BORING LOG

Peer Engineering

Boring No.: DW-1A-PB

Project: FAA

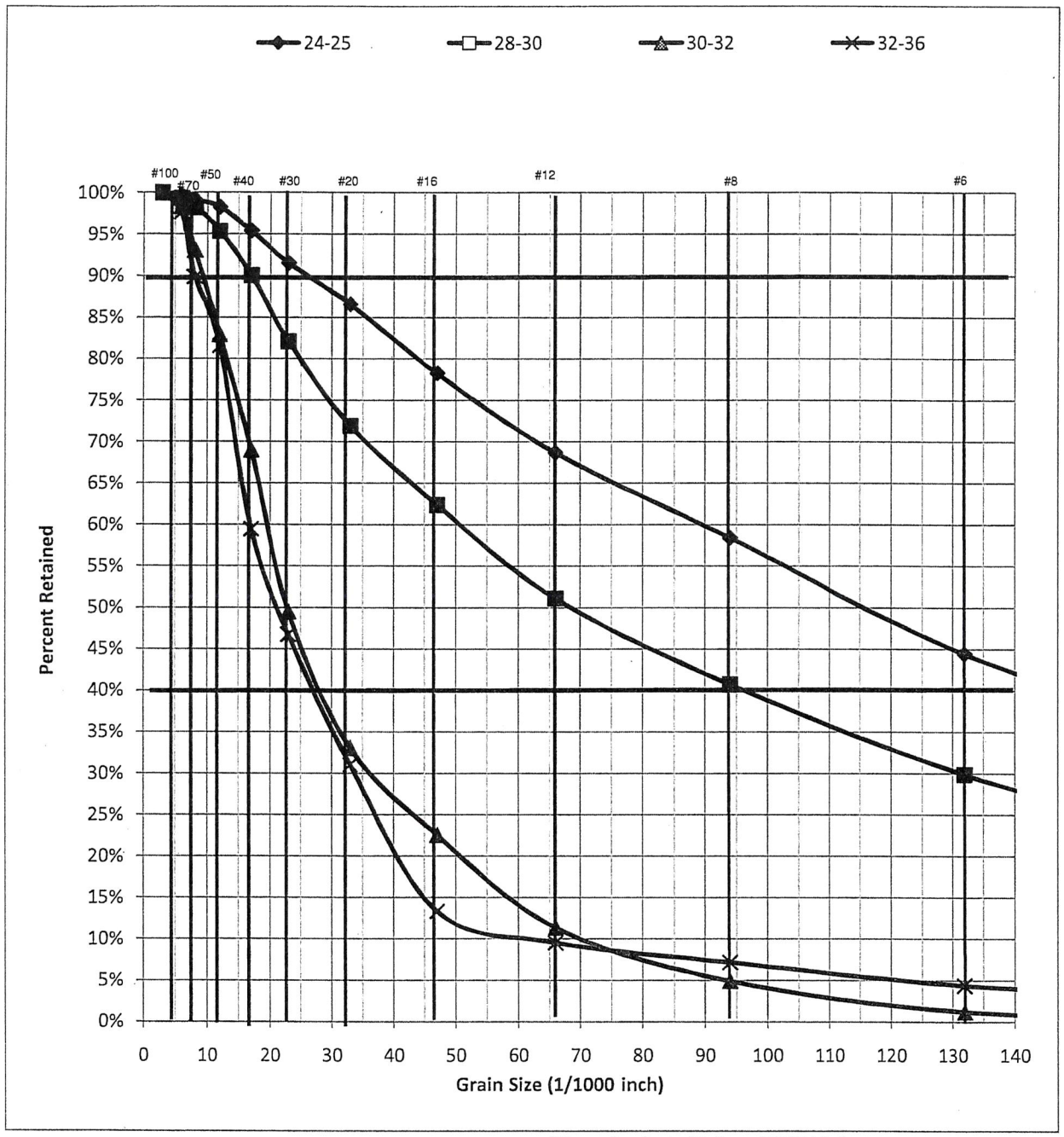
Contractor/Crew: Layne	Date Started: 8/24/11	Date Completed: 8/24/11	
Drilling Method: Rotosonic	Elevation (ft): 0	Total Depth (ft): 40	Depth to Water (ft): 17

