



TABLE A
SUMMARY OF SUBSOIL CONDITIONS

SWA MP NO.	LOCATION	NO. OF TEST HOLES	TOPSOIL/PEAT THICKNESS (m)	DEPTH TO BOTTOM OF CLAY (m)	DEPTH TO PROBABLE BEDROCK (m)	NOTES AND/OR SOIL PROFILE
HIGHWAY 69 MAINLINE						
301	Sta. 19+000 to 19+450 Township of Mowat	48	0.1 – 2.3	1.1 – 8.1 (El. 173.4 – 180.9)	0.0 – 10.2 (El. 170.7 – 185.5)	Exposed bedrock in 7 boreholes. Peat/topsoil and/or organic silt/organic clayey silt in 22 boreholes overlie cohesive soils and/or cohesionless silt/silty sand/sand and gravel extending to the probable bedrock.
302	Sta. 17+530 to 18+300 Township of Mowat	80	0.1 – 1.2, locally 2.1	2.7 – 12.4 (El. 176.0 – 189.9)	0.0 – over 19.8 (El. under 166.7 – 197.5)	Exposed bedrock in 10 boreholes. Peat/topsoil and/or organic soils overlie cohesive soils or localized cohesionless soils underlain by cohesionless soils extending to the probable bedrock. 25 boreholes terminated on cohesionless soils.
303	Sta. 17+375 to 17+480 Township of Mowat	25	0.1 – 0.4	0.7 – 6.3 (El. 187.8 – 194.7)	0.0 – 13.7 (El. 180.4 – 197.3)	Exposed bedrock in 1 borehole. Peat in 24 boreholes overlies cohesive soils and/or cohesionless silty/sandy soils extending to the probable bedrock.
304	Sta. 16+910 to 17+000 Township of Mowat	25	0.1 – 0.6	N/A	0.0 – 3.6 (El. 200.2 – 203.0)	Exposed bedrock in 3 boreholes. Topsoil/peat overlies cohesionless silt/sand and gravel/cobbles at extending to the probable bedrock. Cobbles and boulders were present in 7 boreholes. Rockfill was encountered in 2 boreholes.
305	Sta. 16+000 to 16+370 Township of Mowat	48	0.1 – 3.5	2.2 – 26.5 (El. 161.8 – 185.9)	0.0 – over 31.7 (El. under 155.8 – 197.8)	Pavement and embankment fill encountered in 8 boreholes to depths from 1.2 to 6.7 m. Peat/topsoil and/or organic silty clay/organic clay overlies cohesive clayey soils and/or cohesionless silt/sand underlain cohesive clayey soils and/or cohesionless silt/sand extending to bedrock. 9 boreholes terminated on cohesionless soils or boulder. Exposed bedrock in 5 boreholes.
306	Sta. 15+250 to 15+800 Township of Mowat	69	0.1 – 1.0	2.0 – 15.7 (El. 174.2 – 192.5)	0.0 – 18.0 (El. 171.2 – 197.3)	Pavement and embankment fill encountered in 13 boreholes to depths from 0.6 to 2.9 m. Surficial fill unit present in 3 boreholes to 0.7 to 1.4 m depths. Peat/topsoil and/or organic silty clay/organic clay overlie cohesive clayey soils and/or cohesionless silt underlain by localized cohesionless silt/sand and silt/silty sand/sand extending to bedrock. Exposed bedrock in 1 borehole.



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SWAMP NO.	LOCATION	NO. OF TEST HOLES	TOPSOIL/PEAT THICKNESS (m)	DEPTH TO BOTTOM OF CLAY (m)	DEPTH TO PROBABLE BEDROCK (m)	NOTES AND/OR SOIL PROFILE
HIGHWAY 69 MAINLINE						
307	Sta. 14+350 to 14+500 Township of Mowat	41	0.1 – 0.8, locally 2.4	1.2 – 18.0 (El. 177.5 – 194.7)	0.0 – 22.5 (El. 173.0 – 197.8)	Pavement and embankment fill encountered in 7 boreholes to depths from 1.0 to 2.9 m. Surficial fill unit present in 1 borehole to 0.6 m depth. Peat/topsoil/organic silt present in 21 boreholes overlies cohesive clayey soils or cohesionless silt underlain by localized cohesionless silt/sand and silt/sand/sand and gravel extending to bedrock. Exposed bedrock in 2 boreholes.
308	Sta. 13+970 to 14+030 Township of Mowat	22	0.1 – 0.6	0.3 – 8.2 (El. 188.5 – 196.2)	0.0 – 9.8 (El. 186.7 – 197.3)	Pavement and embankment fill encountered in 3 boreholes to depths from 1.4 to 2.4 m. Surficial fill unit present in 1 borehole to 0.9 m depth. Peat present in most boreholes overlies cohesive clayey soils underlain by localized cohesionless silt/sand extending to bedrock. Exposed bedrock in 1 borehole.
309	Sta. 13+700 to 13+760 Township of Mowat	18	0.1 – 1.5	1.5 – 7.0 (El. 188.0 – 194.0)	0.5 – 8.2 (El. 186.8 – 195.5)	Pavement and embankment fill encountered in 3 boreholes to 1.4 m depth. Surficial fill unit present in 1 borehole to 0.7 m depth. Peat present in most boreholes overlies cohesive clayey soils or cohesionless silt extending to bedrock.
310	Sta. 13+150 to 13+450 (SBL) Sta. 13+400 to 13+450 (NBL) Township of Mowat	27	0.2 – 4.8	3.2 – 15.0 (El. 179.4 – 192.7)	1.9 – 19.5 (El. 175.2 – 193.9)	Pavement and embankment fill encountered in 3 boreholes to depths of 1.8 to 4.3 m. Surficial fill unit present in 1 borehole to 1.4 m depth. Cobbles and boulders encountered in 6 boreholes. Peat present in most boreholes overlies cohesive clayey soils underlain by a localized deposit of cohesionless silt / silty sand / sand extending to bedrock.
311	Sta. 10+312.5 to 10+462.5 Service Road Township of Mowat	19	0.2 – 1.6	7.0 – 10.5 (El. 177.0 – 181.7)	10.7 – over 21.0 (El. under 166.1 – 177.7)	Pavement and embankment fill encountered in borehole to a depth of 1.8 m. Peat/ topsoil present in most boreholes overlies cohesionless silty/sandy soils over cohesive clayey soils underlain by cohesionless silt/sandy silt extending to bedrock.



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SUMMARY OF SUBSOIL CONDITIONS

SWAMP NO.	LOCATION	NO. OF TEST HOLES	TOPSOIL/PEAT THICKNESS (m)	DEPTH TO BOTTOM OF CLAY (m)	DEPTH TO PROBABLE BEDROCK (m)	NOTES AND/OR SOIL PROFILE
HIGHWAY 69 MAINLINE						
312	Sta. 17+650 to 17+750 N-E/W Ramp of Hwy69/ Pickereel River Road Interchange Township of Mowat	13	0.1 – 0.6	1.5 – 2.4 (El. 186.4 – 187.5)	1.5 – 6.3 (El. 182.5 – 187.5)	Peat present in most boreholes overlies organic silty clay or cohesive clayey soils underlain by localized deposits of cohesionless silt/sandy silt/sand and silt/silty sand extending to bedrock
313	Sta. 10+400 to 10+500 Forest Access Road Township of Mowat	13	0.2 – 1.9	2.4 – 13.4 (El. 179.2 – 191.1)	0.9 – 17.6 (El. 175.1 – 193.1)	Peat/topsoil present in most boreholes overlies organic silty clay and/or cohesive clayey soils underlain by localized deposits of cohesionless silt/silty sand extending to bedrock
314	Sta. 12+175 to 12+475 Forest Access Road Township of Mowat	20	1.8 – 3.7, locally 0.2	3.5 – 25.0 (El. 161.1 – 184.7)	0.0 – 34.4 (El. 151.7 – 189.8)	Peat present in most boreholes overlies organic clayey soils underlain by cohesionless soils and/or cohesive clayey soils over by localized deposits of cohesionless silt/ sand extending to bedrock

NOTES:

1. Test holes include boreholes and dynamic cone penetration tests.
2. Thickness of topsoil / peat and depth to bottom of cohesive deposits is based on borehole data only.
3. Depth to probable bedrock is based on both borehole and dynamic cone penetration test data.

TABLE B
LIST OF ATTERBERG LIMITS AND MOISTURE CONTENT RESULTS

SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
301	Clay	301-2	2	51	24	27	51
	Silty Clay	301-2	1	37	20	17	50
		D6-3	3	38	22	16	42
302	Organic Silty Clay	302-35	2	48	24	24	-
	Clay	302-25	5	53	23	30	77
		302-27	6	50	24	26	66
		302-47	3	51	23	28	64
	Silty Clay	302-29	7	39	22	17	47
		302-30	5	42	20	22	56
		302-33	5	44	21	23	58
		302-37	5	35	20	15	52
		302-39	5	35	21	14	41
		302-40	5	44	22	22	59
		302-45	2	39	20	19	68
		302-57	4	48	22	26	62
		302-59	3	46	20	26	71
		302-60	4	45	21	24	52

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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
302	Clayey Silt	302-4	3	30	21	9	31
		302-7	2	30	21	9	31
		302-9	3	32	22	10	33
		302-24	5	32	22	10	39
		302-31	9	26	20	6	22
		302-44	5	30	23	7	33
		302-59	5	27	20	7	34
		302-64	3	27	22	5	31
		302-67	3	24	22	2	37
		302-70	3	28	21	7	36
	Silt	302-23	6	Non-plastic			21
		302-37	3	19	15	4	22
		302-51	8	Non-plastic			20
303	Clayey Silt	303-4	3	26	20	6	26
		303-10	2	29	21	8	29
		303-17	2	27	20	7	27
		303-21	2	30	21	9	31
		303-22	3	28	18	10	23
	Silt	303-22	5	Non-plastic			23

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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
305	Organic Clayey Silt	305-20	2	62	41	21	90
		305-23	3	63	36	27	98
	Clay	305-6	4	58	22	36	61
		305-16	8	57	22	35	64
		305-19	10	55	25	30	61
		305-21	14	51	23	28	67
		305-37	8	50	22	28	55
		305-42	4	53	22	31	61
	Silty Clay	305-2	5	44	20	24	59
		305-11	10	44	20	24	-
		305-11	12	39	20	19	64
		305-16	10	49	24	25	-
		305-20	10	38	17	21	56
		305-20	17	49	24	25	63
		305-23	10	45	20	25	69
		305-28	8	42	20	22	60
		305-31	9	49	24	25	60
		305-33	8	36	20	16	52
		305-33	14	47	22	25	52
		305-48	4	46	22	24	58

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LIST OF ATTERBERG LIMITS AND MOISTURE CONTENT RESULTS

SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
305	Clayey Silt	305-7	4	25	16	9	42
		305-23	13	24	18	6	32
		305-30	3	31	16	15	63
		305-31	14	24	18	6	29
		305-37	3	32	15	17	41
		305-48	2	25	17	8	28
	Silt	305-19	8	18	15	3	28
		305-21	16	20	19	1	24
		305-33	6	18	17	1	28
		305-38	4	21	16	5	27
306	Organic Clay	306-33	2	54	36	18	87
	Clay	306-16	5	64	23	41	91
		306-16	7	57	21	36	68
		306-18	7	55	24	31	88
		306-18	9	66	24	42	83
		306-21	4	56	23	33	61
		306-23	7	58	23	35	86
		306-25	4	55	23	32	97
		306-25	6	50	23	27	69
		306-32	8	50	21	29	63



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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
306	Clay	306-38	7	80	25	55	61
		306-52	4	59	24	35	93
		306-54	3	52	21	31	40
		306-55	5	52	22	30	70
	Silty Clay	306-16	9	39	20	19	55
		306-23	8	35	21	14	42
		306-25	8	38	22	16	49
		306-26	7	48	20	28	54
		306-28	7	40	18	22	52
		306-38	5	42	17	25	43
		306-56	5	44	19	25	52
		306-61	4	45	22	23	51
	Clayey Silt	306-5	3	27	19	8	21
		306-8	4	31	19	12	33
		306-18	5	29	17	12	38
		306-18	11	32	21	11	25
		306-20	8	30	17	13	28
		306-23	3	29	18	11	37
		306-25	9	25	19	6	28
		306-26	5	30	18	12	39



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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
306	Clayey Silt	306-26	11	29	21	8	29
		306-30	4	27	17	10	39
		306-38	4	28	16	12	66
		306-45	2	27	16	11	33
		306-50	3	28	16	12	21
		306-52	7	29	16	13	30
		306-54	2	32	18	14	29
		306-55	3	26	19	7	30
		306-56	4	27	19	8	28
		306-59	2	26	17	9	27
		306-60	3	33	18	15	36
		306-61	2	21	15	6	29
		306-62	2	24	19	5	28
		306-63	3	32	21	11	29
	Silt	306-16	11	21	18	3	29
		306-20	12	Non-plastic			22
		306-31	10	21	19	2	13
		306-35	11	22	19	3	21
		306-40	8	Non-plastic			15
		306-43	8	Non-plastic			13
		306-45	5	21	18	3	29
		306-52	8	23	20	3	25
		306-55	7	20	18	2	19

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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
306	Silt	306-60	2	20	17	3	25
		306-69	2	21	19	2	20
307	Clay	307-14	6	52	21	31	52
		307-20	6	60	20	40	47
		307-27	7	61	27	34	78
		307-28	5 & 6 *	55	23	32	74
		307-29	9	53	19	34	94
		307-34	4 & 5 *	51	20	31	72
		307-37	7	57	25	32	71
	Silty Clay	307-1	2	42	21	21	32
		307-20	8	40	19	21	56
		307-27	5	47	19	28	58
		307-29	7	47	18	29	67
		307-35	11	44	21	23	50
	Clayey Silt	307-8	5	28	20	8	28
		307-19	2	26	17	9	23
		307-35	4	28	18	10	25
		307-35	9	31	18	13	39
		307-35	13	31	19	12	31
		307-37	10	34	20	14	43

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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
307	Silt	307-19	4	21	19	2	26
		307-35	15	Non-plastic			22
308	Clay	308-11	3	67	24	43	41
		308-12	4	54	23	31	34
		308-17	3	63	22	41	40
	Silty Clay	308-5	4	48	21	27	51
		308-8	4	48	22	26	48
		308-17	5	35	21	14	42
		308-20	4	42	20	22	32
	Silt	308-13	8	21	18	3	26
		308-16	6	Non-plastic			20
		308-20	6	Non-plastic			23
309	Clay	309-1	5	59	26	33	86
		309-3	4	74	26	48	107
		309-5	4	55	22	33	35
	Silty Clay	309-12	3	41	22	19	-
		309-13	2 & 3*	48	22	26	36
		309-15	2	49	22	27	37
	Clayey Silt	309-7	5	26	18	8	25
	Silt	309-15	3	23	19	4	23

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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
310	Clay	310-2	7	59	24	35	87
		310-21	5	70	25	45	118
		310-25	7	51	24	27	—
		310-27	4	62	24	38	79
	Silty Clay	310-4	6	43	21	22	75
		310-4	8	37	23	14	42
		310-20	4	45	23	22	—
		310-23	9	35	20	15	52
		310-26	8	36	20	16	54
		310-27	6	35	22	13	59
	Clayey Silt	310-5	6	31	20	11	43
		310-7	5	30	19	11	61
		310-13	3	35	20	15	43
		310-15	2	26	19	7	—
		310-18	7	32	21	11	—
		310-19	5	23	20	3	—
		310-21	10	25	18	7	33
		310-23	4	33	19	14	54
	Silt	310-18	8	25	20	5	—
		310-20	9	23	20	3	—
		310-21	12	21	19	2	25
		310-25	10	23	20	3	—



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311	Clay	311-3	4	52	25	27	68
		311-9	4	52	23	29	66
		311-19	3	51	27	24	73
	Silty Clay	311-2	4	49	24	25	62
		311-8	6	38	22	16	47
		311-12	4	42	22	20	64
	Silt	311-2	6	24	22	2	39
		311-3	7	22	21	1	26
		311-8	9	23	21	2	29
		311-9	8	23	21	2	28
		311-19	7	22	21	1	26
312	Clayey Silt	312-6	1	25	20	5	24
		312-10	1	31	20	11	41
		312-12	2	29	21	8	29

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SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
313	Clay	313-3	3	63	21	42	64
		313-3	4	53	25	28	73
		313-5	5	54	21	33	64
		313-5	7	67	25	42	80
		313-7	8	50	22	28	71
	Silty Clay	313-4	5	45	22	23	64
		313-5	9	38	21	17	52
		313-10	7	46	22	24	87
	Clayey Silt	313-3	2	31	19	12	71
		313-7	3	24	18	6	28
		313-10	4	26	18	8	30
	Silt	313-5	11	23	20	3	26
		313-7	11	22	21	1	25
314	Organic Clayey Silt	314-14	3	36	27	9	70
	Clay	314-11	11	60	22	38	79
		314-11	15	52	24	28	67
	Silty Clay	314-3	3	36	17	19	55
		314-5	6	36	18	18	52
		314-7	7	42	20	22	64
		314-7	11	45	23	22	57

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LIST OF ATTERBERG LIMITS AND MOISTURE CONTENT RESULTS

SWAMP No.	SOIL TYPE	BOREHOLE NO.	SAMPLE NO.	LIQUID LIMIT (W _L)	PLASTIC LIMIT (W _P)	PLASTICITY INDEX (PI)	MOISTURE CONTENT (W)
314	Silty Clay	314-9	7	37	19	18	44
		314-14	4	48	21	27	62
		314-14	6	41	20	21	52
	Clayey Silt	314-5	7	30	20	10	48
		314-7	14	27	22	5	34
		314-9	12	25	17	8	41
		314-9	14	31	20	11	38
		314-11	7	30	15	15	41
		314-11	18	27	20	7	34
		314-14	9	30	17	13	48
	Silt	314-11	20	Non-plastic			-
		314-14	5	18	17	1	26
		314-14	13	Non-plastic			26

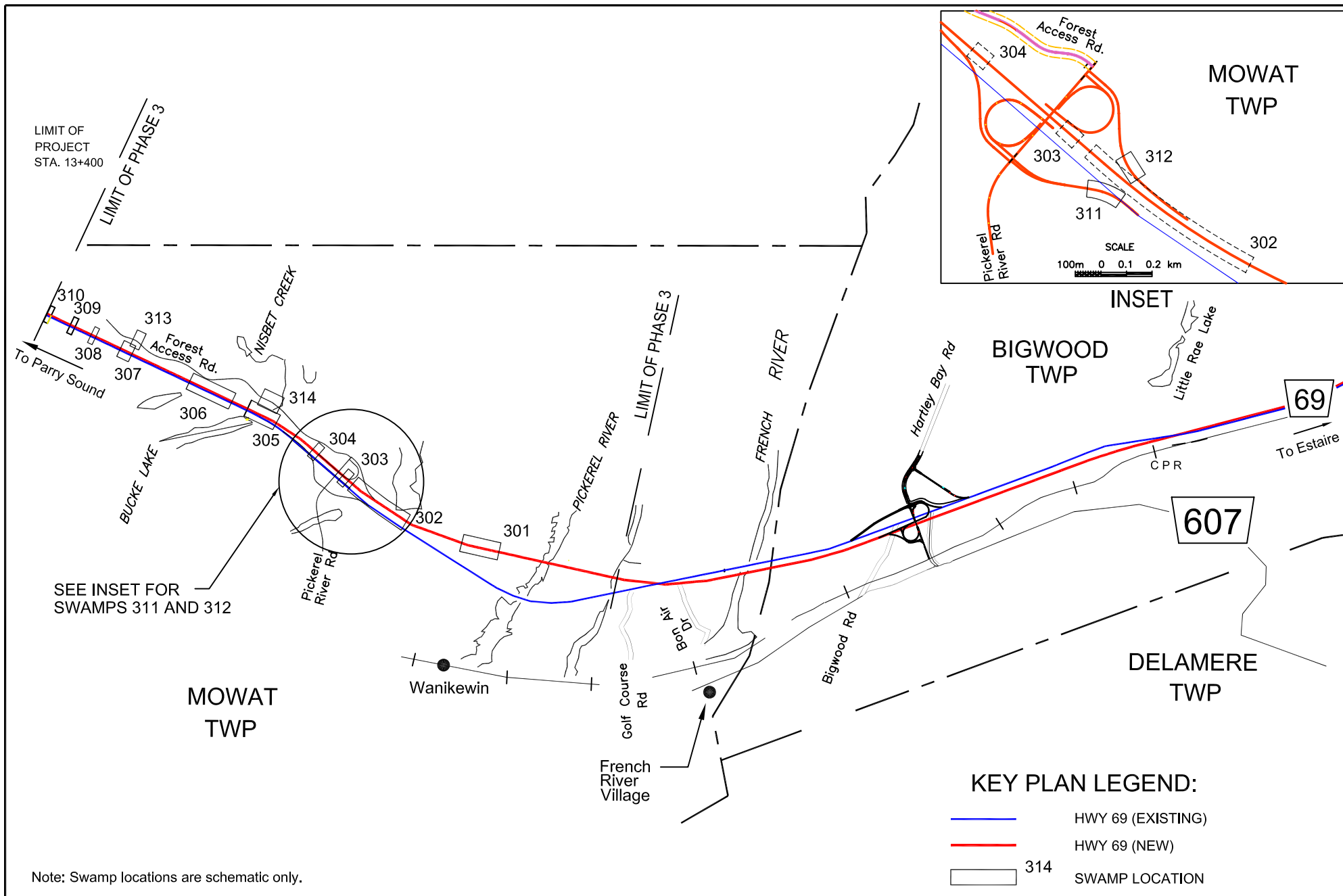
NOTE:

(*) Samples were combined for laboratory tests.



TABLE C
LIST OF CONSOLIDATION TEST RESULTS

SOIL TYPE	SWAMP NO.	BOREHOLE NO.	SAMPLE NO.	INITIAL VOID RATIO e_0	EFFECTIVE PRESSURE P'_0 (kPa)	PRE-CONSOLIDATION PRESSEURE P'_c (kPa)	COMPRESSION INDEX C_c	RECOMPRESSION INDEX C_r
Clayey Silt	302	302-44	5	0.90	30	205	0.18	0.02
Silty Clay	302	302-29	7	1.62	100	250	0.85	0.06
	305	305-20	10	1.44	115	205	0.70	0.07
		305-20	17	1.71	150	420	1.26	0.08
		305-23	10	1.89	65	290	1.16	0.08
	306	306-28	7	1.37	50	170	0.63	0.04
	307	307-29	7	2.07	60	270	1.21	0.14
	310	310-27	6	1.59	30	90	0.51	0.05
	313	313-10	7	1.47	40	180	0.65	0.08
	314	314-5	6	1.41	50	100	0.72	0.08
		314-7	11	1.65	90	210	0.82	0.06
Clay	305	305-16	8	1.79	50	180	0.95	0.09
	306	306-16	7	1.78	50	170	0.86	0.07
		306-55	5	1.94	60	110	0.99	0.08
	310	310-21	5	2.81	25	80	1.49	0.09
	313	313-5	7	2.02	40	205	1.15	0.15



Note: Swamp locations are schematic only.

METRIC

KEY PLAN
HIGHWAY 69 FOUR-LANING (Phase 3)
From 3.1 km North of Highway 522 to 10.7 km North of Highway 522
District 54, Sudbury

SCALE
500m 0 0.5 1 km



Ministry of
Transportation
Ontario



Peto MacCallum Ltd.
CONSULTING ENGINEERS

PRIME CONSULTANT

MRC

McCORMICK RANKIN CORPORATION

GWP 5203-06-00



DRAWING
1



APPENDIX A

Figures 301-PC-1 to 314-PC-5 – Plasticity Charts

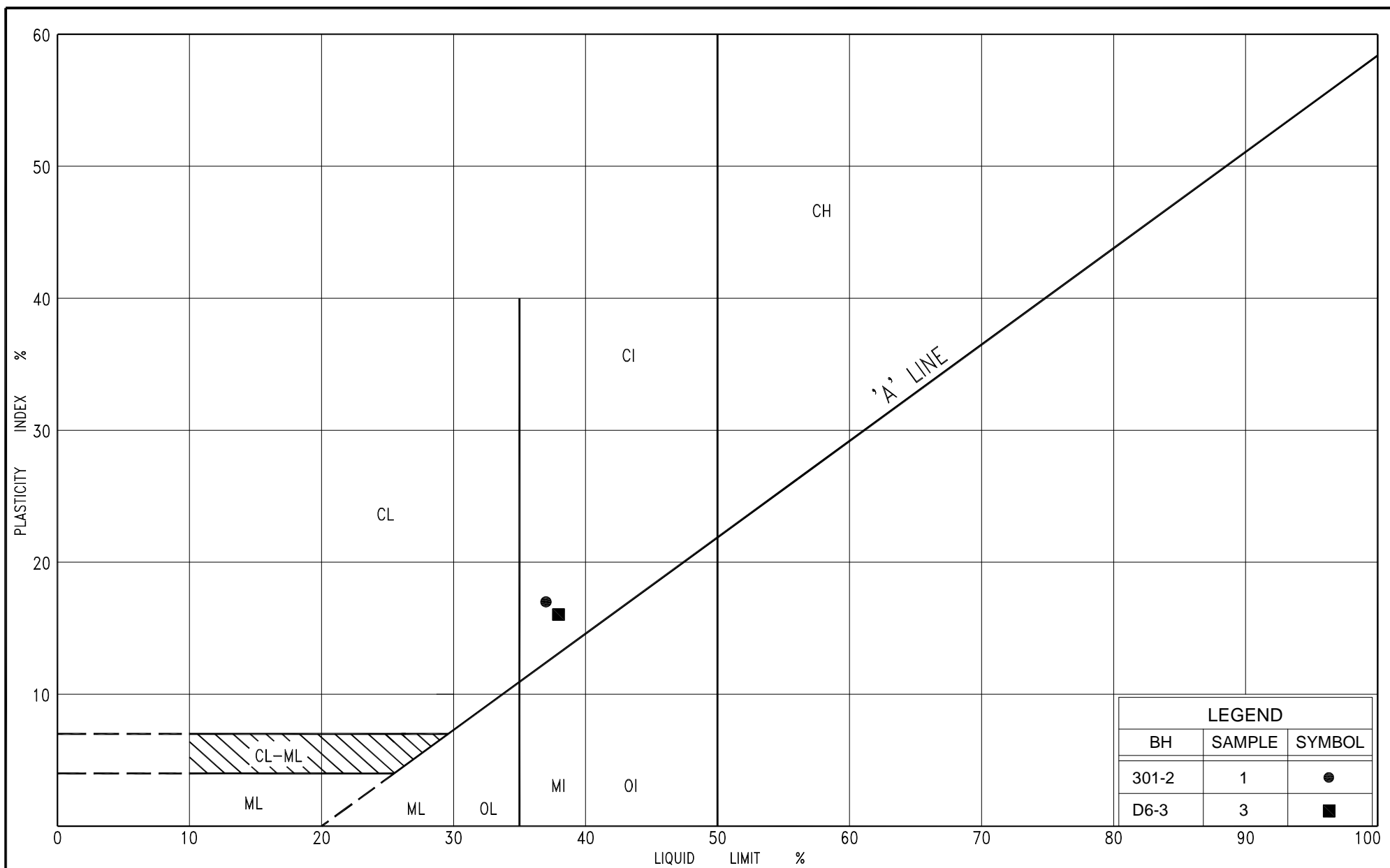
Figures 301-GS-1 to 314-GS-7 – Results of Grain Size Distribution Analyses

Figures 302-C-1, 302-C-2, 305-C-1 to 305-C-4, 306-C-1 to 306-C-3, 307-C-1,
313-C-1, 313-C-2, 314-C-1 and 314-C-2 – Consolidation Test Results

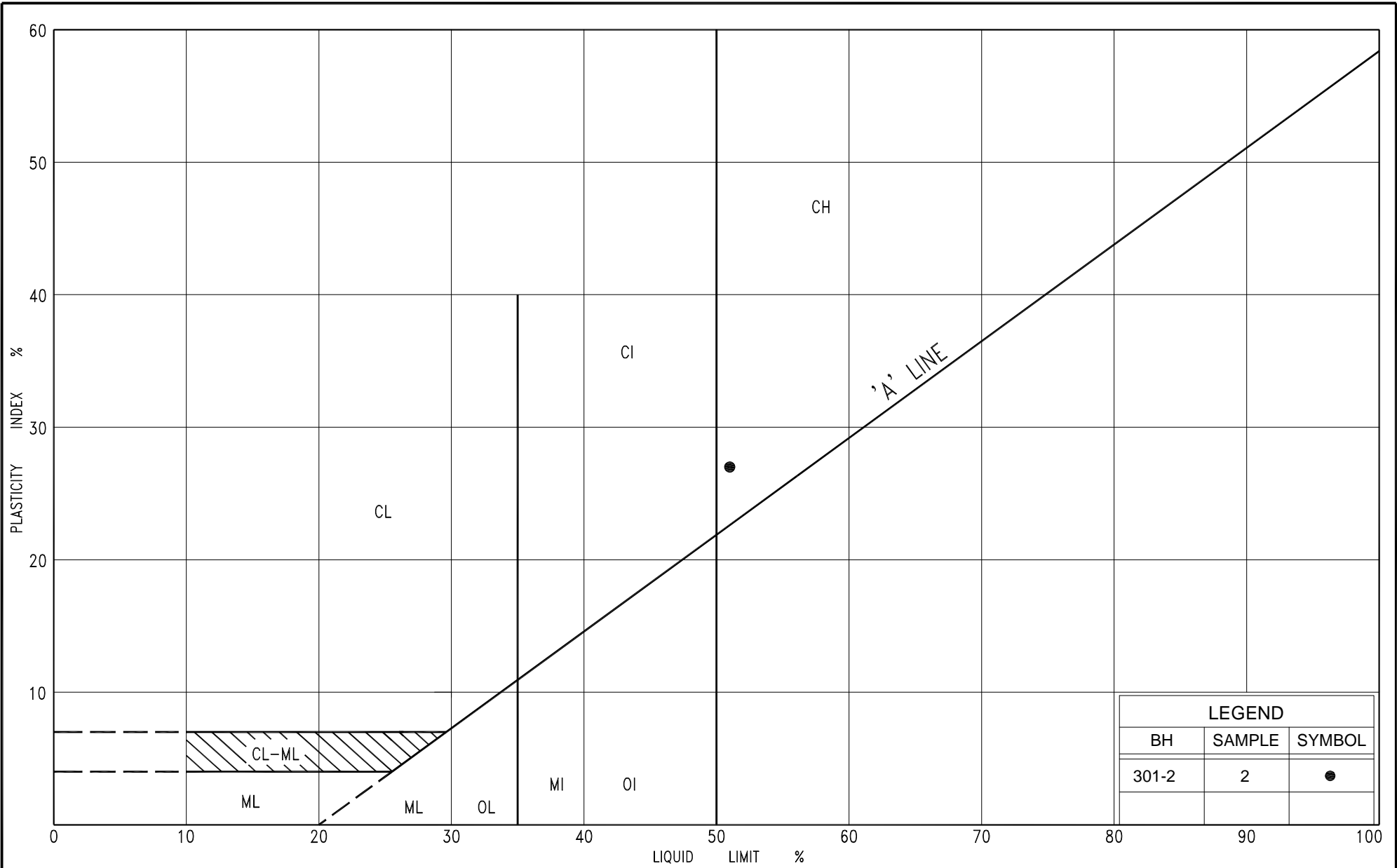
Figures 301-SS-1, 302-SS-1, 305-SS-1 to 311-SS-1, 313-SS-1 and
314-SS-1 – Shear Strength Profiles

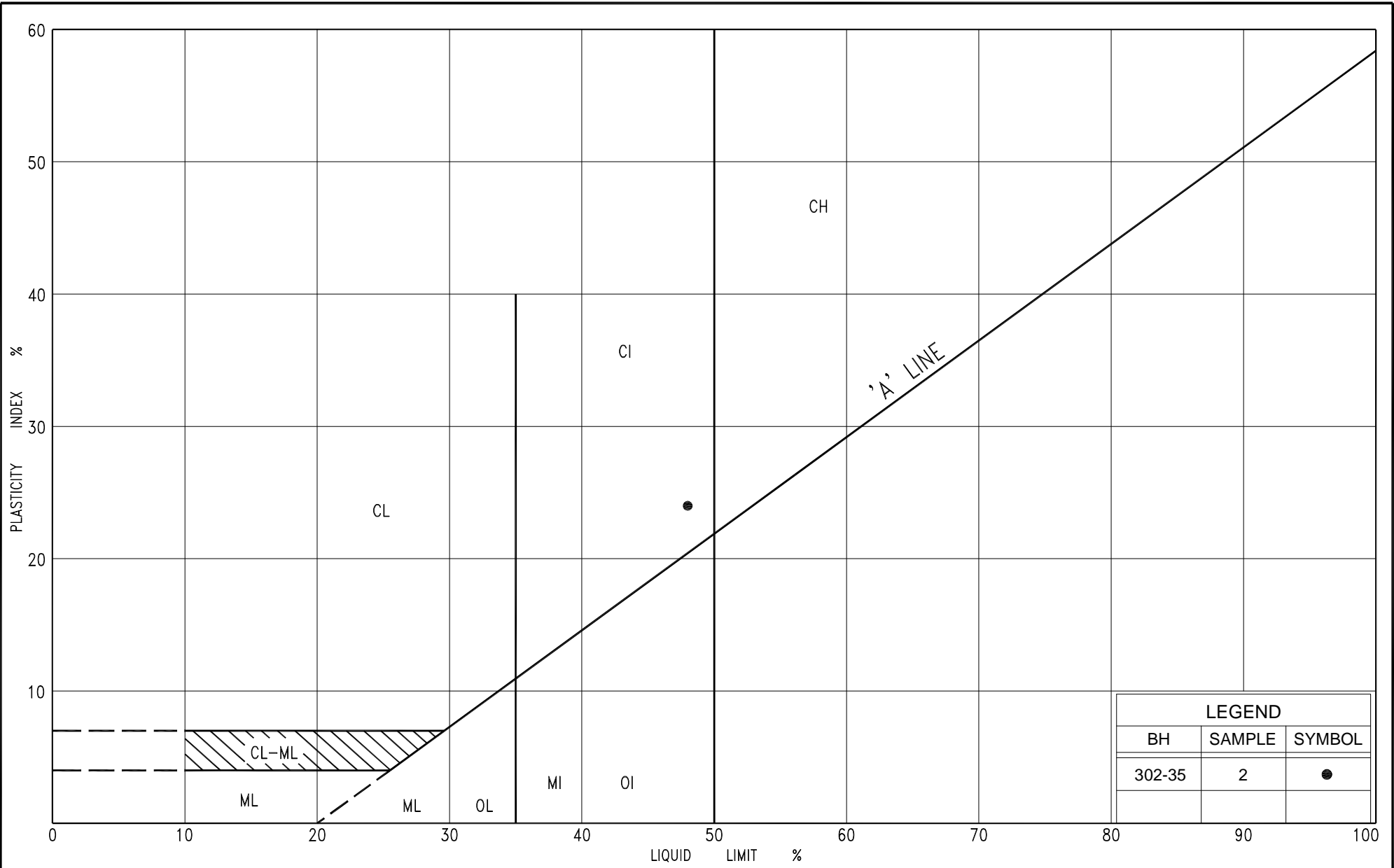
PLASTICITY CHARTS

FIGURES 301-PC-1 TO 314-PC-5



LEGEND		
BH	SAMPLE	SYMBOL
301-2	1	●
D6-3	3	■





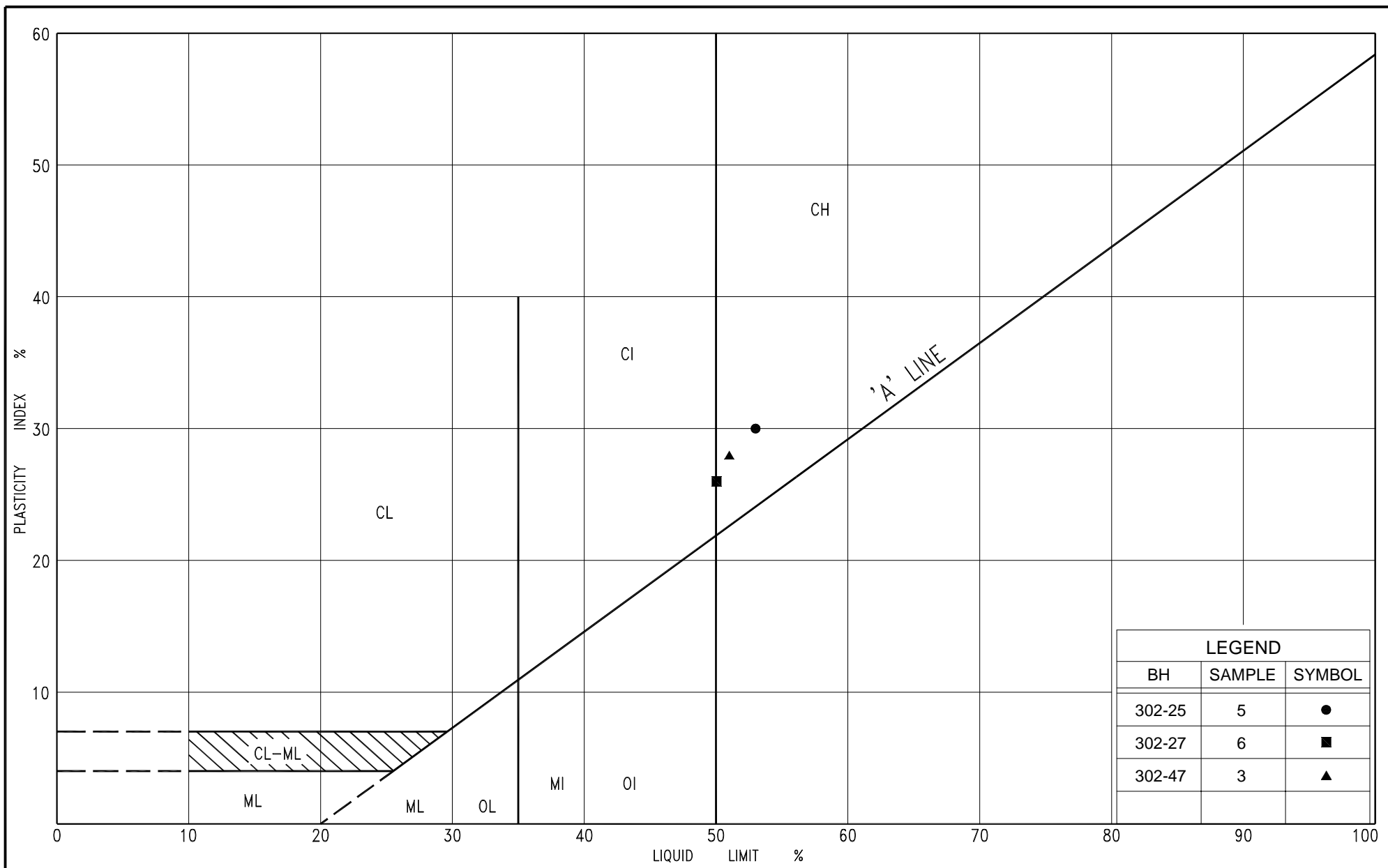
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PLASTICITY CHART
ORGANIC SILTY CLAY, trace sand

FIG No. 302-PC-1

HWY: 69

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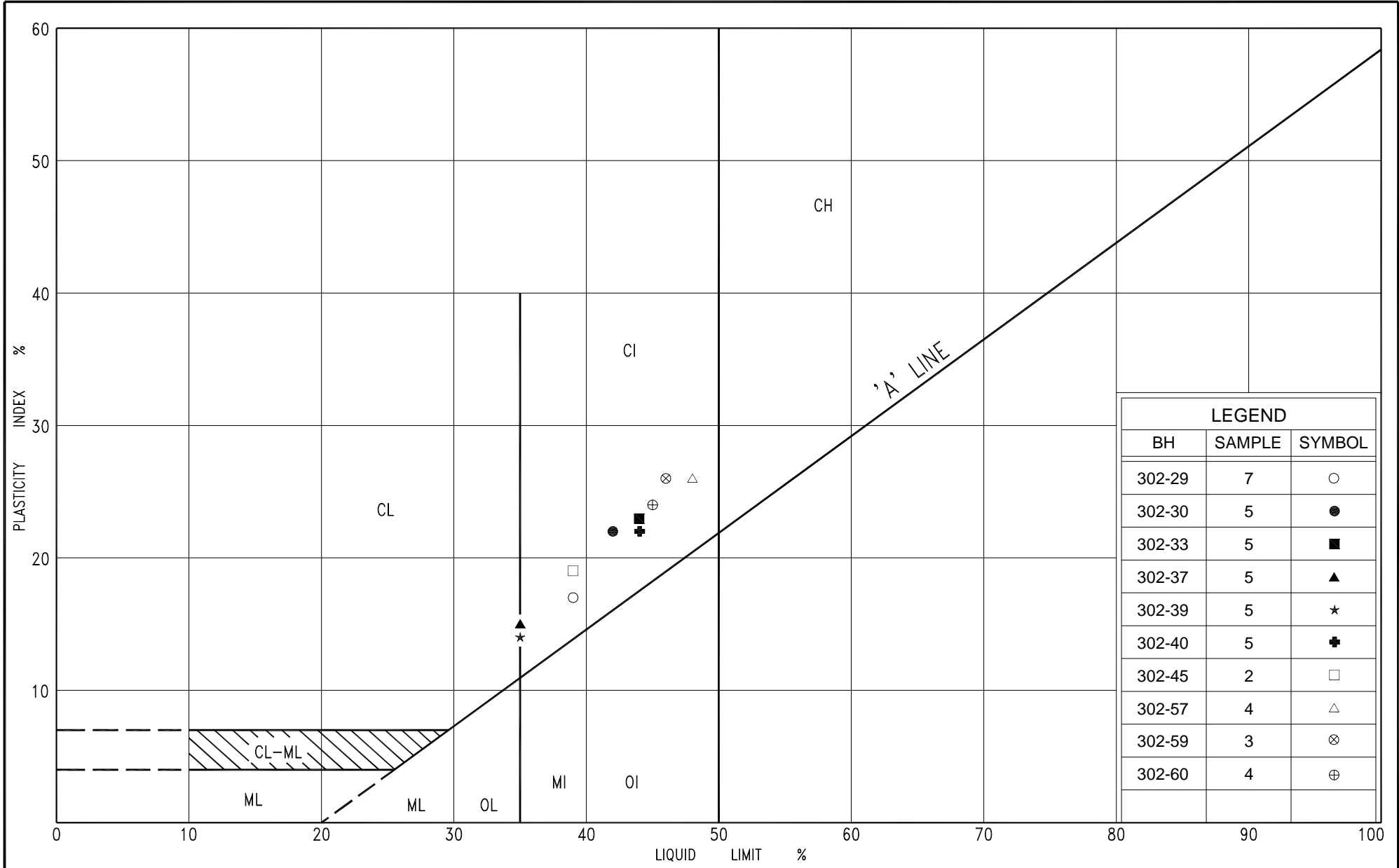
PLASTICITY CHART

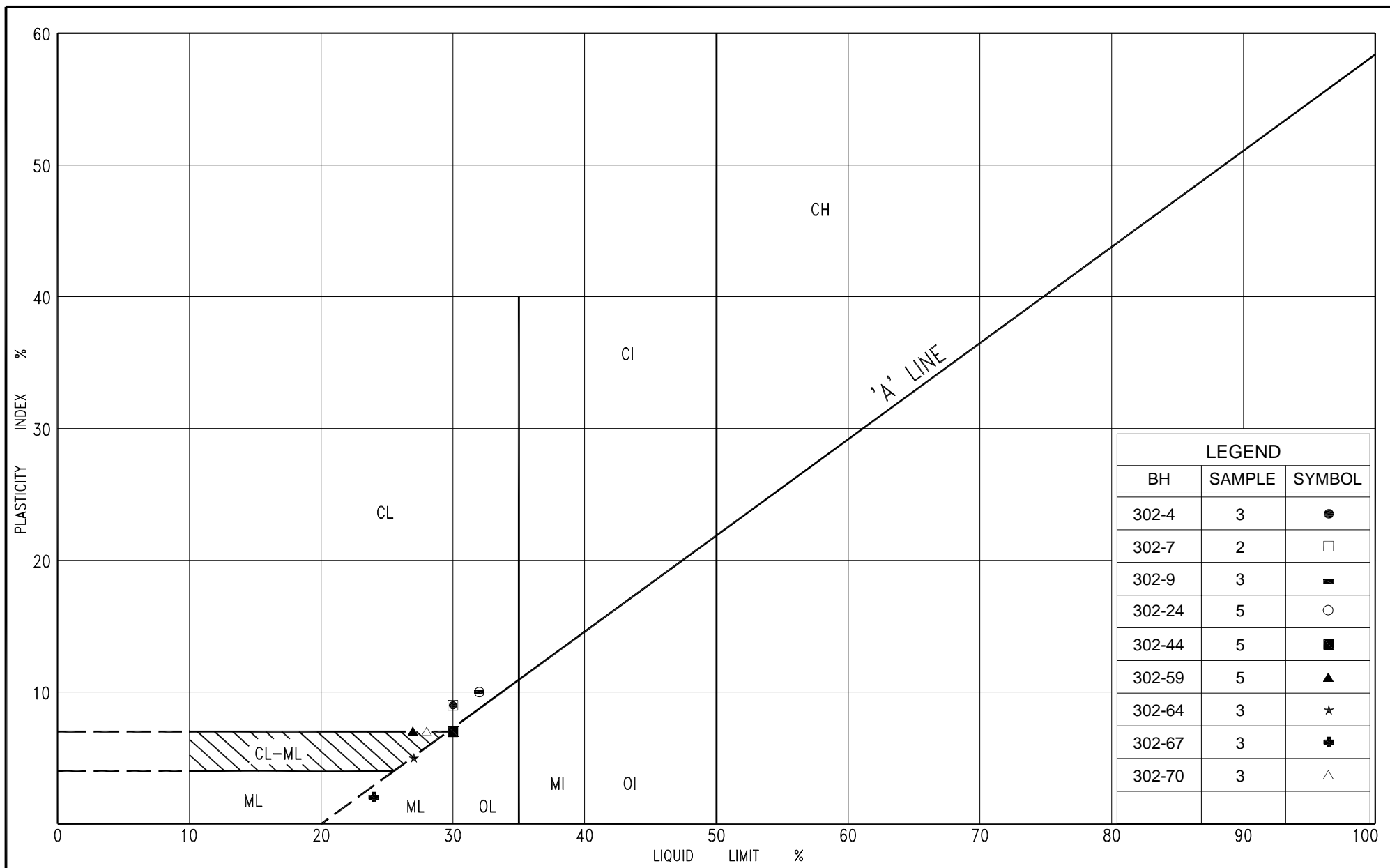
CLAY, trace sand

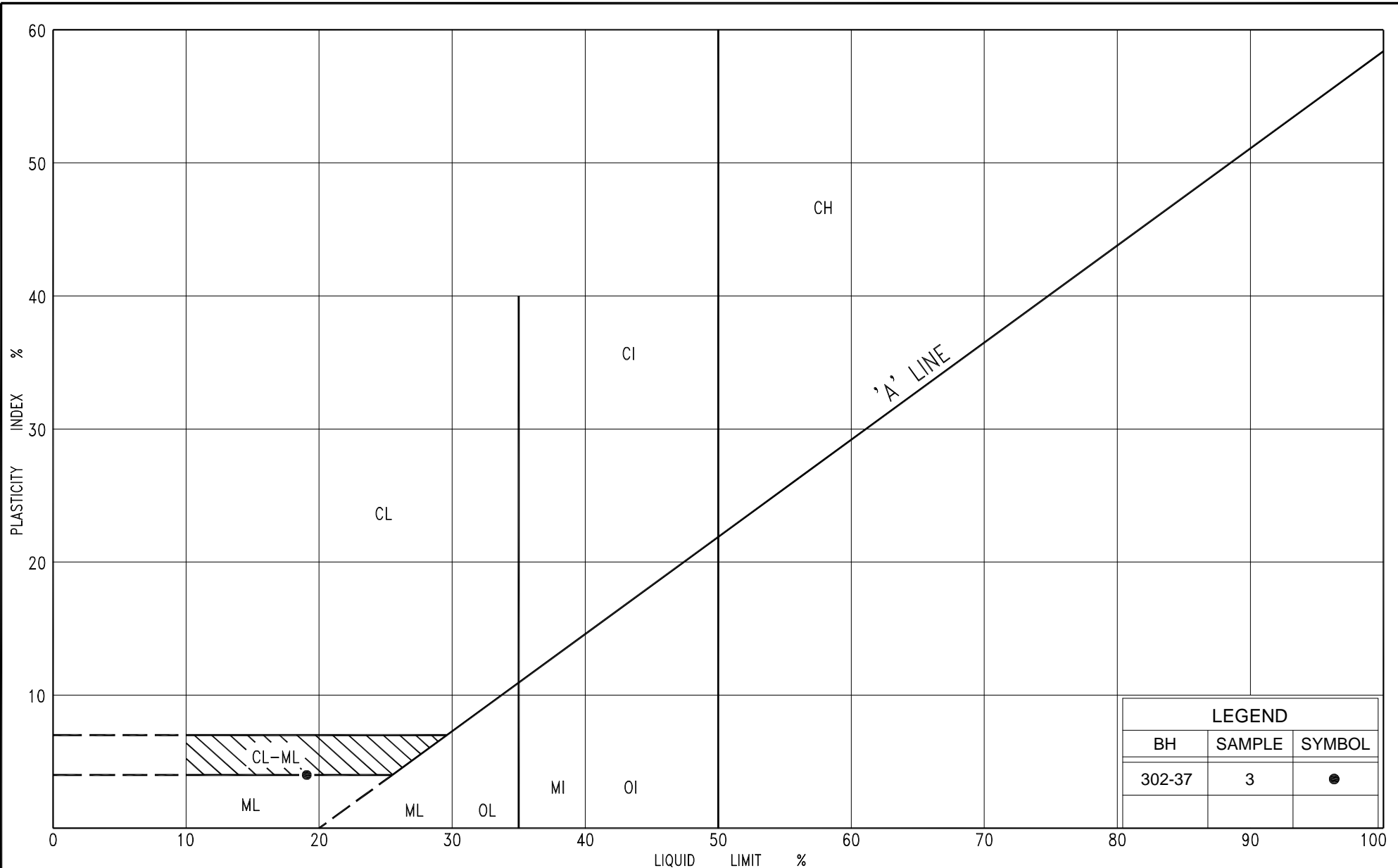
FIG No. 302-PC-2

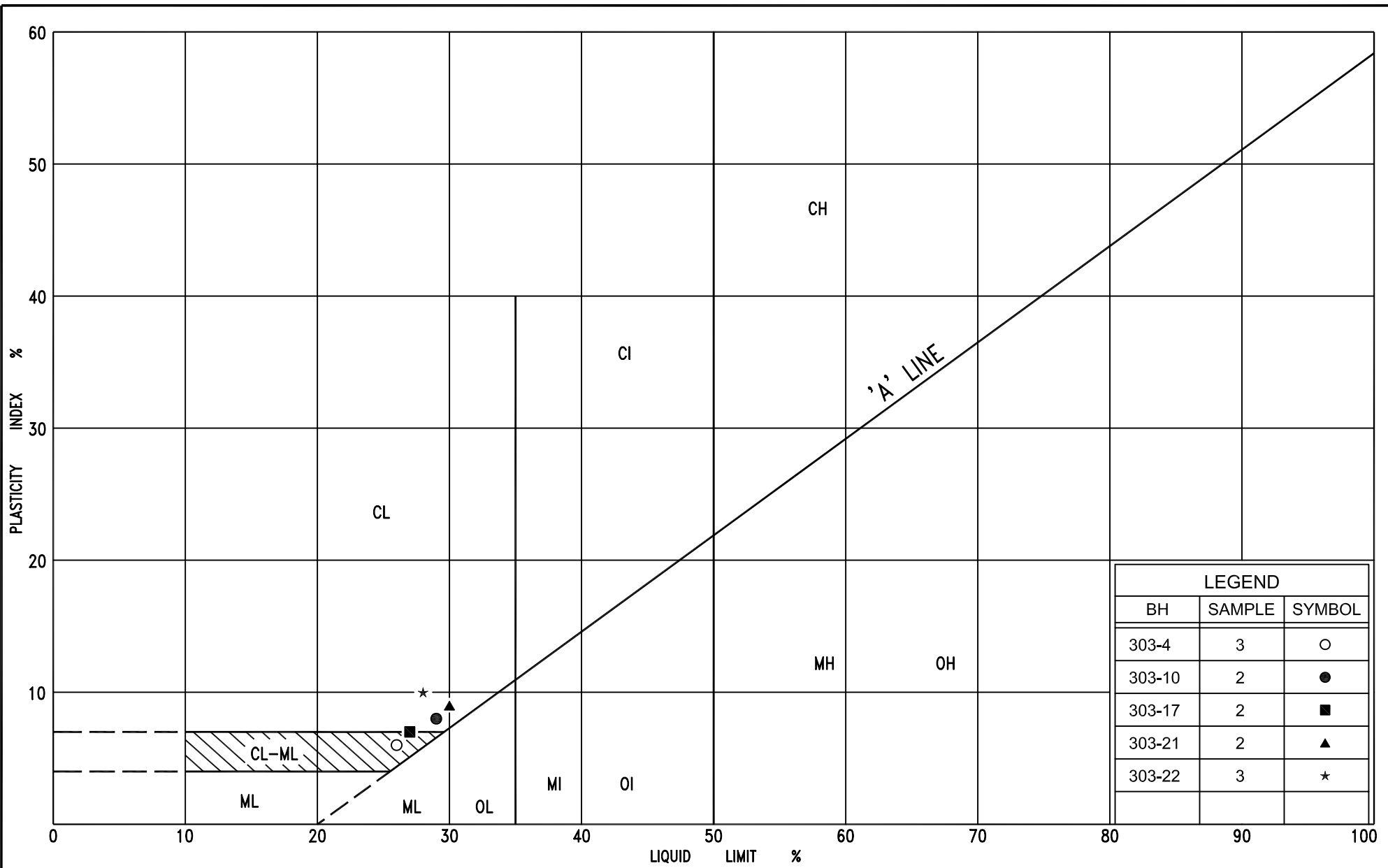
HWY: 69

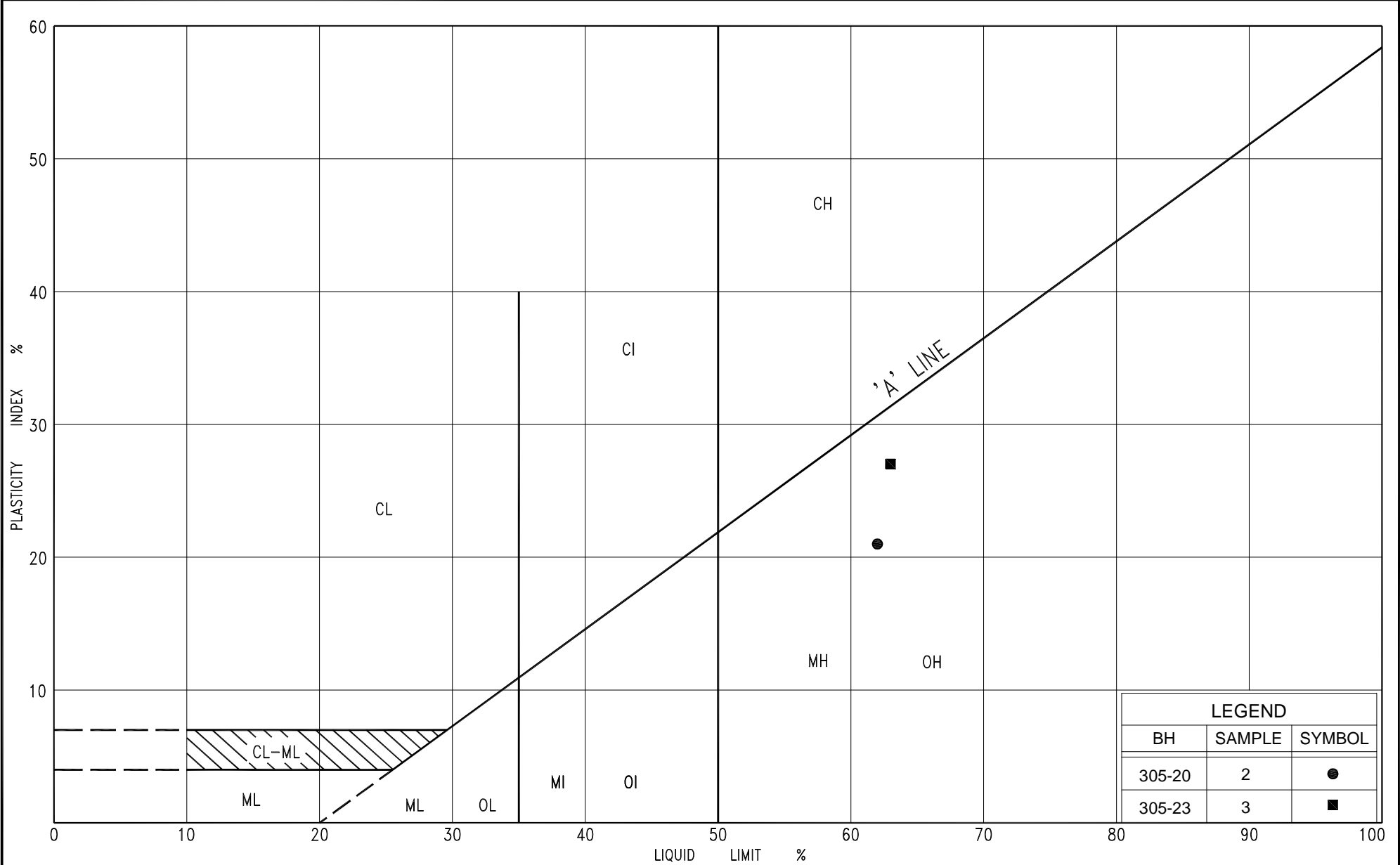
G.W.P. No. 5203-06-00











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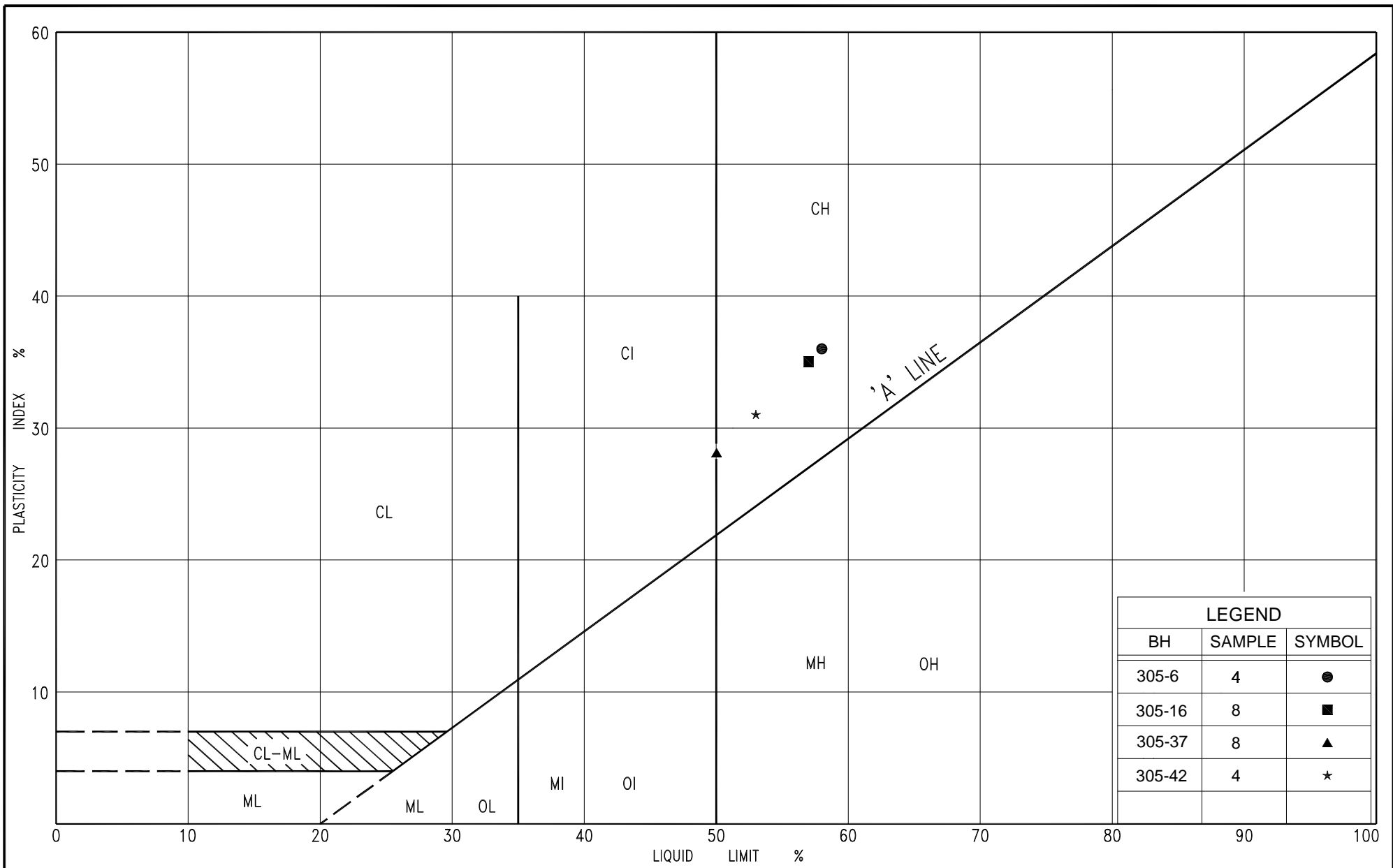
PLASTICITY CHART

ORGANIC CLAYEY SILT, trace sand

FIG No. 305-PC-1

HWY: 69

G.W.P. No. 5203-06-00



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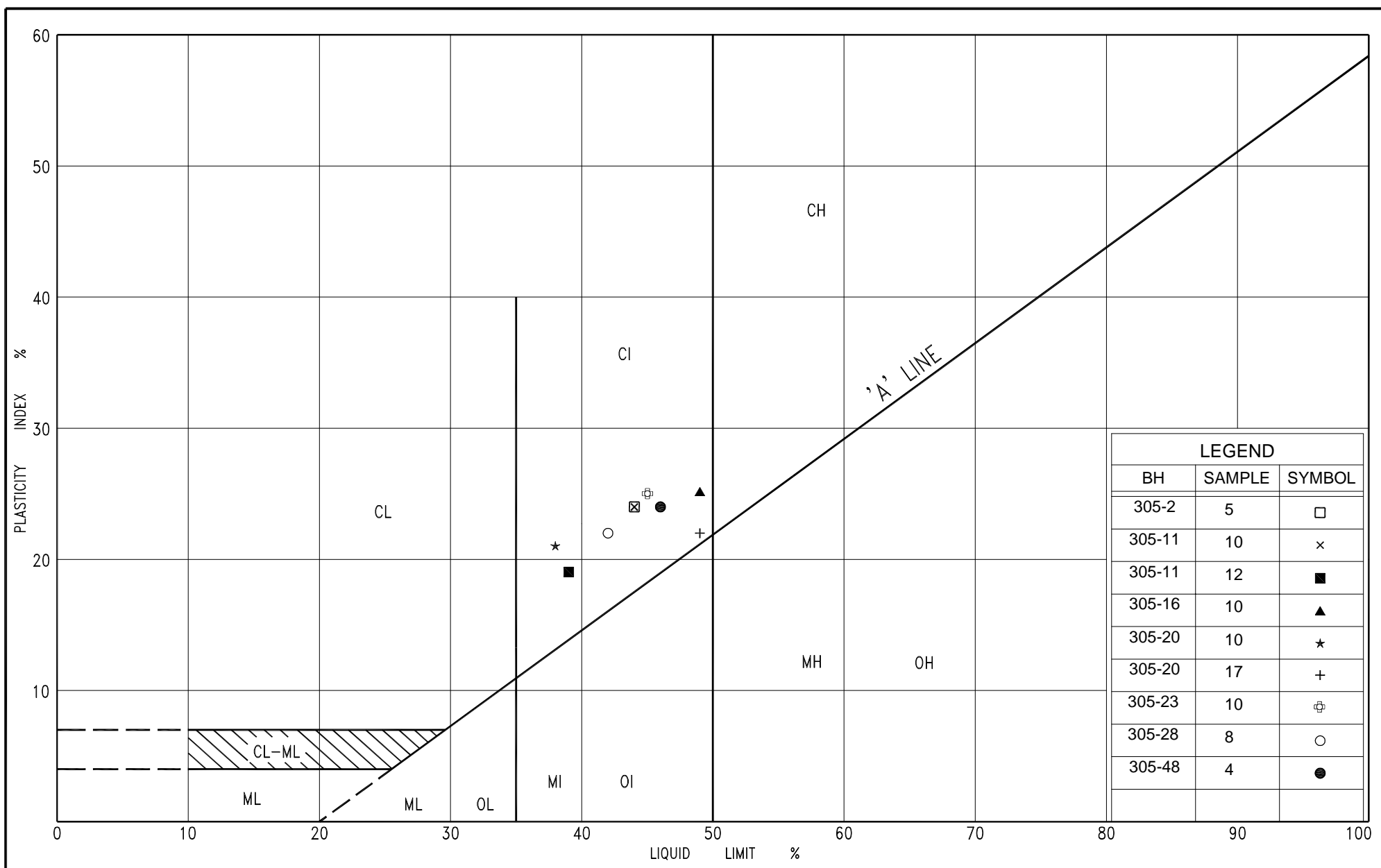
PLASTICITY CHART

