

Engineering Properties

Steuben County, Indiana

[Absence of an entry indicates that the data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
BoB:												
Boyer	0-8	Loamy sand	SM, SP-SM	A-2-4, A-3	0-1	0-5	80-100	75-98	55-80	10-25	0	NP
	8-17	Loamy sand	SM, SP-SM	A-2-4, A-3	0-1	0-5	80-100	75-98	55-80	10-25	0	NP
	17-22	Gravelly sandy clay loam, gravelly sandy loam, sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0-2	0-10	80-95	65-95	55-85	15-45	15-40	NP-25
	22-27	Gravelly sandy clay loam, gravelly sandy loam, sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0-2	0-10	80-95	65-95	55-85	15-45	15-40	NP-25
	27-60	Stratified sand to gravelly coarse sand	SP-SM, SW, SW-SM	A-1-b	0-2	0-20	55-85	40-75	10-50	0-15	0	NP
Ormas	0-9	Loamy sand	SC-SM, SM	A-2-4	0	0	100	100	80-100	15-30	0	NP
	9-39	Fine sand, loamy fine sand, sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	100	70-95	0-25	0	NP
	39-47	Fine sandy loam, sandy clay loam, sandy loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0-1	95-100	90-100	55-95	25-55	0-30	NP-20
	47-55	Gravelly sandy clay loam, gravelly sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0-1	0-5	80-100	75-95	45-80	20-50	0-30	NP-20
	55-80	Gravelly coarse sand, gravelly sand, sand	SM, SP, SW, SW-SM	A-1, A-2-4, A-3	0-2	0-20	60-85	50-75	15-55	0-15	0	NP
Riverdale	---	---	---	---	---	---	---	---	---	---	---	---

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
BoC:												
Boyer	0-8	Loamy sand	SM, SP-SM	A-2-4, A-3	0-1	0-5	80-100	75-98	55-80	10-25	0	NP
	8-17	Loamy sand	SM, SP-SM	A-2-4, A-3	0-1	0-5	80-100	75-98	55-80	10-25	0	NP
	17-22	Gravelly sandy clay loam, gravelly sandy loam, sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0-2	0-10	80-95	65-95	55-85	15-45	15-40	NP-25
	22-27	Gravelly sandy clay loam, gravelly sandy loam, sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0-2	0-10	80-95	65-95	55-85	15-45	15-40	NP-25
	27-60	Stratified sand to gravelly coarse sand	SP-SM, SW, SW-SM	A-1-b	0-2	0-20	55-85	40-75	10-50	0-15	0	NP
Ormas	0-9	Loamy sand	SC-SM, SM	A-2-4	0	0	100	100	80-100	15-30	0	NP
	9-39	Fine sand, loamy fine sand, sand	SM, SP, SP-SM	A-2-4, A-3	0	0	100	100	70-95	0-25	0	NP
	39-47	Fine sandy loam, sandy clay loam, sandy loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0-1	95-100	90-100	55-95	25-55	0-30	NP-20
	47-55	Gravelly sandy clay loam, gravelly sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0-1	0-5	80-100	75-95	45-80	20-50	0-30	NP-20
	55-80	Gravelly coarse sand, gravelly sand, sand	SM, SP, SW, SW-SM	A-1, A-3	0-2	0-20	60-85	50-75	15-55	0-15	0	NP
Martinsville	---	---	---	---	---	---	---	---	---	---	---	---
Rawson	---	---	---	---	---	---	---	---	---	---	---	---

