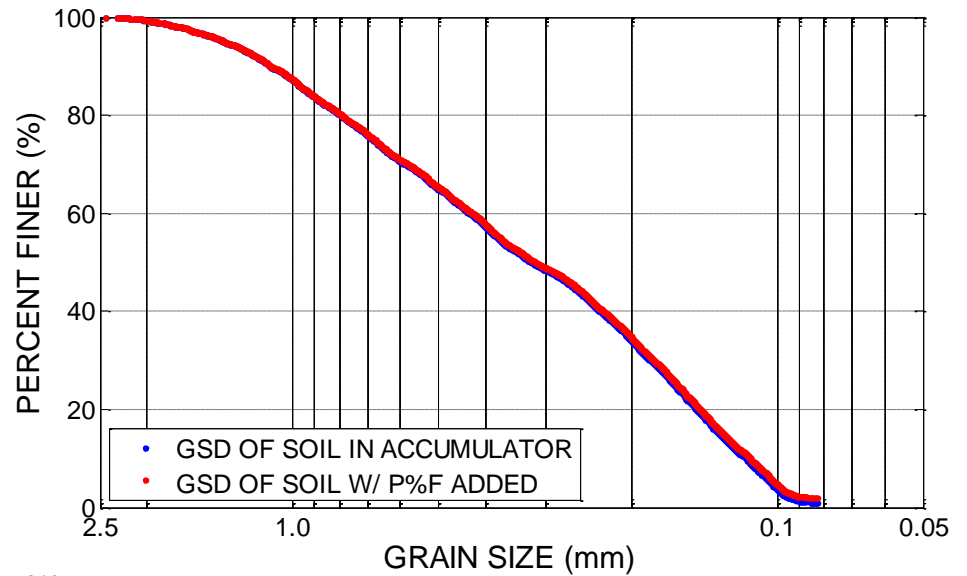
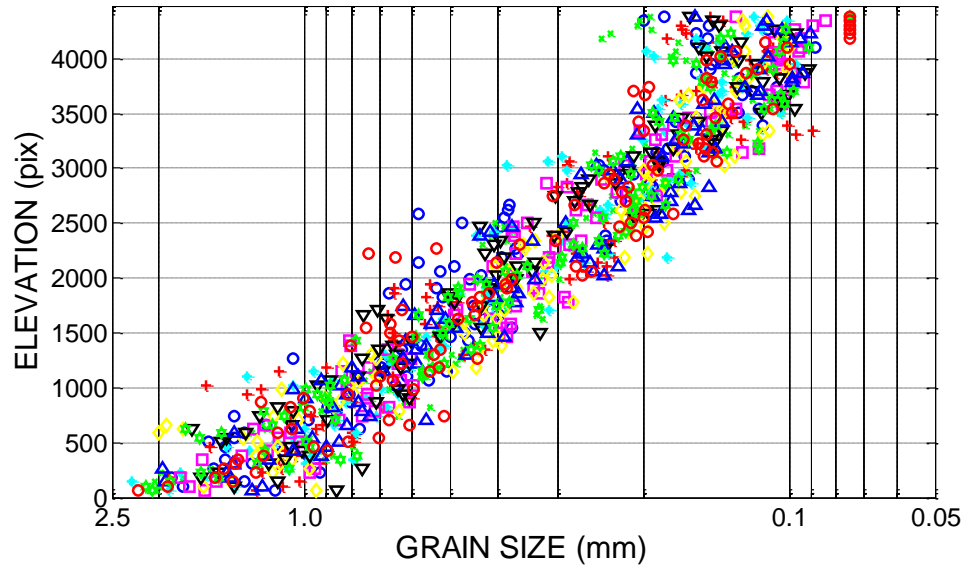
$C_u$ : 3.74

$C_g$ : 0.66

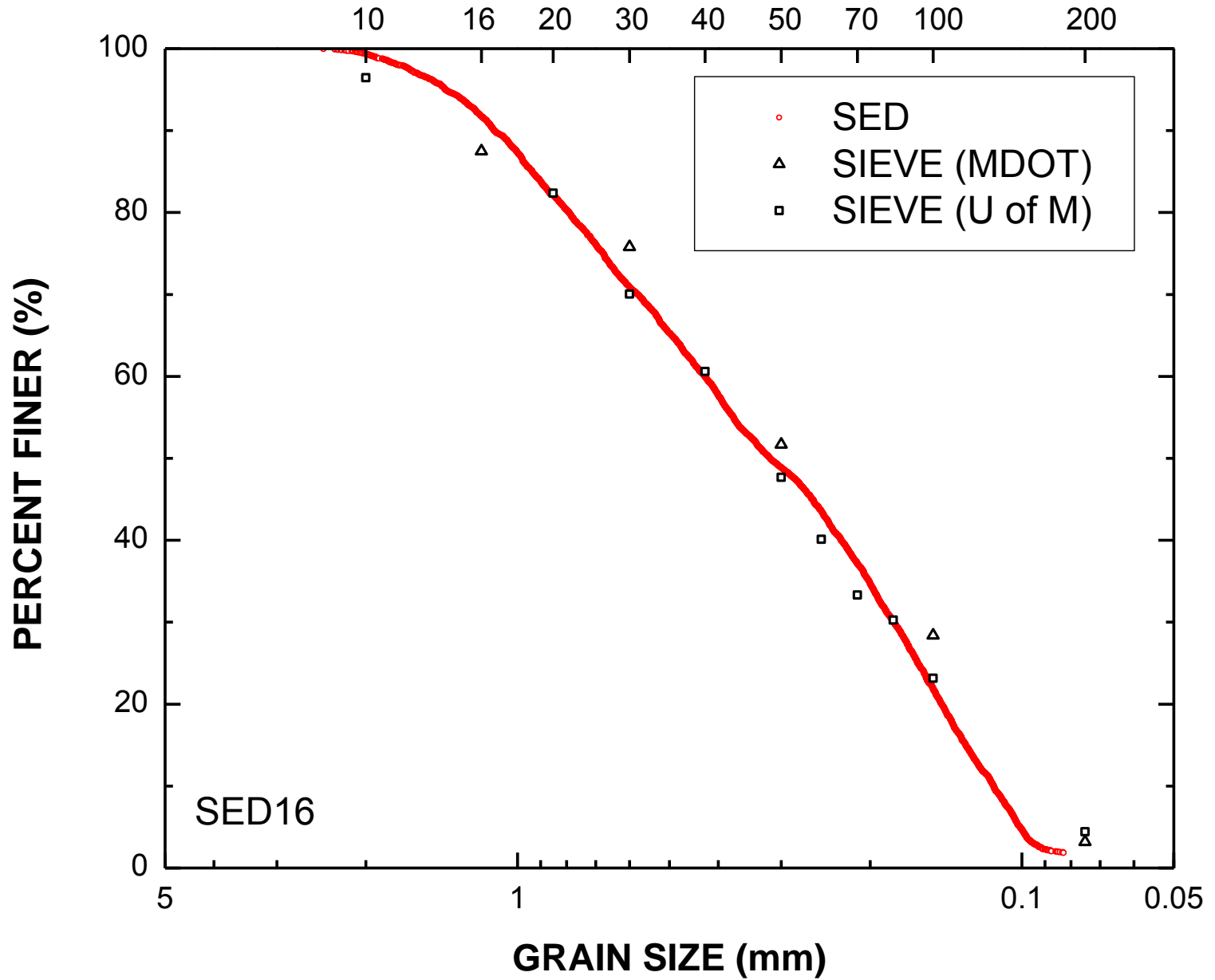
MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4480 x 1280

IMAGE SIZE (mm): 121.4 x 34.7



# U. S. STANDARD SIEVE NUMBERS



MATERIAL: Sed 17 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/21/11

TESTED BY: HS

$D_{60}$  (mm): 0.92

$D_{30}$  (mm): 0.57

$D_{10}$  (mm): 0.31

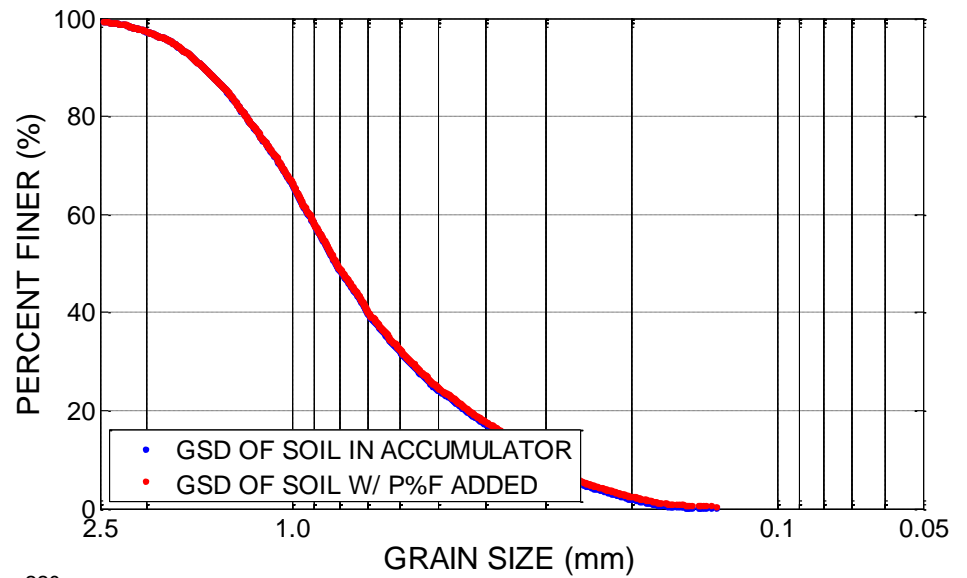
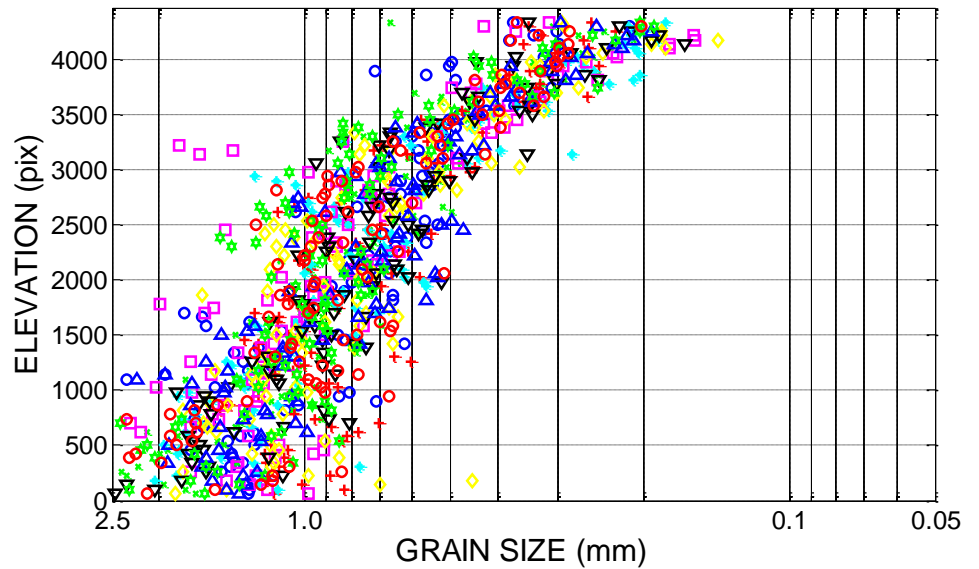
$C_u$ : 2.97

