

Datarapport: Kornstørrelsesfordeling

Laboratorieanalyser for DTU AQUA

I. Nørgaard

DE NATIONALE GEOLOGISKE UNDERSØGELSER FOR
DANMARK OG GRØNLAND, KLIMA- OG ENERGIMINISTERIET



GEUS

Datarapport: Kornstørrelsesfordeling

Laboratorieanalyser for DTU AQUA

I. Nørgaard

Area	location	Længde	Bredde
Control	64	7 45,00 E	55 3
Control	66	7 45,00 E	55 3
Control	67	7 45,53 E	55 3
Control	68	7 45,53 E	55 3
Control	69	7 45,53 E	55 3
Control	70	7 46,06 E	55 3
Control	71	7 46,06 E	55 3
Impact	4	7 48,30 E	55 2
Impact	14	7 49,06 E	55 2
Impact	15	7 49,15 E	55 3
Impact	19	7 49,44 E	55 2
Impact	29	7 50,21 E	55 3
Impact	33	7 50,51 E	55 2
Impact	38	7 50,89 E	55 2
Impact	45	7 51,42 E	55 2
Impact	56	7 52,25 E	55 2
Impact	57	7 52,34 E	55 3

Prøvebehandling

GEUS har foretaget analyser på 21 sedimentprøver fra Horns Rev 2010.

Ved modtagelsen af prøverne er de blevet registreret med følgende 5 kategorier:

- dato
- lokalitet
- fortløbende laboratorienumre
- rekvirent
- analysekrav

Resterende prøvemateriale er returneret.

Analysemetoder

Sigteanalyse:

Totalprøven er tørret og sigtet gennem en sigtesøjle fra 32 mm. ned til 0,063 mm med $\frac{1}{2}$ phi intervaller, hvilket svarer til 16 sigter. Metoden er tillempet i forhold til DS 405.9 DS/EN 933-1 idet der er indføjet flere sigter end der beskrives i denne standard.

Kornkurven:

Som udgangspunkt for kornstørrelsesanalysen er anvendt DS405.9, /EN 933-1. idet der er indføjet flere sigter end der beskrives i denne standard.

Resultater

I bilag 1 er vist kornkurven for sedimentprøverne. Kornkurven viser fordeling af sand, silt og ler i prøverne.

Referencer

Dansk Standard DS 405.9. Kornstørrelsesfordeling bestemt ved sigteanalyse. Dansk Standardiseringsråd, Kbh. 1978.

DS/EN 933-1. Kornstørrelsesfordeling bestemt ved sigteanalyse. Dansk Standardiseringsråd, Kbh. 2004.

Bilag 1

Grain Size Distribution

Geotechnical

Sample Id: Station 4 poss.38
Lab. Id: 100414
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 232,7 g

Size Fractions

Size	Size	Weight		Cumulated amount passing
		g	%	
mm	Φ			%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	1,63	0,70	99,30
2,80	-1,49	1,59	0,68	98,62
2,00	-1,00	4,74	2,04	96,58
1,40	-0,49	16,22	6,97	89,61
1,00	0,00	42,56	18,29	71,32
0,710	0,49	63,35	27,22	44,10
0,500	1,00	62,51	26,86	17,23
0,355	1,49	29,77	12,79	4,44
0,250	2,00	8,34	3,58	0,86
0,180	2,47	0,95	0,41	0,45
0,125	3,00	0,22	0,09	0,35
0,090	3,47	0,04	0,02	0,34
0,075	3,74	0,01	0,00	0,33
0,063	3,99	0,00	0,00	0,33
< 0,063	> 3,99	0,77	0,33	0,00

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,33
Sand, fine (0,063 mm - 0,200 mm):	0,23
Sand, medium (0,2 mm - 0,6 mm):	29,46
Sand, coarse (0,6 mm - 2 mm):	66,55
Gravel (> 2 mm):	3,42
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,86	-0,90
16%	84%	1,28	-0,35
25%	75%	1,08	-0,11
40%	60%	0,88	0,19
Median 50%	50%	0,77	0,37
75%	25%	0,56	0,83
84%	16%	0,49	1,04
90%	10%	0,42	1,26
95%	5%	0,36	1,47

Moments Statistics

Mean	0,35
Sorting	0,71
Skewness	-0,06
Kurtosis	1,03
Uniformity Coefficient	2,10

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the ½ phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

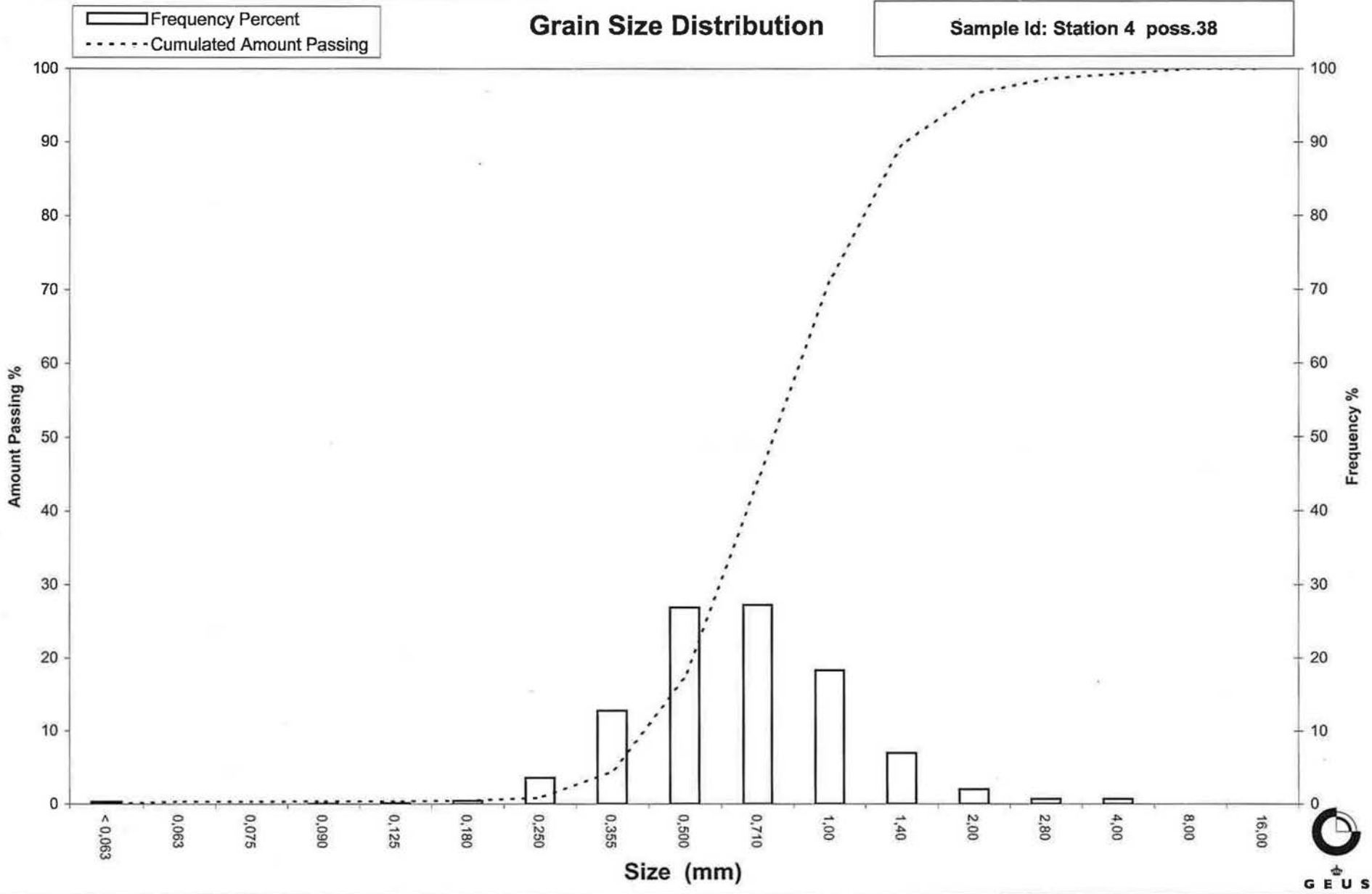
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on
 "Amount in sieve". Uniformity coefficient is based on
 "Amount passing".

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Grain Size Distribution

Sample Id: Station 4 poss.38



Grain Size Distribution

Geotechnical

Sample Id: Station 8 poss.19
Lab. Id: 100415
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 144,41 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,00	0,00	100,00
2,80	-1,49	0,00	0,00	100,00
2,00	-1,00	0,00	0,00	100,00
1,40	-0,49	0,06	0,04	99,96
1,00	0,00	0,04	0,03	99,93
0,710	0,49	0,10	0,07	99,86
0,500	1,00	0,73	0,51	99,36
0,355	1,49	19,96	13,82	85,53
0,250	2,00	99,58	68,96	16,58
0,180	2,47	20,21	13,99	2,58
0,125	3,00	2,27	1,57	1,01
0,090	3,47	0,29	0,20	0,81
0,075	3,74	0,06	0,04	0,77
0,063	3,99	0,04	0,03	0,74
< 0,063	> 3,99	1,07	0,74	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm):	0,74
Sand, fine (0,063 mm - 0,200 mm):	5,84
Sand, medium (0,2 mm - 0,6 mm):	93,02
Sand, coarse (0,6 mm - 2 mm):	0,40
Gravel (> 2 mm):	0,00
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,45	1,14
16%	84%	0,35	1,50
25%	75%	0,34	1,56
40%	60%	0,32	1,66
Median 50%	50%	0,30	1,73
75%	25%	0,26	1,93
84%	16%	0,25	2,02
90%	10%	0,22	2,20
95%	5%	0,19	2,38

Moments Statistics

Mean	1,75
Sorting	0,32
Skewness	0,07
Kurtosis	1,39
Uniformity Coefficient	1,46

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

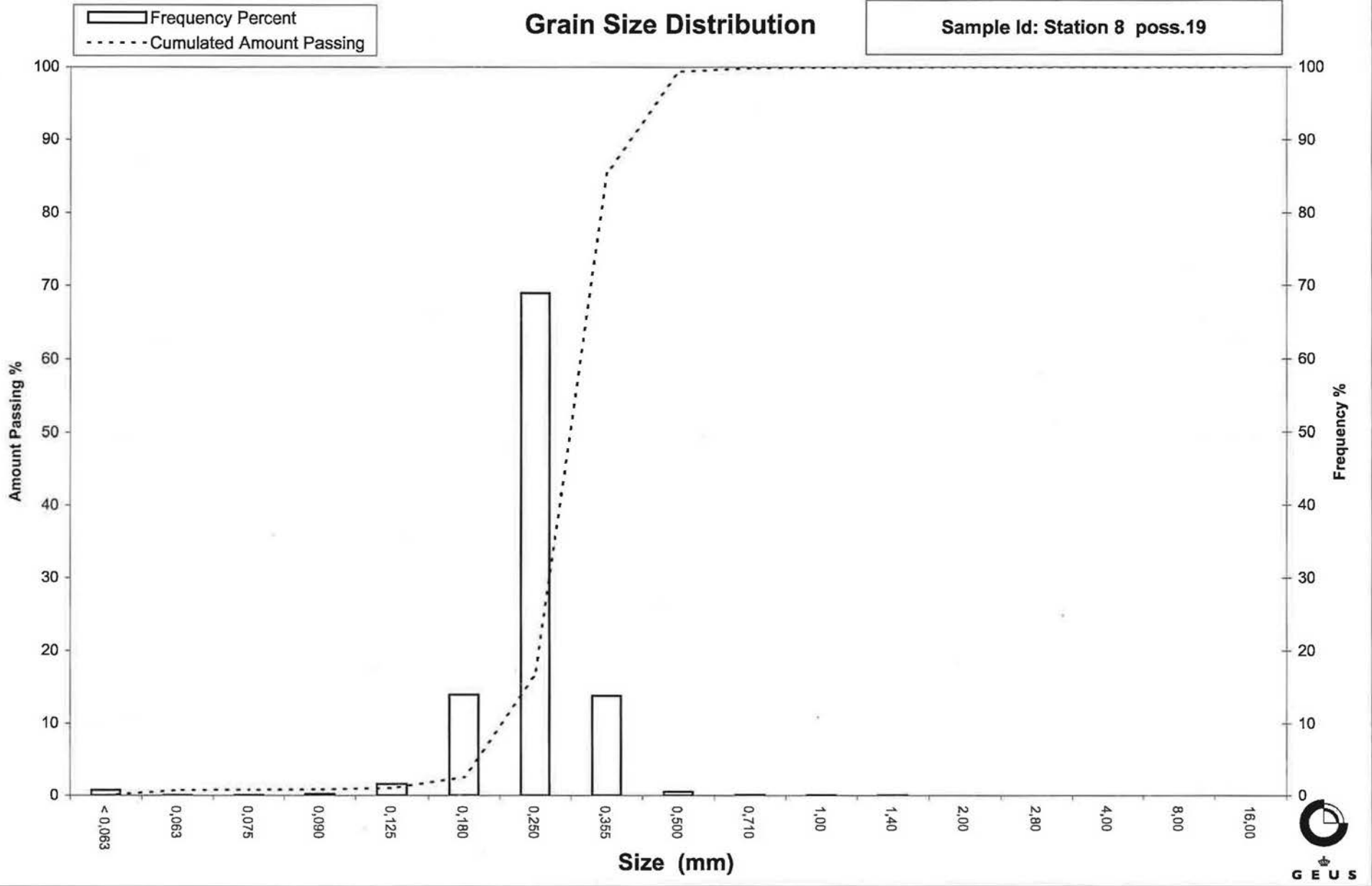
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 8 poss.19



Grain Size Distribution

Geotechnical

Sample Id: Station 12 poss.70
Lab. Id: 100416
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 202,32 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing
				%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,00	0,00	100,00
2,80	-1,49	0,00	0,00	100,00
2,00	-1,00	0,07	0,03	99,97
1,40	-0,49	0,14	0,07	99,90
1,00	0,00	0,58	0,29	99,61
0,710	0,49	4,31	2,13	97,48
0,500	1,00	12,79	6,32	91,16
0,355	1,49	35,14	17,37	73,79
0,250	2,00	99,06	48,96	24,83
0,180	2,47	32,01	15,82	9,01
0,125	3,00	14,42	7,13	1,88
0,090	3,47	2,11	1,04	0,84
0,075	3,74	0,21	0,10	0,73
0,063	3,99	0,06	0,03	0,70
< 0,063	> 3,99	1,42	0,70	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm)	0,70
Sand, fine (0,063 mm - 0,200 mm)	12,82
Sand, medium (0,2 mm - 0,6 mm)	80,64
Sand, coarse (0,6 mm - 2 mm)	5,80
Gravel (> 2 mm)	0,03
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,63	0,67
16%	84%	0,44	1,18
25%	75%	0,37	1,45
40%	60%	0,33	1,62
Median 50%	50%	0,30	1,72
75%	25%	0,25	2,00
84%	16%	0,21	2,25
90%	10%	0,18	2,44
95%	5%	0,15	2,75

Moments Statistics

Mean	1,72
Sorting	0,58
Skewness	-0,01
Kurtosis	1,56
Uniformity Coefficient	1,76

Size Classes and Percentiles are found by linear interpolation

The analysis is executed according to DS405.9 DS/EN933-1 extended by sieves to the ½ phi scale.