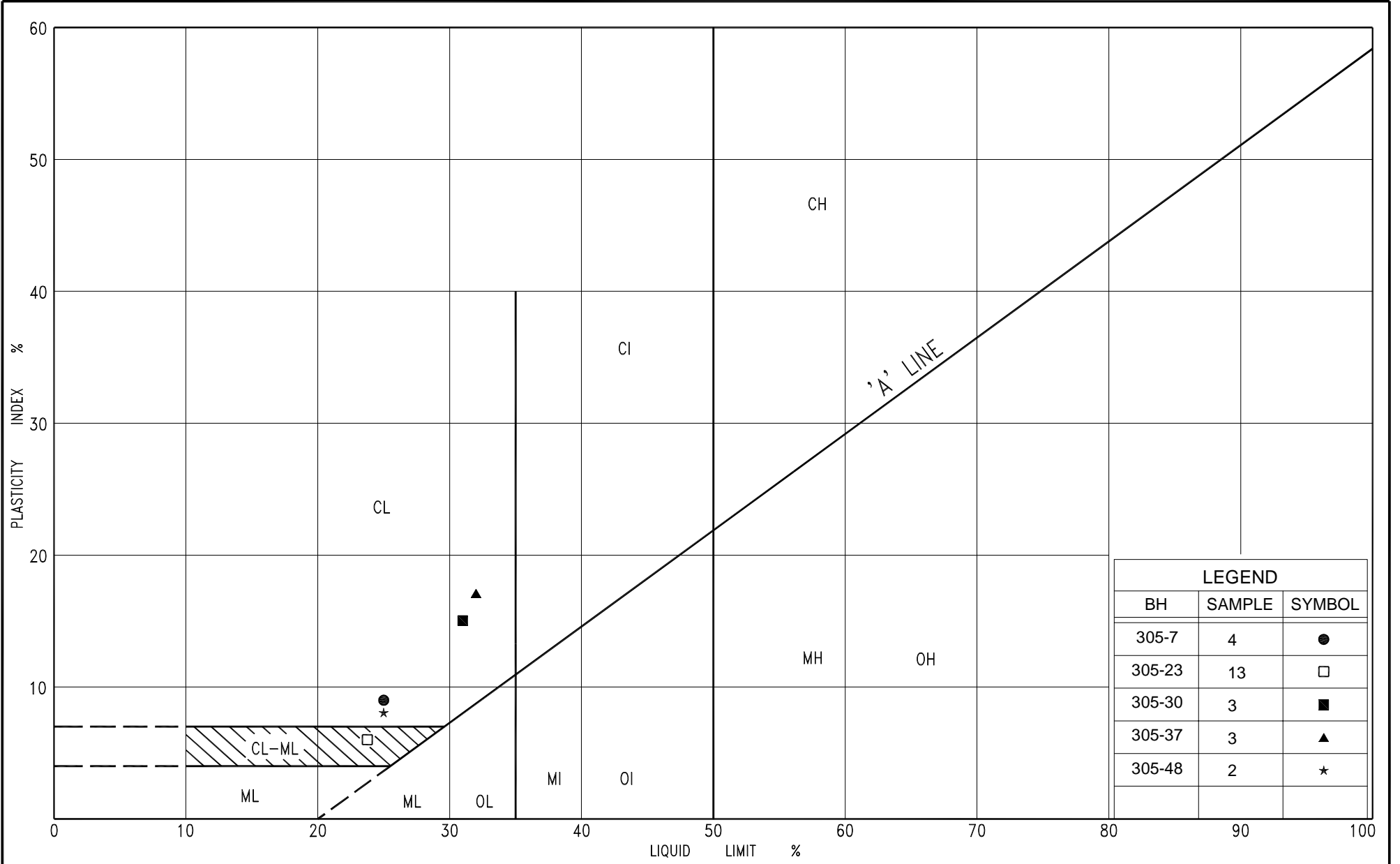
CLAY, trace sand

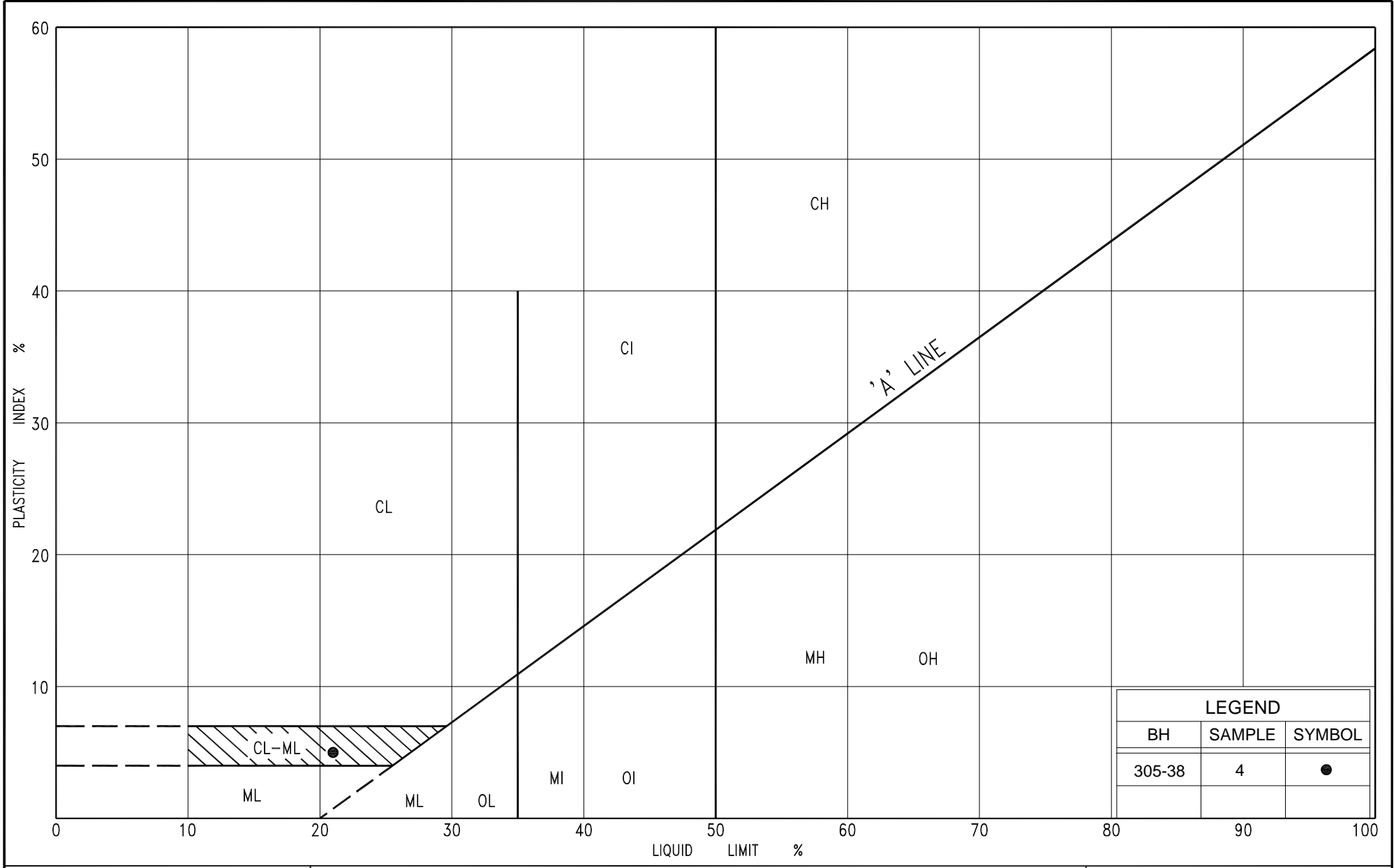
FIG No. 305-PC-2

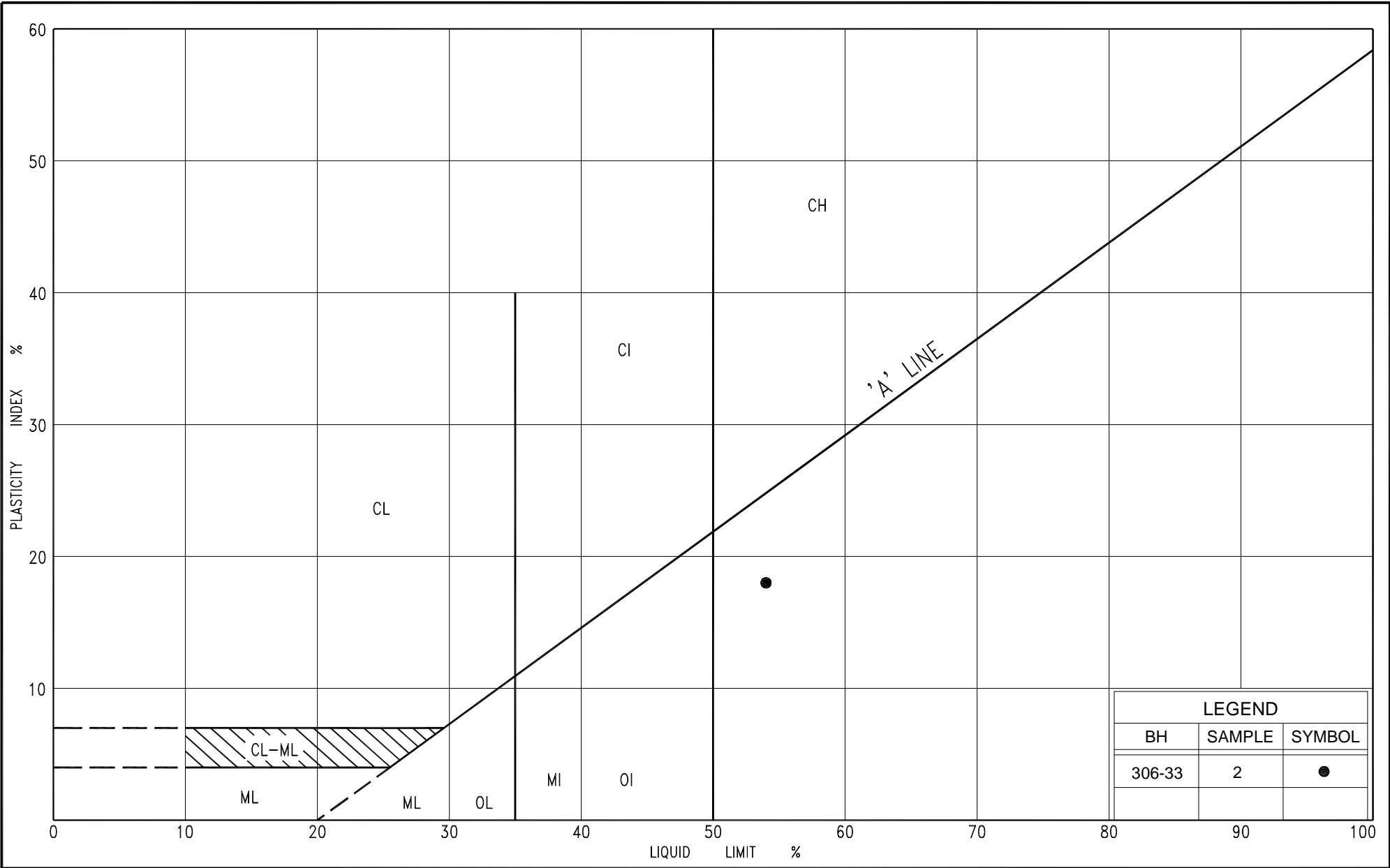
HWY: 69

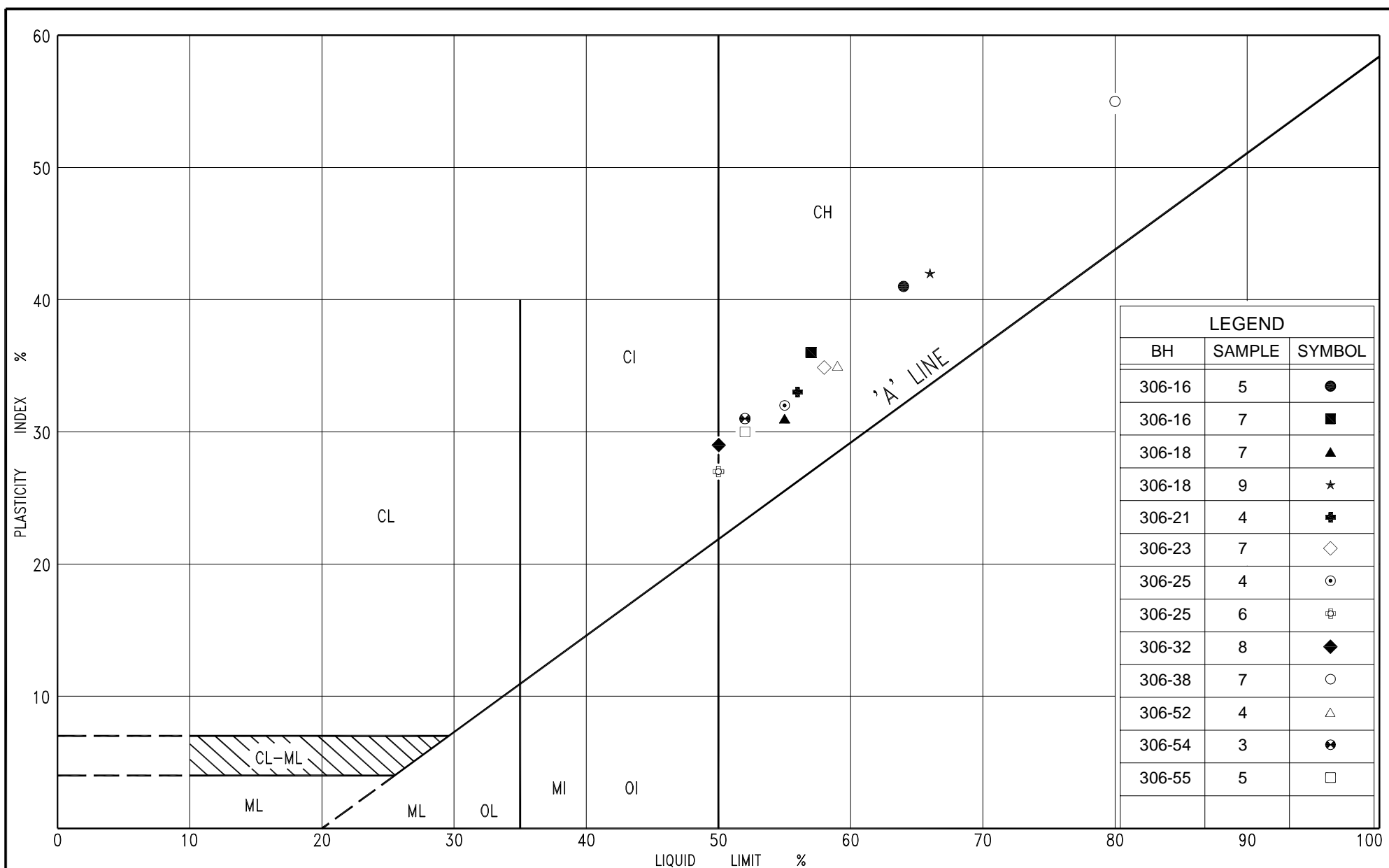
G.W.P. No. 5203-06-00

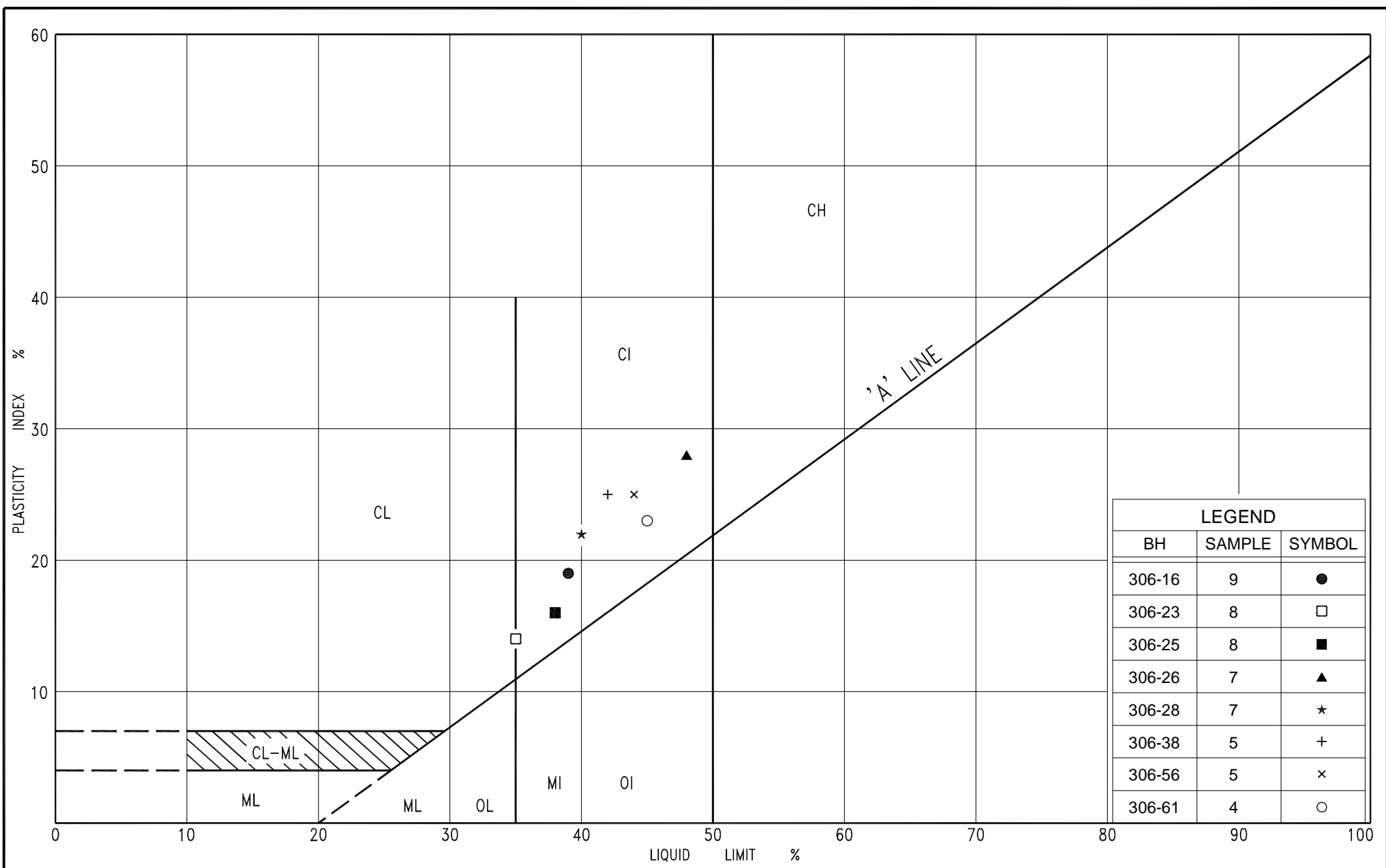


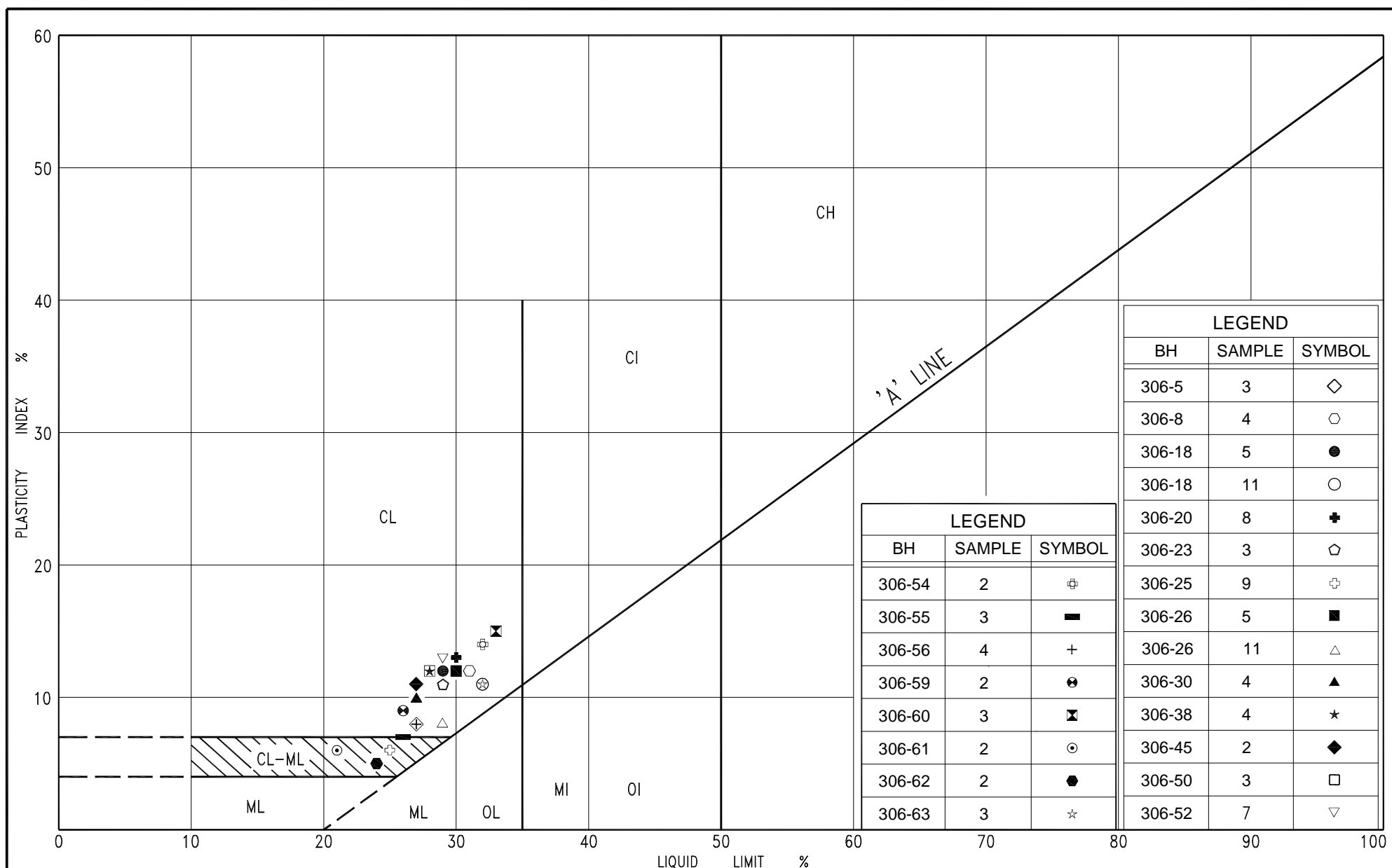


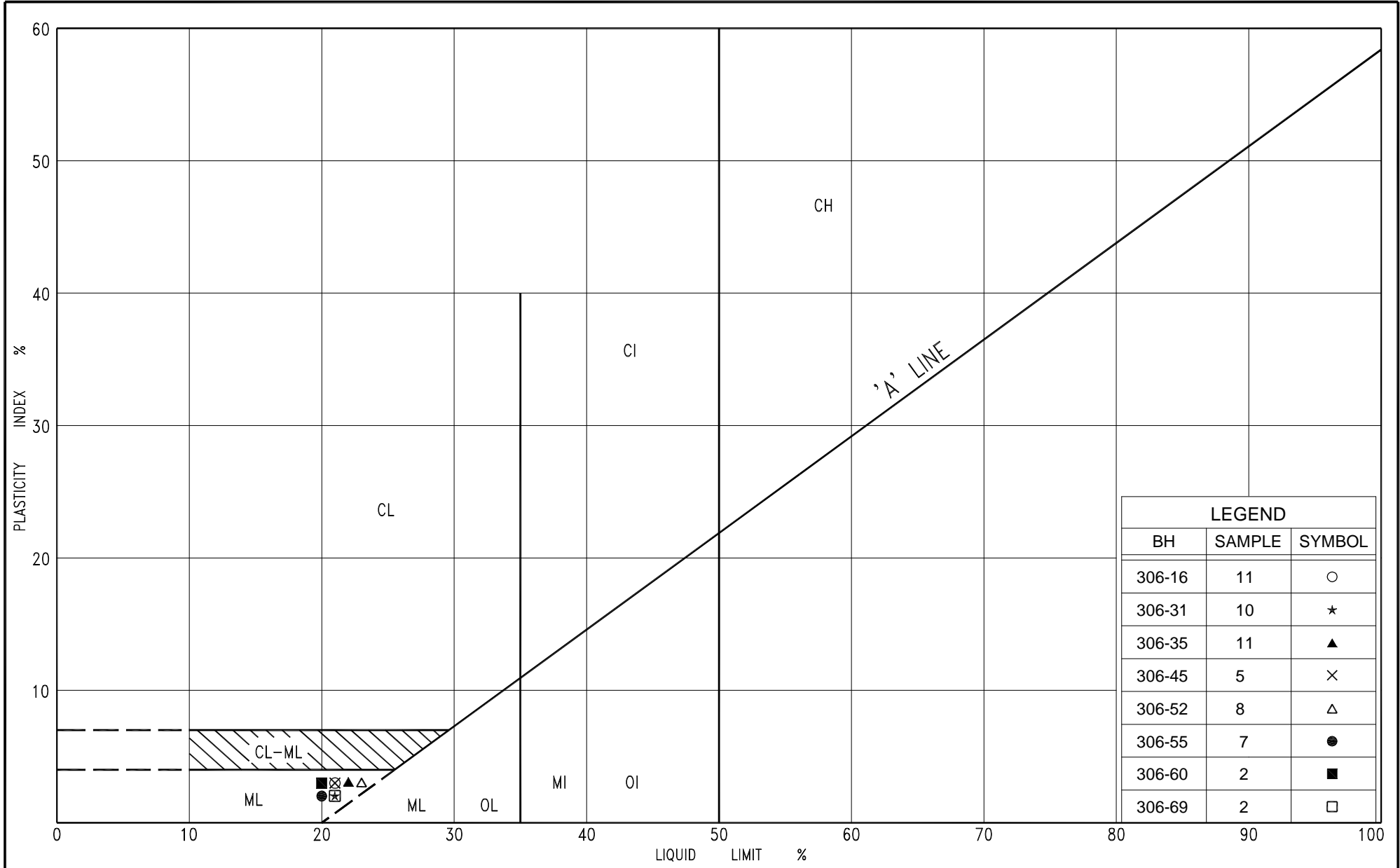












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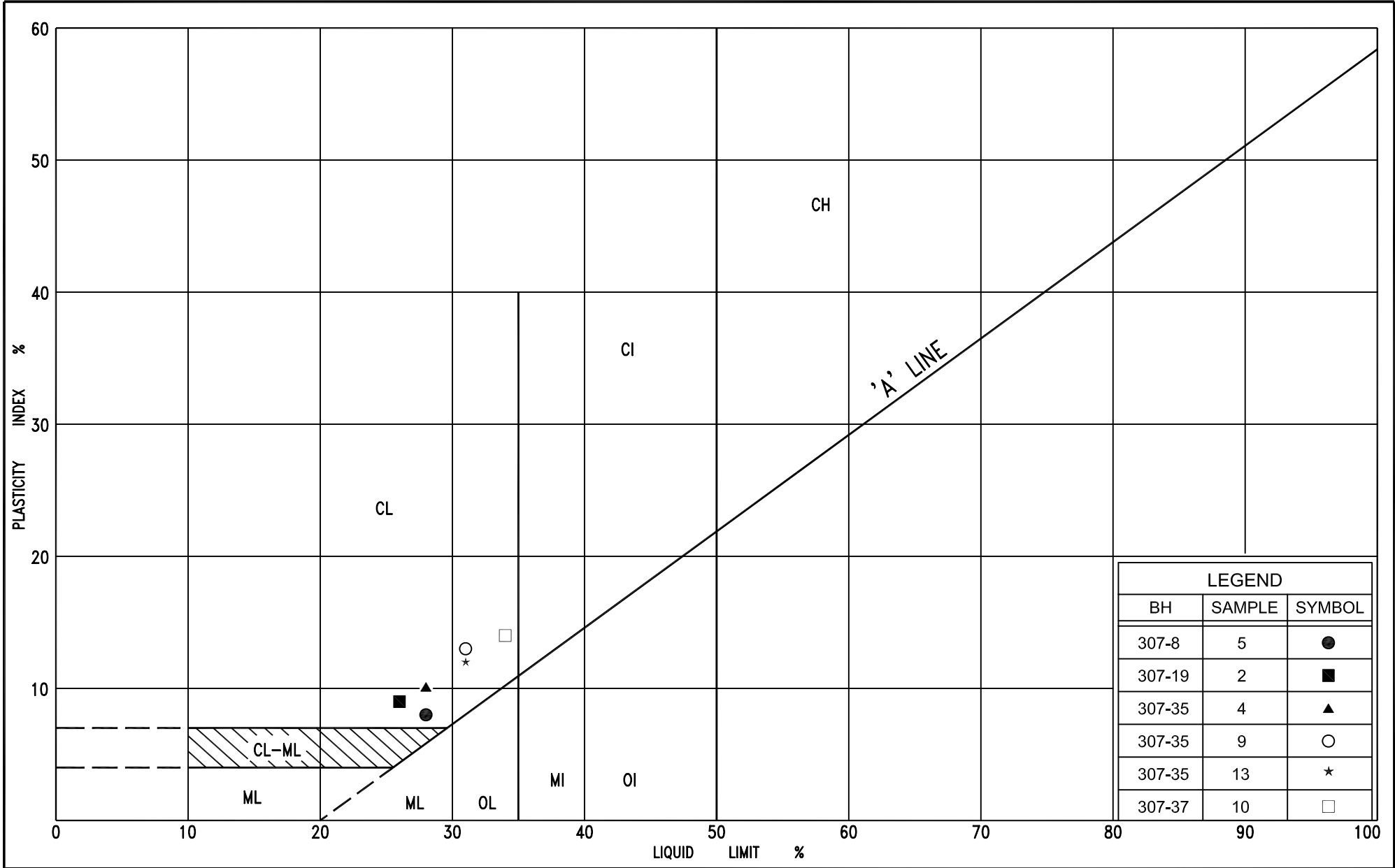
PLASTICITY CHART

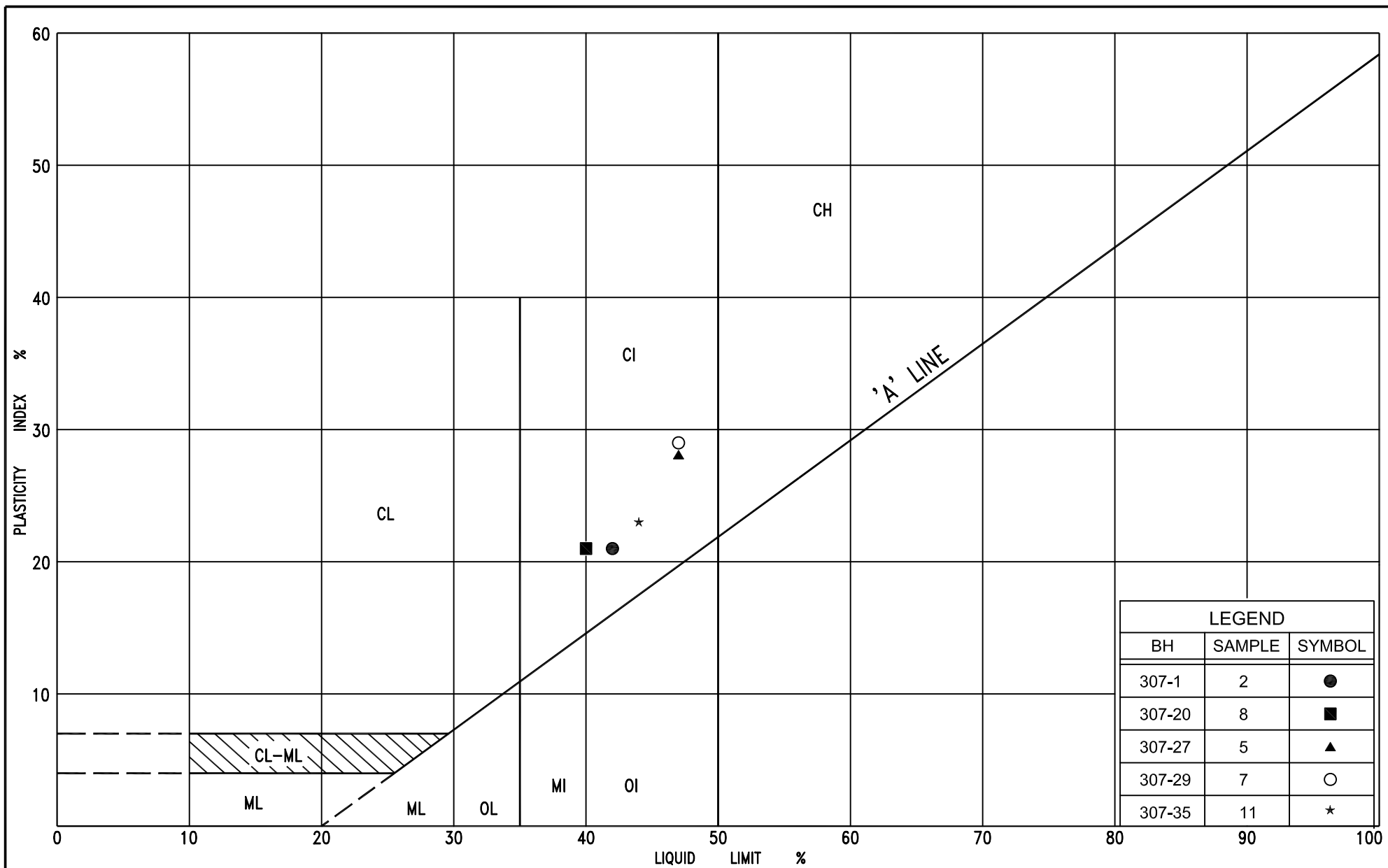
SILT, some clay, trace to some sand, trace gravel

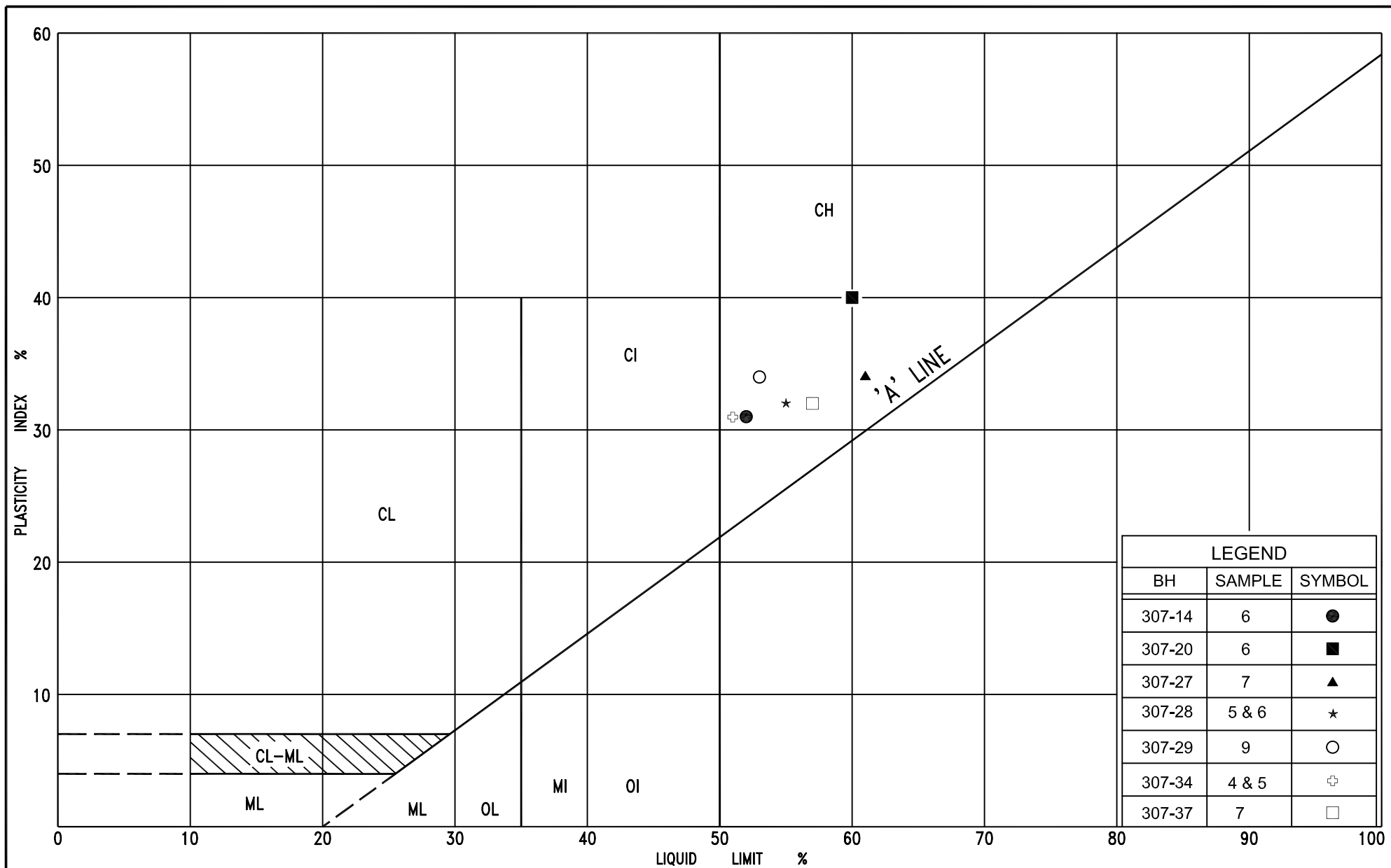
FIG No. 306-PC-5

HWY: 69

G.W.P. No. 5203-06-00







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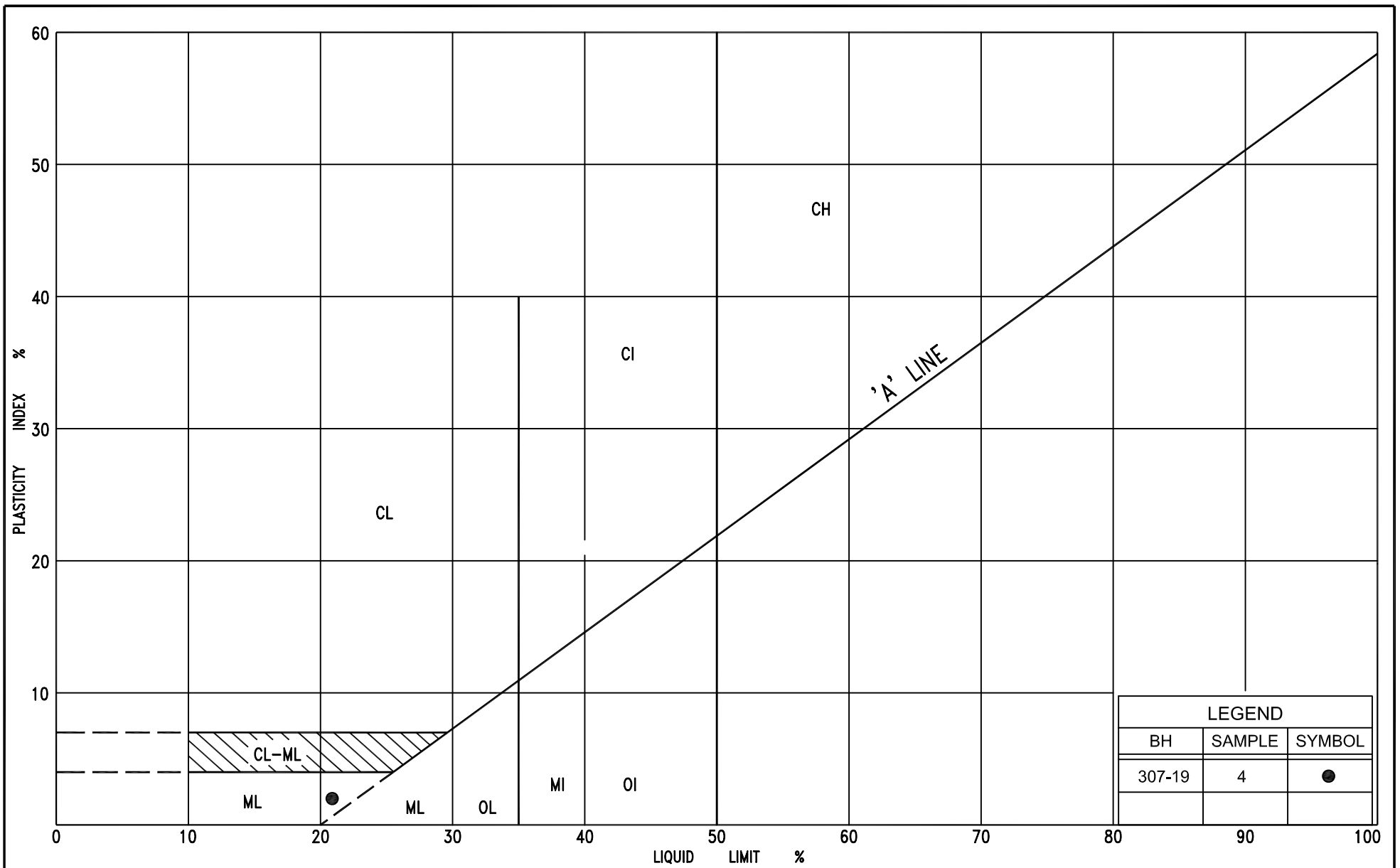
PLASTICITY CHART

CLAY, trace sand

FIG No. 307-PC-3

HWY: 69

G.W.P. No. 5203-06-00



PLASTICITY CHART

SILT, some clay, trace sand

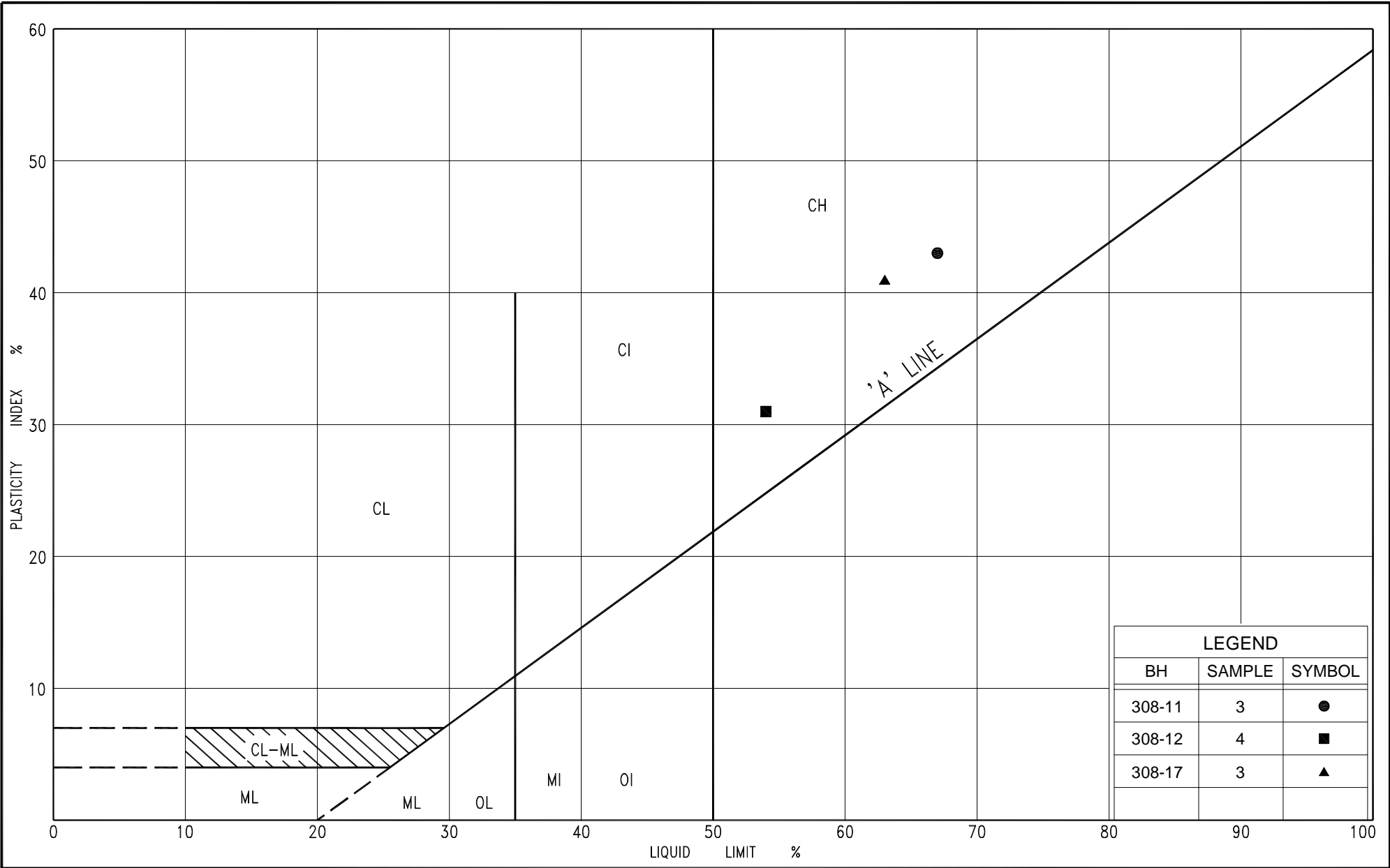


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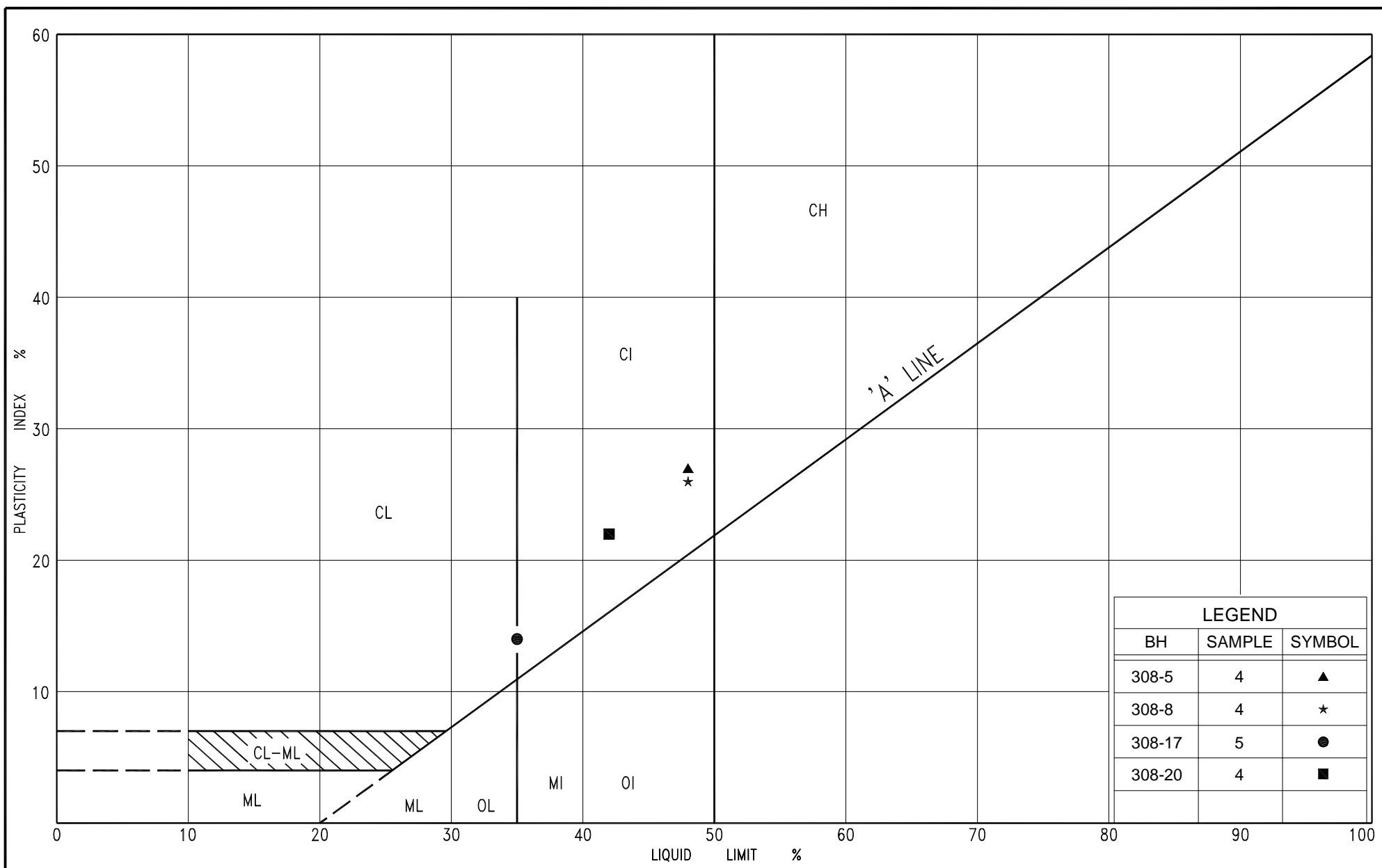
FIG No. 307-PC-4

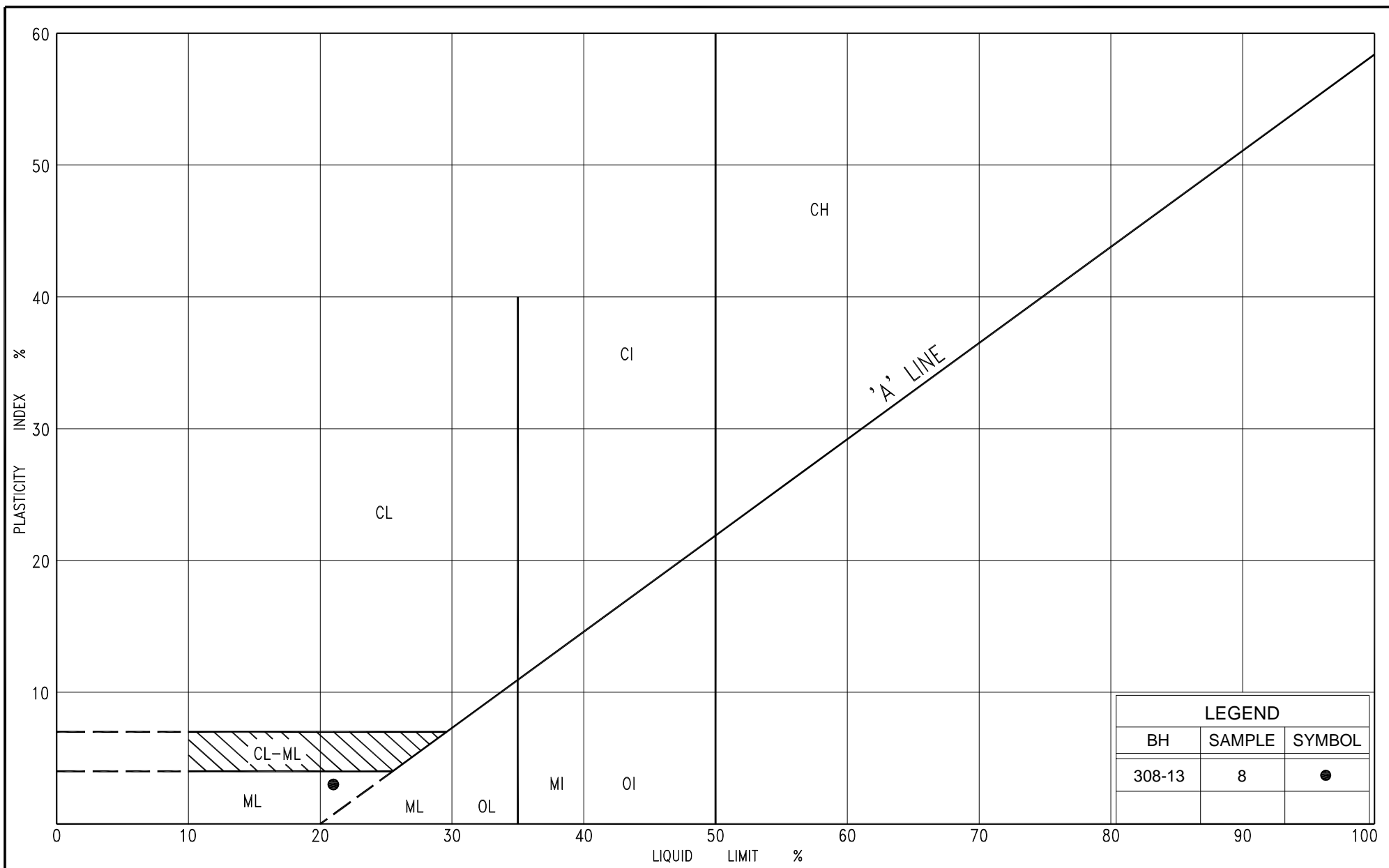
HWY: 69

G.W.P. No. 5203-06-00



LEGEND		
BH	SAMPLE	SYMBOL
308-11	3	●
308-12	4	■
308-17	3	▲





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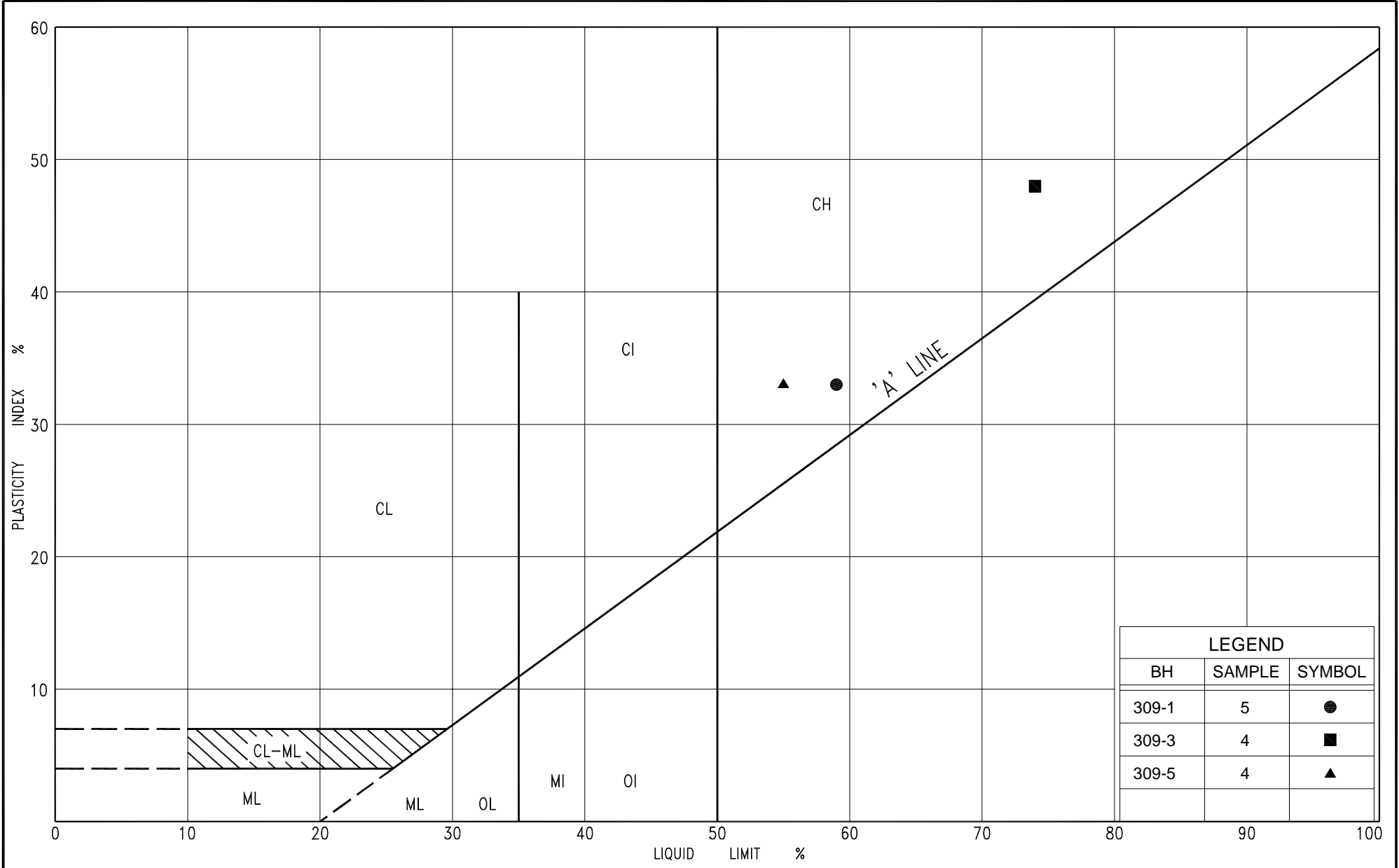
PLASTICITY CHART

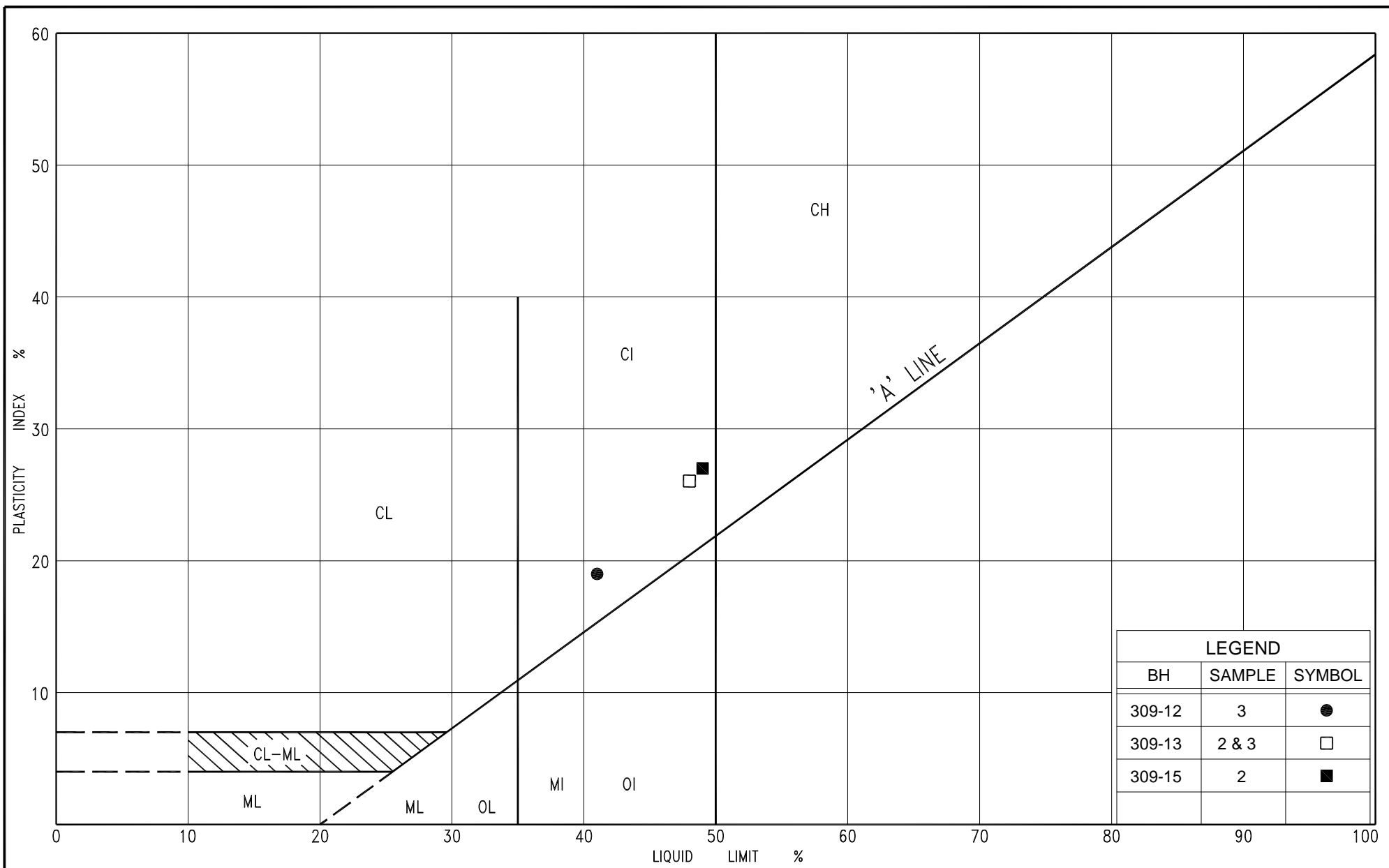
SILT, some clay, trace sand

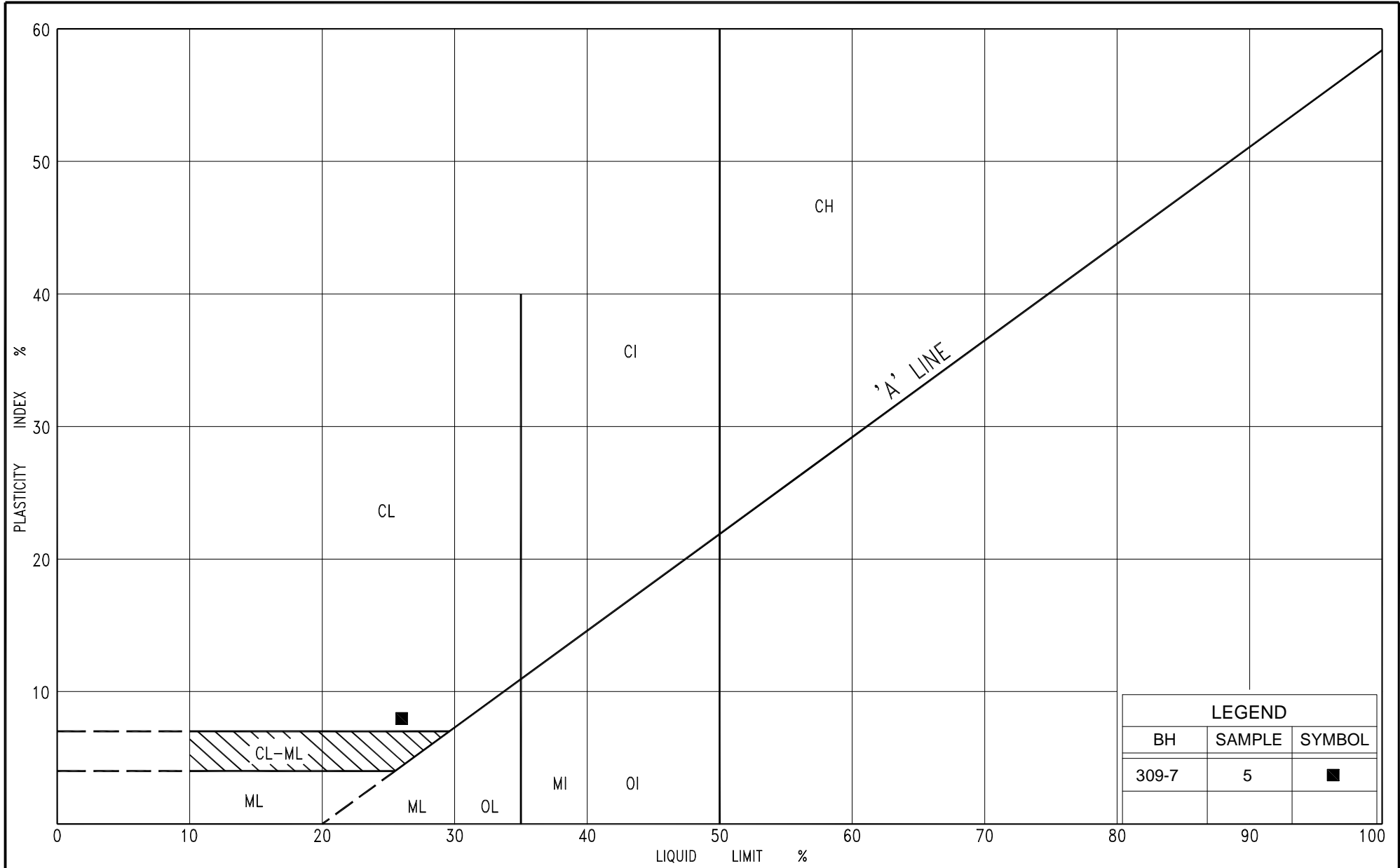
FIG No. 308-PC-3

HWY: 69

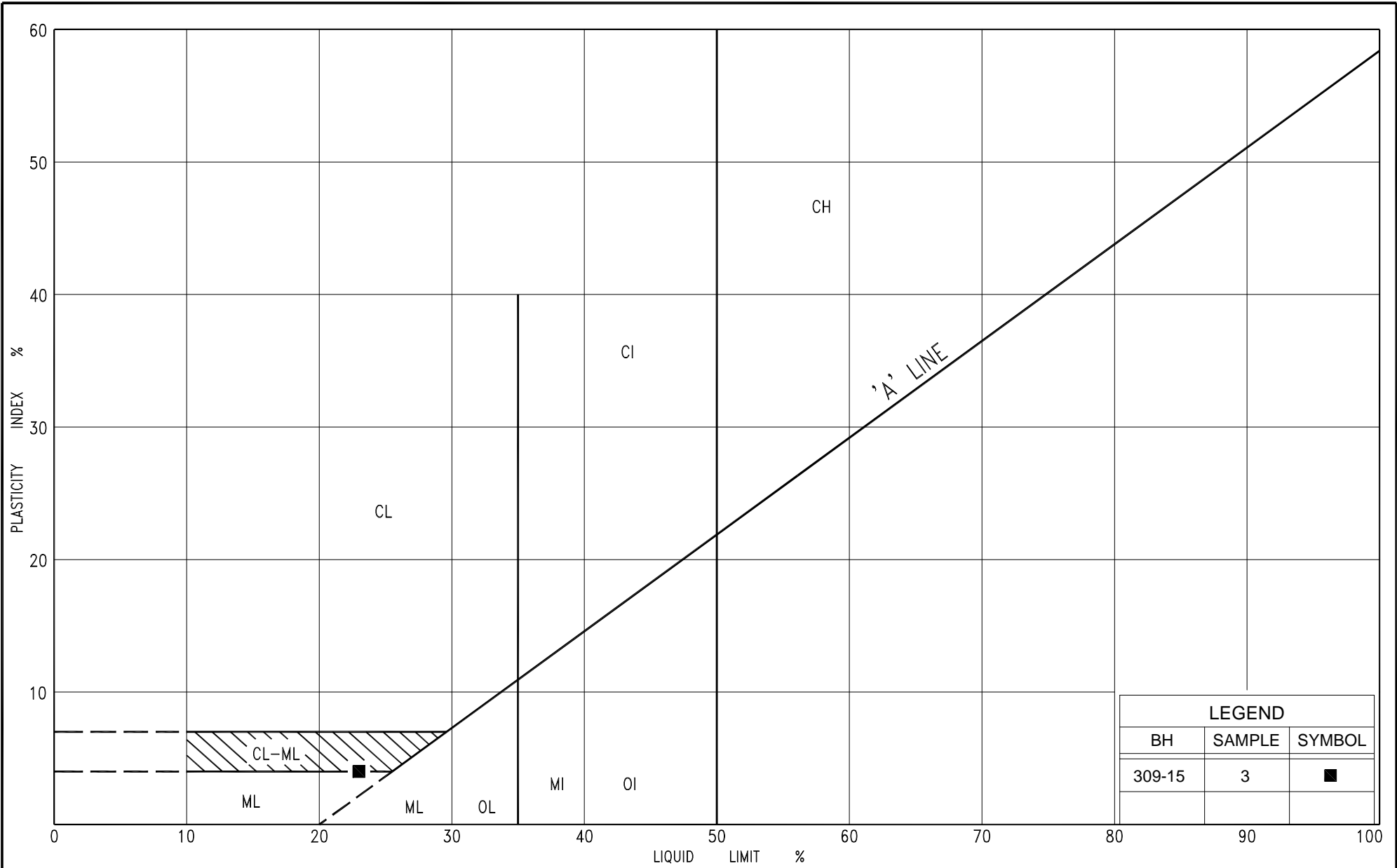
G.W.P. No. 5203-06-00

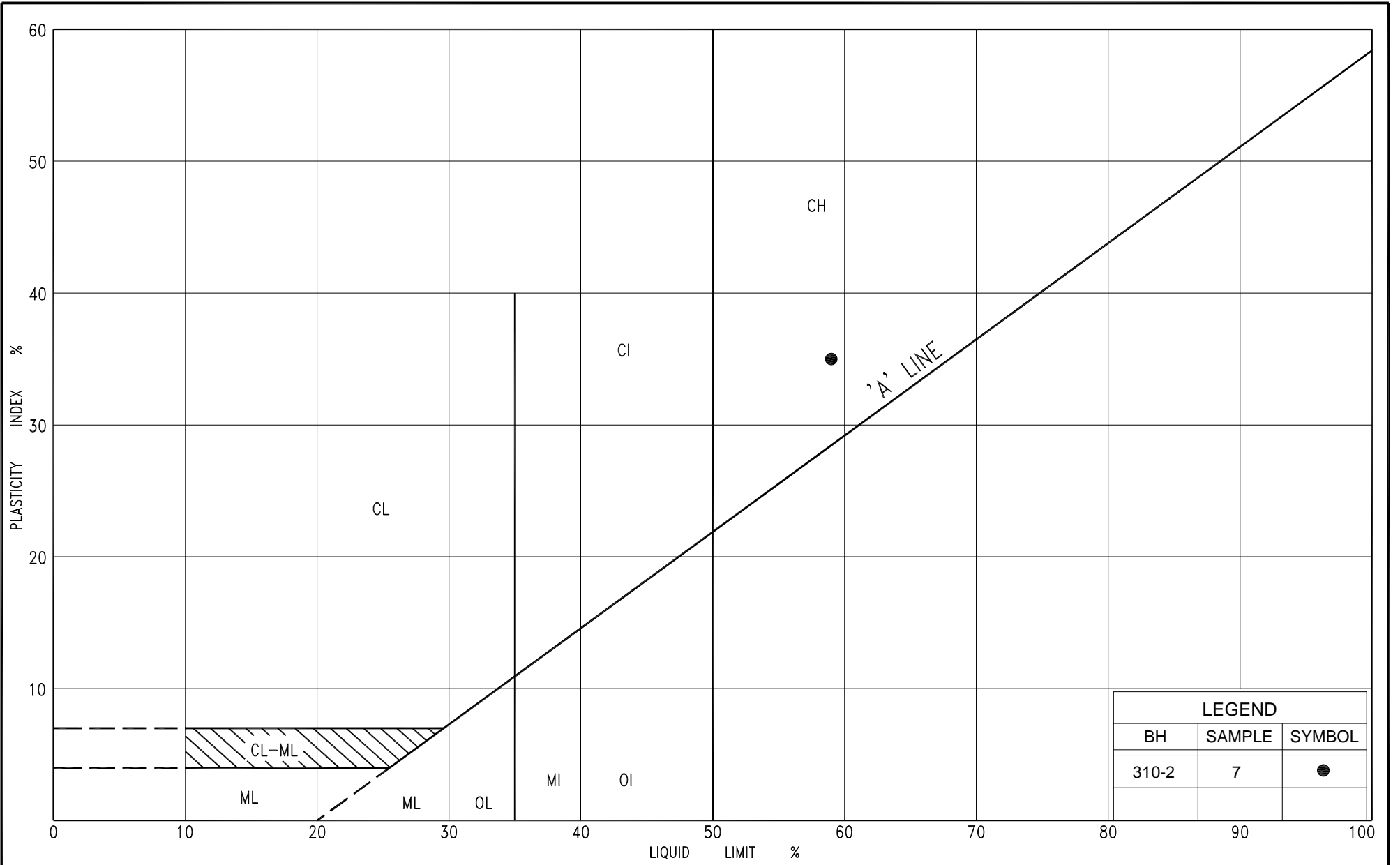


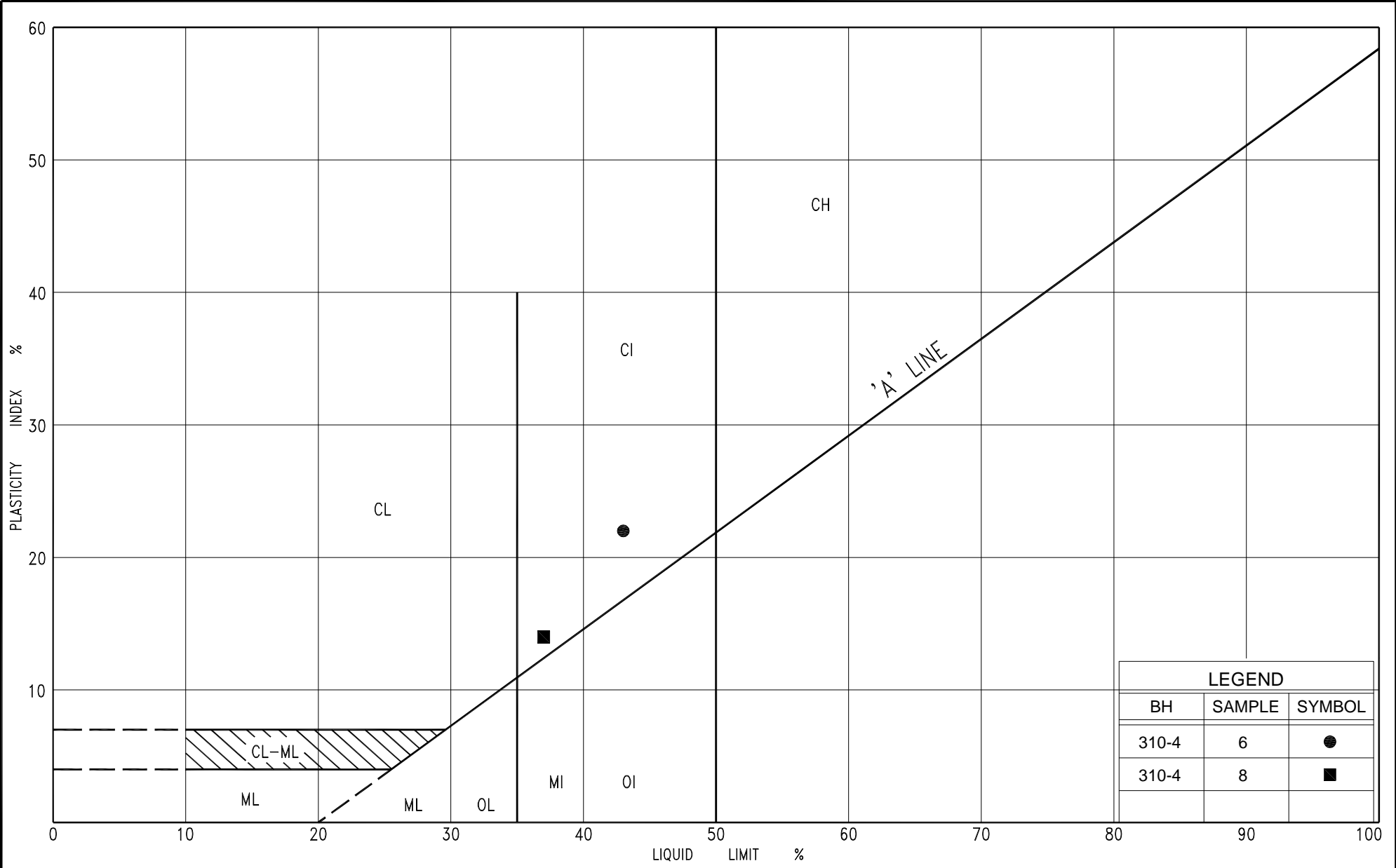


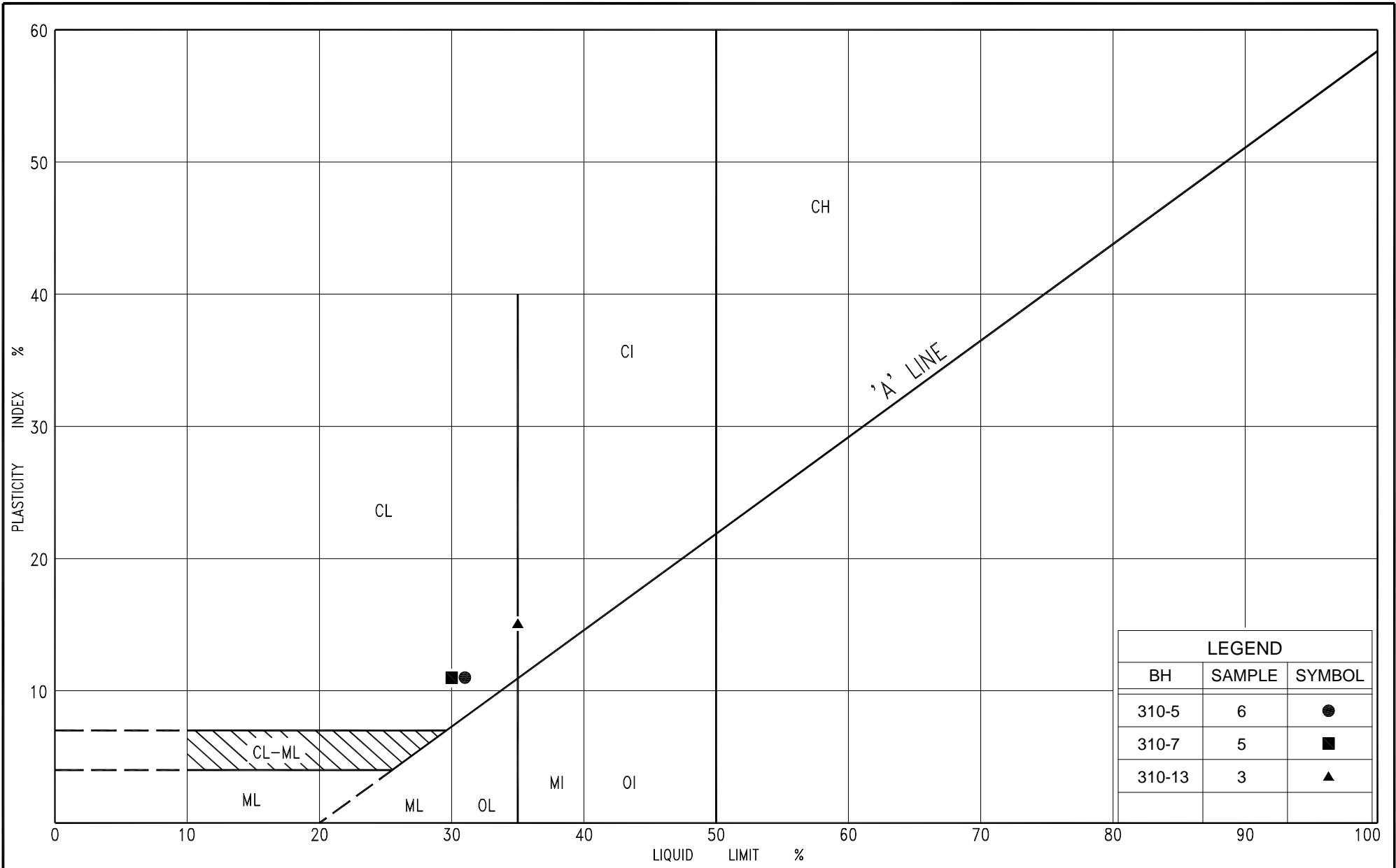


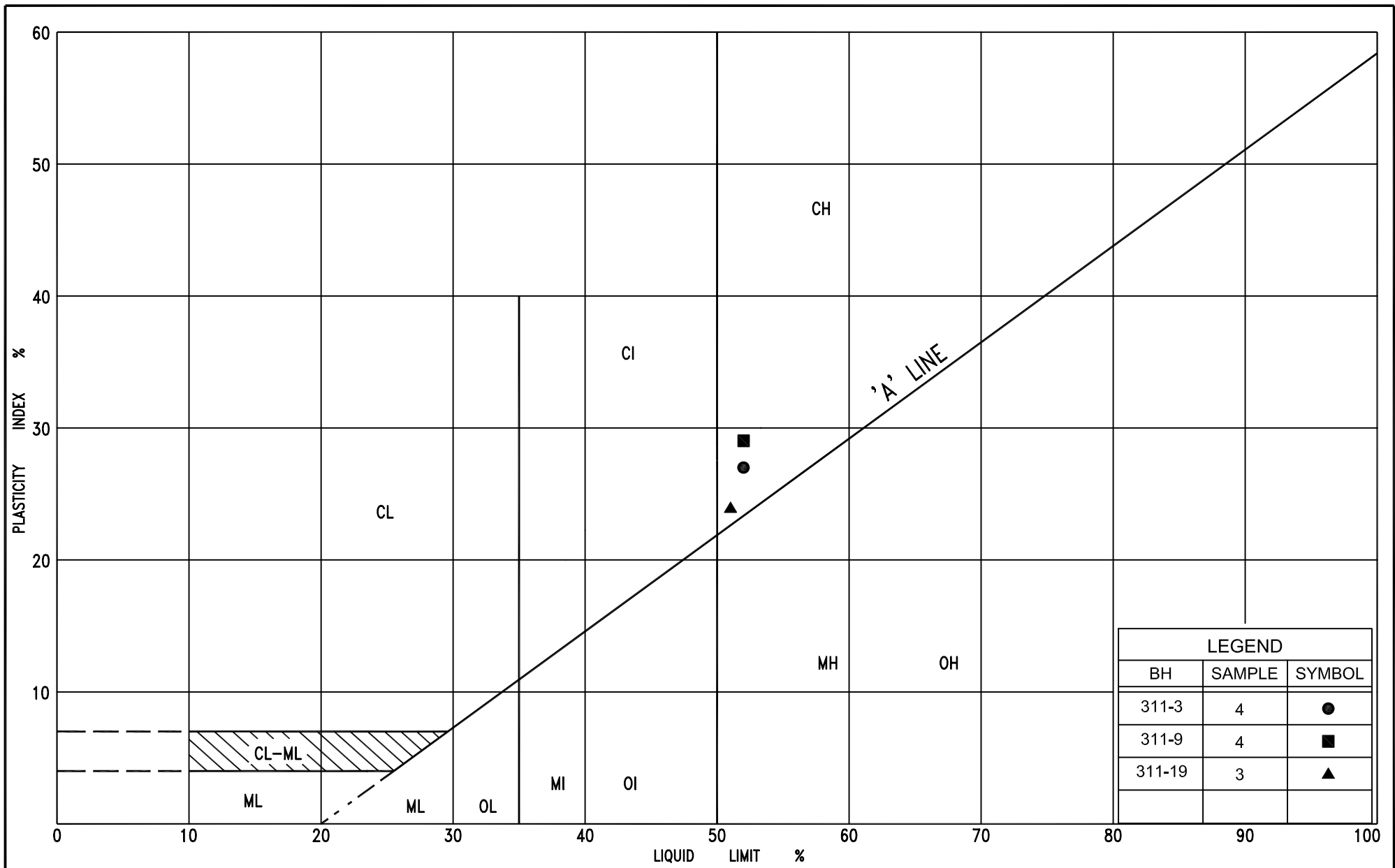
LEGEND		
BH	SAMPLE	SYMBOL
309-7	5	■











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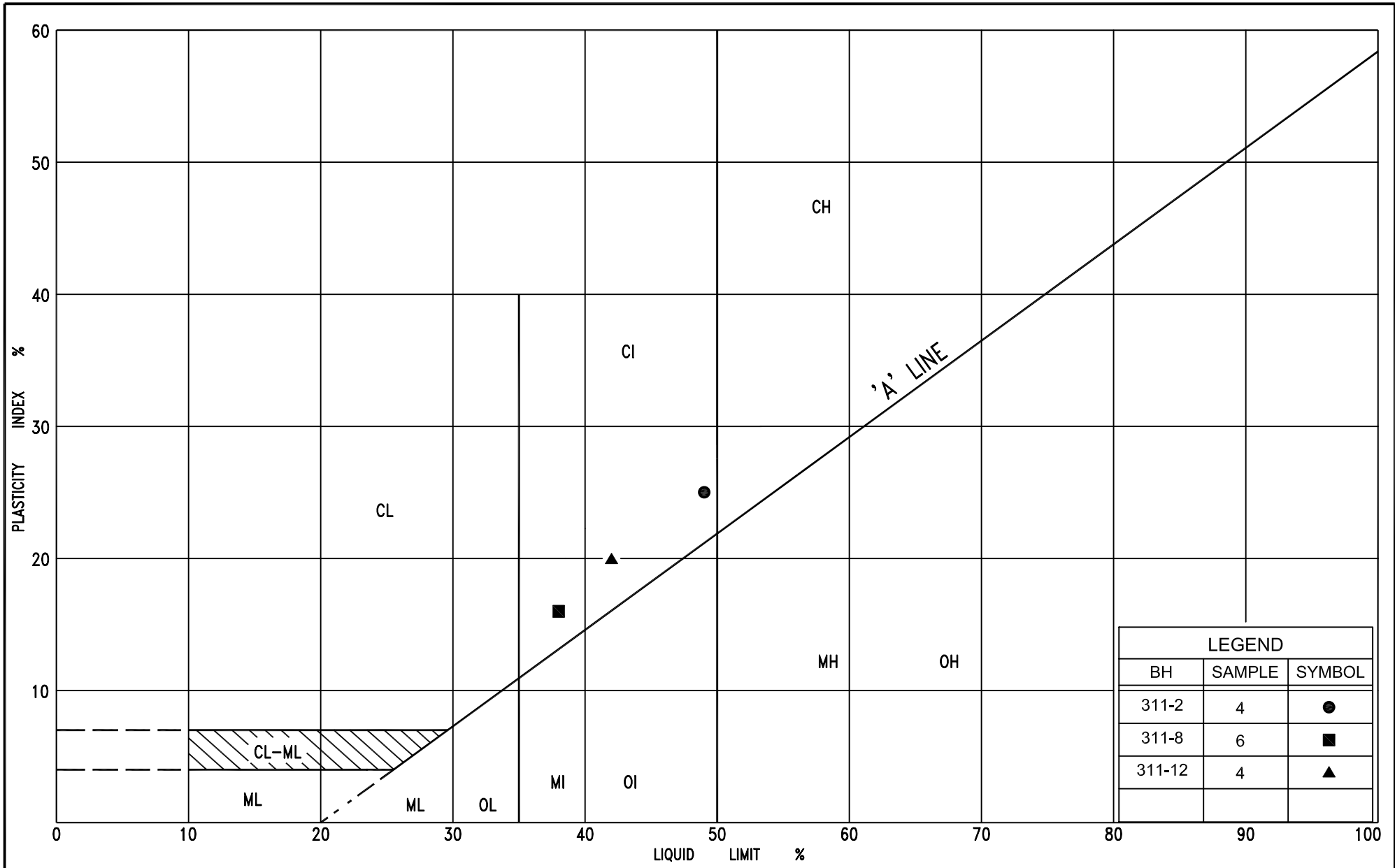
PLASTICITY CHART