$C_g$ : 1.13

MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4464 x 1280

IMAGE SIZE (mm): 121.0 x 34.7





MATERIAL: Sed 18 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

DATE TESTED: 09/21/11

TESTED BY: HS

$D_{60}$  (mm): 0.51

$D_{30}$  (mm): 0.27

$D_{10}$  (mm): 0.18

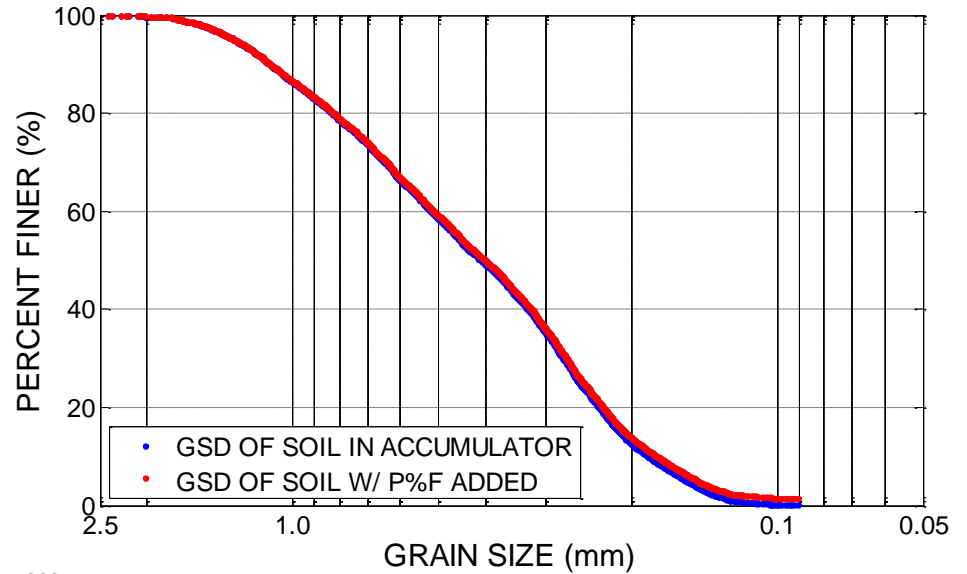
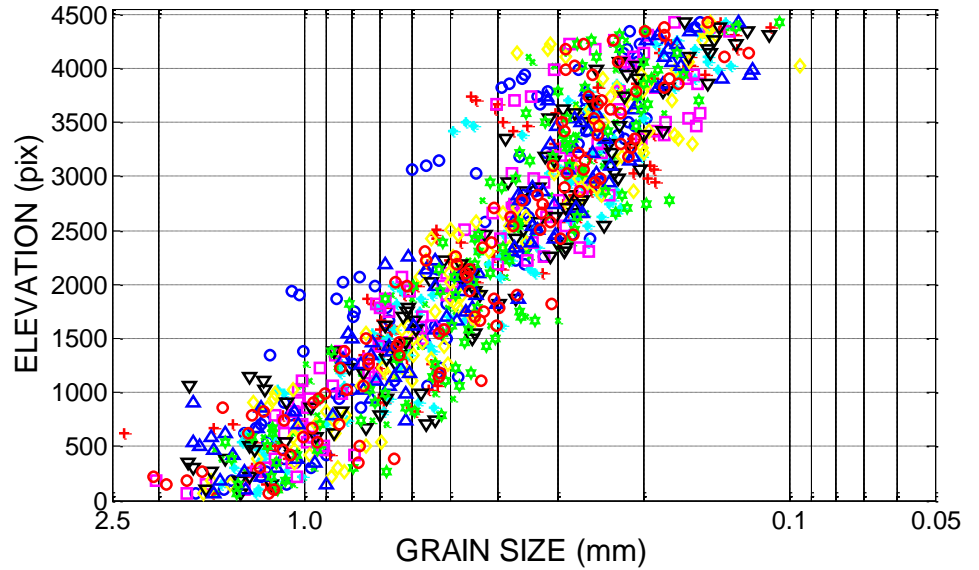
$C_u$ : 2.89

$C_g$ : 0.82

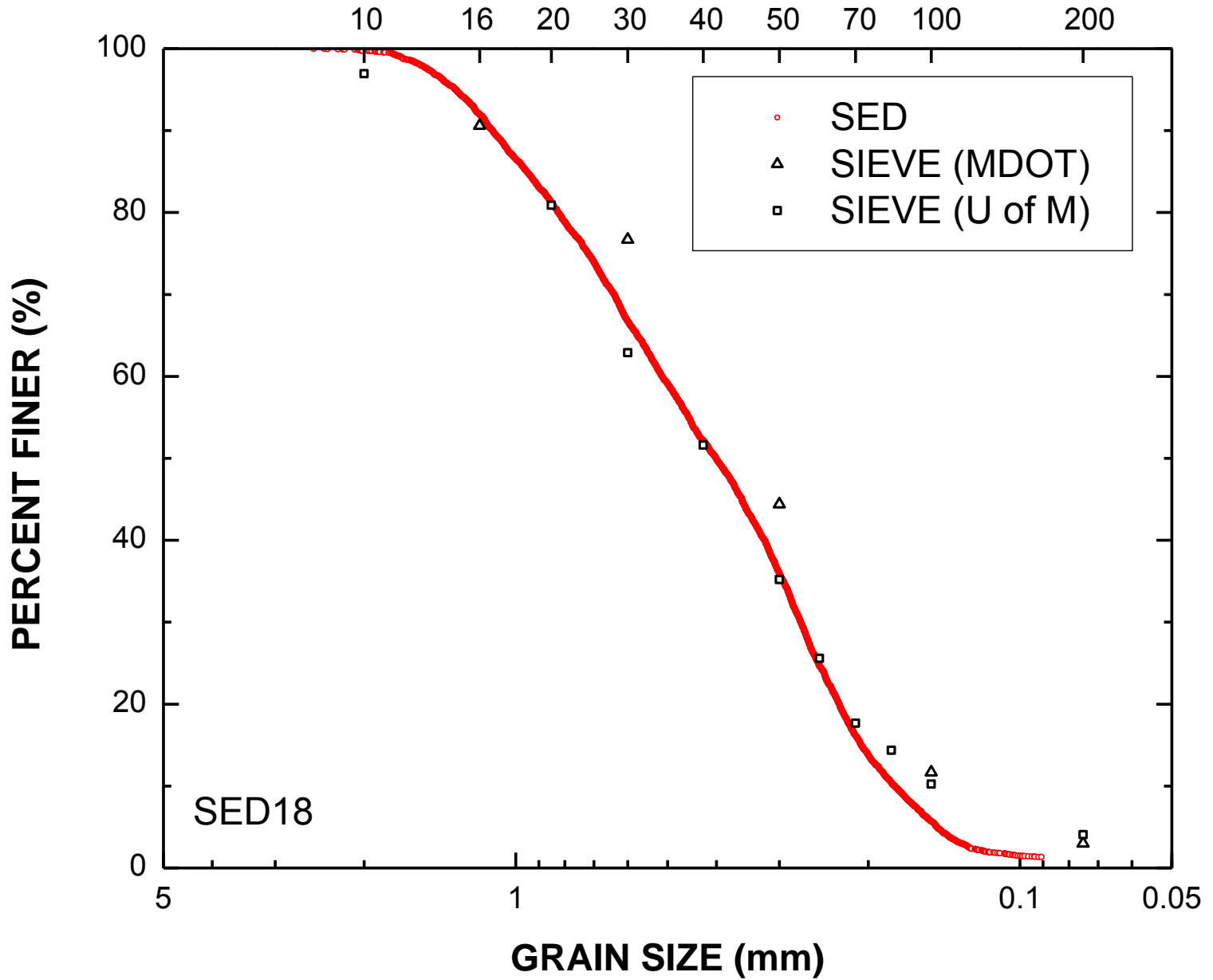
MAGNIFICATION (pix/mm): 36.9

IMAGE SIZE (pix): 4552 x 1280

IMAGE SIZE (mm): 123.4 x 34.7



# U. S. STANDARD SIEVE NUMBERS



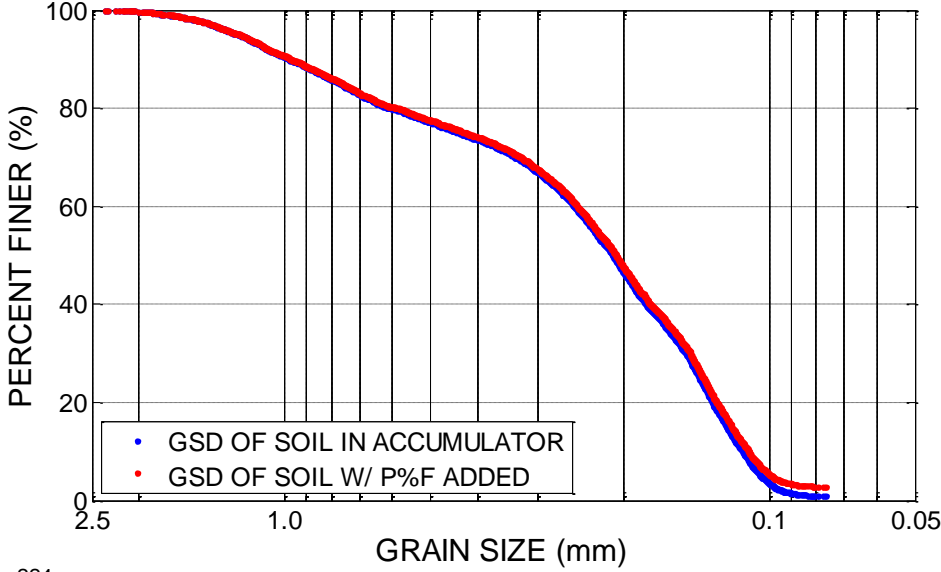
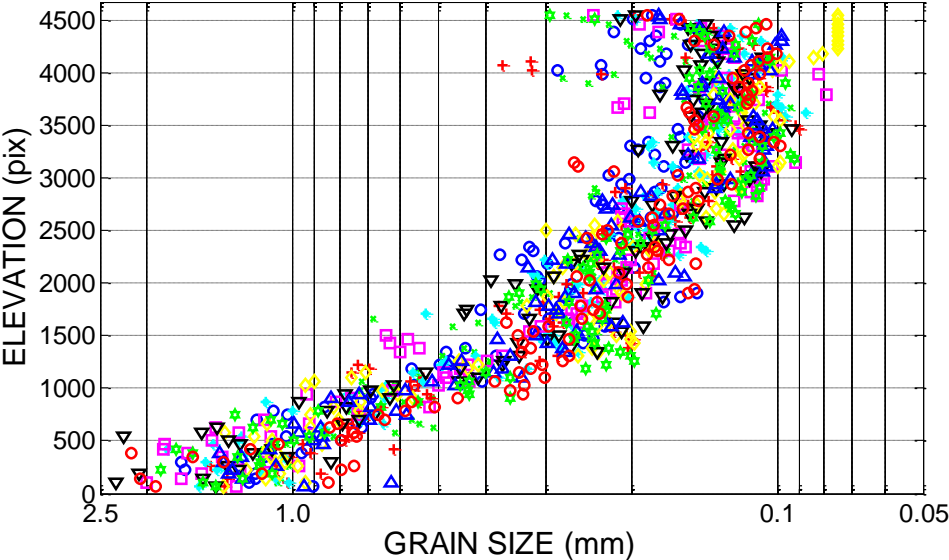




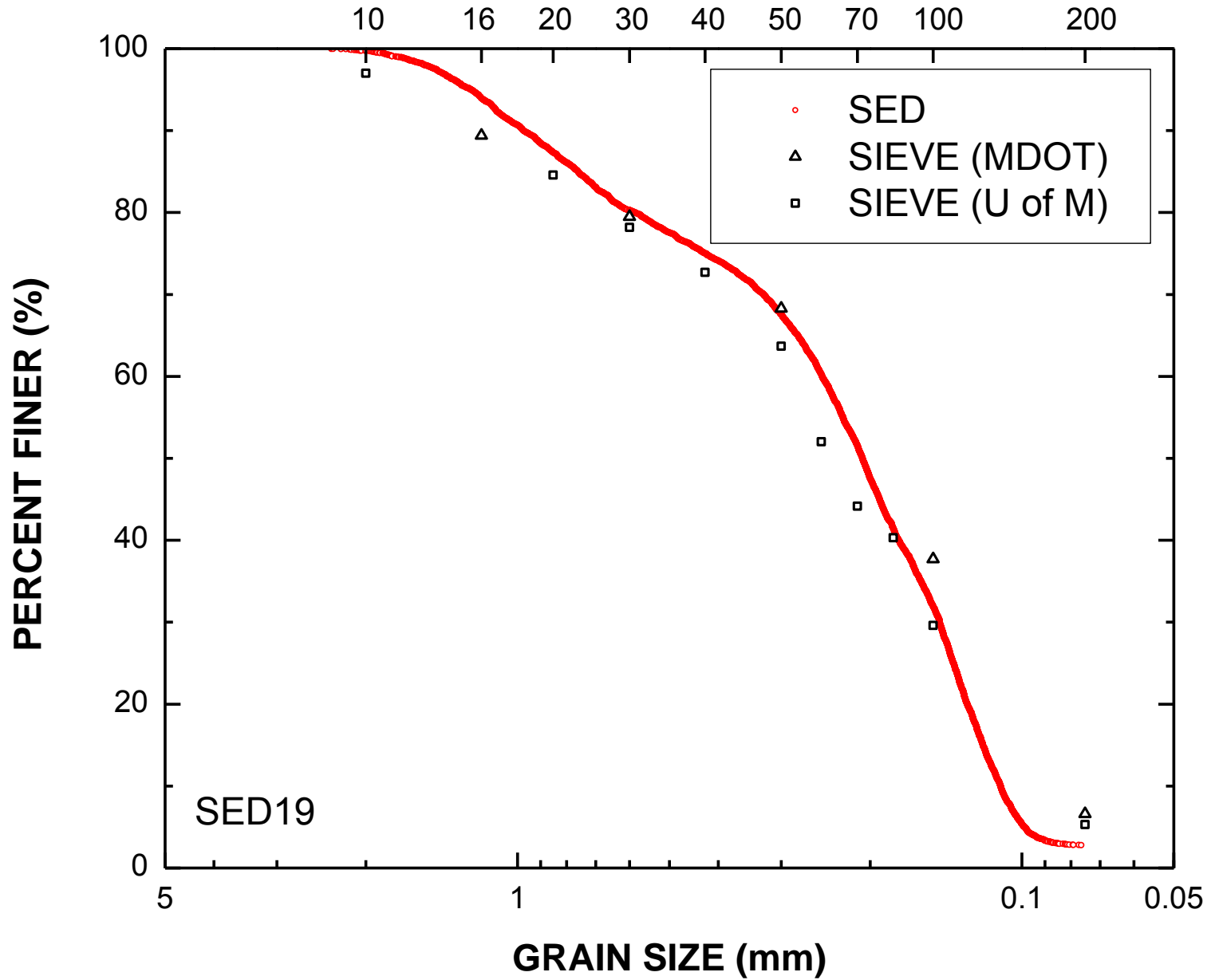
MATERIAL: Sed 19 U of M  
PIT NUMBER:  
PIT NAME:  
DATE SAMPLED:  
SAMPLED BY:  
DATE TESTED: 09/22/11  
TESTED BY: HS