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

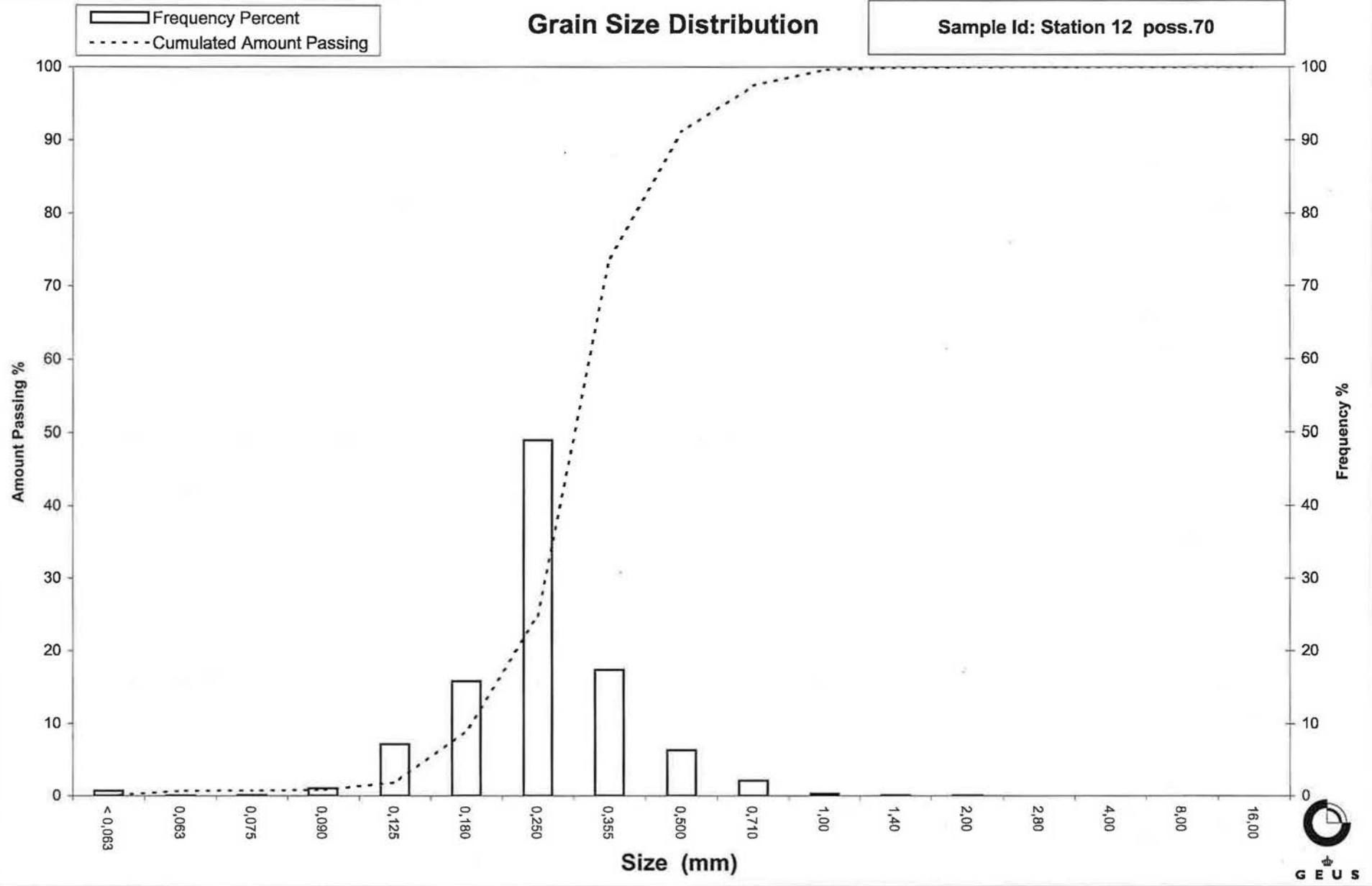
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 12 poss.70



Grain Size Distribution

Geotechnical

Sample Id: Station 16 poss.69
Lab. Id: 100417
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks: For mat.< 8 mm



Total Weight 212,7 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	1,39	0,65	99,35
4,00	-2,00	2,01	0,94	98,40
2,80	-1,49	2,33	1,10	97,31
2,00	-1,00	3,21	1,51	95,80
1,40	-0,49	6,85	3,22	92,58
1,00	0,00	15,66	7,36	85,21
0,710	0,49	35,37	16,63	68,58
0,500	1,00	51,61	24,26	44,32
0,355	1,49	57,16	26,87	17,45
0,250	2,00	30,66	14,41	3,03
0,180	2,47	4,22	1,98	1,05
0,125	3,00	0,96	0,45	0,60
0,090	3,47	0,18	0,08	0,51
0,075	3,74	0,02	0,01	0,50
0,063	3,99	0,01	0,00	0,50
< 0,063	> 3,99	1,06	0,50	0,00

Sieve Analysis

Gravel
Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm):	0,50
Sand, fine (0,063 mm - 0,200 mm):	1,12
Sand, medium (0,2 mm - 0,6 mm):	54,26
Sand, coarse (0,6 mm - 2 mm):	39,92
Gravel (> 2 mm):	4,20
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,85	-0,89
16%	84%	0,98	0,03
25%	75%	0,82	0,28
40%	60%	0,64	0,65
Median 50%	50%	0,55	0,86
75%	25%	0,40	1,34
84%	16%	0,34	1,54
90%	10%	0,30	1,73
95%	5%	0,26	1,92

Moments Statistics

Mean	0,81
Sorting	0,80
Skewness	-0,18
Kurtosis	1,09
Uniformity Coefficient	2,11

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

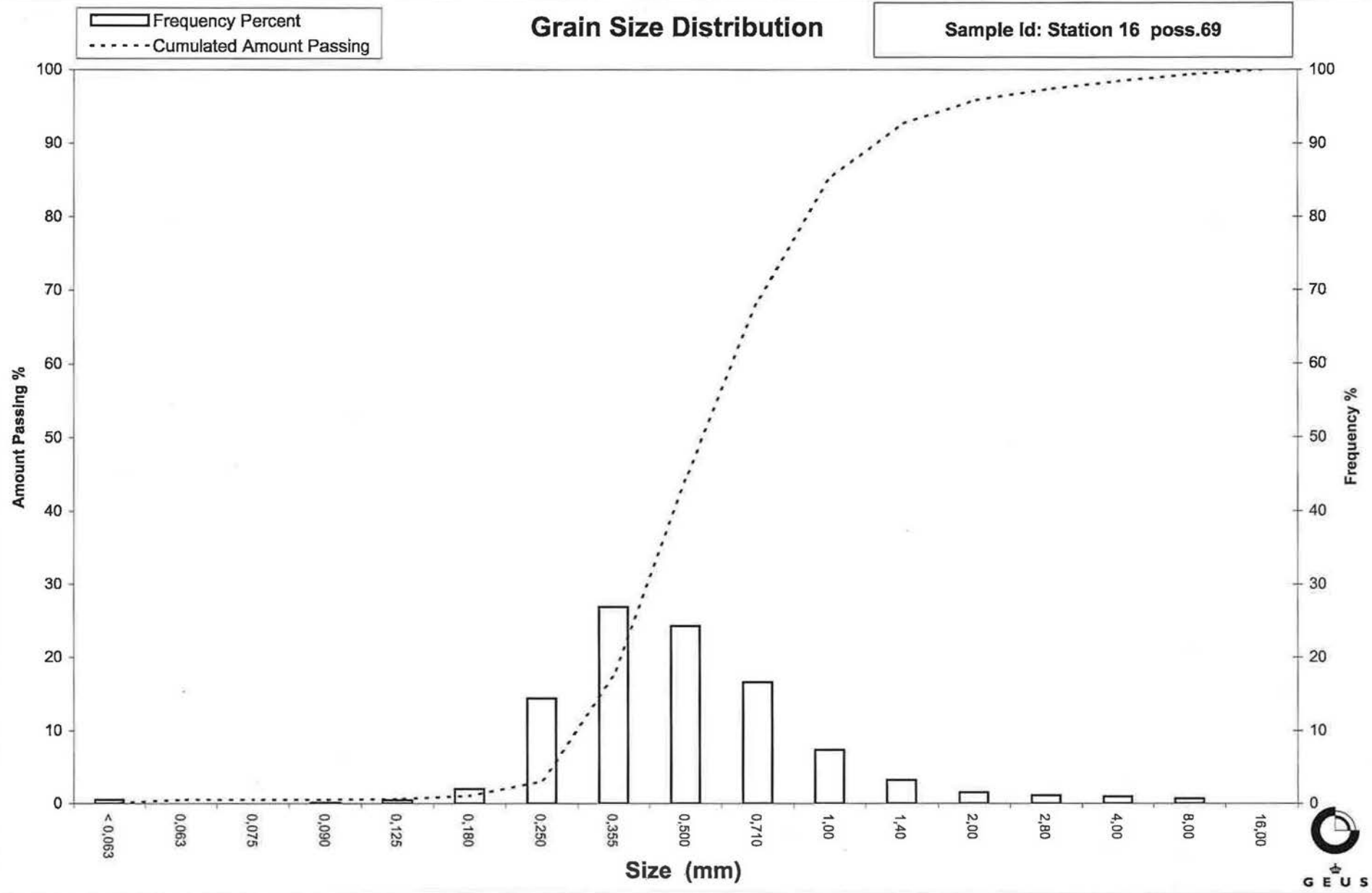
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 16 poss.69



Grain Size Distribution

Geotechnical

Sample Id: Station 20 poss.69
Lab. Id: 100418
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks: For mat.< 8 mm



Total Weight 217,02 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	3,63	1,67	98,33
4,00	-2,00	3,39	1,56	96,77
2,80	-1,49	1,80	0,83	95,94
2,00	-1,00	2,10	0,97	94,97
1,40	-0,49	3,19	1,47	93,50
1,00	0,00	10,57	4,87	88,63
0,710	0,49	36,91	17,01	71,62
0,500	1,00	52,63	24,25	47,37
0,355	1,49	57,71	26,59	20,78
0,250	2,00	36,17	16,67	4,11
0,180	2,47	5,38	2,48	1,63
0,125	3,00	1,46	0,67	0,96
0,090	3,47	0,34	0,16	0,80
0,075	3,74	0,05	0,02	0,78
0,063	3,99	0,03	0,01	0,76
< 0,063	> 3,99	1,66	0,76	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm)	0,76
Sand, fine (0,063 mm - 0,200 mm)	1,57
Sand, medium (0,2 mm - 0,6 mm)	56,58
Sand, coarse (0,6 mm - 2 mm)	36,05
Gravel (> 2 mm)	5,03
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	2,03	-1,02
16%	84%	0,92	0,12
25%	75%	0,77	0,38
40%	60%	0,61	0,71
Median 50%	50%	0,52	0,94
75%	25%	0,38	1,40
84%	16%	0,32	1,62
90%	10%	0,29	1,80
95%	5%	0,26	1,97

Moments Statistics

Mean	0,89
Sorting	0,83
Skewness	-0,20
Kurtosis	1,20
Uniformity Coefficient	2,12

Size Classes and Percentiles are found by linear interpolation

The analysis is executed according to DS405.9 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

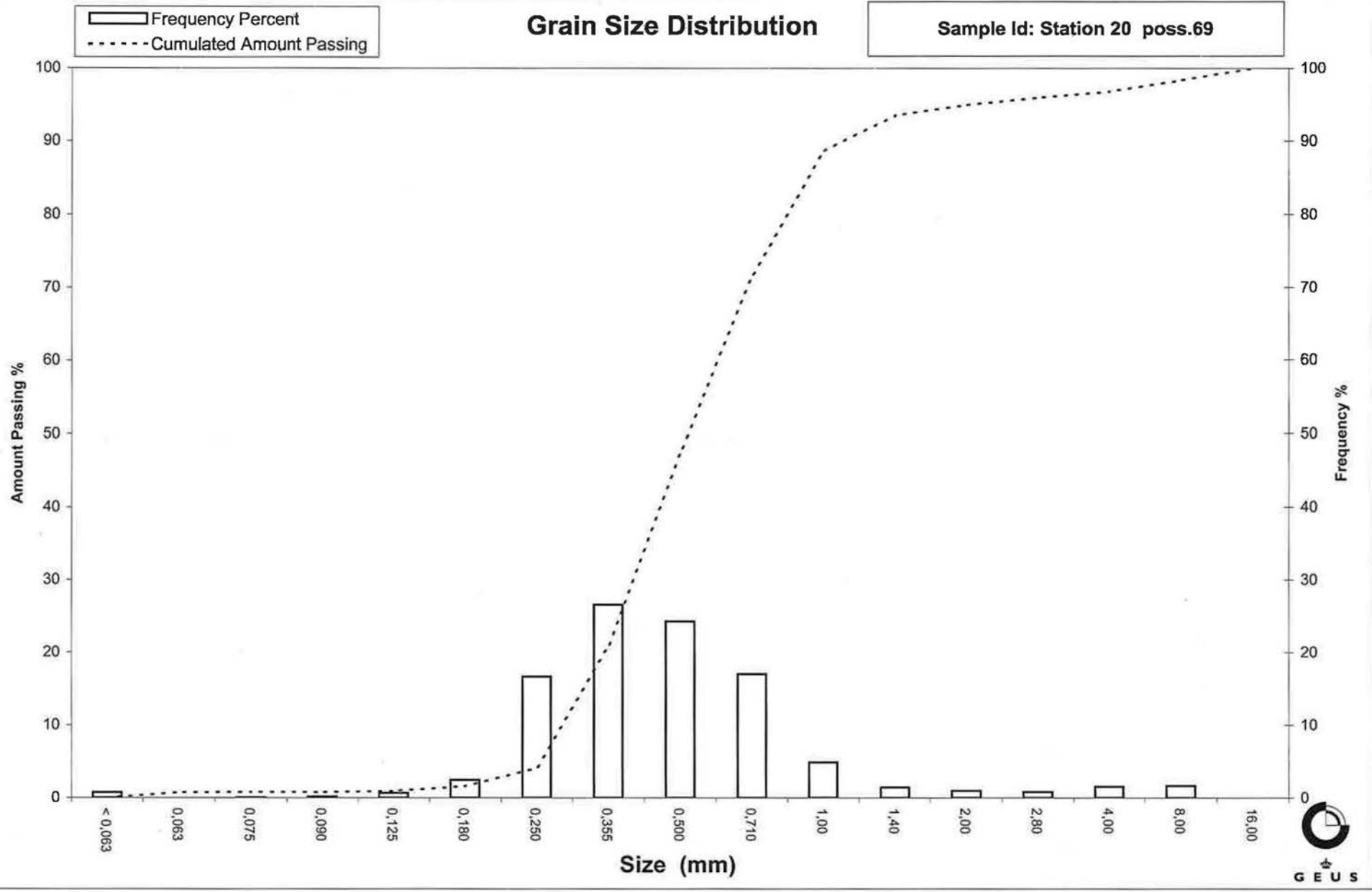
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 20 poss.69