Depth (ft)	Sample Interval	Recovery	PID (ppm)	Description	Profile	Remarks, Lab Samples, etc.
0, 2, 4, 6, 8	0-10'	3'		Sand, coarse, brown, (fill)		Hydro vac'd to 8' on 8/22/11 and backfilled with coarse sand
10, 12, 14, 16, 18	10-20'	7'		Sand, coarse, brown, few large gravel		The boring was less than 10' south of well DW-1 which was active at the time the water level was measured
20, 22, 24	20-30'	6'		Gravel, fine, rounded, brown and other colors		Sample @ 24-25'-sand analysis
26, 28, 30				Sand, coarse, brown, few small gravel		Sample @ 28-30'-sand analysis
32, 34, 36	30-40'	10'		Sand, medium-coarse, gray		Sample @ 30-32'-sand anaylsis Sample @ 32-36'-sand analysis Sample @ 36-37'-sand analysis
38, 40				Sand, with silt, fine, gray		Sample @ 40'-sand analysis
42, 44, 46, 48, 50				End of Boring at 40' Borehole backfilled with cuttings		

Peer Project Number: 20121.02	Peer Personnel: RFF	Page 1 of 1

Johnson Screens
651-636-3900

SAND ANALYSIS



Sieve Analysis ID # 082511-1

Project: FAA - Farmington - DW-1A
Engineer: Peer Engineering

Well:
Contractor: Layne Northwest
Desired Yield - 100 - 300 GPM, SWL - 10'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 50 Slot From 24' - 35', Tight Wind Slot 35' - 37'
Recommended Gravel Pack: #50 Well Slot Red Flint 3/8" & Larger Removed

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.