$D_{60}$  (mm): 0.25  
 $D_{30}$  (mm): 0.15  
 $D_{10}$  (mm): 0.11  
 $C_u$ : 2.26  
 $C_g$ : 0.77

MAGNIFICATION (pix/mm): 36.9  
IMAGE SIZE (pix): 4672 x 1280  
IMAGE SIZE (mm): 126.6 x 34.7



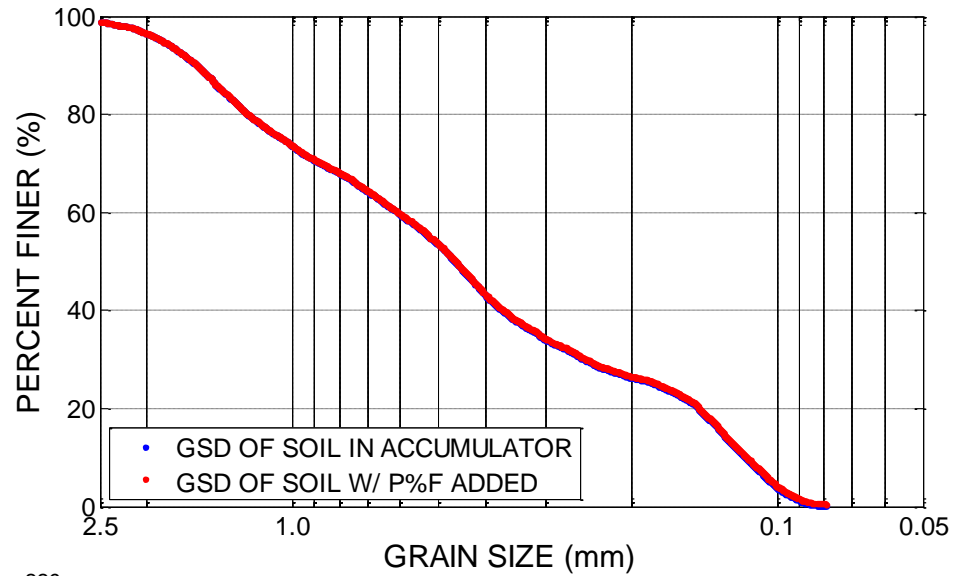
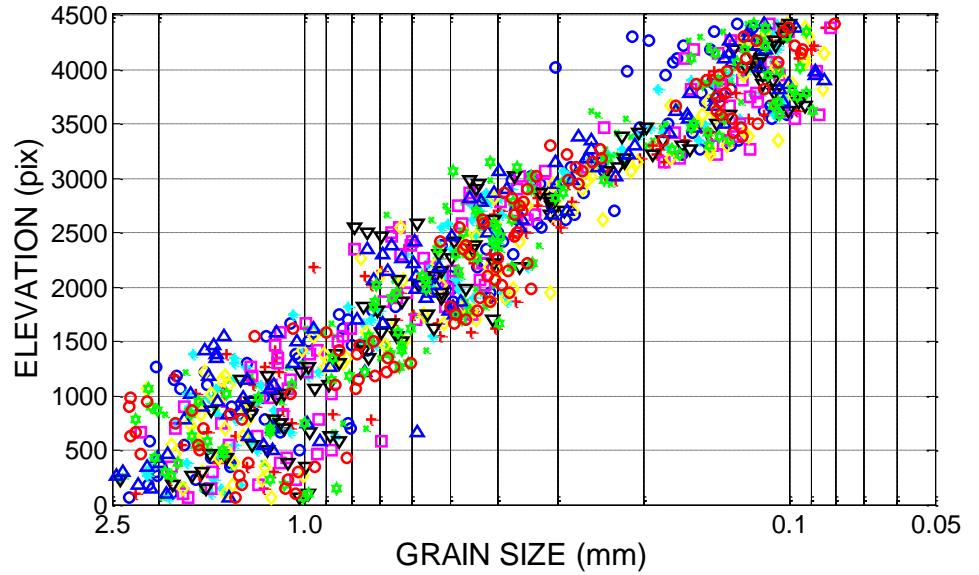
# U. S. STANDARD SIEVE NUMBERS



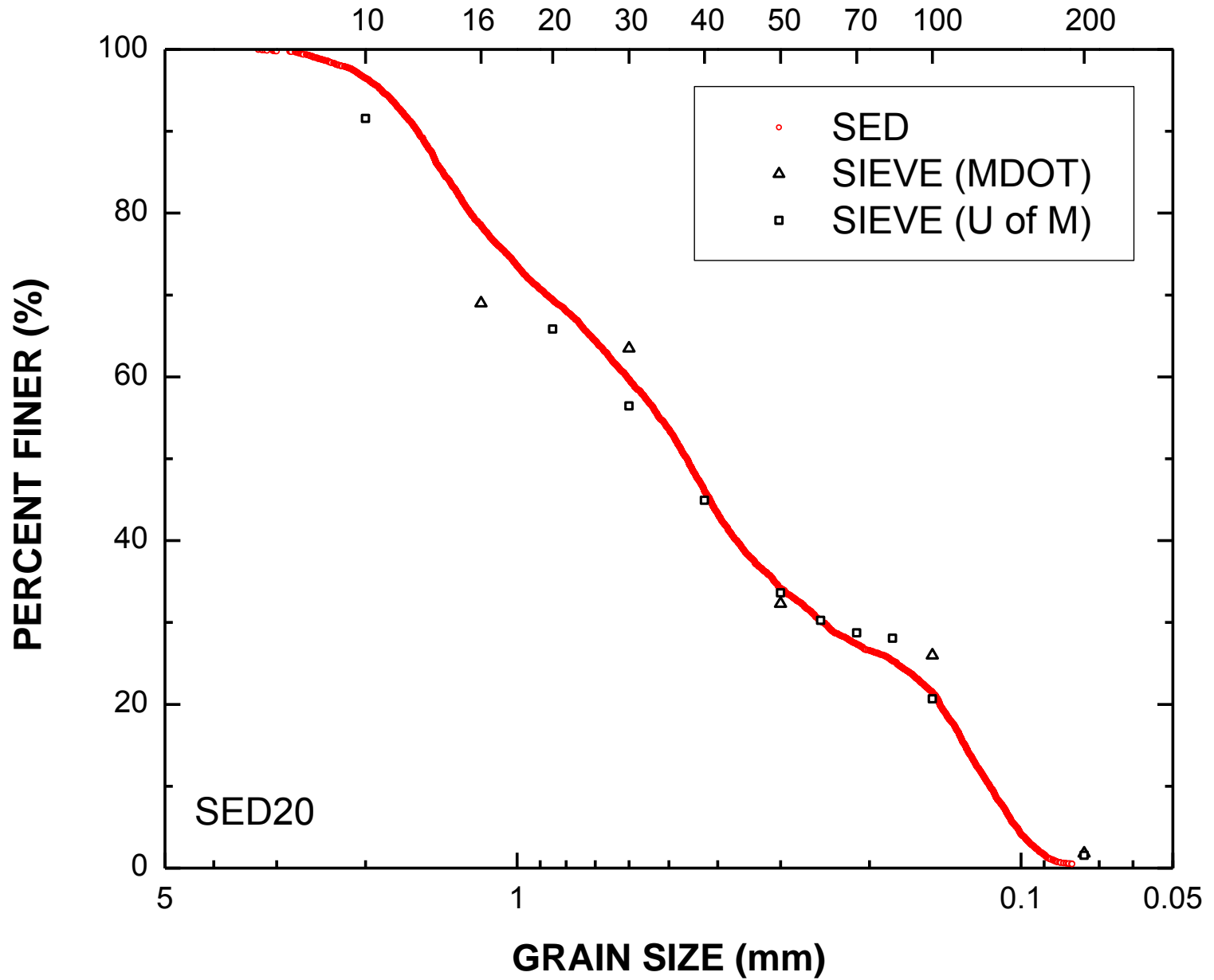
MATERIAL: Sed 20 U of M  
 PIT NUMBER:  
 PIT NAME:  
 DATE SAMPLED:  
 SAMPLED BY:  
 DATE TESTED: 09/20/11  
 TESTED BY: HS

$D_{60}$  (mm): 0.61  
 $D_{30}$  (mm): 0.25  
 $D_{10}$  (mm): 0.12  
 $C_u$ : 5.25  
 $C_g$ : 0.88

MAGNIFICATION (pix/mm): 36.9  
 IMAGE SIZE (pix): 4520 x 1280  
 IMAGE SIZE (mm): 122.5 x 34.7



# U. S. STANDARD SIEVE NUMBERS



APPENDIX G

TST TESTING RESULTS FOR STATISTICAL ANALYSIS

SUMMARY OF TST TEST RESULTS FOR STATISTICAL ANALYSIS

Sieve Number	Opening Size(mm)	TST 1	TST 2	TST 3	TST 4	TST 5	TST 6	TST 7	TST 8	TST 9	TST 10
		Passing Percent (%)									
2 1/2 Inch	63.50	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2 Inch	50.80	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 1/2 Inch	38.10	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 Inch	25.40	92.6	93.0	97.0	100.0	95.6	100.0	95.1	94.3	97.9	92.7
3/4 Inch	19.00	70.9	71.9	79.0	87.3	75.4	81.5	76.9	74.8	79.5	79.3
1/2 Inch	12.70	41.0	47.9	44.7	58.2	47.5	49.9	48.9	48.0	47.3	48.9
3/8 Inch	9.51	24.5	29.4	28.1	37.5	30.2	27.8	29.6	29.3	31.8	31.4
1/4 Inch	6.35	18.3	23.0	18.3	25.4	19.7	16.1	19.4	19.2	22.3	23.3
No. 4	4.76	13.8	18.2	12.9	17.3	14.1	9.4	13.8	13.4	15.4	17.4
No. 8	2.38	0.5	0.7	0.4	0.6	0.5	0.2	0.4	0.4	0.5	0.7
No. 10	2.00	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1

Sieve Number	Opening Size(mm)	TST 11	TST 12	TST 13	TST 14	TST 15	TST 16	TST 17	TST 18	TST 19	TST 20
		Passing Percent (%)									
2 1/2 Inch	63.50	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2 Inch	50.80	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 1/2 Inch	38.10	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1 Inch	25.40	91.0	98.1	97.1	95.3	99.0	100.0	98.7	98.8	100.0	97.8
3/4 Inch	19.00	75.0	70.5	95.3	89.2	89.5	83.2	95.2	97.0	81.1	85.1
1/2 Inch	12.70	56.3	20.2	63.4	82.3	84.0	38.2	82.3	94.9	51.9	58.4
3/8 Inch	9.51	35.8	12.7	15.8	53.3	75.6	5.2	32.9	75.6	34.9	42.8
1/4 Inch	6.35	24.4	8.1	8.7	12.9	68.4	1.7	6.1	49.1	7.8	31.9
No. 4	4.76	19.8	6.7	7.1	6.9	54.3	1.2	1.4	40.5	1.6	24.6
No. 8	2.38	0.8	0.2	0.2	0.2	2.6	0.0	0.0	1.4	0.1	0.7
No. 10	2.00	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.1

Test #	TST	Sieve Size						
		1"	3/4"	1/2"	3/8"	#4	#8	
1	MDOT	99.1	75.4	50.4	30.6	19.8	0.5	
	U of M	92.6	70.9	41.0	24.5	13.8	0.5	
	Difference	6.5	4.5	9.4	6.1	6.0	0.0	
2	MDOT	100.0	77.9	57.1	31.3	21.1	0.7	
	U of M	93.0	71.9	47.9	29.4	18.2	0.7	
	Difference	7.0	6.0	9.2	1.9	2.9	(0.0)	
3	MDOT	98.7	84.1	53.8	33.3	17.4	0.5	
	U of M	97.0	79.0	44.7	28.1	12.9	0.4	
	Difference	1.7	5.1	9.1	5.2	4.5	0.1	
4	MDOT	98.7	86.4	60.4	41.8	21.1	0.6	
	U of M	100.0	87.3	58.2	37.5	17.3	0.6	
	Difference	(1.3)	(0.9)	2.2	4.3	3.8	(0.0)	
5	MDOT	100.0	86.1	58.0	38.3	19.5	0.6	
	U of M	95.6	75.4	47.5	30.2	14.1	0.5	
	Difference	4.4	10.7	10.5	8.1	5.4	0.1	
6	MDOT	100.0	84.7	49.0	28.2	10.0	0.3	
	U of M	100.0	81.5	49.9	27.8	9.4	0.2	
	Difference	0.0	3.2	(0.9)	0.4	0.6	0.1	
7	MDOT	97.4	81.7	52.4	31.7	16.5	0.5	
	U of M	95.1	76.9	48.9	29.6	13.8	0.4	
	Difference	2.3	4.8	3.5	2.1	2.7	0.1	
8	MDOT	98.8	82.7	52.0	32.8	16.6	0.5	
	U of M	94.3	74.8	48.0	29.3	13.4	0.4	
	Difference	4.5	7.9	4.0	3.5	3.2	0.1	
9	MDOT	100.0	81.9	51.0	33.0	16.6	0.4	
	U of M	97.9	79.5	47.3	31.8	15.4	0.5	
	Difference	2.1	2.4	3.7	1.2	1.2	(0.1)	
10	MDOT	100.0	91.1	63.2	42.7	26.7	0.7	
	U of M	92.7	79.3	48.9	31.4	17.4	0.7	
	Difference	7.3	11.8	14.3	11.3	9.3	0.0	