Grain Size Distribution

Geotechnical

Sample Id: Station 20 poss.14
Lab. Id: 100419
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 208,35 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,26	0,12	99,88
2,80	-1,49	0,35	0,17	99,71
2,00	-1,00	1,06	0,51	99,20
1,40	-0,49	3,10	1,49	97,71
1,00	0,00	13,58	6,52	91,19
0,710	0,49	34,33	16,48	74,72
0,500	1,00	79,17	38,00	36,72
0,355	1,49	60,87	29,22	7,50
0,250	2,00	13,62	6,54	0,96
0,180	2,47	1,06	0,51	0,46
0,125	3,00	0,14	0,07	0,39
0,090	3,47	0,05	0,02	0,36
0,075	3,74	0,03	0,01	0,35
0,063	3,99	0,01	0,00	0,35
< 0,063	> 3,99	0,72	0,35	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,35
Sand, fine (0,063 mm - 0,200 mm):	0,26
Sand, medium (0,2 mm - 0,6 mm):	54,21
Sand, coarse (0,6 mm - 2 mm):	44,39
Gravel (> 2 mm):	0,80
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,23	-0,30
16%	84%	0,87	0,20
25%	75%	0,72	0,48
40%	60%	0,63	0,67
Median 50%	50%	0,57	0,80
75%	25%	0,44	1,18
84%	16%	0,40	1,33
90%	10%	0,37	1,44
95%	5%	0,31	1,67

Moments Statistics

Mean	0,78
Sorting	0,58
Skewness	-0,09
Kurtosis	1,16
Uniformity Coefficient	1,71

Size Classes and Percentiles are found by linear interpolation

The analysis is executed according to DS405.9 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

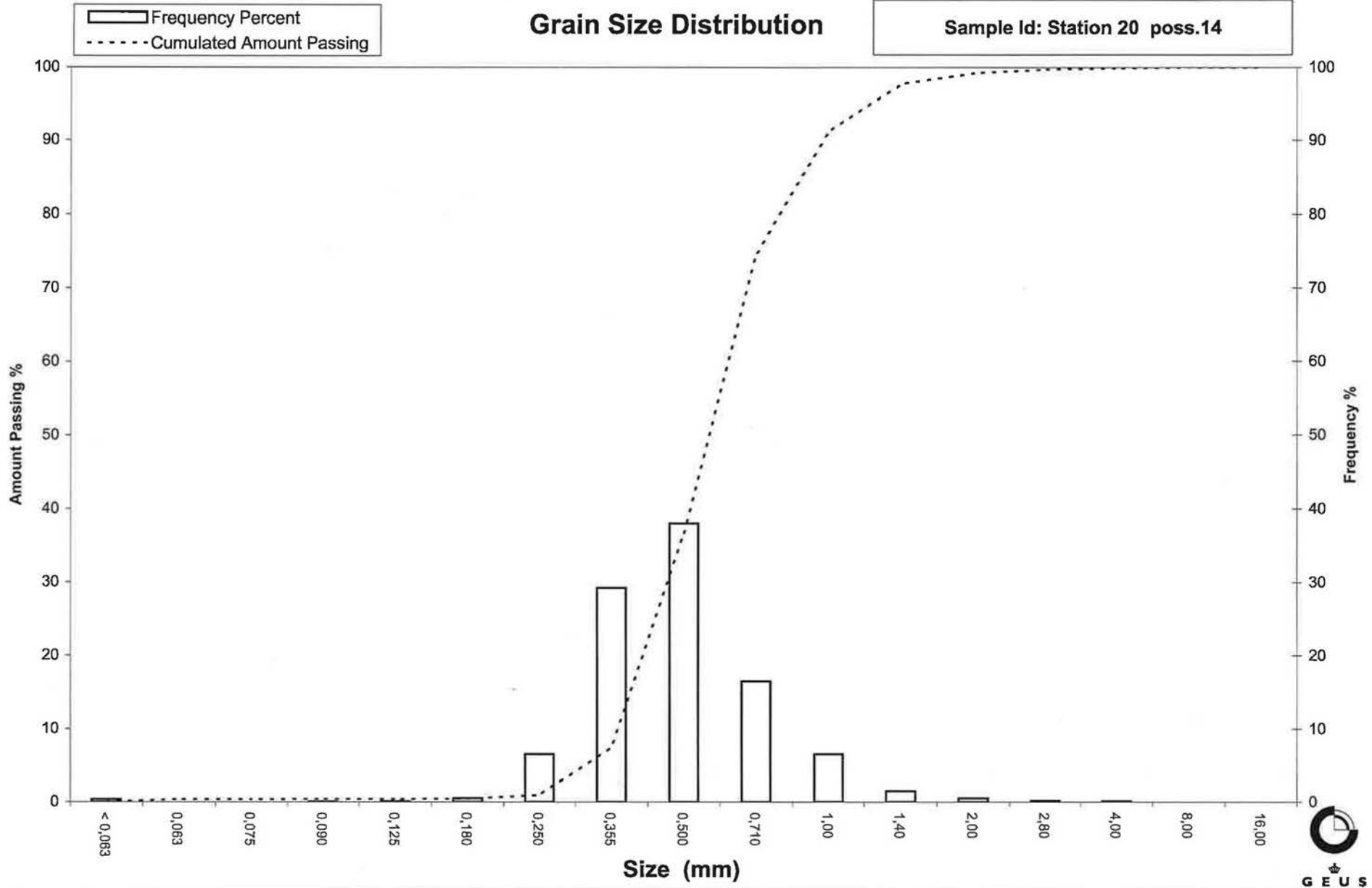
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 20 poss.14



Grain Size Distribution

Geotechnical

Sample Id: Station 24 poss.69
Lab. Id: 100420
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 200,97 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing %
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,40	0,20	99,80
2,80	-1,49	0,12	0,06	99,74
2,00	-1,00	0,15	0,07	99,67
1,40	-0,49	0,20	0,10	99,57
1,00	0,00	1,49	0,74	98,83
0,710	0,49	7,85	3,91	94,92
0,500	1,00	31,47	15,66	79,26
0,355	1,49	86,37	42,98	36,28
0,250	2,00	60,17	29,94	6,34
0,180	2,47	8,41	4,18	2,16
0,125	3,00	3,01	1,50	0,66
0,090	3,47	0,56	0,28	0,38
0,075	3,74	0,09	0,04	0,34
0,063	3,99	0,04	0,02	0,32
< 0,063	> 3,99	0,64	0,32	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,32
Sand, fine (0,063 mm - 0,200 mm):	3,04
Sand, medium (0,2 mm - 0,6 mm):	83,36
Sand, coarse (0,6 mm - 2 mm):	12,95
Gravel (> 2 mm):	0,33
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,72	0,48
16%	84%	0,56	0,83
25%	75%	0,49	1,04
40%	60%	0,44	1,20
Median 50%	50%	0,40	1,32
75%	25%	0,32	1,66
84%	16%	0,28	1,82
90%	10%	0,26	1,93
95%	5%	0,23	2,14

Moments Statistics

Mean	1,32
Sorting	0,50
Skewness	0,00
Kurtosis	1,09
Uniformity Coefficient	1,66

Size Classes and Percentiles are found by linear interpolation

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the ½ phi scale.

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

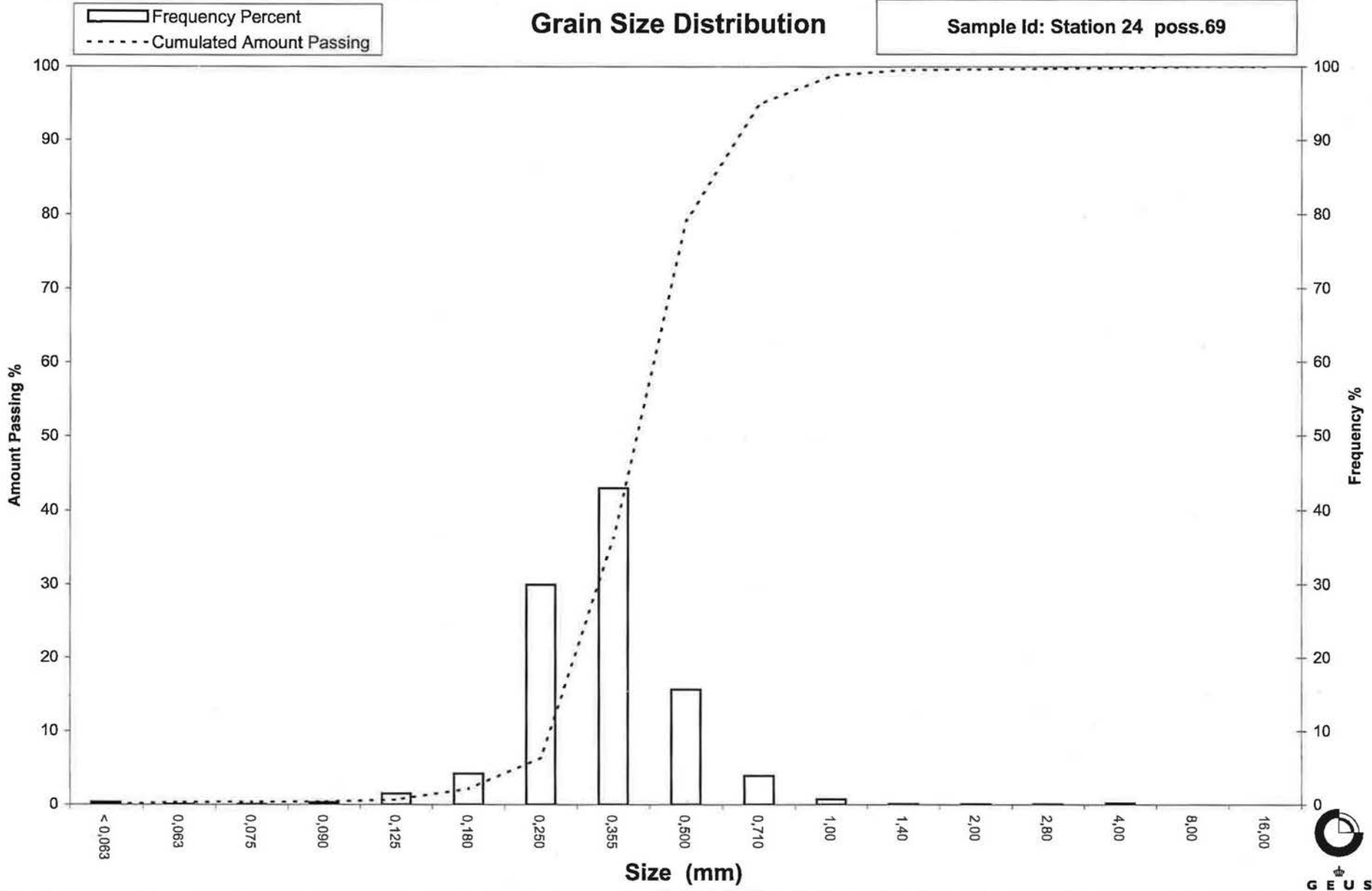
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 24 poss.69



Grain Size Distribution

Geotechnical

Sample Id: Station 37 poss.45
Lab. Id: 100421
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 206,96 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,06	0,03	99,97
2,80	-1,49	0,35	0,17	99,80
2,00	-1,00	0,43	0,21	99,59
1,40	-0,49	2,38	1,15	98,44
1,00	0,00	8,24	3,98	94,46
0,710	0,49	21,15	10,22	84,24
0,500	1,00	53,42	25,81	58,43
0,355	1,49	94,53	45,68	12,76
0,250	2,00	21,75	10,51	2,25
0,180	2,47	2,60	1,26	0,99
0,125	3,00	0,77	0,37	0,62
0,090	3,47	0,18	0,09	0,53
0,075	3,74	0,07	0,03	0,50
0,063	3,99	0,03	0,01	0,48
< 0,063	> 3,99	1,00	0,48	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,48
Sand, fine (0,063 mm - 0,200 mm):	0,87
Sand, medium (0,2 mm - 0,6 mm):	69,37
Sand, coarse (0,6 mm - 2 mm):	28,87
Gravel (> 2 mm):	0,41
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,05	-0,08
16%	84%	0,71	0,50
25%	75%	0,63	0,66
40%	60%	0,51	0,96
Median 50%	50%	0,47	1,08
75%	25%	0,39	1,34
84%	16%	0,37	1,45
90%	10%	0,33	1,61
95%	5%	0,28	1,85

Moments Statistics

Mean	1,01
Sorting	0,53
Skewness	-0,21
Kurtosis	1,15
Uniformity Coefficient	1,57

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the ½ phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