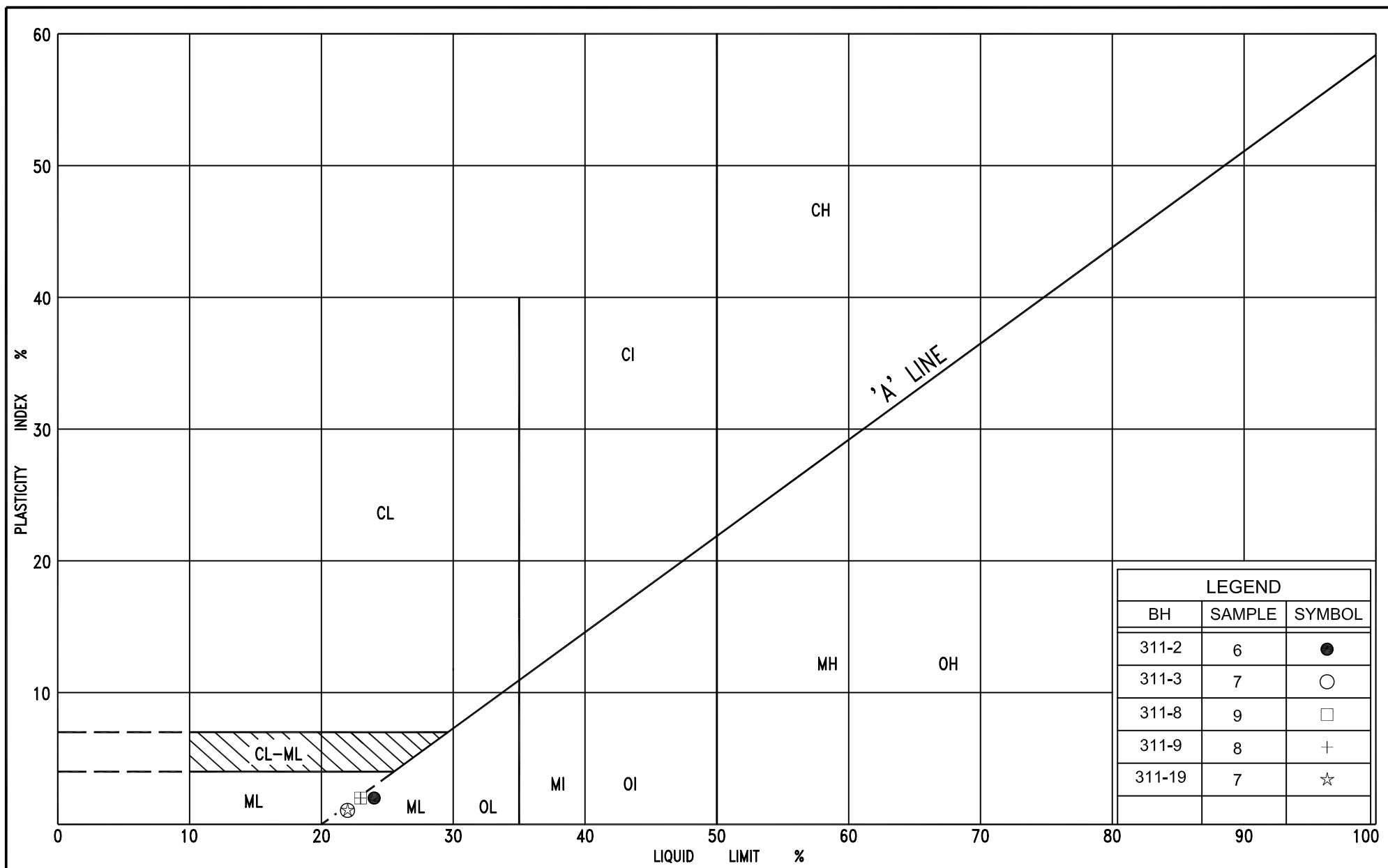
CLAY, trace sand

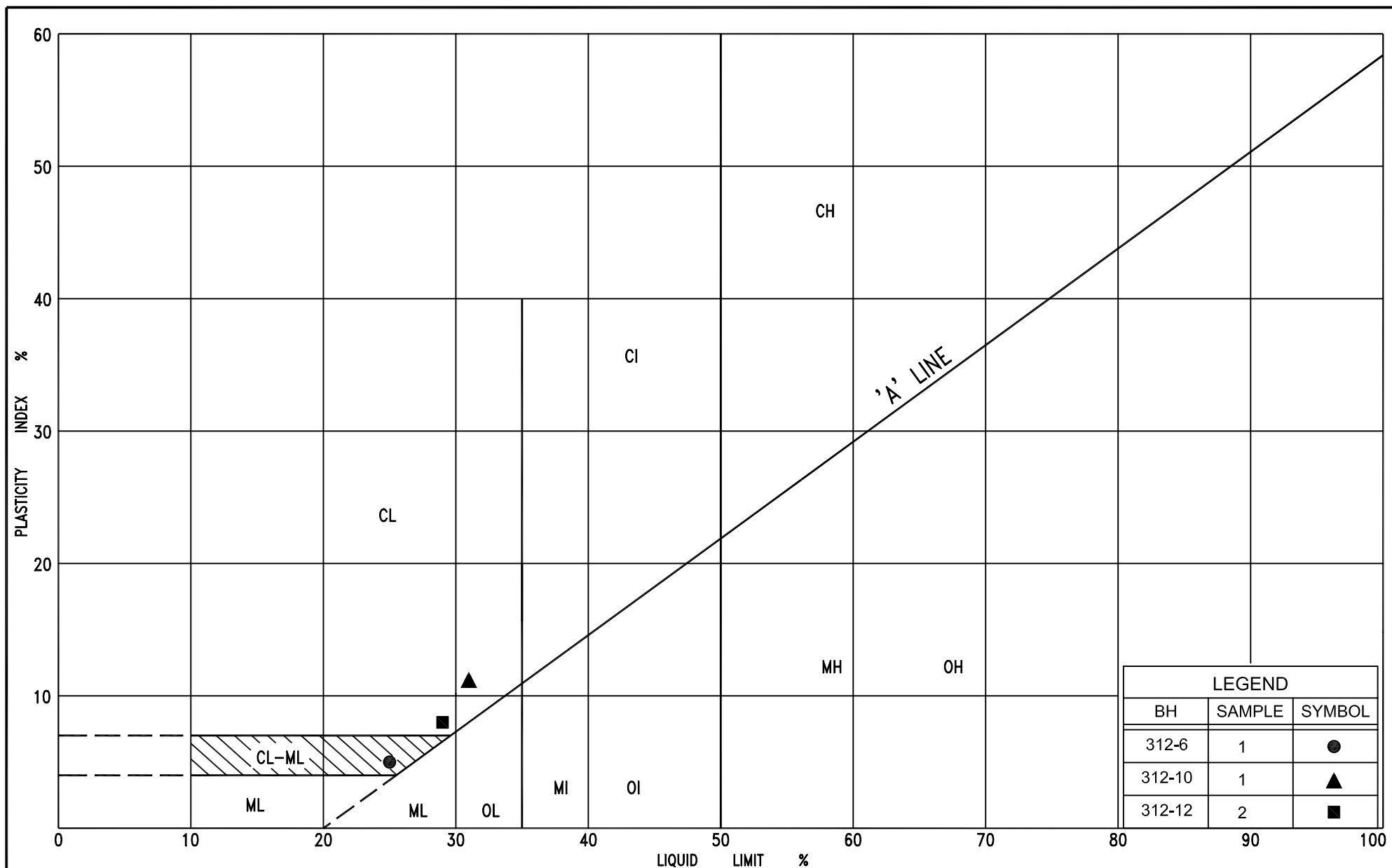
FIG No. 311-PC-1

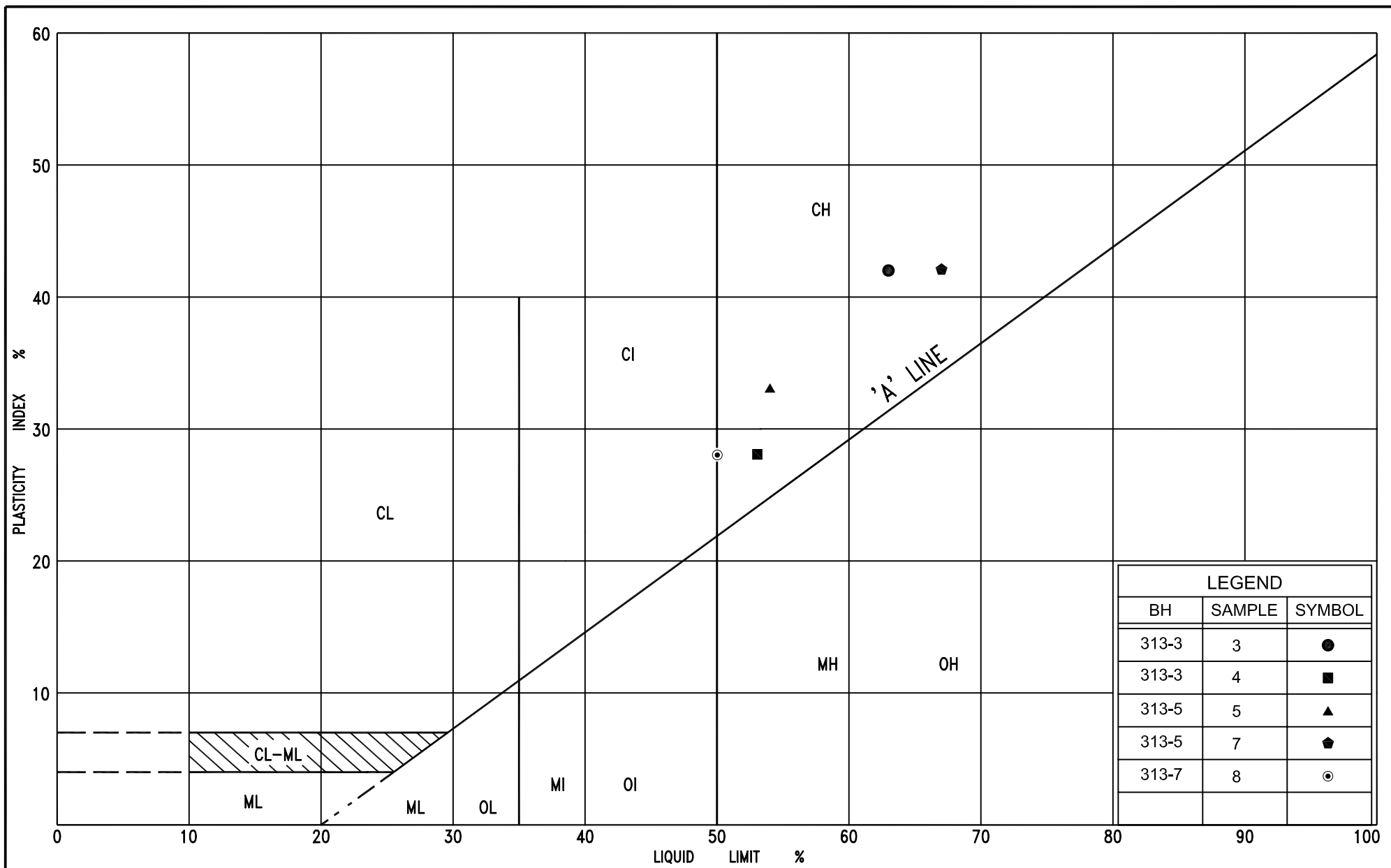
HWY: 69

G.W.P. No. 5203-06-00









LEGEND		
BH	SAMPLE	SYMBOL
313-3	3	●
313-3	4	■
313-5	5	▲
313-5	7	◆
313-7	8	⊙



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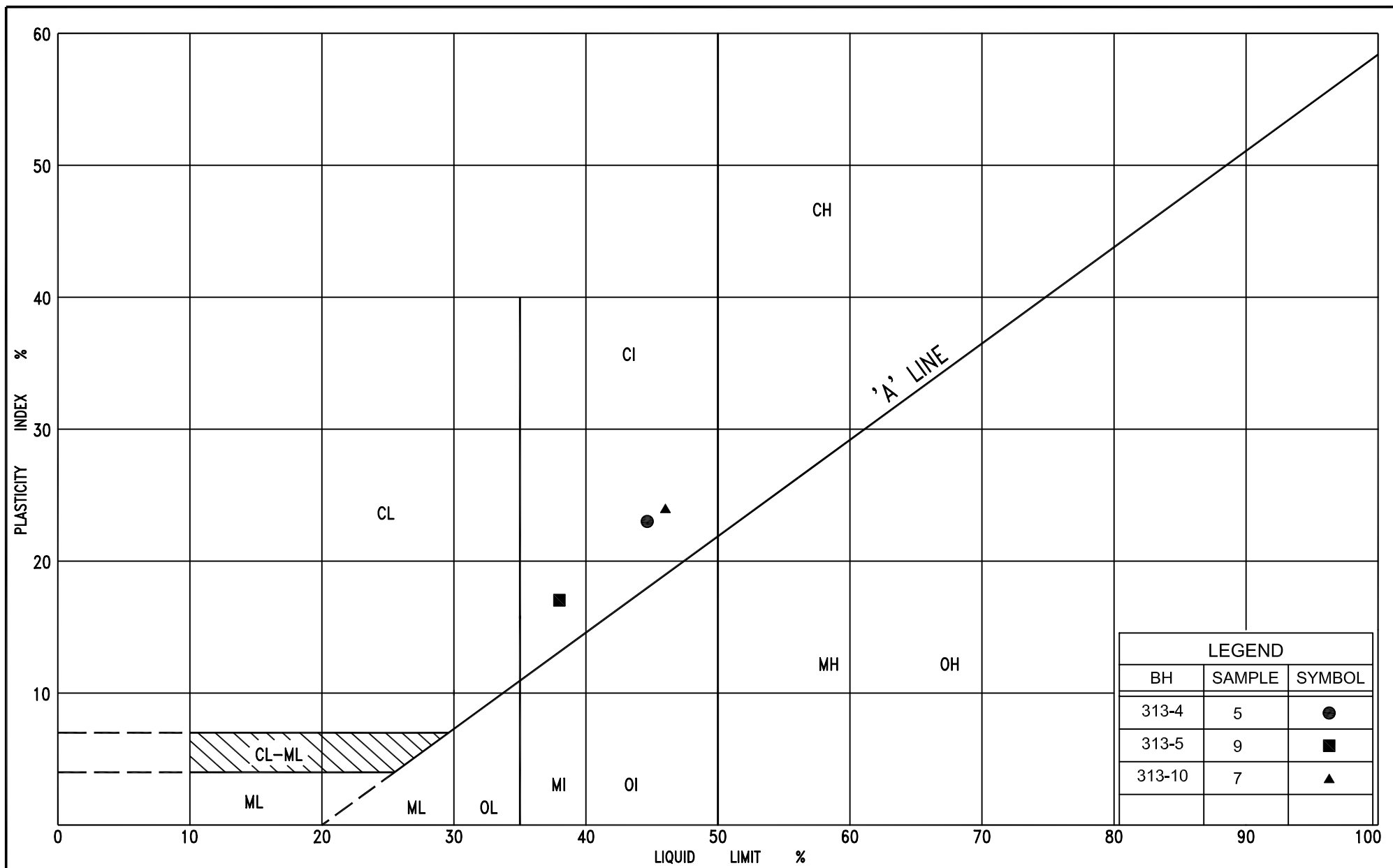
PLASTICITY CHART

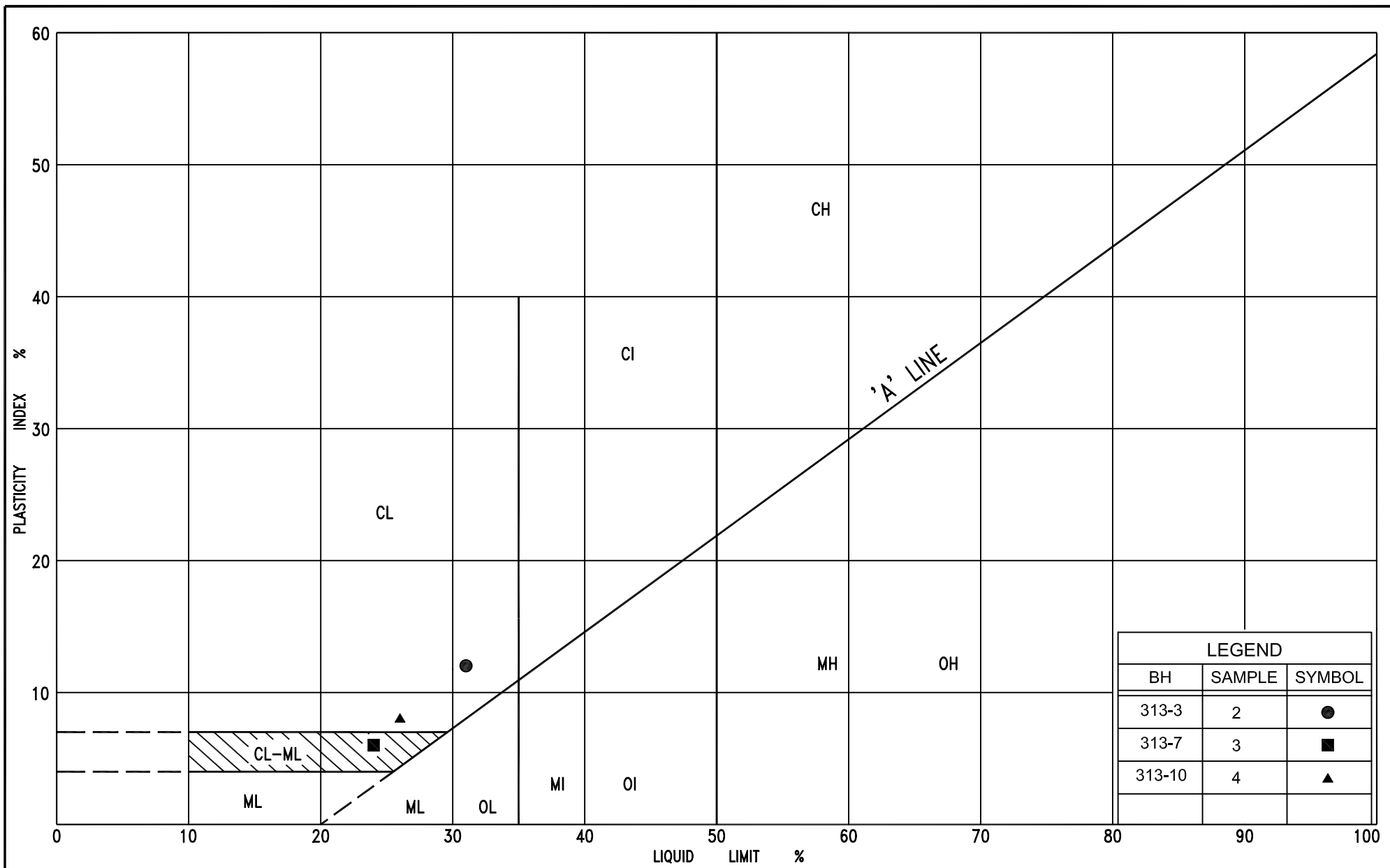
CLAY, trace sand

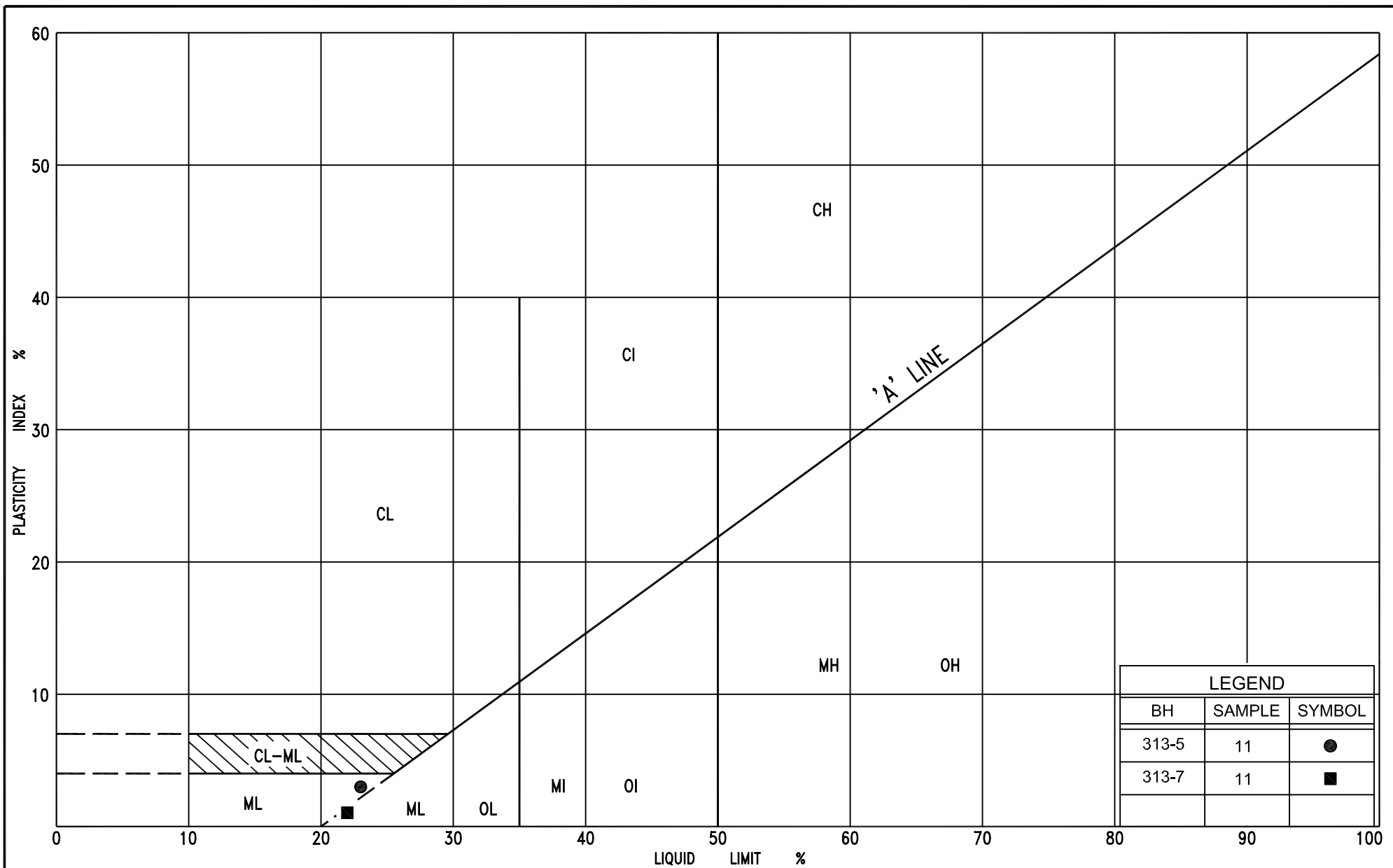
FIG No. 313-PC-1

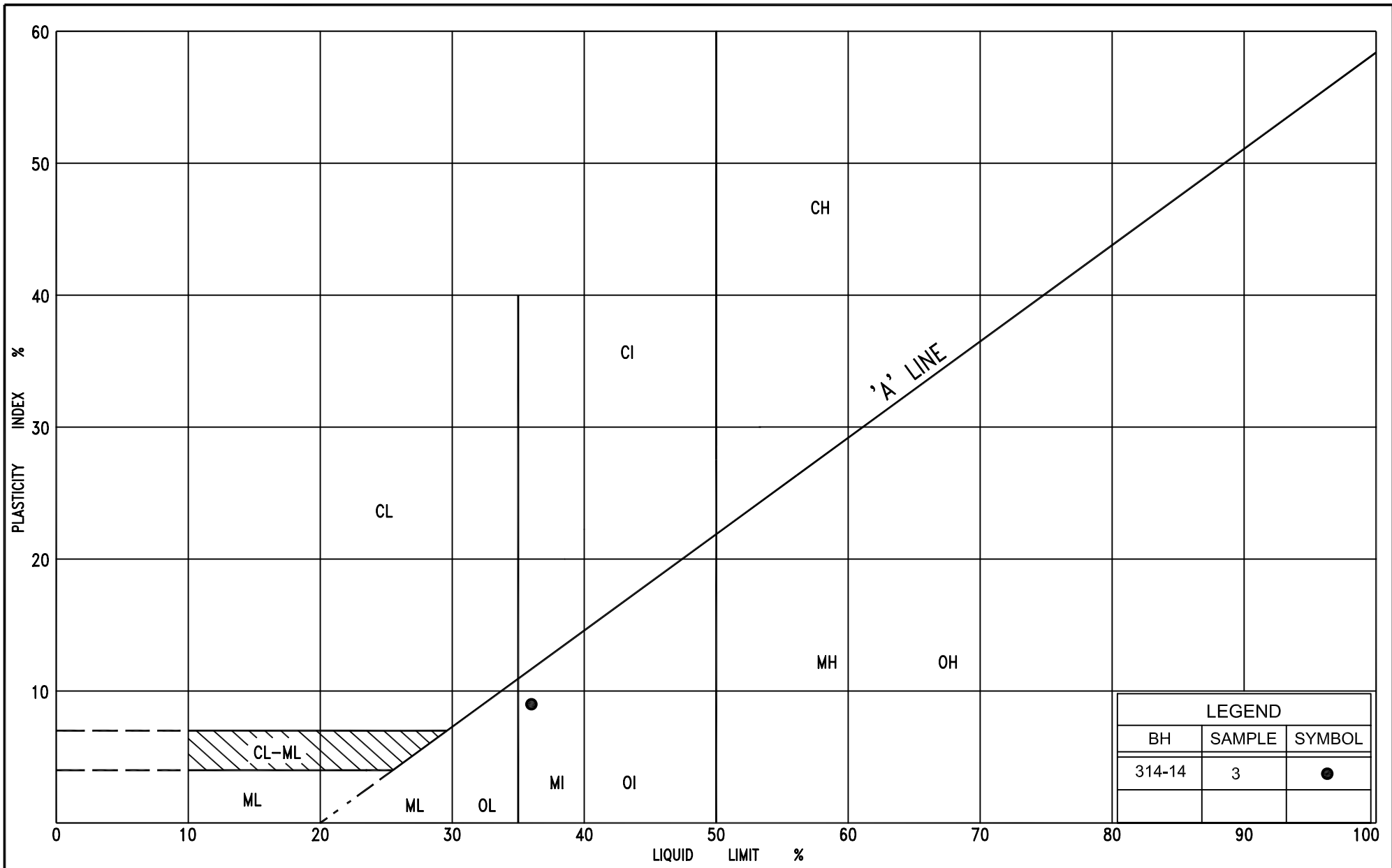
HWY: 69

G.W.P. No. 5203-06-00









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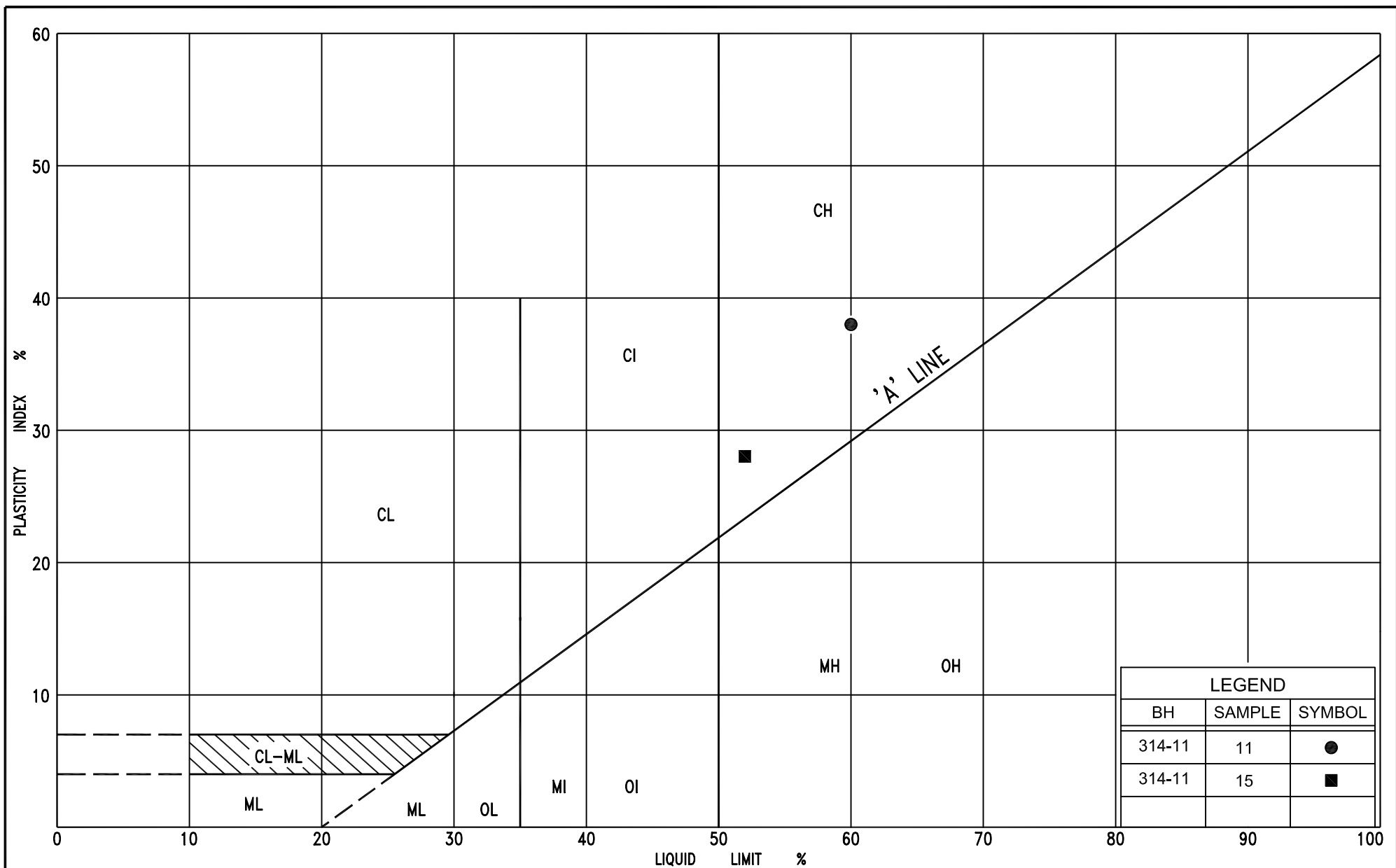
PLASTICITY CHART

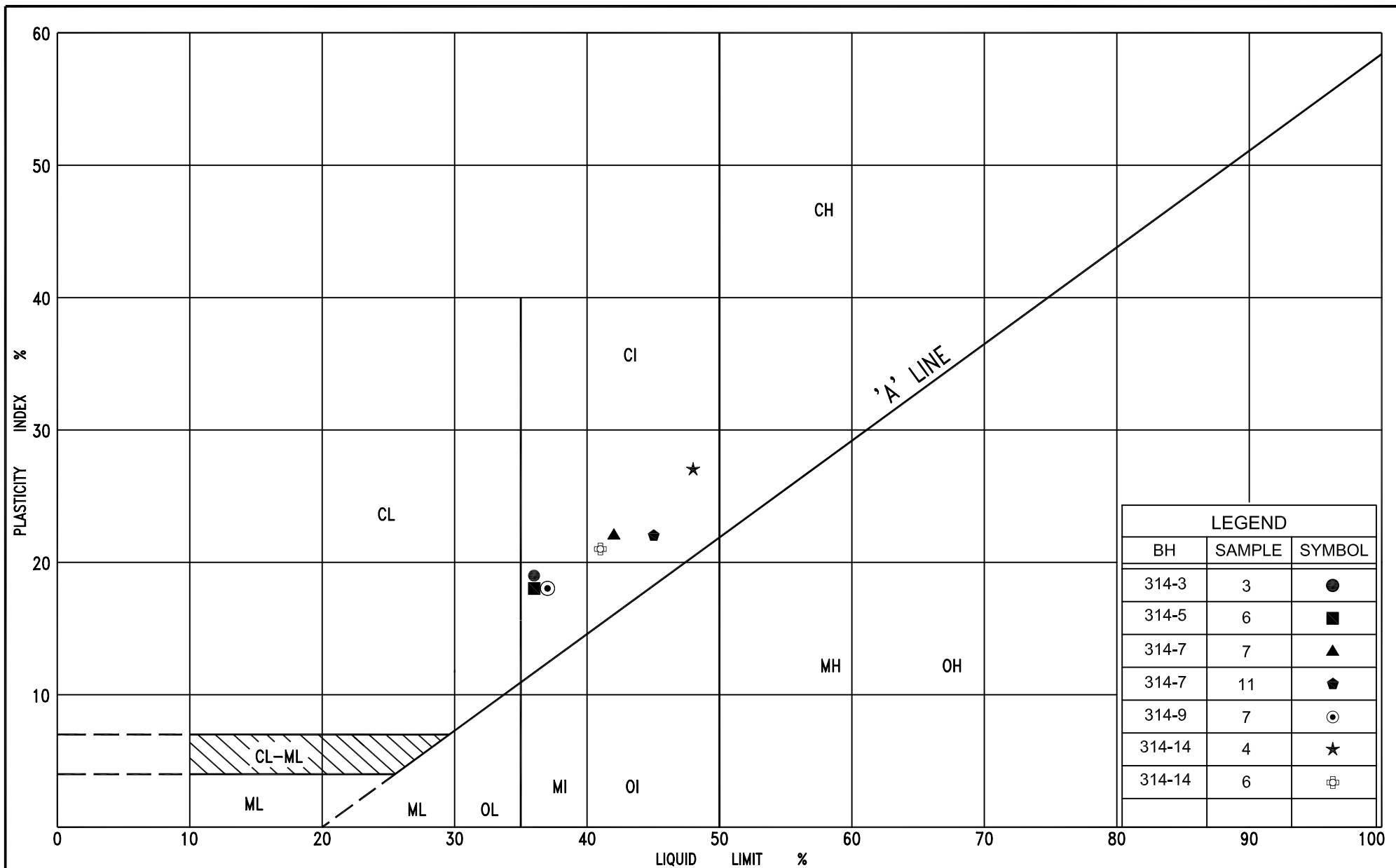
ORGANIC CLAYEY SILT, sandy

FIG No. 314-PC-1

HWY: 69

G.W.P. No. 5203-06-00





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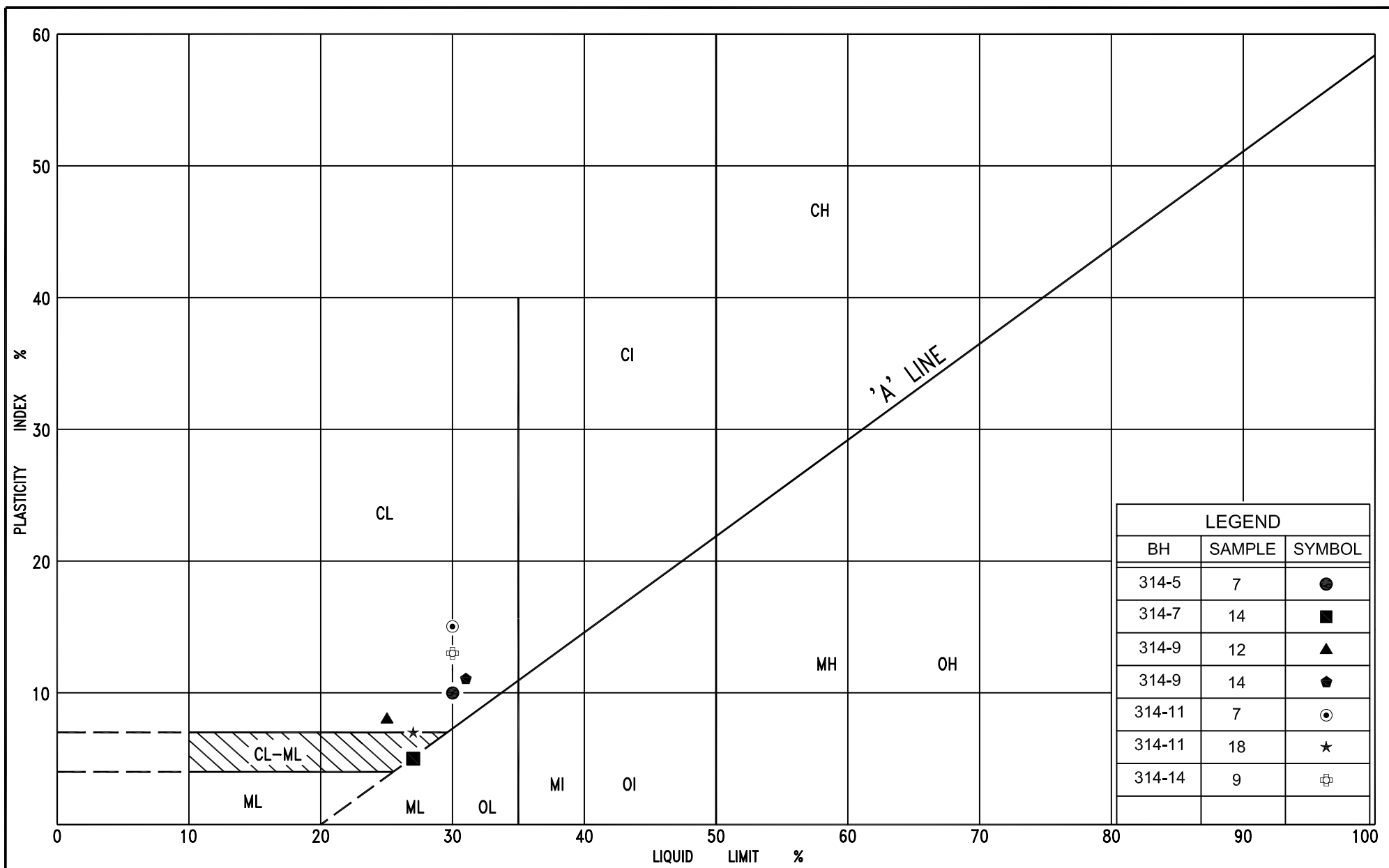
PLASTICITY CHART

SILTY CLAY, trace sand

FIG No. 314-PC-3

HWY: 69

G.W.P. No. 5203-06-00



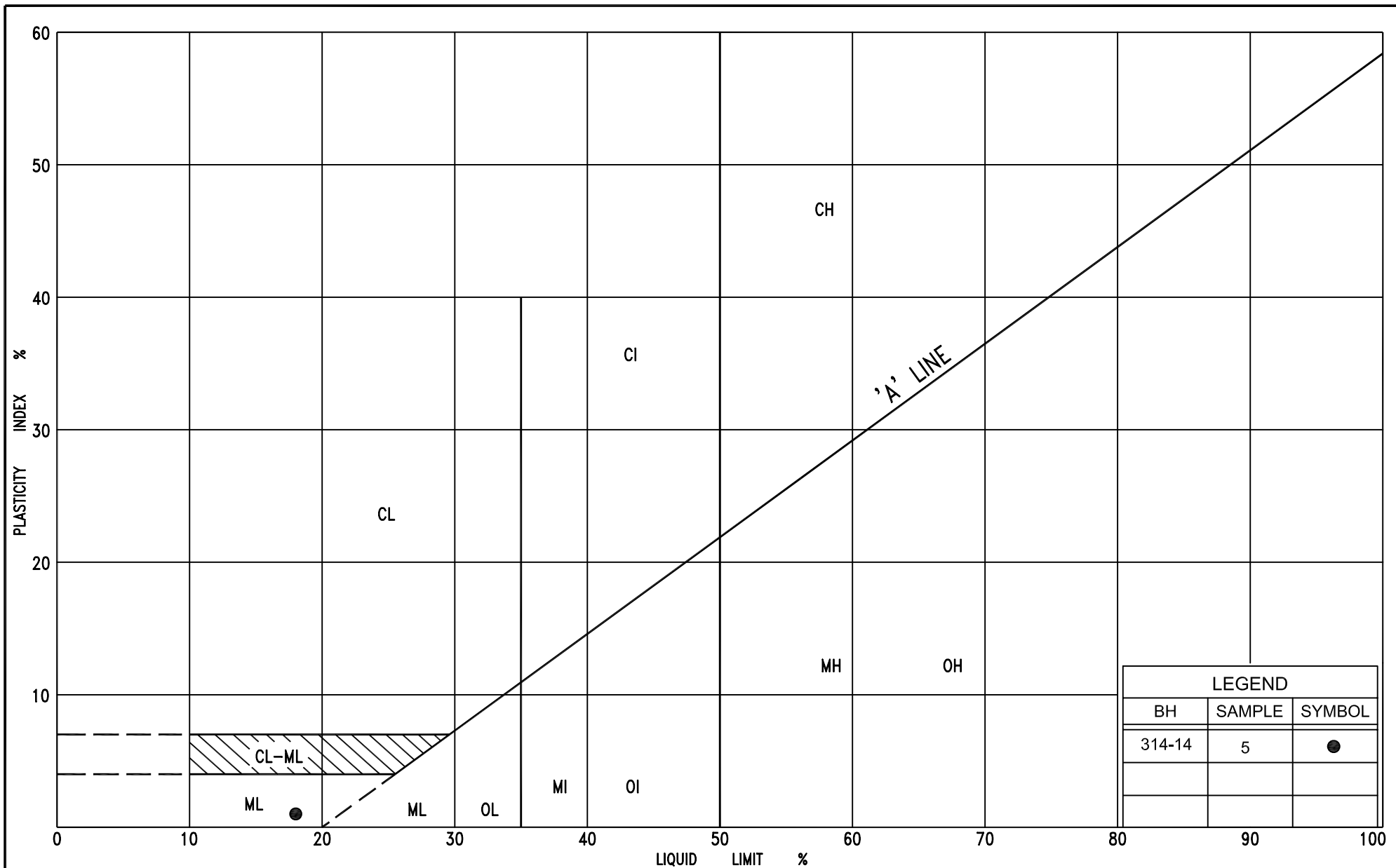
Ministry of
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PLASTICITY CHART
CLAYEY SILT, trace to with sand

FIG No. 314-PC-4

HWY: 69

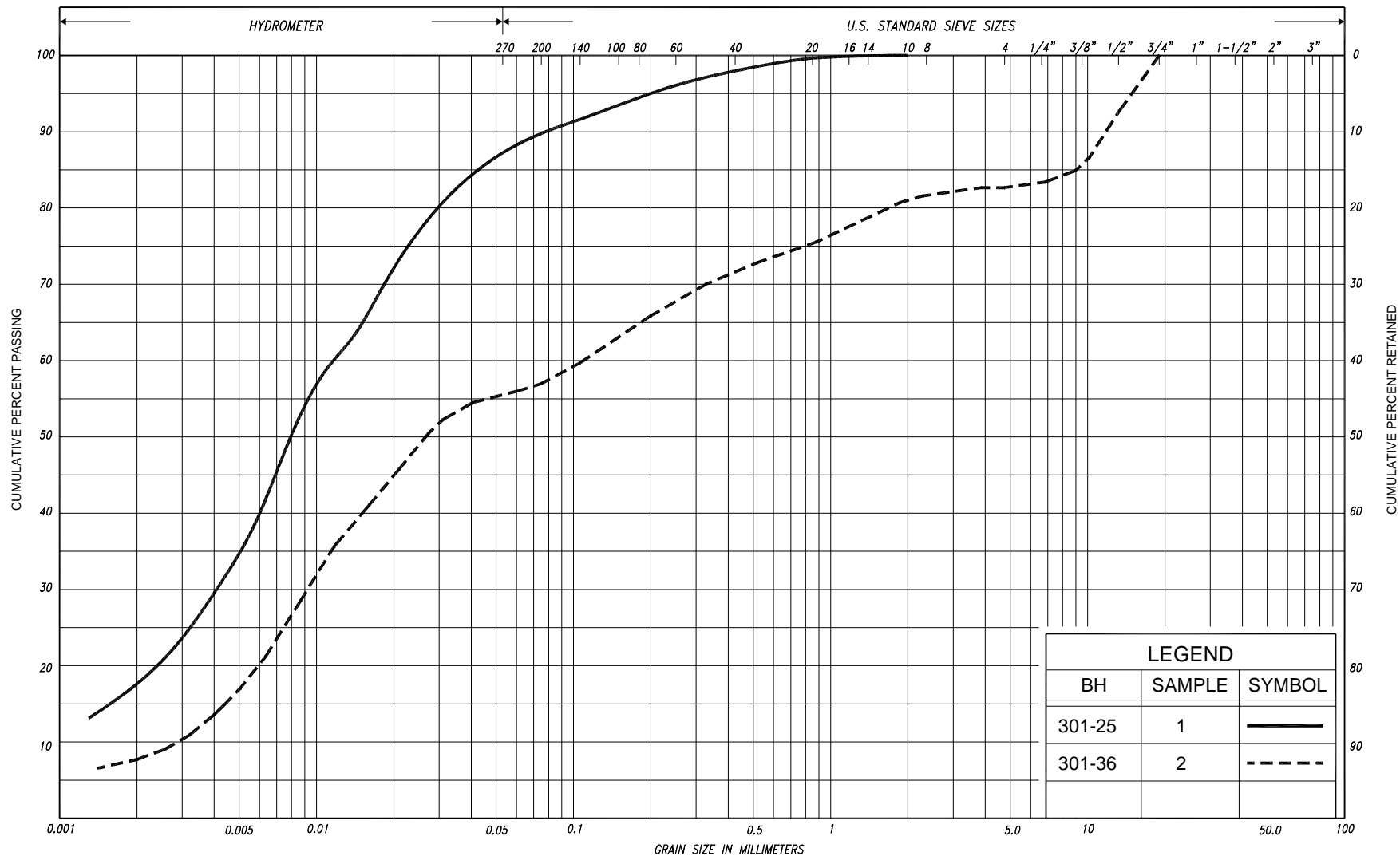
G.W.P. No. 5203-06-00



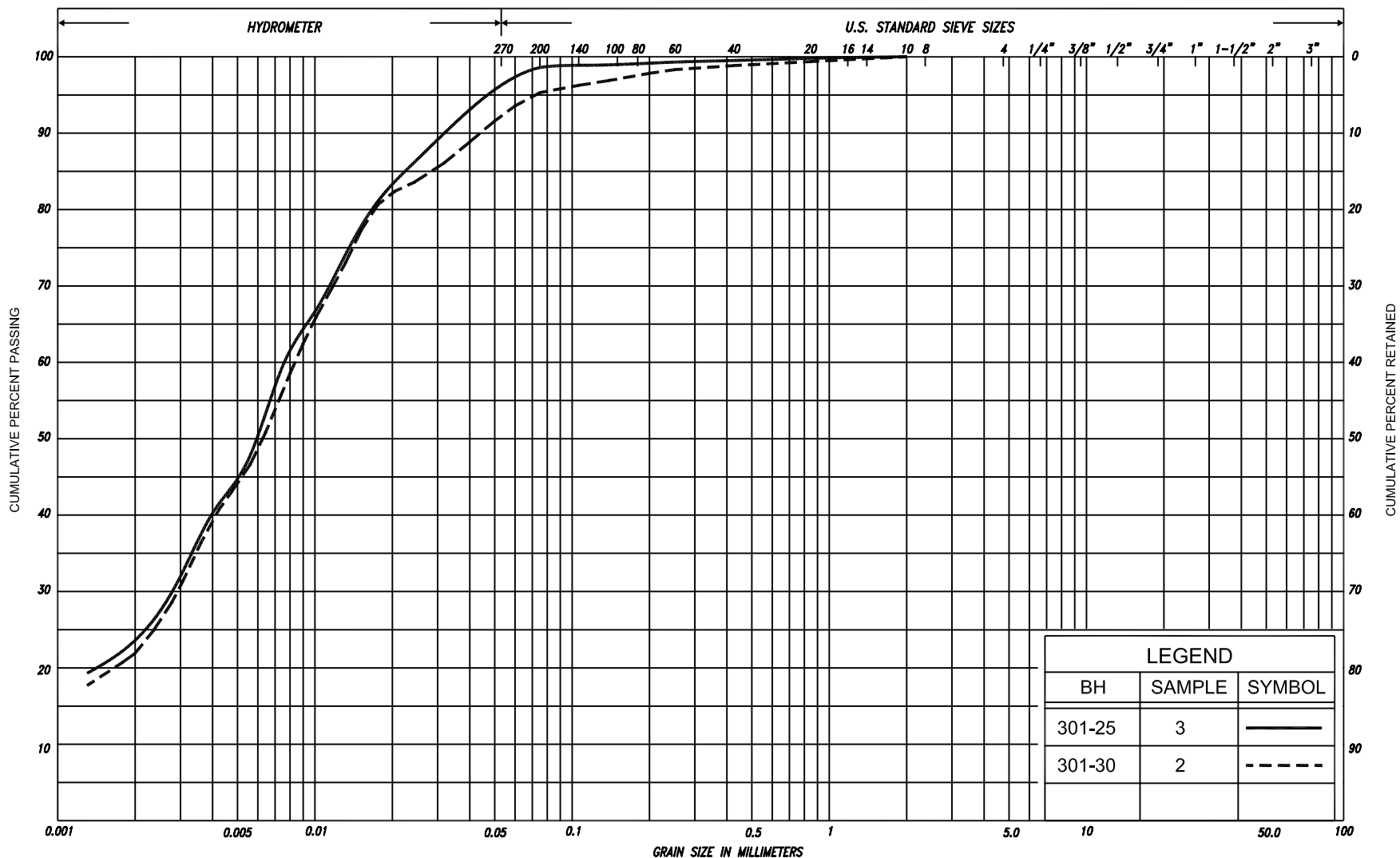
LEGEND		
BH	SAMPLE	SYMBOL
314-14	5	●

RESULTS OF GRAIN SIZE DISTRIBUTION ANALYSES

FIGURES 301-GS-1 TO 314-GS-7



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED		
				SAND											
CLAY	FINE		MEDIUM		COARSE	FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.
	SILT						SAND								
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU
				SAND											



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL		COBBLES	UNIFIED		
				SAND										
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE	GRAVEL	COBBLES	M.I.T.
	SILT													
CLAY		SILT			V. FINE		FINE	MED.	COARSE	GRAVEL				U.S. BUREAU
					SAND									

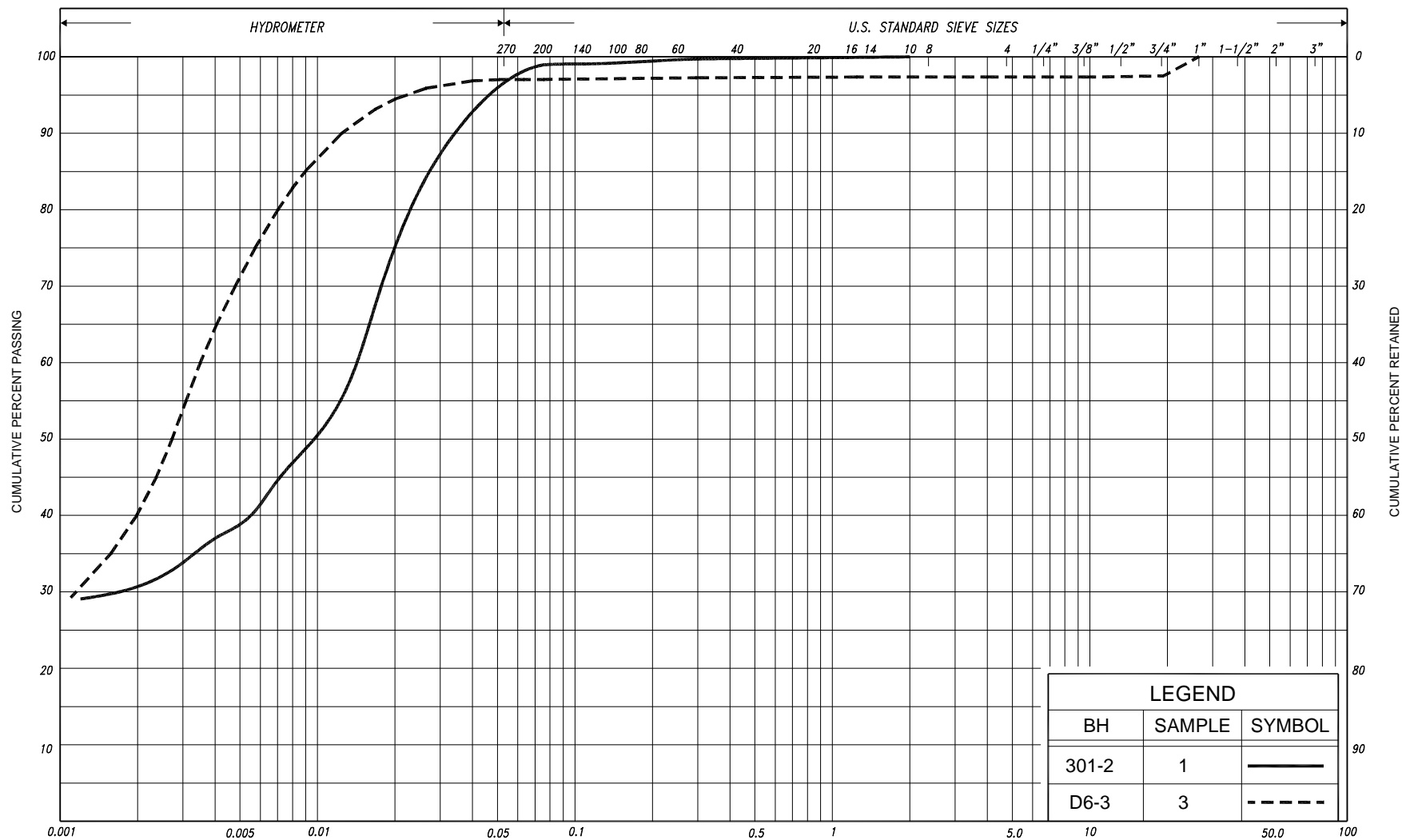
GRAIN SIZE DISTRIBUTION

CLAYEY SILT, trace sand

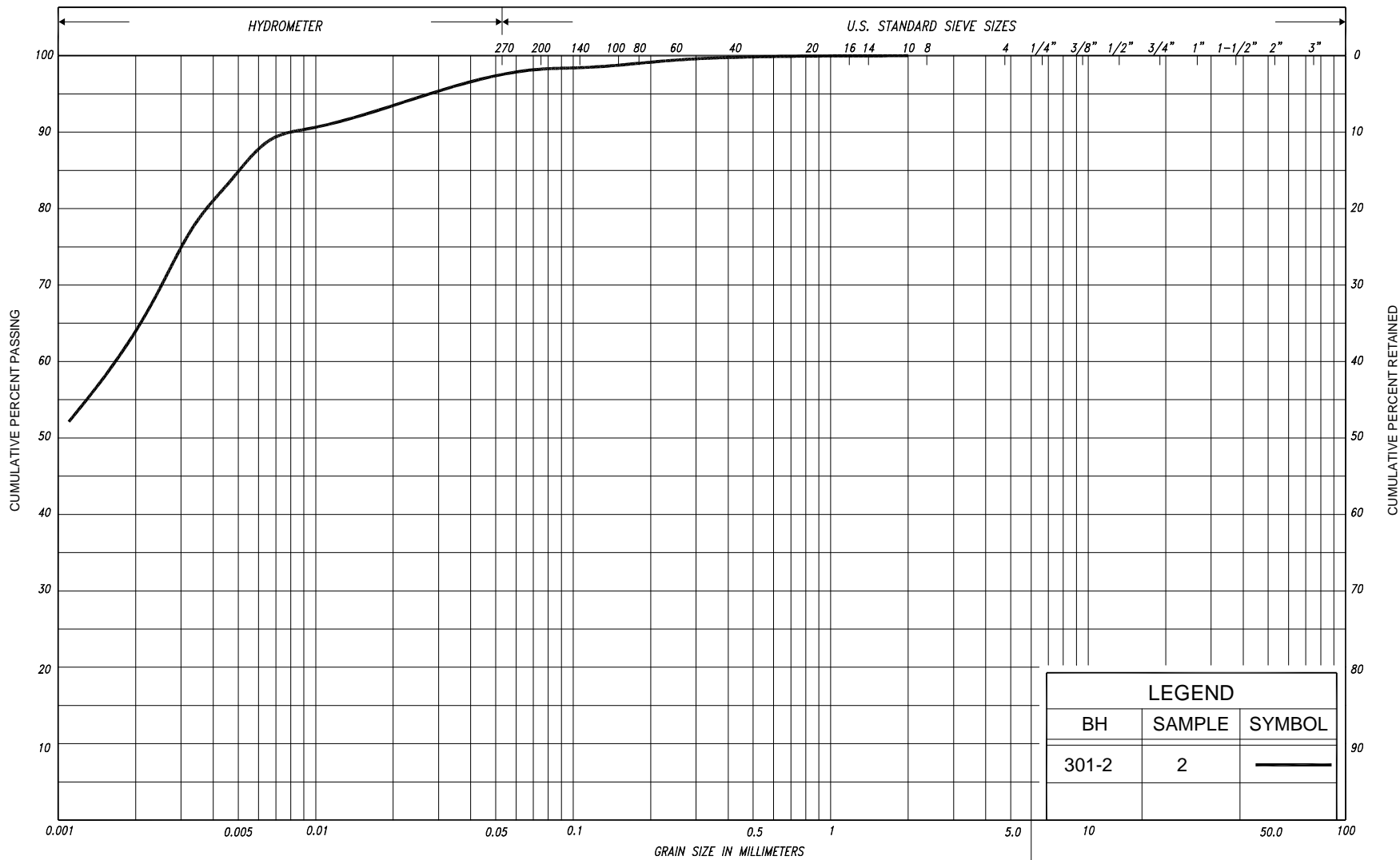
FIG No. 301-GS-2

HWY: 69

G.W.P. No. 5203-06-00



SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED		
					SAND											
CLAY	FINE		MEDIUM		COARSE	FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT															
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL							U.S. BUREAU
					SAND											



LEGEND		
BH	SAMPLE	SYMBOL
301-2	2	—

SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED		
				SAND											
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT														
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU
				SAND											

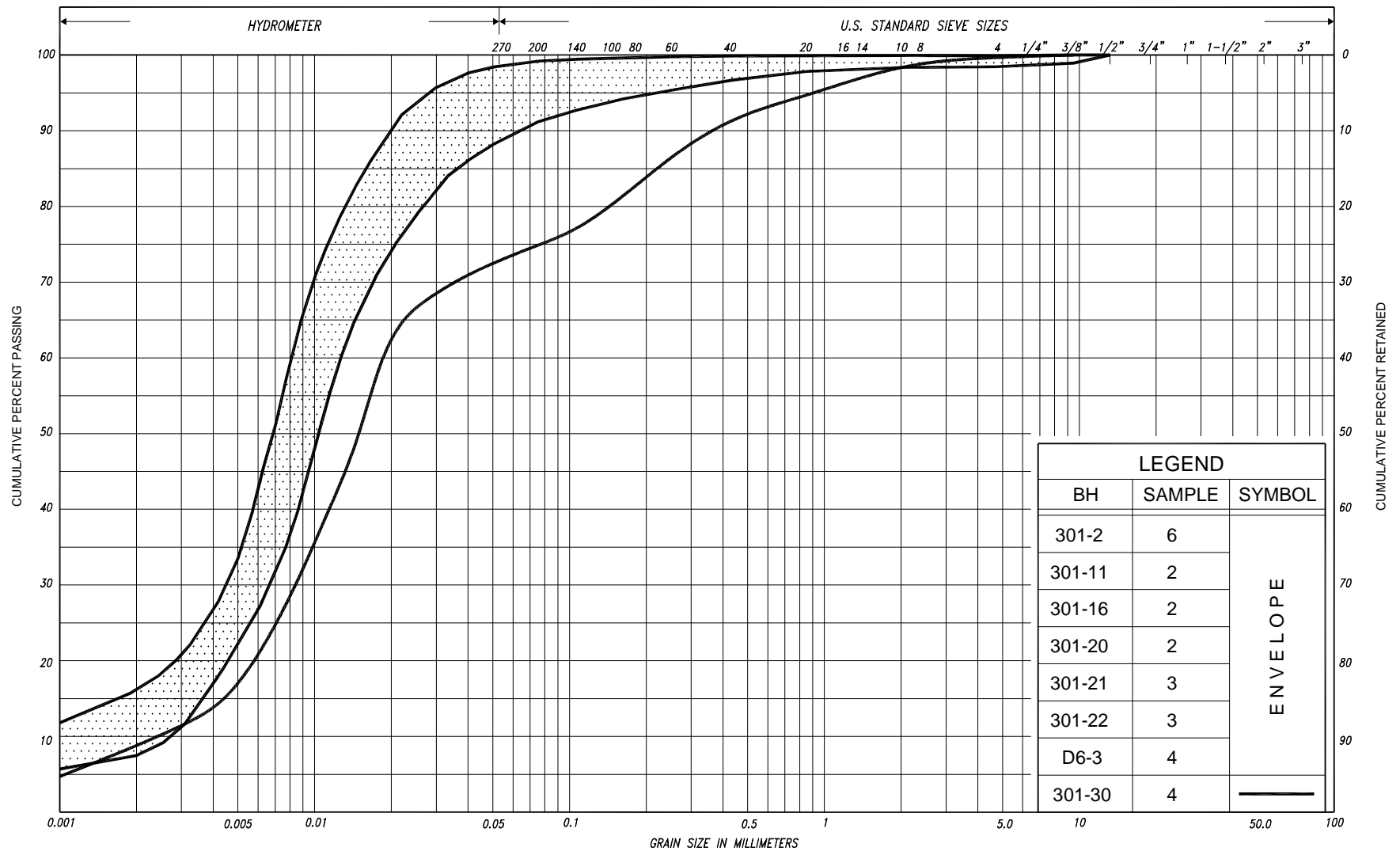
GRAIN SIZE DISTRIBUTION

CLAY, trace sand

FIG No. 301-GS-4

HWY: 69

G.W.P. No. 5203-06-00



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL	COBBLES	UNIFIED
				SAND					
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL	COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL	U.S. BUREAU
CLAY				SAND					

GRAIN SIZE DISTRIBUTION

SILT, trace to with sand
trace to some clay, trace gravel

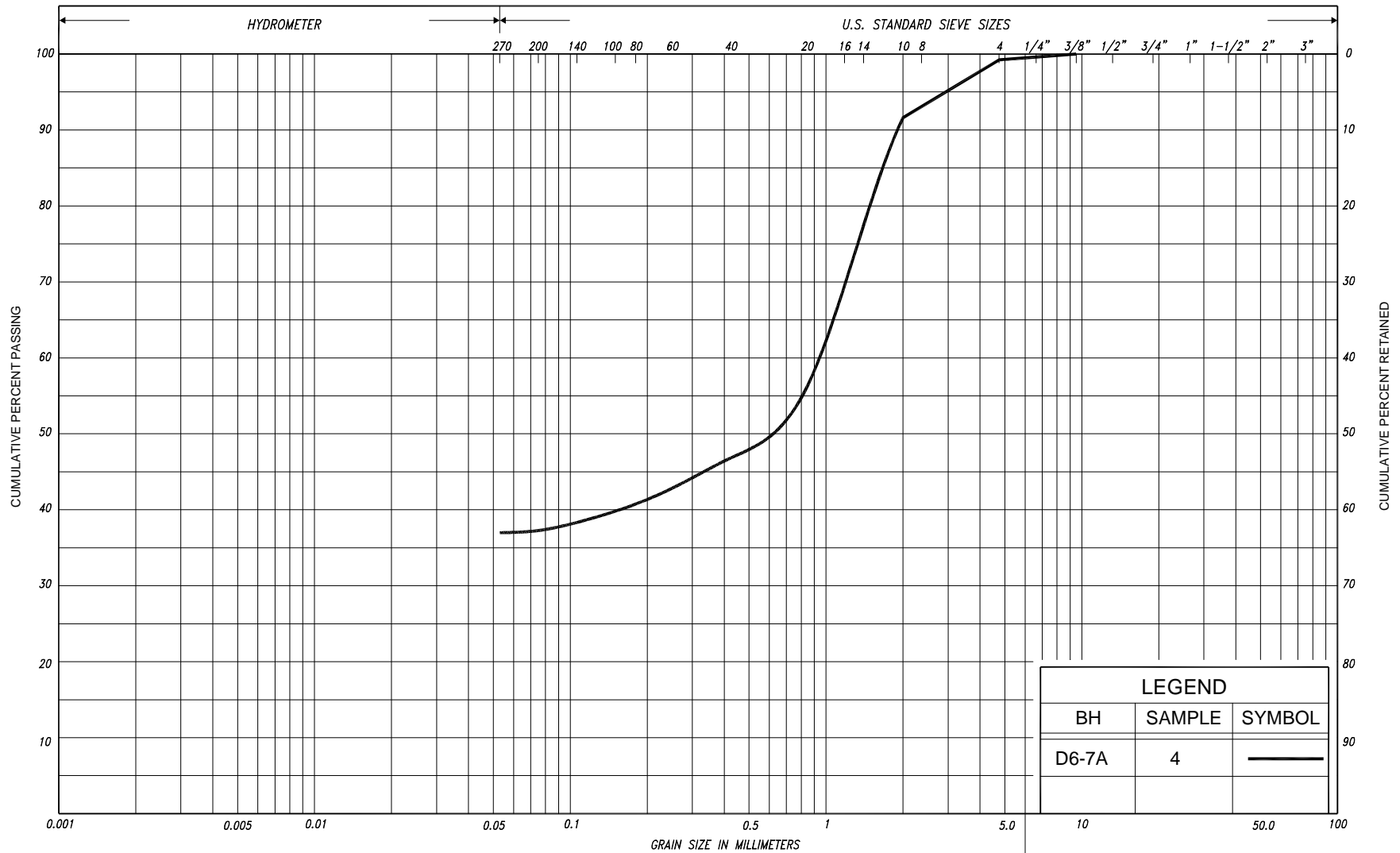


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FIG No. 301-GS-5

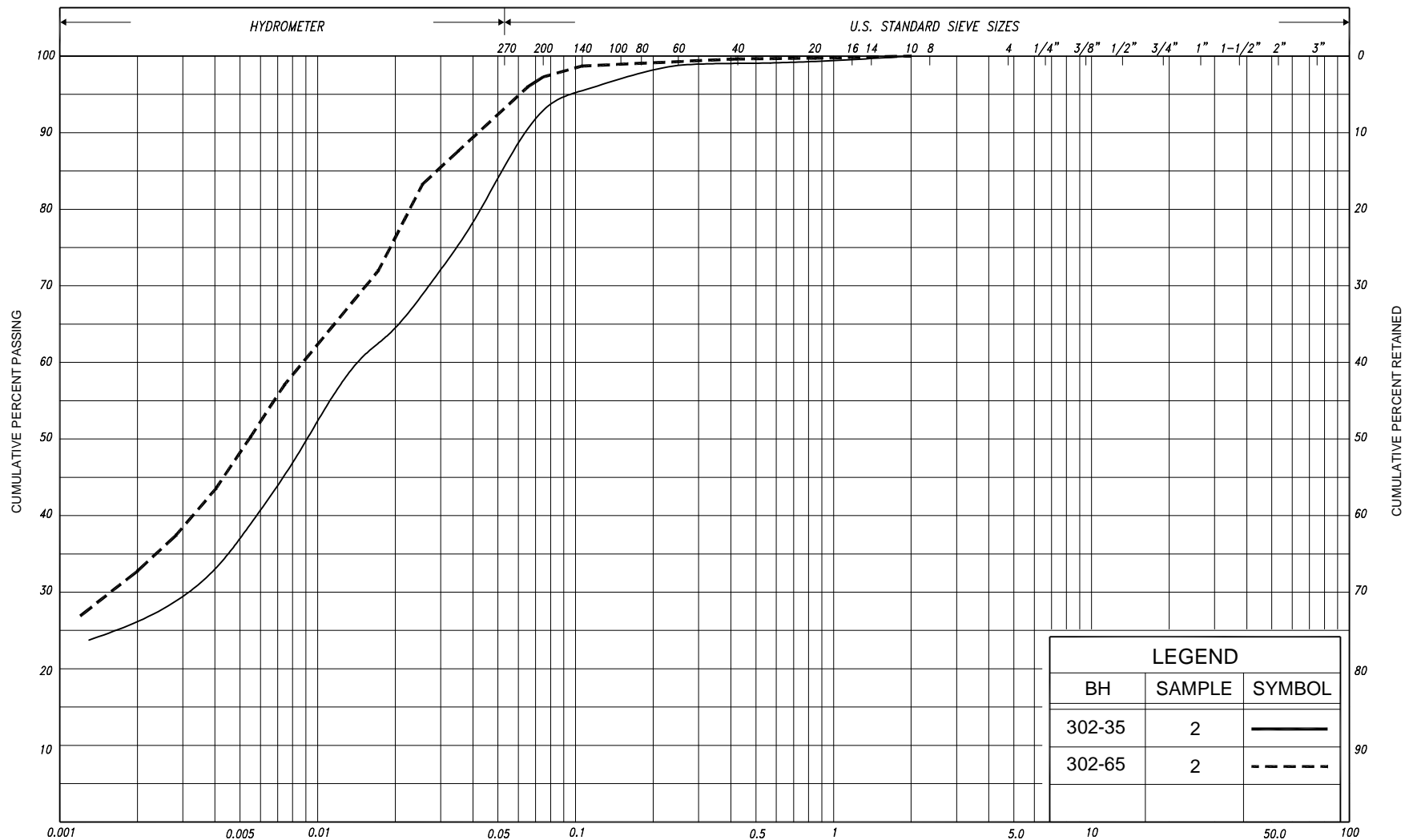
HWY: 69

G.W.P. No. 5203-06-00



LEGEND		
BH	SAMPLE	SYMBOL
D6-7A	4	—

SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED	
				SAND										
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM	COARSE	GRAVEL			COBBLES	M.I.T.	
	SILT				SAND									
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU
					SAND									



SILT & CLAY				GRAIN SIZE IN MILLIMETERS					
				FINE	MEDIUM	COARSE	GRAVEL		COBBLES
				SAND					
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES
SILT				SAND					
				V. FINE	FINE	MED.	COARSE	GRAVEL	
CLAY				SAND					