Test samples 1 thru 10 were made by splitting one large sample into ten portions and then putting each portion through a sample splitter to create two halves. One half was sent to U of M and one half was tested by MDOT

Test #	TST	Sieve Size						
		1"	3/4"	1/2"	3/8"	#4	#8	
11	MDOT	100.0	79.4	58.9	39.2	18.2	0.5	
	U of M	91.0	75.0	56.3	35.8	19.8	0.8	
	Difference	9.0	4.4	2.6	3.4	(1.6)	(0.3)	
12	MDOT	100.0	86.8	25.3	16.3	8.0	0.4	
	U of M	98.1	70.5	20.2	12.7	6.7	0.2	
	Difference	1.9	16.3	5.1	3.6	1.3	0.2	
13	MDOT	100.0	88.8	78.5	15.9	7.8	0.4	
	U of M	97.1	95.3	63.4	15.8	7.1	0.2	
	Difference	2.9	(6.5)	15.1	0.1	0.7	0.2	
14	MDOT	100.0	94.0	84.6	74.2	7.9	0.2	
	U of M	95.3	89.2	82.3	53.3	6.9	0.2	
	Difference	4.7	4.8	2.3	20.9	1.0	0.0	
15	MDOT	100.0	94.2	83.9	76.0	63.2	1.0	
	U of M	99.0	89.5	84.0	75.6	54.3	2.6	
	Difference	1.0	4.7	(0.1)	0.4	8.9	(1.6)	
16	MDOT	100.0	94.9	47.6	4.3	1.3	0.1	
	U of M	100.0	83.2	38.2	5.2	1.2	0.0	
	Difference	0.0	11.7	9.4	(0.9)	0.1	0.1	
17	MDOT	100.0	97.1	94.3	48.4	1.6	0.1	
	U of M	98.7	95.2	82.3	32.9	1.4	0.0	
	Difference	1.3	1.9	12.0	15.5	0.2	0.1	
18	MDOT	100.0	98.6	96.0	91.5	44.6	0.5	
	U of M	98.8	97.0	94.9	75.6	40.5	1.4	
	Difference	1.2	1.6	1.1	15.9	4.1	(0.9)	
19	MDOT	100.0	95.9	50.8	48.0	1.7	0.2	
	U of M	100.0	81.1	51.9	34.9	1.6	0.1	
	Difference	0.0	14.8	(1.1)	13.1	0.1	0.1	
20	MDOT	100.0	89.8	66.4	46.7	25.3	0.7	
	U of M	97.8	85.1	58.4	42.8	24.6	0.7	
	Difference	2.2	4.7	8.0	3.9	0.7	0.0	

Test samples 11 thru 20 were made to specific gradations. (One large sample was sieved. The material retained on each sieve was collected. Two samples with identical gradations were created for each test (11 thru 20). One sample was sent to U of M for testing and the other one was tested by MDOT)





MATERIAL: TST 1 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

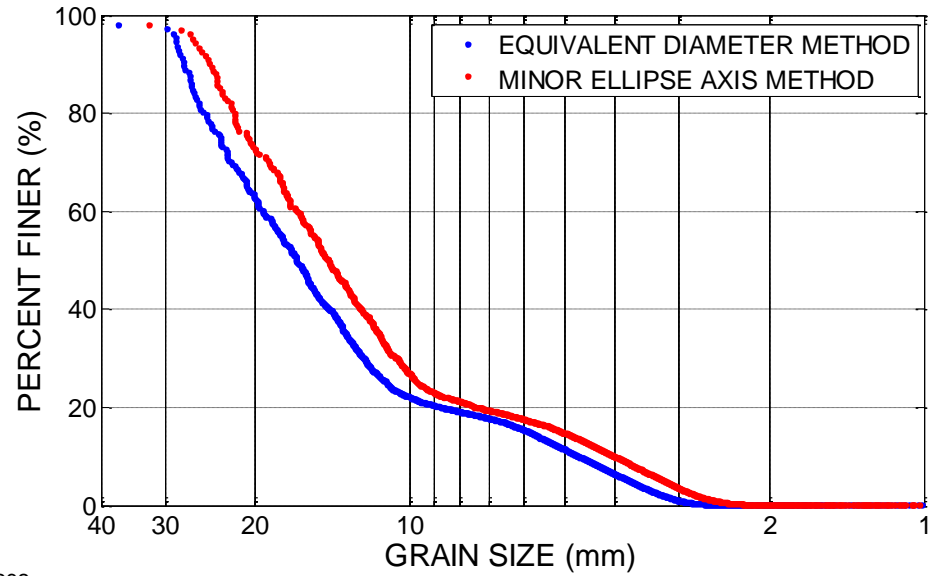
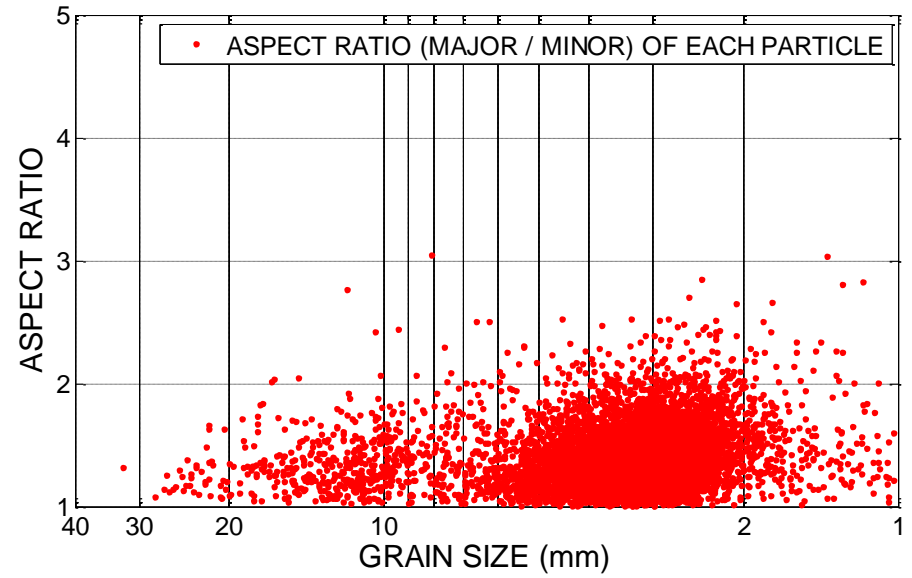
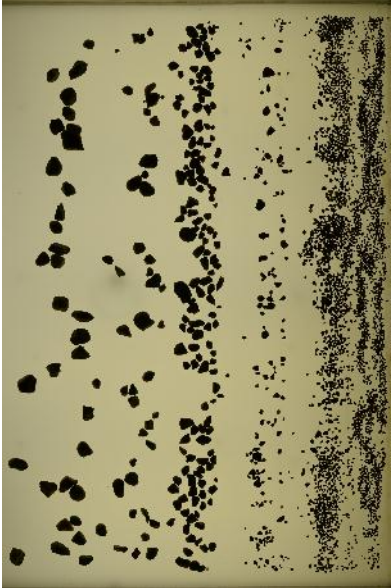
DATE TESTED: 09/15/11