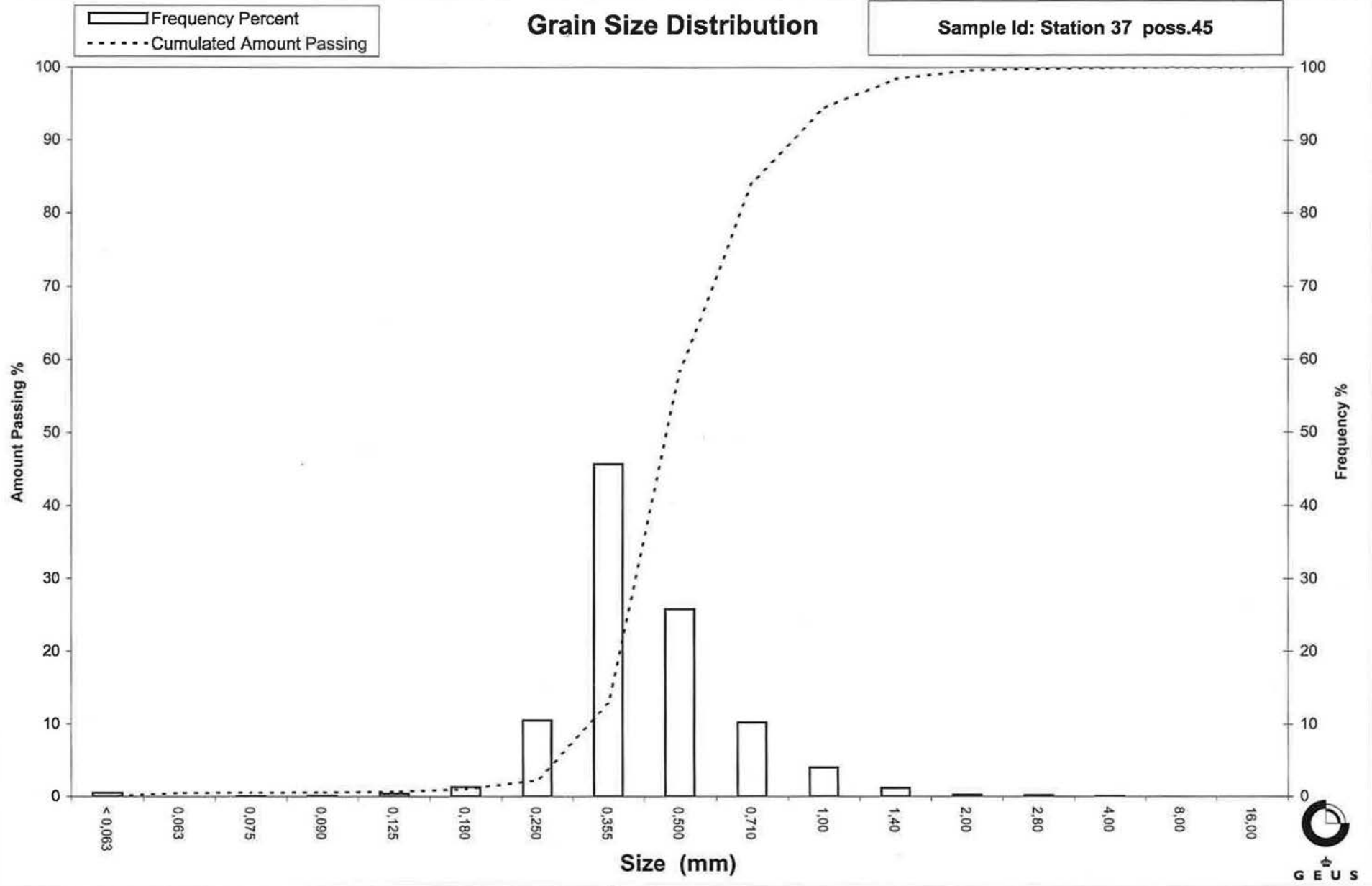
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 37 poss.45



Grain Size Distribution

Geotechnical

Sample Id: Station 38 poss.69
Lab. Id: 100422
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks: For mat.< 8 mm



Total Weight 218,84 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing %
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	3,60	1,65	98,35
4,00	-2,00	2,20	1,01	97,35
2,80	-1,49	1,40	0,64	96,71
2,00	-1,00	1,82	0,83	95,88
1,40	-0,49	4,53	2,07	93,81
1,00	0,00	10,97	5,01	88,80
0,710	0,49	24,97	11,41	77,39
0,500	1,00	42,79	19,55	57,83
0,355	1,49	66,97	30,60	27,23
0,250	2,00	47,41	21,66	5,57
0,180	2,47	7,88	3,60	1,96
0,125	3,00	2,43	1,11	0,85
0,090	3,47	0,56	0,26	0,60
0,075	3,74	0,10	0,05	0,55
0,063	3,99	0,12	0,05	0,50
< 0,063	> 3,99	1,09	0,50	0,00

Sieve Analysis

Gravel
Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm)	0,50
Sand, fine (0,063 mm - 0,200 mm)	2,50
Sand, medium (0,2 mm - 0,6 mm)	64,15
Sand, coarse (0,6 mm - 2 mm)	28,74
Gravel (> 2 mm)	4,12
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,75	-0,80
16%	84%	0,88	0,19
25%	75%	0,68	0,55
40%	60%	0,52	0,93
Median 50%	50%	0,46	1,11
75%	25%	0,34	1,54
84%	16%	0,30	1,73
90%	10%	0,27	1,88
95%	5%	0,24	2,06

Moments Statistics

Mean	1,01
Sorting	0,82
Skewness	-0,26
Kurtosis	1,19
Uniformity Coefficient	1,93

The analysis is executed according to DS405.9 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

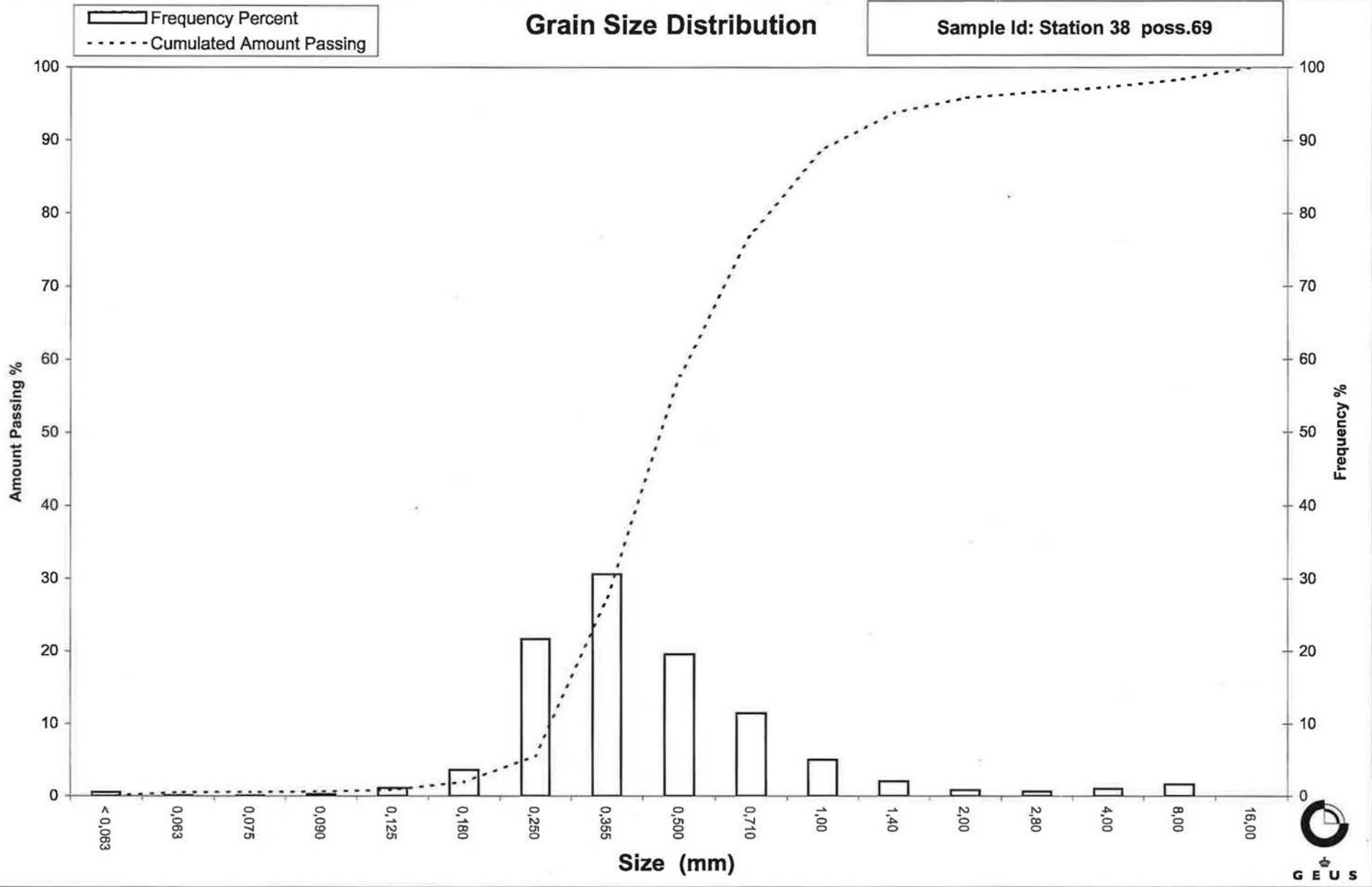
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 38 poss.69



Grain Size Distribution

Geotechnical

Sample Id: Station 39 poss.70
Lab. Id: 100423
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks: For mat.< 2 mm



Total Weight 148,97 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing %
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,00	0,00	100,00
2,80	-1,49	0,07	0,05	99,95
2,00	-1,00	0,19	0,13	99,83
1,40	-0,49	0,20	0,13	99,69
1,00	0,00	0,94	0,63	99,06
0,710	0,49	5,37	3,60	95,46
0,500	1,00	13,50	9,06	86,39
0,355	1,49	29,02	19,48	66,91
0,250	2,00	67,74	45,47	21,44
0,180	2,47	19,45	13,06	8,38
0,125	3,00	9,42	6,32	2,06
0,090	3,47	1,63	1,09	0,97
0,075	3,74	0,12	0,08	0,89
0,063	3,99	0,05	0,03	0,85
< 0,063	> 3,99	1,27	0,85	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,85
Sand, fine (0,063 mm - 0,200 mm):	11,26
Sand, medium (0,2 mm - 0,6 mm):	78,59
Sand, coarse (0,6 mm - 2 mm):	9,12
Gravel (> 2 mm):	0,17
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,70	0,52
16%	84%	0,48	1,05
25%	75%	0,42	1,27
40%	60%	0,34	1,56
Median 50%	50%	0,32	1,66
75%	25%	0,26	1,95
84%	16%	0,22	2,18
90%	10%	0,19	2,41
95%	5%	0,15	2,73

Moments Statistics

Mean	1,63
Sorting	0,62
Skewness	-0,06
Kurtosis	1,33
Uniformity Coefficient	1,80

Size Classes and Percentiles are found by linear interpolation

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the ½ phi scale.

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

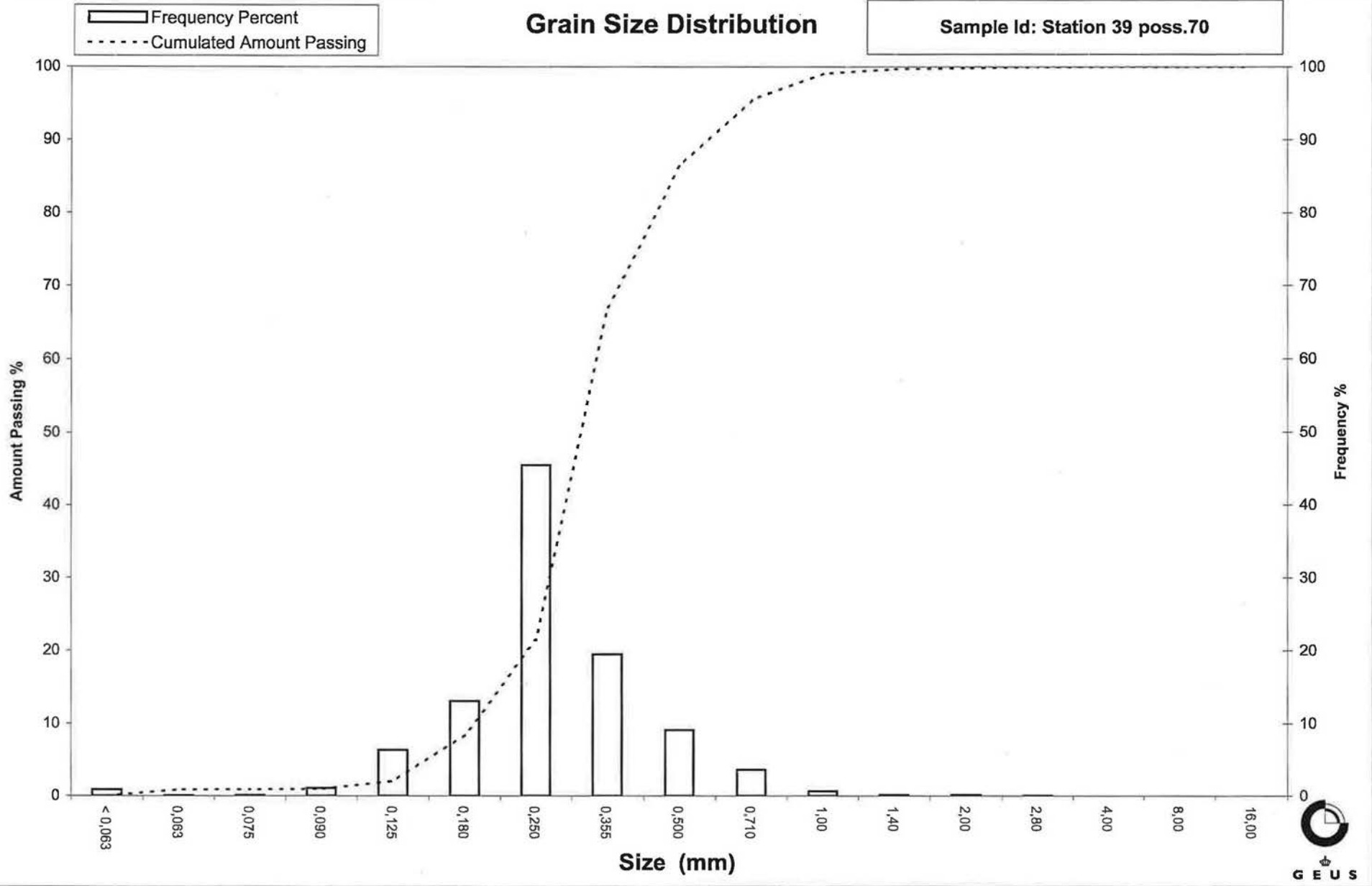
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 39 poss.70