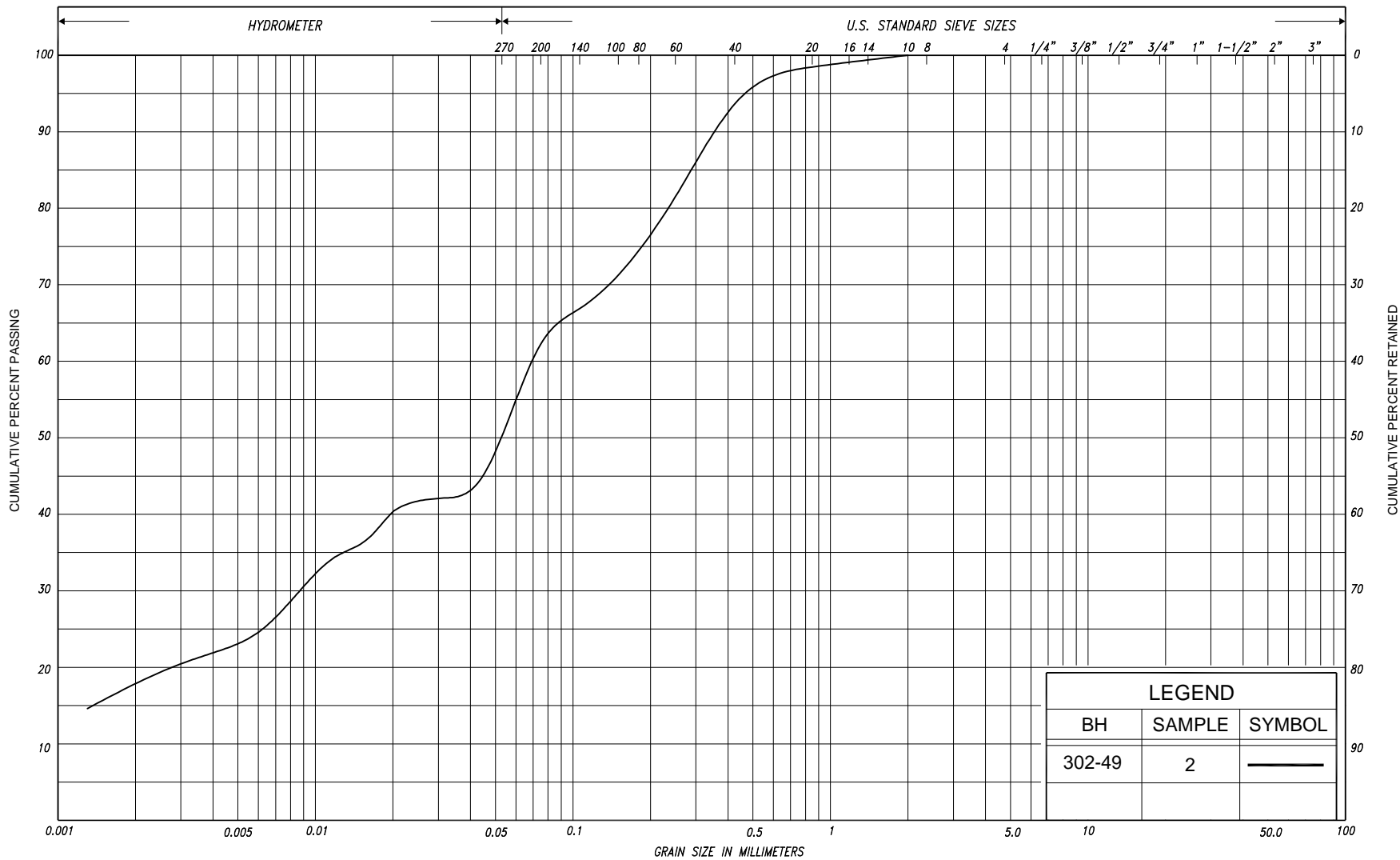
GRAIN SIZE DISTRIBUTION

ORGANIC SILTY CLAY, trace sand

FIG No. 302-GS-1

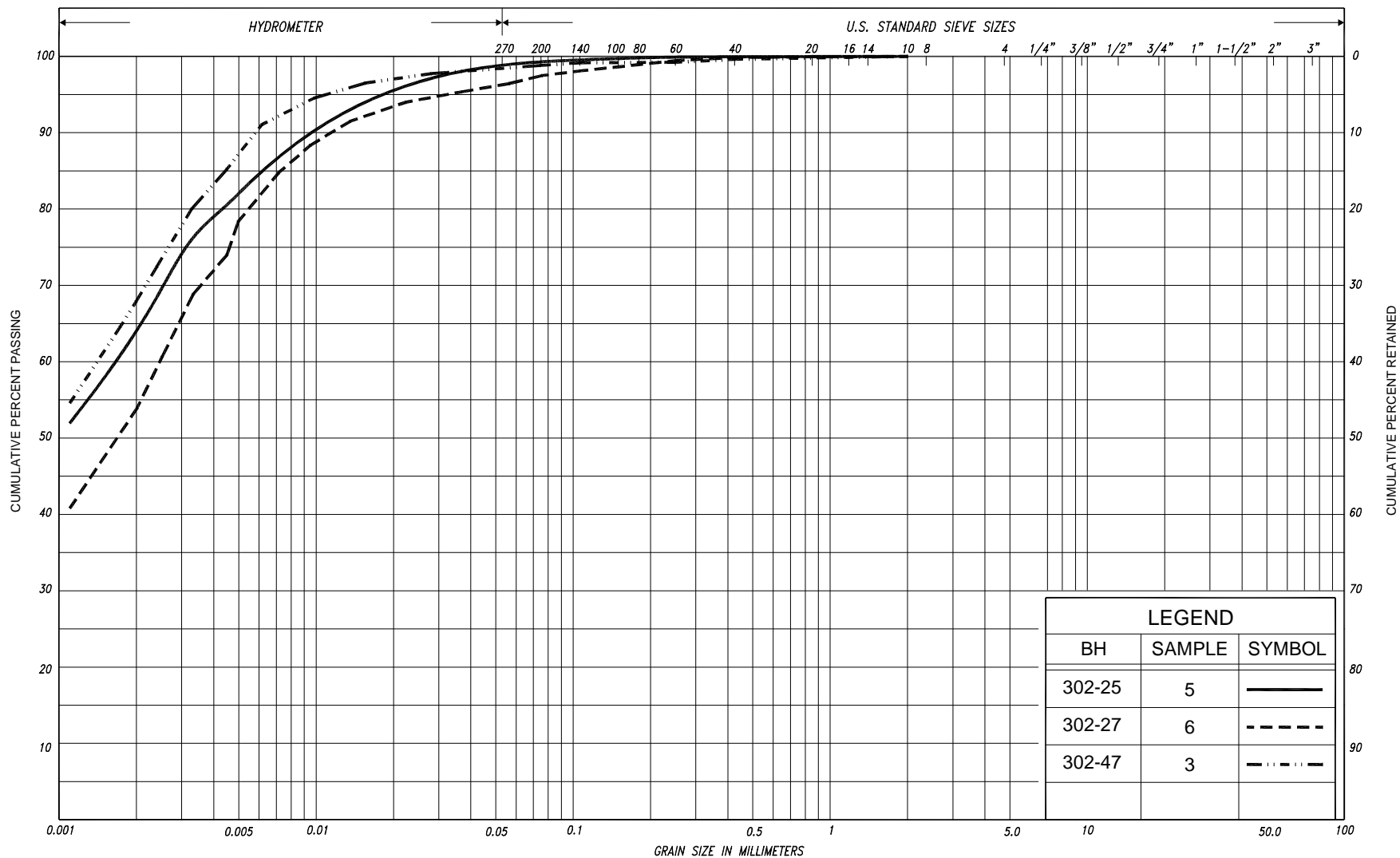
HWY: 69

G.W.P. No. 5203-06-00



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
CLAY				SAND						

GRAIN SIZE DISTRIBUTION ORGANIC CLAYEY SILT



SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED	
CLAY	FINE		MEDIUM		COARSE	SAND			GRAVEL			COBBLES	M.I.T.		
	SILT					FINE		MEDIUM		COARSE		GRAVEL			COBBLES
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU
					SAND										

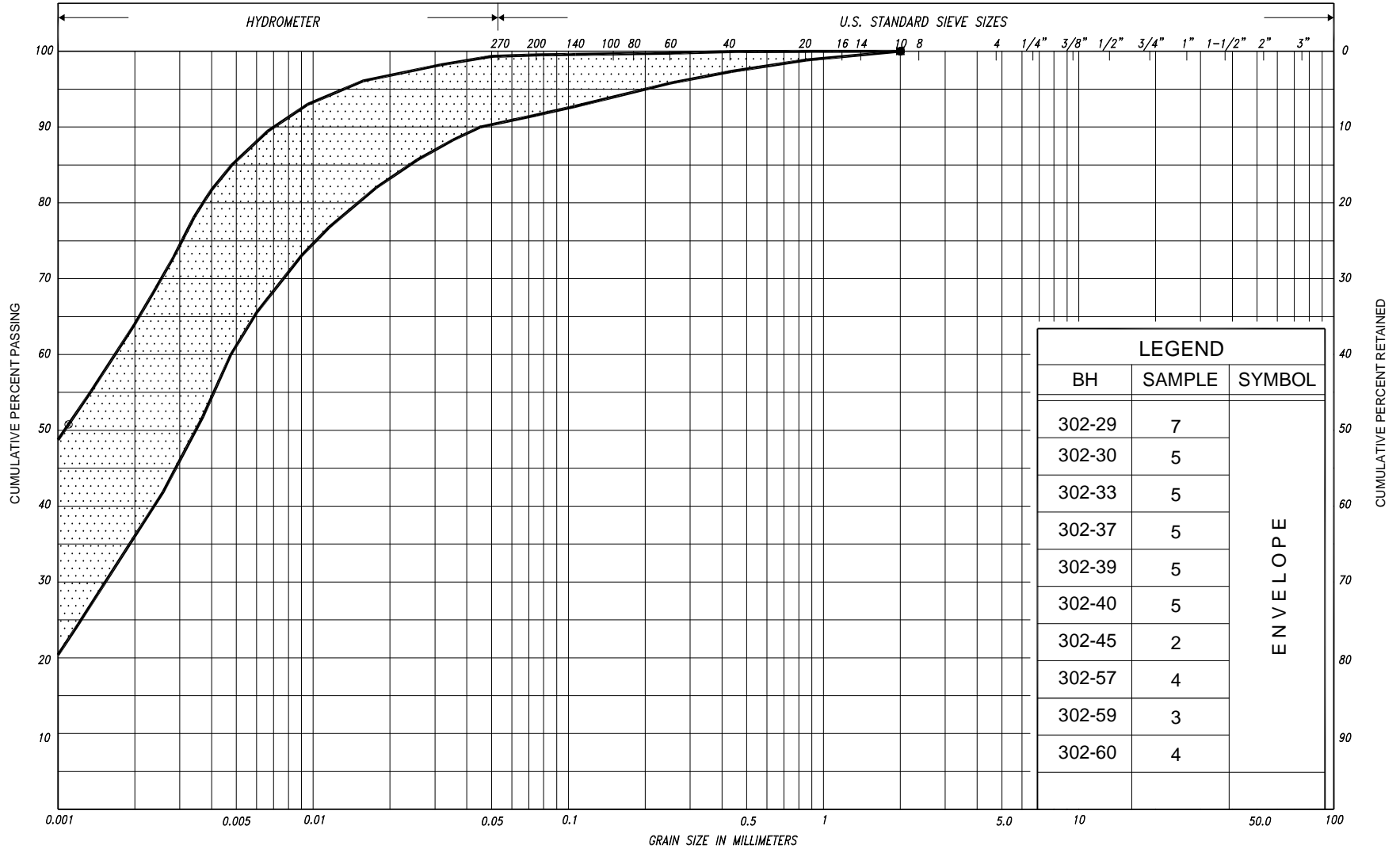
GRAIN SIZE DISTRIBUTION

CLAY, trace sand

FIG No. 302-GS-3

HWY: 69

G.W.P. No. 5203-06-00



LEGEND		
BH	SAMPLE	SYMBOL
302-29	7	ENVELOPE
302-30	5	
302-33	5	
302-37	5	
302-39	5	
302-40	5	
302-45	2	
302-57	4	
302-59	3	
302-60	4	

SILT & CLAY				SAND			GRAVEL		COBBLES	UNIFIED
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
				V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
				SAND						

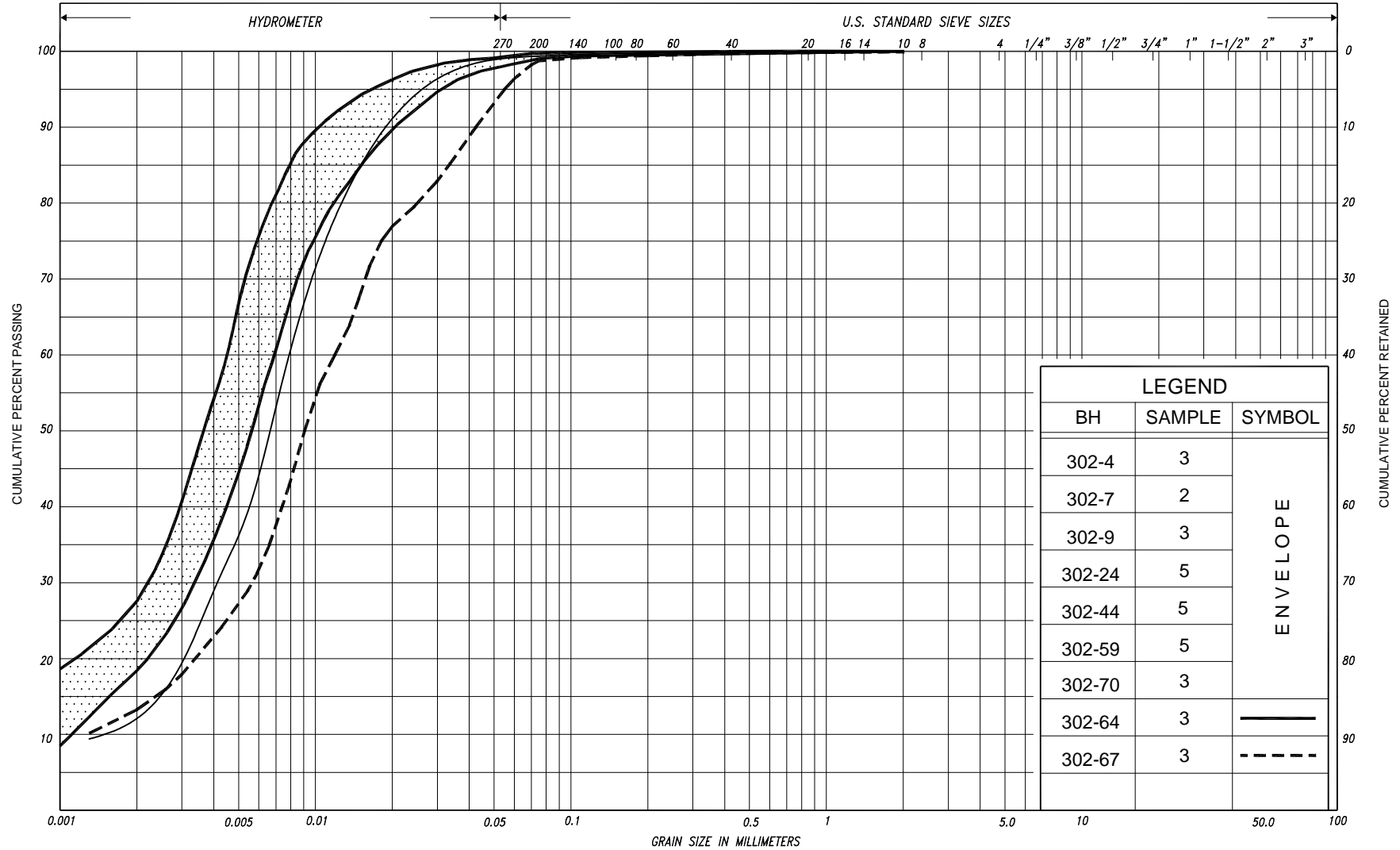
GRAIN SIZE DISTRIBUTION

SILTY CLAY, trace sand

FIG No. 302-GS-4

HWY: 69

G.W.P. No. 5203-06-00

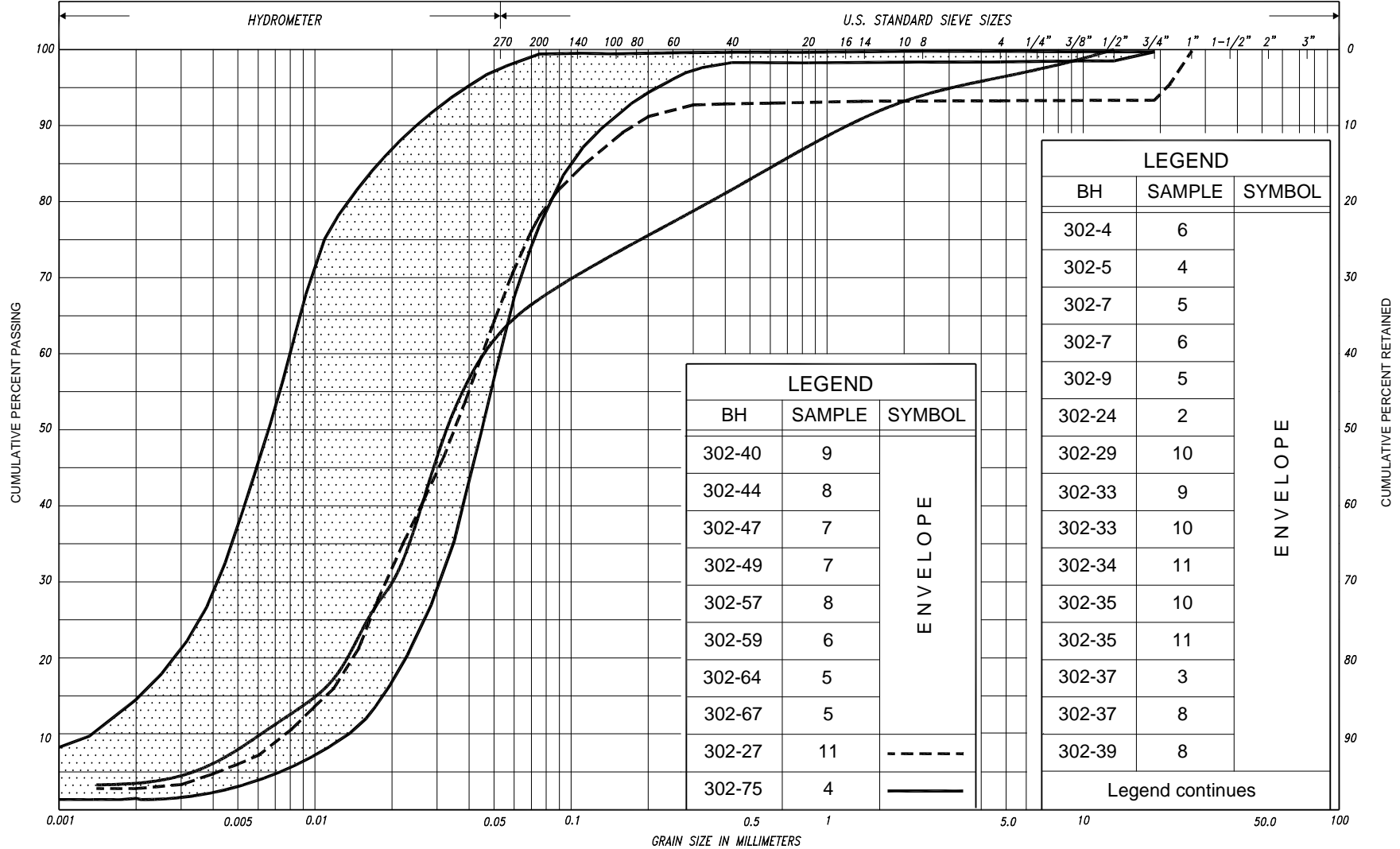


LEGEND		
BH	SAMPLE	SYMBOL
302-4	3	ENVELOPE
302-7	2	
302-9	3	
302-24	5	
302-44	5	
302-59	5	
302-70	3	
302-64	3	————
302-67	3	-----

SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL		COB BLES	UNIFIED				
				SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM			COARSE		GRAVEL	COBBLES	M.I.T.
	SILT															
CLAY			SILT			V. FINE		FINE		MED.		COARSE		GRAVEL		U.S. BUREAU
						SAND										

GRAIN SIZE DISTRIBUTION

CLAYEY SILT, trace sand, with layers of silt



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED			
					SAND													
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.	
	SILT					SAND												
CLAY		SILT			V. FINE	FINE		MED.	COARSE		GRAVEL						U.S. BUREAU	
					SAND													

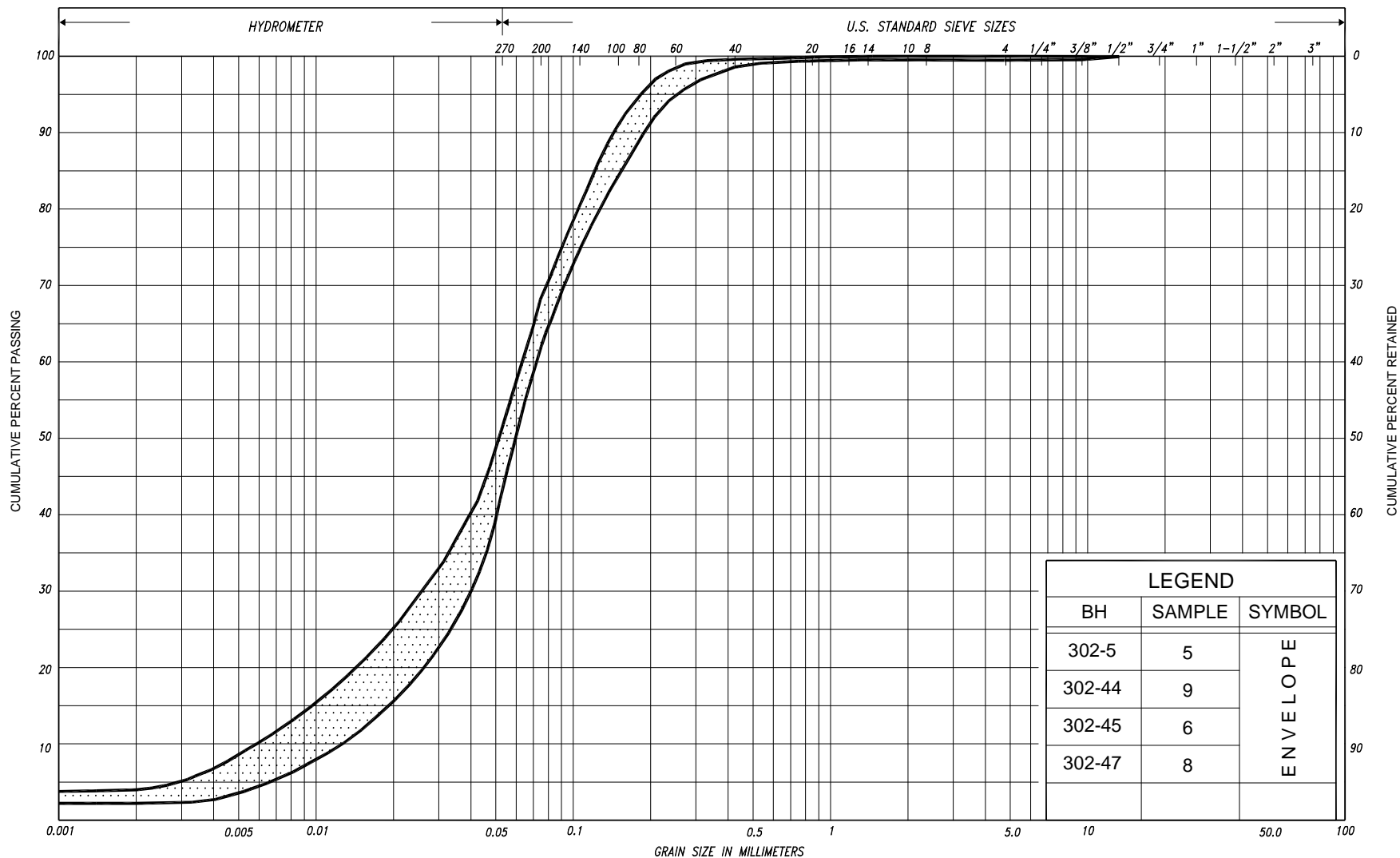
GRAIN SIZE DISTRIBUTION

SILT, trace to with sand, trace to some clay, trace gravel

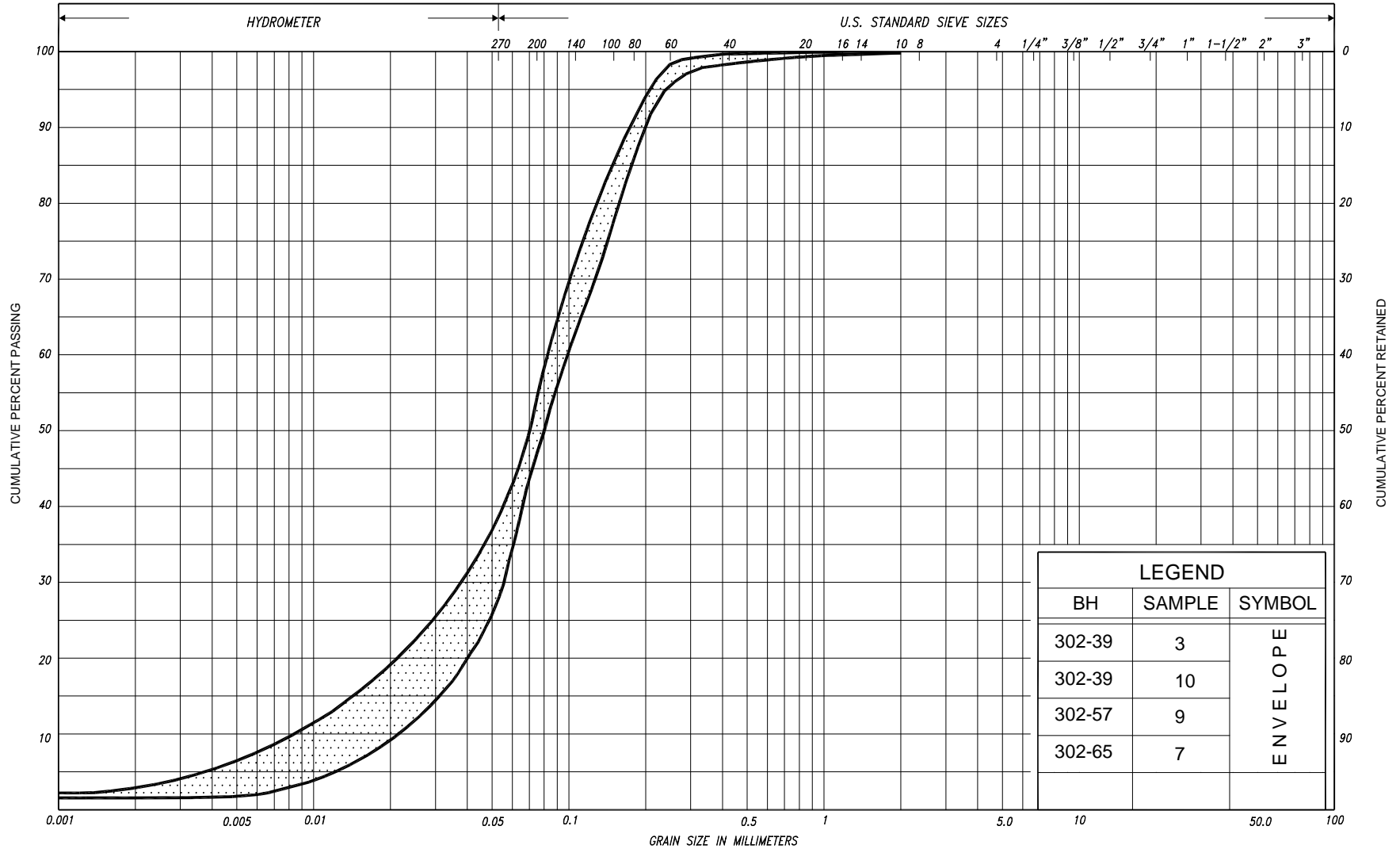
FIG No. 302-GS-6

HWY: 69

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SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED		
					SAND											
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.
	SILT															
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL							U.S. BUREAU
					SAND											



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL				COBBLES	UNIFIED								
					SAND																			
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL				COBBLES	M.I.T.						
	SILT																							
CLAY			SILT			V. FINE	FINE	MED.	COARSE		SAND							GRAVEL				U.S. BUREAU		

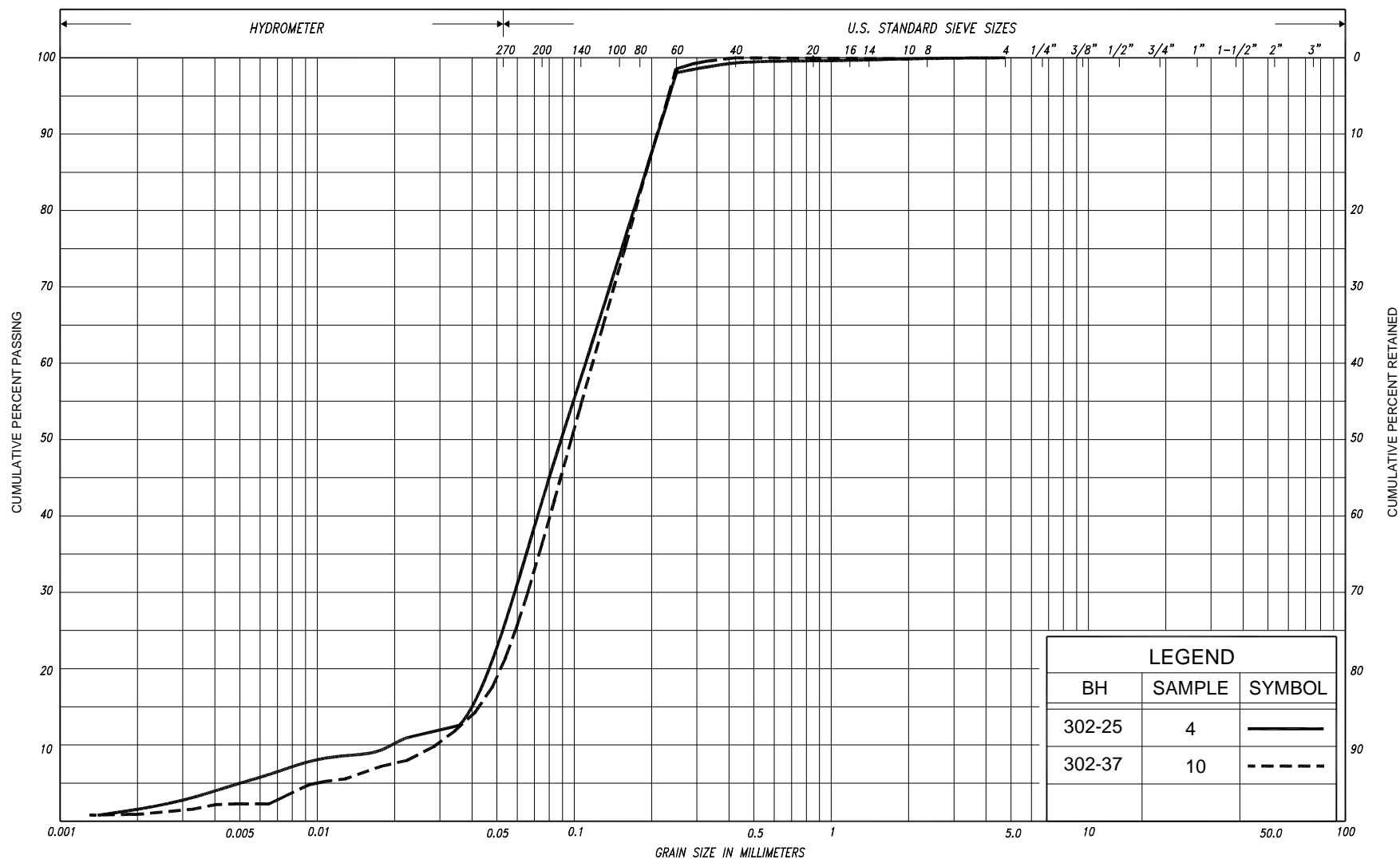
GRAIN SIZE DISTRIBUTION

SAND and SILT, trace clay

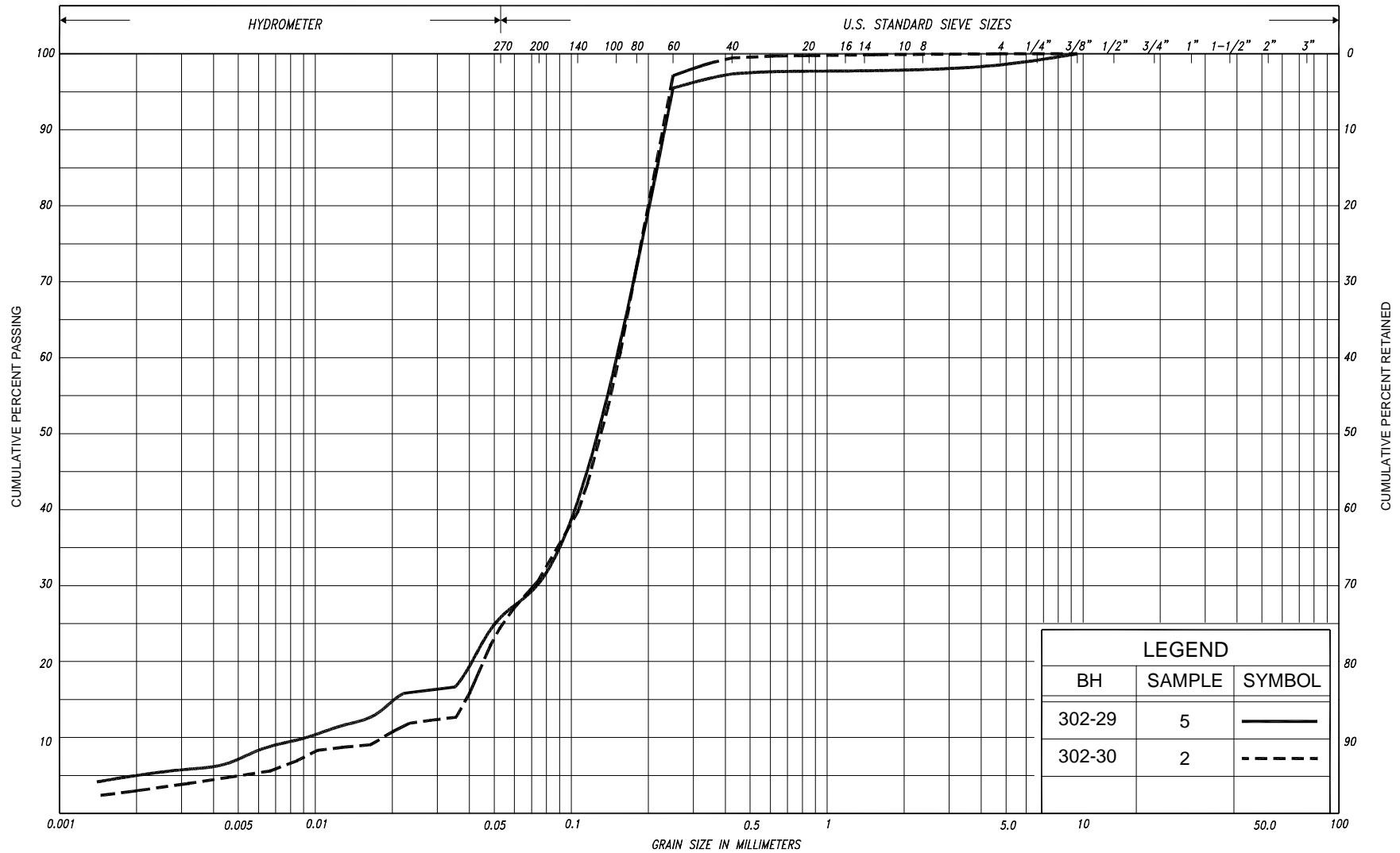
FIG No. 302-GS-8

HWY: 69

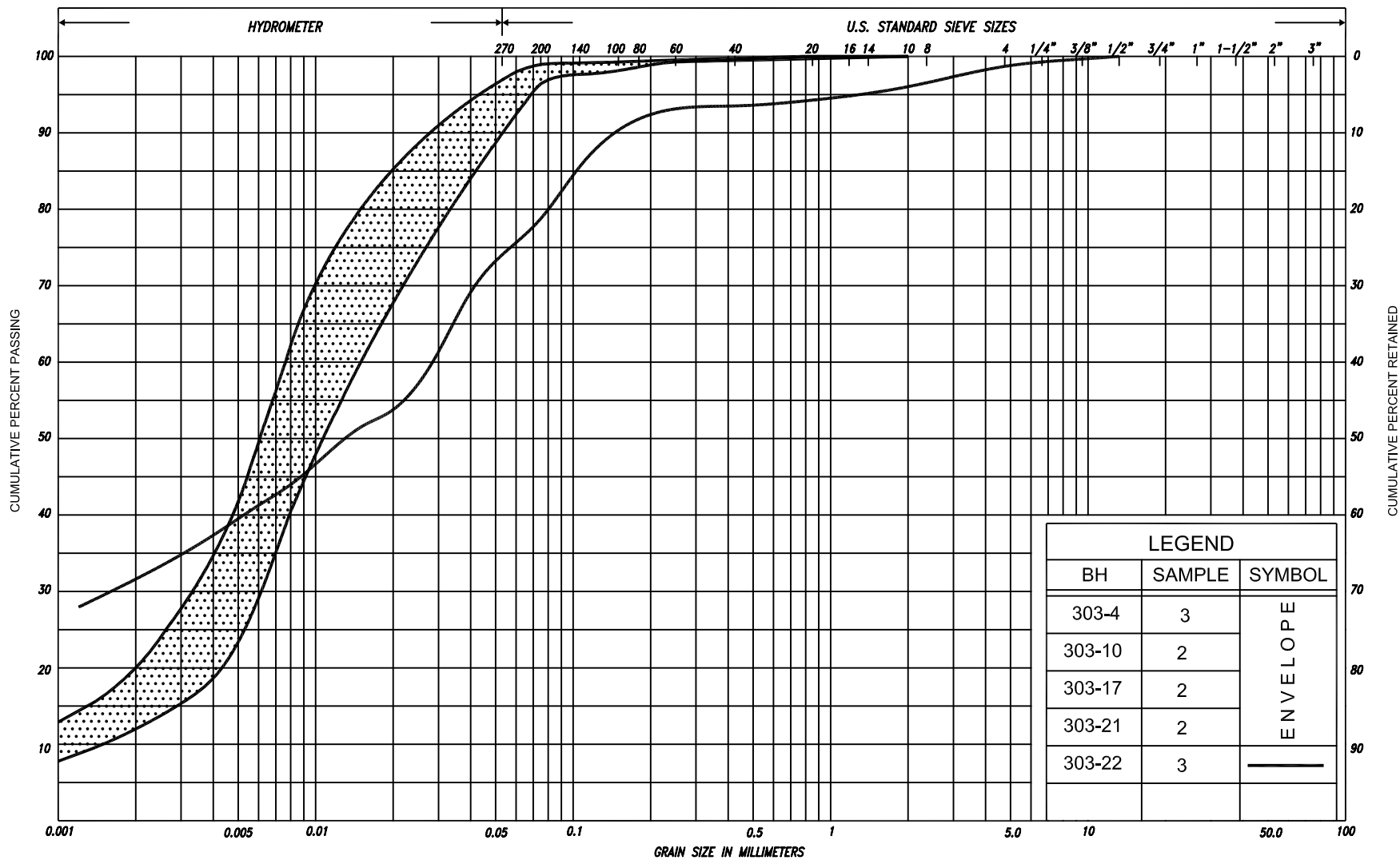
G.W.P. No. 5203-06-00



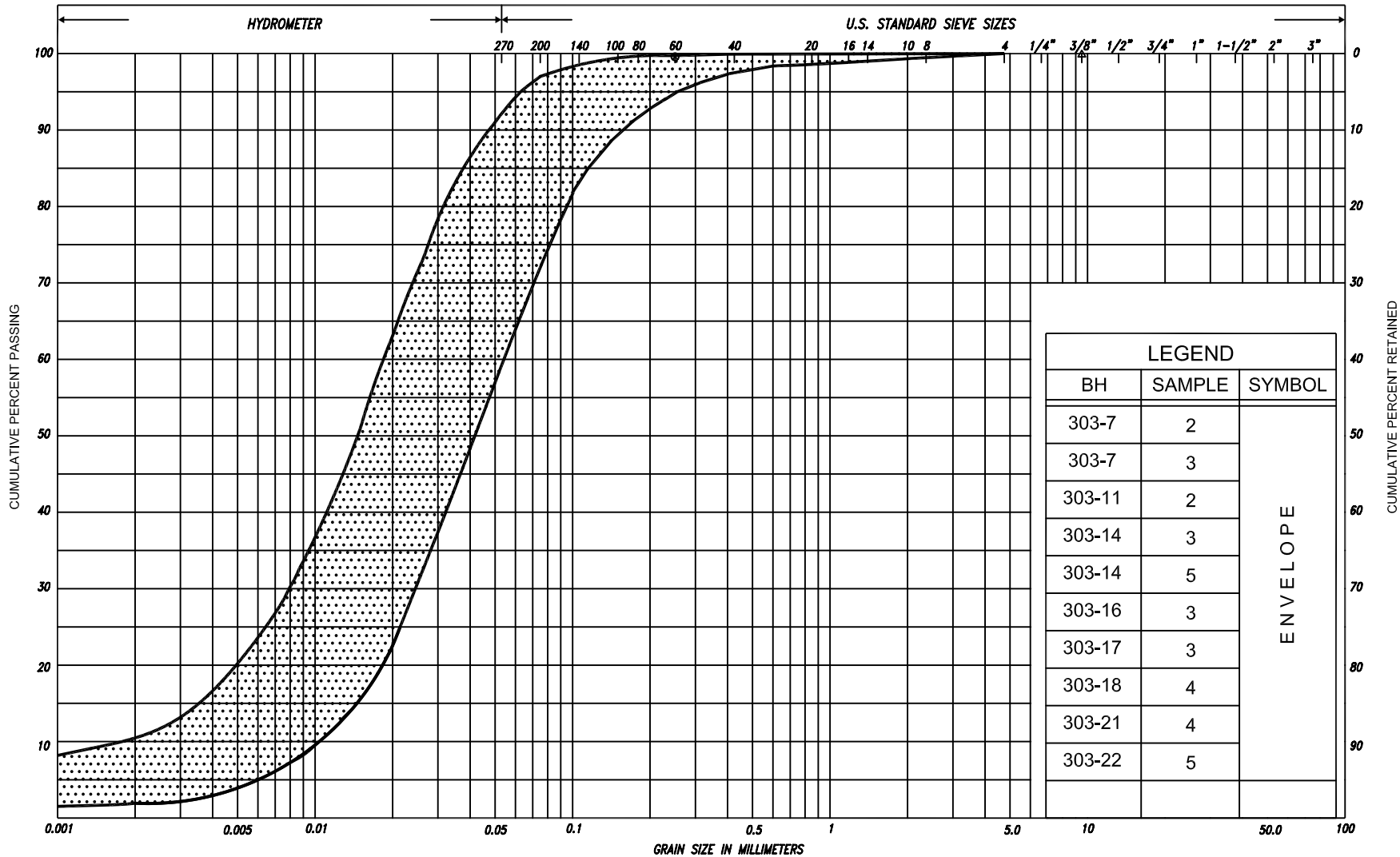
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY		SILT			V. FINE		FINE		MED.		COARSE		GRAVEL				U.S. BUREAU
					SAND												



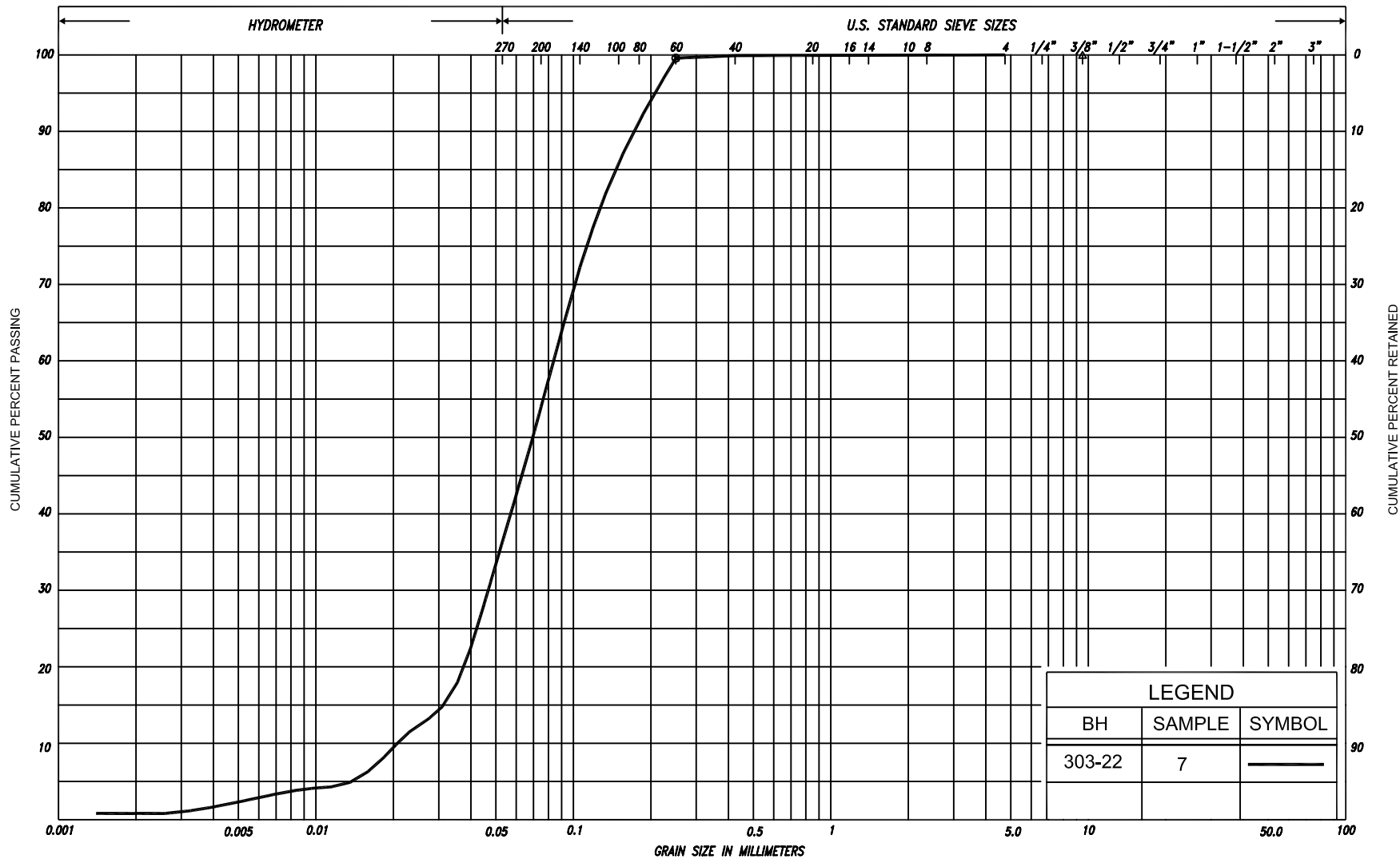
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED	
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM		COARSE	GRAVEL			COBBLES	M.I.T.
	SILT				SAND					GRAVEL			COBBLES	U.S. BUREAU
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU
					SAND									



SILT & CLAY				FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED		
				SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.
	SILT						SAND									
CLAY		SILT			V. FINE		FINE		MED.		COARSE		GRAVEL			U.S. BUREAU
					SAND											



SILT & CLAY			FINE			MEDIUM			COARSE			GRAVEL			COB BLES	UNIFIED
CLAY	FINE			MEDIUM			COARSE			GRAVEL			COBBLES			M.I.T.
	SILT			SAND			SAND			SAND			SAND			U.S. BUREAU
CLAY			SILT			SAND			SAND			SAND				



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED
CLAY	FINE	MEDIUM	COARSE	SAND									
					FINE	MEDIUM	COARSE	GRAVEL			COBBLES	M.I.T.	
CLAY		SILT											
				V. FINE	FINE	MED.	COARSE						

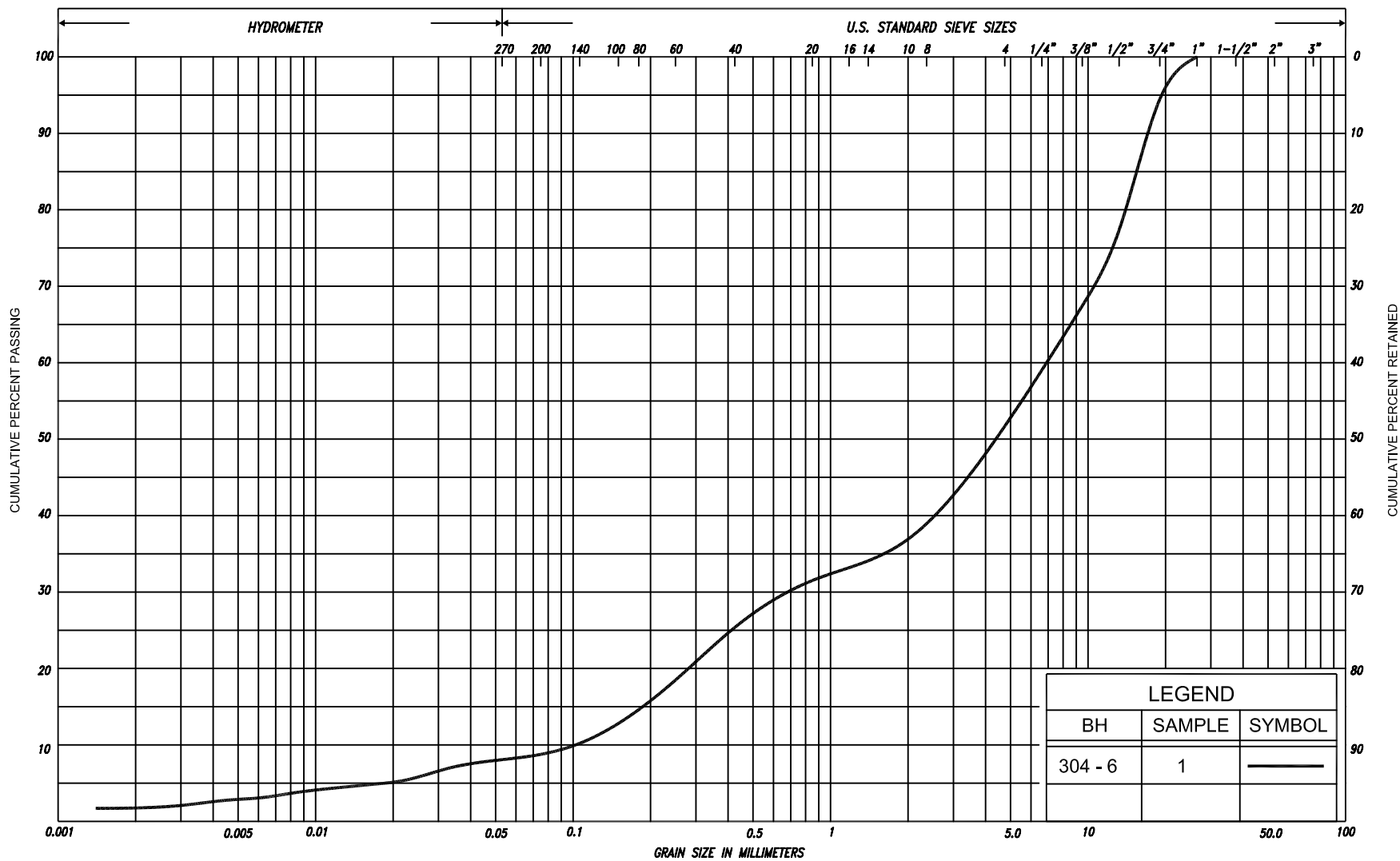
GRAIN SIZE DISTRIBUTION

SILT and SAND, trace clay

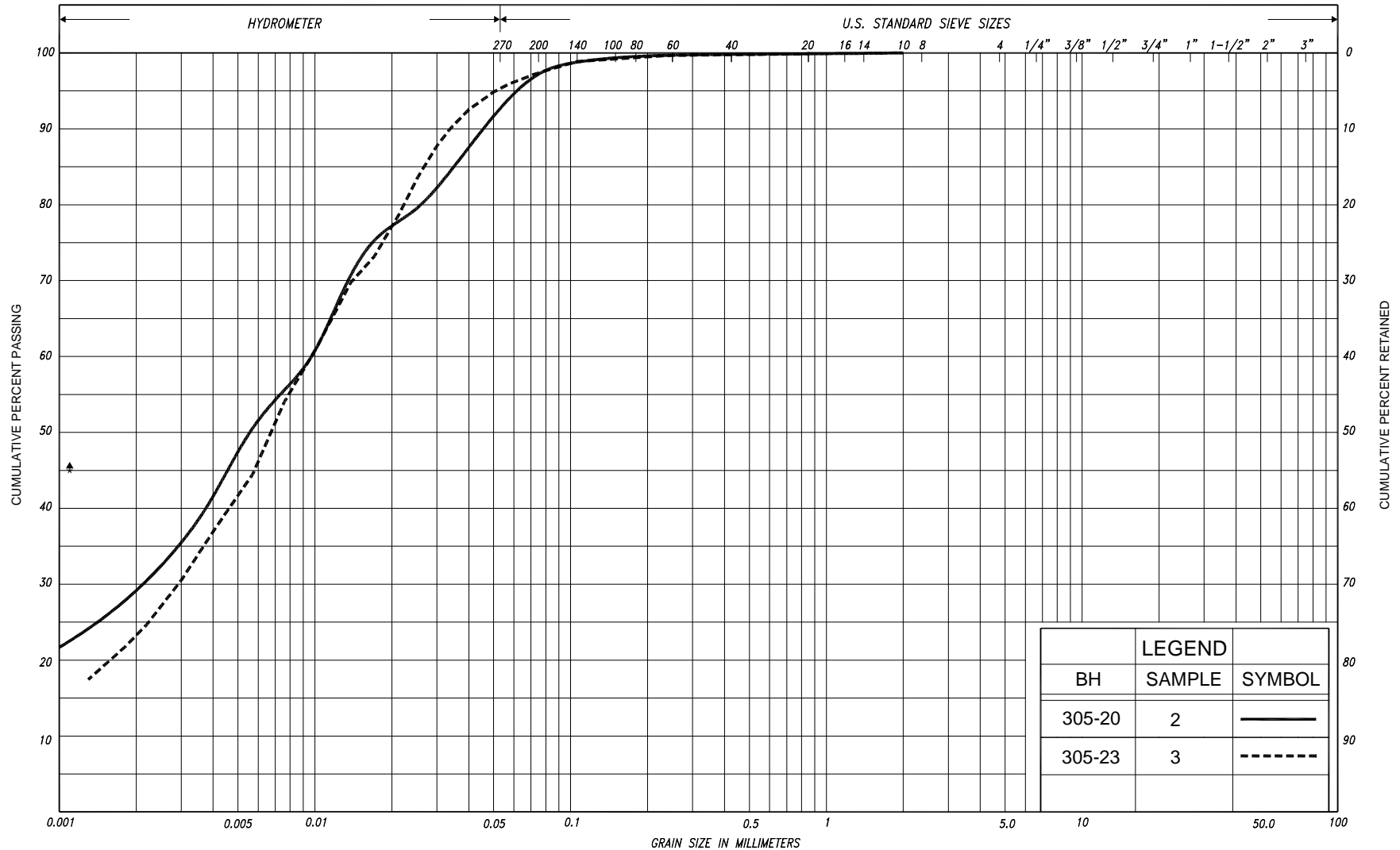
FIG No. 303-GS-3

HWY: 69

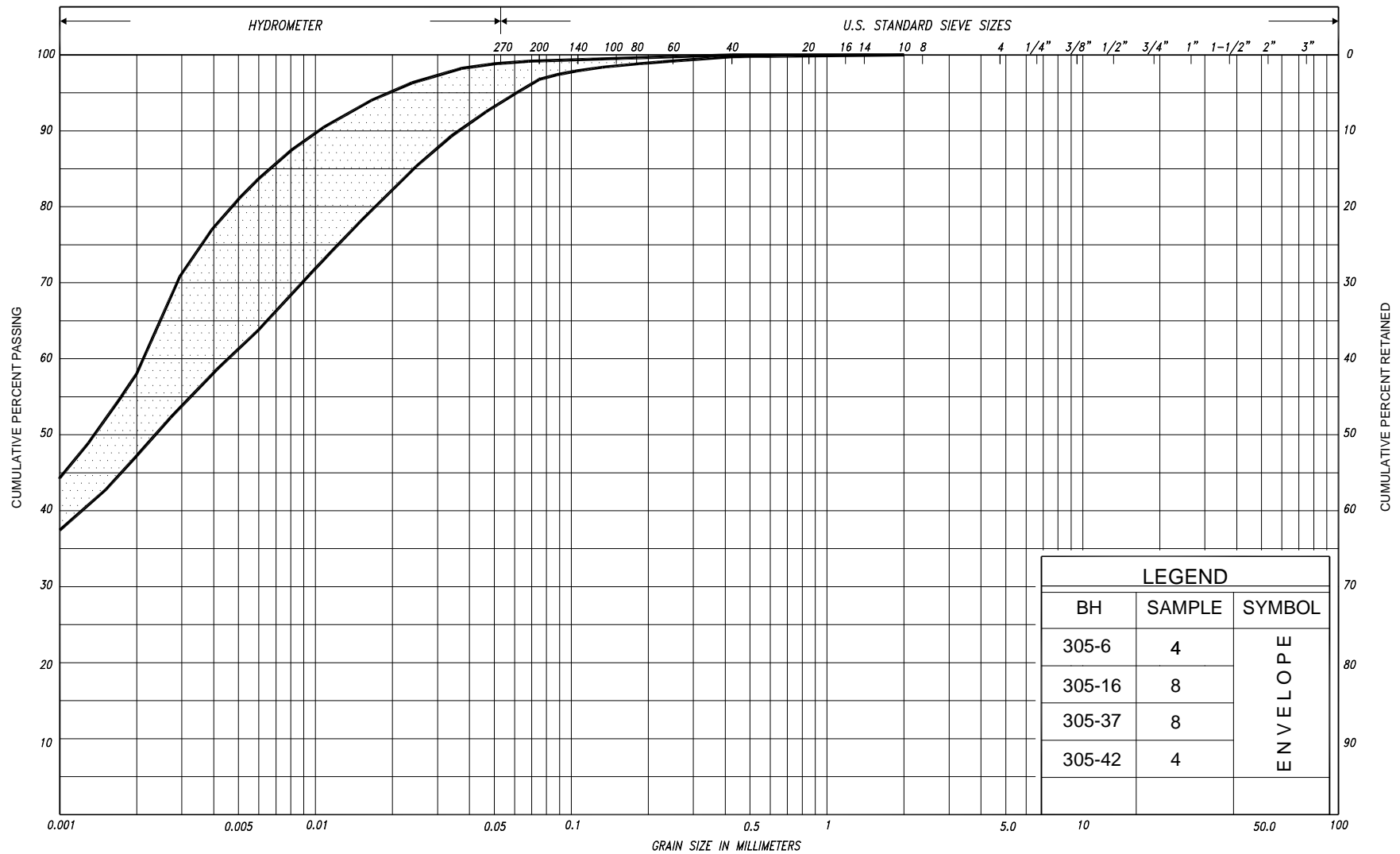
G.W.P. No. 5203-06-00



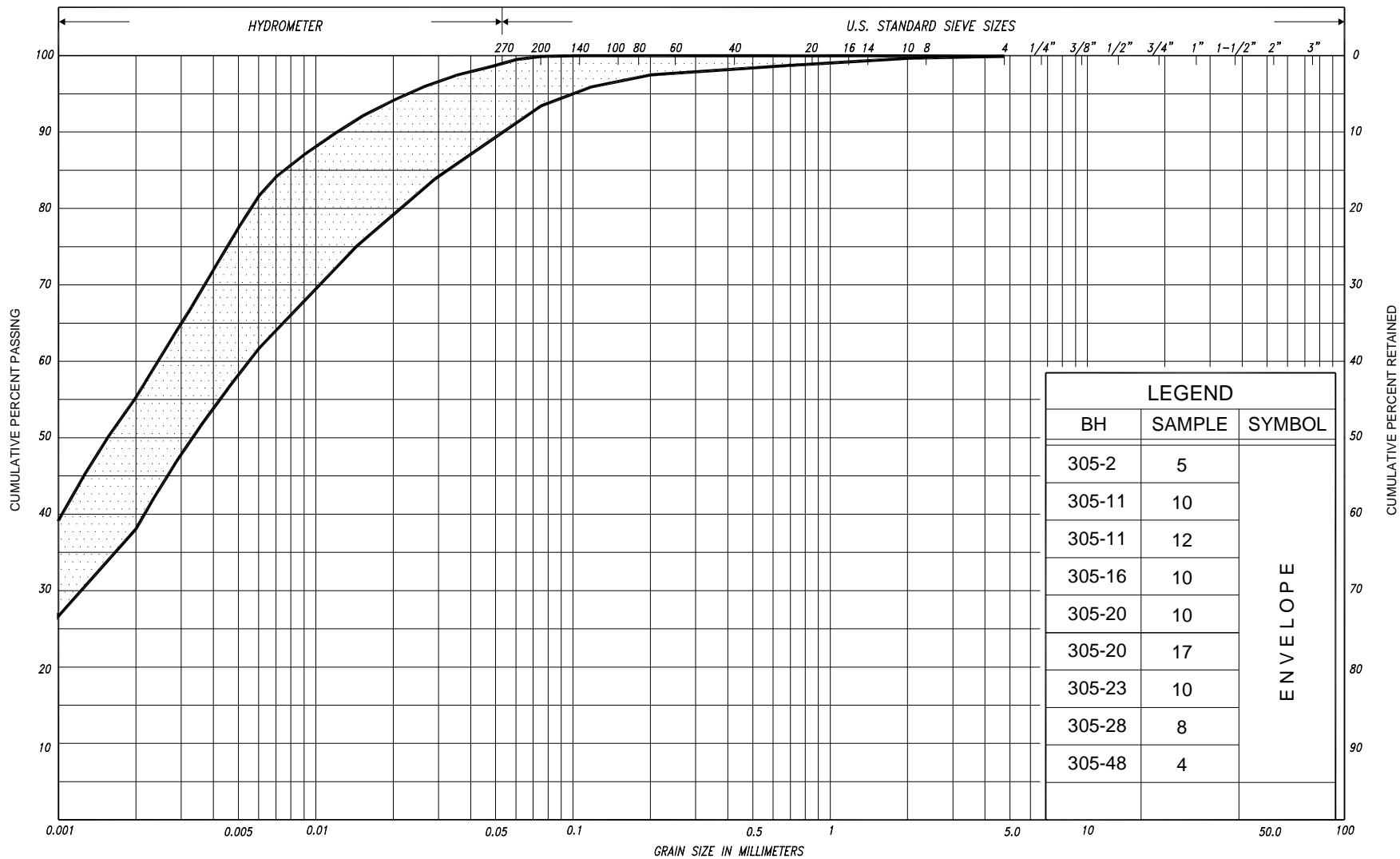
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED	
CLAY	FINE		MEDIUM		COARSE		SAND					GRAVEL			COBBLES	M.I.T.
	SILT					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	U.S. BUREAU
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL						U.S. BUREAU
					SAND											



SILT & CLAY				GRAIN SIZE IN MILLIMETERS			GRAVEL		COBBLES	UNIFIED
				FINE	MEDIUM	COARSE				
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
				SAND						
CLAY		SILT								

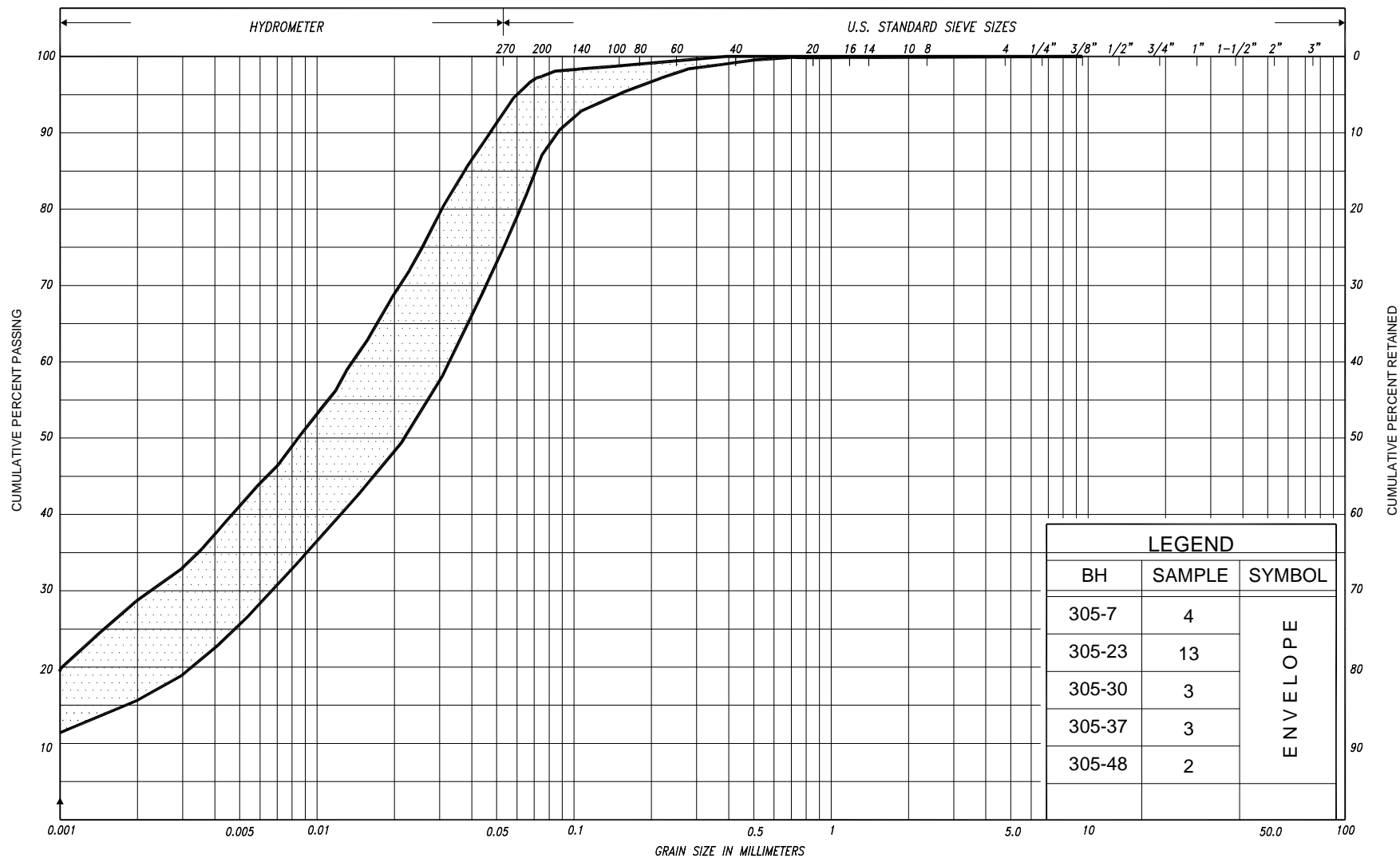


SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL							U.S. BUREAU
					SAND												

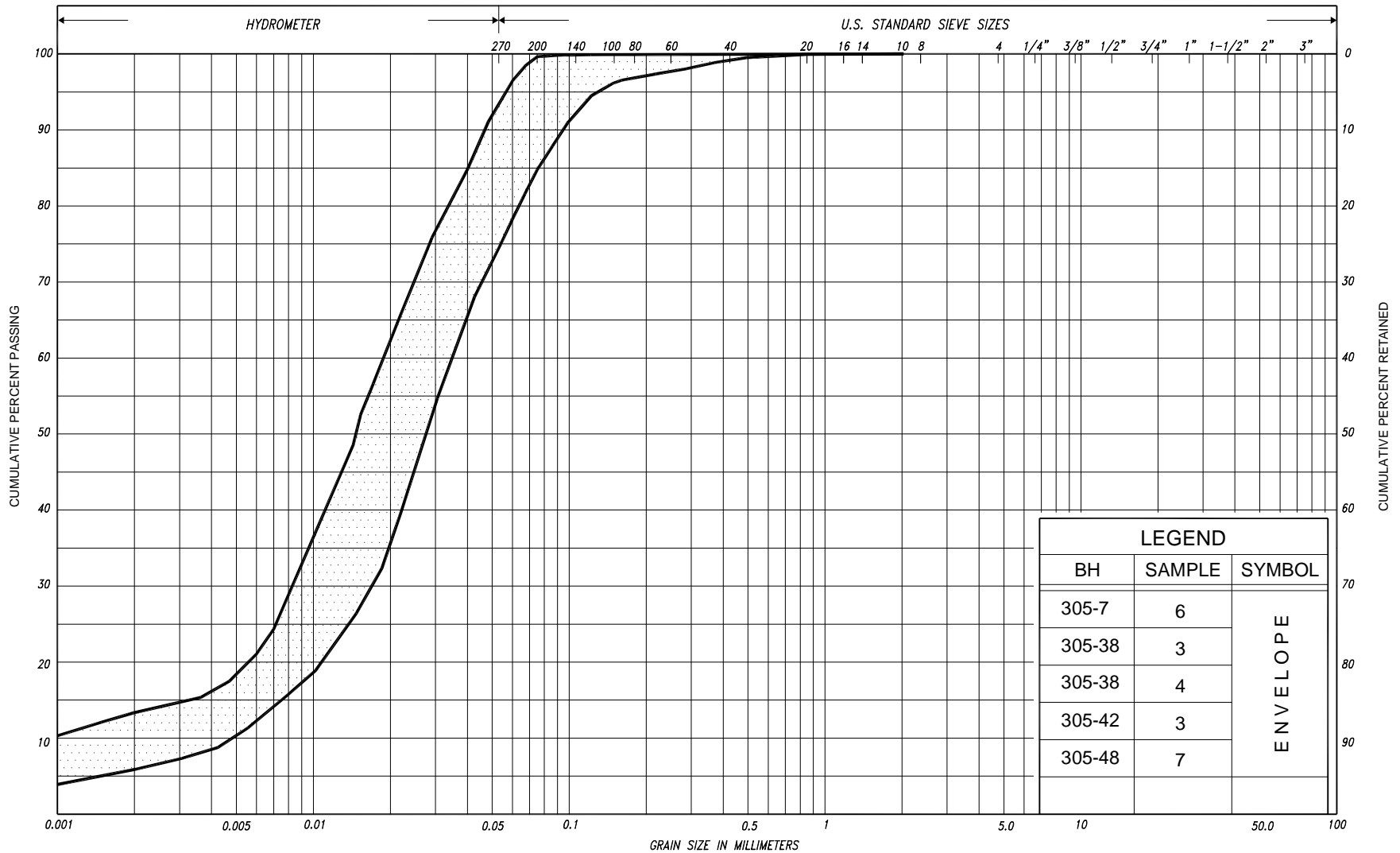


LEGEND		
BH	SAMPLE	SYMBOL
305-2	5	ENVELOPE
305-11	10	
305-11	12	
305-16	10	
305-20	10	
305-20	17	
305-23	10	
305-28	8	
305-48	4	

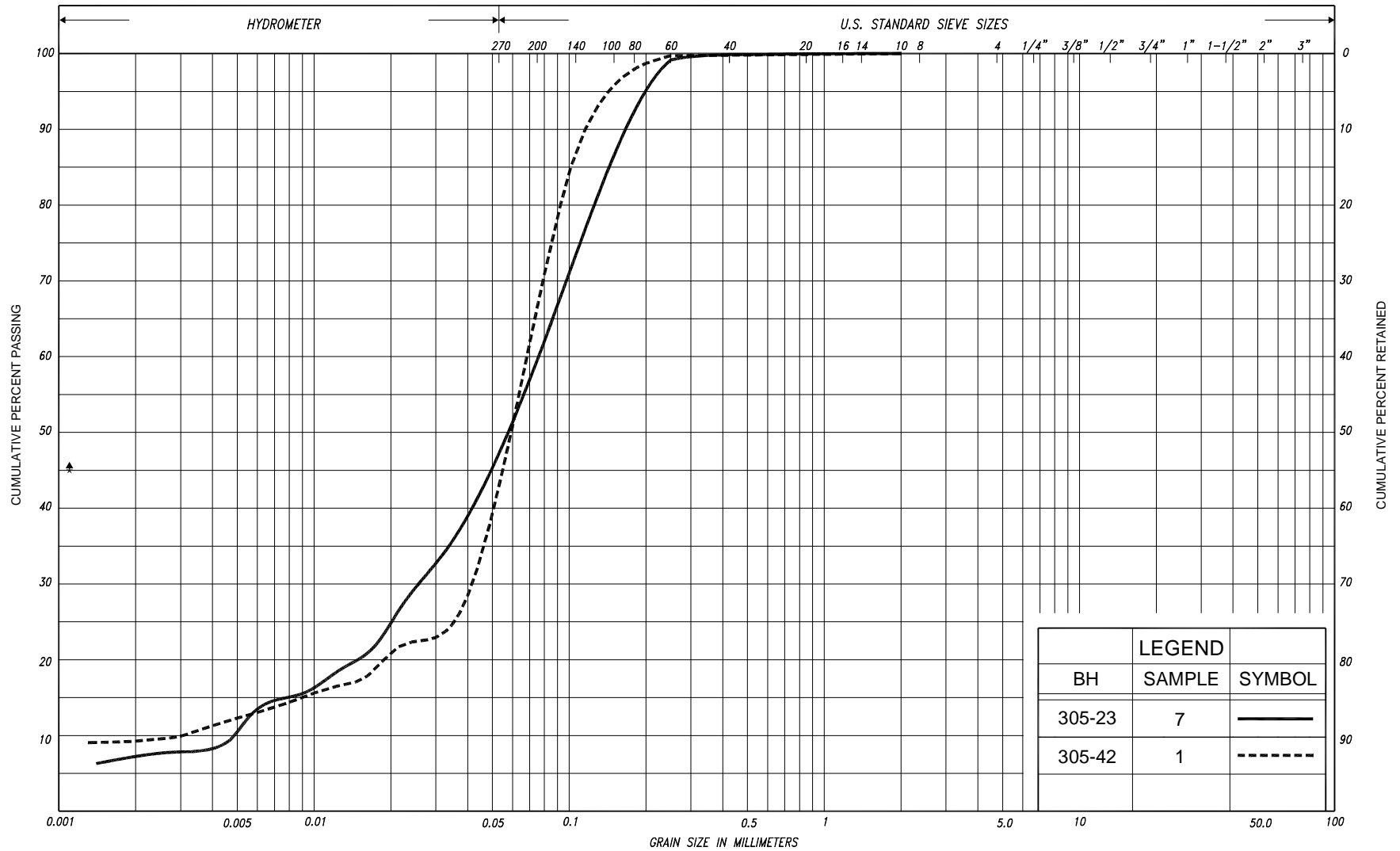
SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
CLAY		SILT		SAND			GRAVEL			



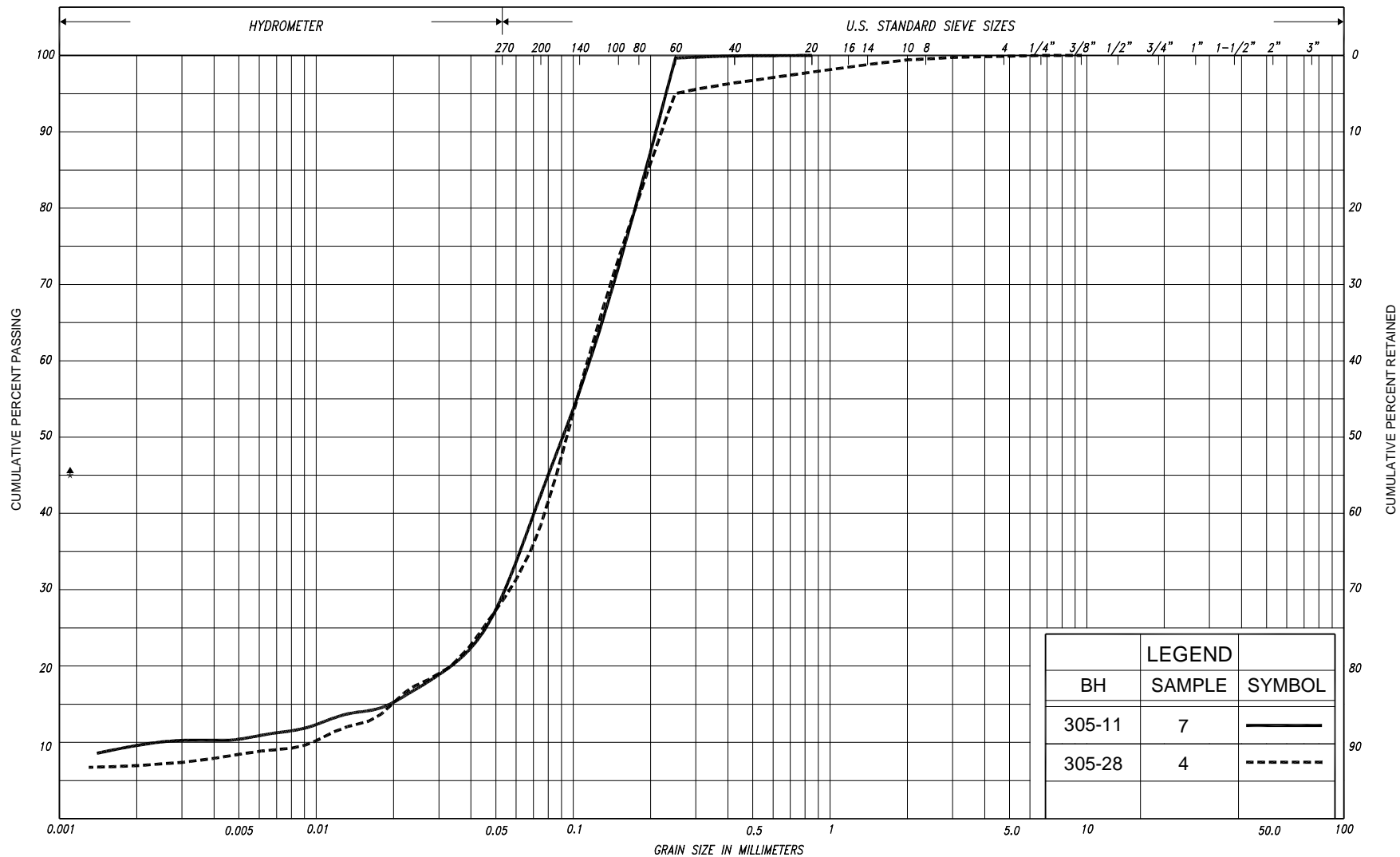
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY			SILT			V. FINE		FINE	MED.	COARSE		GRAVEL					U.S. BUREAU
					SAND												