Peer Engineering

BORING LOG

Boring No.: DW-2A-PB

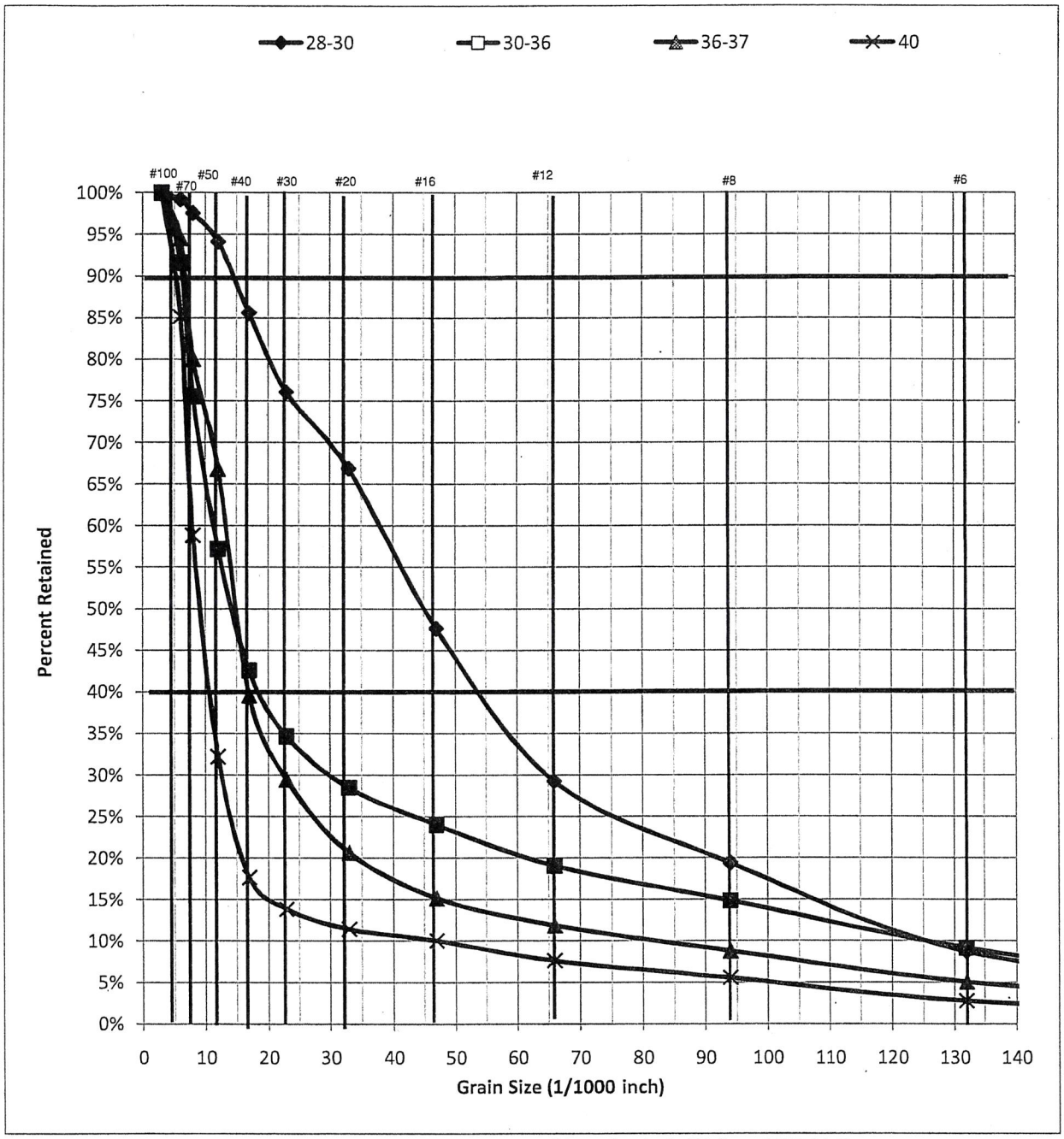
Project: FAA

Contractor/Crew: Layne	Date Started: 8/24/11	Date Completed: 8/24/11	
Drilling Method: Rotosonic	Elevation (ft): 0	Total Depth (ft): 40	Depth to Water (ft): --

Depth (ft)	Sample Interval	Recovery	PID (ppm)	Description	Profile	Remarks, Lab Samples, etc.
0, 2, 4, 6, 8, 10	0-10'	3'		Sand, coarse, brown, (fill)		Hydro vac'd to 8' on 8/22/11 and backfilled with coarse sand
12, 14, 16, 18, 20	10-20'	4'		Sand, coarse, brown, few small gravel		Depth to water not recorded
22, 24, 26, 28, 30	20-30'	10'		Sand, coarse, gray, few small gravel		
				Sand, coarse, brown, few small gravel		Sample @ 28-30'-sand analysis
32, 34, 36, 38, 40	30-40'	8'		Sand, medium-coarse,gray		Sample @ 30-36'-sand analysis Sample @ 36-37'-sand analysis
				Sand, with silt, fine, gray		Sample @ 40'-sand analysis
42, 44, 46, 48, 50				End of Boring at 40' Borehole backfilled with cuttings		

Johnson Screens
651-636-3900

SAND ANALYSIS



Sieve Analysis ID # 082511-2

Project: FAA - Farmington - DW-2A
Well:
Engineer: Peer Engineering
Contractor: Layne Northwest
Desired Yield - 100 - 300 GPM, SWL - 10'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 50 Slot From 24' - 35', Tight Wind Slot 35' - 37'
Recommended Gravel Pack: #50 Well Slot Red Flint 3/8" & Larger Removed

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.

Peer Engineering

BORING LOG

Boring No.: DW-4A-PB

Project: FAA

Contractor/Crew: Layne	Date Started: 8/23/11	Date Completed: 8/23/11	
Drilling Method: Rotosonic	Elevation (ft): 0	Total Depth (ft): 45	Depth to Water (ft): 17