Grain Size Distribution

Geotechnical

Sample Id: Station 45 poss.68
Lab. Id: 100424
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 201,76 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,90	0,45	99,55
2,80	-1,49	0,86	0,43	99,13
2,00	-1,00	1,70	0,84	98,29
1,40	-0,49	2,58	1,28	97,01
1,00	0,00	12,66	6,27	90,73
0,710	0,49	40,73	20,19	70,54
0,500	1,00	46,89	23,24	47,30
0,355	1,49	50,63	25,09	22,21
0,250	2,00	36,91	18,29	3,92
0,180	2,47	5,67	2,81	1,11
0,125	3,00	1,28	0,63	0,47
0,090	3,47	0,37	0,18	0,29
0,075	3,74	0,06	0,03	0,26
0,063	3,99	0,02	0,01	0,25
< 0,063	> 3,99	0,50	0,25	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm):	0,25
Sand, fine (0,063 mm - 0,200 mm):	1,66
Sand, medium (0,2 mm - 0,6 mm):	56,46
Sand, coarse (0,6 mm - 2 mm):	39,91
Gravel (> 2 mm):	1,71
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,27	-0,35
16%	84%	0,90	0,15
25%	75%	0,77	0,37
40%	60%	0,61	0,70
Median 50%	50%	0,52	0,93
75%	25%	0,37	1,43
84%	16%	0,32	1,65
90%	10%	0,28	1,81
95%	5%	0,26	1,96

Moments Statistics

Mean	0,91
Sorting	0,73
Skewness	-0,08
Kurtosis	0,89
Uniformity Coefficient	2,16

Size Classes and Percentiles are found by linear interpolation

The analysis is executed according to DS405.9 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

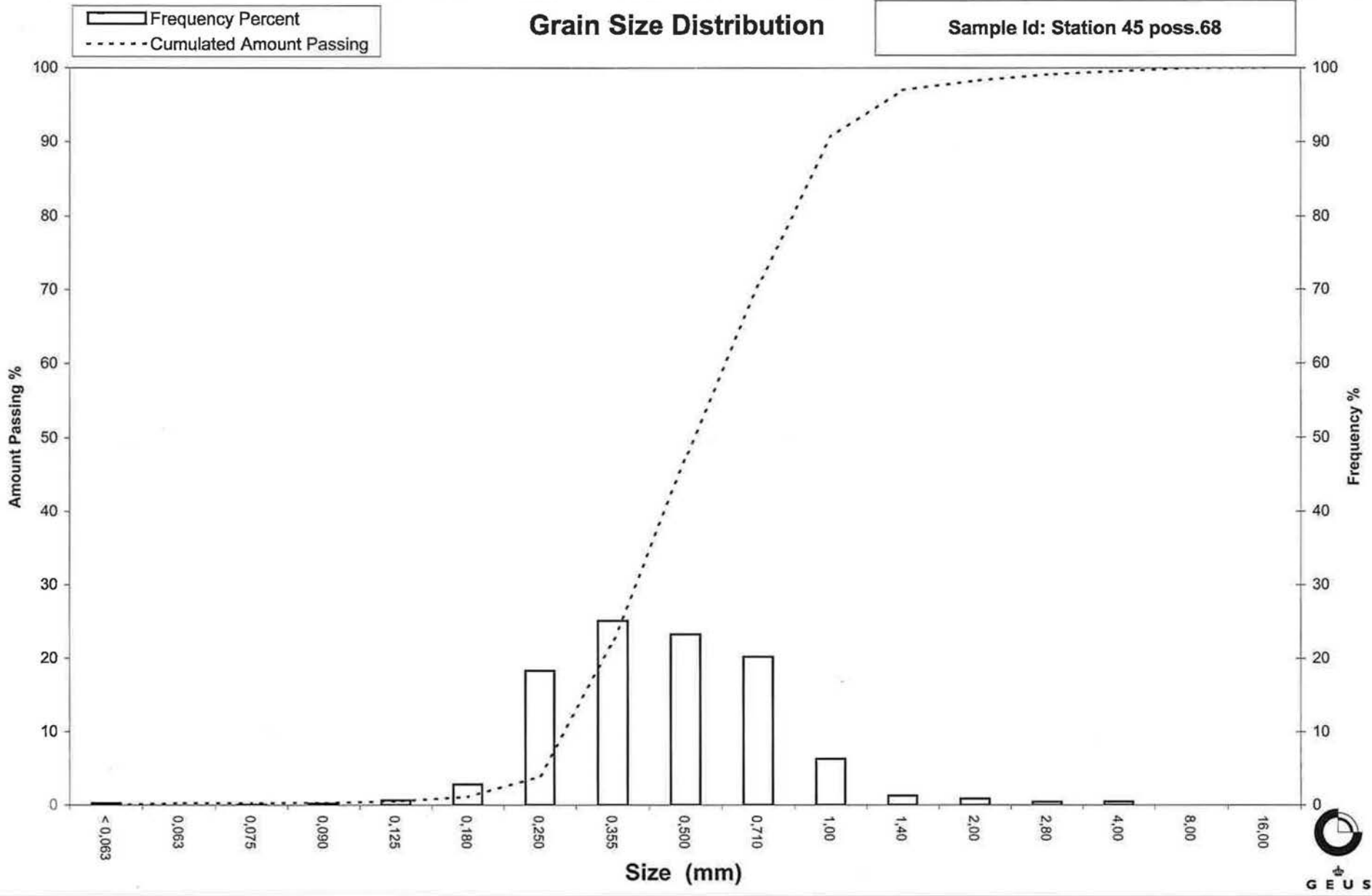
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 45 poss.68



Grain Size Distribution

Geotechnical

Sample Id: Station 51 poss.66
Lab. Id: 100425
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 374,02 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,77	0,21	99,79
2,80	-1,49	0,32	0,09	99,71
2,00	-1,00	0,97	0,26	99,45
1,40	-0,49	4,18	1,12	98,33
1,00	0,00	14,78	3,95	94,38
0,710	0,49	43,18	11,54	82,84
0,500	1,00	95,54	25,54	57,29
0,355	1,49	131,80	35,24	22,05
0,250	2,00	65,47	17,50	4,55
0,180	2,47	10,13	2,71	1,84
0,125	3,00	2,68	0,72	1,12
0,090	3,47	1,09	0,29	0,83
0,075	3,74	0,25	0,07	0,76
0,063	3,99	0,12	0,03	0,73
< 0,063	> 3,99	2,74	0,73	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm)	0,73
Sand, fine (0,063 mm - 0,200 mm)	1,88
Sand, medium (0,2 mm - 0,6 mm)	66,84
Sand, coarse (0,6 mm - 2 mm)	29,99
Gravel (> 2 mm)	0,55
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,06	-0,09
16%	84%	0,74	0,44
25%	75%	0,65	0,63
40%	60%	0,52	0,94
Median 50%	50%	0,47	1,09
75%	25%	0,37	1,45
84%	16%	0,32	1,65
90%	10%	0,28	1,82
95%	5%	0,25	1,98

Moments Statistics

Mean	1,06
Sorting	0,62
Skewness	-0,11
Kurtosis	1,04
Uniformity Coefficient	1,85

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

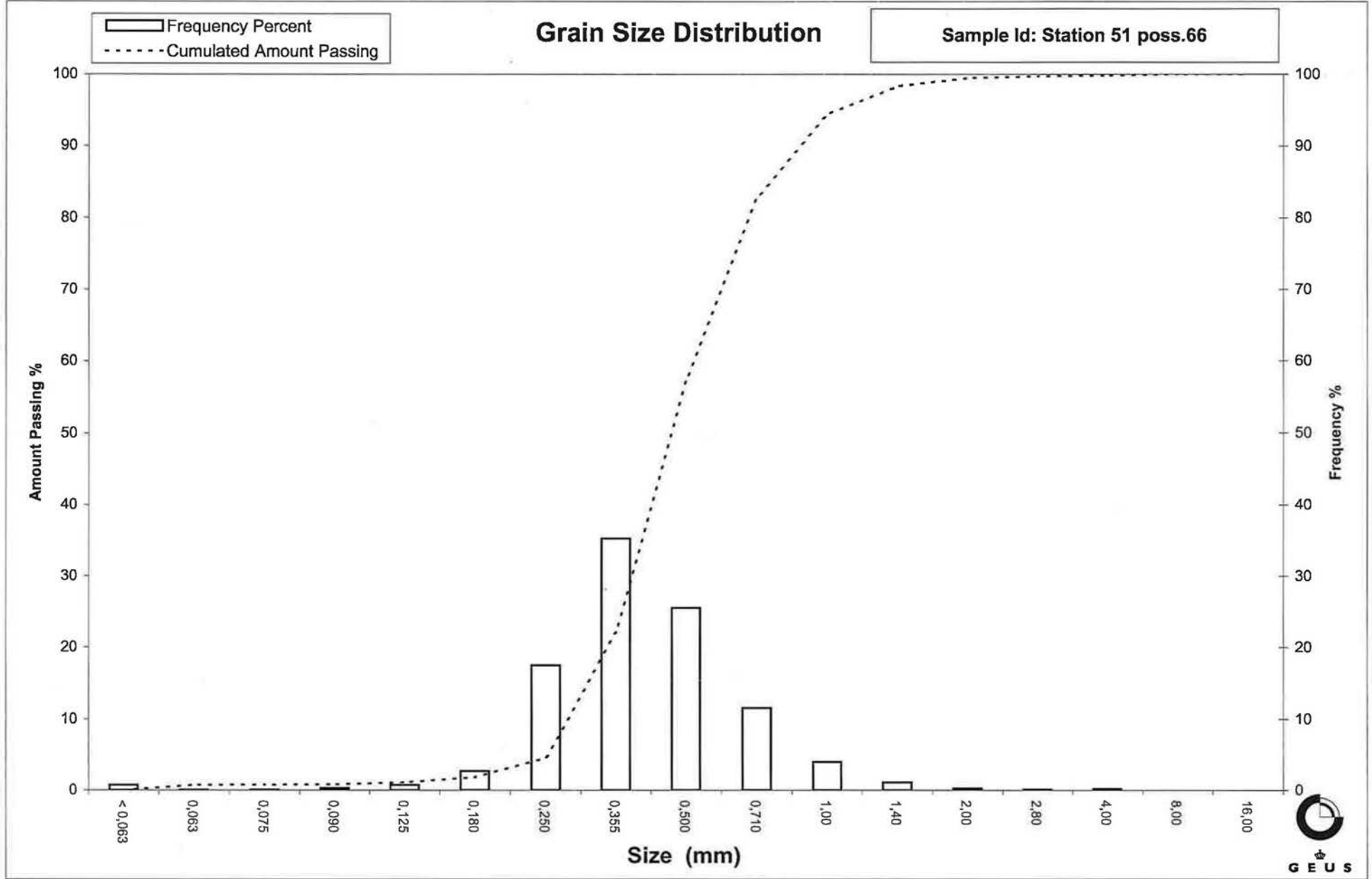
Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Geotechnical

Sample Id: Station 57 poss.57
Lab. Id: 100426
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 202,04 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing %
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,11	0,05	99,95
2,80	-1,49	0,01	0,00	99,94
2,00	-1,00	0,18	0,09	99,85
1,40	-0,49	1,43	0,71	99,14
1,00	0,00	4,51	2,23	96,91
0,710	0,49	15,13	7,49	89,42
0,500	1,00	75,34	37,29	52,13
0,355	1,49	83,72	41,44	10,70
0,250	2,00	18,08	8,95	1,75
0,180	2,47	1,85	0,92	0,83
0,125	3,00	0,16	0,08	0,75
0,090	3,47	0,04	0,02	0,73
0,075	3,74	0,02	0,01	0,72
0,063	3,99	0,00	0,00	0,72
< 0,063	> 3,99	1,46	0,72	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm):	0,72
Sand, fine (0,063 mm - 0,200 mm):	0,37
Sand, medium (0,2 mm - 0,6 mm):	68,80
Sand, coarse (0,6 mm - 2 mm):	29,96
Gravel (> 2 mm):	0,15
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,93	0,11
16%	84%	0,68	0,56
25%	75%	0,63	0,67
40%	60%	0,54	0,88
Median 50%	50%	0,49	1,02
75%	25%	0,41	1,30
84%	16%	0,37	1,42
90%	10%	0,35	1,53
95%	5%	0,29	1,80

Moments Statistics

Mean	1,00
Sorting	0,47
Skewness	-0,08
Kurtosis	1,09
Uniformity Coefficient	1,57

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

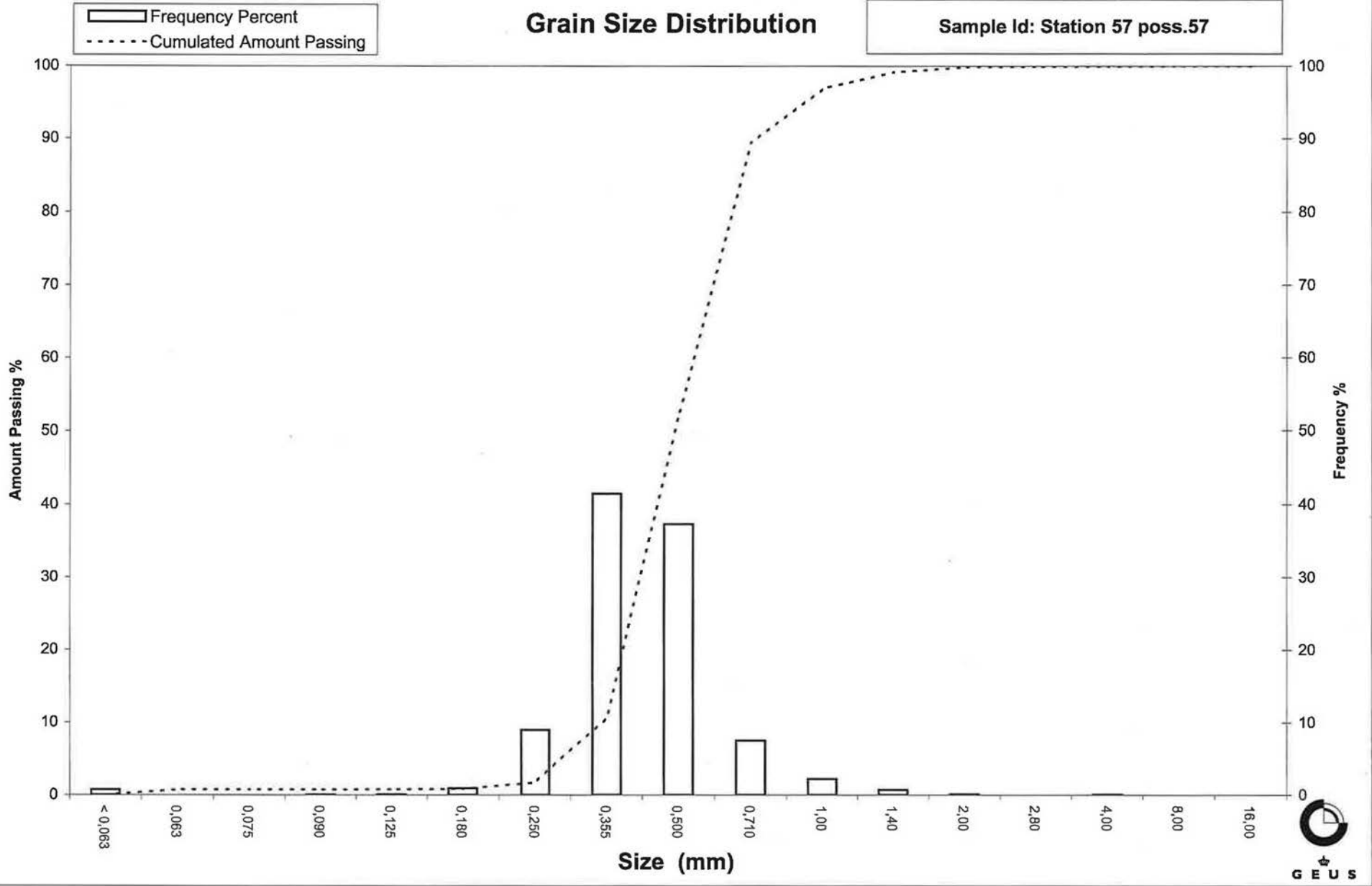
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 57 poss.57