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Bz:												
Brookston	0-10	Loam	CL, ML	A-4, A-6	0	0-3	95-100	90-100	85-100	55-70	15-40	NP-15
	10-44	Clay loam, sandy clay loam, silty clay loam	CL	A-6, A-7-6	0-1	1-10	90-100	90-100	85-100	55-95	25-50	10-35
	44-60	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-5	90-100	85-98	65-90	40-70	15-30	NP-15
CaC:												
Casco	0-7	Gravelly sandy loam	SC, SC-SM, SM	A-2-4, A-4	0-2	0-5	70-95	50-80	40-65	25-40	0-25	NP-10
	7-16	Gravelly clay loam, gravelly sandy clay loam	CL, SC, SC-SM	A-2, A-4, A-6	0-2	0-10	65-100	55-90	30-85	15-75	20-50	5-30
	16-60	Stratified sand to gravelly coarse sand	SP-SM, SW, SW-SM	A-1-b, A-3	0-2	0-20	60-85	50-75	15-55	0-15	0	NP
CaD2:												
Casco	0-7	Gravelly sandy loam	SC, SC-SM, SM	A-2-4, A-4	0-2	0-5	70-95	50-80	40-65	25-40	0-25	NP-10
	7-16	Gravelly clay loam, gravelly sandy clay loam	CL, SC, SC-SM	A-2, A-4, A-6	0-2	0-10	65-100	55-90	30-85	15-75	20-50	5-30
	16-60	Stratified sand to gravelly coarse sand	SP-SM, SW, SW-SM	A-1-b, A-3	0-2	0-20	60-85	50-75	15-55	0-15	0	NP

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Co:												
Cohoctah	0-11	Sandy loam	SC, SC-SM, SM	A-2-4, A-4	0	0	100	100	85-100	25-45	0-25	NP-10
	11-35	Fine sandy loam, loamy sand, sandy clay loam	SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	100	100	80-100	20-60	0-30	NP-20
	35-60	Fine sandy loam, loam, loamy sand	CL, SC, SC-SM, SM	A-2-4, A-4, A-6	0	0	100	95-100	70-100	15-55	0-30	NP-20
CrA:												
Crosier	0-8	Loam	CL, ML	A-4, A-6	0-2	0-5	95-100	90-100	85-95	55-70	15-40	NP-15
	8-32	Clay loam, loam, sandy clay loam	CL, SC	A-4, A-6, A-7-6	0-2	0-5	95-100	90-100	85-100	40-95	20-50	10-30
	32-60	Loam, sandy loam	CL, CL-ML, SC	A-4, A-6	0-2	0-5	90-100	85-98	65-90	40-70	15-30	NP-15
Miami	---	---	---	---	---	---	---	---	---	---	---	---
Brookston	---	---	---	---	---	---	---	---	---	---	---	---
Ed:												
Edwards, drained	0-10	Muck	PT	A-8	0	0	100	100	100	100	0	---
	10-32	Muck	PT	A-8	0	0	100	100	100	100	0	---
	32-60	Marl	OL	A-4	0	0	100	100	85-100	75-96	0	---

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Ht:												
Houghton, undrained	0-12	Muck	PT	A-8	0	0	---	---	---	---	---	---
	12-35	Muck	PT	A-8	0	0	---	---	---	---	---	---
	35-79	Muck, stratified muck to mucky peat	PT	A-8	0	0	---	---	---	---	---	---
Palms, undrained	0-35	Muck, stratified muck to mucky peat, stratified muck to peat	PT	A-8	0	0	---	---	---	---	---	---
	35-79	Clay loam, gravelly clay loam, loam, silty clay loam	CL, CL-ML, ML	A-4, A-6, A-7-6	0-2	0-9	73-100	66-100	49-100	31-100	19-49	3-28
Muskego, undrained	0-27	Muck	PT	A-8	0	0	---	---	---	---	---	---
	27-79	Coprogeous peat	PT	A-8	0	0	95-100	95-100	85-100	75-96	40-50	2-8
Hw:												
Houghton, drained	0-9	Muck	PT	A-8	0	0	100	100	100	100	---	---
	9-80	Muck	PT	A-8	0	0	100	100	100	100	---	---
Adrian, drained	0-9	Muck	PT	A-8	0	0	100	100	100	100	---	---
	9-34	Muck	PT	A-8	0	0	100	100	100	100	---	---
	34-80	Fine sand, gravelly loamy sand, sand	SM, SP	A-1, A-2, A-3	0	0	80-100	60-100	30-80	0-35	0	NP
Edwards, drained	0-9	Muck	PT	A-8	0	0	100	100	100	100	---	---
	9-24	Muck	PT	A-8	0	0	100	100	100	100	---	---
	24-80	Marly material	ML	A-5	0	0	100	100	90-99	70-95	---	---