TESTED BY: HS

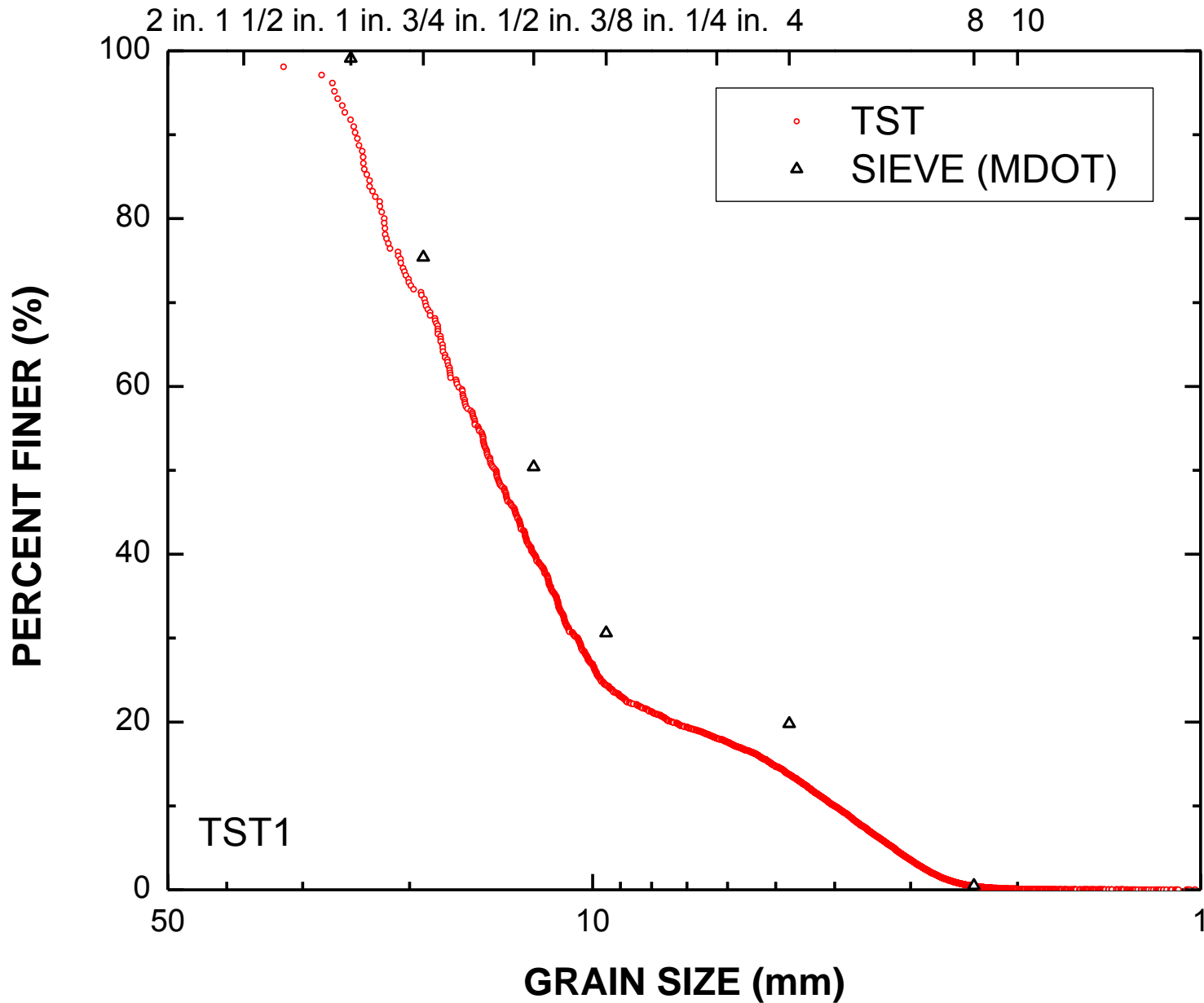
MAGNIFICATION (pix/mm): 5.6

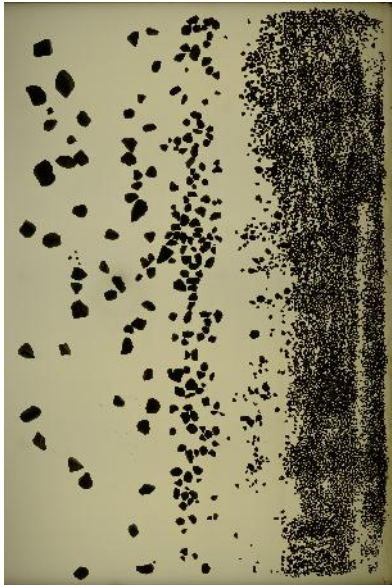
IMAGE SIZE (pix): 3264 x 4928

IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS





MATERIAL: TST 2 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

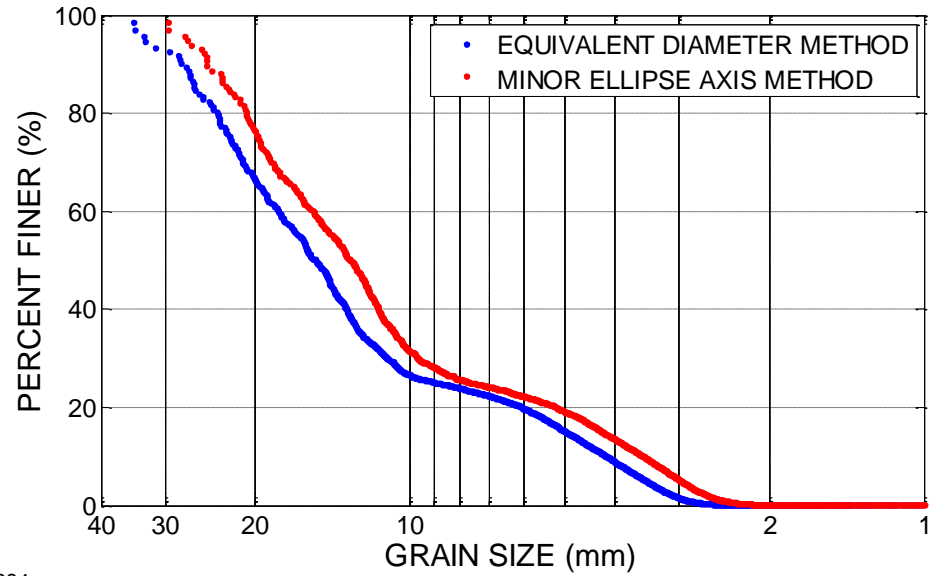
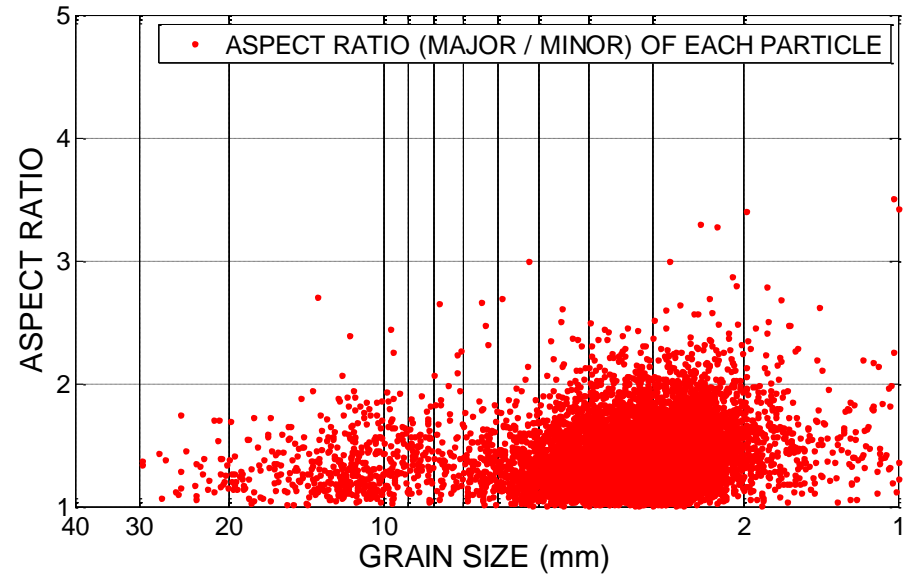
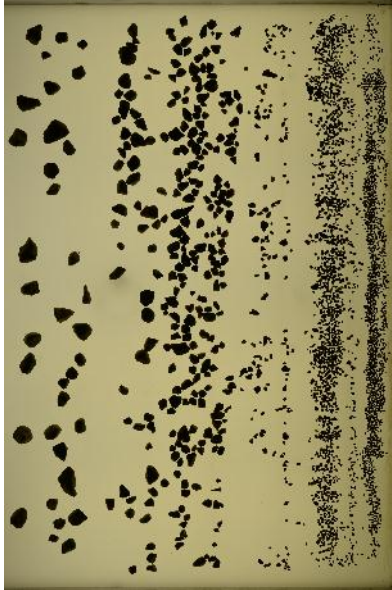
DATE TESTED: 09/18/11

TESTED BY: HS

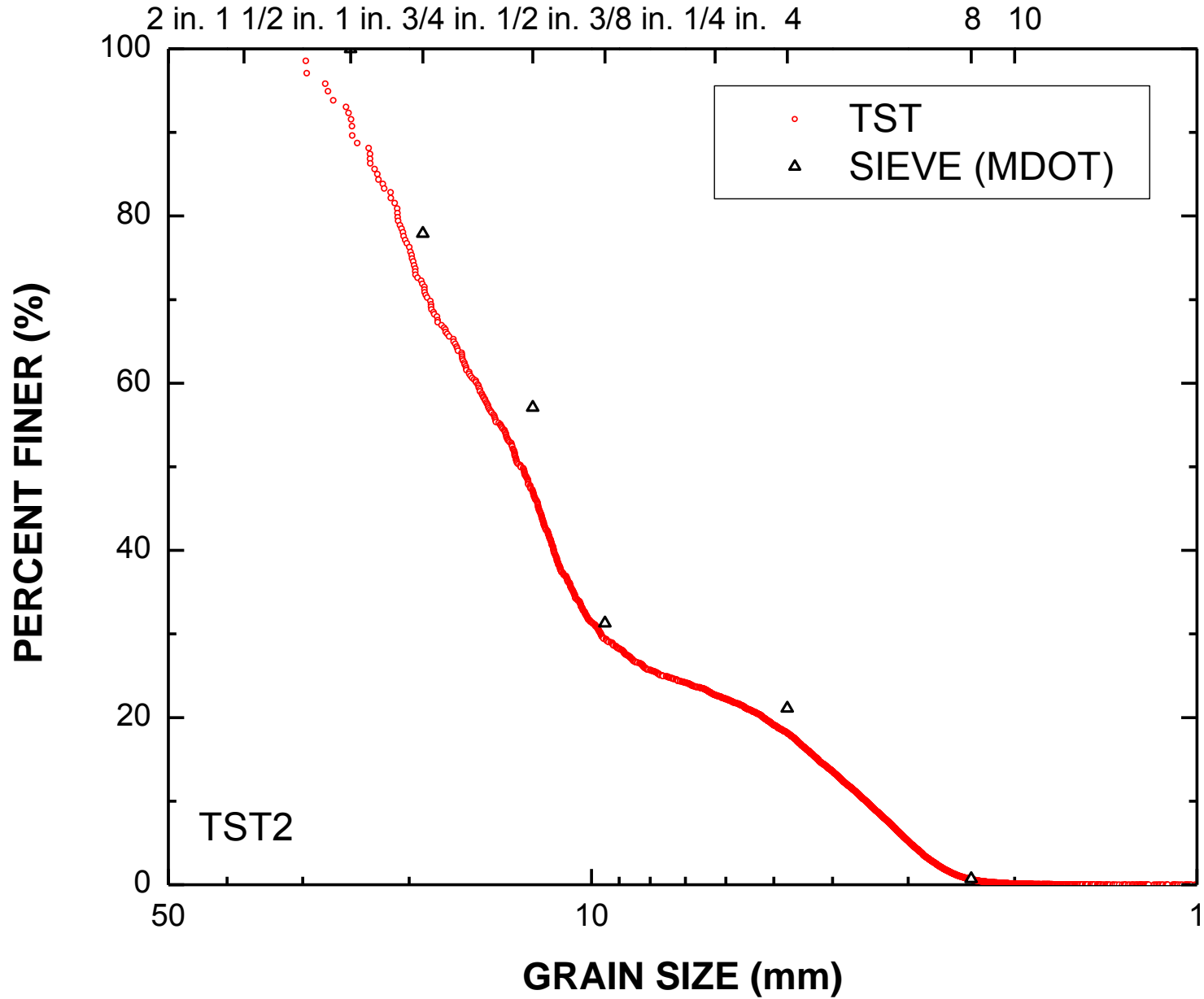
MAGNIFICATION (pix/mm): 5.6

IMAGE SIZE (pix): 3264 x 4928

IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS





MATERIAL: TST 3 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

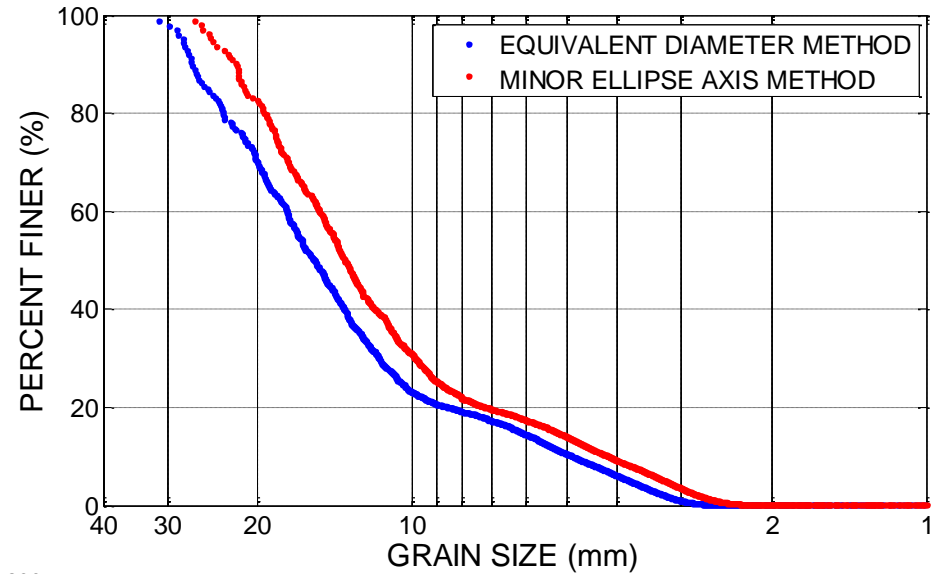
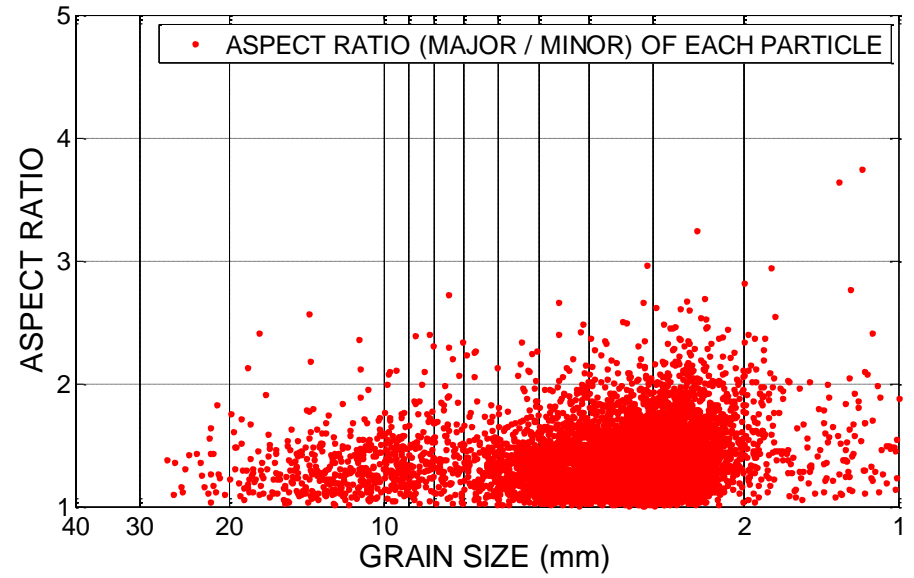
DATE TESTED: 09/18/11

TESTED BY: HS

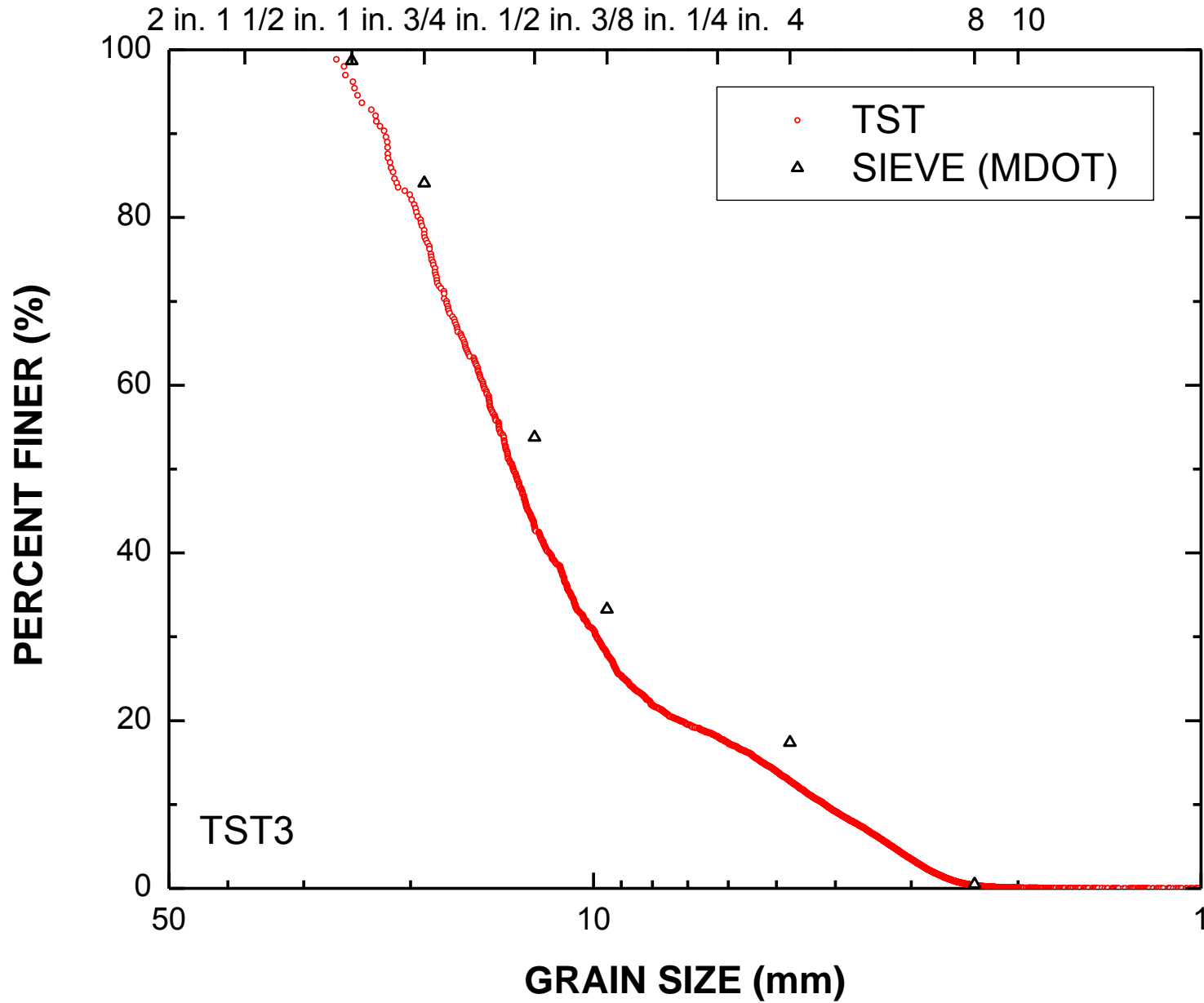
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IMAGE SIZE (pix): 3264 x 4928

IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS





MATERIAL: TST 4 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

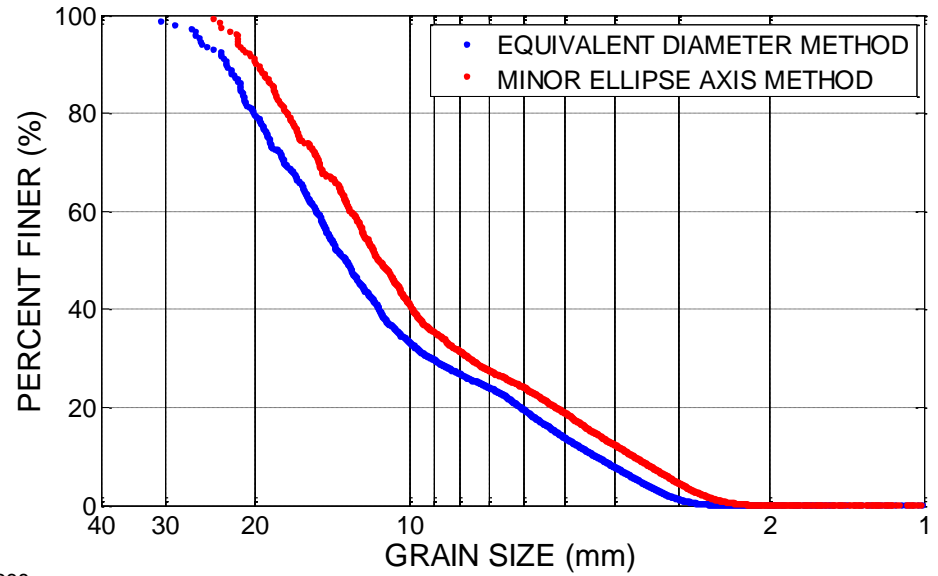
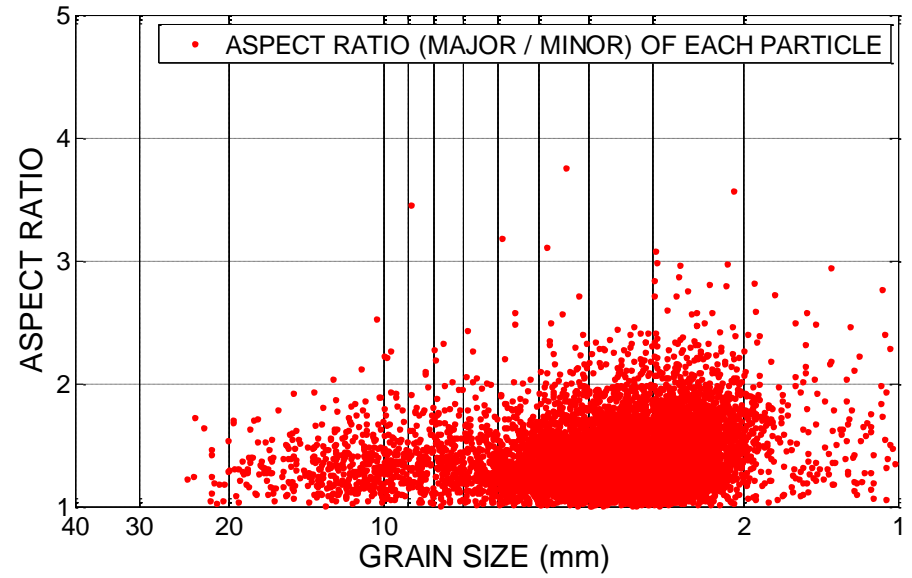
DATE TESTED: 09/18/11

TESTED BY: HS

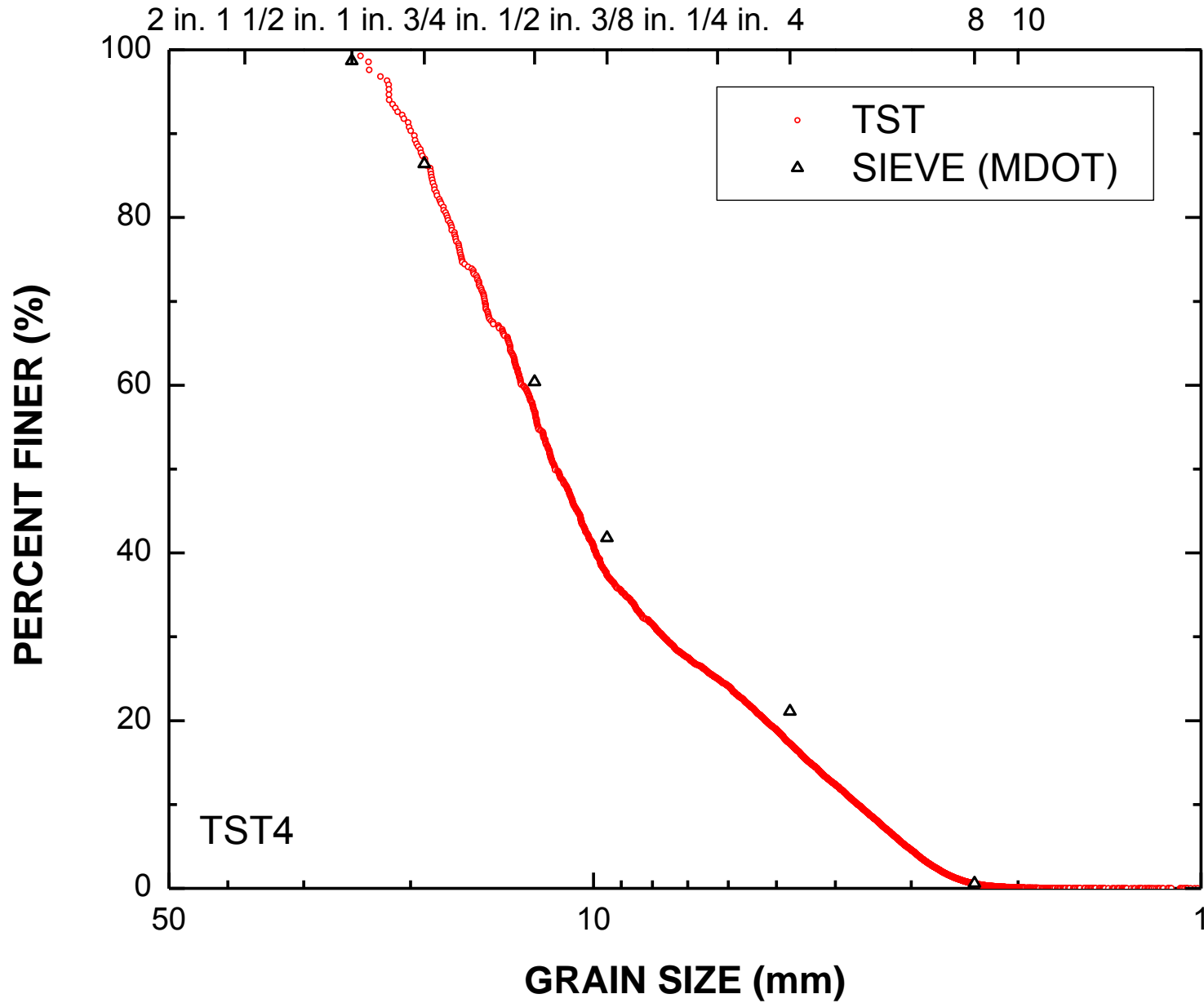
MAGNIFICATION (pix/mm): 5.6

IMAGE SIZE (pix): 3264 x 4928

IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS







MATERIAL: TST 5 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

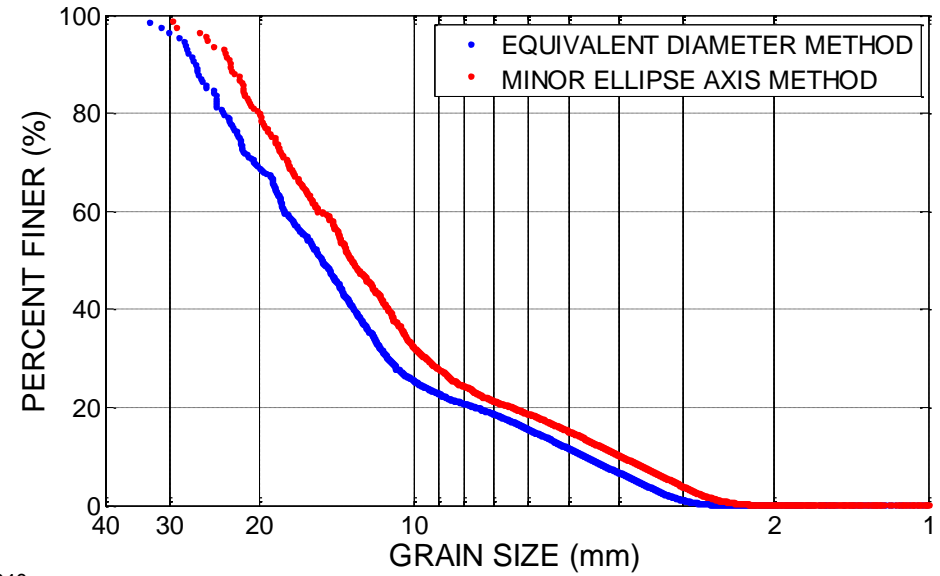
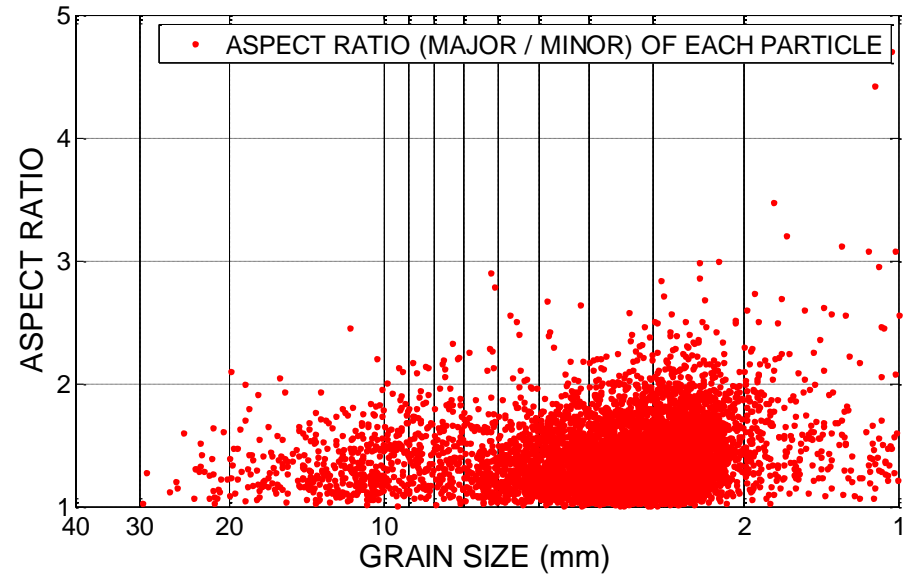
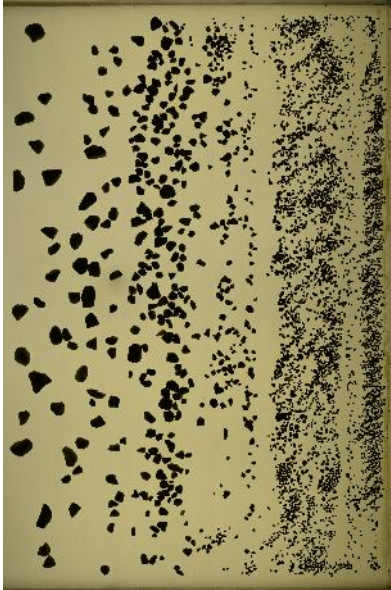
DATE TESTED: 09/18/11