Grain Size Distribution

Geotechnical

Sample Id: Station 63 poss.33
Lab. Id: 100427
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 200,42 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,05	0,02	99,98
2,80	-1,49	0,01	0,01	99,97
2,00	-1,00	0,58	0,29	99,68
1,40	-0,49	2,07	1,03	98,65
1,00	0,00	7,59	3,79	94,86
0,710	0,49	25,07	12,51	82,35
0,500	1,00	61,20	30,54	51,81
0,355	1,49	75,21	37,53	14,29
0,250	2,00	24,99	12,47	1,82
0,180	2,47	2,29	1,14	0,68
0,125	3,00	0,35	0,17	0,50
0,090	3,47	0,07	0,03	0,47
0,075	3,74	0,02	0,01	0,46
0,063	3,99	0,01	0,00	0,45
< 0,063	> 3,99	0,91	0,45	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,45
Sand, fine (0,063 mm - 0,200 mm):	0,55
Sand, medium (0,2 mm - 0,6 mm):	65,35
Sand, coarse (0,6 mm - 2 mm):	33,32
Gravel (> 2 mm):	0,32
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,01	-0,02
16%	84%	0,75	0,42
25%	75%	0,66	0,60
40%	60%	0,56	0,85
Median 50%	50%	0,49	1,02
75%	25%	0,40	1,34
84%	16%	0,36	1,47
90%	10%	0,32	1,65
95%	5%	0,28	1,85

Moments Statistics

Mean	0,97
Sorting	0,55
Skewness	-0,13
Kurtosis	1,05
Uniformity Coefficient	1,74

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the ½ phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

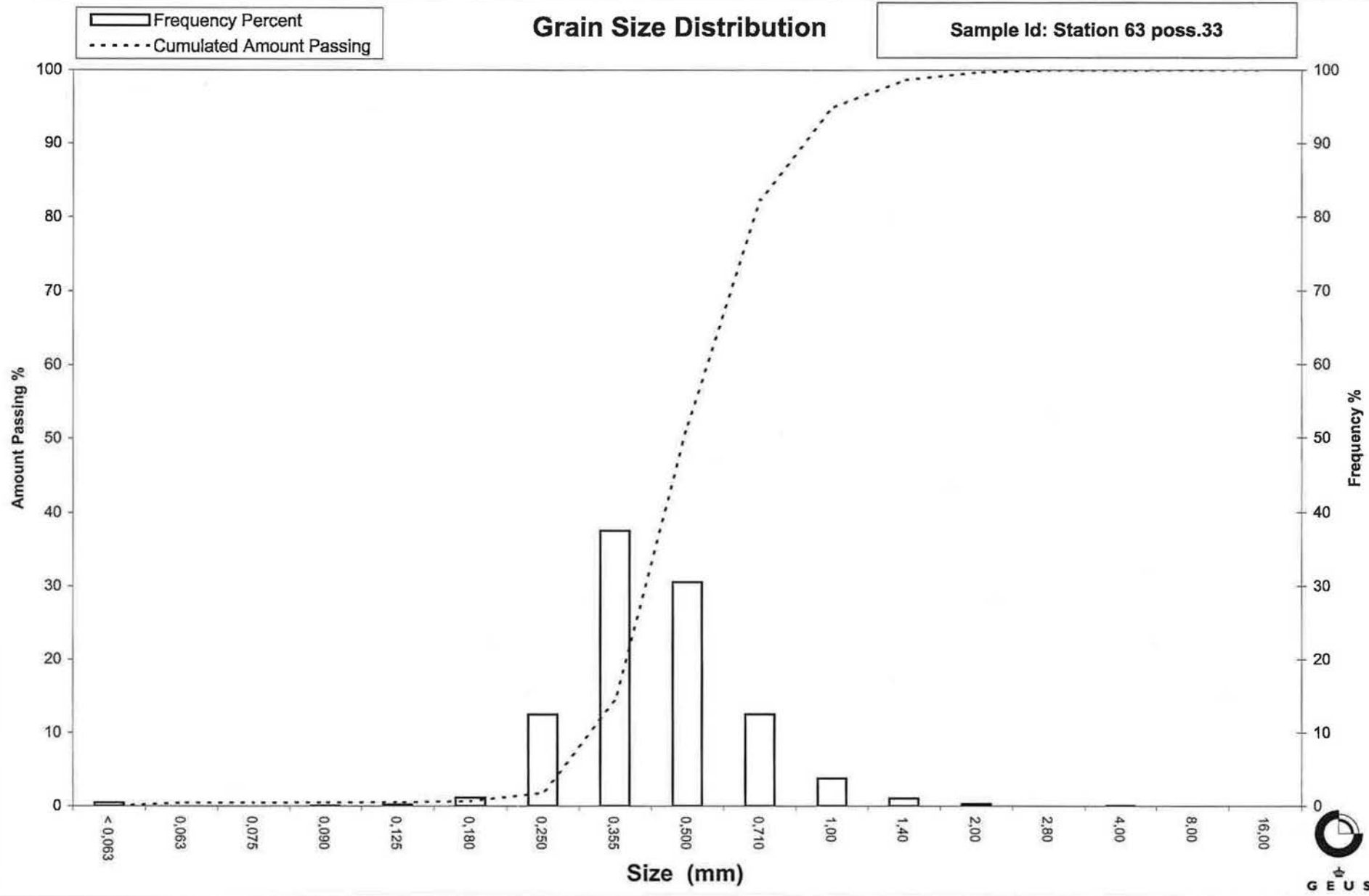
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 63 poss.33



Grain Size Distribution

Geotechnical

Sample Id: Station 64 poss.38
Lab. Id: 100428
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 210,01 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,00	0,00	100,00
2,80	-1,49	0,01	0,00	100,00
2,00	-1,00	0,10	0,05	99,95
1,40	-0,49	0,33	0,16	99,79
1,00	0,00	1,33	0,63	99,16
0,710	0,49	4,10	1,95	97,20
0,500	1,00	15,69	7,47	89,73
0,355	1,49	95,11	45,29	44,45
0,250	2,00	73,40	34,95	9,49
0,180	2,47	14,99	7,14	2,36
0,125	3,00	2,84	1,35	1,00
0,090	3,47	0,51	0,24	0,76
0,075	3,74	0,09	0,04	0,72
0,063	3,99	0,05	0,02	0,70
< 0,063	> 3,99	1,46	0,70	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,70
Sand, fine (0,063 mm - 0,200 mm):	3,70
Sand, medium (0,2 mm - 0,6 mm):	88,90
Sand, coarse (0,6 mm - 2 mm):	6,66
Gravel (> 2 mm):	0,05
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,65	0,63
16%	84%	0,48	1,05
25%	75%	0,45	1,14
40%	60%	0,40	1,30
Median 50%	50%	0,37	1,42
75%	25%	0,30	1,75
84%	16%	0,27	1,89
90%	10%	0,25	1,99
95%	5%	0,21	2,28

Moments Statistics

Mean	1,46
Sorting	0,46
Skewness	0,08
Kurtosis	1,11
Uniformity Coefficient	1,61

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

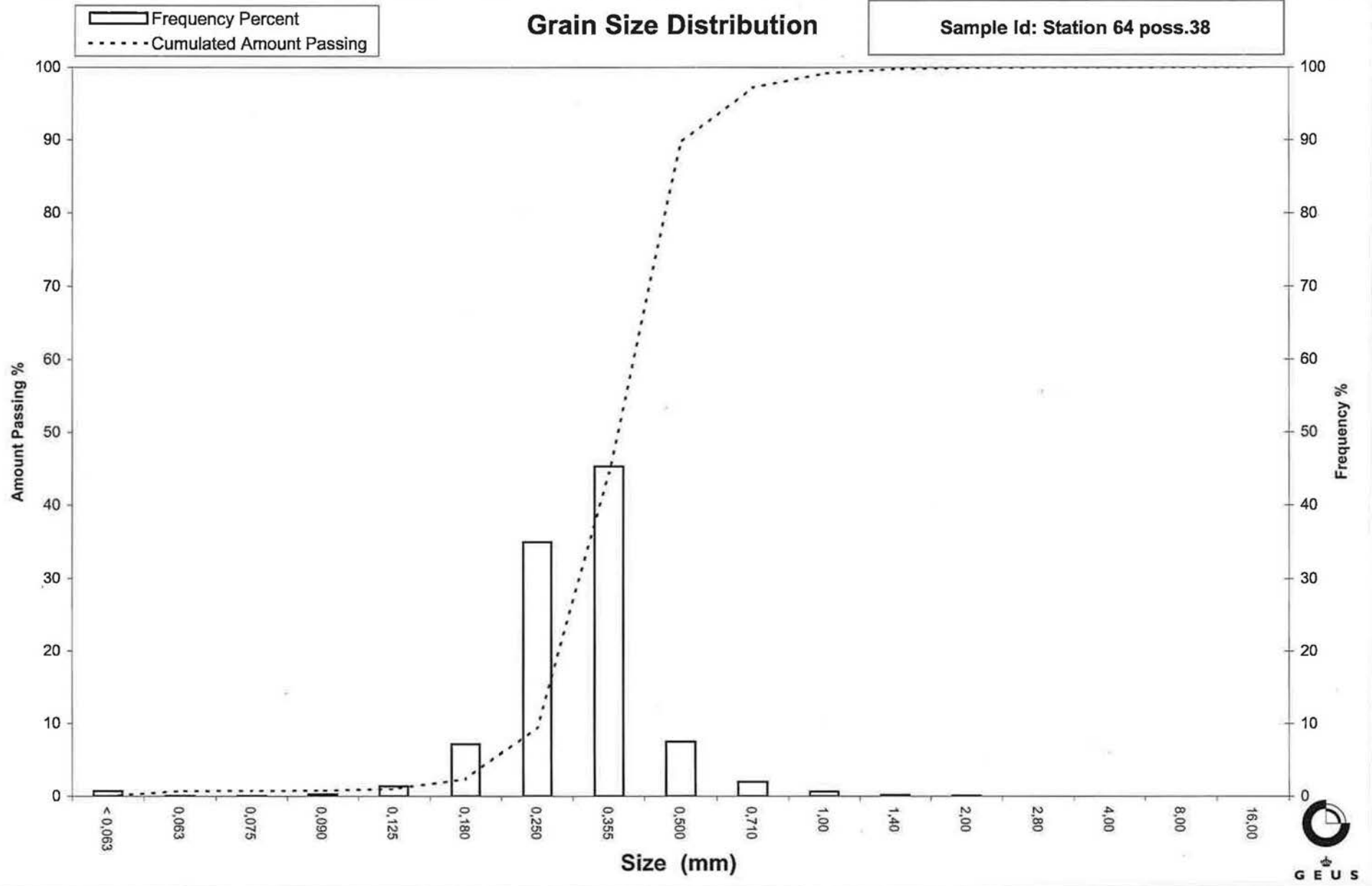
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 64 poss.38



Grain Size Distribution

Geotechnical

Sample Id: Station 65 poss.19
Lab. Id: 100429
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 212,37 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	1,27	0,60	99,40
2,80	-1,49	1,11	0,52	98,88
2,00	-1,00	3,79	1,78	97,09
1,40	-0,49	12,22	5,75	91,34
1,00	0,00	32,37	15,24	76,10
0,710	0,49	52,30	24,63	51,47
0,500	1,00	56,28	26,50	24,97
0,355	1,49	36,34	17,11	7,86
0,250	2,00	13,21	6,22	1,64
0,180	2,47	1,73	0,81	0,82
0,125	3,00	0,34	0,16	0,66
0,090	3,47	0,10	0,05	0,62
0,075	3,74	0,02	0,01	0,61
0,063	3,99	0,01	0,00	0,60
< 0,063	> 3,99	1,28	0,60	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,60
Sand, fine (0,063 mm - 0,200 mm):	0,45
Sand, medium (0,2 mm - 0,6 mm):	36,53
Sand, coarse (0,6 mm - 2 mm):	59,50
Gravel (> 2 mm):	2,91
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,78	-0,83
16%	84%	1,21	-0,27
25%	75%	0,99	0,02
40%	60%	0,81	0,30
Median 50%	50%	0,70	0,52
75%	25%	0,50	1,00
84%	16%	0,42	1,24
90%	10%	0,37	1,42
95%	5%	0,31	1,70