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Hw:												
Muskego, drained	0-9	Muck	PT	A-8	0	0	100	100	100	100	---	---
	9-27	Muck	PT	A-8	0	0	100	100	100	100	---	---
	27-80	Coprogenous material	OL	A-5	0	0	95-100	95-100	85-100	75-96	40-50	2-8
Palms, drained	0-35	Muck	PT	A-8	0	0	100	100	100	100	---	---
	35-80	Clay loam, fine sandy loam, loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	85-100	80-100	70-95	50-90	25-40	5-20
KoB:												
Kosciusko	0-8	Sandy loam	SC, SC-SM, SM	A-2-4, A-4	0-1	0-5	80-100	75-98	60-80	25-40	0-25	NP-10
	8-30	Gravelly clay loam, gravelly sandy clay loam	CL, SC, SC-SM	A-2, A-4, A-6	0-2	0-10	65-95	55-80	30-70	15-50	20-60	5-30
	30-34	Gravelly loamy sand, gravelly sandy loam, sandy loam	SC, SC-SM, SM	A-1-b, A-2-4, A-3, A-4	0-2	0-10	60-95	50-75	25-55	10-40	0-25	NP-10
	34-60	Stratified sand to gravelly coarse sand	SP-SM, SW, SW-SM	A-1-b, A-3	0-2	0-20	55-85	40-75	10-55	0-15	0	NP

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
KsC:												
Kosciusko	0-8	Gravelly sandy loam	SC, SC-SM, SM	A-2-4, A-4	0-1	0-10	75-95	65-80	55-75	20-40	0-25	NP-10
	8-30	Gravelly clay loam, gravelly sandy clay loam	CL, SC, SC-SM	A-2, A-4, A-6	0-2	0-10	75-95	65-80	55-75	20-55	20-60	5-30
	30-34	Gravelly loamy sand, gravelly sandy loam, sandy loam	SC, SC-SM, SM	A-1-b, A-2-4, A-3, A-4	0-2	0-10	60-95	50-75	25-55	10-40	0-25	NP-10
	34-60	Stratified sand to gravelly coarse sand	SP-SM, SW, SW-SM	A-1-b, A-3	0-2	0-20	55-85	40-75	10-55	0-15	0	NP
Mc:												
Martisco, undrained	0-12	Muck	PT	A-8	0	0	100	100	100	100	0	---
	12-14	Muck	PT	A-8	0	0	100	100	100	100	0	---
	14-60	Marl	OL	A-4	0	0	100	100	90-99	70-95	0	---
MhB:												
Miami	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0-1	95-100	87-100	72-100	45-72	20-30	3-15
	9-13	Clay loam, loam	CL, CL-ML	A-4, A-6	0-1	0-1	95-100	86-98	77-98	54-73	25-55	5-35
	13-31	Clay loam, loam, silty clay loam	CL	A-6, A-7-6	0-1	0-4	91-100	80-98	68-96	48-71	30-50	11-31
	31-36	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-4	92-98	82-98	67-91	47-67	15-37	3-22
	36-79	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-4	92-99	83-99	69-97	49-73	15-30	3-15

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
MhB:												
Crosier	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0-1	95-100	87-100	73-100	48-72	20-40	NP-17
	9-30	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0-1	0-1	95-100	87-100	72-96	49-70	25-50	12-30
	30-38	Fine sandy loam, loam, sandy loam	CL, CL-ML, ML, SC	A-4, A-6	0-1	0-2	92-100	79-100	71-100	46-71	15-40	NP-22
	38-79	Fine sandy loam, loam, sandy loam	CL, CL-ML, ML, SC	A-4, A-6	0-1	0-2	92-100	80-100	70-97	45-66	15-30	NP-15
Brookston	0-10	Loam	CL, CL-ML	A-4, A-6	0	0-1	91-100	83-100	71-95	51-71	29-48	9-25
	10-44	Clay loam, loam, silty clay loam	CL	A-6, A-7, A-7-6	0	0-1	84-100	68-100	59-96	46-78	36-49	17-25
	44-79	Loam	CL	A-4, A-6	0	0-1	91-100	74-100	62-94	44-71	25-38	9-18