Depth (ft)	Sample Interval	Recovery	PID (ppm)	Description	Profile	Remarks, Lab Samples, etc.
0, 2, 4, 6, 8	0-10'	2'		Sand, coarse, brown, (fill)		Hole was hydro vac'd to 8' on 8/22/11and backfilled with coarse sand
10, 12, 14, 16, 18	10-20'	2'		Sand, medium-coarse, with few fine rounded gravel, brown		The boring was 25' north of well DW-4 which was active at the time the water level was measured
20, 22, 24, 26	20-30'	2'				
28, 30				Sand, medium-coarse, with few fine rounded gravel, gray		Sample @ 27-30'- sand analysis
32, 34, 36	30-40'	7'				Sample @ 34-35'-sand analysis
38				Sand, fine with silt, gray		Sample @ 36'-sand analysis
40						Sample @ 39'-sand analysis
42, 44	40-45'	6'		Sand, medium, brown, wet		Sample @ 40-45'-sand analysis
46				End of Boring at 45' Borehole backfilled with cuttings		
48, 50						

Peer Project Number: 20121.02	Peer Personnel: BPS	Page 1 of 1

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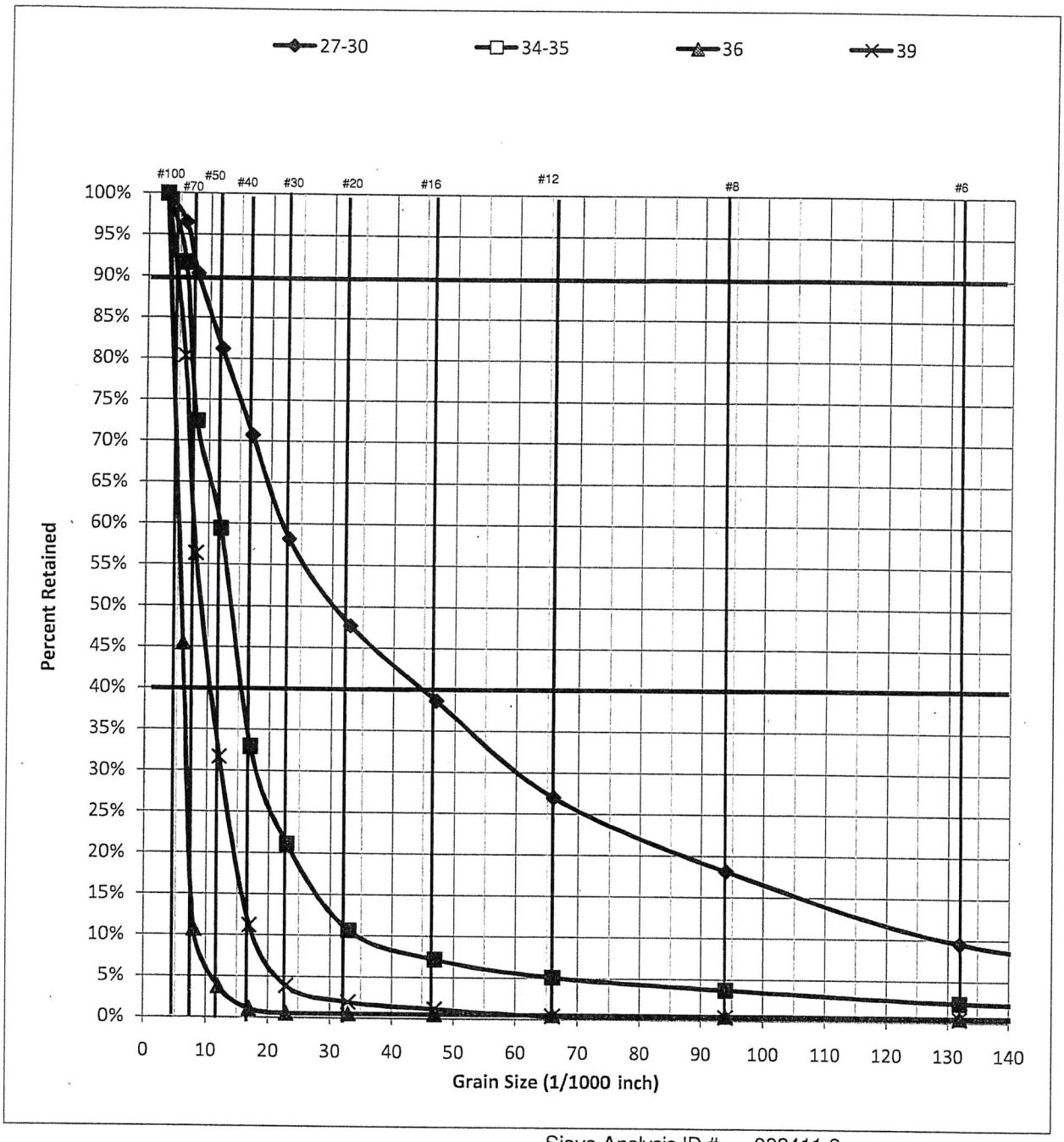
SAND ANALYSIS