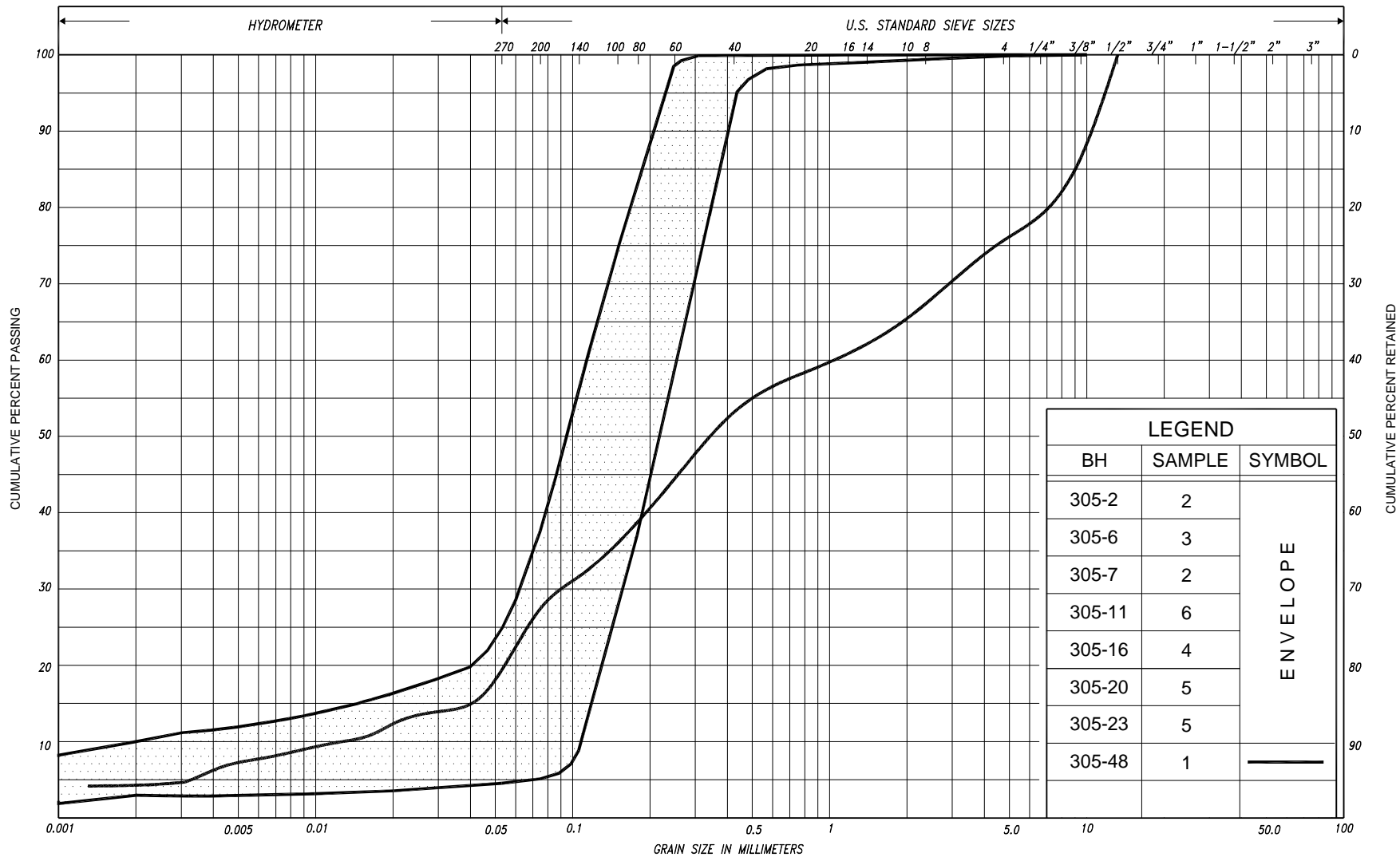
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED
CLAY	FINE	MEDIUM	COARSE	FINE		MEDIUM	COARSE	GRAVEL			COBBLES	M.I.T.	
	SILT			FINE		MEDIUM	COARSE	GRAVEL			COBBLES	U.S. BUREAU	
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL			COBBLES	U.S. BUREAU	



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
				SAND						

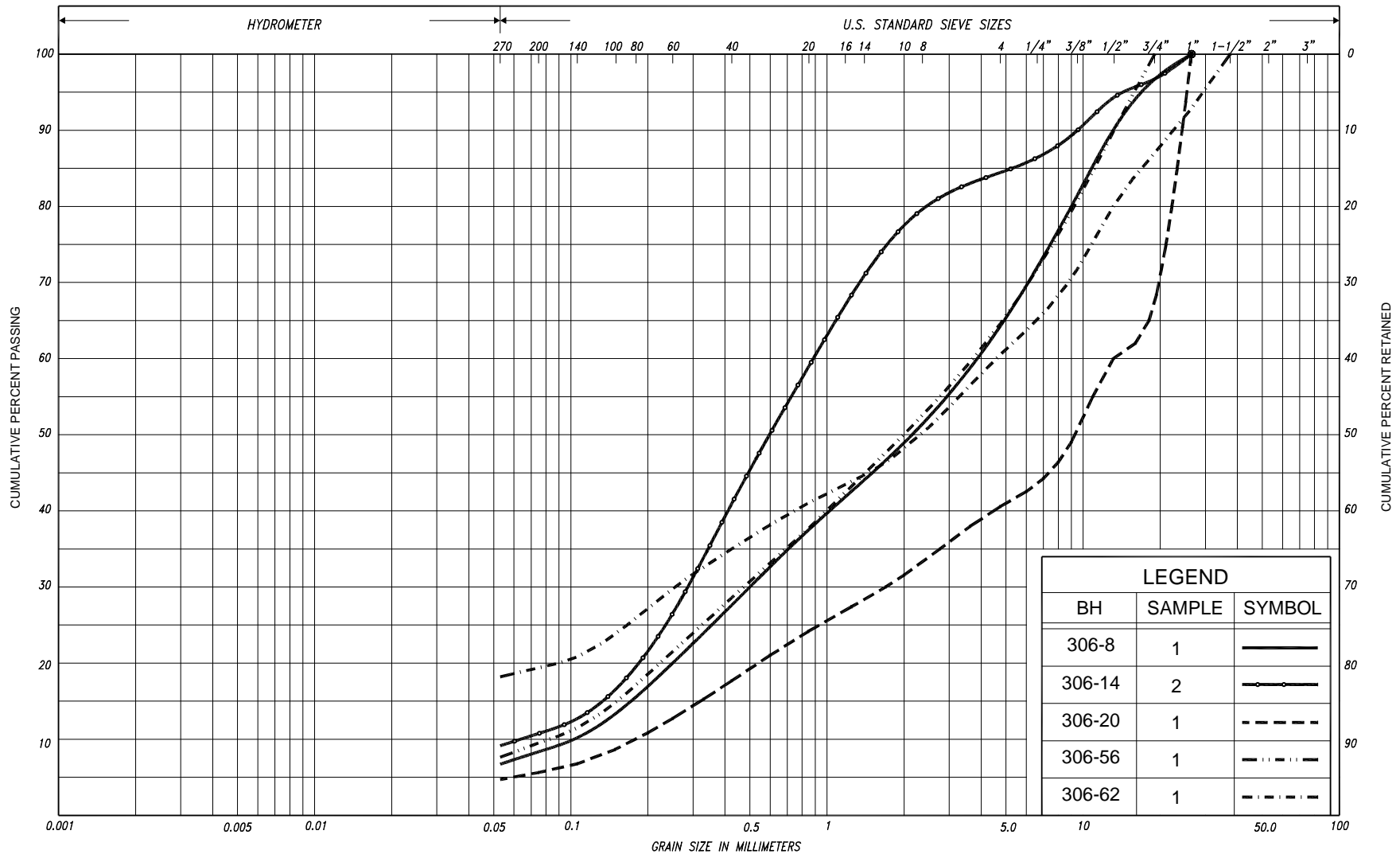


SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL				COB BLES	UNIFIED		
					SAND													
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL				COBBLES	M.I.T.
	SILT																	
CLAY			SILT			V. FINE	FINE	MED.	COARSE		GRAVEL							U.S. BUREAU
						SAND												

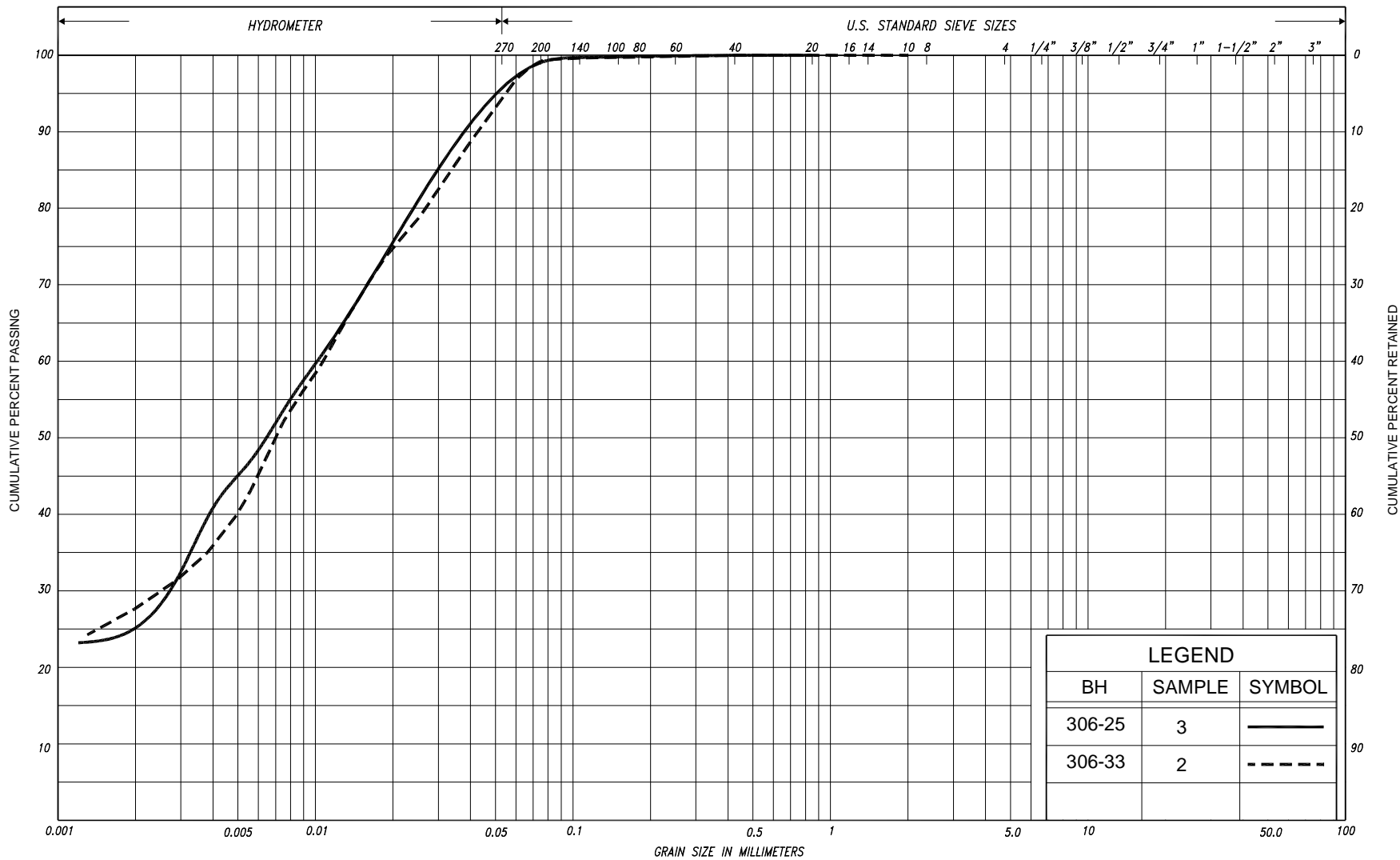


LEGEND		
BH	SAMPLE	SYMBOL
305-2	2	ENVELOPE
305-6	3	
305-7	2	
305-11	6	
305-16	4	
305-20	5	
305-23	5	
305-48	1	—

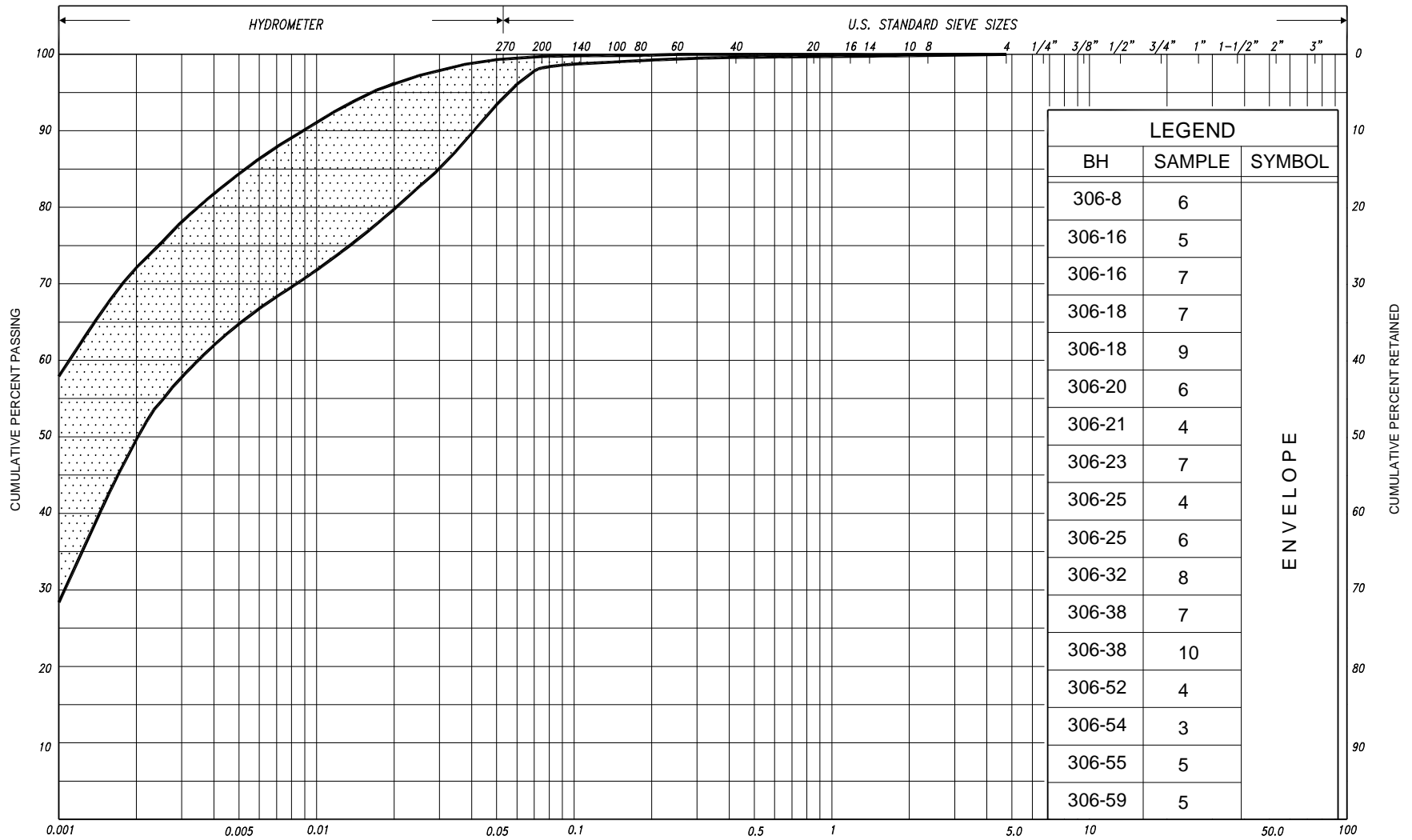
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED									
					SAND																			
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.							
	SILT										GRAVEL						U.S. BUREAU							
CLAY		SILT		V. FINE	FINE	MED.	COARSE																	
					SAND																			



SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED
CLAY	FINE	MEDIUM		COARSE	FINE		MEDIUM		COARSE	GRAVEL			COBBLES	M.I.T.
	SILT					SAND								
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL			U.S. BUREAU		



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
CLAY				SAND						



LEGEND		
BH	SAMPLE	SYMBOL
306-8	6	ENVELOPE
306-16	5	
306-16	7	
306-18	7	
306-18	9	
306-20	6	
306-21	4	
306-23	7	
306-25	4	
306-25	6	
306-32	8	
306-38	7	
306-38	10	
306-52	4	
306-54	3	
306-55	5	
306-59	5	

SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY			SILT			V. FINE		FINE		MED.		COARSE		GRAVEL			U.S. BUREAU
					SAND												

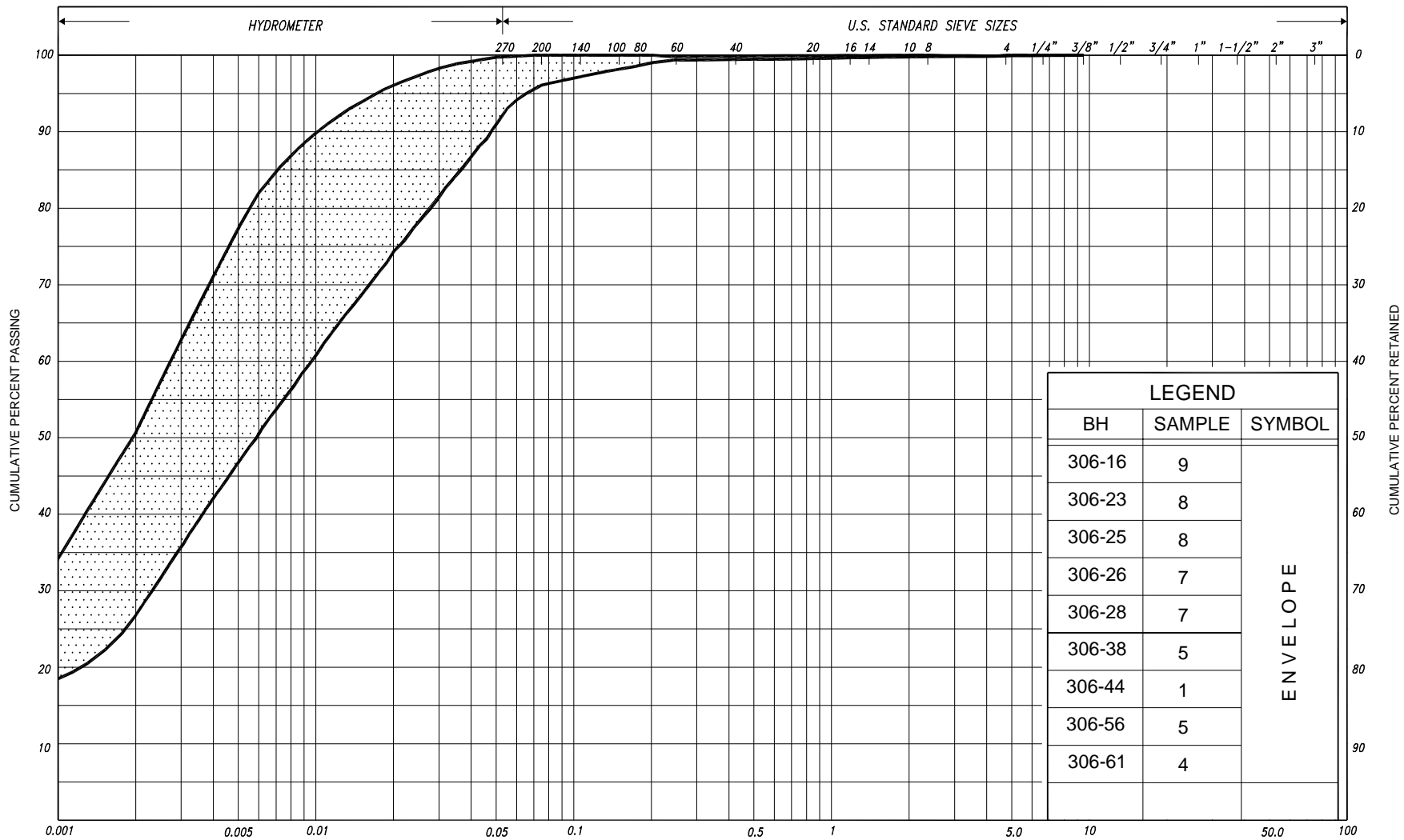
GRAIN SIZE DISTRIBUTION

CLAY, trace sand

FIG No. 306-GS-3

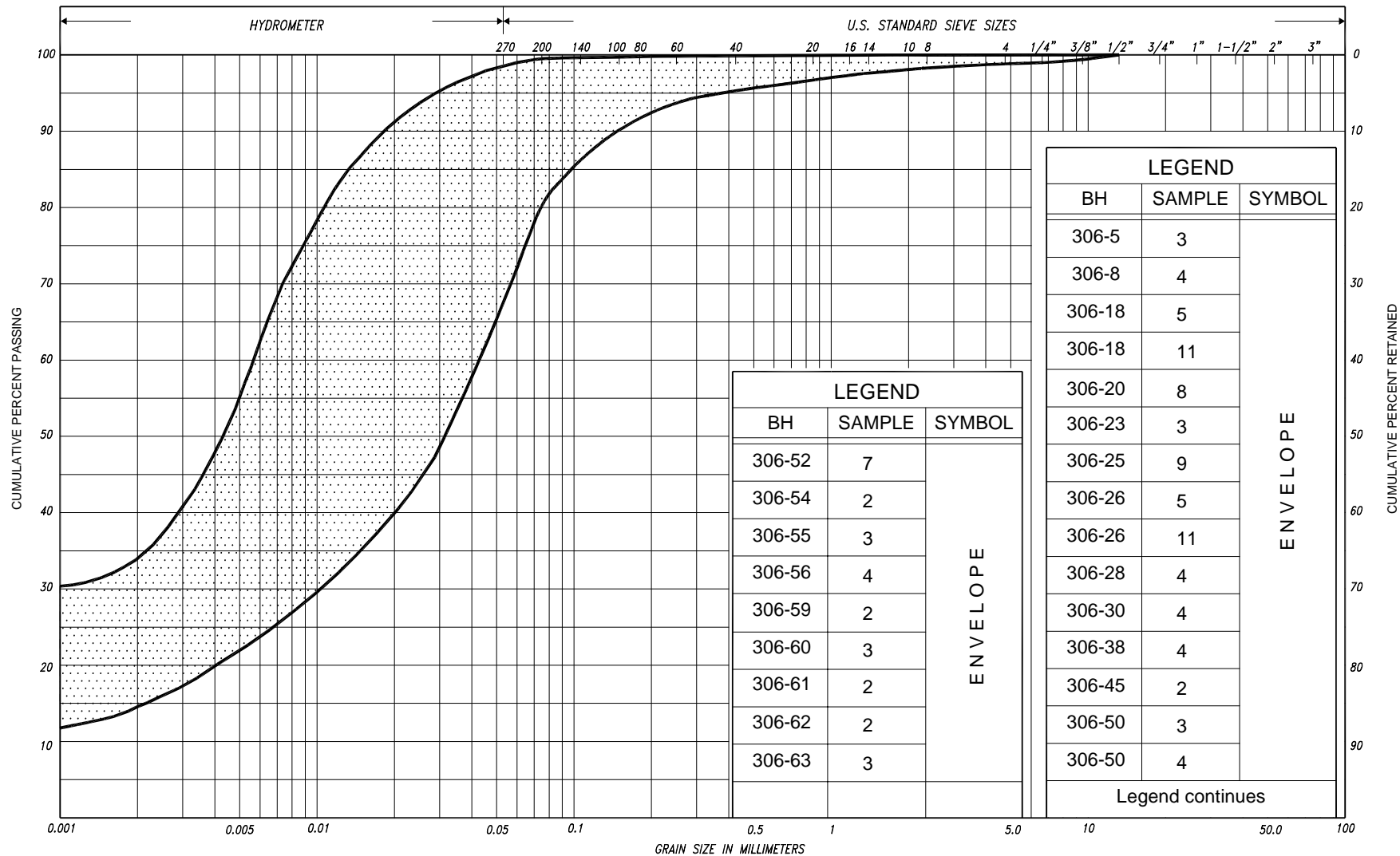
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LEGEND		
BH	SAMPLE	SYMBOL
306-16	9	ENVELOPE
306-23	8	
306-25	8	
306-26	7	
306-28	7	
306-38	5	
306-44	1	
306-56	5	
306-61	4	

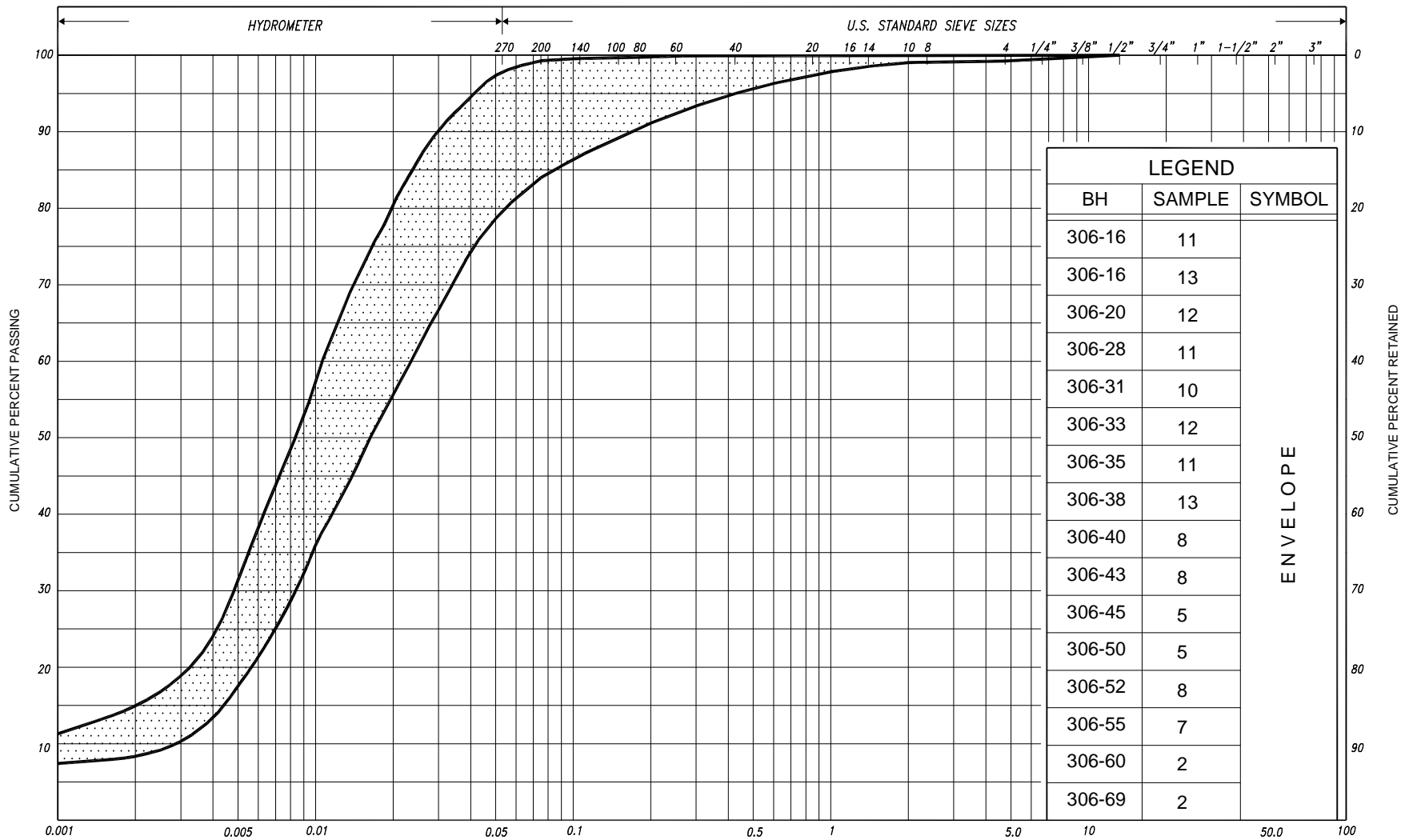
SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	UNIFIED
														M.I.T.
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE							COBBLES	U.S. BUREAU
CLAY		SILT		V. FINE	FINE	MED.	COARSE							



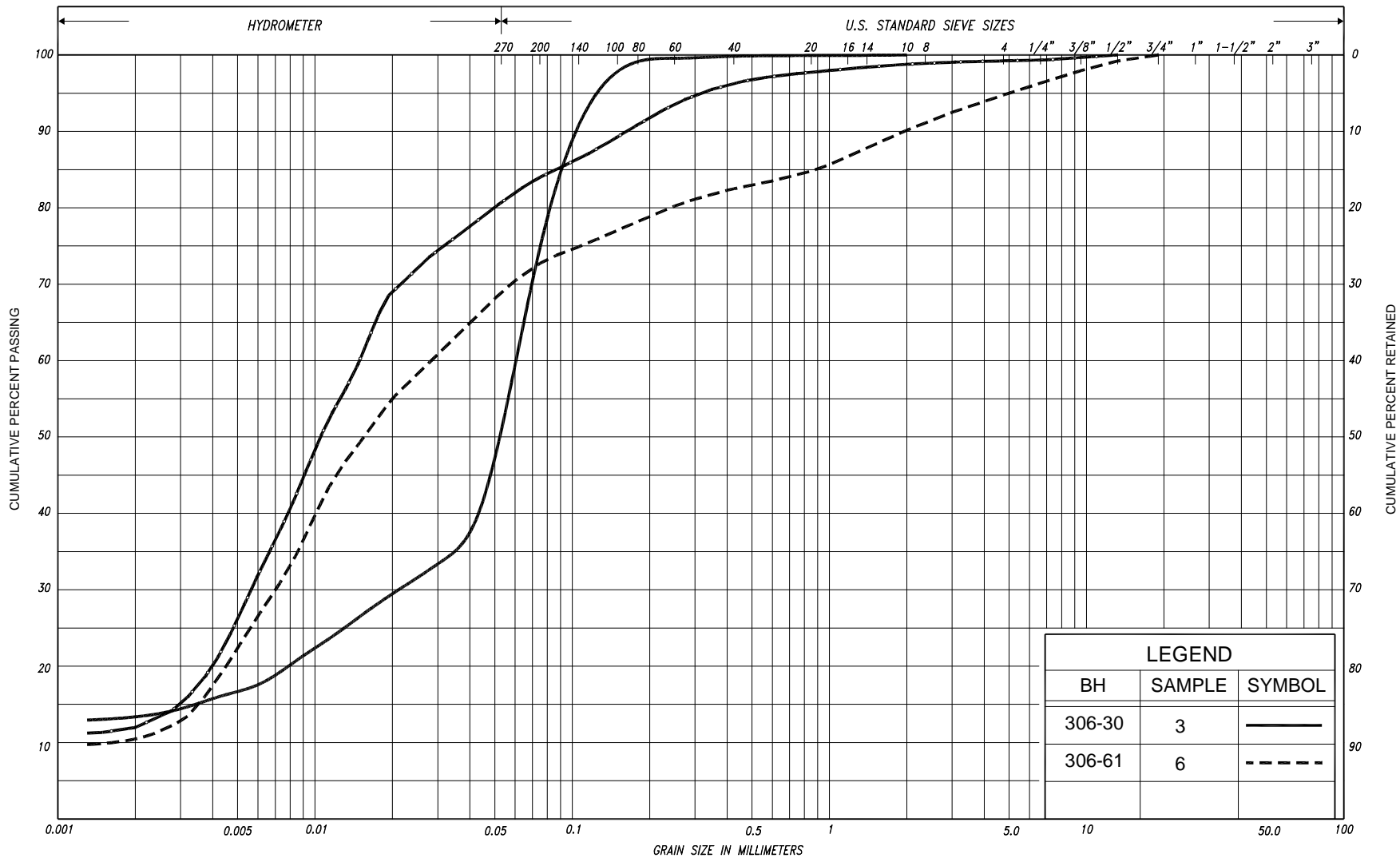
LEGEND		
BH	SAMPLE	SYMBOL
306-52	7	ENVELOPE
306-54	2	
306-55	3	
306-56	4	
306-59	2	
306-60	3	
306-61	2	
306-62	2	
306-63	3	

LEGEND		
BH	SAMPLE	SYMBOL
306-5	3	ENVELOPE
306-8	4	
306-18	5	
306-18	11	
306-20	8	
306-23	3	
306-25	9	
306-26	5	
306-26	11	
306-28	4	
306-30	4	
306-38	4	
306-45	2	
306-50	3	
306-50	4	
Legend continues		

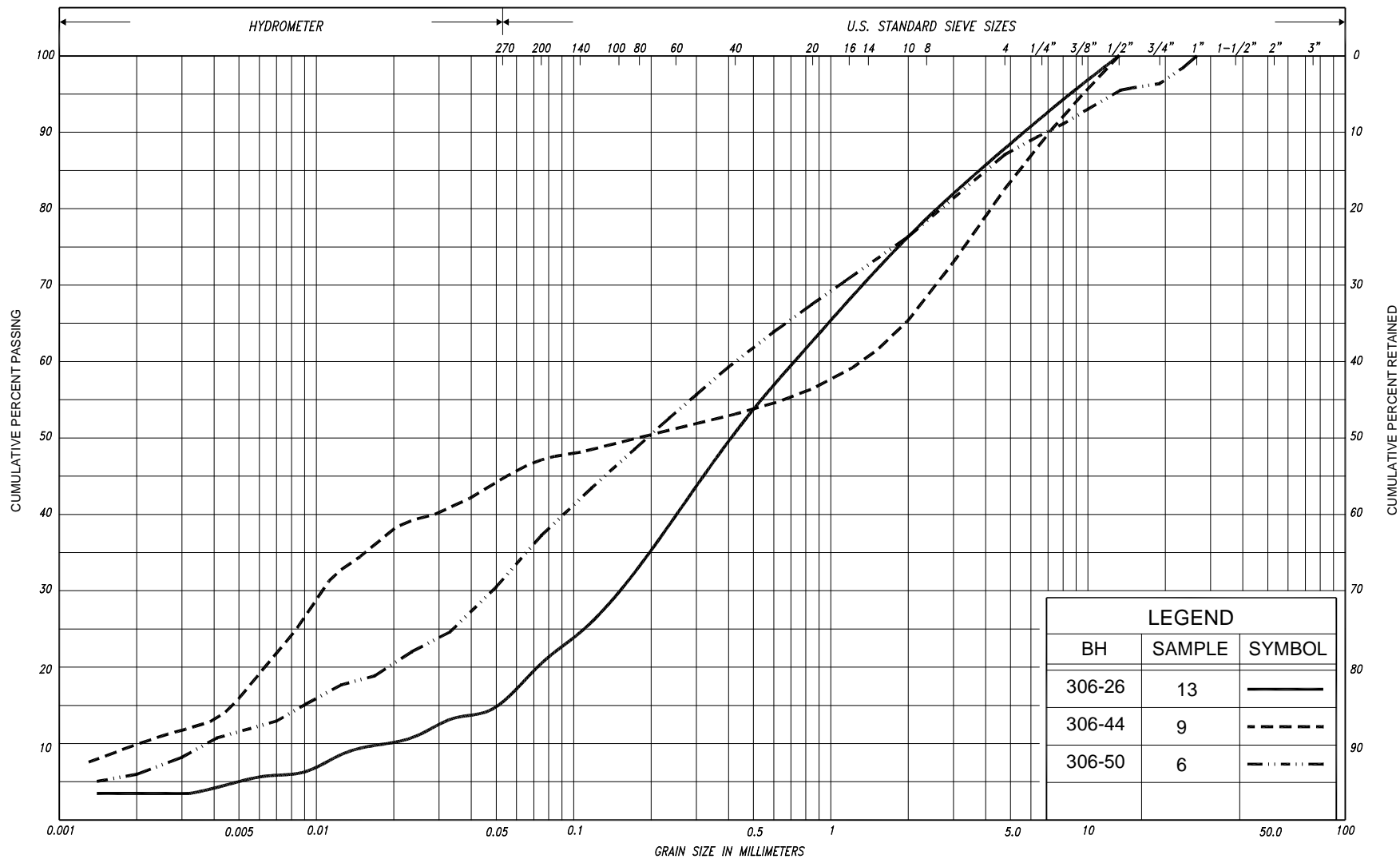
SILT & CLAY				FINE SAND			COARSE SAND	GRAVEL	COBBLES	UNIFIED
CLAY	FINE SILT	MEDIUM SILT	COARSE SILT	FINE SAND	MEDIUM SAND	COARSE SAND	GRAVEL	COBBLES		M.I.T.
CLAY	SILT	V. FINE SAND	FINE SAND	MED. SAND	COARSE SAND	GRAVEL				U.S. BUREAU



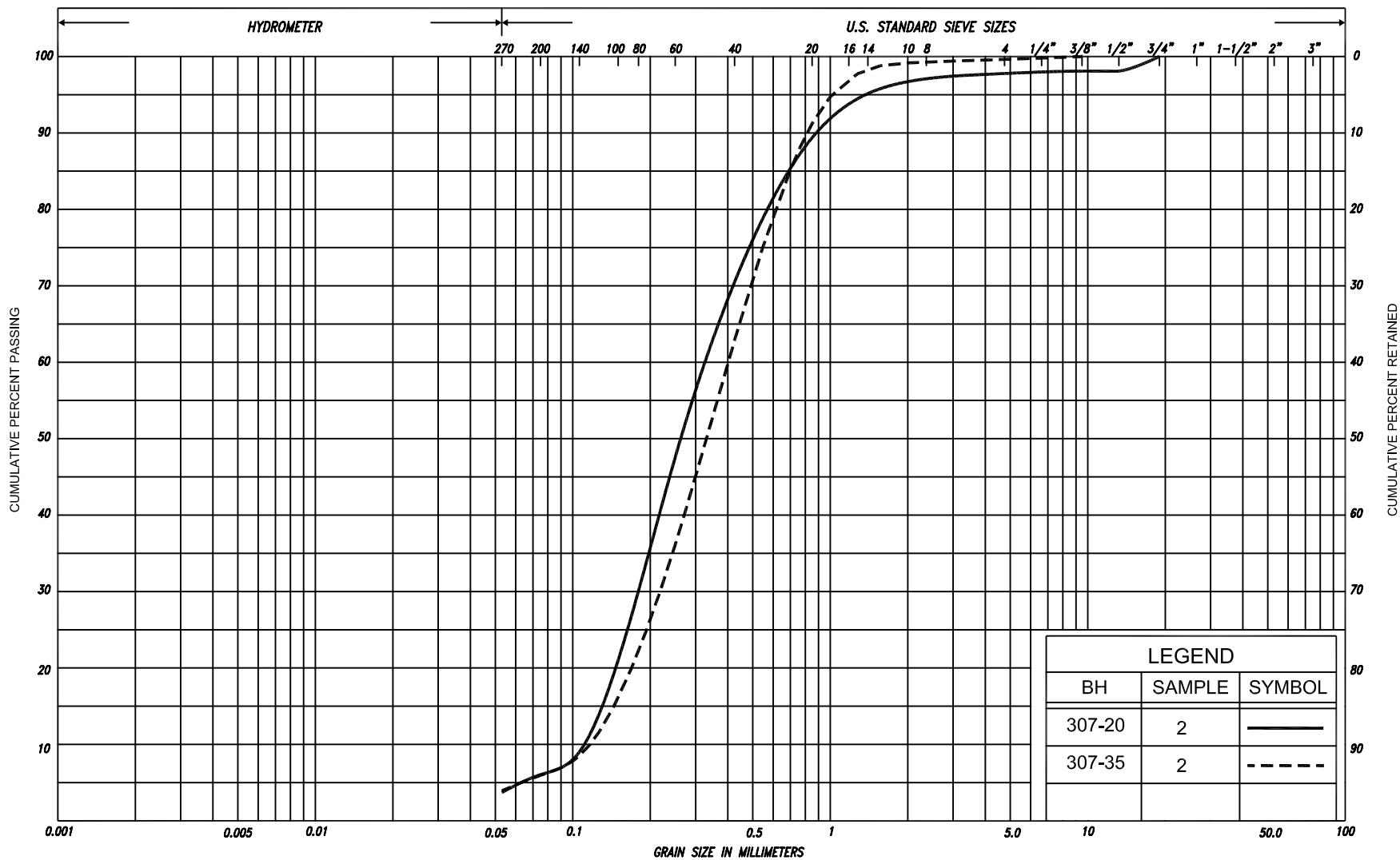
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT							SAND									
CLAY		SILT			V. FINE		FINE	MED.	COARSE		GRAVEL					U.S. BUREAU	
					SAND												



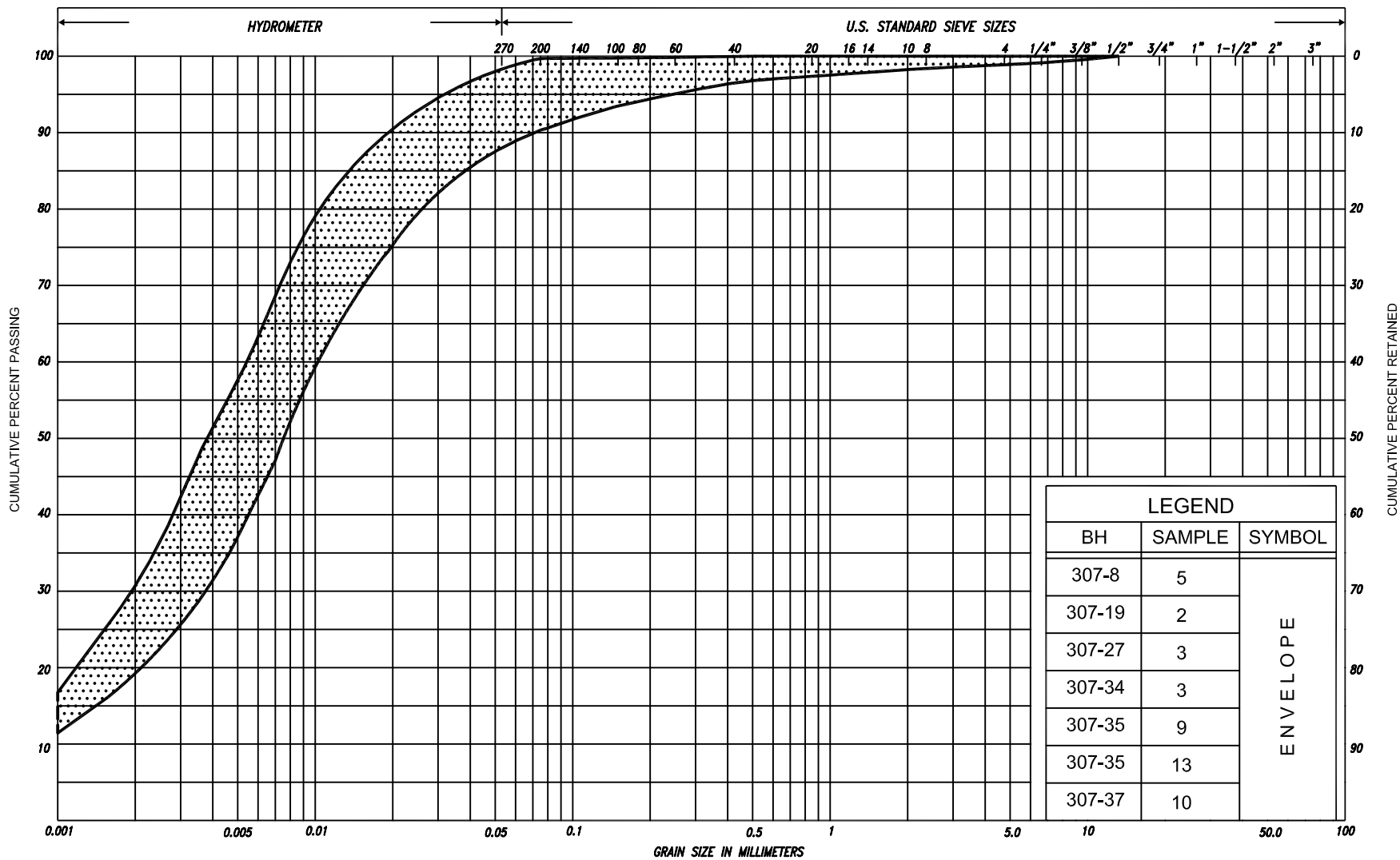
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED	
CLAY	FINE		MEDIUM		COARSE	SAND			GRAVEL			COBBLES		M.I.T.		
						FINE		MEDIUM							COARSE	
CLAY			SILT			V. FINE	FINE	MED.	COARSE		GRAVEL					U.S. BUREAU
					SAND											



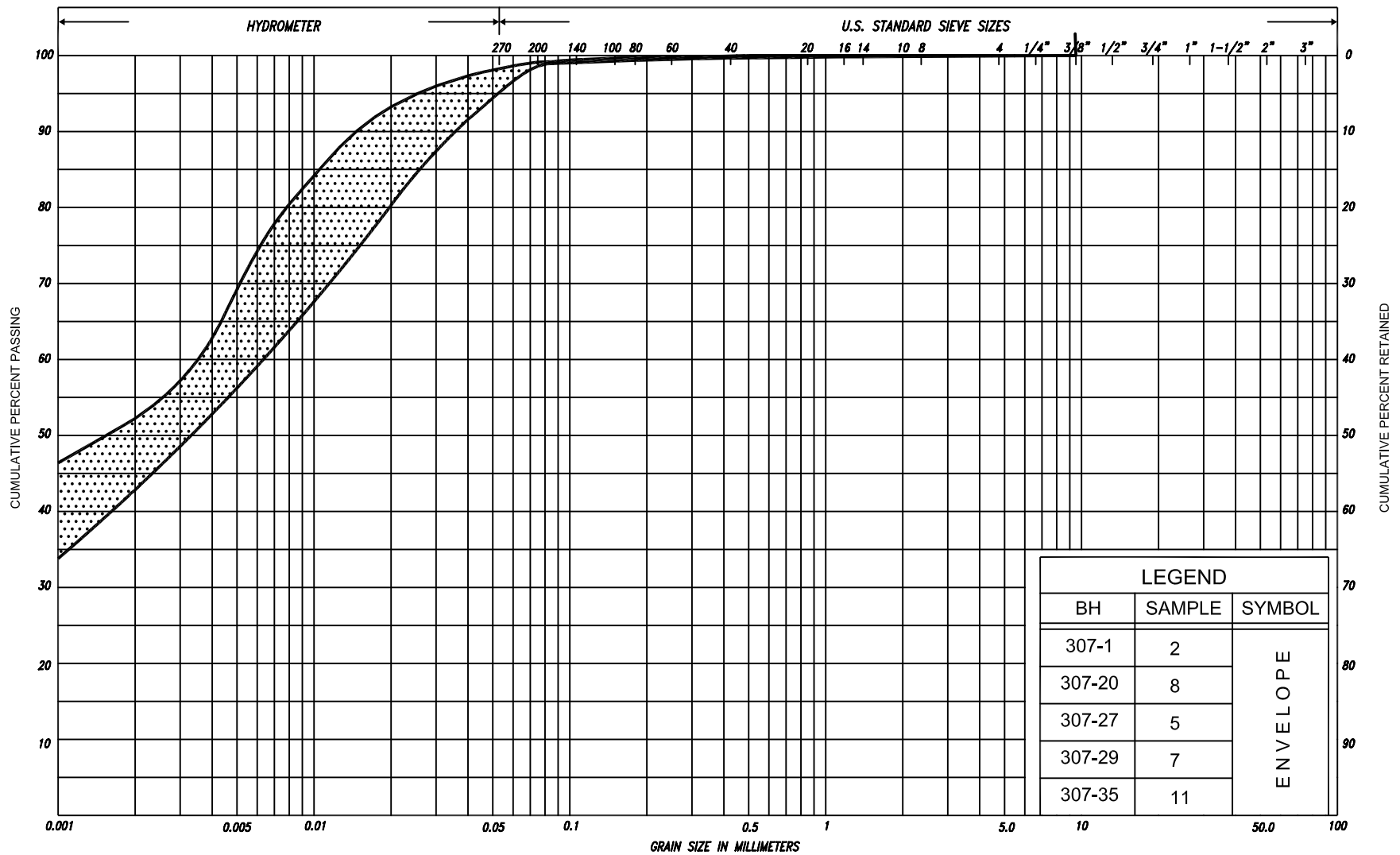
SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
CLAY		SILT		SAND			GRAVEL			



SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND	GRAVEL		COBBLES	UNIFIED
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM	COARSE	GRAVEL		COBBLES		M.I.T.
	SILT				V. FINE	FINE	MED.	COARSE	GRAVEL				U.S. BUREAU
CLAY		SILT		SAND				GRAVEL					



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL		COB BLES	UNIFIED			
				SAND											
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.	
	SILT														
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU	
				SAND											



SILT & CLAY				SAND			GRAVEL		COBBLES	UNIFIED
				FINE	MEDIUM	COARSE				
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
CLAY				SAND			GRAVEL			U.S. BUREAU
				V. FINE	FINE	MED.	COARSE			

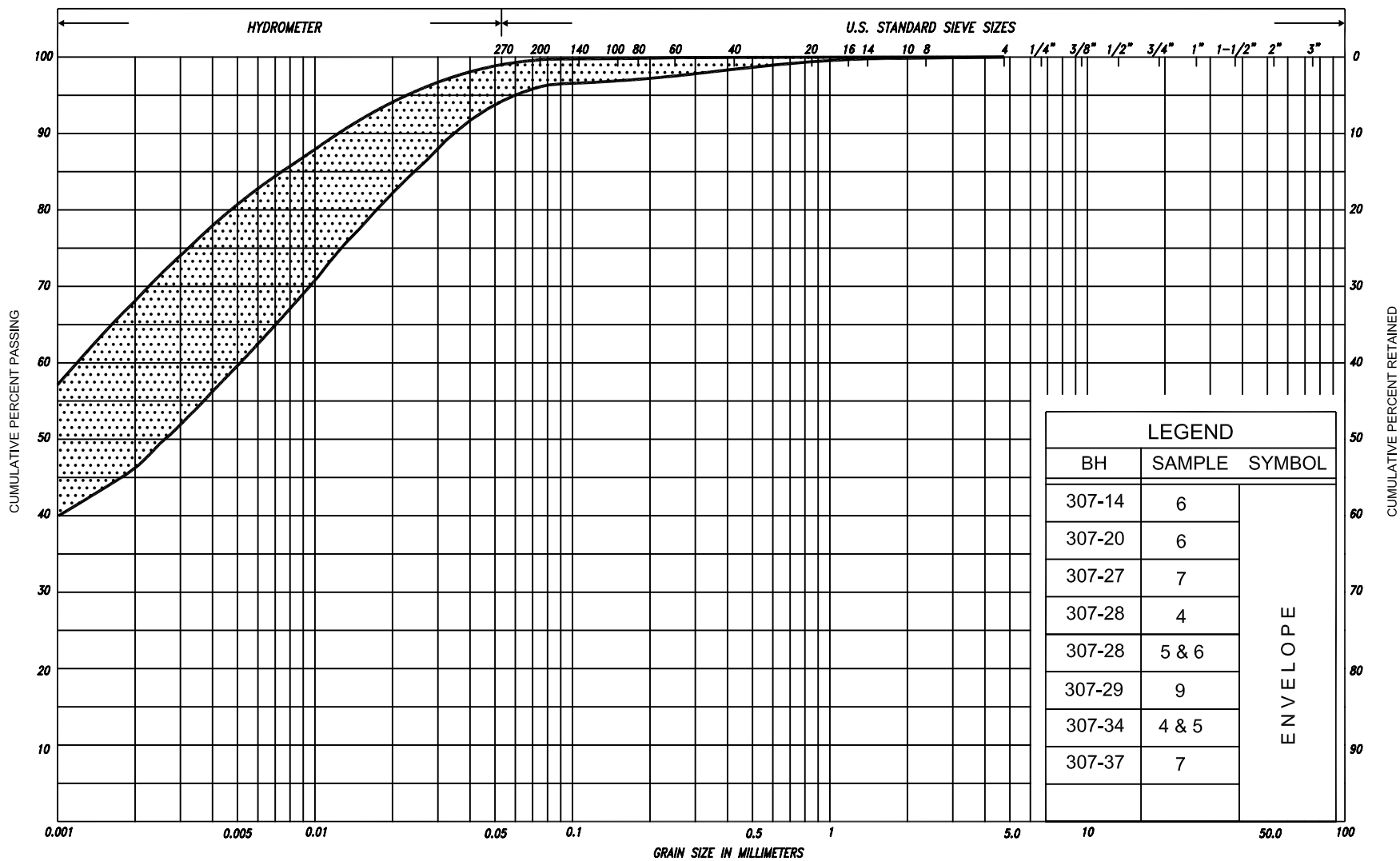
GRAIN SIZE DISTRIBUTION

SILTY CLAY, trace sand

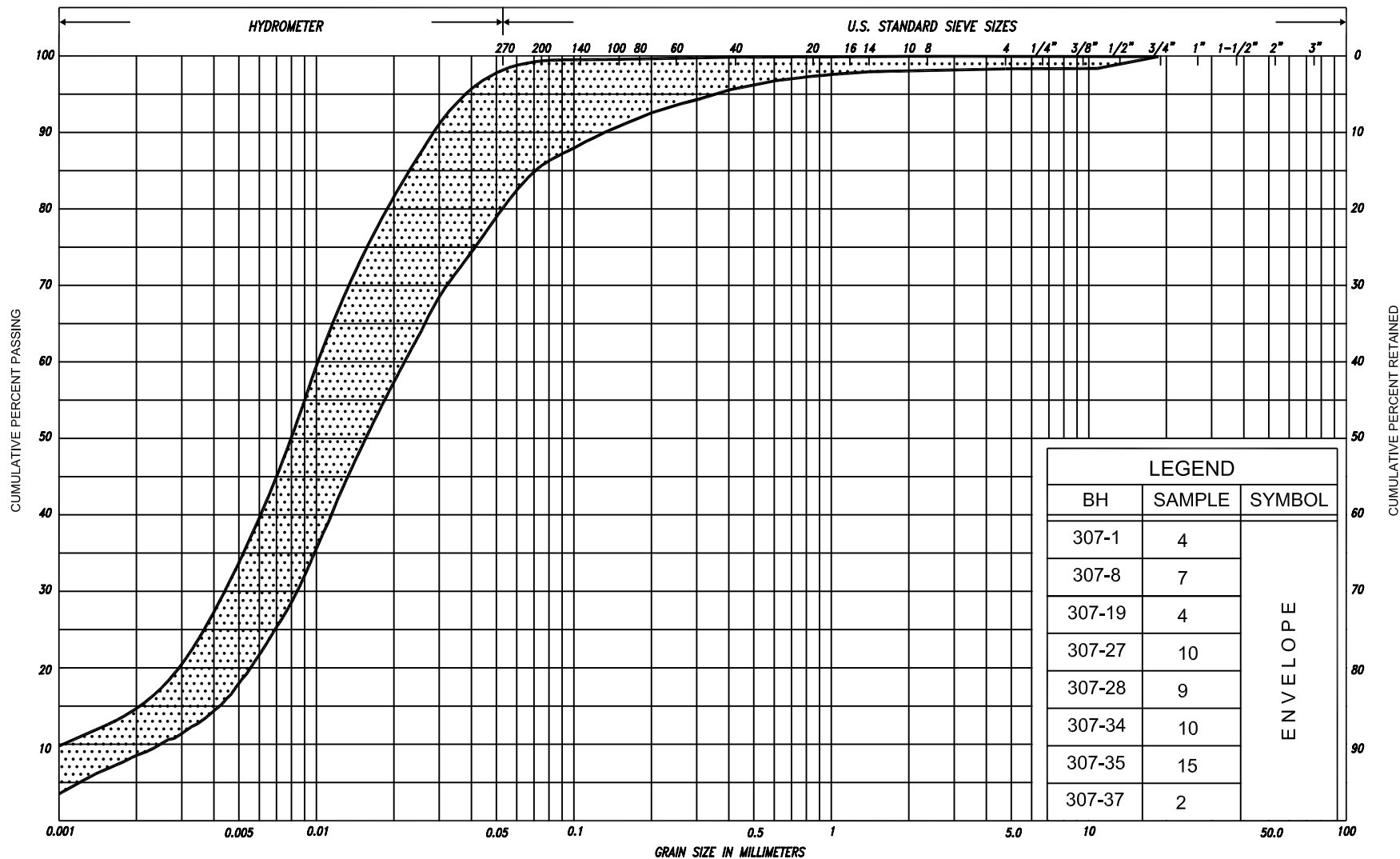
FIG No. 307-GS-3

HWY: 69

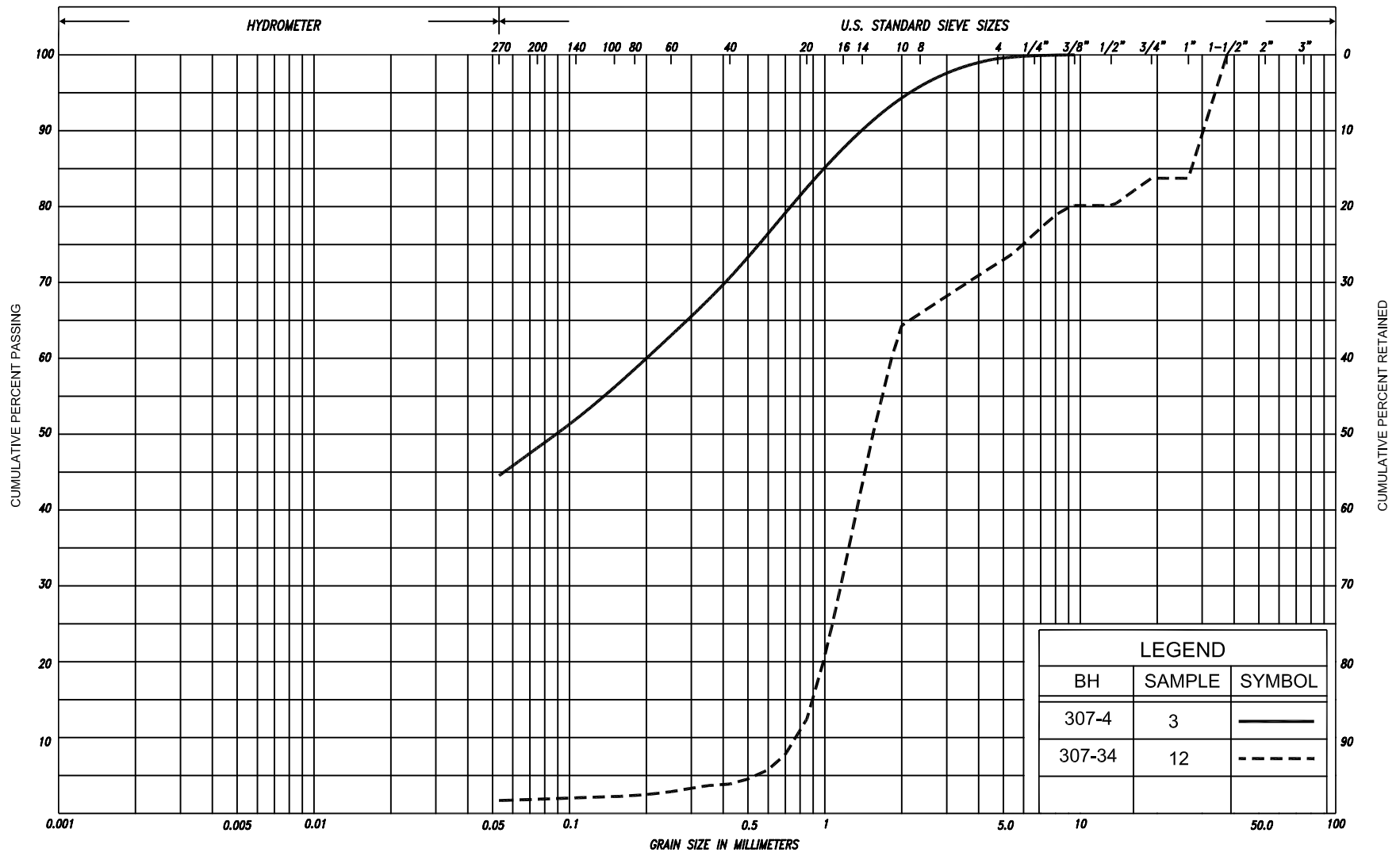
G.W.P. No. 5203-06-00



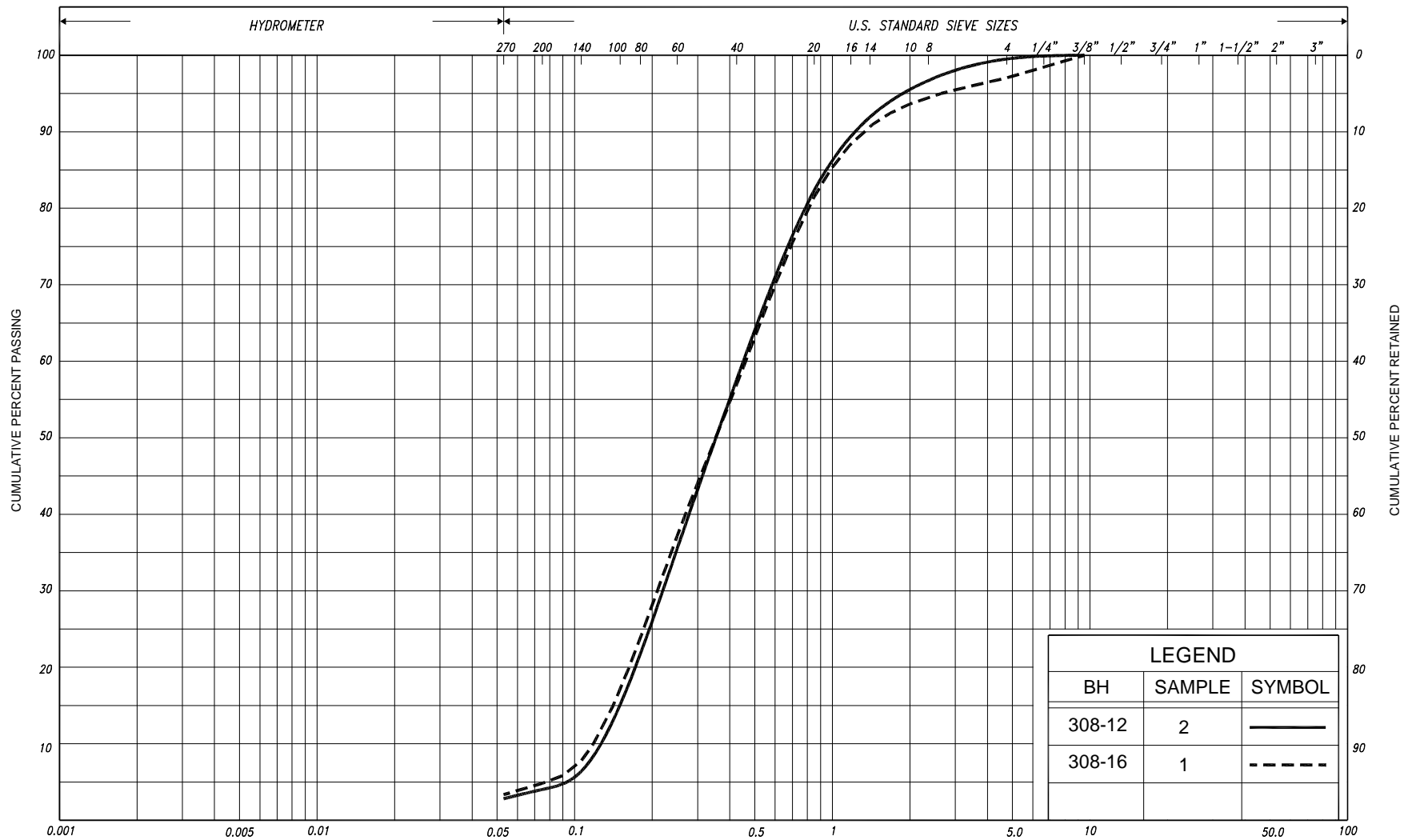
SILT & CLAY				FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED	
CLAY	SILT			SAND						GRAVEL			COBBLES	M.I.T.	
	FINE	MEDIUM	COARSE	FINE		MEDIUM		COARSE							
CLAY		SILT		V. FINE		FINE		MED.		COARSE		GRAVEL			U.S. BUREAU
				SAND											



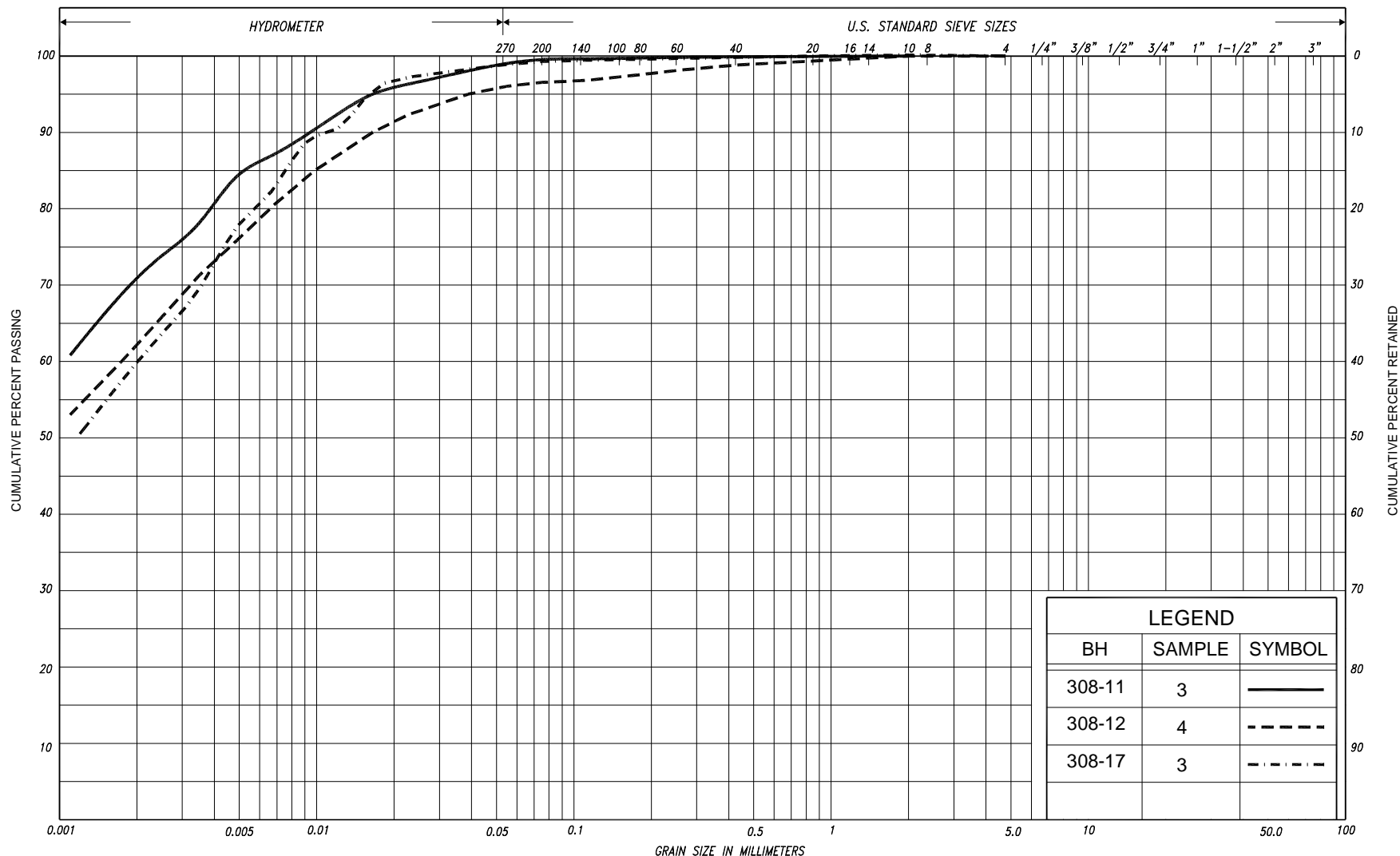
SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
				SAND						



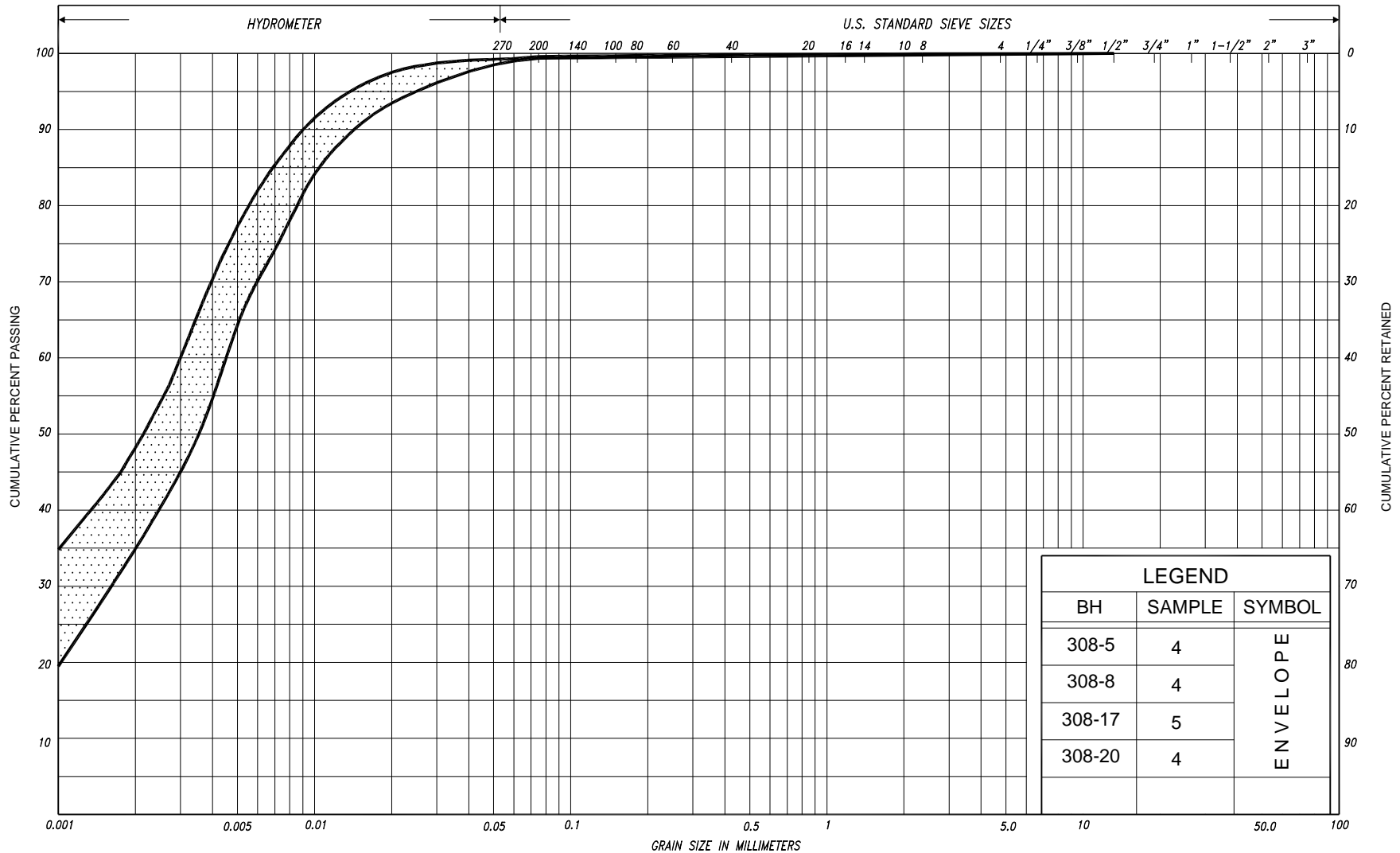
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL		COBBLES	UNIFIED		
				SAND										
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE	GRAVEL	COBBLES	M.I.T.
	SILT													
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU
					SAND									



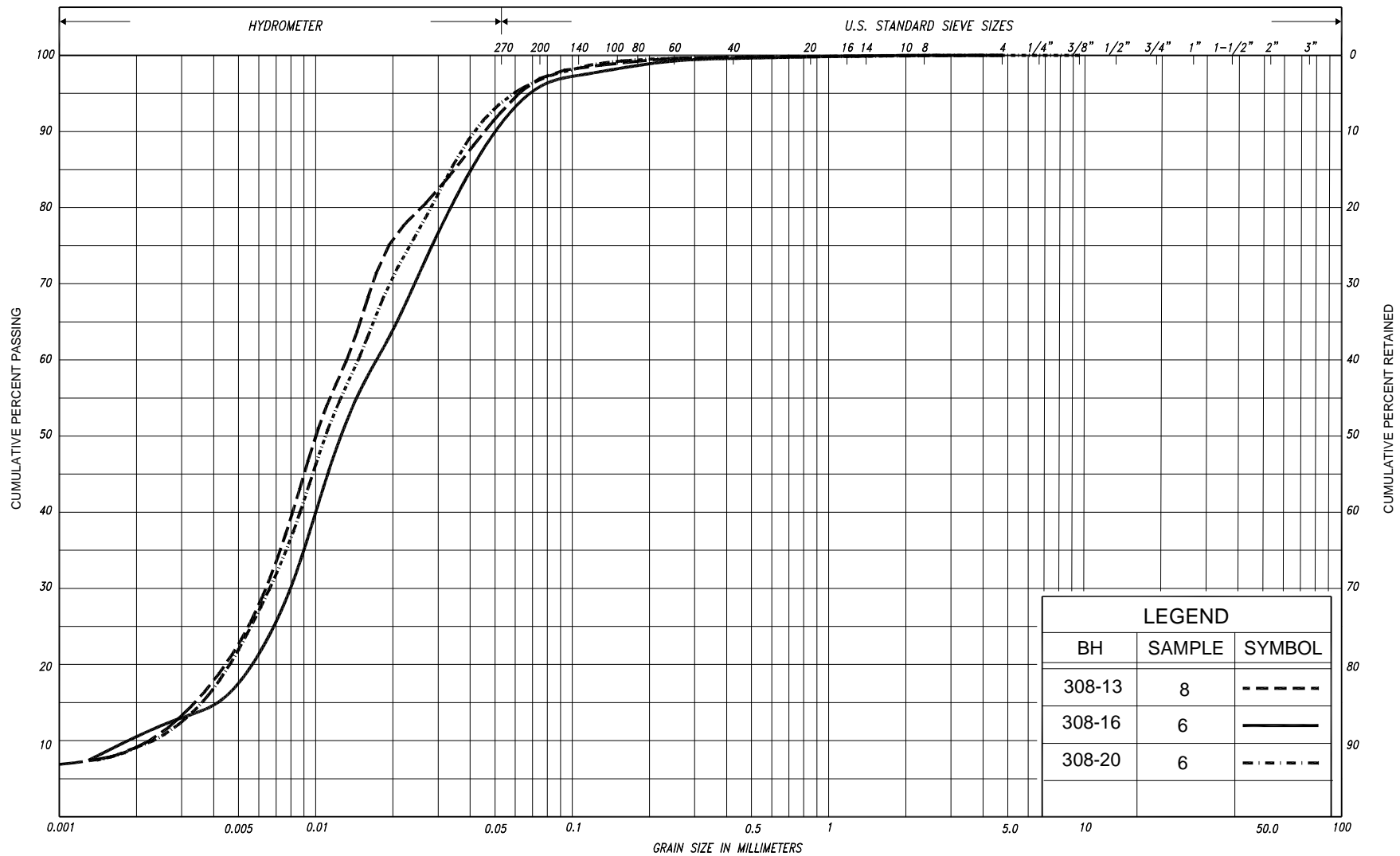
SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED		
CLAY	FINE		MEDIUM		COARSE	FINE		MEDIUM		COARSE	GRAVEL			COBBLES	M.I.T.	
	SILT					FINE		SAND		COARSE		GRAVEL			COBBLES	M.I.T.
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU	
				SAND												