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
MhC:												
Miami	0-8	Loam	CL, CL-ML, ML	A-4, A-6	0	0-1	95-100	87-100	72-100	45-72	20-30	3-15
	8-13	Clay loam, loam	CL, CL-ML	A-4, A-6	0-1	0-1	95-100	86-98	77-98	54-73	25-55	5-35
	13-30	Clay loam, loam, silty clay loam	CL	A-6, A-7-6	0-1	0-4	91-100	80-98	68-96	48-71	30-50	11-31
	30-35	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-4	92-98	82-98	67-93	47-69	15-37	3-22
	35-79	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-4	92-99	83-99	70-97	48-73	15-30	3-15
Crosier	0-9	Loam	CL, CL-ML, ML	A-4, A-6	0	0-1	95-100	87-100	73-100	48-72	20-40	NP-17
	9-30	Clay loam, loam, sandy clay loam	CL, SC	A-6, A-7-6	0-1	0-1	95-100	87-100	72-96	49-70	25-50	12-30
	30-38	Fine sandy loam, loam, sandy loam	CL, CL-ML, ML, SC	A-4, A-6	0-1	0-2	92-100	79-100	71-100	46-71	15-40	NP-22
	38-79	Fine sandy loam, loam, sandy loam	CL, CL-ML, ML, SC	A-4, A-6	0-1	0-2	92-100	80-100	70-97	45-66	15-30	NP-15

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
MhC:												
Brookston	0-11	Loam	CL, CL-ML	A-4, A-6	0	0-1	91-100	83-100	71-95	51-71	29-48	9-25
	11-45	Clay loam, loam, silty clay loam	CL	A-6, A-7, A-7-6	0	0-1	84-100	68-100	59-96	46-78	36-49	17-25
	45-79	Loam	CL	A-4, A-6	0	0-1	91-100	74-100	62-94	44-71	25-38	9-18
MkC3:												
Miami, severely eroded	0-6	Clay loam	CL	A-6	0-1	0	95-100	93-100	78-95	60-85	35-47	18-24
	6-29	Clay loam, silty clay loam	CL	A-6, A-7-6	0-1	0-5	90-100	85-100	75-95	55-85	30-50	11-31
	29-34	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-5	90-98	85-98	65-95	40-70	15-37	9-22
	34-80	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-5	90-98	85-98	65-90	40-70	15-30	6-15

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
MkC3: Crosby	0-8	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	93-100	80-95	60-85	15-40	3-15
	8-11	Silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	93-100	80-95	60-85	15-40	3-15
	11-14	Silty clay loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	95-100	93-100	80-95	60-85	20-40	3-20
	14-28	Clay, clay loam, silty clay, silty clay loam	CH, CL	A-6, A-7-6	0-1	0-3	90-100	85-100	75-95	55-90	30-60	10-35
	28-36	Clay loam, fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-35	3-20
	36-80	Fine sandy loam, loam	CL, ML, SC, SM	A-4, A-6	0-1	0-3	85-100	80-98	65-90	40-70	15-30	3-15