Moments Statistics

Mean	0,49
Sorting	0,76
Skewness	-0,06
Kurtosis	1,06
Uniformity Coefficient	2,17

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

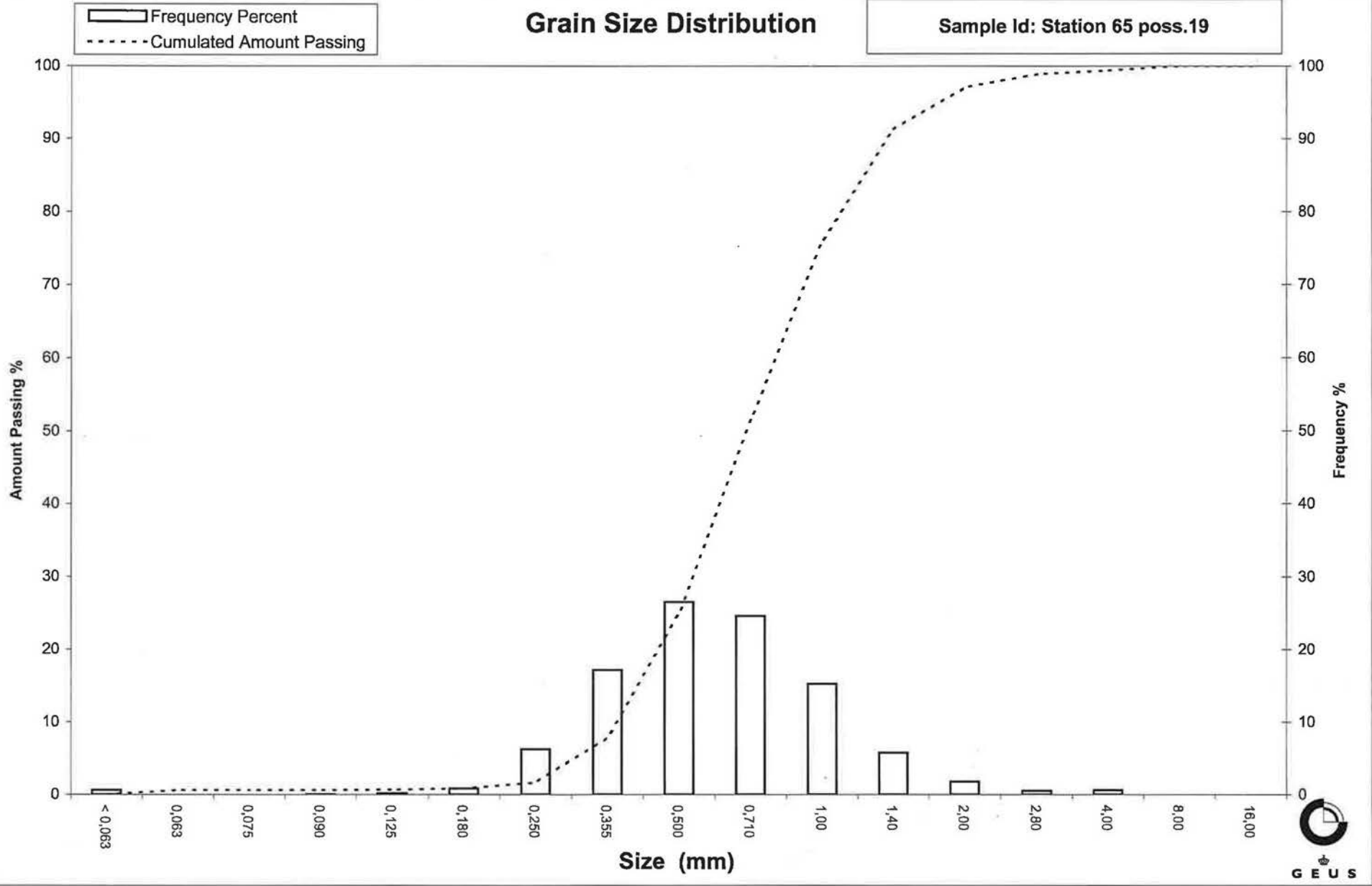
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 65 poss.19



Grain Size Distribution

Geotechnical

Sample Id: Station 67 poss. 04
Lab. Id: 100430
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 201,18 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,00	0,00	100,00
2,80	-1,49	0,07	0,03	99,97
2,00	-1,00	0,19	0,09	99,87
1,40	-0,49	0,44	0,22	99,65
1,00	0,00	1,37	0,68	98,97
0,710	0,49	4,56	2,27	96,70
0,500	1,00	20,60	10,24	86,46
0,355	1,49	97,48	48,45	38,01
0,250	2,00	67,17	33,39	4,62
0,180	2,47	7,34	3,65	0,97
0,125	3,00	1,05	0,52	0,45
0,090	3,47	0,14	0,07	0,38
0,075	3,74	0,04	0,02	0,36
0,063	3,99	0,02	0,01	0,35
< 0,063	> 3,99	0,71	0,35	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm):	0,35
Sand, fine (0,063 mm - 0,200 mm):	1,66
Sand, medium (0,2 mm - 0,6 mm):	89,32
Sand, coarse (0,6 mm - 2 mm):	8,53
Gravel (> 2 mm):	0,13
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,68	0,57
16%	84%	0,49	1,02
25%	75%	0,47	1,10
40%	60%	0,42	1,25
Median 50%	50%	0,39	1,36
75%	25%	0,31	1,67
84%	16%	0,29	1,81
90%	10%	0,27	1,91
95%	5%	0,25	1,99

Moments Statistics

Mean	1,39
Sorting	0,41
Skewness	0,02
Kurtosis	1,03
Uniformity Coefficient	1,58

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

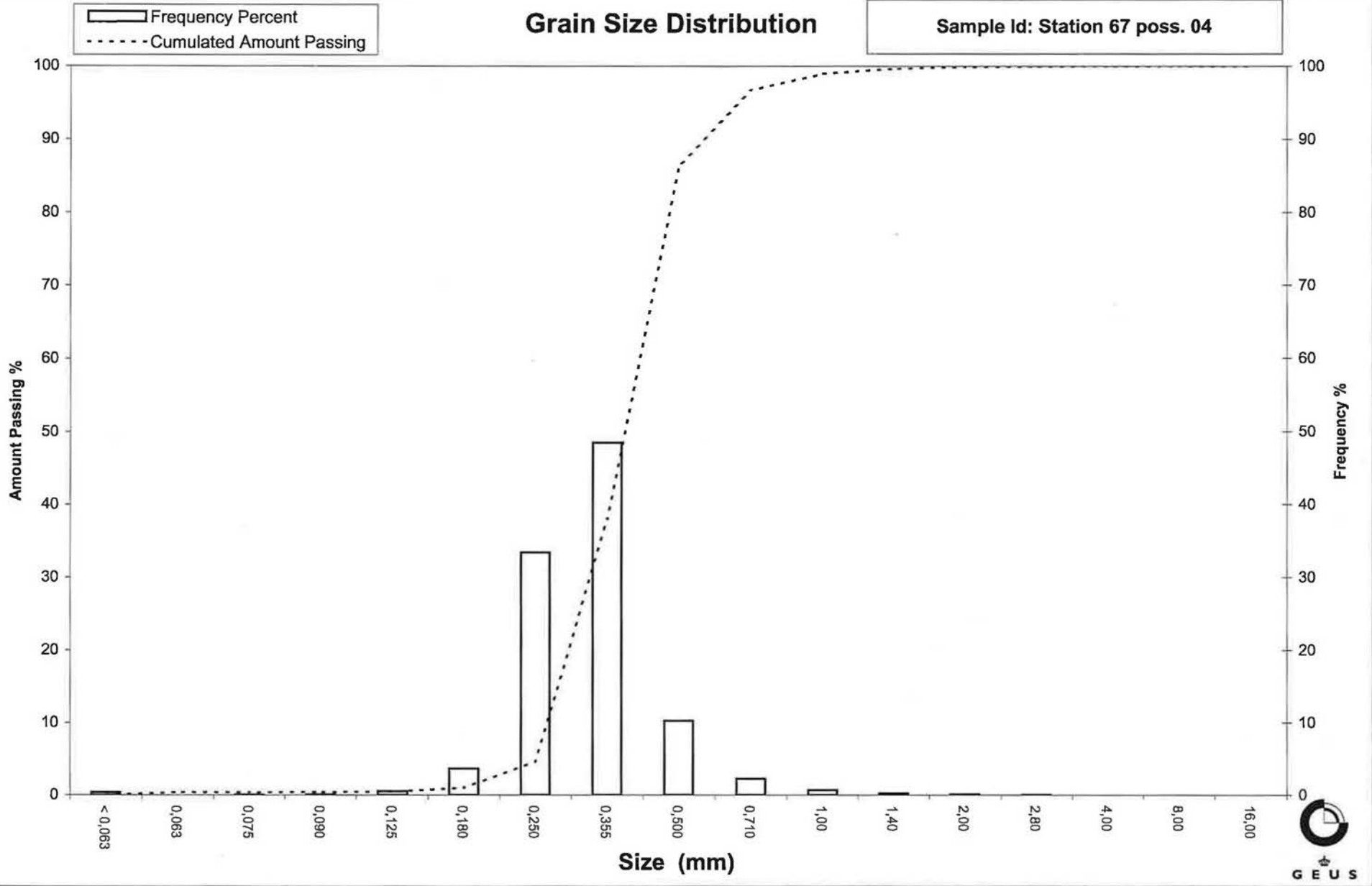
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 67 poss. 04



Grain Size Distribution

Geotechnical

Sample Id: Station 68 poss. 14
Lab. Id: 100431
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 210,32 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,72	0,34	99,66
2,80	-1,49	0,66	0,31	99,34
2,00	-1,00	1,26	0,60	98,74
1,40	-0,49	4,02	1,91	96,83
1,00	0,00	13,00	6,18	90,65
0,710	0,49	35,58	16,92	73,74
0,500	1,00	80,39	38,22	35,51
0,355	1,49	56,86	27,03	8,48
0,250	2,00	14,76	7,02	1,46
0,180	2,47	1,67	0,79	0,67
0,125	3,00	0,22	0,10	0,56
0,090	3,47	0,08	0,04	0,52
0,075	3,74	0,03	0,01	0,51
0,063	3,99	0,02	0,01	0,50
< 0,063	> 3,99	1,05	0,50	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,50
Sand, fine (0,063 mm - 0,200 mm):	0,39
Sand, medium (0,2 mm - 0,6 mm):	52,82
Sand, coarse (0,6 mm - 2 mm):	45,03
Gravel (> 2 mm):	1,26
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,28	-0,36
16%	84%	0,89	0,17
25%	75%	0,73	0,45
40%	60%	0,63	0,66
Median 50%	50%	0,58	0,79
75%	25%	0,44	1,17
84%	16%	0,40	1,34
90%	10%	0,36	1,46
95%	5%	0,30	1,72

Moments Statistics

Mean	0,77
Sorting	0,61
Skewness	-0,08
Kurtosis	1,18
Uniformity Coefficient	1,75

The analysis is executed according to DS405.9 DS/EN933-1 extended by sieves to the ½ phi scale.

Size Classes and Percentiles are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

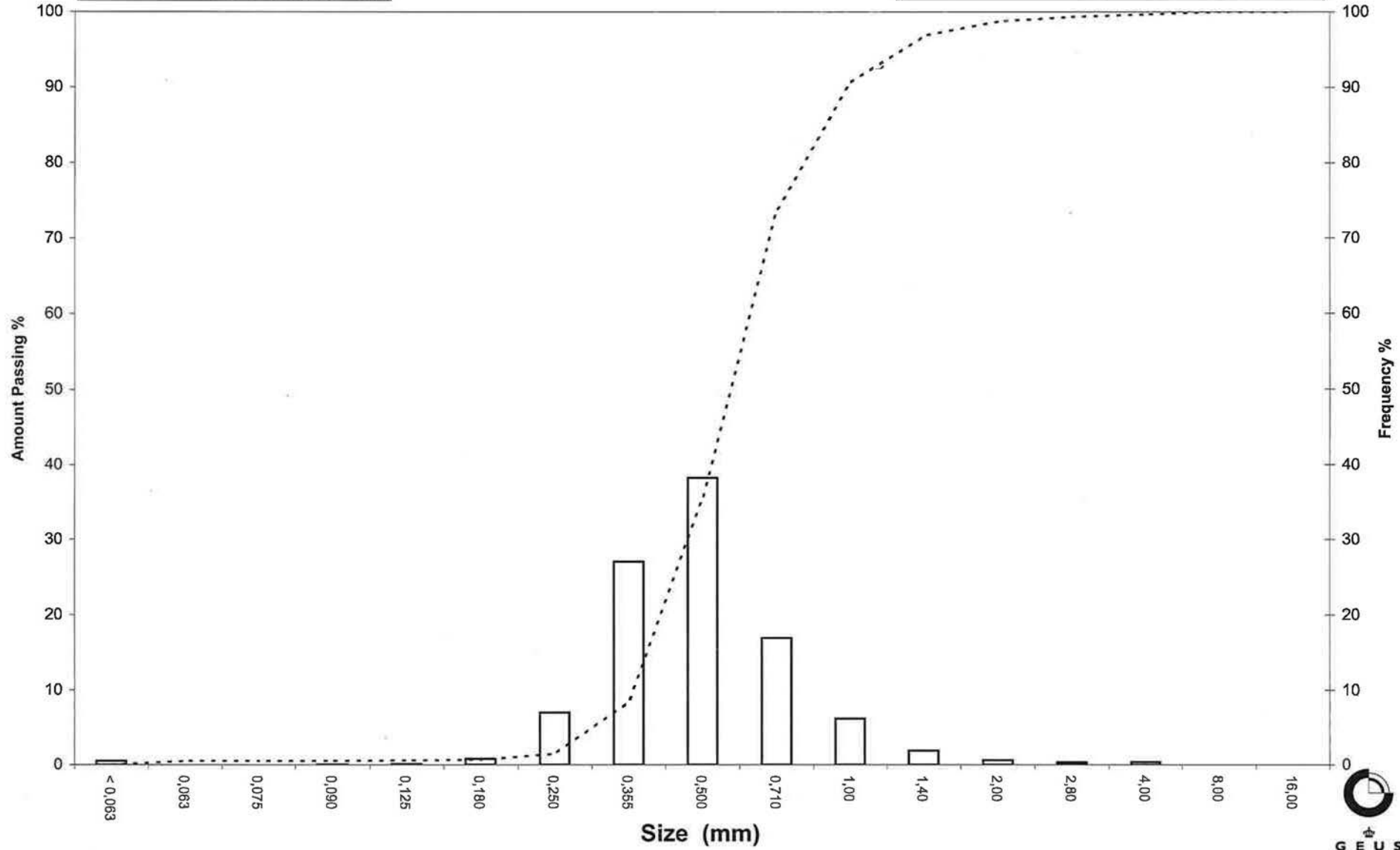
Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 68 poss. 14