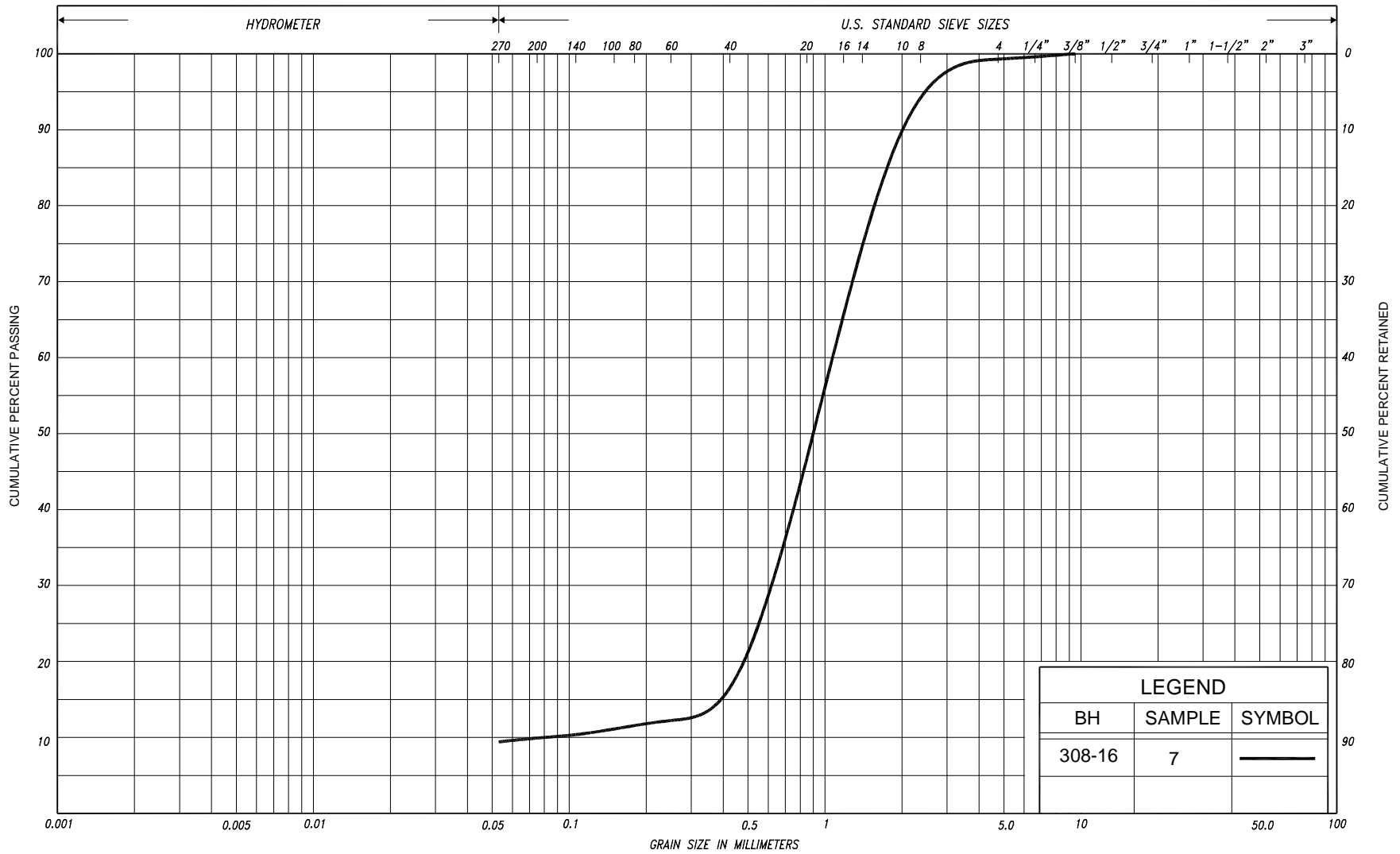
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL							U.S. BUREAU
					SAND												



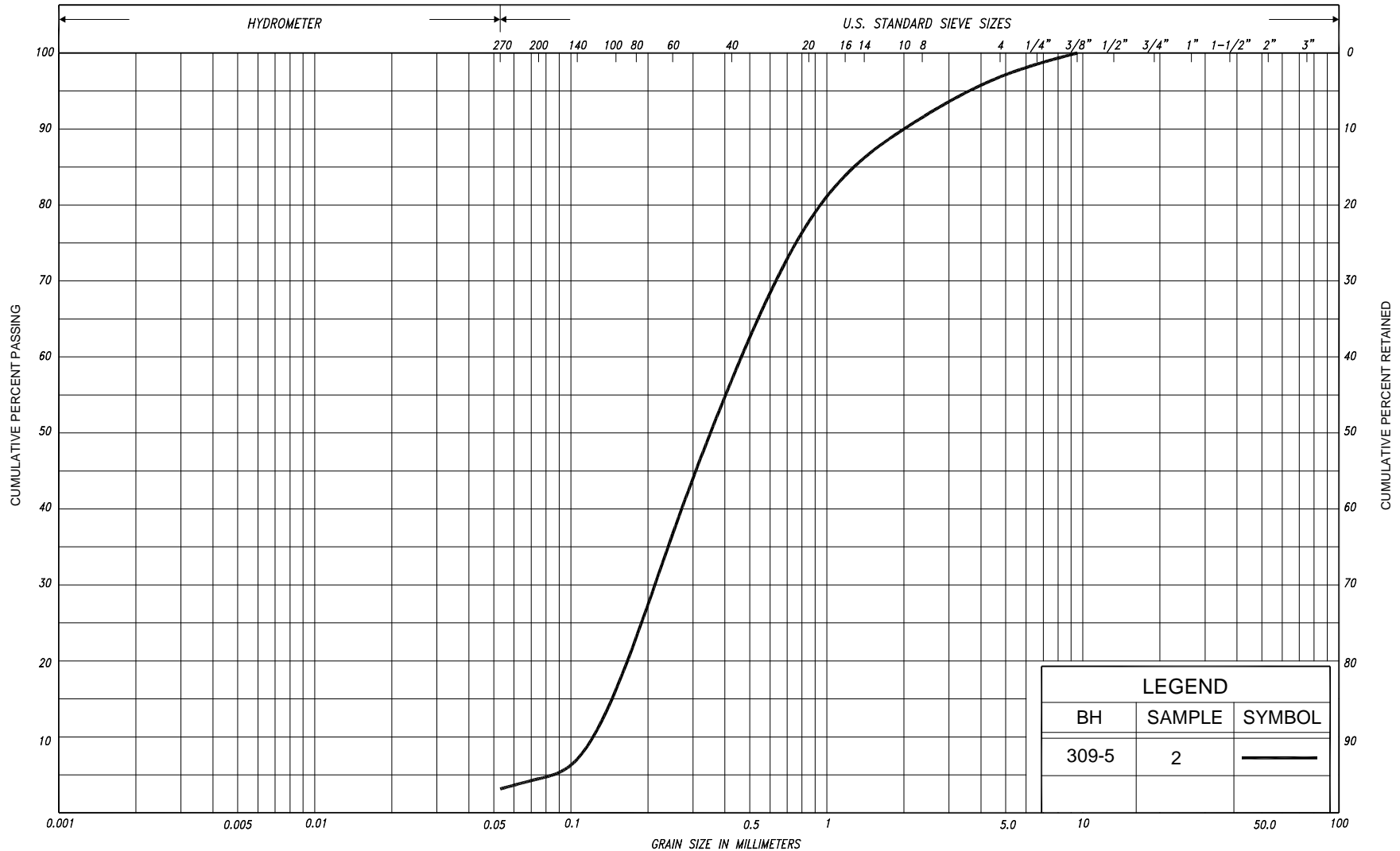
SILT & CLAY				FINE		MEDIUM		COARSE		GRAVEL				COBBLES	UNIFIED					
				SAND																
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL				COBBLES	M.I.T.		
	SILT																			
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL						U.S. BUREAU				
									SAND											



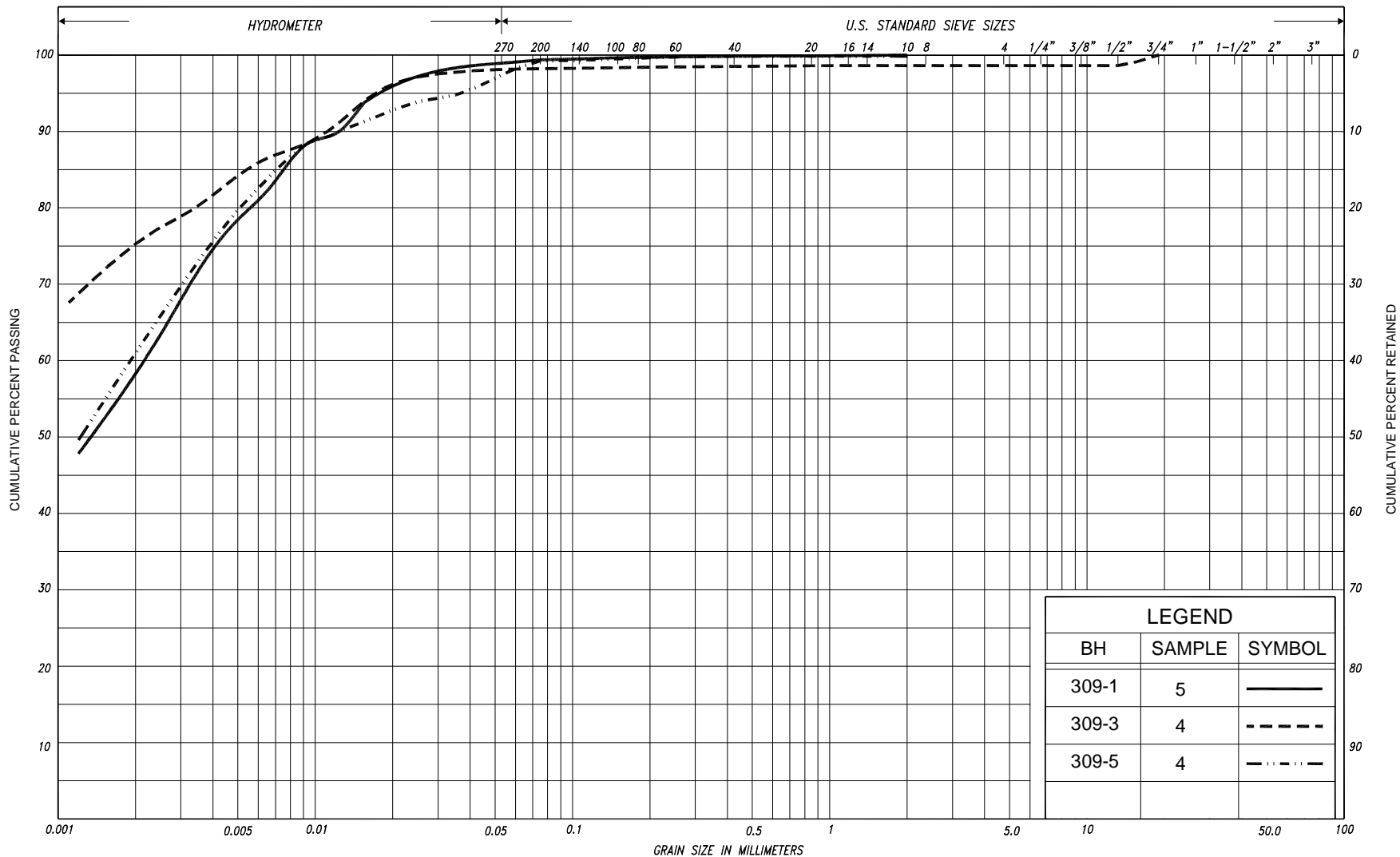
SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED
CLAY	FINE	MEDIUM		COARSE	FINE		MEDIUM		COARSE	GRAVEL			COBBLES	M.I.T.
	SILT			SAND										
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL			U.S. BUREAU		



SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL				COBBLES	UNIFIED
CLAY	FINE		MEDIUM		COARSE	SAND									
						FINE		MEDIUM		COARSE		GRAVEL			COBBLES
CLAY		SILT				V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU
						SAND									



SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE	GRAVEL		COBBLES	UNIFIED
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	SAND			GRAVEL		COBBLES	M.I.T.
CLAY		SILT		V. FINE	FINE	MED.	COARSE	SAND			GRAVEL		U.S. BUREAU



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
CLAY				SAND						

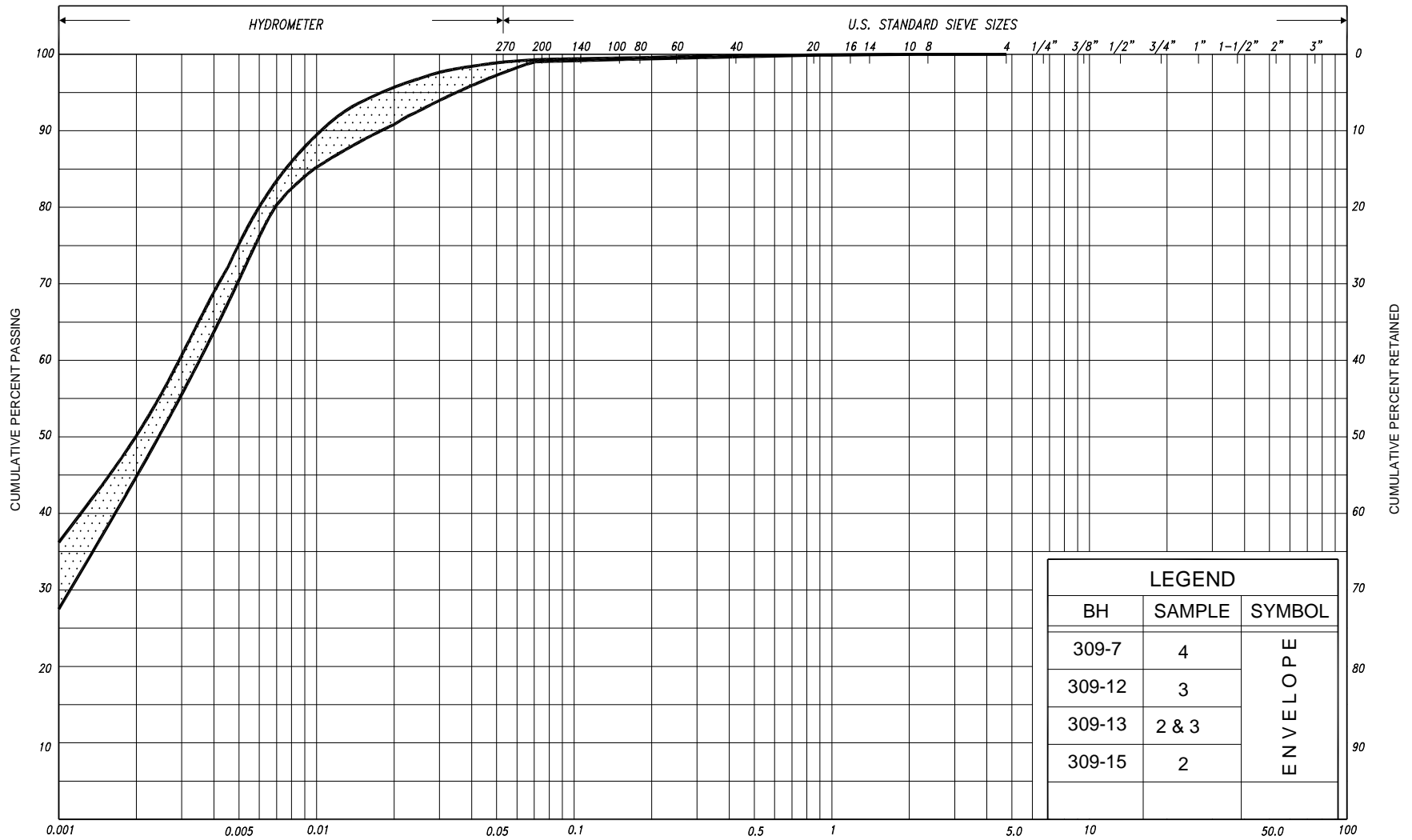
GRAIN SIZE DISTRIBUTION

CLAY, trace sand, trace gravel

FIG No. 309-GS-2

HWY: 69

G.W.P. No. 5203-06-00



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED
				SAND									
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM		COARSE	GRAVEL			COBBLES	M.I.T.	
	SILT			SAND									
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL			U.S. BUREAU		
				SAND									

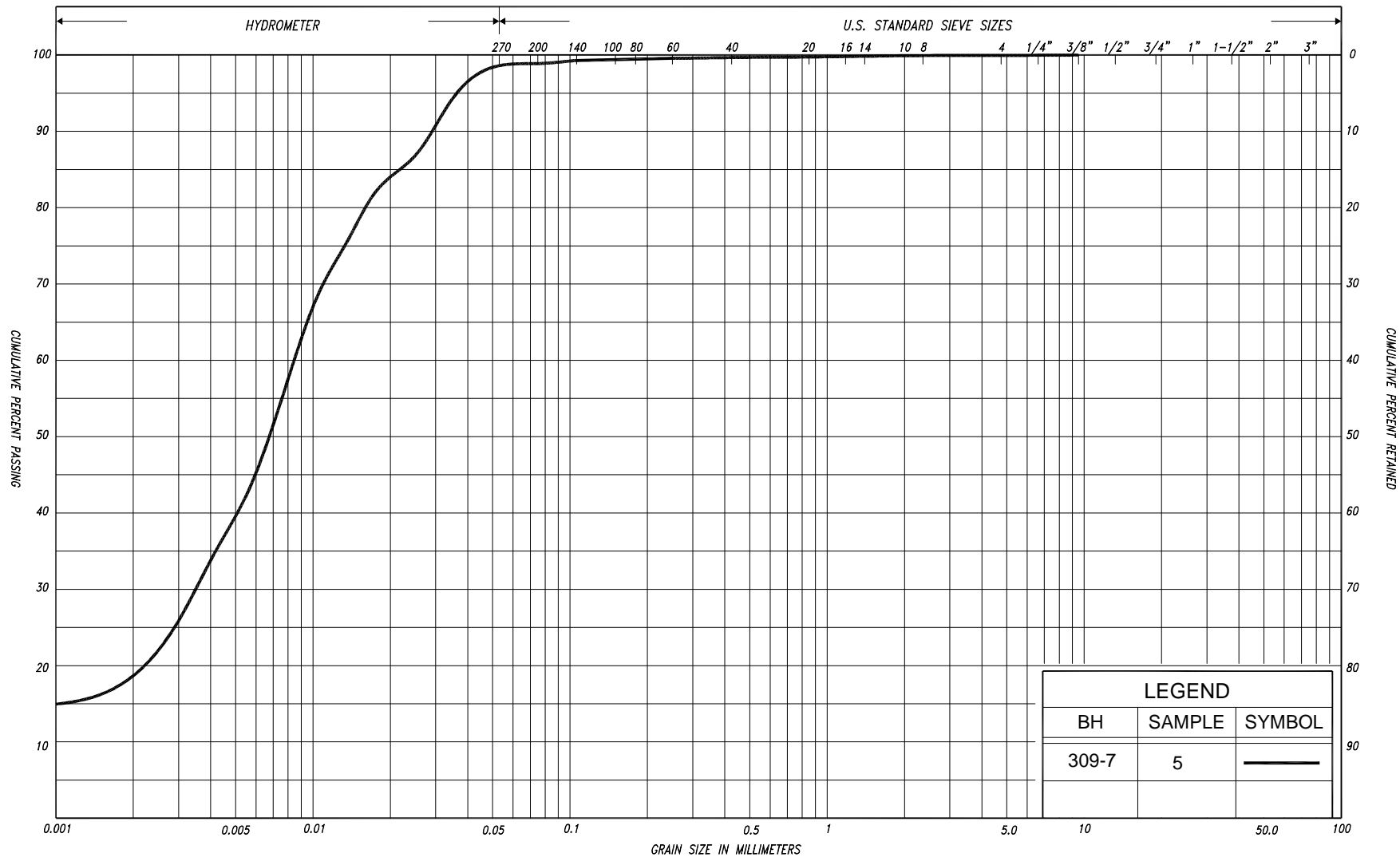
GRAIN SIZE DISTRIBUTION

SILTY CLAY, trace sand

FIG No. 309-GS-3

HWY: 69

G.W.P. No. 5203-06-00



SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED		
					SAND											
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.	
	SILT															
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL							U.S. BUREAU
					SAND											

GRAIN SIZE DISTRIBUTION

CLAYEY SILT, trace sand

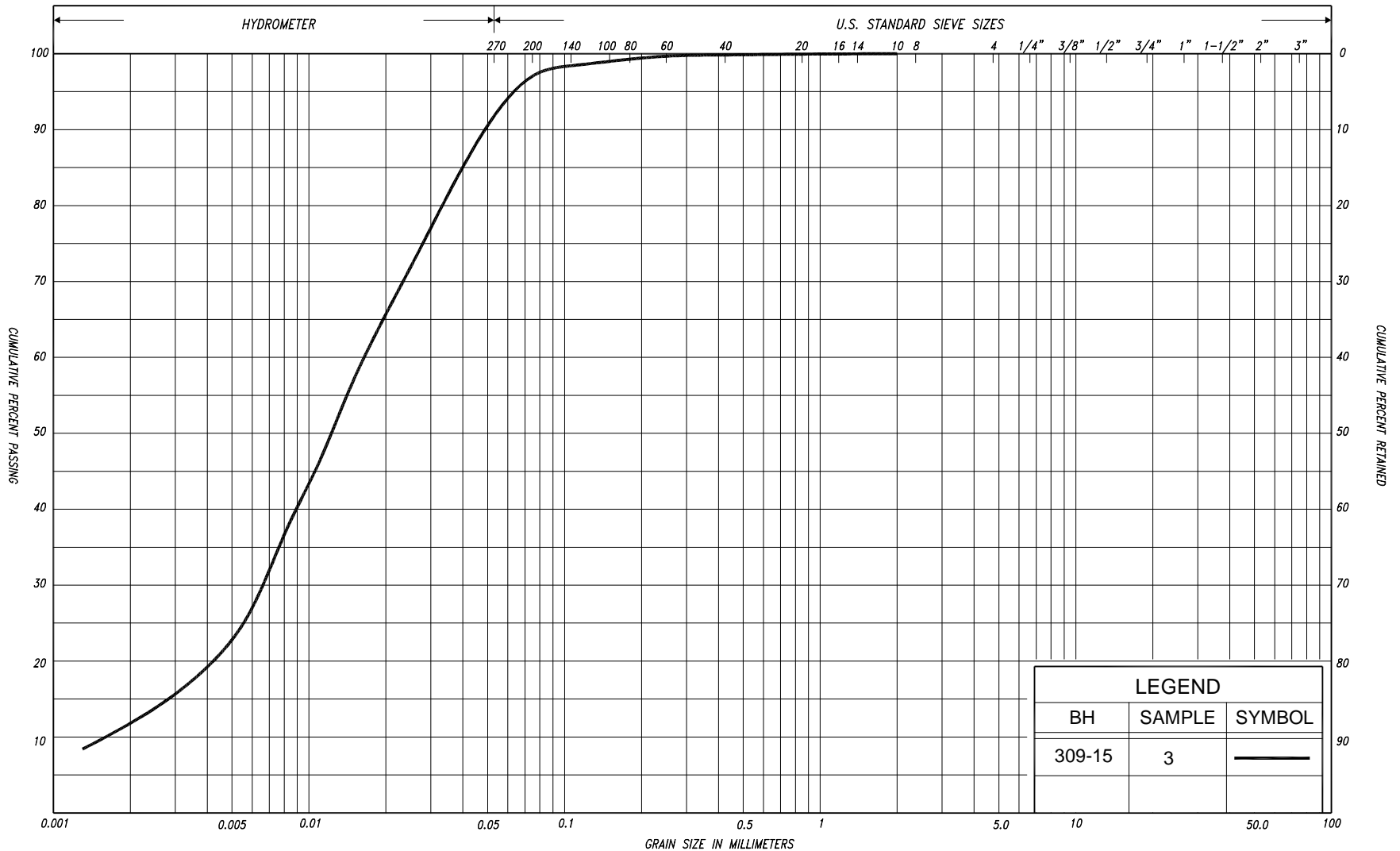
FIG No. 309-GS-4

HWY: 69

G.W.P. No. 5203-06-00



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SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED			
					SAND												
CLAY	FINE		MEDIUM		COARSE	FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.	
	SILT											GRAVEL					
CLAY		SILT			V. FINE	FINE	MED.	COARSE									
					SAND												
															U.S. BUREAU		

GRAIN SIZE DISTRIBUTION

SILT, some clay, trace sand

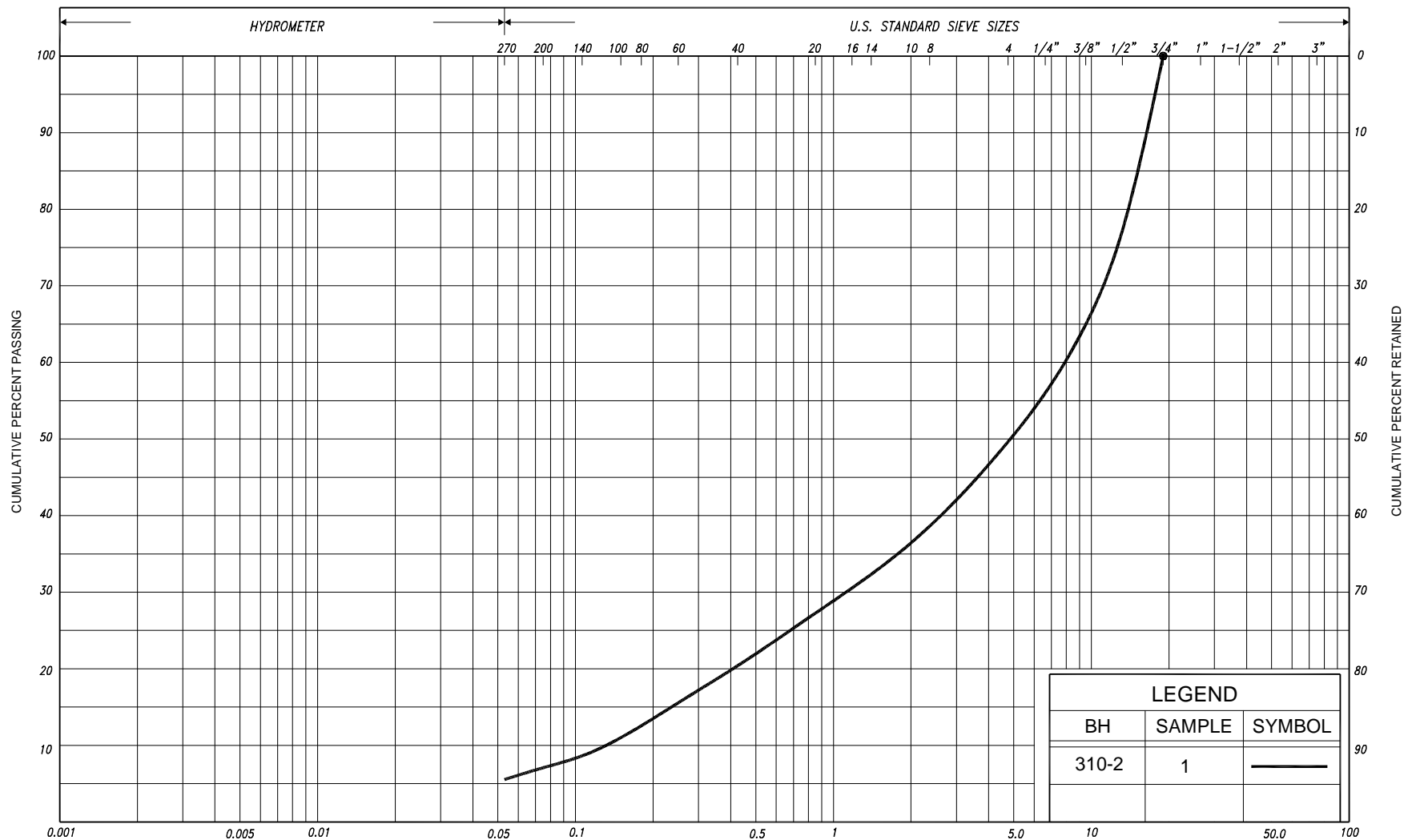
FIG No. 309-GS-5

HWY: 69

G.W.P. No. 5203-06-00



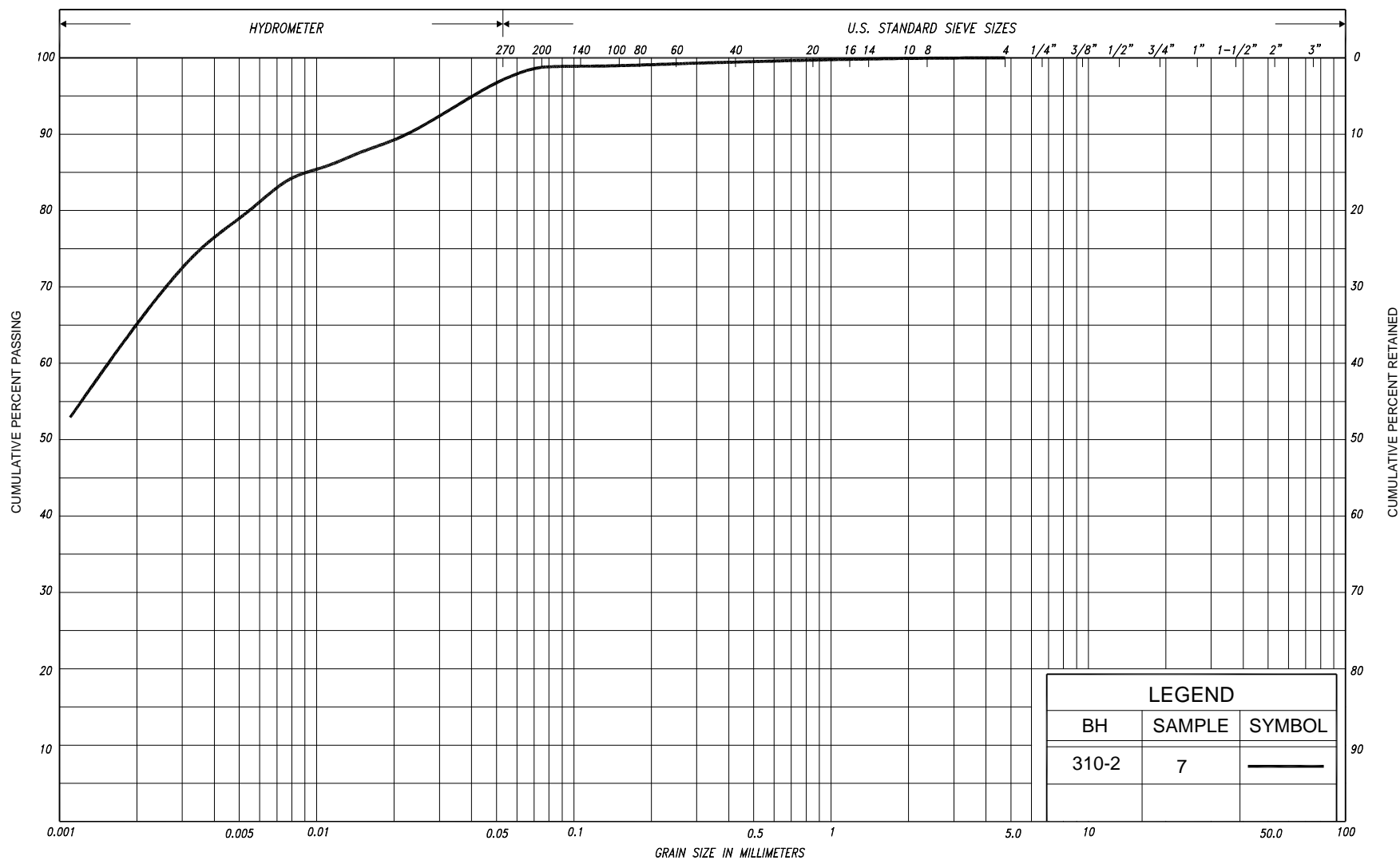
Ministry of
Transportation
Ontario



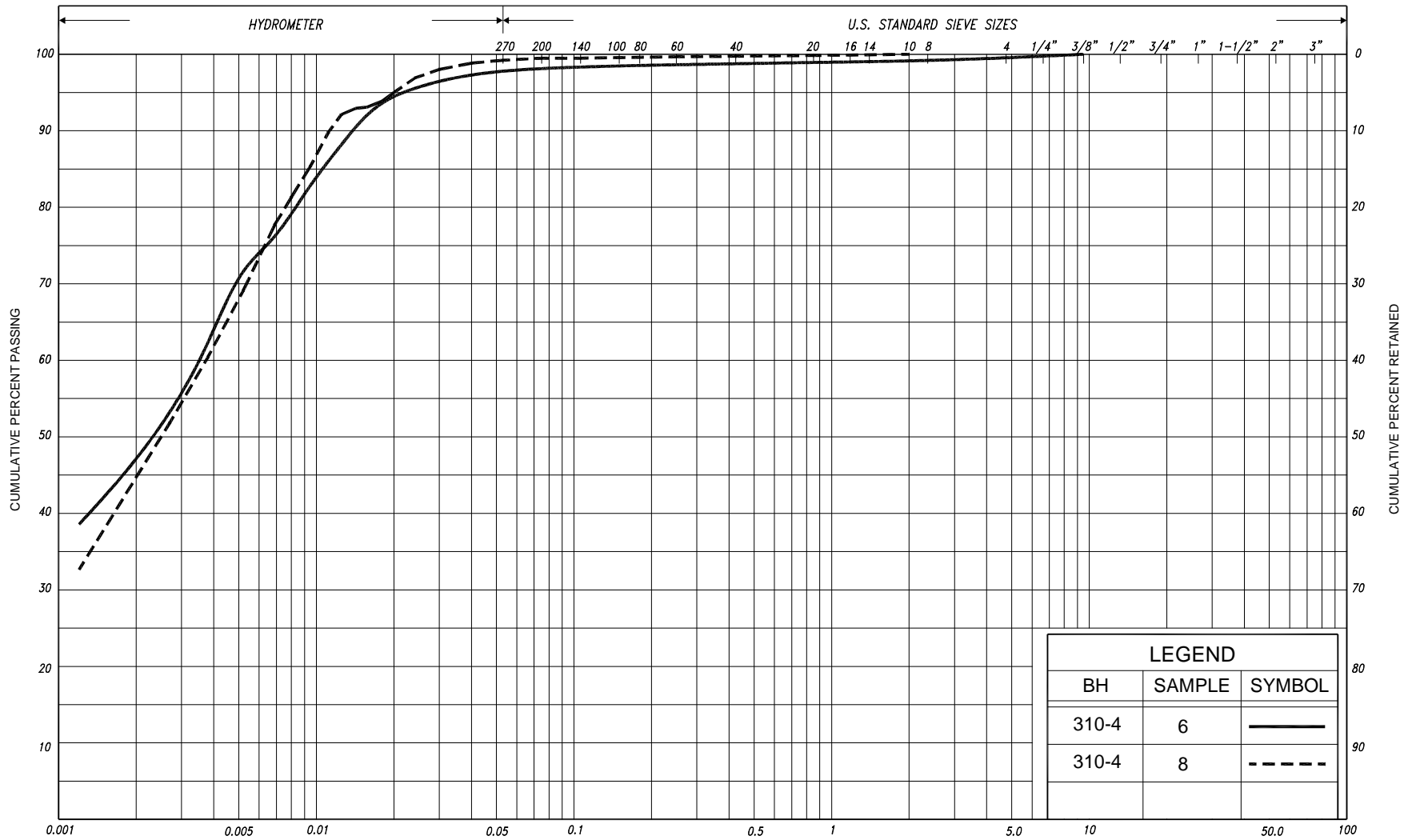
SILT & CLAY					FINE		MEDIUM		COARSE	GRAVEL				COBBLES	UNIFIED	
CLAY	FINE		MEDIUM		COARSE	FINE		MEDIUM		COARSE	GRAVEL				COBBLES	M.I.T.
	SILT					SAND										
CLAY			SILT			V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU

GRAIN SIZE DISTRIBUTION SAND and GRAVEL, trace silt (FILL)

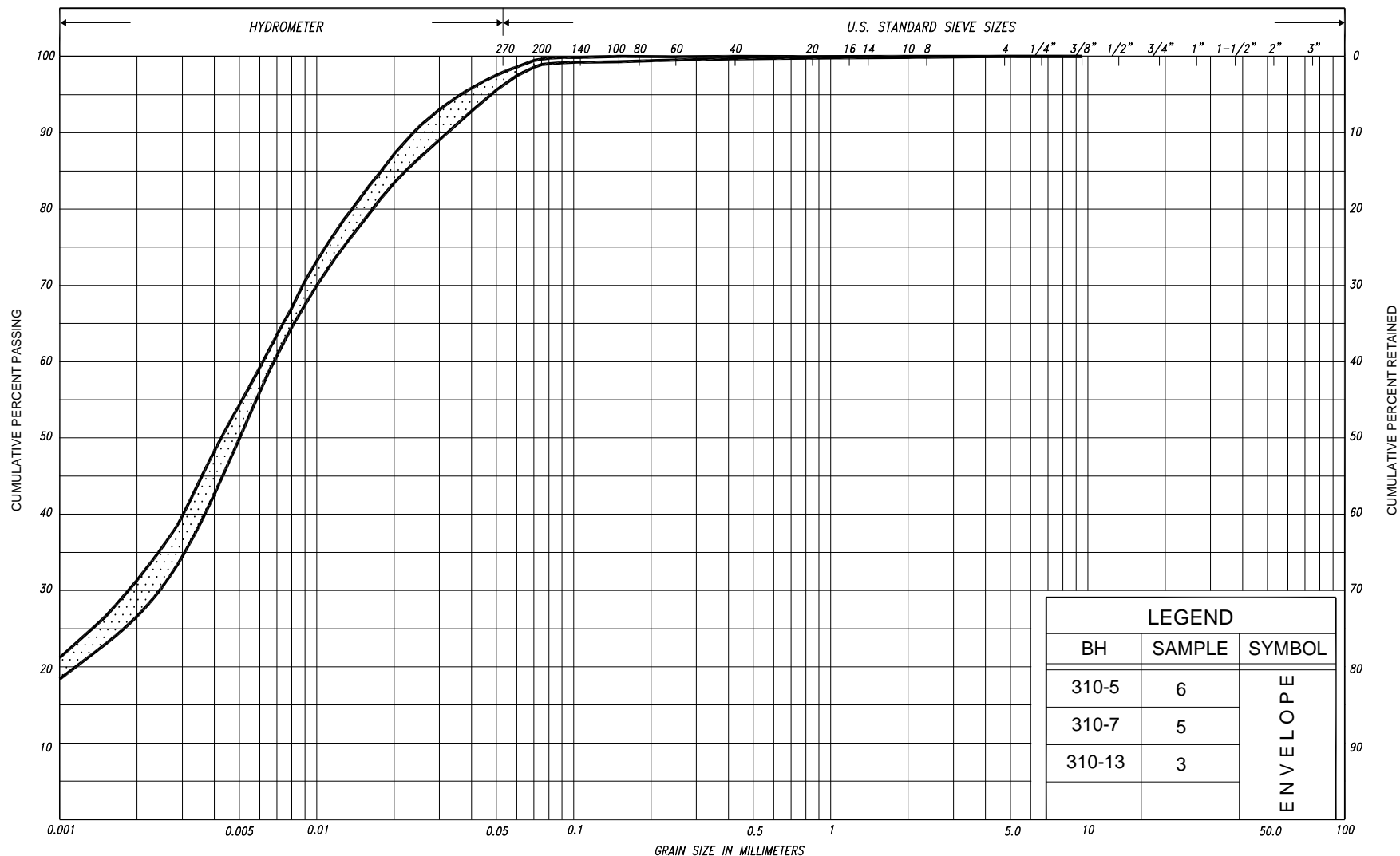
FIG No. 310-GS-1
 HWY: 69
 G.W.P. No. 5203-06-00



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED	
					SAND											
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.
	SILT							SAND								
CLAY		SILT			V. FINE		FINE		MED.		COARSE		GRAVEL			U.S. BUREAU
					SAND											



SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND	GRAVEL		COBBLES	UNIFIED
				FINE SAND			MEDIUM SAND		COARSE SAND	GRAVEL		COBBLES	M.I.T.
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU			



SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
				SAND						
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
				SAND						

GRAIN SIZE DISTRIBUTION

CLAYEY SILT, trace sand

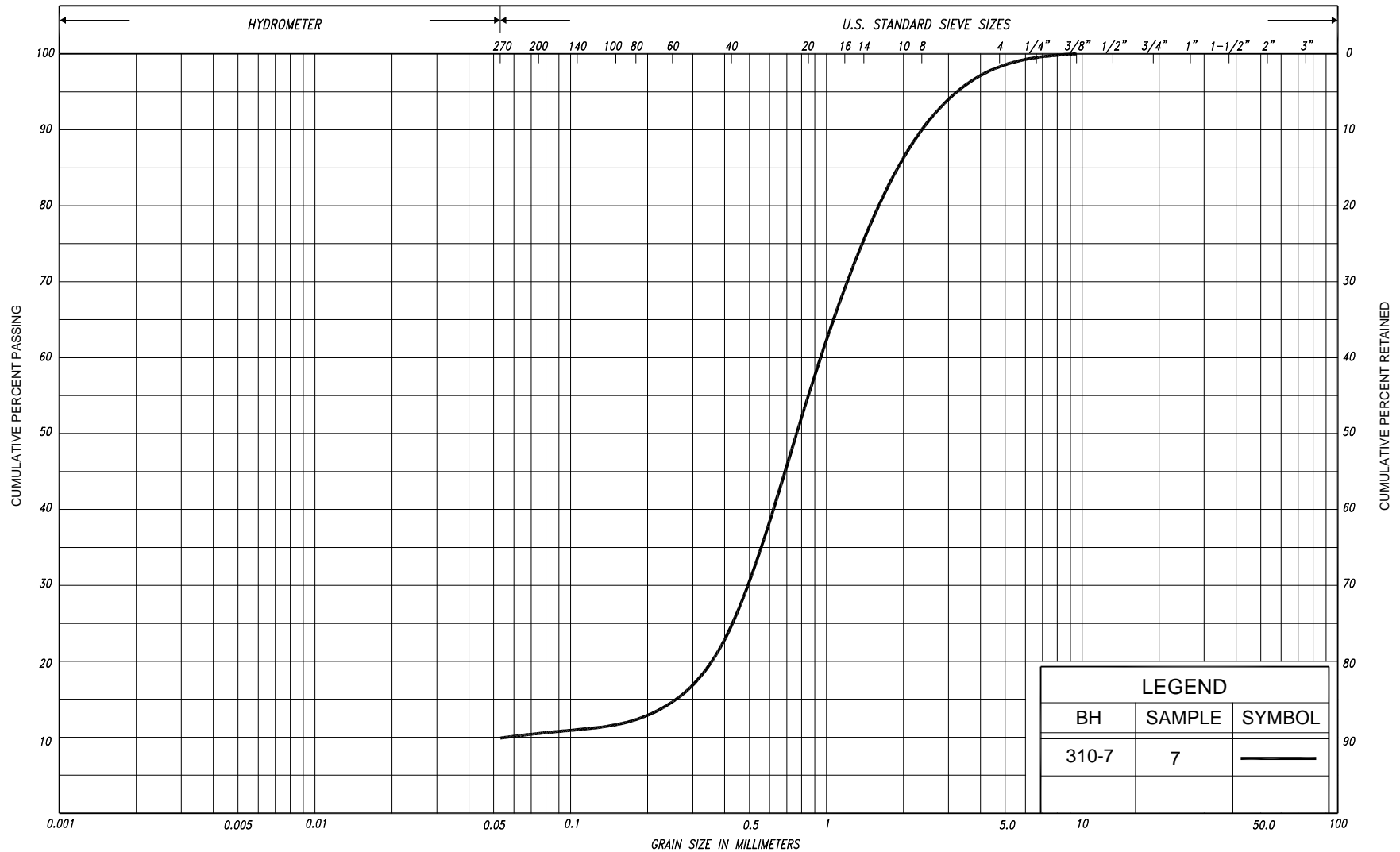
FIG No. 310-GS-4

HWY: 69

G.W.P. No. 5203-06-00



Ministry of
Transportation
Ontario



LEGEND		
BH	SAMPLE	SYMBOL
310-7	7	—

SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED
CLAY	FINE		MEDIUM	COARSE	SAND						COBBLES		
	SILT			FINE	MEDIUM		COARSE	GRAVEL					
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU

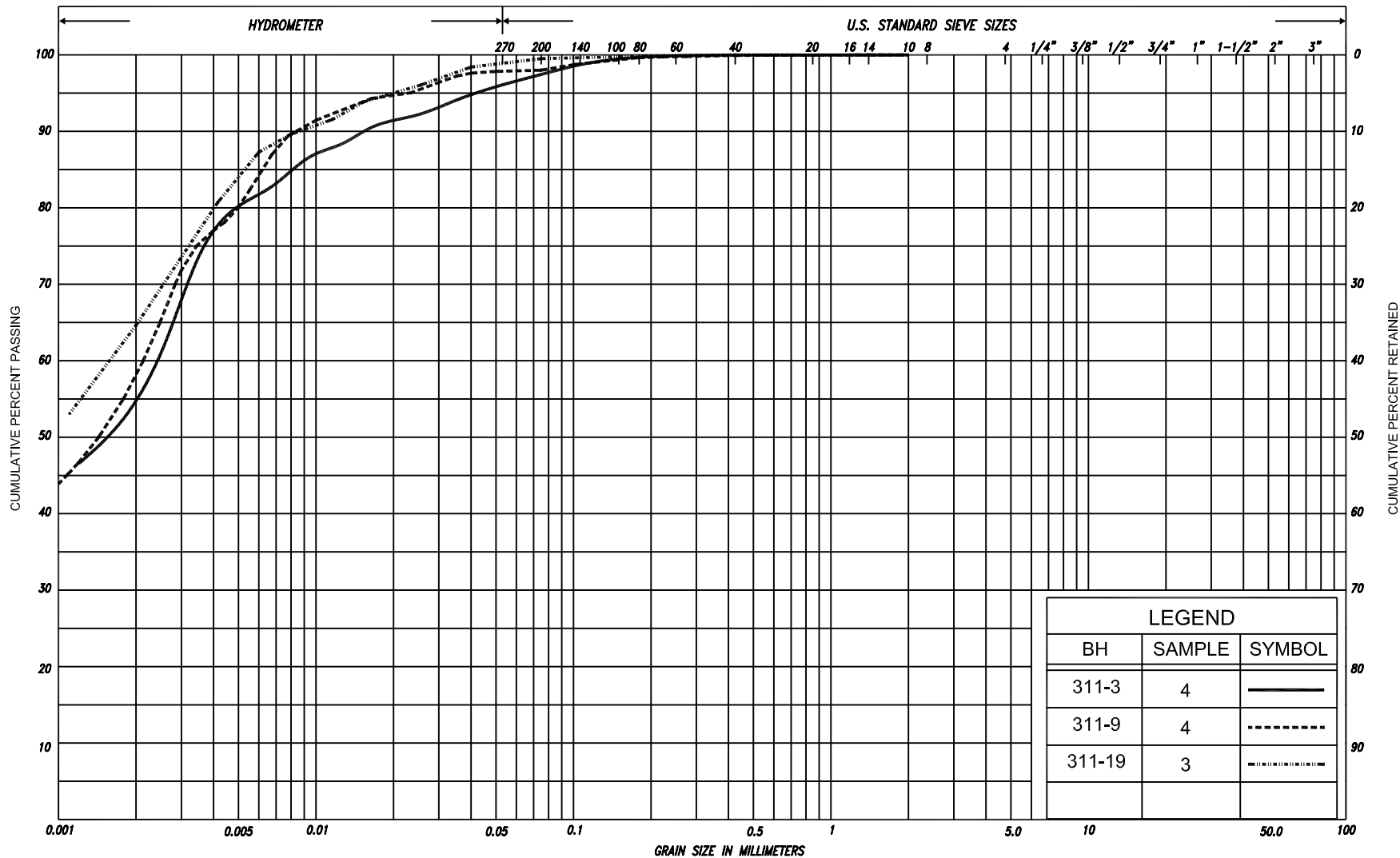
GRAIN SIZE DISTRIBUTION

SAND, trace to some silt, trace gravel

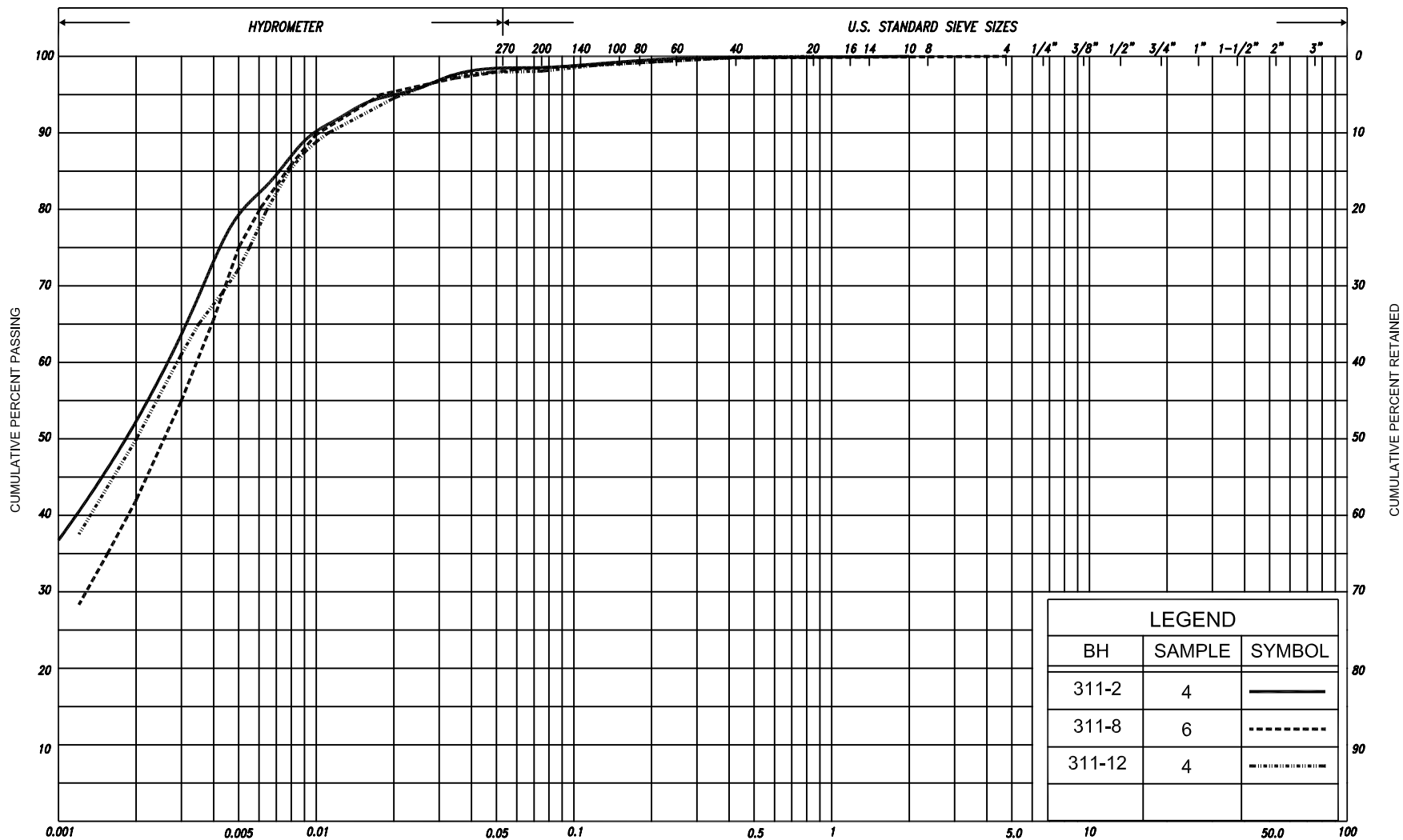
FIG No. 310-GS-5

HWY: 69

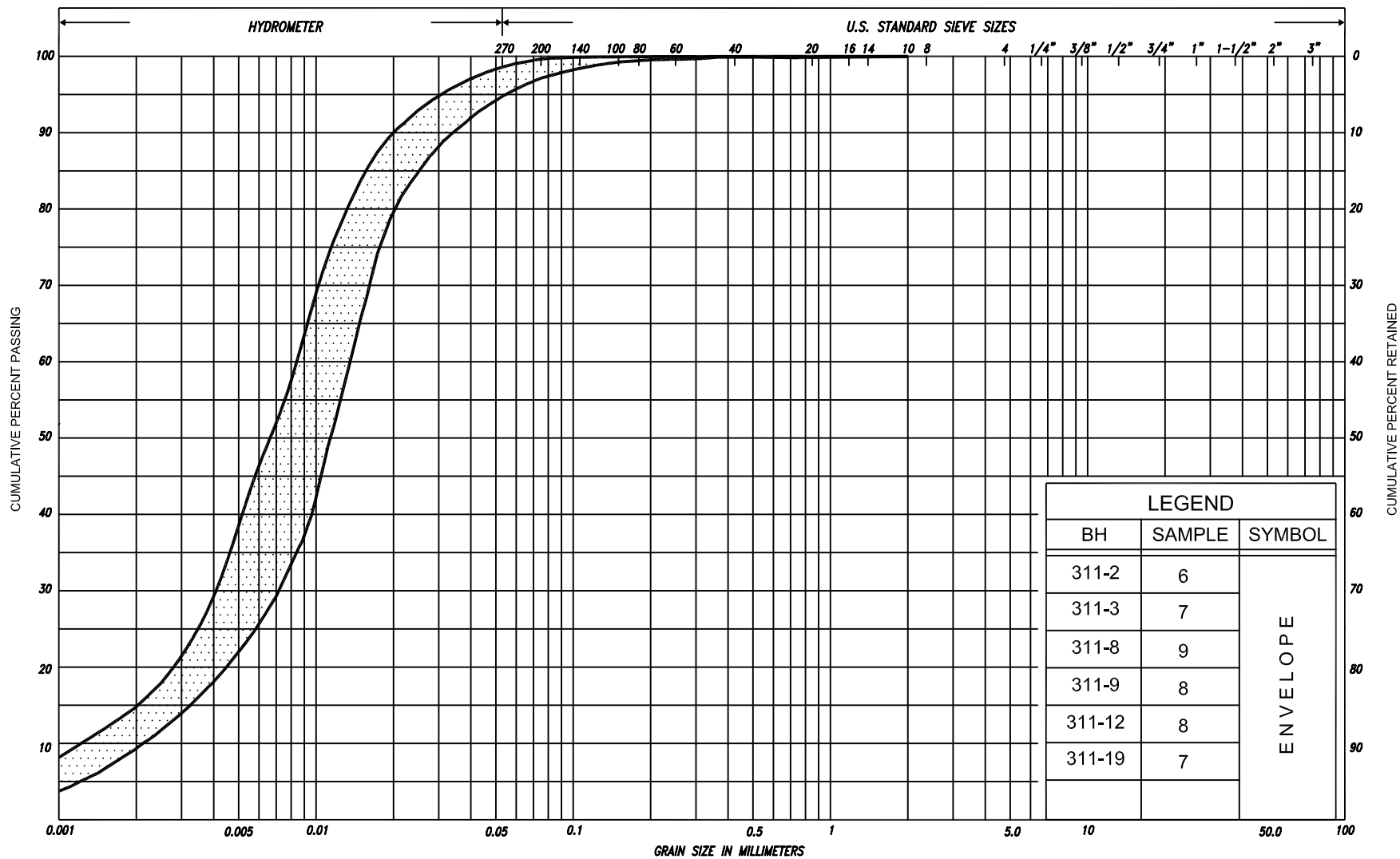
G.W.P. No. 5203-06-00



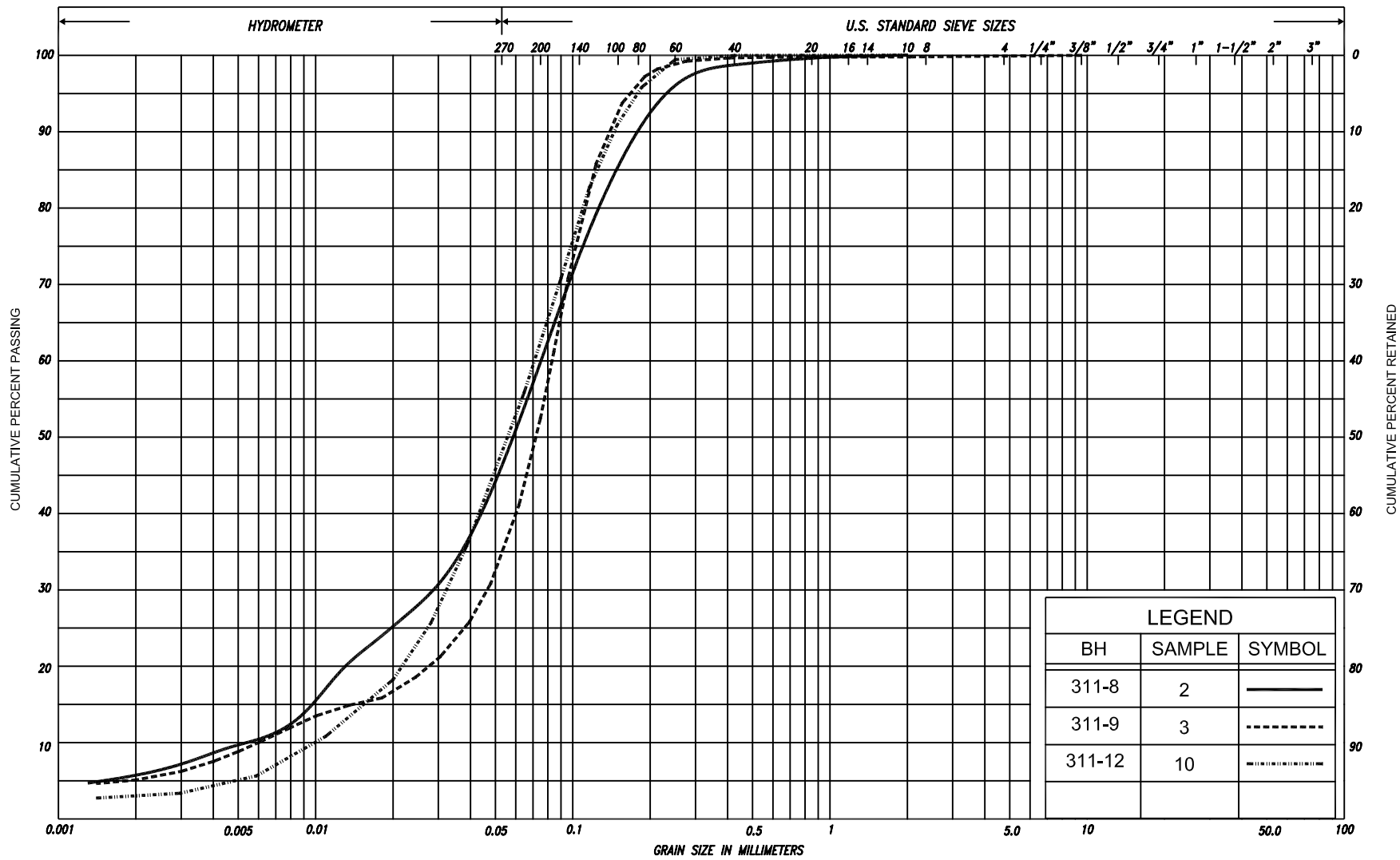
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL							U.S. BUREAU	
					SAND												



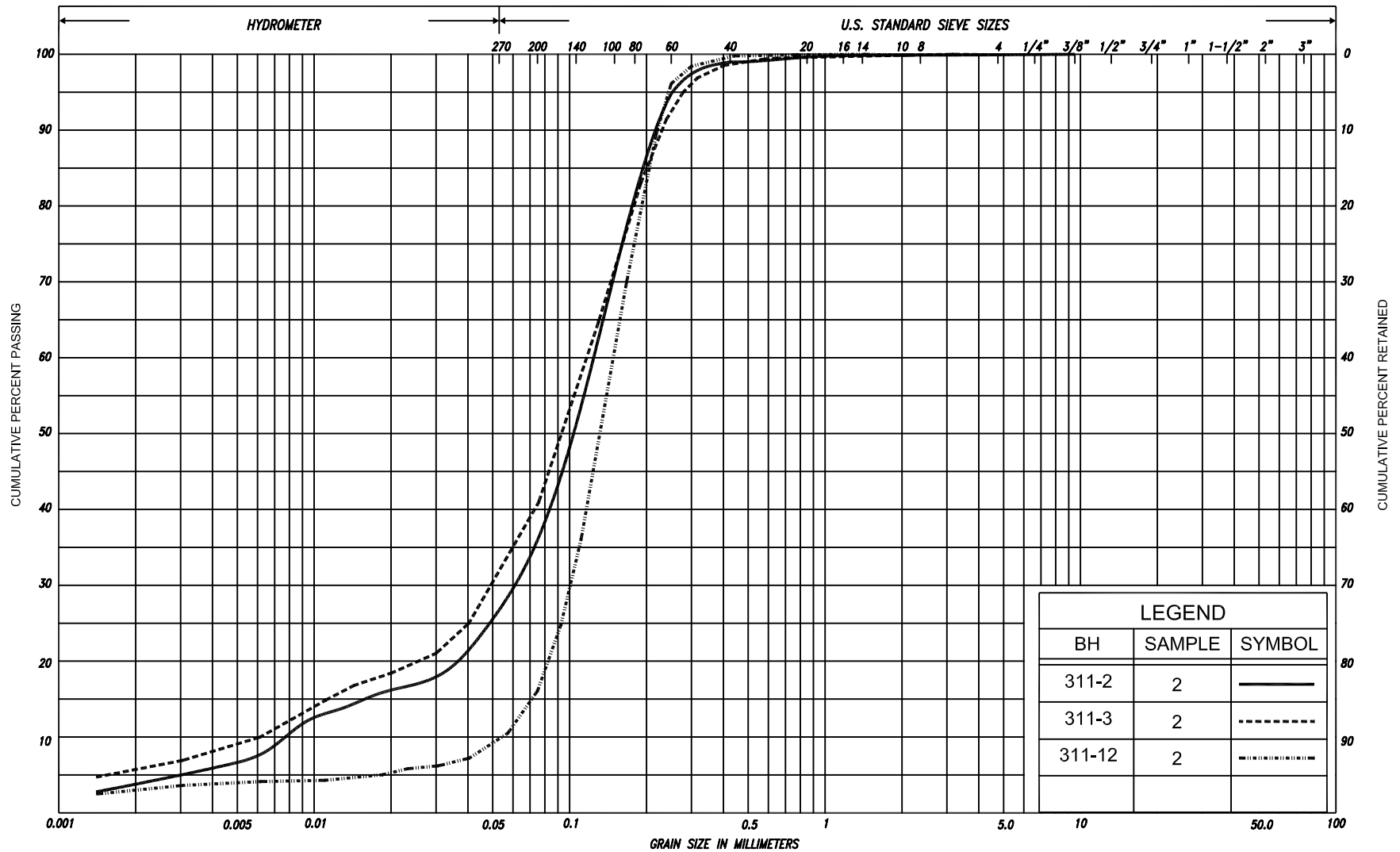
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL				COB BLES	UNIFIED		
					SAND													
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL				COBBLES	M.I.T.
	SILT																	
CLAY			SILT			V. FINE	FINE	MED.	COARSE		GRAVEL							U.S. BUREAU
					SAND													



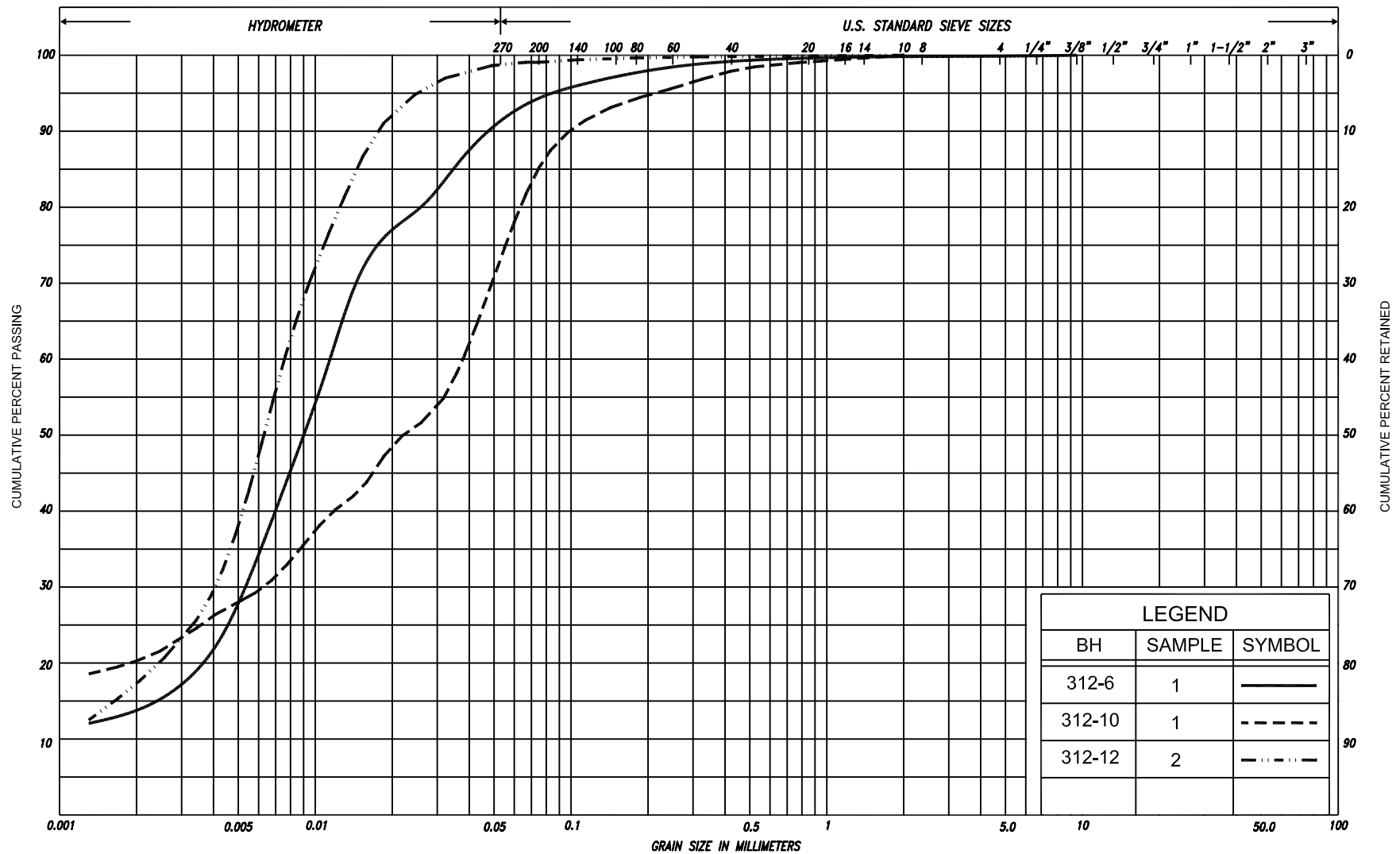
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED	
CLAY	FINE	MEDIUM	COARSE	FINE		MEDIUM	COARSE		GRAVEL			COBBLES	M.I.T.	
	SILT				SAND									
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
CLAY	FINE		MEDIUM		COARSE		SAND								M.I.T.		
							FINE		MEDIUM		COARSE		GRAVEL			COBBLES	
	SILT																
CLAY			SILT			V. FINE	FINE	MED.	COARSE	SAND		GRAVEL			U.S. BUREAU		



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED	
CLAY	FINE		MEDIUM		COARSE		SAND									
							FINE		MEDIUM		COARSE		GRAVEL			COBBLES
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL						U.S. BUREAU
				SAND												



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COR BLES	UNIFIED		
				SAND											
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE	GRAVEL		COBBLES	M.I.T.
	SILT						SAND								
CLAY		SILT			V. FINE		FINE	MED.	COARSE	GRAVEL					U.S. BUREAU
				SAND											