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Mm:												
Millgrove	0-11	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-5	90-100	90-98	75-85	50-65	20-40	3-20
	11-13	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-5	90-100	90-98	75-85	50-65	20-40	3-20
	13-16	Loam	CL, CL-ML, ML	A-4, A-6	0-1	0-5	90-100	90-98	75-85	50-65	20-40	3-20
	16-32	Clay loam, gravelly sandy clay loam, loam	CL, CL-ML, SC, SM	A-4, A-6	0-1	0-5	90-100	80-100	55-85	40-75	20-50	3-30
	32-35	Gravelly clay loam, gravelly loam	CL, SC, SC-SM, SM	A-2-4, A-4, A-6	0-2	0-10	65-95	60-90	40-75	20-60	10-50	NP-25
	35-60	Gravelly loam, gravelly sandy loam	GM, SC, SM	A-1-b, A-2-4, A-4	0-2	0-15	60-85	55-80	25-55	15-40	10-30	NP-20
Pa:												
Palms, drained	0-12	Muck	PT	A-8	0	0	100	100	100	100	0	---
	12-25	Muck	PT	A-8	0	0	100	100	100	100	0	---
	25-60	Loam, silty clay loam, silt loam, sandy loam	CL, ML, SC, SM	A-4, A-6, A-7-6	0-1	0-5	90-100	75-100	45-100	25-95	15-45	3-25

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Ry:												
Riverdale	0-7	Loamy sand	SC-SM, SM	A-2-4	0	0-1	95-100	85-100	60-95	15-30	0	NP
	7-12	Gravelly sand, loamy sand, sand	SM, SP-SM	A-2-4, A-3	0	0-1	95-100	85-100	60-95	10-30	0	NP
	12-33	Gravelly sand, loamy sand, sand	SM, SP-SM	A-2-4, A-3	0	0-1	95-100	85-100	60-95	10-30	0	NP
	33-45	Gravelly sandy loam, loam, sandy loam	CL, SC, SC-SM	A-2-4, A-4, A-6	0	0-1	95-100	85-100	60-95	25-60	10-40	NP-20
	45-60	Gravelly sand, sand	SM, SP, SP-SM	A-1-b, A-2, A-3	0-1	0-1	95-100	60-100	50-90	0-50	0	NP
Brems	---	---	---	---	---	---	---	---	---	---	---	---
Cohoctah	---	---	---	---	---	---	---	---	---	---	---	---
Sh:												
Shoals	0-10	Loam, silt loam	CL	A-4, A-6	0	0	100	95-100	85-100	55-85	20-40	5-15
	10-42	Loam, silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0-1	97-100	95-100	85-100	55-90	25-40	5-15
	42-79	Stratified sandy loam to silt loam	CL	A-4	0	0-2	90-100	75-100	50-90	30-85	15-40	5-15
Sloan	0-12	Silty clay loam	CL, ML	A-4, A-6, A-7	0	0	97-100	95-100	90-100	80-95	35-45	10-20
	12-42	Clay loam, silty clay loam, silt loam	CL, ML	A-4, A-6, A-7	0	0	97-100	95-100	85-100	75-95	30-45	8-18
	42-79	Gravelly loam, stratified sandy loam to silty clay loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	65-100	50-95	40-80	20-40	3-15

Engineering Properties

Steuben County, Indiana

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percent passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 Inches	3-10 Inches	4	10	40	200		
	<i>In</i>				<i>Pct</i>	<i>Pct</i>					<i>Pct</i>	
Sh:												
Eel	0-9	Loam, silt loam	CL	A-6, A-7-6	0	0	95-100	95-100	75-100	55-85	30-50	10-30
	9-40	Clay loam, loam, silt loam	CL, CL-ML	A-4, A-6, A-7-6	0	0	98-100	95-100	90-100	55-85	20-50	5-30
	40-79	Sandy loam, stratified loam to silty clay loam	CL, CL-ML, ML, SM	A-2-4, A-4, A-6	0	0-2	92-100	85-100	65-100	30-85	0-50	NP-25
Ud:												
Udorthents	---	---	---	---	---	---	---	---	---	---	---	---
W:												
Water	---	---	---	---	---	---	---	---	---	---	---	---

Engineering Properties

This table gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

"Depth" to the upper and lower boundaries of each layer is indicated.

"Texture" is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly."

"Classification" of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

"Rock fragments" larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

"Percentage (of soil particles) passing designated sieves" is the percentage of the soil fraction less than 3 inches in diameter based on an oven-dry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

"Liquid limit" and "plasticity index" (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

References:

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition. American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.