Frequency Percent
Cumulated Amount Passing



Grain Size Distribution

Geotechnical

Sample Id: Station 74 poss. 64
Lab. Id: 100432
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 202,44 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,07	0,03	99,97
2,80	-1,49	0,04	0,02	99,95
2,00	-1,00	0,37	0,18	99,76
1,40	-0,49	2,00	0,99	98,77
1,00	0,00	12,16	6,01	92,77
0,710	0,49	31,83	15,72	77,05
0,500	1,00	53,43	26,39	50,65
0,355	1,49	66,46	32,83	17,82
0,250	2,00	30,16	14,90	2,92
0,180	2,47	3,03	1,50	1,43
0,125	3,00	0,96	0,47	0,95
0,090	3,47	0,27	0,13	0,82
0,075	3,74	0,05	0,02	0,80
0,063	3,99	0,02	0,01	0,79
< 0,063	> 3,99	1,59	0,79	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm):	0,79
Sand, fine (0,063 mm - 0,200 mm):	1,07
Sand, medium (0,2 mm - 0,6 mm):	61,36
Sand, coarse (0,6 mm - 2 mm):	36,54
Gravel (> 2 mm):	0,24
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,15	-0,20
16%	84%	0,84	0,25
25%	75%	0,69	0,53
40%	60%	0,57	0,80
Median 50%	50%	0,50	1,01
75%	25%	0,39	1,37
84%	16%	0,34	1,55
90%	10%	0,30	1,74
95%	5%	0,26	1,92

Moments Statistics

Mean	0,94
Sorting	0,64
Skewness	-0,15
Kurtosis	1,03
Uniformity Coefficient	1,92

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

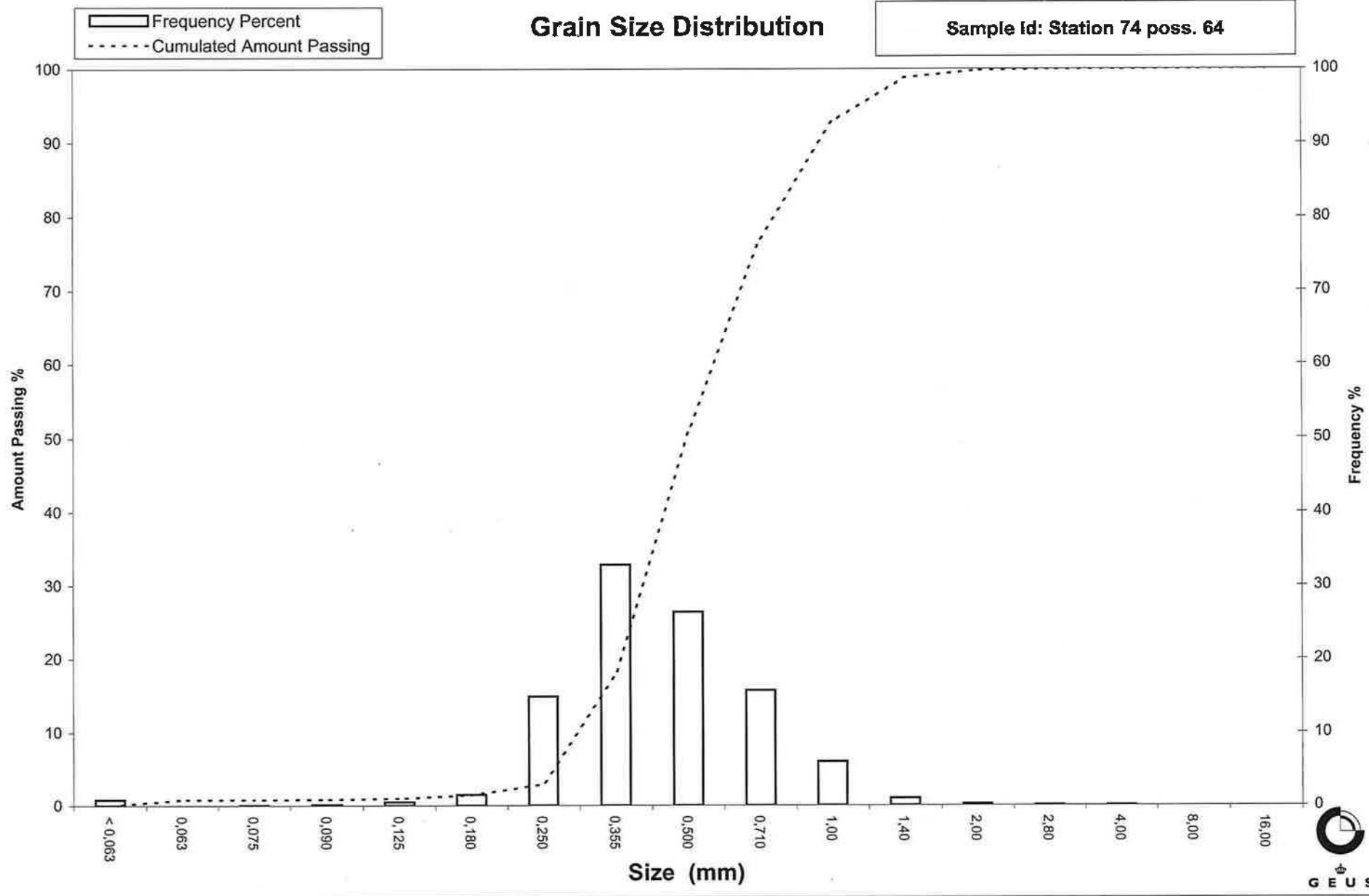
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 74 poss. 64



Grain Size Distribution

Geotechnical

Sample Id: Station 80 poss. 67
Lab. Id: 100433
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 203,07 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount
mm	Φ	g	%	amount passing
				%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,23	0,11	99,89
2,80	-1,49	0,93	0,46	99,43
2,00	-1,00	1,03	0,51	98,92
1,40	-0,49	3,02	1,49	97,43
1,00	0,00	14,02	6,90	90,53
0,710	0,49	52,94	26,07	64,46
0,500	1,00	55,34	27,25	37,21
0,355	1,49	36,82	18,13	19,08
0,250	2,00	30,15	14,85	4,23
0,180	2,47	5,17	2,55	1,68
0,125	3,00	1,38	0,68	1,00
0,090	3,47	0,34	0,17	0,84
0,075	3,74	0,04	0,02	0,82
0,063	3,99	0,01	0,00	0,81
< 0,063	> 3,99	1,65	0,81	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

Size Class	Weight %
Silt and clay (< 0,063 mm)	0,81
Sand, fine (0,063 mm - 0,200 mm)	1,60
Sand, medium (0,2 mm - 0,6 mm)	47,77
Sand, coarse (0,6 mm - 2 mm)	48,74
Gravel (> 2 mm)	1,08
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	1,26	-0,33
16%	84%	0,93	0,11
25%	75%	0,83	0,27
40%	60%	0,68	0,57
Median 50%	50%	0,60	0,74
75%	25%	0,40	1,31
84%	16%	0,33	1,59
90%	10%	0,29	1,78
95%	5%	0,26	1,97

Moments Statistics

Mean	0,81
Sorting	0,72
Skewness	0,11
Kurtosis	0,91
Uniformity Coefficient	2,32

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the ½ phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

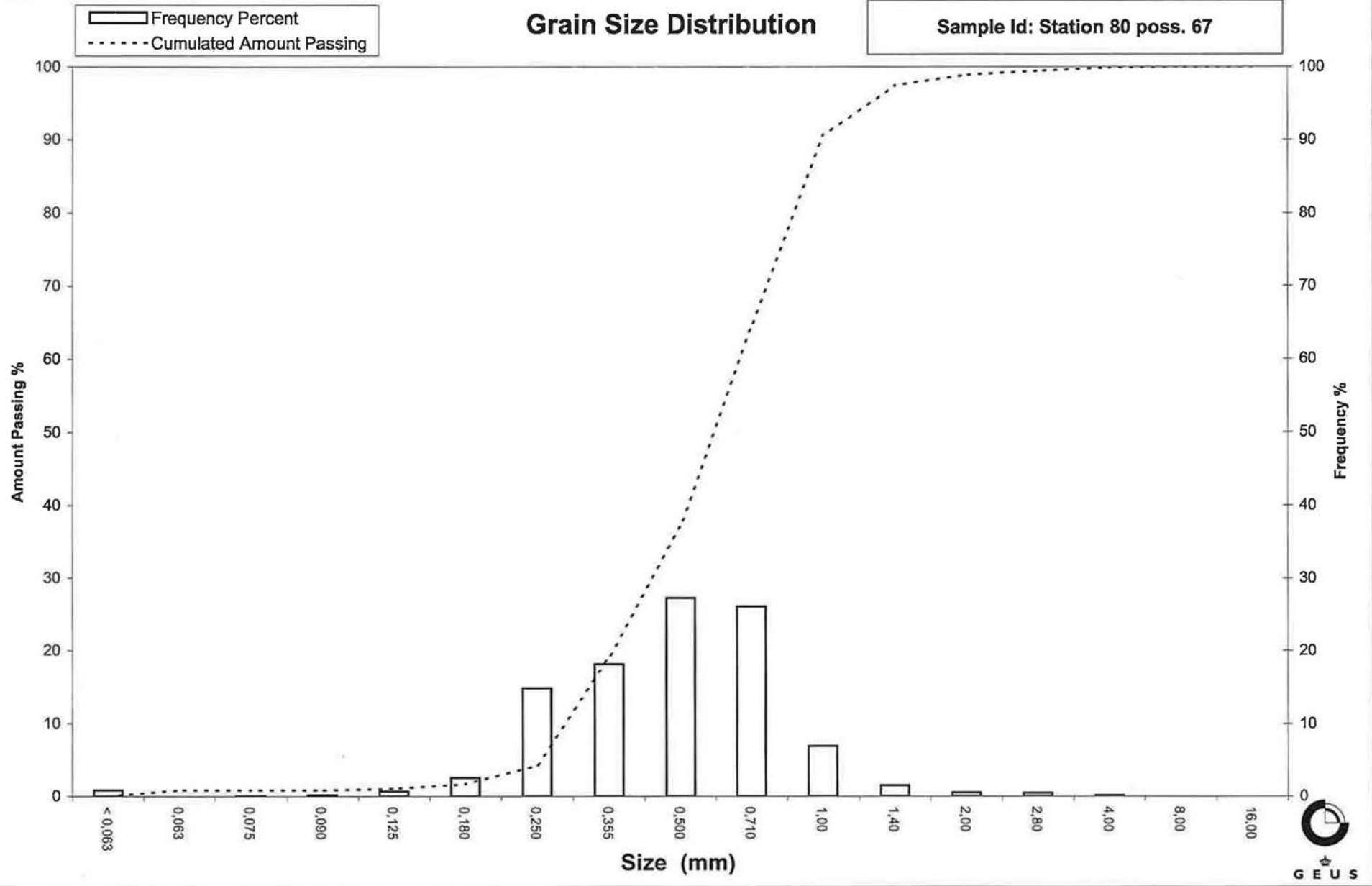
Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 80 poss. 67



Grain Size Distribution

Geotechnical

Sample Id: Station 86 poss. 71
Lab. Id: 100434
Submitter: DTU Aqua
Subject: Horns Rev 2010
Date: Oktober 2010
Executed: I. Nørgaard
Remarks:



Total Weight 143,03 g

Size Fractions

Size	Size	Weight	Weight	Cumulated amount passing
mm	Φ	g	%	%
16,00	-4,00	0,00	0,00	100,00
8,00	-3,00	0,00	0,00	100,00
4,00	-2,00	0,00	0,00	100,00
2,80	-1,49	0,00	0,00	100,00
2,00	-1,00	0,00	0,00	100,00
1,40	-0,49	0,12	0,08	99,92
1,00	0,00	0,83	0,58	99,34
0,710	0,49	2,98	2,08	97,25
0,500	1,00	11,70	8,18	89,07
0,355	1,49	37,00	25,87	63,20
0,250	2,00	65,68	45,92	17,28
0,180	2,47	16,70	11,68	5,61
0,125	3,00	5,82	4,07	1,54
0,090	3,47	0,81	0,57	0,97
0,075	3,74	0,08	0,06	0,92
0,063	3,99	0,03	0,02	0,89
< 0,063	> 3,99	1,28	0,89	0,00

Sieve Analysis

Gravel

Sand

Size Classes (DGF-Bulletin 1 1988)

	Weight %
Silt and clay (< 0,063 mm):	0,89
Sand, fine (0,063 mm - 0,200 mm):	8,05
Sand, medium (0,2 mm - 0,6 mm):	84,02
Sand, coarse (0,6 mm - 2 mm):	7,03
Gravel (> 2 mm):	0,00
Sum:	100,00

Moments Measures (Folk and Wards)

Percentile	Percentile	d(mm)	Φ
Amount in sieve	Amount passing		
5%	95%	0,65	0,62
16%	84%	0,47	1,08
25%	75%	0,42	1,25
40%	60%	0,35	1,52
Median 50%	50%	0,32	1,62
75%	25%	0,27	1,90
84%	16%	0,24	2,05
90%	10%	0,21	2,28
95%	5%	0,17	2,54

Moments Statistics

Mean	1,58
Sorting	0,53
Skewness	-0,08
Kurtosis	1,21
Uniformity Coefficient	1,68

The analysis is executed according to DS405.9
 DS/EN933-1 extended by sieves to the 1/2 phi scale.

Size Classes and Percentiles
 are found by linear interpolation

Formulas

Mean $(\phi_{16\%} + \phi_{84\%} + \phi_{50\%}) / 3$ (Folk and Ward 1957)

Sorting $(\phi_{84\%} - \phi_{16\%}) / 4 + (\phi_{95\%} - \phi_{5\%}) / 6,6$ (Folk and Ward 1957)

Kurtosis $(\phi_{95\%} - \phi_{5\%}) / (2,44 * (\phi_{75\%} - \phi_{25\%}))$ (Folk and Ward 1957)

Skewness $(\phi_{16\%} + \phi_{84\%} - 2 * \phi_{50\%}) / (2 * (\phi_{84\%} - \phi_{16\%})) + (\phi_{5\%} + \phi_{95\%} - 2 * \phi_{50\%}) / (2 * (\phi_{95\%} - \phi_{5\%}))$ (Folk and Ward 1957)

Uniformity Coefficient $(d_{60\%} / d_{10\%})$ (dgf-Bulletin 1988)

Mean, sorting, skewness and kurtosis are based on "Amount in sieve". Uniformity coefficient is based on "Amount passing".

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Grain Size Distribution

Sample Id: Station 86 poss. 71

Frequency Percent
Cumulated Amount Passing