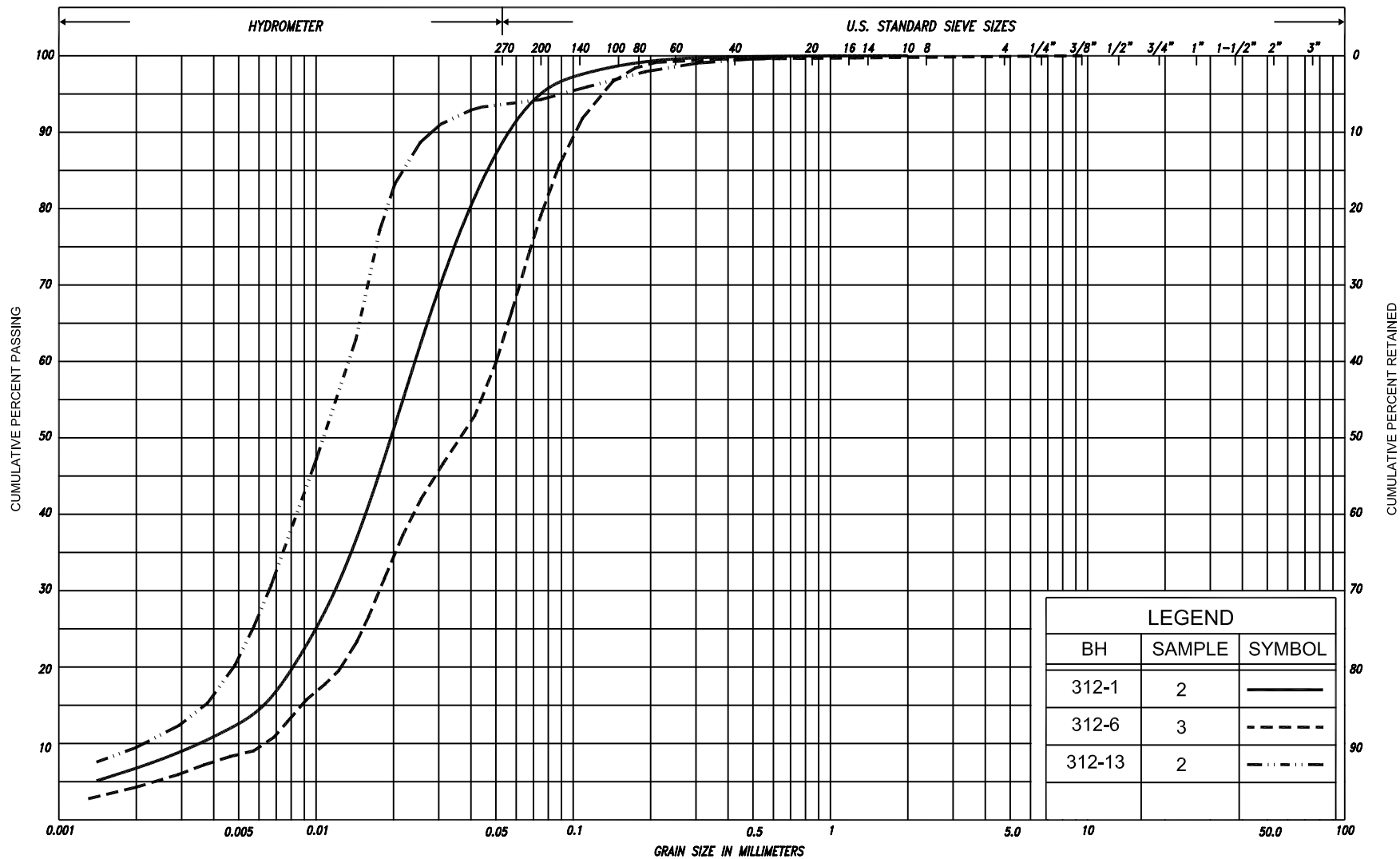
GRAIN SIZE DISTRIBUTION

CLAYEY SILT, trace to some sand

FIG No. 312-GS-1

HWY: 69

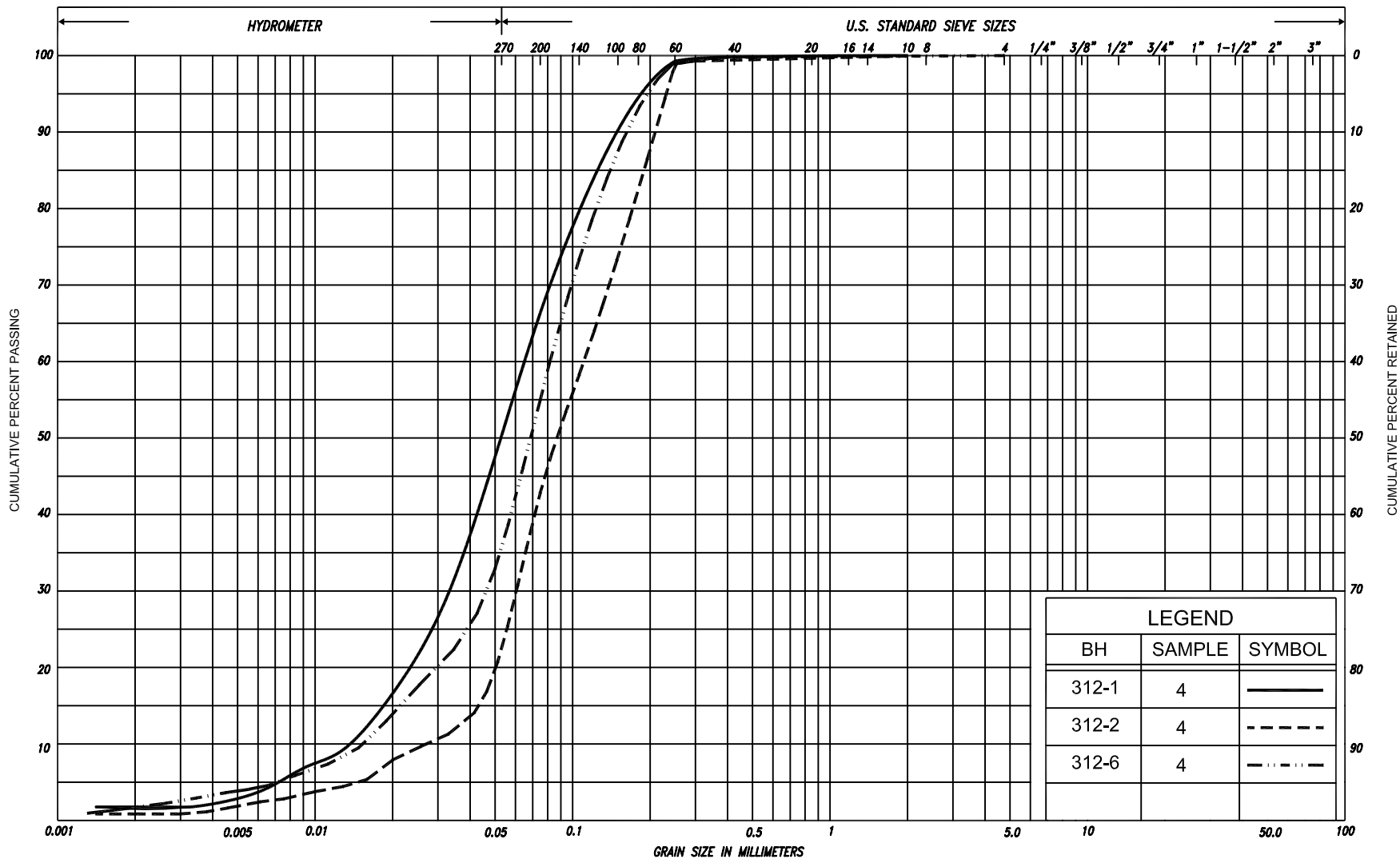
G.W.P. No. 5203-06-00



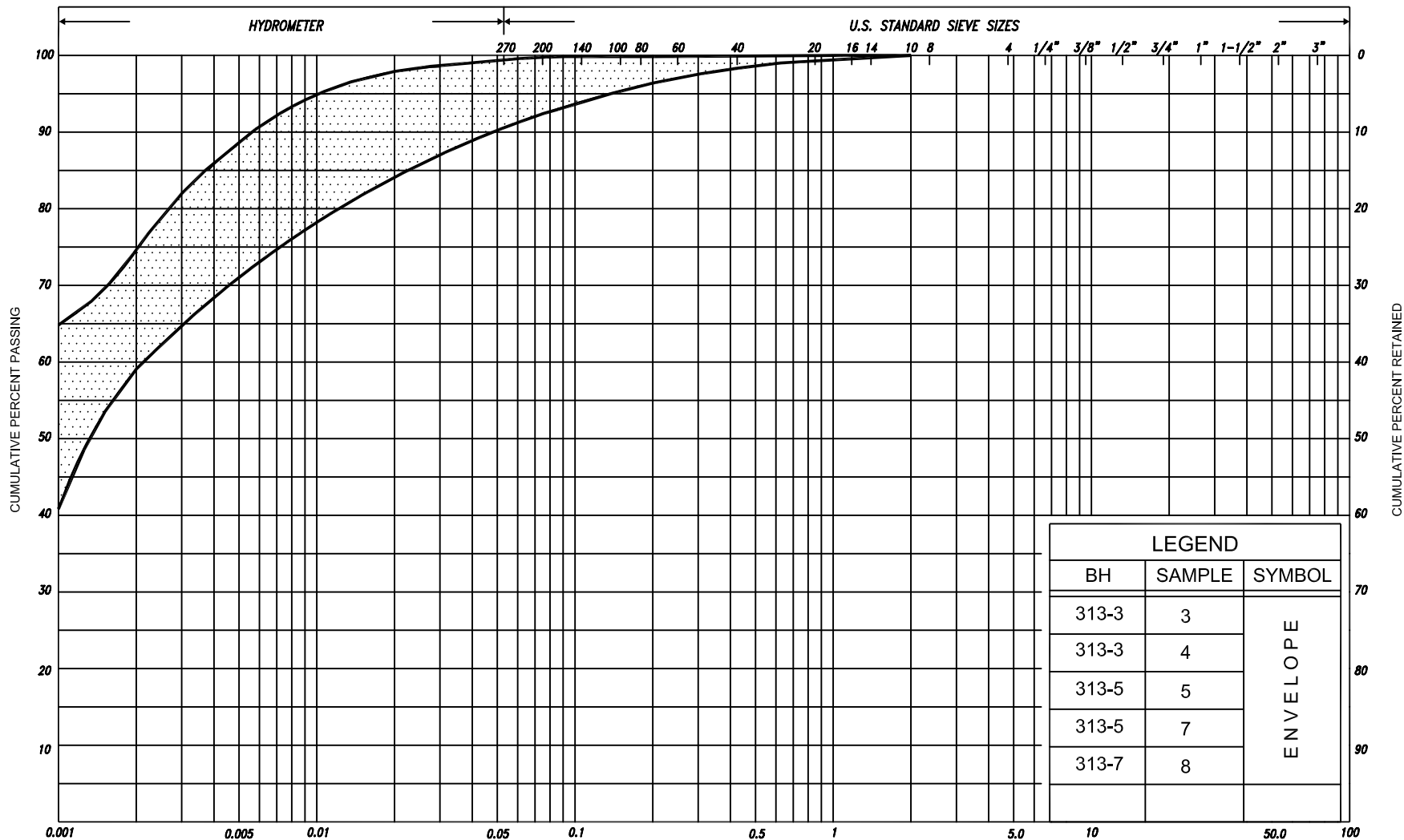
SILT & CLAY				FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
				SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.
	SILT															
CLAY			SILT			V. FINE		FINE	MED.	COARSE		GRAVEL				U.S. BUREAU
						SAND										

GRAIN SIZE DISTRIBUTION

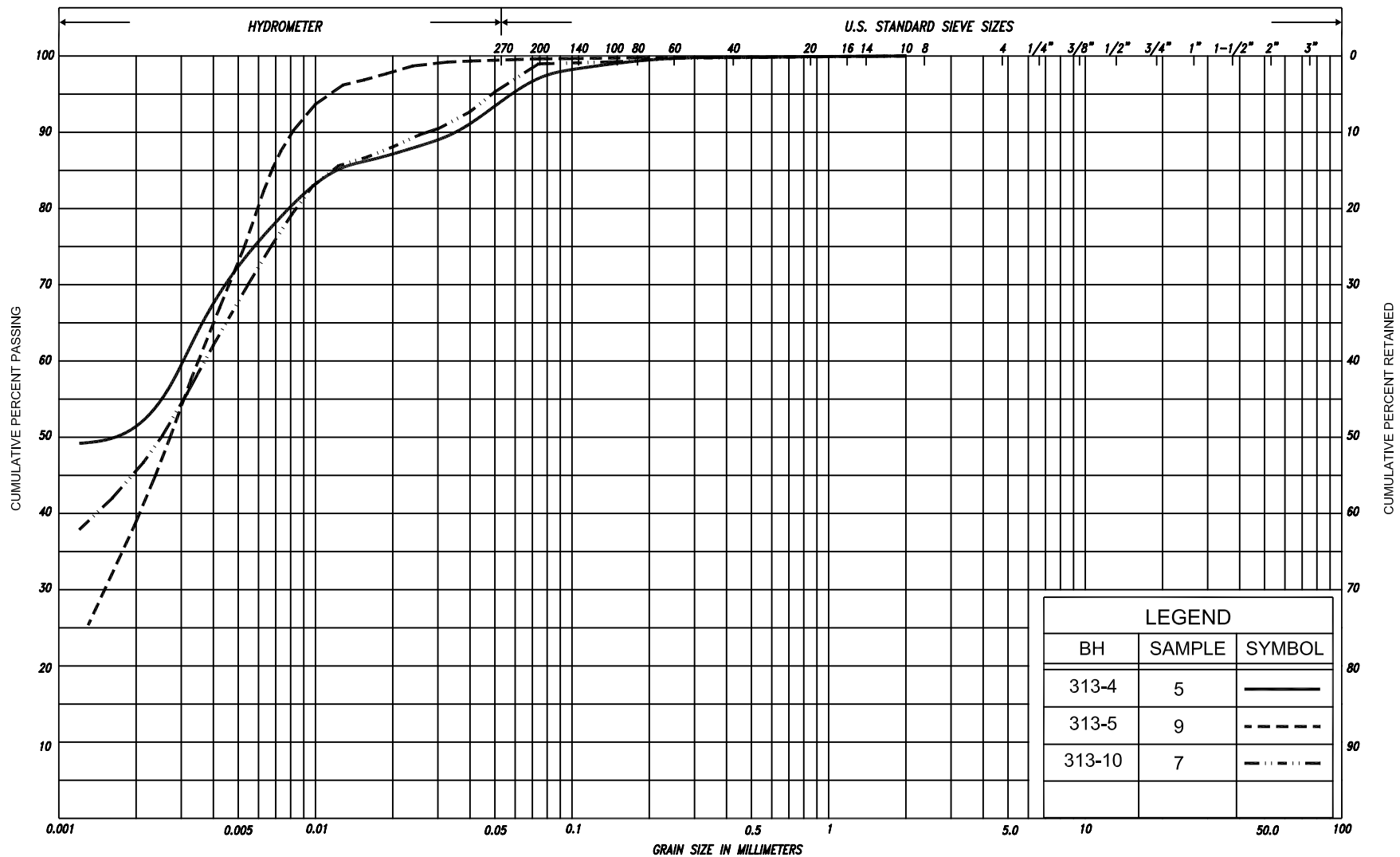
SILT, trace to some sand



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL			COB BLES	UNIFIED		
					SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT																
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL							U.S. BUREAU	
					SAND												



SILT & CLAY				FINE SAND			COARSE SAND		GRAVEL		COBBLES	UNIFIED
				SAND								
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE			GRAVEL		COBBLES	M.I.T.
				SAND								
				V. FINE	FINE	MED.	COARSE			GRAVEL		U.S. BUREAU
				SAND								



SILT & CLAY				FINE		MEDIUM		COARSE		GRAVEL			COBBLES	UNIFIED		
				SAND												
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL		COBBLES	M.I.T.
	SILT												GRAVEL		COBBLES	
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL					U.S. BUREAU	
					SAND											

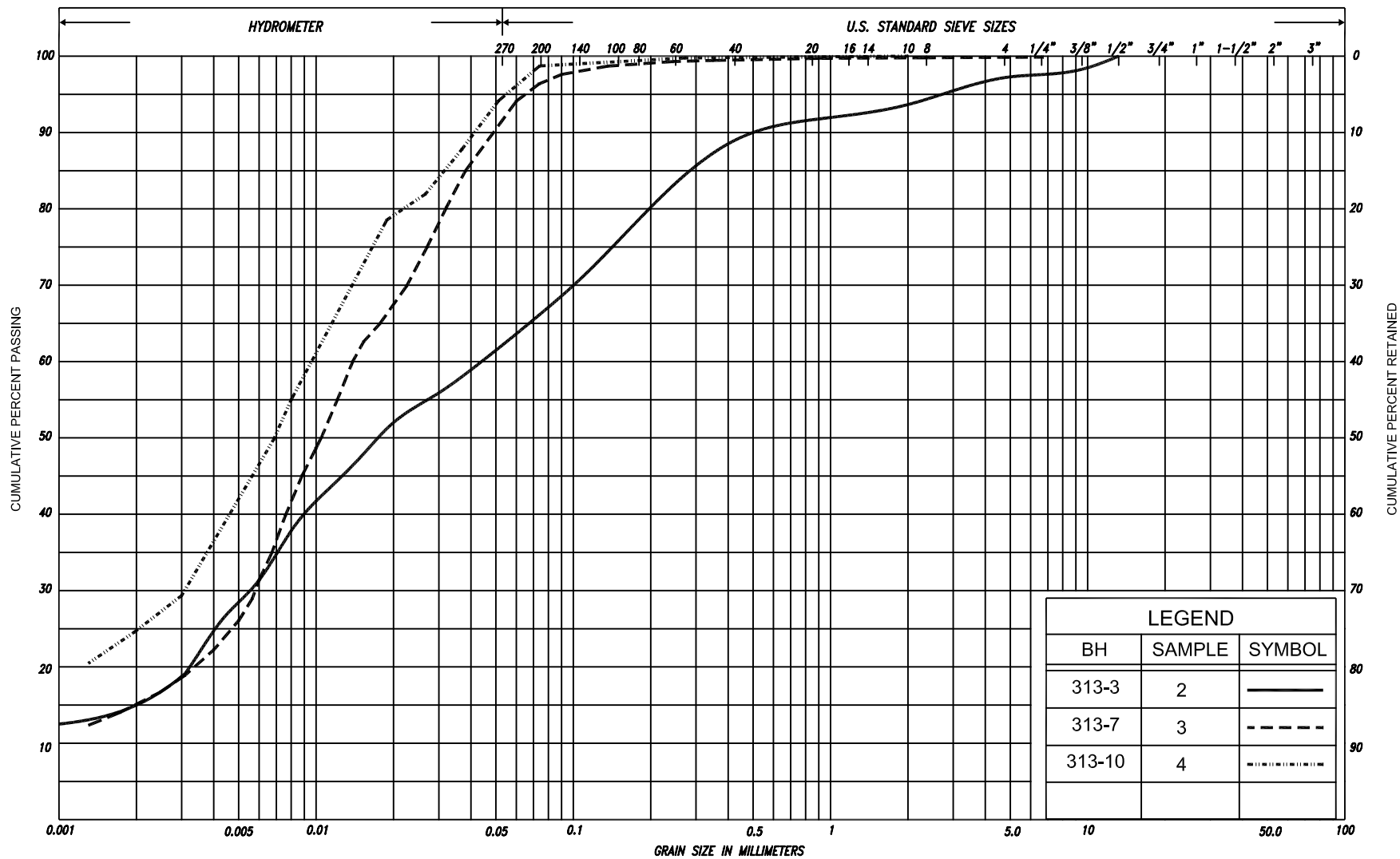
GRAIN SIZE DISTRIBUTION

SILTY CLAY, trace sand

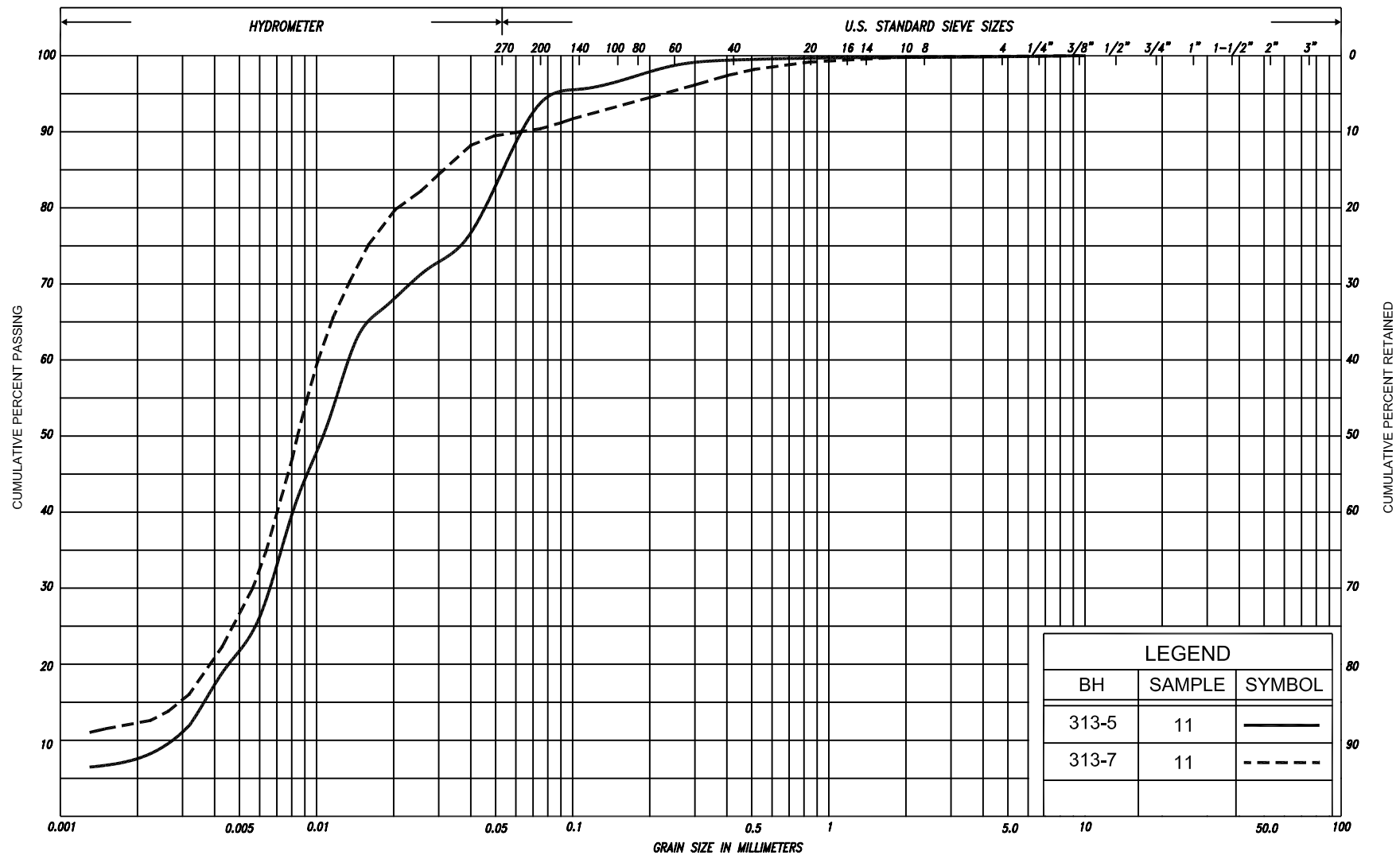
FIG No. 313-GS-2

HWY: 69

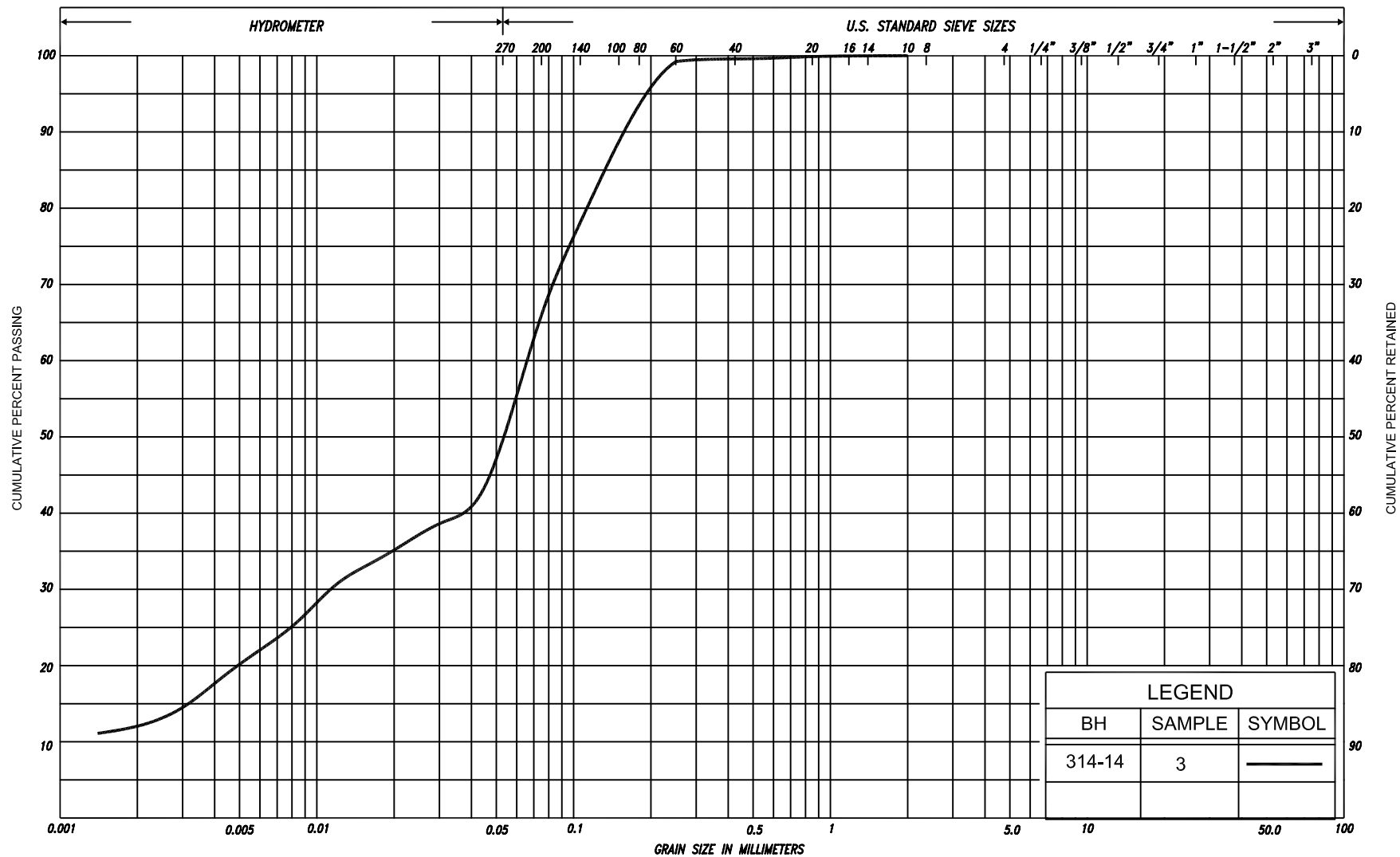
G.W.P. No. 5203-06-00



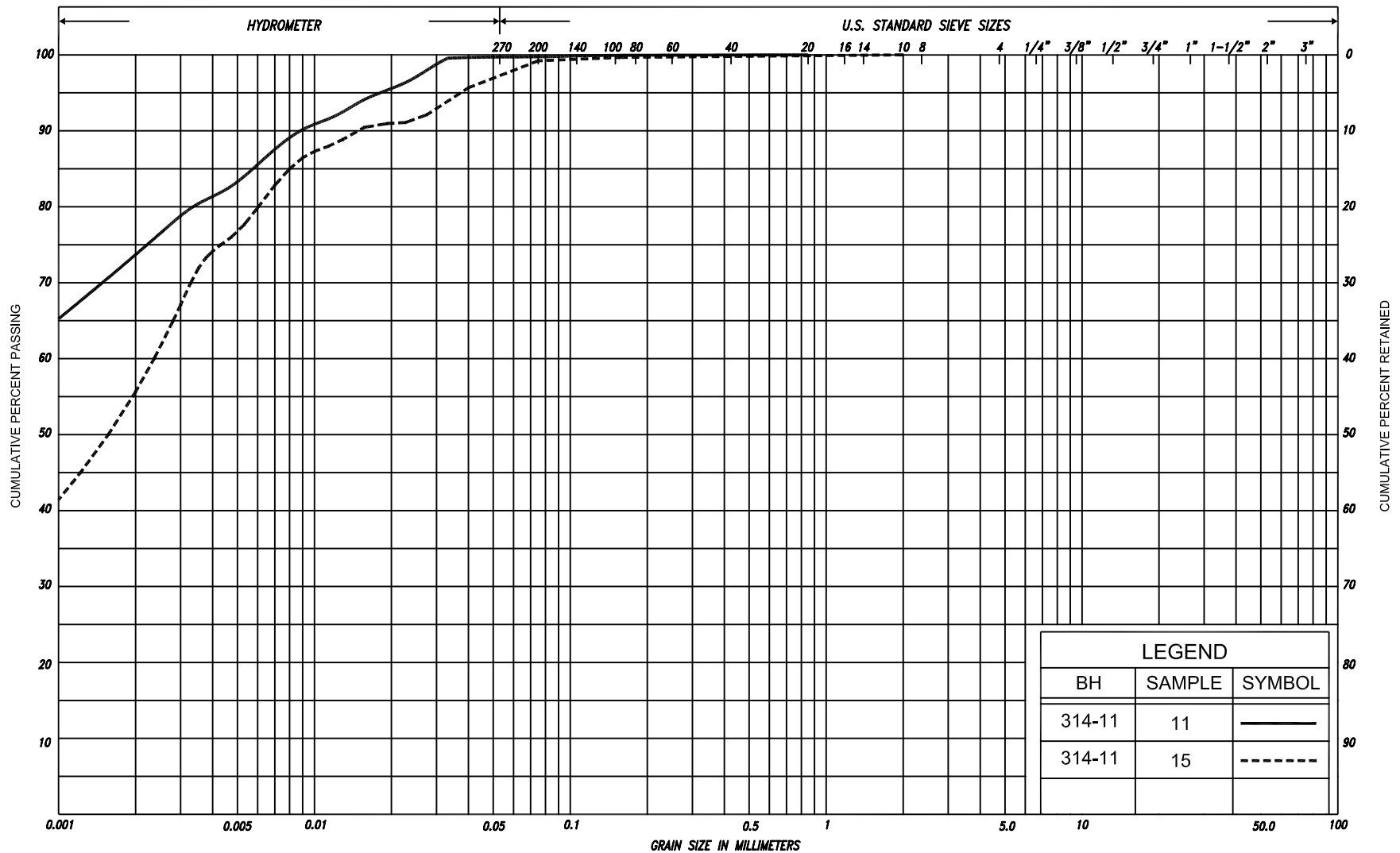
SILT & CLAY				FINE	MEDIUM	COARSE	GRAVEL		COBBLES	UNIFIED
				SAND						
CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	GRAVEL		COBBLES	M.I.T.
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL		U.S. BUREAU
				SAND						



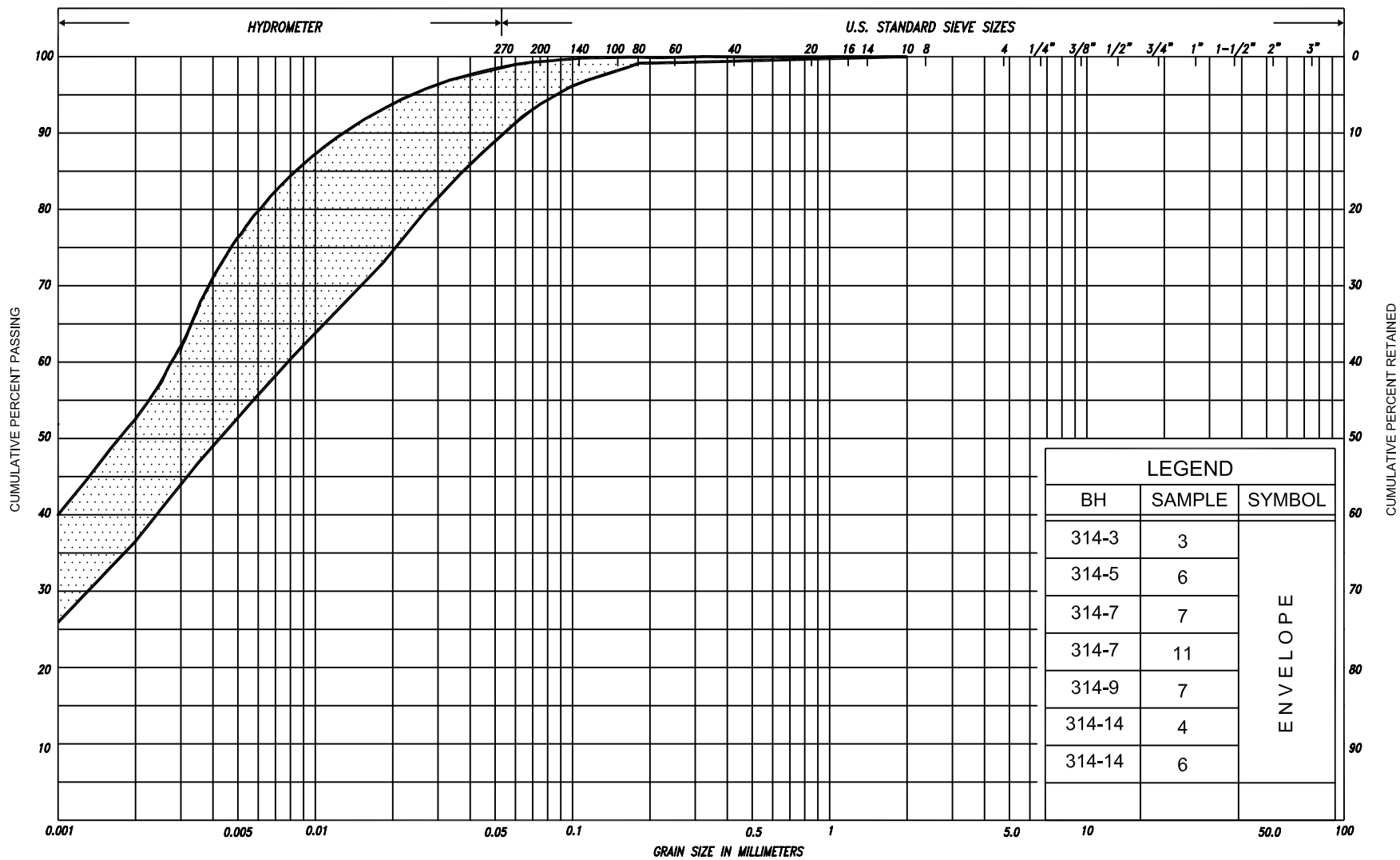
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COBBLES	UNIFIED
CLAY	FINE	MEDIUM	COARSE	SAND									
				FINE	MEDIUM	COARSE	GRAVEL			COBBLES	M.I.T.		
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL				U.S. BUREAU



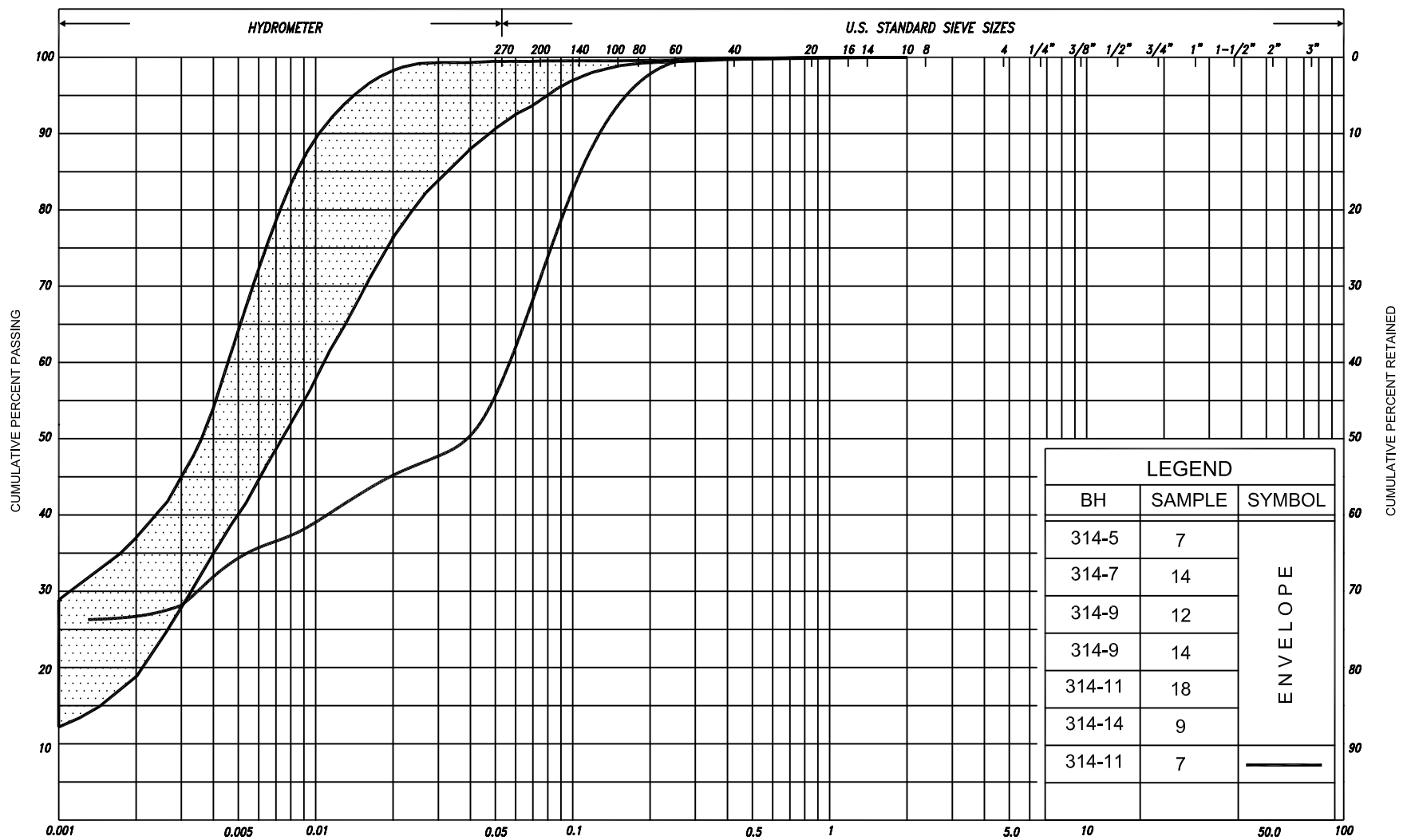
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL			COB BLES	UNIFIED		
				SAND											
CLAY	FINE		MEDIUM	COARSE	FINE		MEDIUM		COARSE		GRAVEL			COBBLES	M.I.T.
	SILT						SAND								
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL						U.S. BUREAU
				SAND											



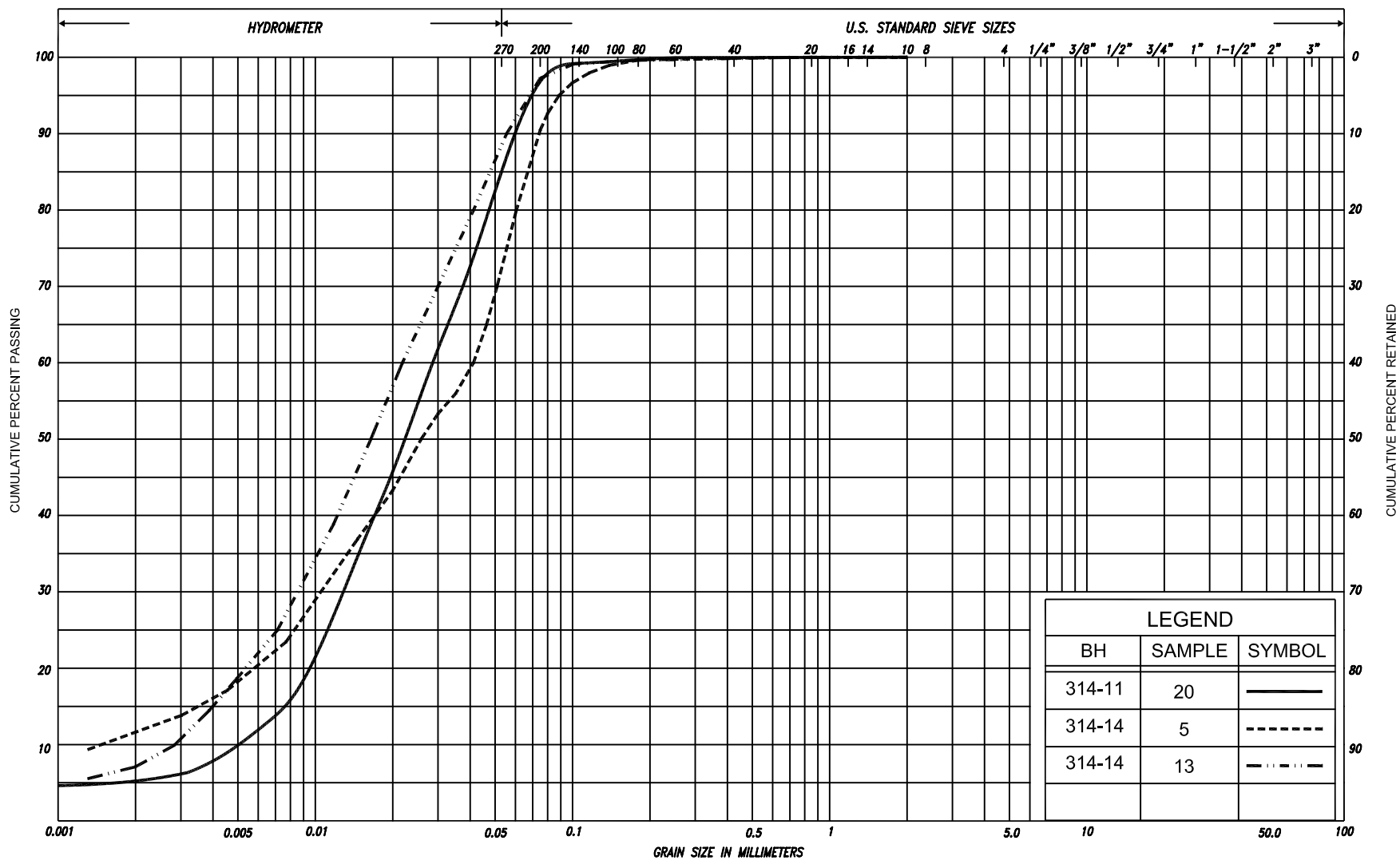
SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL		COB BLES	UNIFIED
CLAY	SAND			FINE		MEDIUM		COARSE	GRAVEL		COBBLES	M.I.T.
	SILT			FINE		SAND		COARSE		GRAVEL		COBBLES
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL				U.S. BUREAU



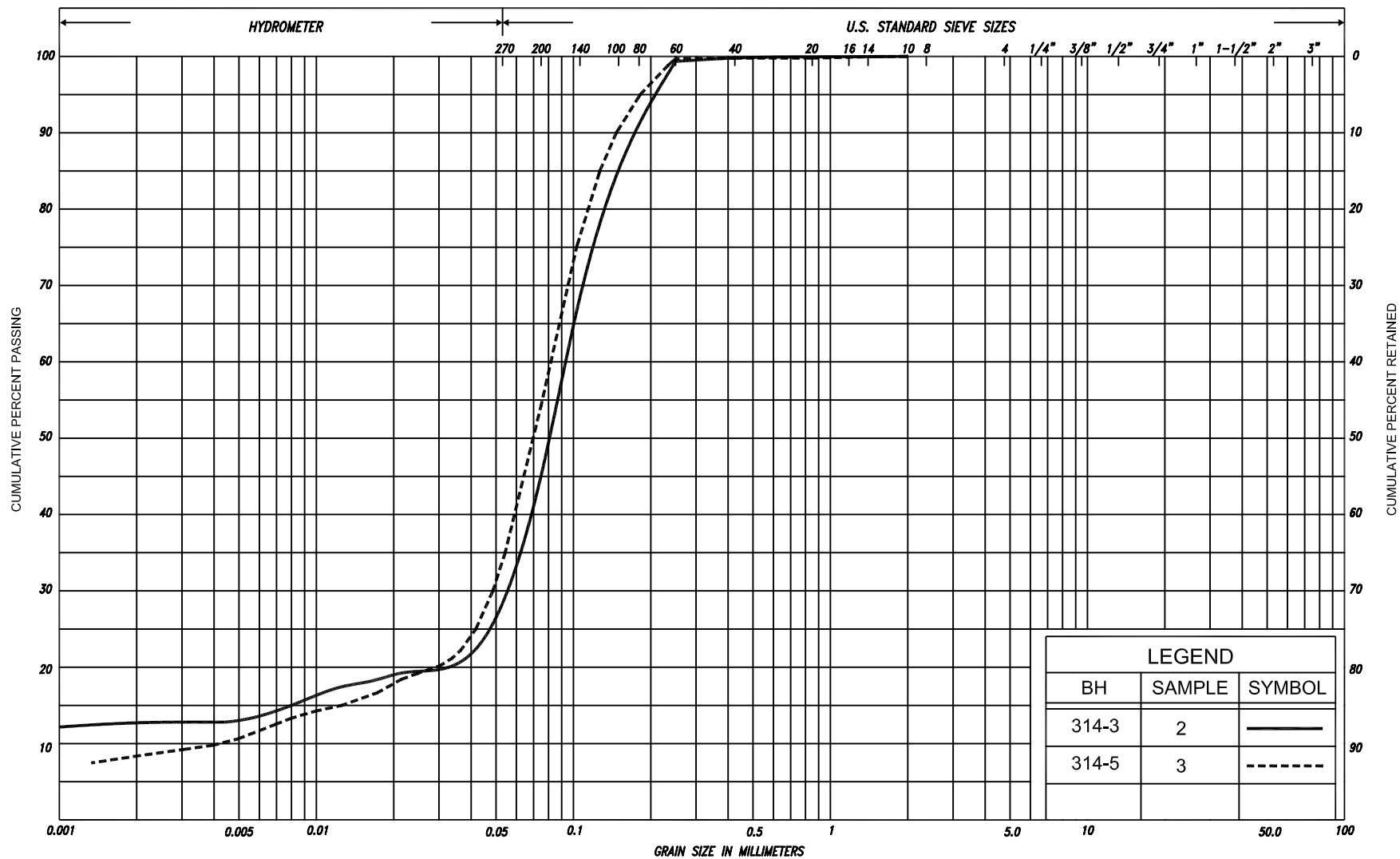
SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL				COB BLES	UNIFIED		
					SAND													
CLAY	FINE		MEDIUM		COARSE		FINE		MEDIUM		COARSE		GRAVEL				COBBLES	M.I.T.
	SILT																	
CLAY		SILT			V. FINE	FINE	MED.	COARSE	GRAVEL								U.S. BUREAU	
					SAND													



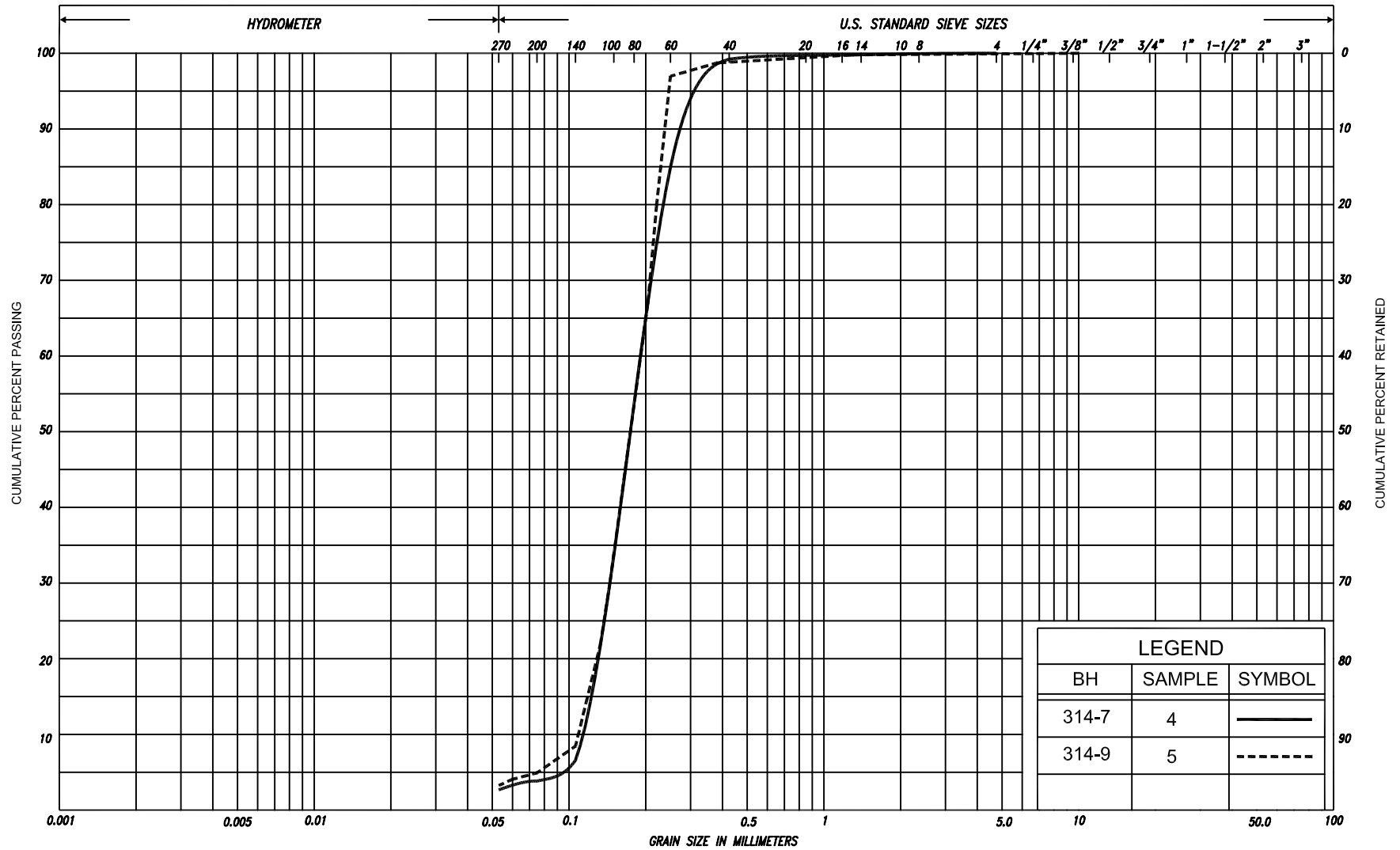
SILT & CLAY				FINE SAND			MEDIUM SAND		COARSE SAND		GRAVEL		COBBLES	UNIFIED
													COBBLES	M.I.T.
													COBBLES	U.S. BUREAU



SILT & CLAY			FINE			MEDIUM			COARSE			GRAVEL			COB BLES	UNIFIED
CLAY			FINE			MEDIUM			COARSE			GRAVEL			COBBLES	M.I.T.
CLAY			SILT			SAND			GRAVEL			GRAVEL			U.S. BUREAU	
						V. FINE			FINE			MED.				
									COARSE							
									SAND							



SILT & CLAY				FINE		MEDIUM		COARSE	GRAVEL		COB BLES	UNIFIED	
				SAND									
CLAY	FINE		MEDIUM	COARSE	FINE	MEDIUM		COARSE	GRAVEL		COBBLES	M.I.T.	
		SILT		SAND									
CLAY		SILT		V. FINE	FINE	MED.	COARSE	GRAVEL					U.S. BUREAU
				SAND									



SILT & CLAY					FINE		MEDIUM		COARSE		GRAVEL				COBBLES	UNIFIED	
CLAY	FINE		MEDIUM		COARSE	FINE		MEDIUM		COARSE		GRAVEL				COBBLES	M.I.T.
	SILT					SAND		SAND		SAND		SAND				SAND	SAND
CLAY		SILT			V. FINE	FINE	MED.	COARSE		GRAVEL						U.S. BUREAU	

CONSOLIDATION TEST RESULTS

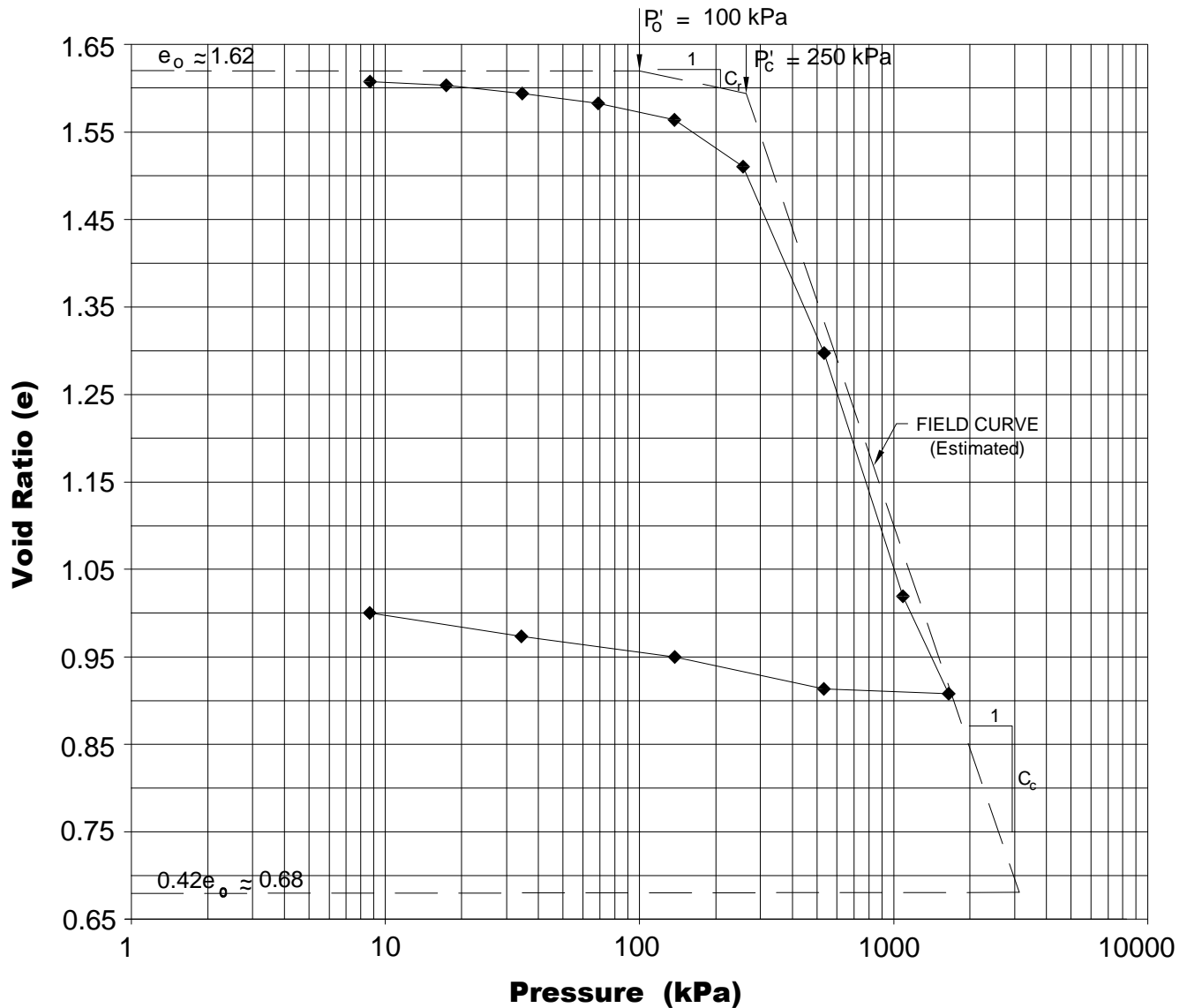
FIGURES 302-C-1, 302-C-2, 305-C-1 TO 305-C-4, 306-C-1 TO 306-C-3,
307-C-1, 313-C-1, 313-C-2, 314-C-1 AND 314-C-2

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 302, Borehole 302-29, Sample 7
Location 17+800, 18.8 m Lt., Depth 7.6 - 8.2 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

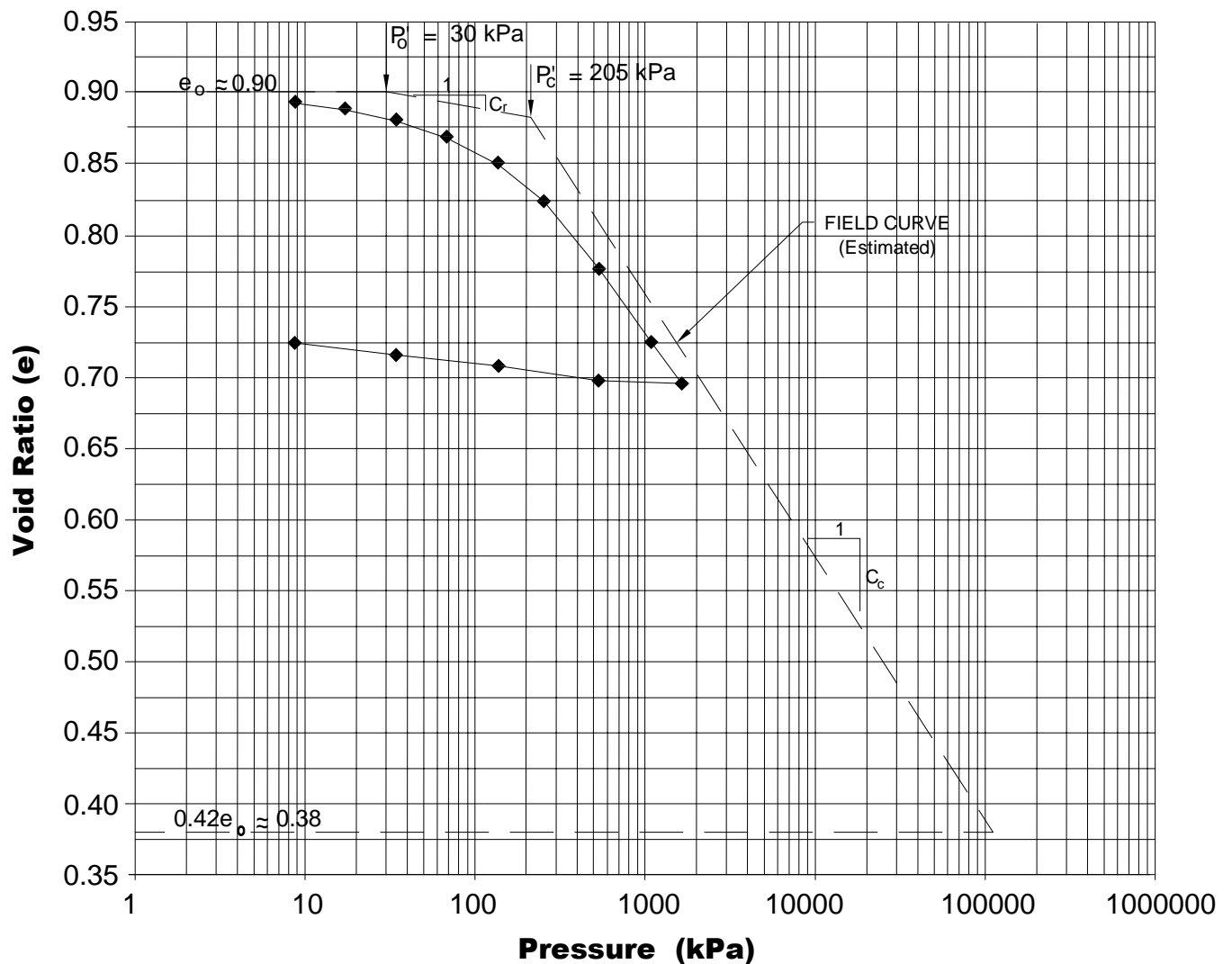
$e_o \approx 1.62$ $W_o = 47\%$ $\gamma = 17.5 \text{ kN/m}^3$	$P'_0 = 100 \text{ kPa}$ $P'_c = 250 \text{ kPa}$ $C_c = 0.85$ $C_r = 0.06$	$W_L = 39$ $W_P = 22$ $PI = 17$	FIGURE No: 302-C-1
			HIGHWAY: 69
			TOWNSHIP: MOWAT
			G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 302, Borehole 302-44, Sample 5
Location 17+950, 18.8 m Lt., Depth 4.6 - 5.2 m

Void Ratio versus Log of Pressure



SOIL TYPE: CLAYEY SILT, trace sand

$e_0 \approx 0.90$

$W_0 = 33\%$

$\gamma = 19.3 \text{ kN/m}^3$

$P'_0 = 30 \text{ kPa}$

$P'_c = 205 \text{ kPa}$

$C_c = 0.18$

$C_r = 0.02$

$W_L = 30$

$W_P = 27$

$PI = 7$

FIGURE No: 302-C-2

HIGHWAY: 69

TOWNSHIP: MOWAT

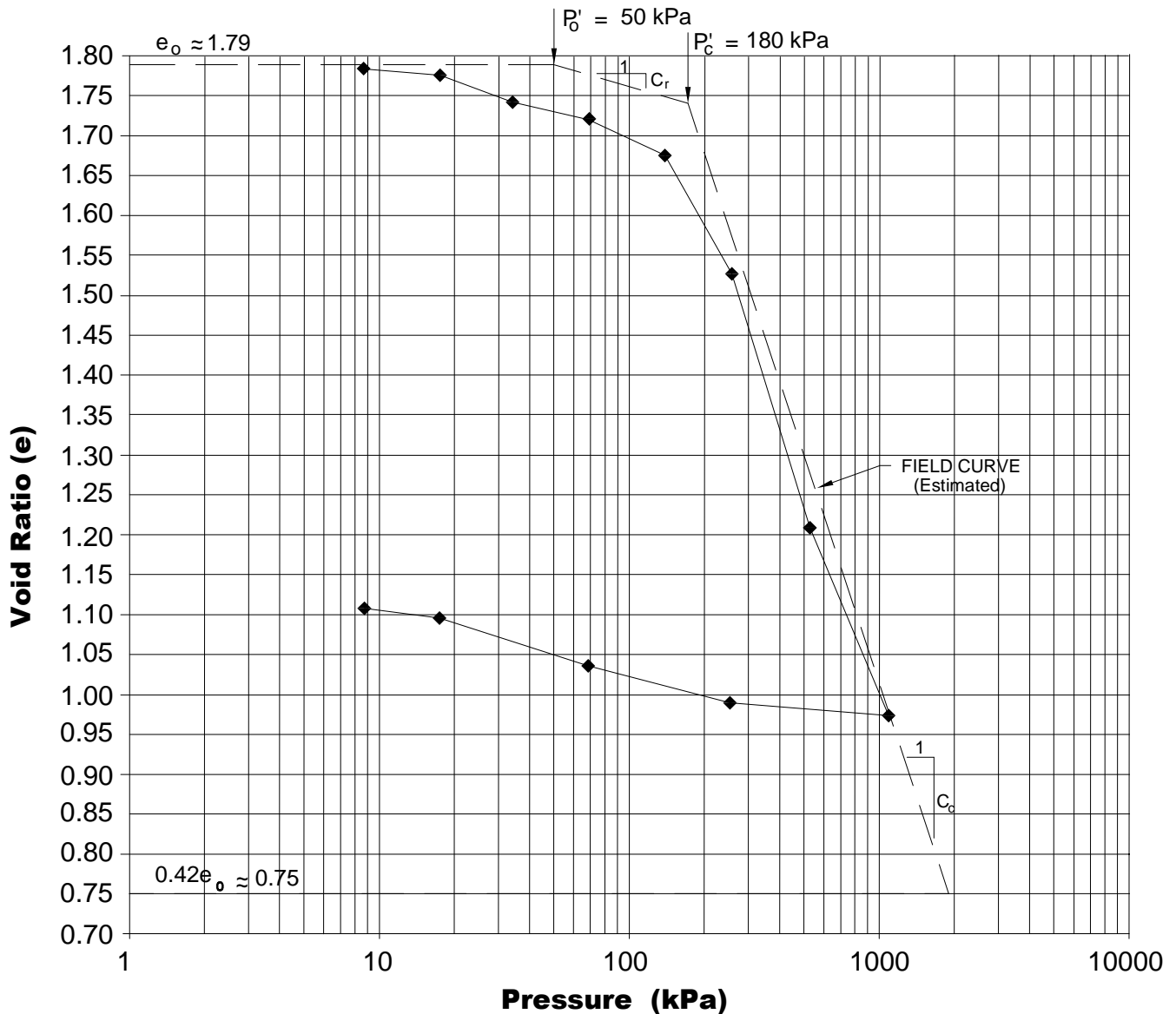
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 305, Borehole 305-16, Sample 8
Location 16+125, 20.5 m Lt., Depth 10.7 - 11.3 m

Void Ratio versus Log of Pressure



SOIL TYPE: CLAY, trace sand

$e_o \approx 1.79$

$W_o = 64\%$

$\gamma = 16.3 \text{ kN/m}^3$

$P'_0 = 50 \text{ kPa}$

$P'_c = 180 \text{ kPa}$

$C_c = 0.95$

$C_r = 0.09$

$W_L = 57$

$W_P = 22$

$PI = 35$

FIGURE No: 305-C-1

HIGHWAY: 69

TOWNSHIP: MOWAT

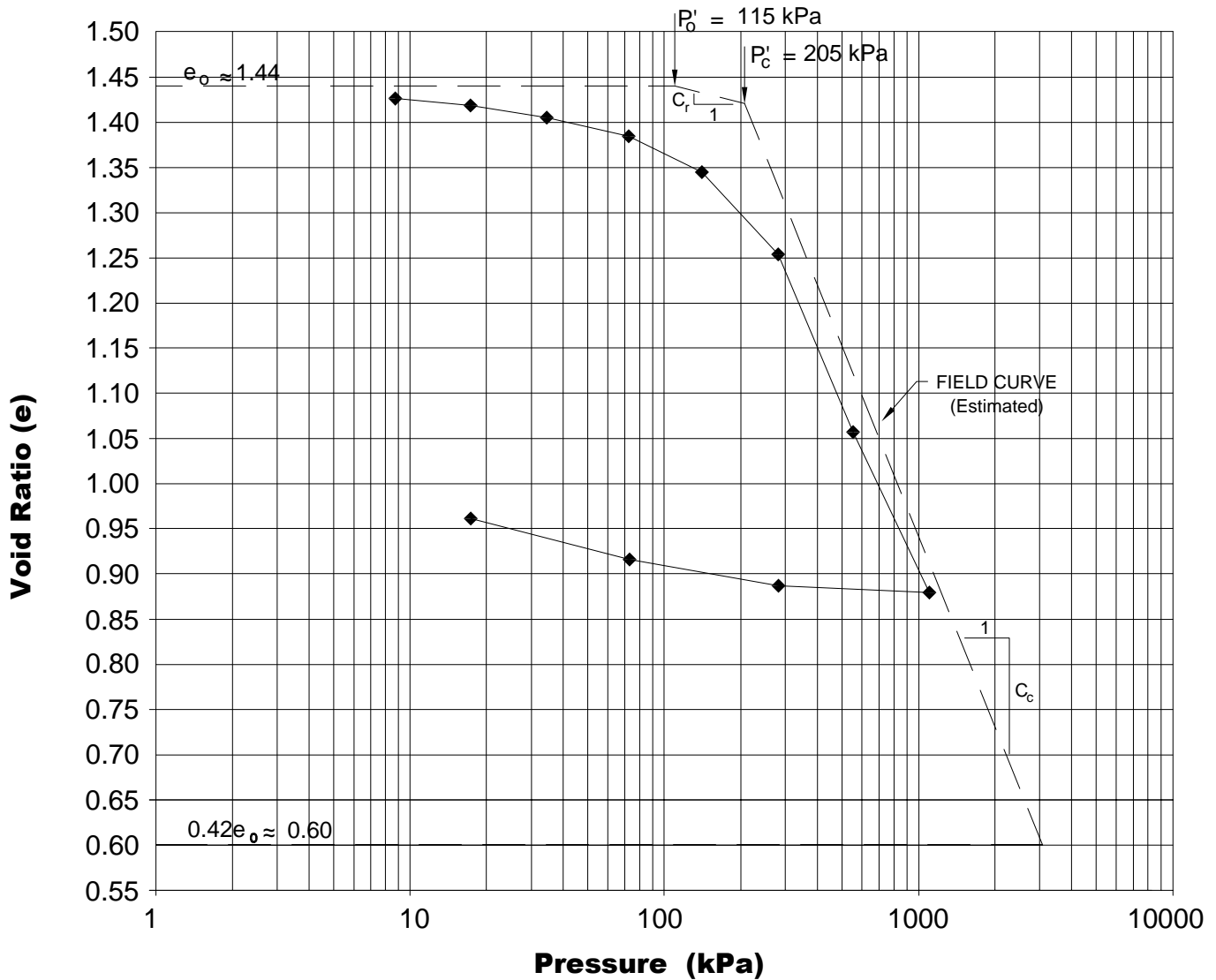
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 305, Borehole 305-20, Sample 10
Location 16+150, 11.9 m Rt., Depth 13.7 - 14.3 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_0 \approx 1.44$

$W_0 = 56\%$

$\gamma = 16.8 \text{ kN/m}^3$

$P'_0 = 115 \text{ kPa}$

$P'_c = 205 \text{ kPa}$

$C_c = 0.70$

$C_r = 0.07$

$W_L = 38$

$W_P = 17$

$PI = 21$

FIGURE No: 305-C-2

HIGHWAY: 69

TOWNSHIP: MOWAT

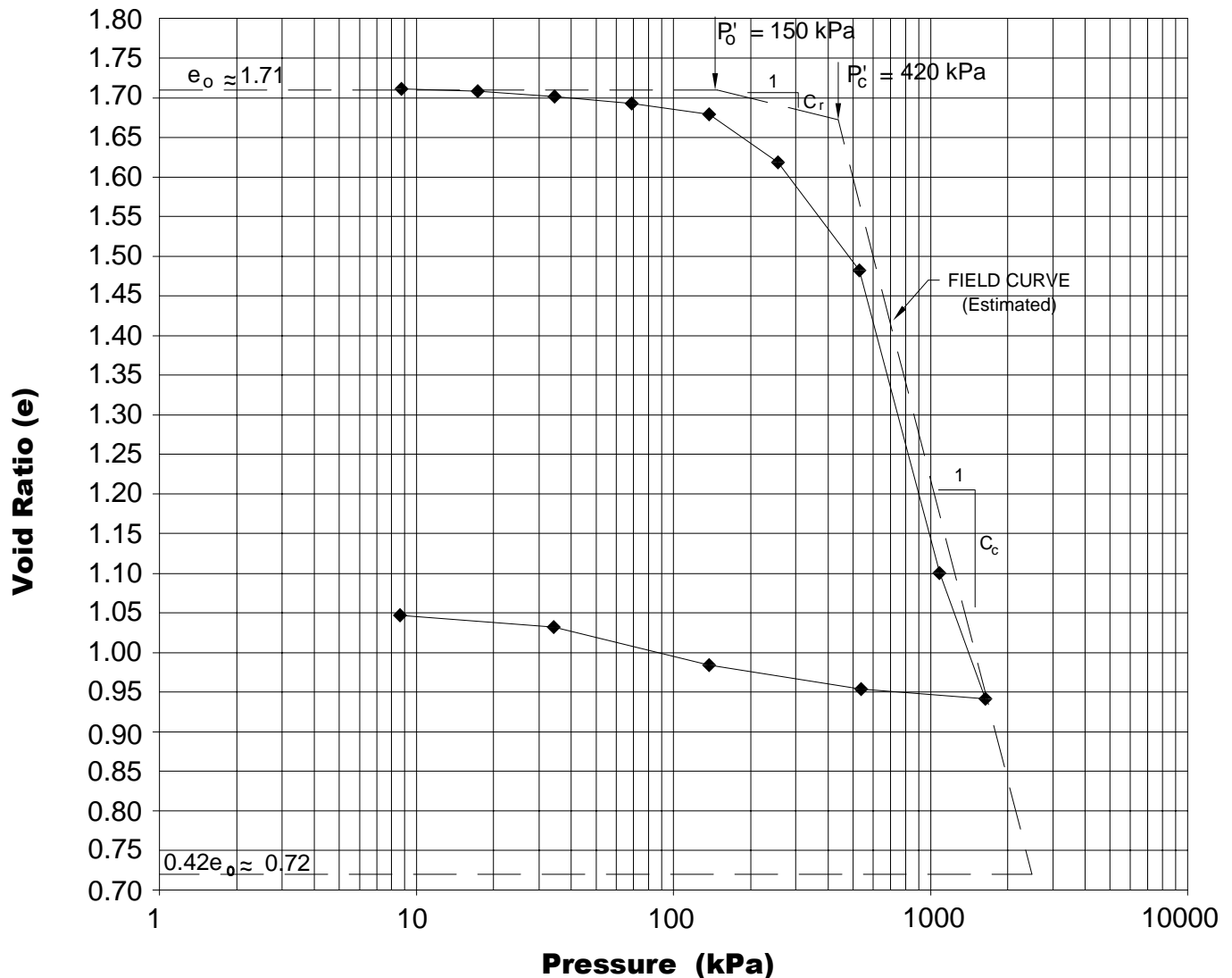
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 305, Borehole 305-20, Sample 17
Location 16+150, 11.9 m Rt., Depth 20.7 - 21.3 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY

$e_0 \approx 1.71$

$W_0 = 63\%$

$\gamma = 16.3$ kN/m³

$P'_0 = 150$ kPa

$P'_c = 420$ kPa

$C_c = 1.26$

$C_r = 0.08$

$W_L = 49$

$W_P = 27$

$PI = 22$

FIGURE No: 305-C-3

HIGHWAY: 69

TOWNSHIP: MOWAT

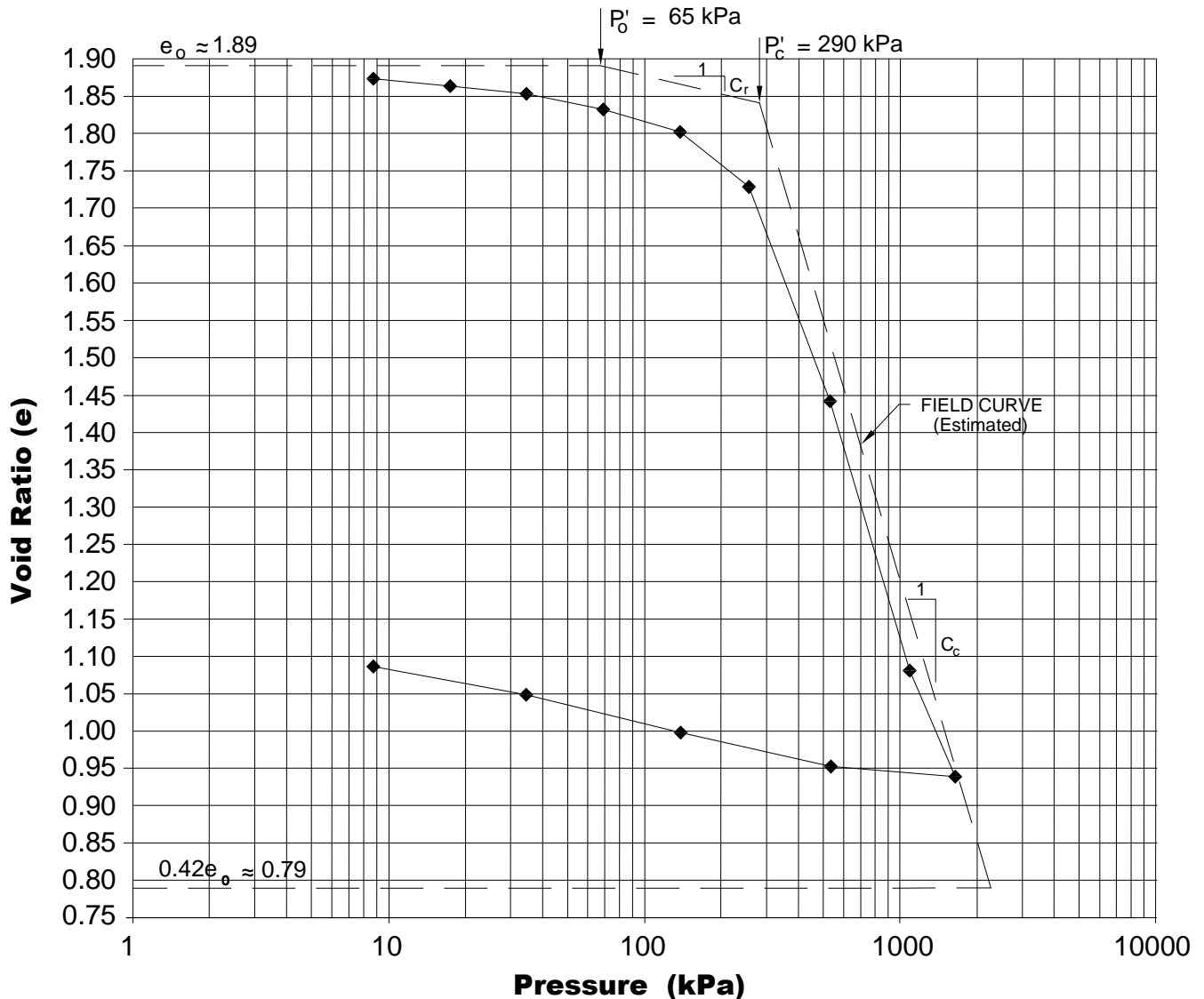
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 305, Borehole 305-23, Sample 10
Location 16+175, 0.5 m Rt., Depth 12.2 - 12.8m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_o \approx 1.89$

$W_o = 69\%$

$\gamma = 16.0 \text{ kN/m}^3$

$P'_0 = 65 \text{ kPa}$

$P'_c = 290 \text{ kPa}$

$C_c = 1.16$

$C_r = 0.08$

$W_L = 45$

$W_P = 20$

$PI = 25$

FIGURE No: 305-C-4

HIGHWAY: 69

TOWNSHIP: MOWAT

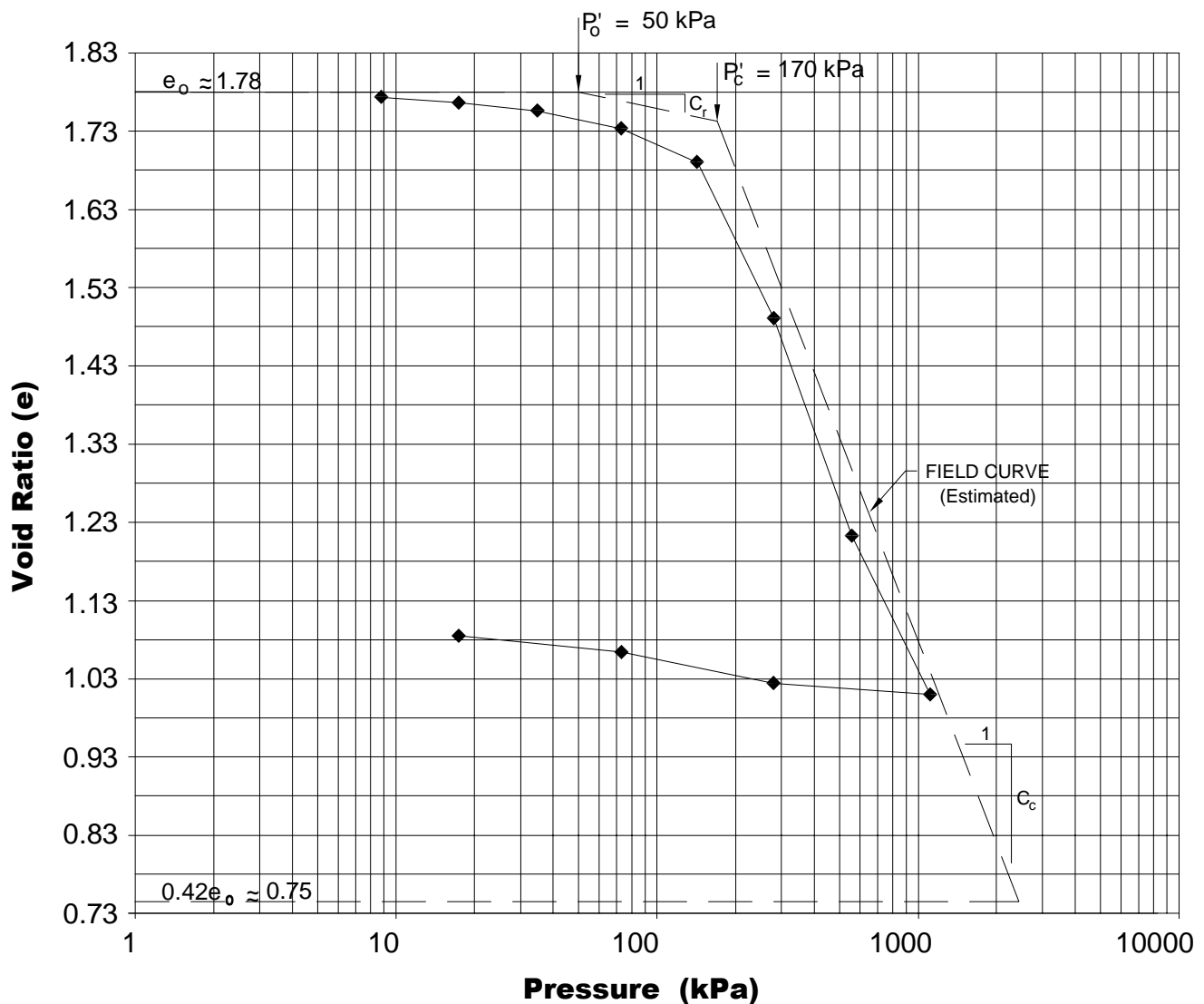
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 306, Borehole 306-16, Sample 7
Location 15+375, 14.5 m Lt., Depth 6.1 - 6.7 m