Sieve Analysis ID # 082411-2

Project: FAA - Farmington - DW-4A
Engineer: Peer Engineering

Well:
Contractor: Layne Northwest
Desired Yield - 100 - 300 GPM, SWL - 10'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 50 Slot From 24' - 35', Tight Wind Slot 35' - 37'
Recommended Gravel Pack: #50 Well Slot Red Flint

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.

BORING LOG

Peer Engineering

Boring No.: DW-5A-PB

Project: FAA

Contractor/Crew: Layne	Date Started: 8/23/11	Date Completed: 8/23/11	
Drilling Method: Rotosonic	Elevation (ft): 0	Total Depth (ft): 40	Depth to Water (ft): --

Depth (ft)	Sample Interval	Recovery	PID (ppm)	Description	Profile	Remarks, Lab Samples, etc.
0, 2, 4, 6, 8	0-10'	2'		Sand, coarse, brown, (fill)		Hole hydro vac'd to 8' on 8/22/11 and backfilled with coarse sand
10, 12, 14, 16, 18, 20	10-20'	2'		Sand, medium to coarse with few rounded fine gravel, brown		Depth to water not recorded
22, 24, 26, 28, 30	20-30'	1.5'		Sand, medium to coarse with few rounded fine gravel, gray		Sample @ 20-30'-sand analysis
32, 34, 36	30-40'	10'				Sample @ 33-36'-sand analysis
38				Sand, fine with silt, gray		Sample @ 36'-sand analysis
40						Sample @ 39-40'-sand analysis
42, 44, 46, 48, 50				End of Boring at 40' Borehole backfilled with cuttings		