TESTED BY: HS

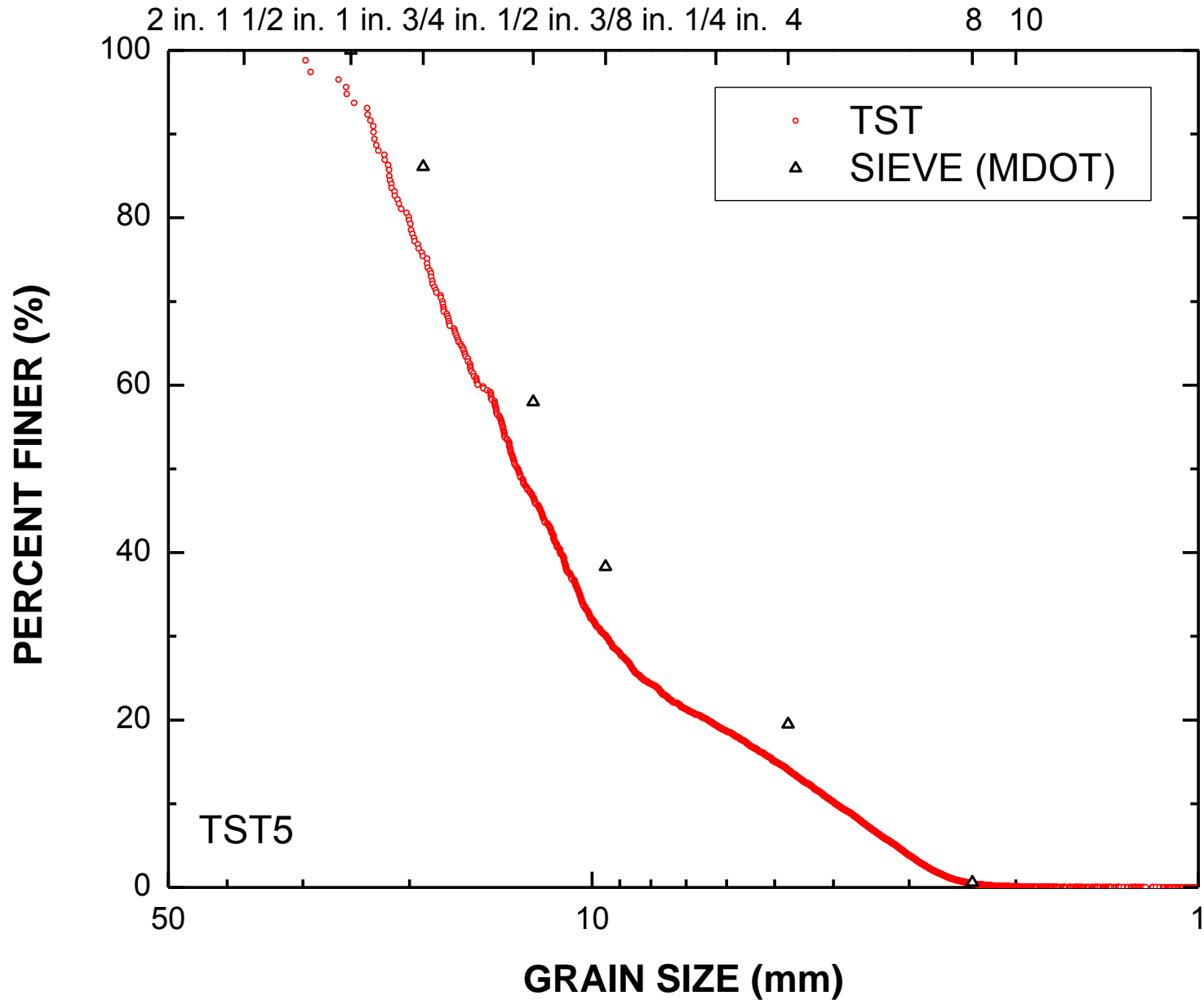
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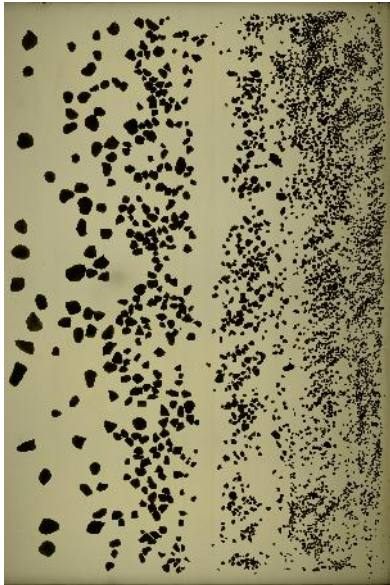
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IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS





MATERIAL: TST 6 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

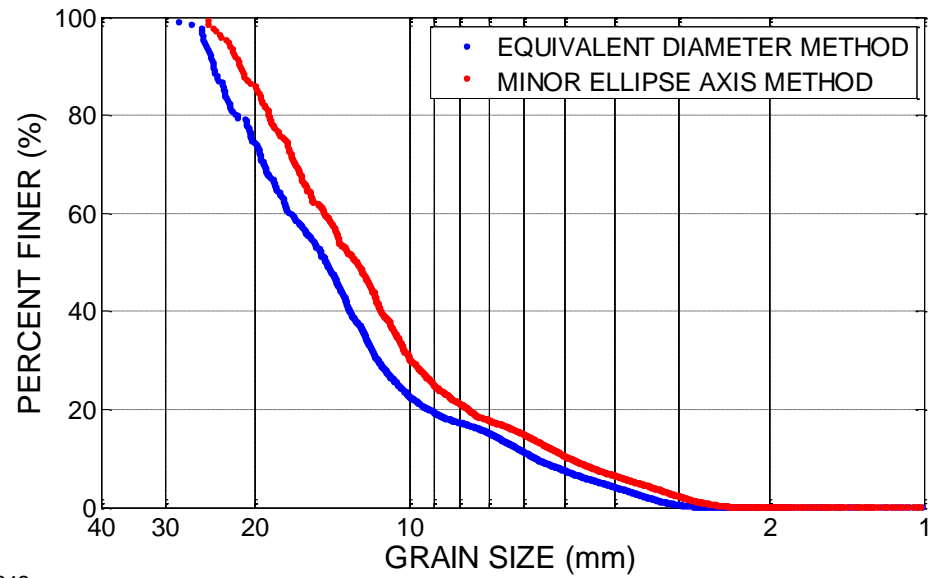
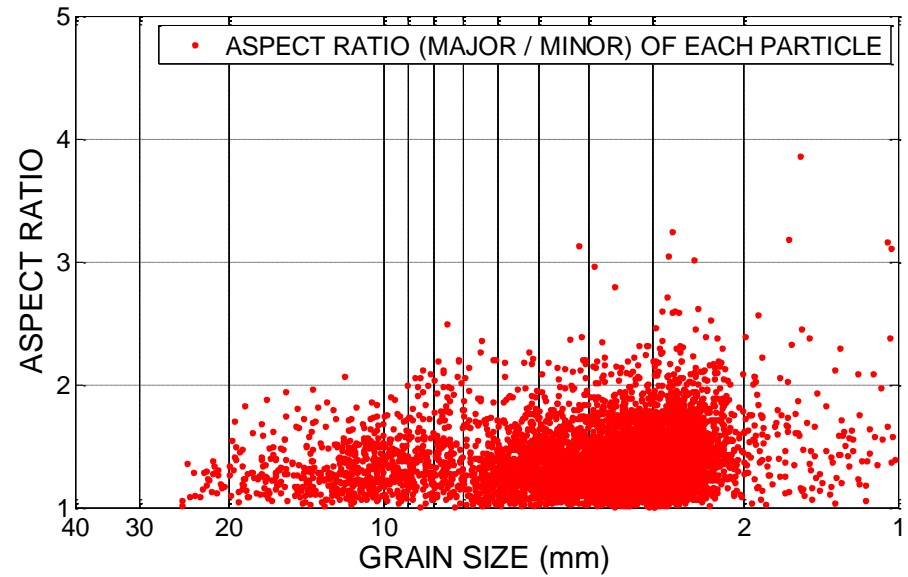
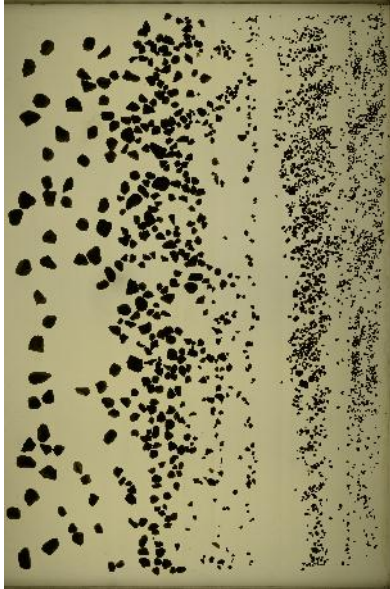
DATE TESTED: 09/19/11

TESTED BY: HS

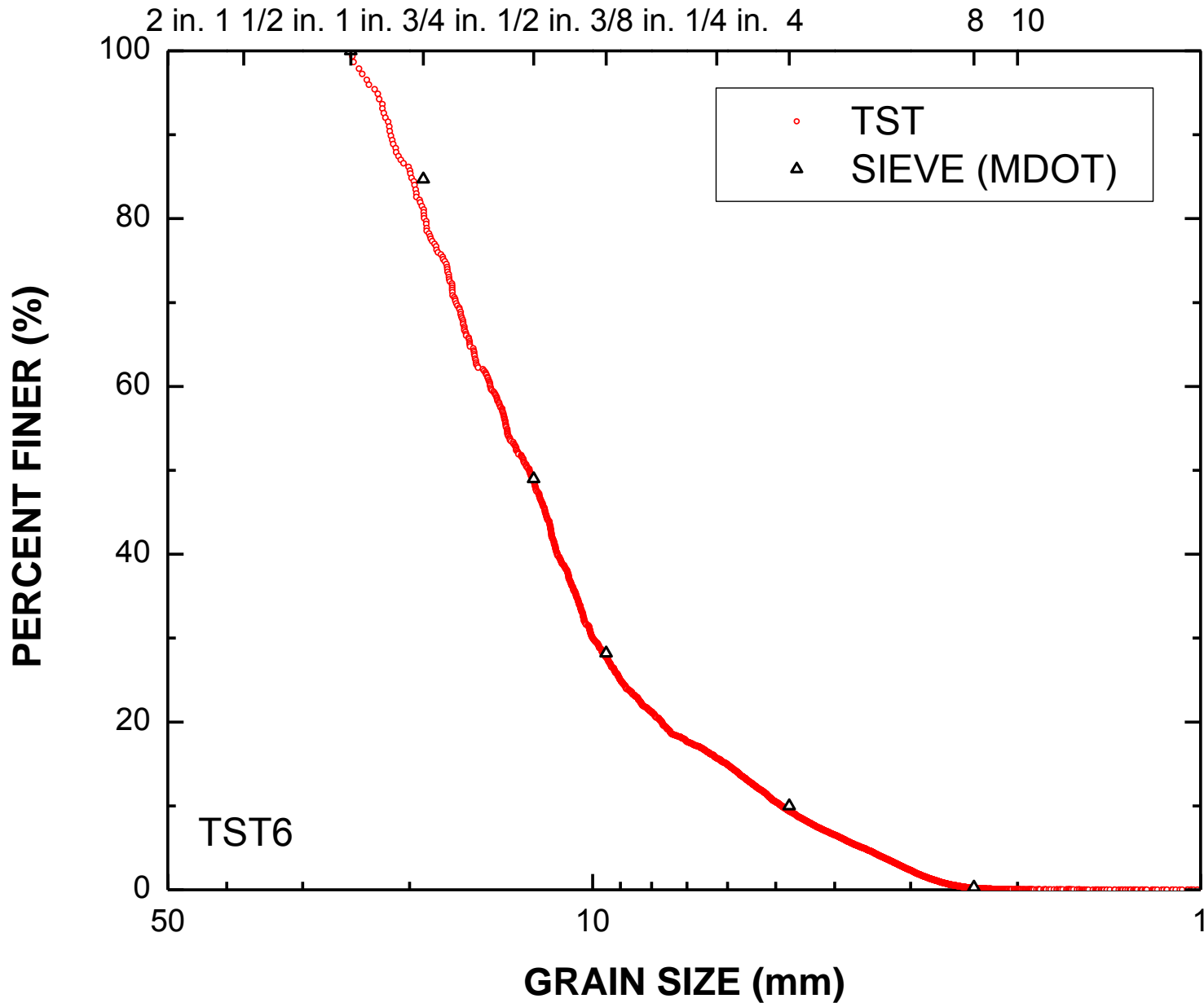
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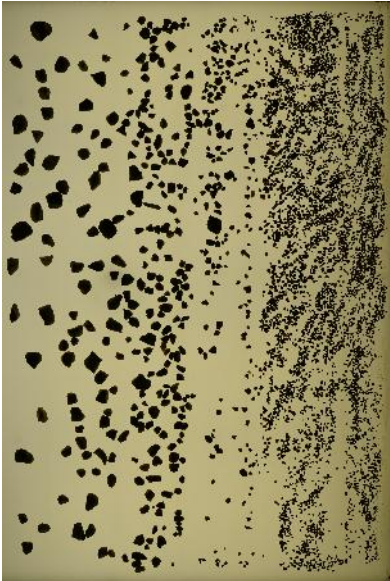
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IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS





MATERIAL: TST 7 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

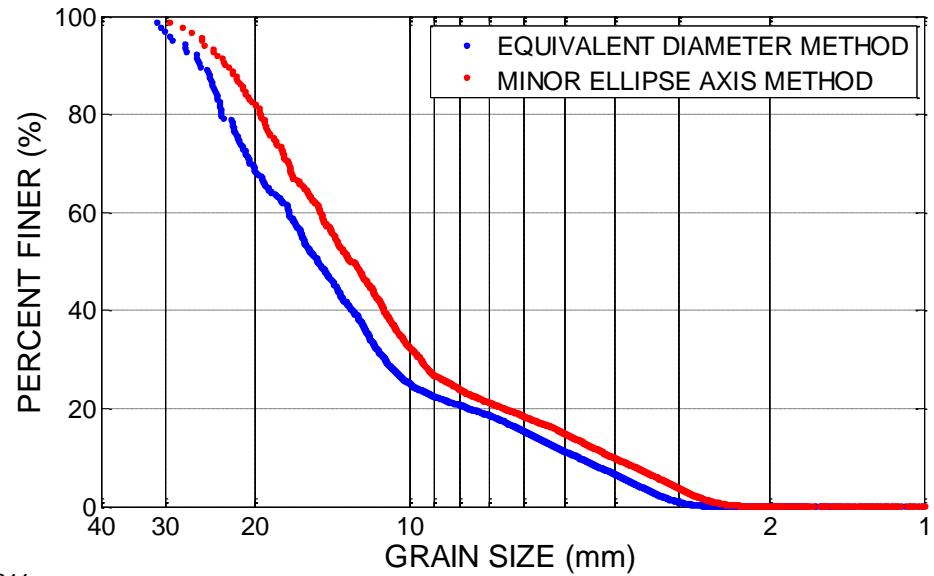
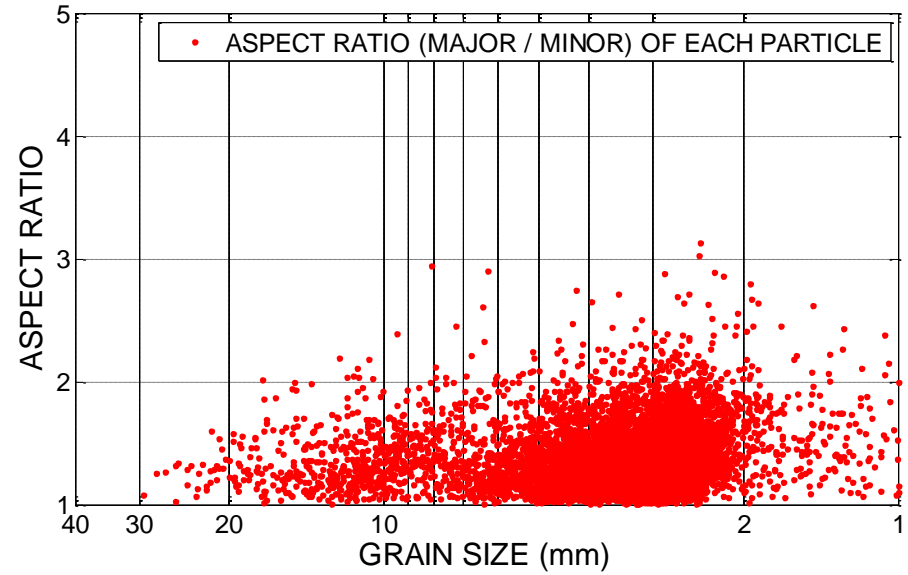
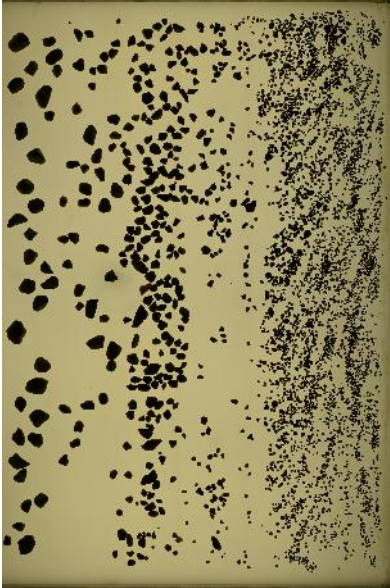
DATE TESTED: 09/19/11

TESTED BY: HS

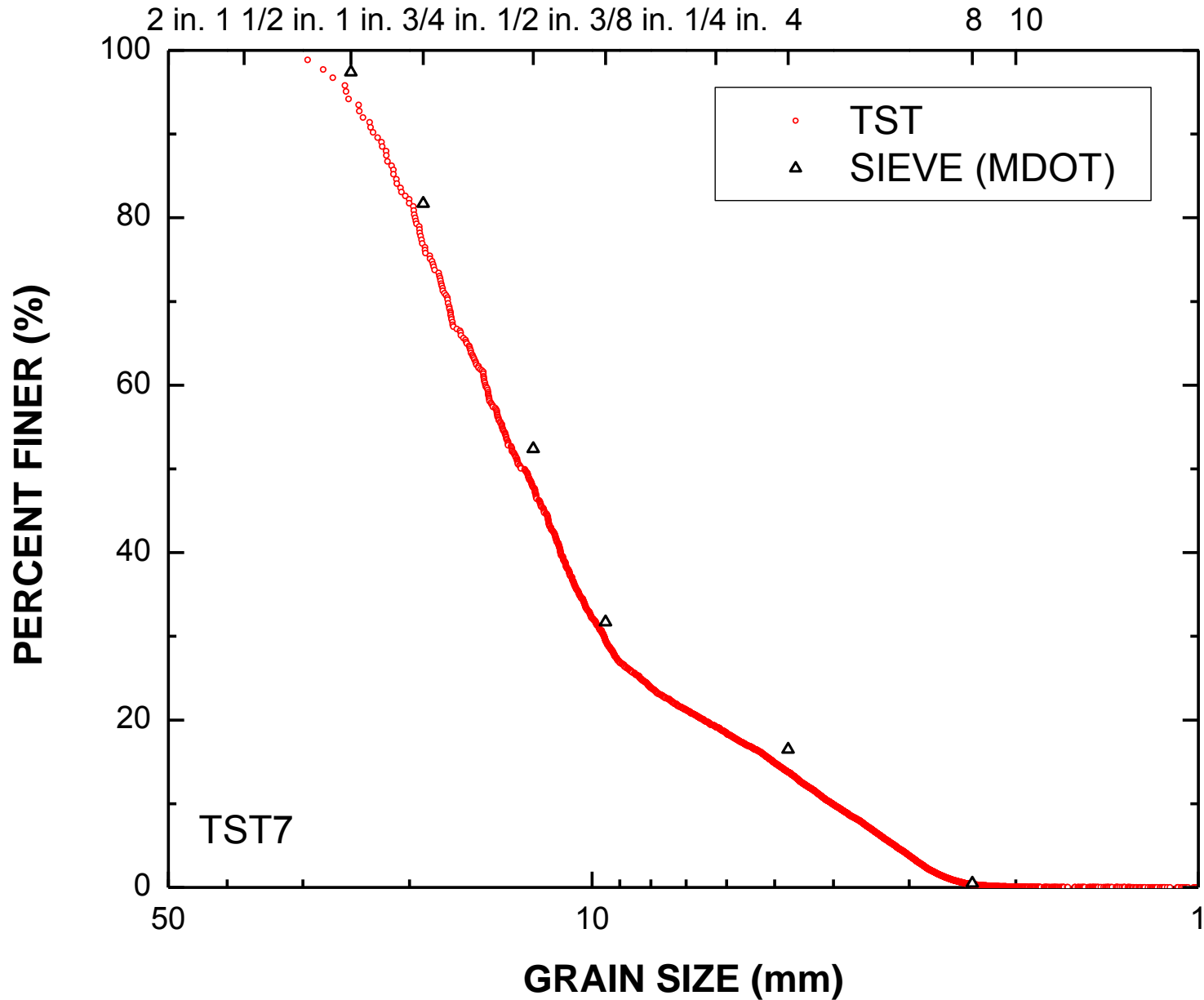
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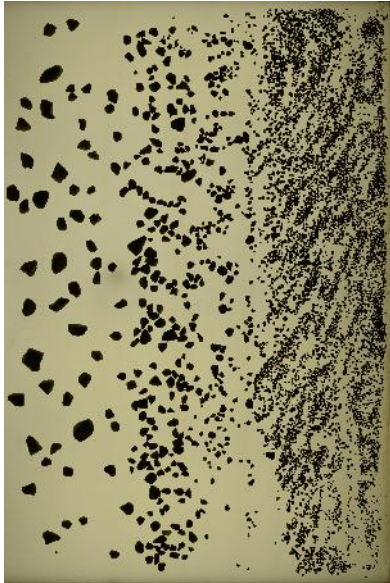
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IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS





MATERIAL: TST 8 U of M

PIT NUMBER:

PIT NAME:

DATE SAMPLED:

SAMPLED BY:

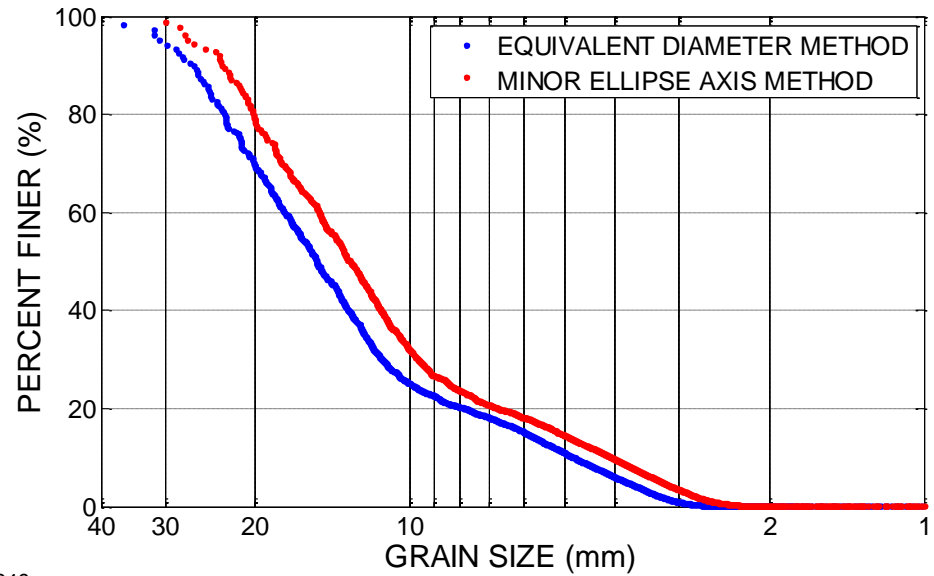
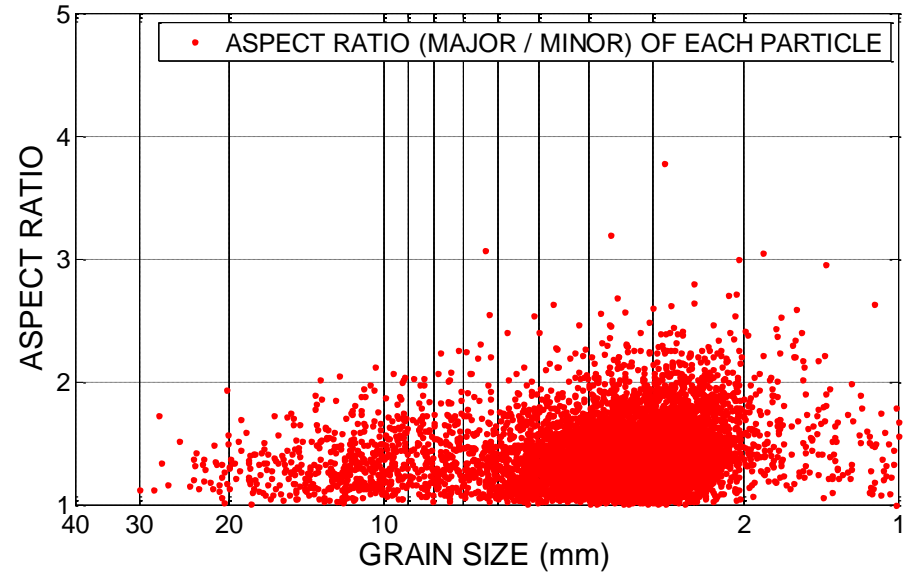
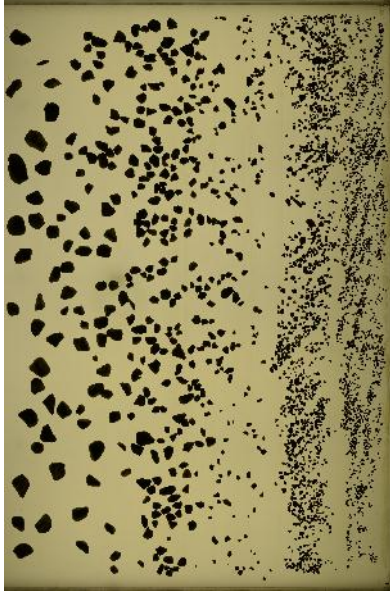
DATE TESTED: 09/19/11

TESTED BY: HS

MAGNIFICATION (pix/mm): 5.6

IMAGE SIZE (pix): 3264 x 4928

IMAGE SIZE (mm): 582.9 x 880.0



# U. S. STANDARD SIEVE NUMBERS