Void Ratio versus Log of Pressure



SOIL TYPE: CLAY, trace sand

$e_o = 1.78$

$W_o = 68\%$

$\gamma = 15.9 \text{ kN/m}^3$

$P'_o = 50 \text{ kPa}$

$P'_c = 170 \text{ kPa}$

$C_c = 0.86$

$C_r = 0.07$

$W_L = 57$

$W_P = 21$

$PI = 36$

FIGURE No: 306-C-1

HIGHWAY: 69

TOWNSHIP: MOWAT

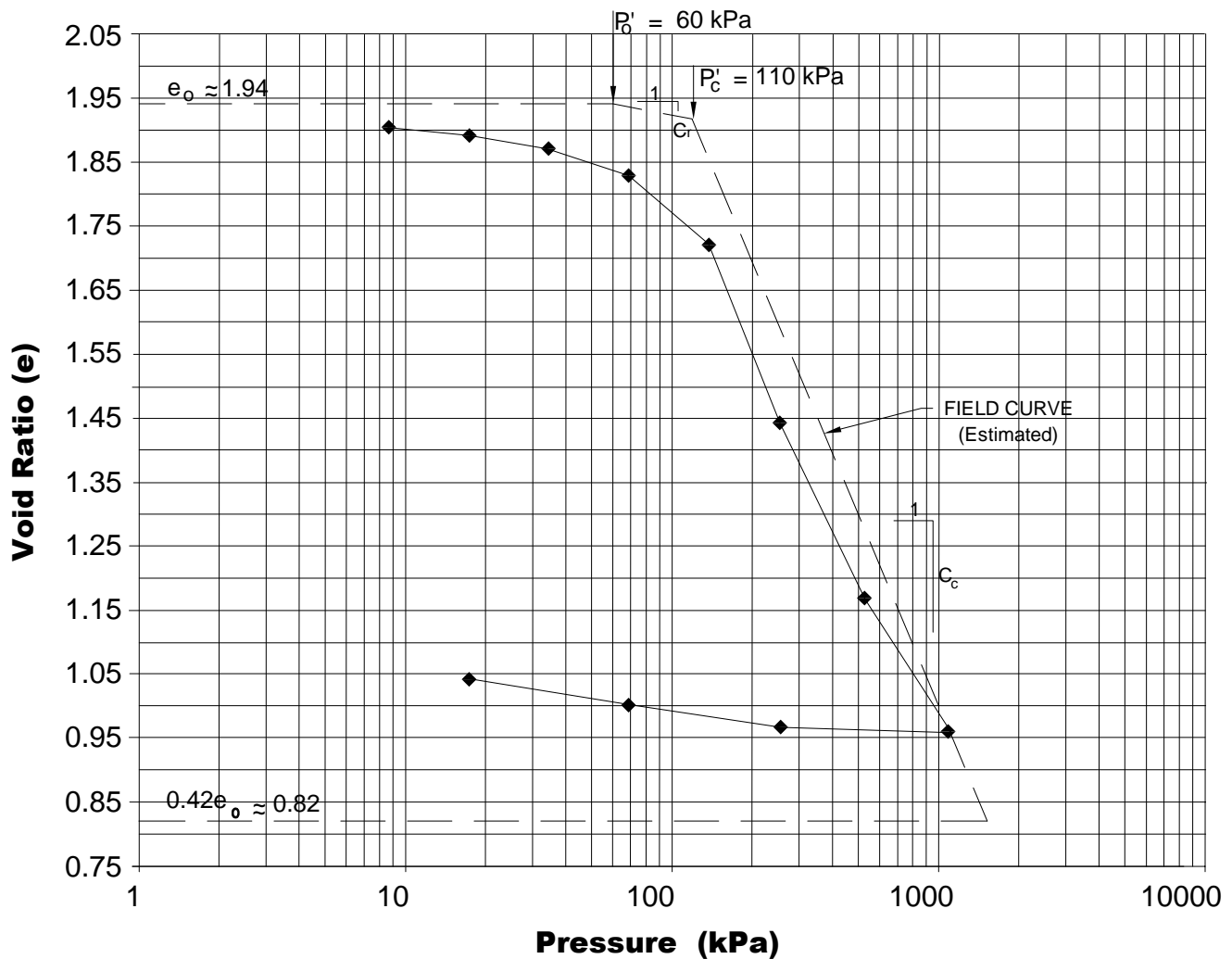
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 306, Borehole 306-55, Sample 5
Location 15+700, 38.8 m Lt., Depth 4.6 - 5.2 m

Void Ratio versus Log of Pressure



SOIL TYPE: CLAY

$e_0 = 1.94$

$W_0 = 70\%$

$\gamma = 15.9 \text{ kN/m}^3$

$P'_0 = 60 \text{ kPa}$

$P'_c = 110 \text{ kPa}$

$C_c = 0.99$

$C_r = 0.08$

$W_L = 52$

$W_P = 22$

$PI = 30$

FIGURE No: 306-C-2

HIGHWAY: 69

TOWNSHIP: MOWAT

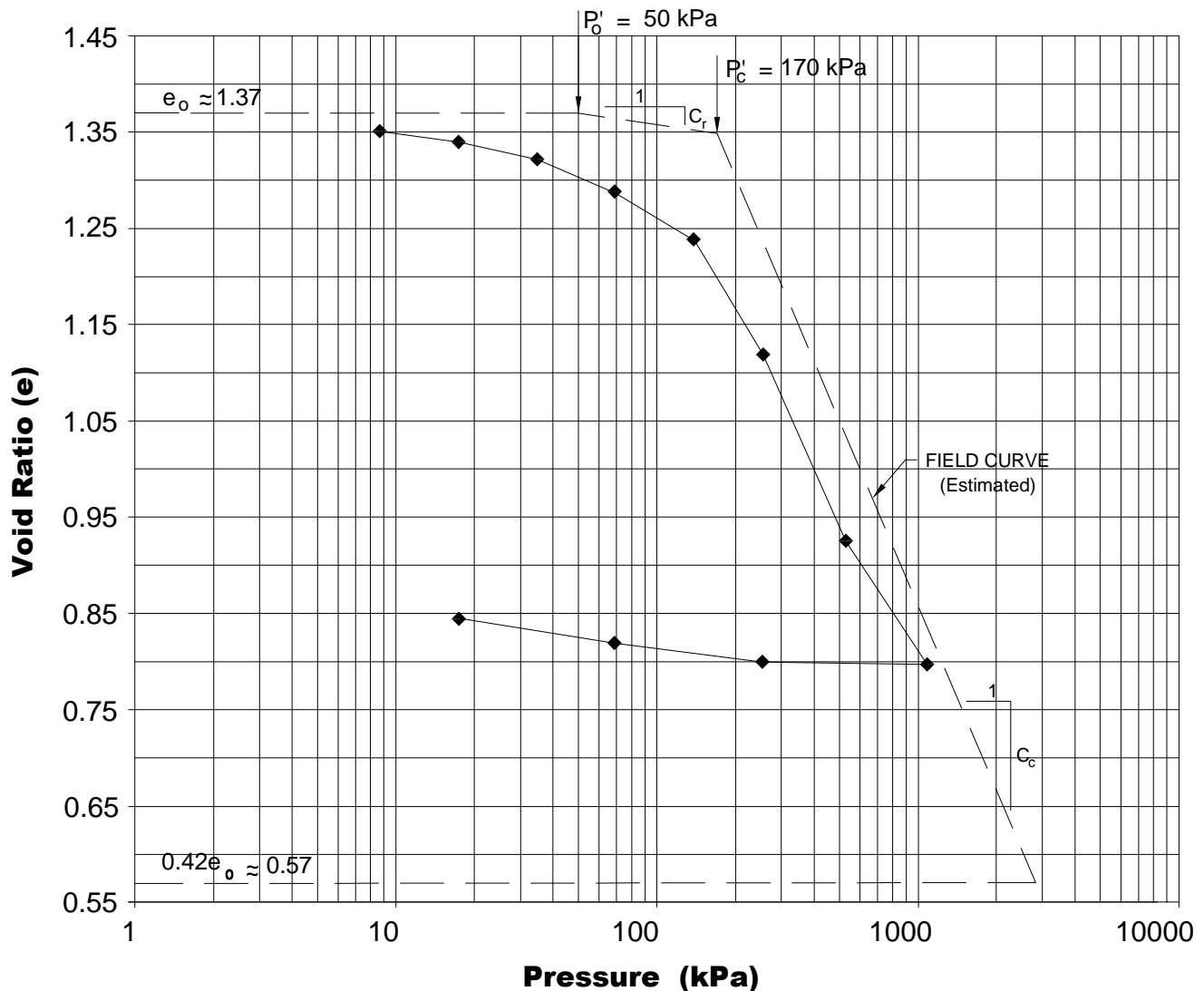
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 306, Borehole 306-28, Sample 7
Location 15+475, 20.5 m Lt., Depth 7.6 - 8.2 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_0 = 1.37$

$W_0 = 52\%$

$\gamma = 17.1 \text{ kN/m}^3$

$P'_0 = 50 \text{ kPa}$

$P'_c = 170 \text{ kPa}$

$C_c = 0.63$

$C_r = 0.04$

$W_L = 40$

$W_P = 18$

$PI = 22$

FIGURE No: 306-C-3

HIGHWAY: 69

TOWNSHIP: MOWAT

G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69

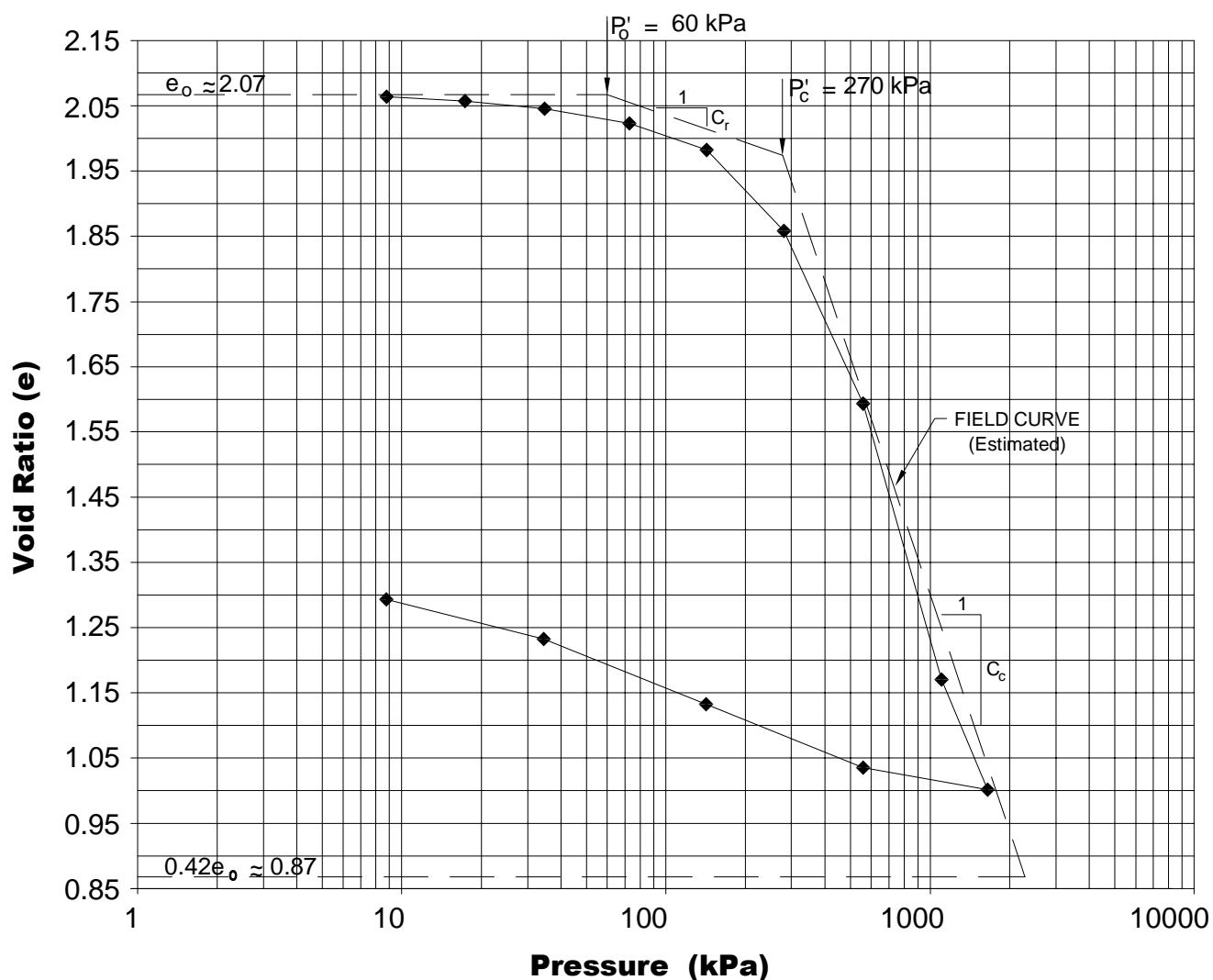
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522

District 54, Ontario

Swamp 307, Borehole 307-29, Sample 7

Location 14+450, 13.6 m Rt., Depth 6.1 - 6.7 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_0 = 2.07$

$W_0 = 67\%$

$\gamma = 15.6 \text{ kN/m}^3$

$P'_0 = 60 \text{ kPa}$

$P'_c = 270 \text{ kPa}$

$C_c = 1.21$

$C_r = 0.14$

$W_L = 47$

$W_P = 18$

$PI = 29$

FIGURE No: 307-C-1

HIGHWAY: 69

TOWNSHIP: MOWAT

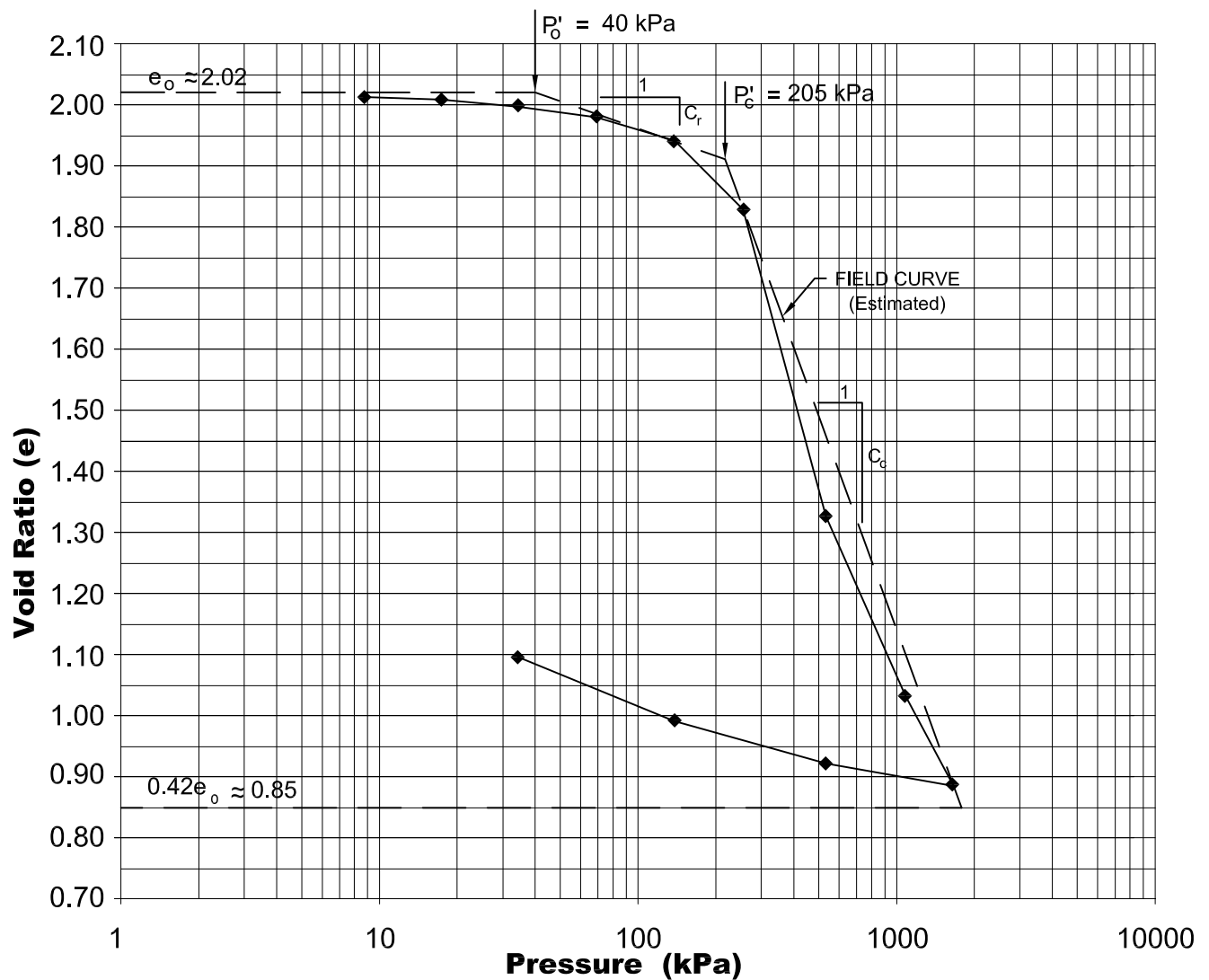
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 313, Borehole 313-5, Sample 7
Location 10+437.5, 12.0 m Lt., Depth 7.6 - 8.2 m

Void Ratio versus Log of Pressure



SOIL TYPE: CLAY

$e_o \approx 2.02$

$W_o = 80\%$

$\gamma = 15.8 \text{ kN/m}^3$

$P'_o = 40 \text{ kPa}$

$P'_c = 205 \text{ kPa}$

$C_c = 1.15$

$C_r = 0.15$

$W_L = 67$

$W_P = 25$

$PI = 42$

FIGURE No: 313-C-1

HIGHWAY: 69

TOWNSHIP: MOWAT

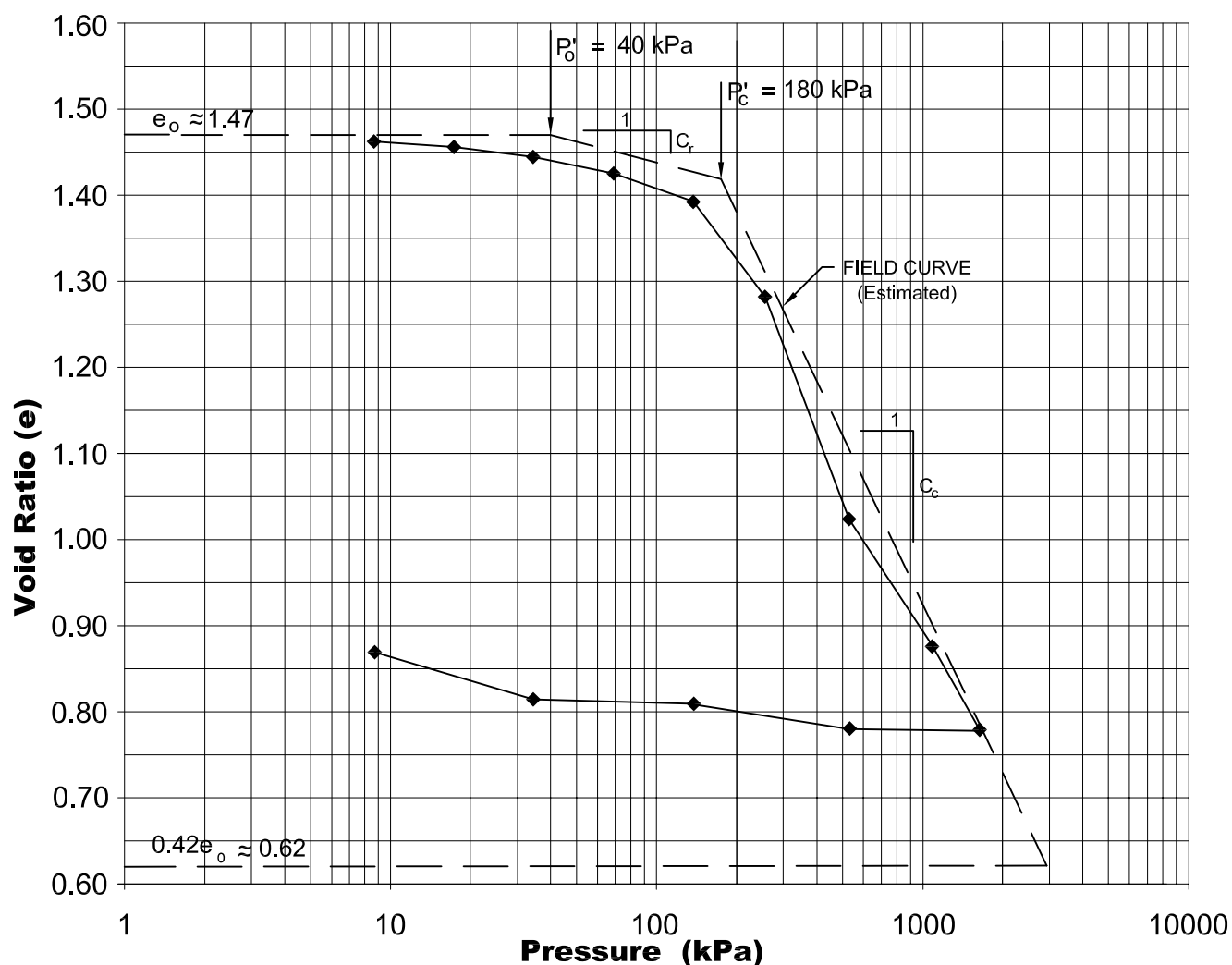
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 313, Borehole 313-10, Sample 7
Location 10+475 CL, Depth 7.6 - 8.2 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_o \approx 1.47$

$W_o = 87\%$

$\gamma = 15.7 \text{ kN/m}^3$

$P'_o = 40 \text{ kPa}$

$P'_c = 180 \text{ kPa}$

$C_c = 0.65$

$C_r = 0.08$

$W_L = 46$

$W_P = 22$

$PI = 24$

FIGURE No: 313-C-2

HIGHWAY: 69

TOWNSHIP: MOWAT

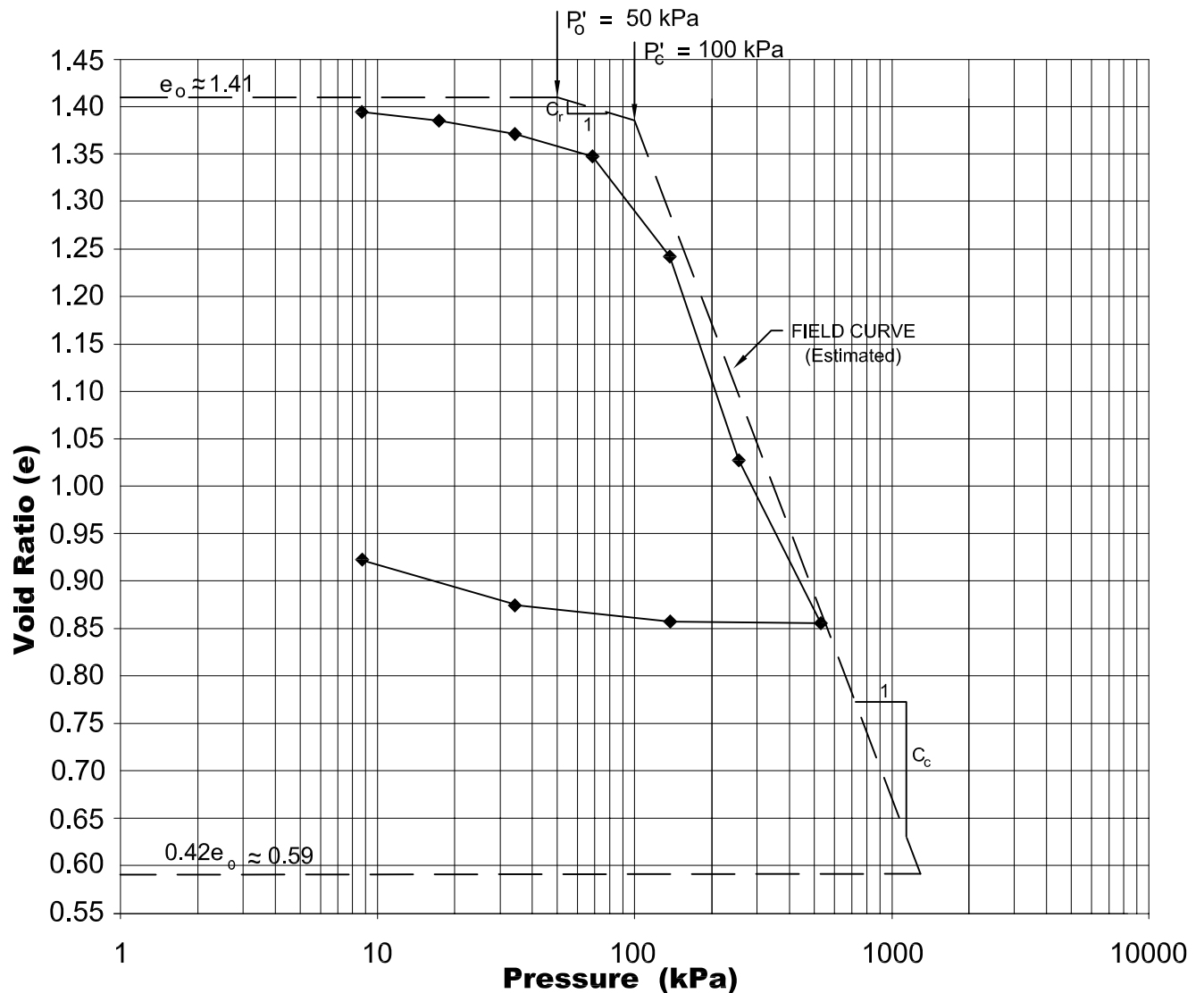
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 314, Borehole 314-5, Sample 6
Location 12+250 CL, Depth 9.1 - 9.7 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_o \approx 1.41$

$W_o = 52\%$

$\gamma = 17.4 \text{ kN/m}^3$

$P'_o = 50 \text{ kPa}$

$P'_c = 100 \text{ kPa}$

$C_c = 0.72$

$C_r = 0.08$

$W_L = 36$

$W_P = 18$

$PI = 18$

FIGURE No: 314-C-1

HIGHWAY: 69

TOWNSHIP: MOWAT

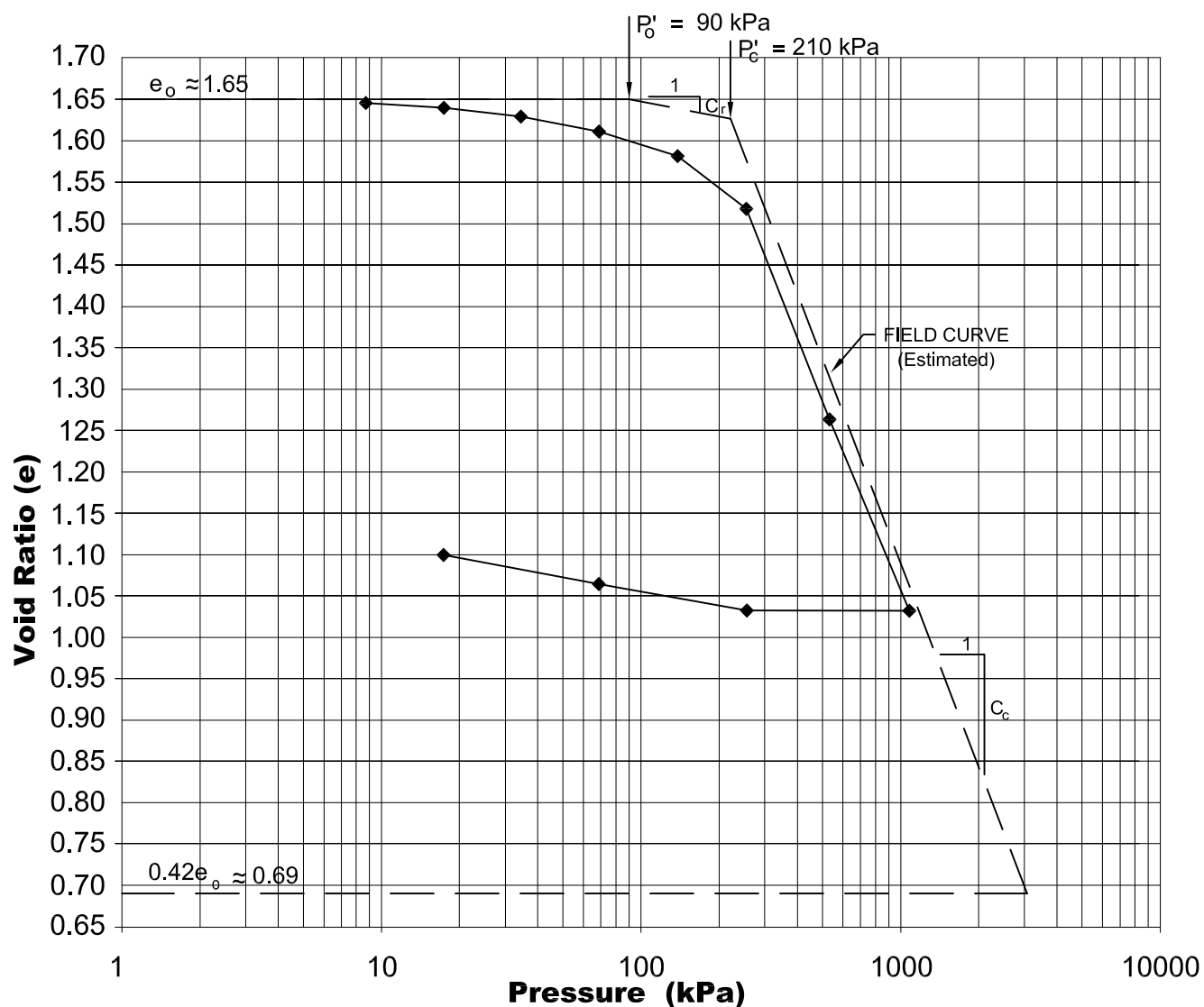
G.W.P. 5203-06-00

Laboratory Consolidation Test Results

Highway 69
From 3.1 km north of Highway 522 to 10.7 km north of Highway 522
District 54, Ontario

Swamp 314, Borehole 314-7, Sample 11
Location 12+275, 12.0 m Rt., Depth 15.2 - 15.8 m

Void Ratio versus Log of Pressure



SOIL TYPE: SILTY CLAY, trace sand

$e_0 \approx 1.65$

$W_0 = 57\%$

$\gamma = 17.3 \text{ kN/m}^3$

$P'_0 = 90 \text{ kPa}$

$P'_c = 210 \text{ kPa}$

$C_c = 0.82$

$C_r = 0.06$

$W_L = 45$

$W_P = 23$

$PI = 22$

FIGURE No: 314-C-2

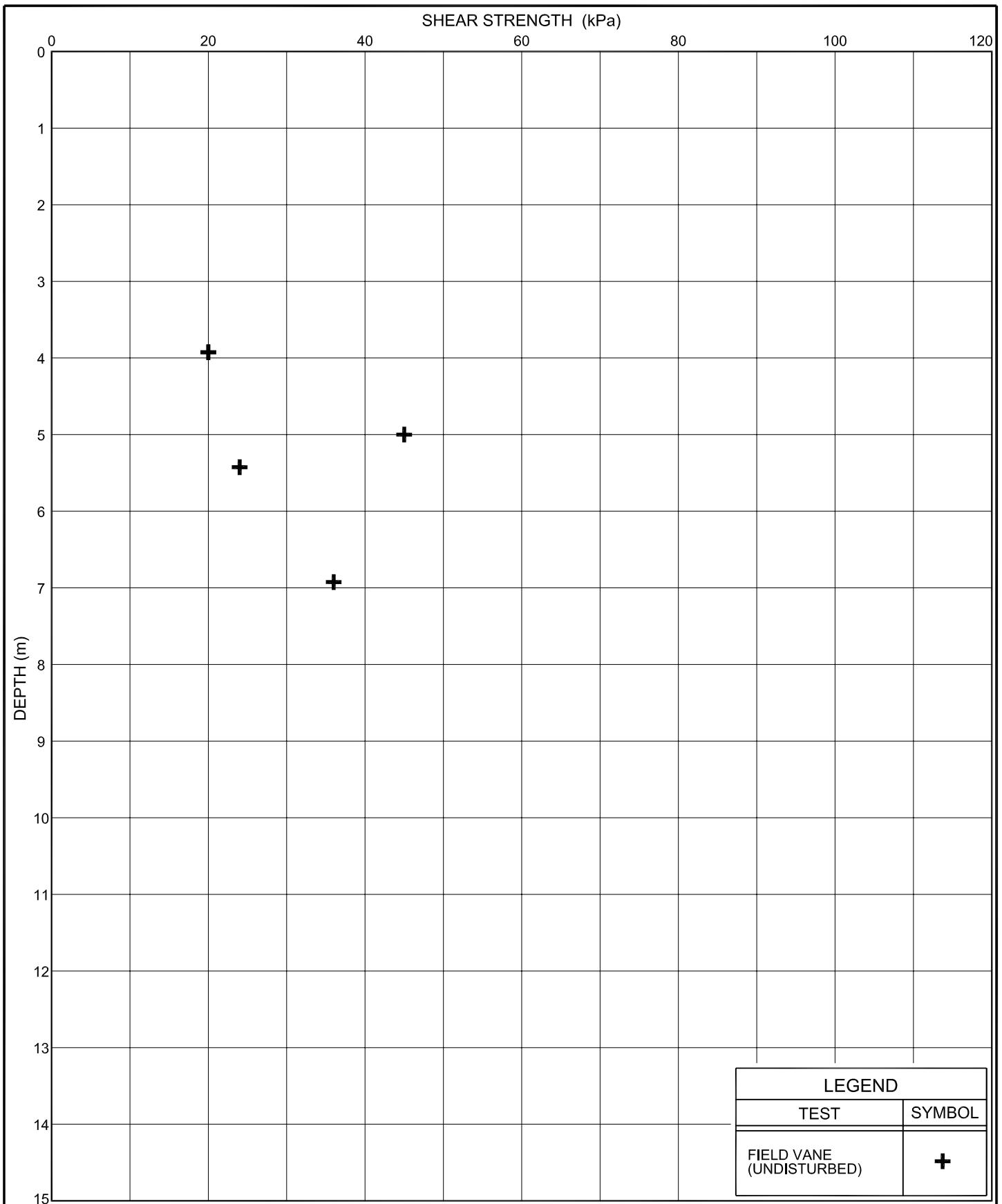
HIGHWAY: 69

TOWNSHIP: MOWAT

G.W.P. 5203-06-00

SHEAR STRENGTH PROFILES

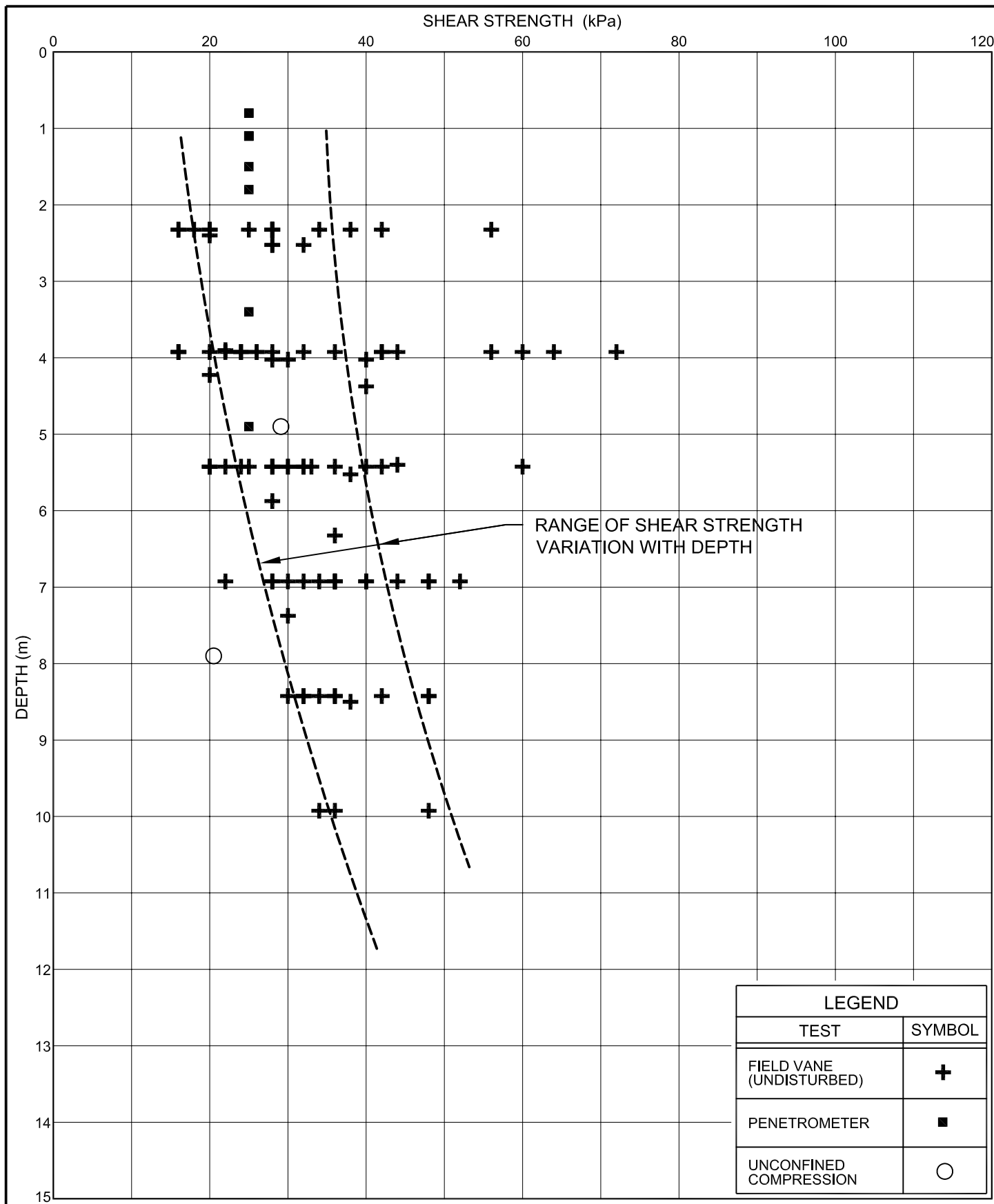
FIGURES 301-SS-1, 302-SS-1, 305-SS-1 TO 311-SS-1, 313-SS-1 AND 314-SS-1

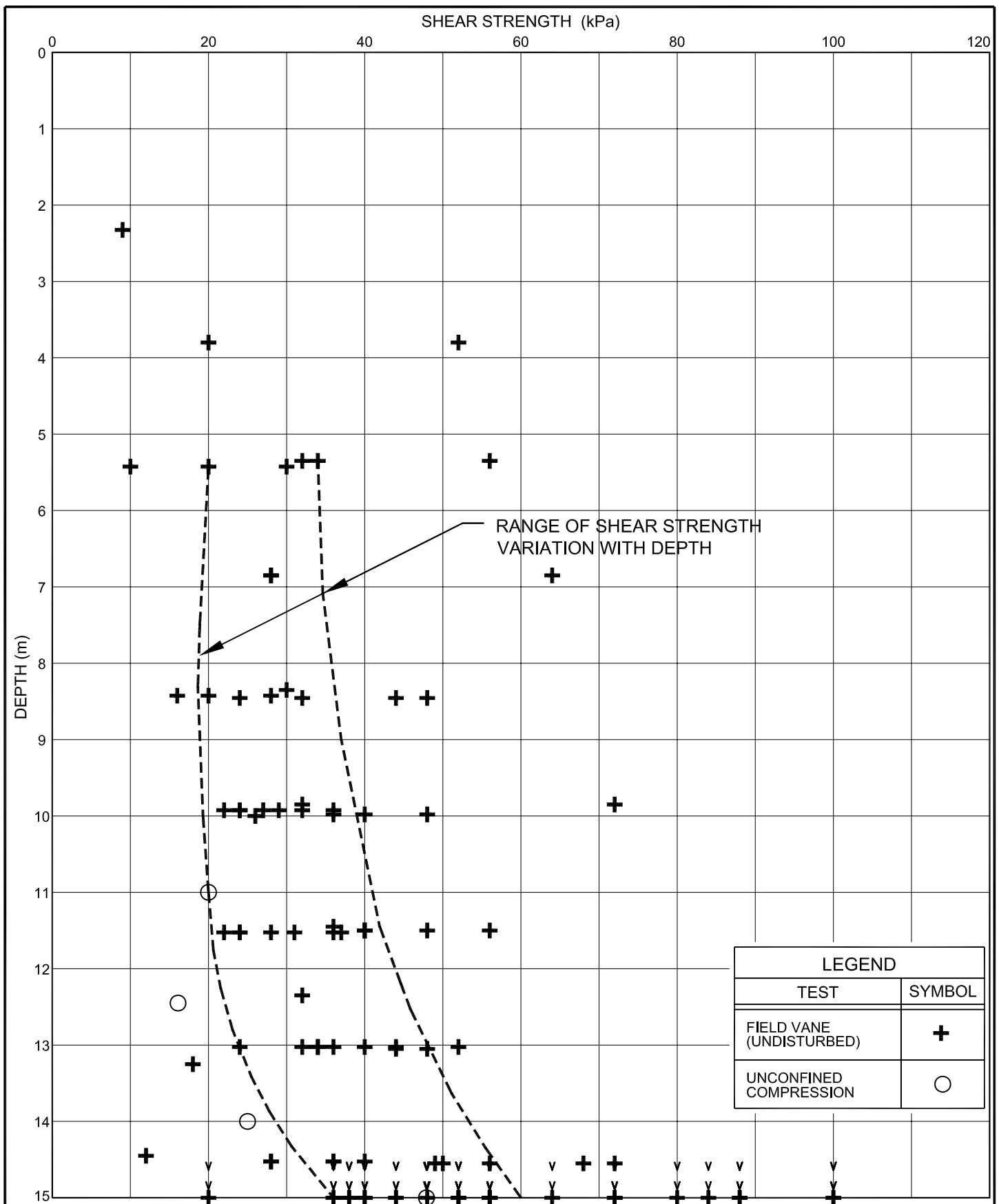


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SHEAR STRENGTH
SWAMP 301

FIG No.	301-SS-1
HWY	69
G.W.P. No.	5203-06-00

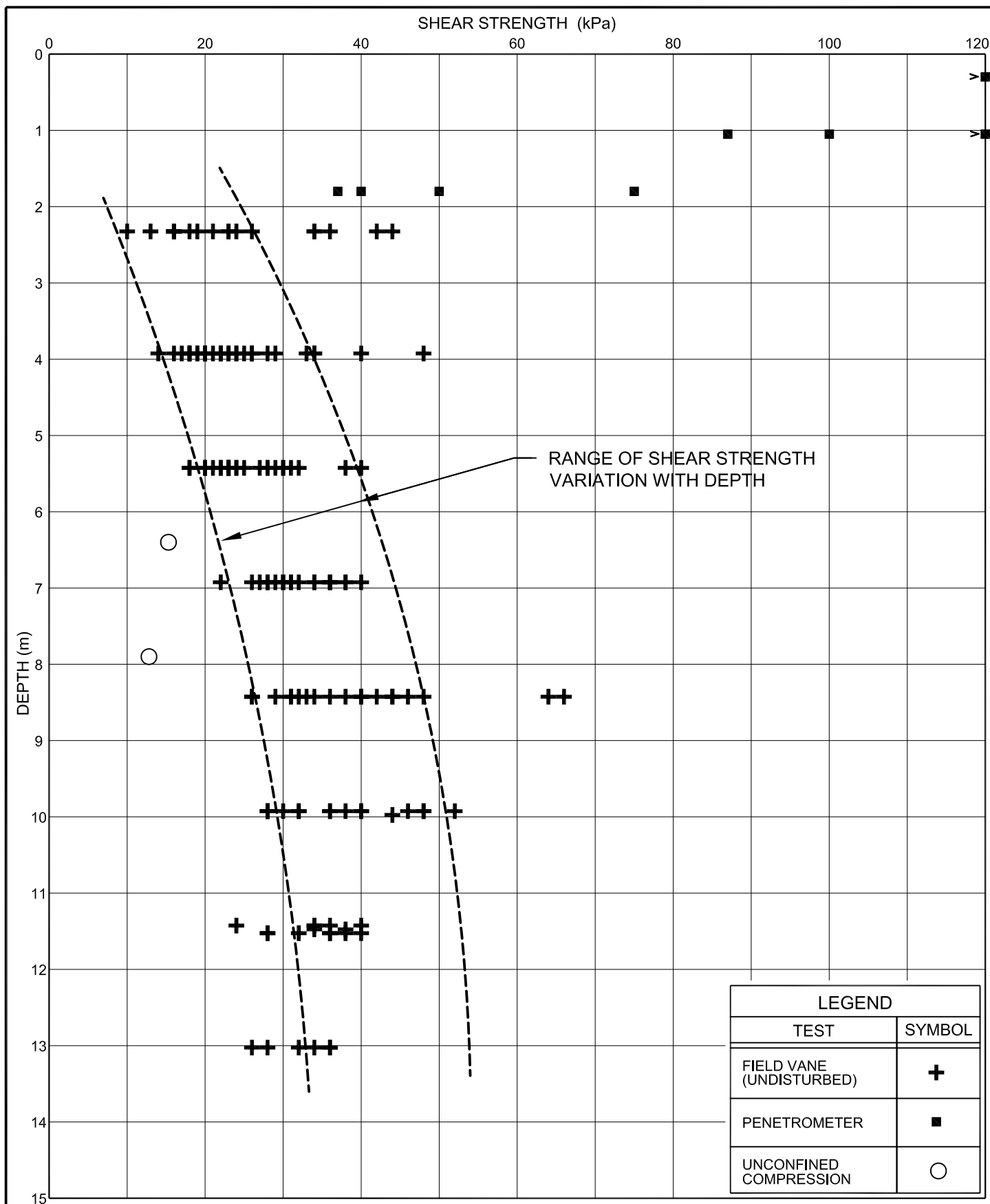




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SHEAR STRENGTH
SWAMP 305

FIG No.	305-SS-1
HWY	69
G.W.P. No.	5203-06-00



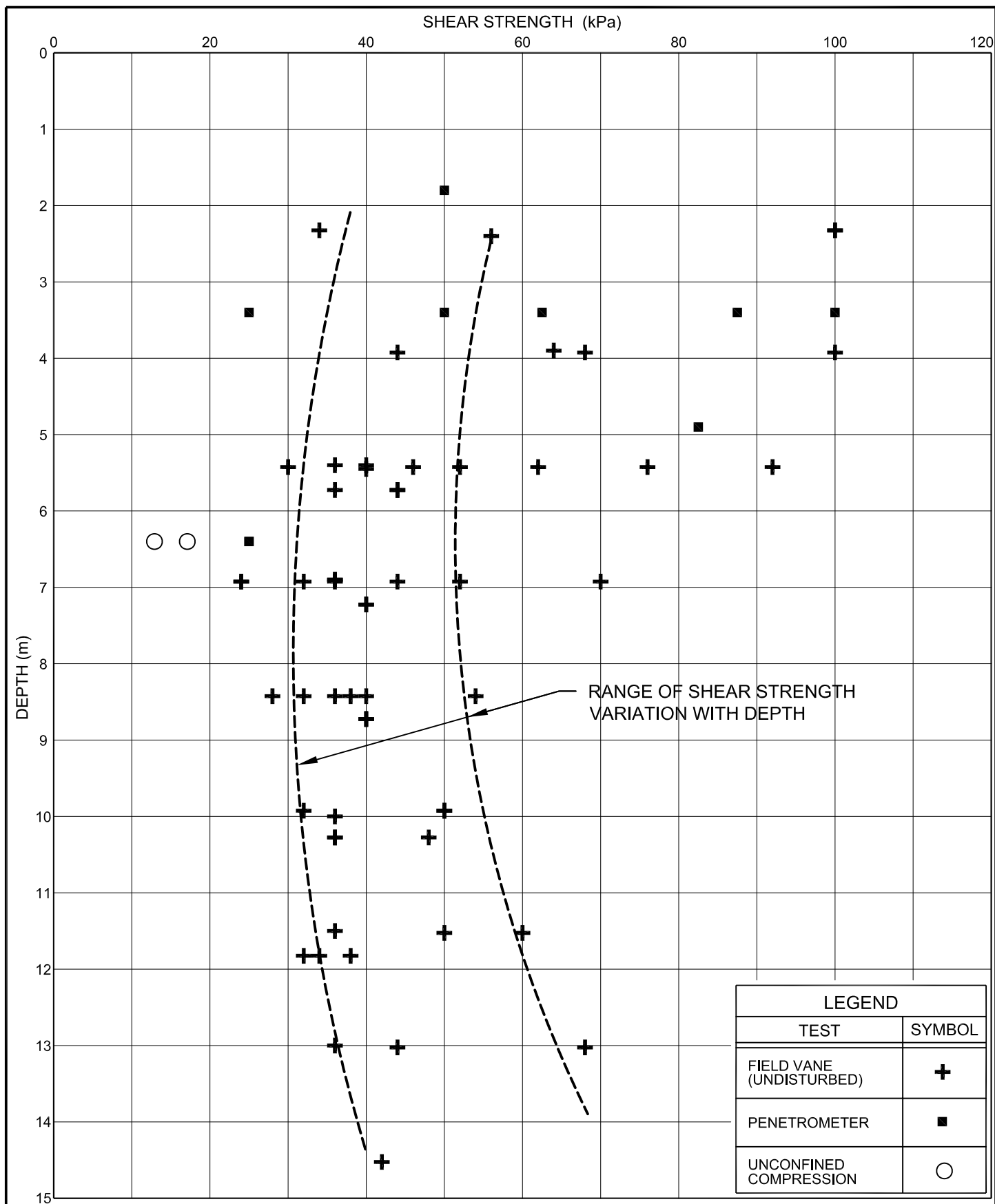
LEGEND	
TEST	SYMBOL
FIELD VANE (UNDISTURBED)	+
PENETROMETER	■
UNCONFINED COMPRESSION	○



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SHEAR STRENGTH SWAMP 306

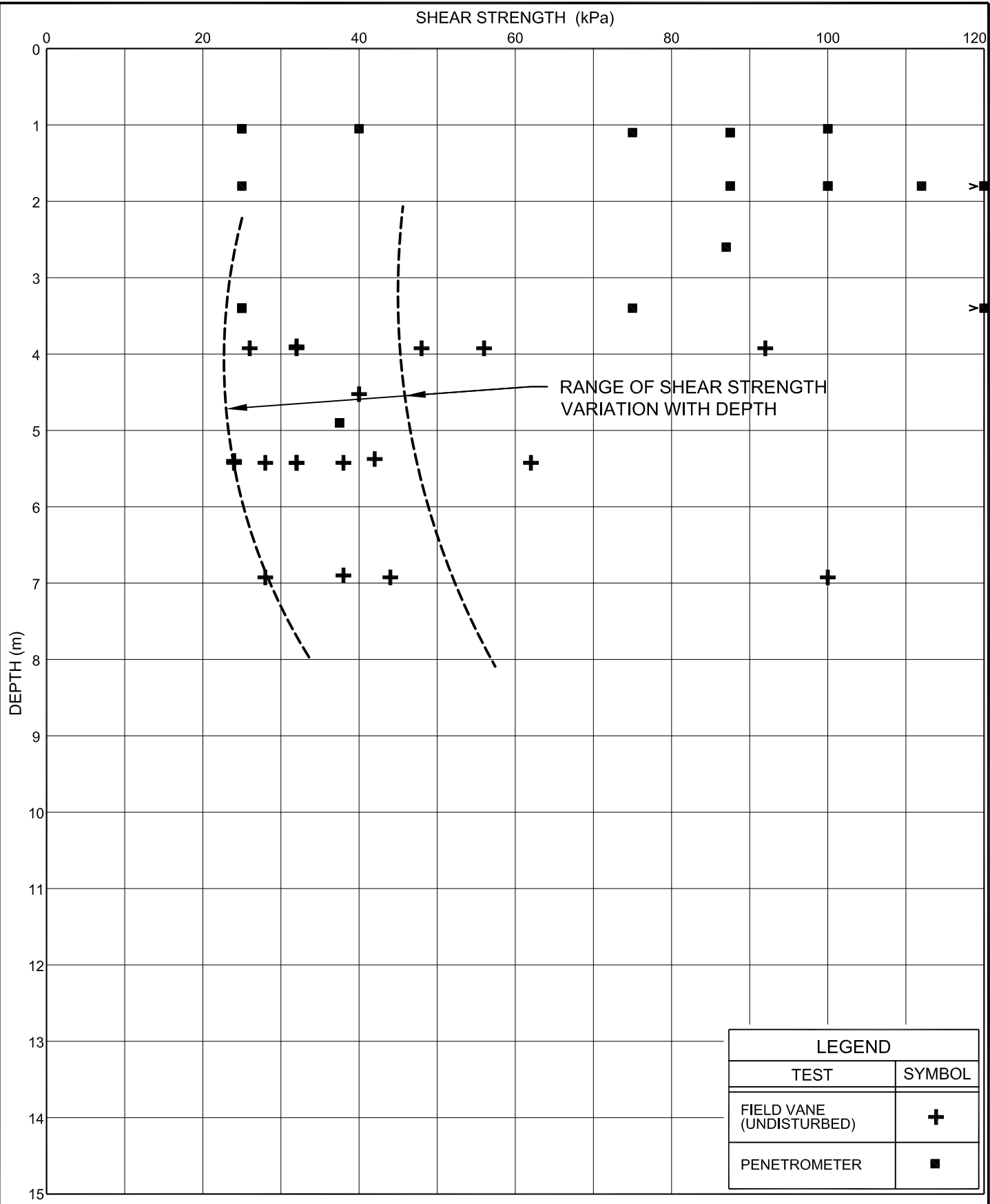
FIG No. 306-SS-1
HWY 69
G.W.P. No. 5203-06-00



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SHEAR STRENGTH SWAMP 307

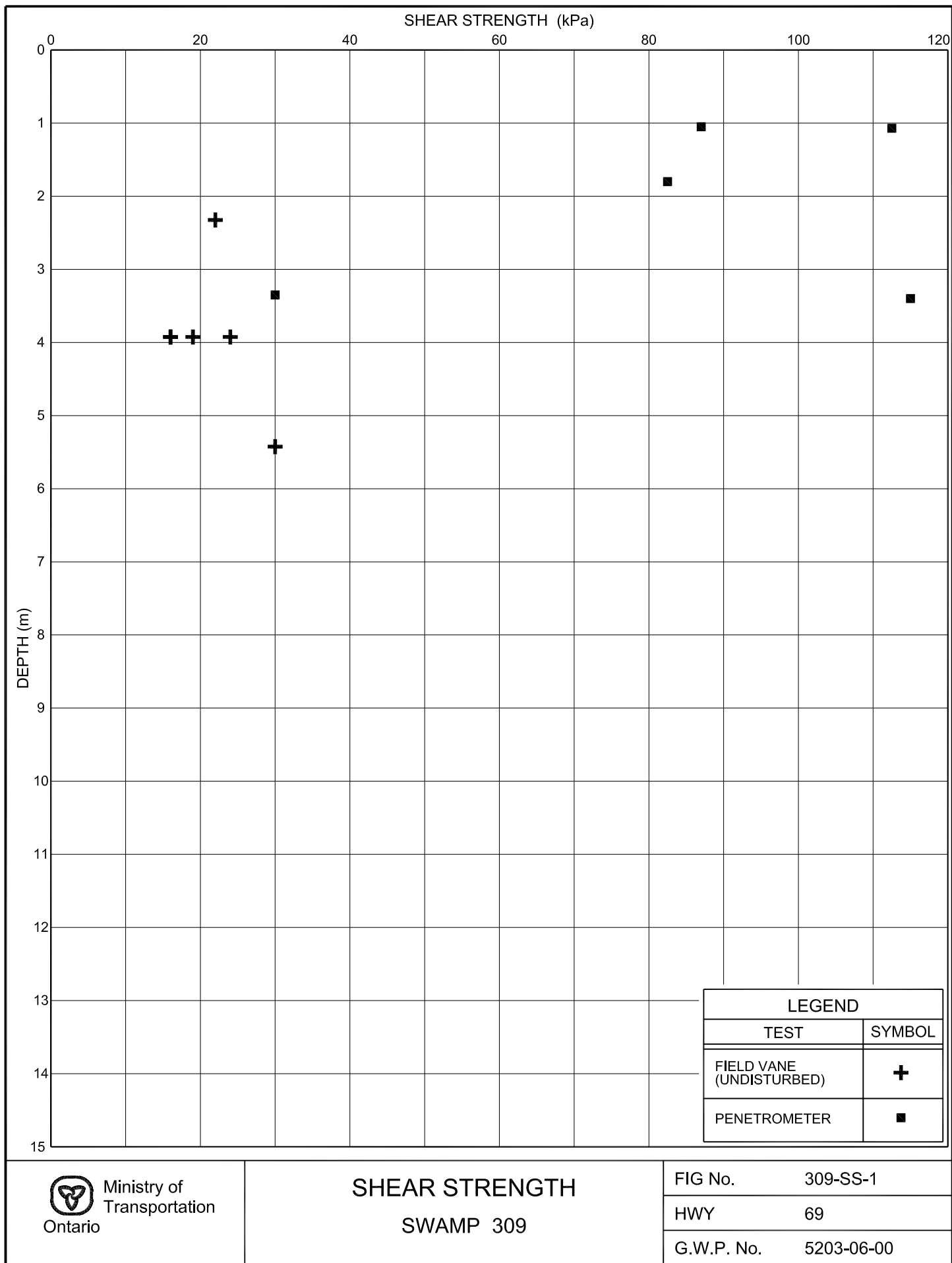
FIG No.	307-SS-1
HWY	69
G.W.P. No.	5203-06-00

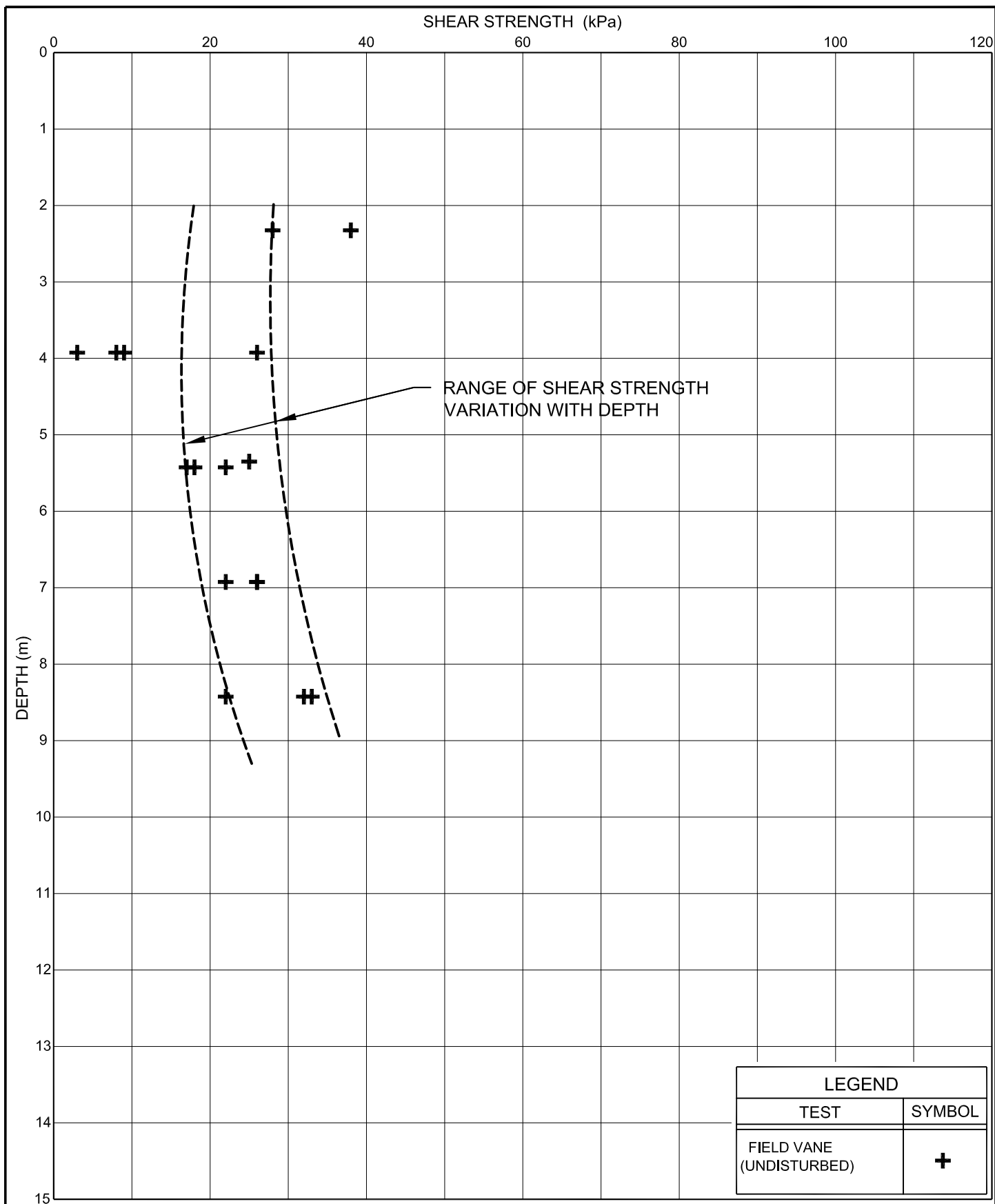


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SHEAR STRENGTH
SWAMP 308

FIG No.	308-SS-1
HWY	69
G.W.P. No.	5203-06-00





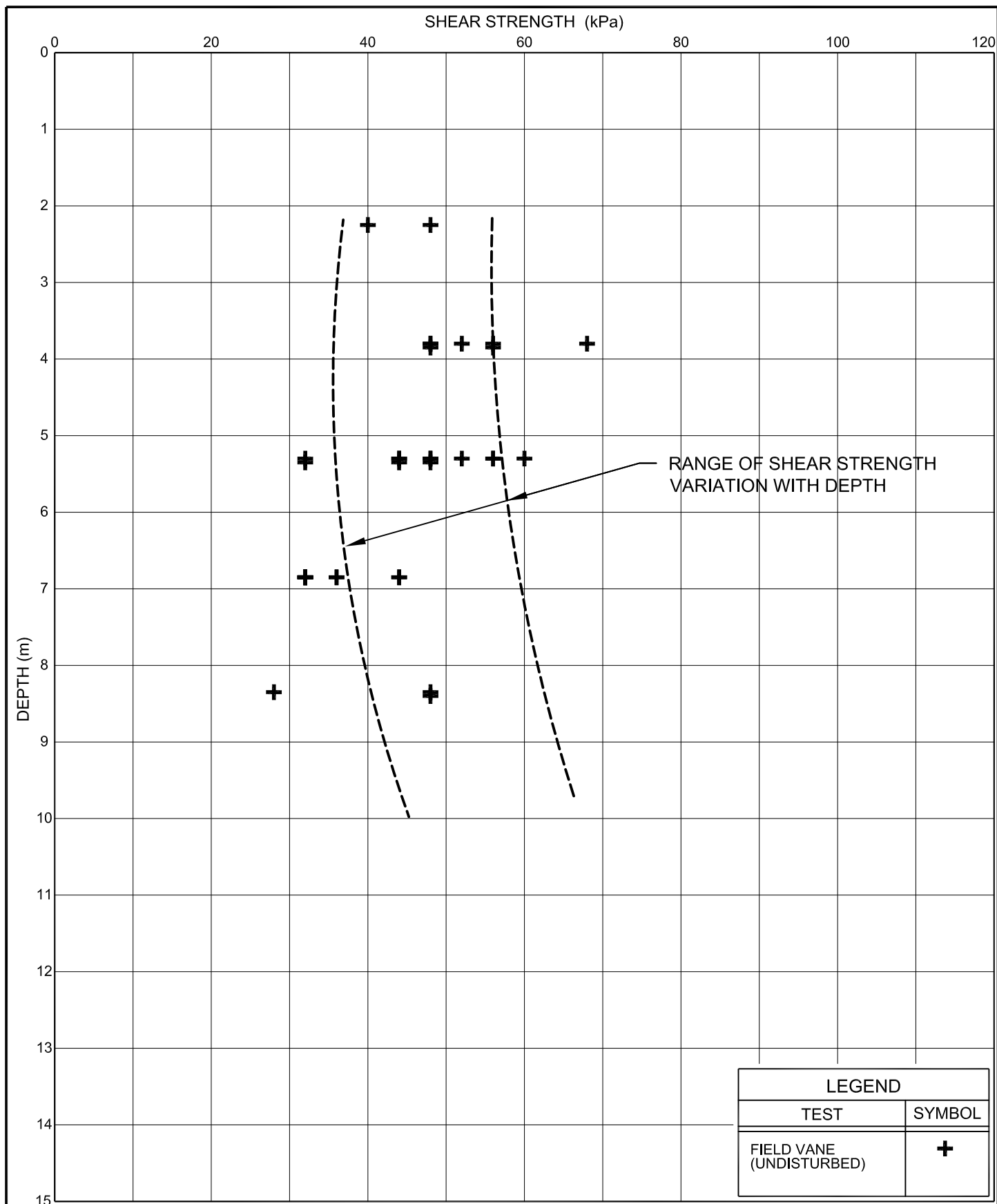
LEGEND	
TEST	SYMBOL
FIELD VANE (UNDISTURBED)	+



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SHEAR STRENGTH SWAMP 310

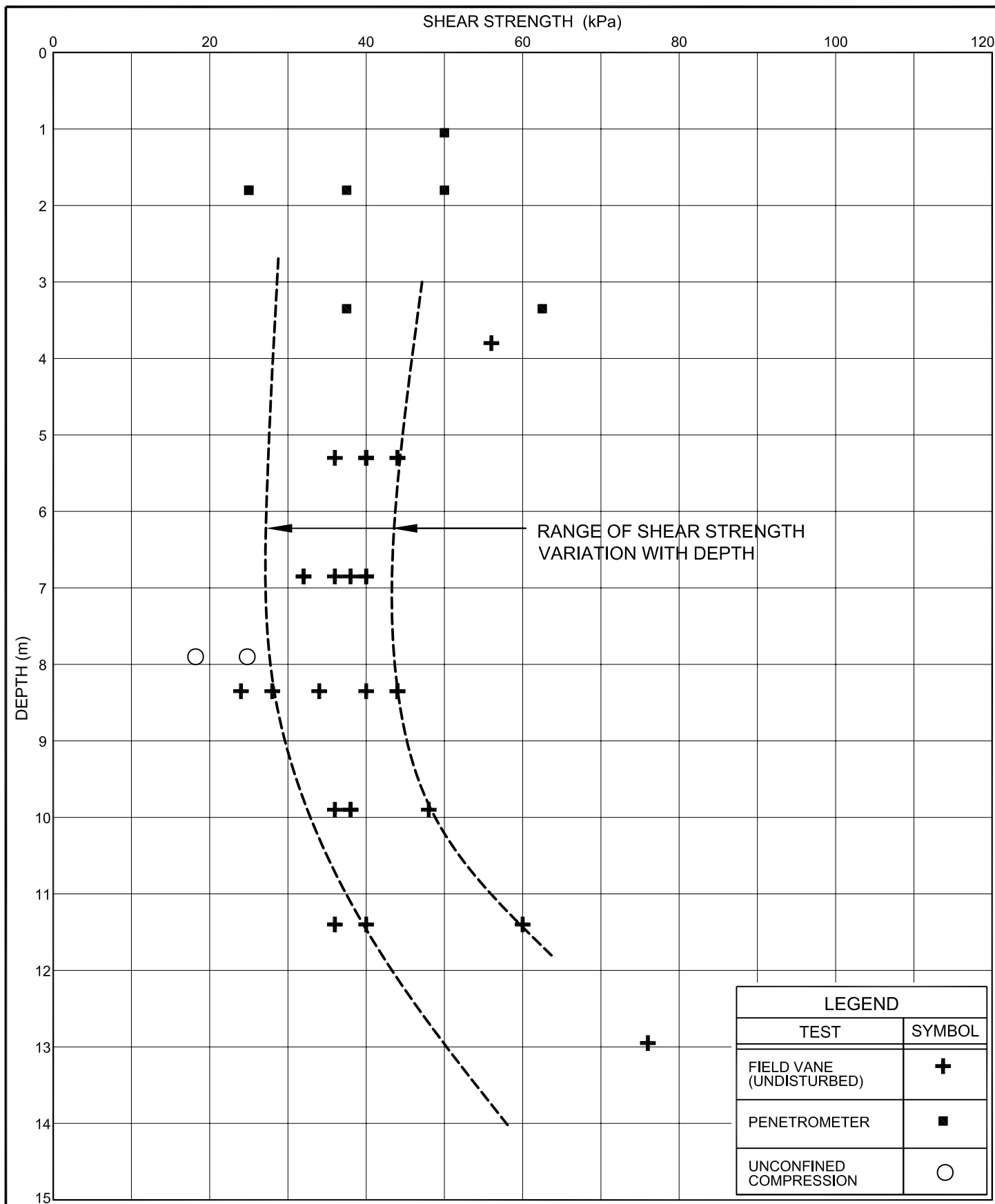
FIG No.	310-SS-1
HWY	69
G.W.P. No.	5203-06-00



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SHEAR STRENGTH SWAMP 311

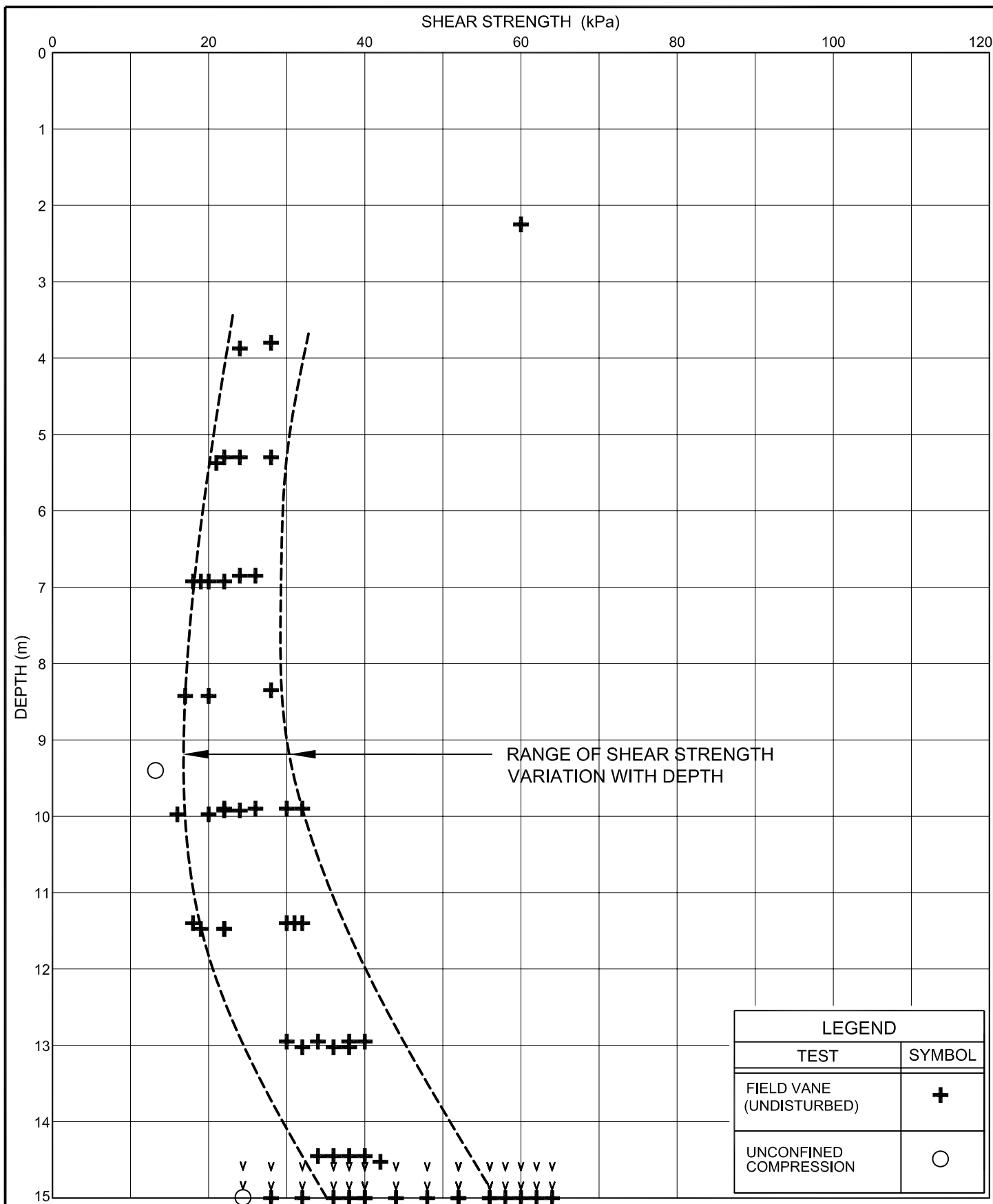
FIG No.	311-SS-1
HWY	69
G.W.P. No.	5203-06-00



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SHEAR STRENGTH SWAMP 313

FIG No.	313-SS-1
HWY	69
G.W.P. No.	5203-06-00



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SHEAR STRENGTH SWAMP 314

FIG No.	314-SS-1
HWY	69
G.W.P. No.	5203-06-00