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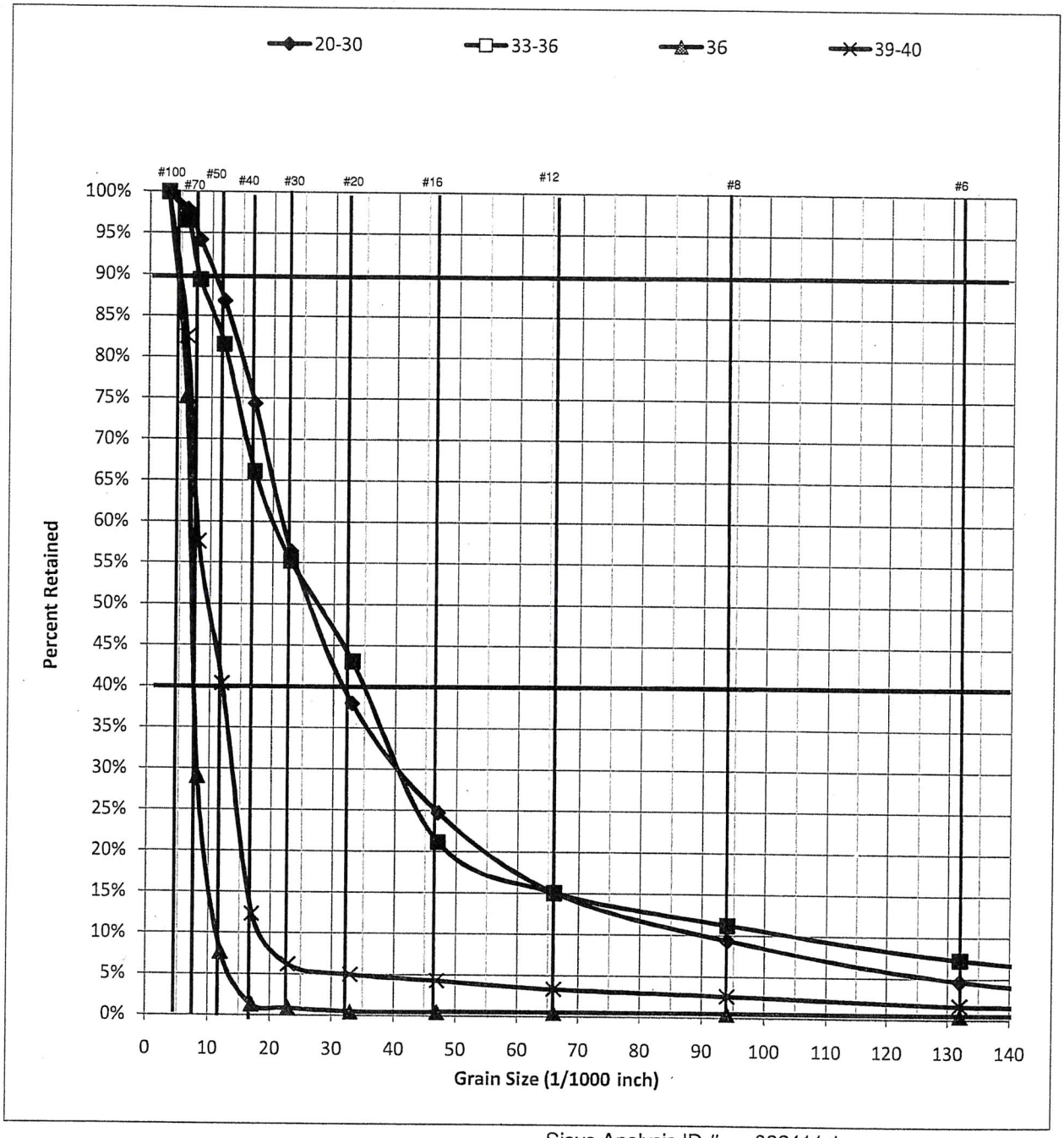
SAND ANALYSIS



Sieve Analysis ID # 082411-1

Project: FAA - Farmington - DW-5A
Engineer: Peer Engineering

Well:
Contractor: Layne Northwest
Desired Yield - 100 - 300 GPM, SWL - 10'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 50 Slot From 24' - 35', Tight Wind 35' - 37' 3/8" & Larger Removed
Recommended Gravel Pack: #50 Well Slot Red Flint

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.

BORING LOG

Peer Engineering

Boring No.: DW-7A-PB

Project: FAA

Contractor/Crew: Layne	Date Started: 8/24/11	Date Completed: 8/24/11	
Drilling Method: Rotosonic	Elevation (ft): 0	Total Depth (ft): 40	Depth to Water (ft): --

Depth (ft)	Sample Interval	Recovery	PID (ppm)	Description	Profile	Remarks, Lab Samples, etc.
0	0-10'	2'		Sand, medium-coarse, brown, (fill)		Hole was hydro vac'd to 8' on 8/22/11and backfilled with coarse sand
10	10-20'	2'		Sand, coarse, few fine gravel, brown		Depth to water not recorded
20	20-30'	2'		Sand, coarse, little fine gravel, brown		Sample @ 20-30'-sieve
28				Sand, coarse, few fine gravel, brown		
30	30-40'	4'		Sand, medium-coarse, gray		Sample @ 30-36'-sieve
36				Sand, fine with silt, gray		Sample @ 36'-sieve
40				End of Boring at 40' Borehole backfilled with cuttings		Sample @ 39-40'-sieve
42						
44						
46						
48						
50						

Peer Project Number: 20121.02	Peer Personnel: RFF	Page 1 of 1

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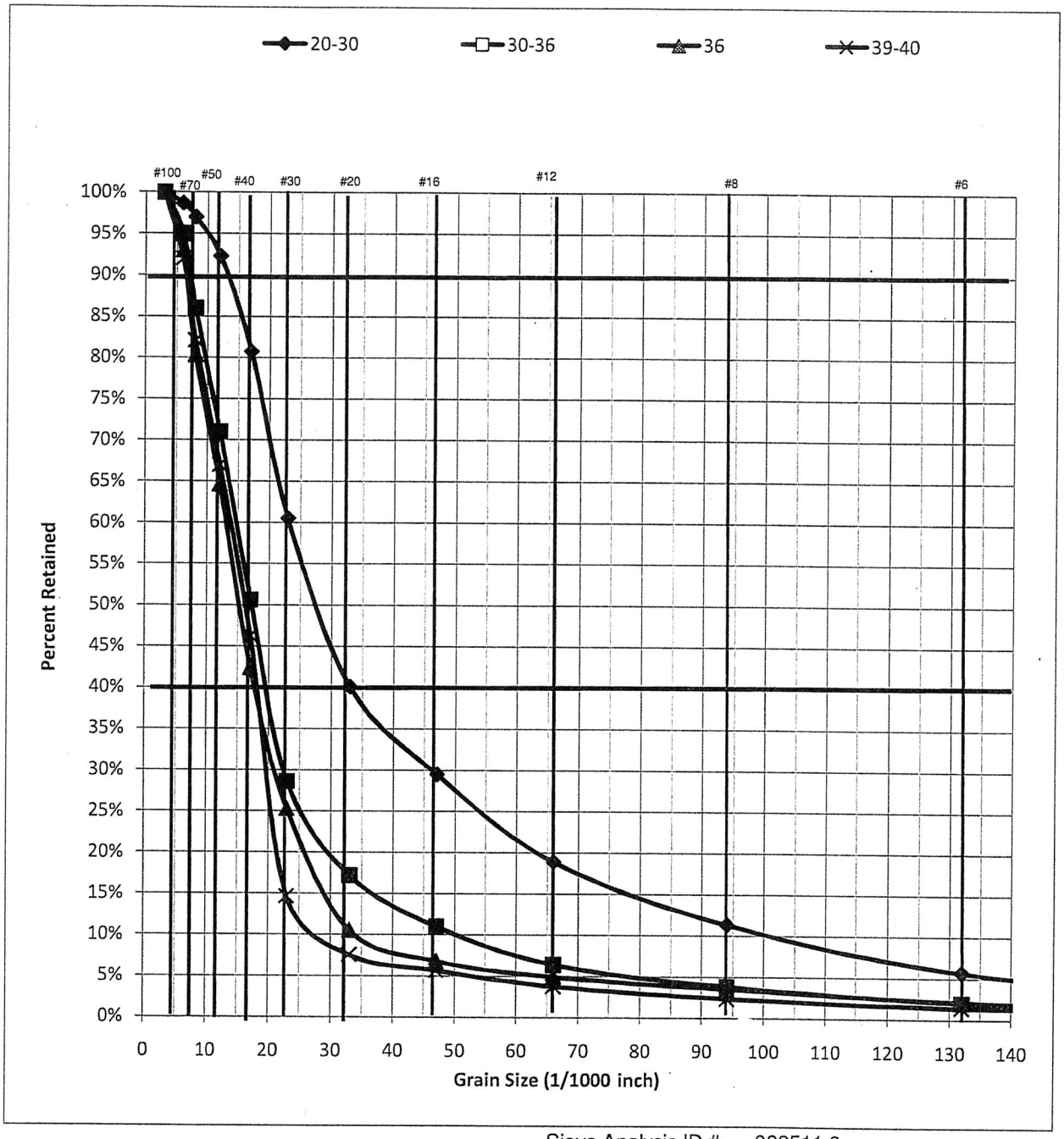
SAND ANALYSIS



Sieve Analysis ID # 082511-3

Project: FAA - Farmington - DW-7A
Engineer: Peer Engineering

Well:
Contractor: Layne Northwest
Desired Yield - 100 - 300 GPM, SWL - 10'

Proposed Screen Diameter: 8" Pipe Size
Recommended Slot Size: 50 Slot From 24' - 35', Tight Wind Slot 35' - 37'
Recommended Gravel Pack: #50 Well Slot Red Flint 3/8" & Larger Removed

Prepared By: Al Smith
651-638-3160

Send samples to 1950 Old Hwy 8, New Brighton, MN 55112.