

Appendix A

Selected Soil Physical Features, Classifications, and Interpretations and Limitations

Hayward Solar Project
Agricultural Impact Mitigation Plan
Freeborn County, Minnesota

	Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations														
		Map Unit				Selected Soil Physica	al Features		Se	elected Soil Class	sifications			/Reclamation and Limitatio	Interpretations
Feature Type	Acres ²	Symbol ³	Map Unit Name ³	Particle Size Family ³	Slope Range ⁴	Drainage Class ⁵	Topsoil Thickness ⁶	Prime Farmland ³	Land Capability Classification ³	Hydric Soil Rating ³	Highly Erodible Water ⁷	Highly Erodible Wind ⁸	Compact Prone ⁹	Rutting Hazard ¹⁰	Droughty ¹¹
			Biscay clay loam, 0 to 2	fine-loamy over sandy or											
Access Road	1.76	392	percent slopes	sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.47	L78A	Canisteo clay loam, 0 to 2	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.47	L/6A	percent slopes	ime-ioamy	0-3	Very poorly	10.00	Prime fariniand if dramed	2W	ies	NO	NO	ies	Severe	NO
Access Road	1.50	300	Dassel mucky loam	coarse-loamy	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Fieldon loam, 0 to 2 percent	,											
Access Road	2.11	160	slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Glencoe clay loam, 0 to 1			Very poorly								_	
Access Road	0.51	L84A	percent slopes	fine-loamy	0-5	drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Access Road	4.44	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	4.44	202	Klossner muck, 0 to 1	coarse-toathy	0-3	Very poorly	19.00	Farmland of statewide	Z W	168	NO	NO	168	Severe	NO
Access Road	34.11	L13A	percent slopes	loamy	0-5	drained	9.00	importance	3w	Yes	No	Yes	Yes	Severe	No
			Le Sueur loam, 1 to 3	·		Somewhat poorly		•							
Access Road	3.81	239	percent slopes	fine-loamy	0-5	drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
			Lemond loam, 0 to 2 percent		0.4		10.00	5. 6							
Access Road	0.50	227	slopes Linder sandy loam, 0 to 3	coarse-loamy	0-5	Poorly drained	18.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	0.58	247	percent slopes	coarse-loamy	0-5	Somewhat poorly drained	12.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
7 Icccss Road	0.56	241	Madelia silty clay loam, 0 to	,	0-3	dramed	12.00	7xii areas are prime fariniana	23	110	110	140	103	Severe	110
Access Road	2.24	136	2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
				fine-loamy over sandy or											
Access Road	0.08	252	Marshan silt loam	sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.49	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	1.54	940	Maxcreek-Barbert complex Mayer loam, 0 to 2 percent	fine-silty fine-loamy over sandy or	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Access Road	3.34	255	slopes	sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
1100055 11040	5.5.	200	Okoboji silty clay loam, 0 to	Sandy Sheretar	- 0 0	Very poorly	21.00		- "	100	1,0	110	100	501010	1,0
Access Road	1.94	134	1 percent slopes	fine	0-5	drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Spicer silt loam,			Very poorly		Farmland of statewide							
Access Road	0.80	391	depressional	fine-silty	0-5	drained	20.00	importance	3w	Yes	No	No	Yes	Severe	No
Access Road	2.80	140	Spicer silty clay loam, 0 to 2	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Carrama	No
Access Road	2.80	140	percent slopes	illie-siity	0-3	Very poorly	10.00	Prime fariniand if dramed	2W	ies	NO	NO	ies	Severe	NO
Access Road	8.33	386	Wacousta mucky silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
						Very poorly									
Access Road	4.55	400	Wacousta silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Biscay clay loam, 0 to 2	fine-loamy over sandy or											
Collection Line	1.81	392	percent slopes	sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	2.66	L78A	Canisteo clay loam, 0 to 2 percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Conection Line	2.00	L/8A	percent stopes	ппе-тоату	0-3	Very poorly	10.00	rinne iarnhand ii drained	ΔW	ies	INO	INO	res	severe	INO
Collection Line	0.86	300	Dassel mucky loam	coarse-loamy	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Fieldon loam, 0 to 2 percent	·	-										
Collection Line	0.26	160	slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Glencoe clay loam, 0 to 1			Very poorly						_			
Collection Line	1.32	L84A	percent slopes	fine-loamy	0-5	drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Collection Line	3.50	282	Hanska loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Conection Line	5.50	202	stopes	coarse-roanny	0-3	1 oorry drained	19.00	i iiiic iaiiiiaiiu ii uiaiiieu	ΔW	1 68	TNO	TAO	1 68	Sevele	TNO

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		Map Unit				Selected Soil Physica	al Features		Se	elected Soil Class	sifications			/Reclamation and Limitation	Interpretations ns
Feature Type	Acres ²	Symbol ³	Map Unit Name ³	Particle Size Family ³	Slope Range ⁴	Drainage Class ⁵	Topsoil Thickness ⁶	Prime Farmland ³	Land Capability Classification ³	Hydric Soil Rating ³	Highly Erodible Water ⁷	Highly Erodible Wind ⁸	Compact Prone ⁹	Rutting Hazard ¹⁰	Droughty ¹¹
			Klossner muck, 0 to 1			Very poorly		Farmland of statewide							
Collection Line	29.17	L13A	percent slopes	loamy	0-5	drained	9.00	importance	3w	Yes	No	Yes	Yes	Severe	No
Callantian Lina	1.07	220	Le Sueur loam, 1 to 3	£ 1	0.5	Somewhat poorly	14.00	A11	1	NI-	NI-	NI-	V	C	NI-
Collection Line	1.97	239	percent slopes Lemond loam, 0 to 2 percent	fine-loamy	0-5	drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
Collection Line	0.10	227	slopes	coarse-loamy	0-5	Poorly drained	18.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Contestion Emile	0.10		Madelia silty clay loam, 0 to	ž	0.0	1 oong aramed	10.00		211	100	110	110	103	20,010	110
Collection Line	1.35	136	2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			·	fine-loamy over sandy or		,									
Collection Line	0.12	252	Marshan silt loam	sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.12	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Collection Line	0.28	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Mayer loam, 0 to 2 percent	fine-loamy over sandy or			• • • • •								
Collection Line	2.42	255	slopes	sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Callantian Lina	0.09	124	Okoboji silty clay loam, 0 to		0.5	Very poorly	22.00	Duine - fermale - d if during d	2	Yes	NI-	No	Yes	C	NI-
Collection Line	0.09	134	1 percent slopes Spicer silt loam,	fine	0-5	drained Very poorly	33.00	Prime farmland if drained Farmland of statewide	3w	ies	No	NO	res	Severe	No
Collection Line	0.07	391	depressional	fine-silty	0-5	drained	20.00	importance	3w	Yes	No	No	Yes	Severe	No
Concetion Line	0.07	371	Spicer silty clay loam, 0 to 2	inic-snry	0-3	dramed	20.00	ппротапсс		103	110	110	103	Severe	110
Collection Line	1.20	140	percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Parama and Parama			Very poorly								20.000	- 1.0
Collection Line	5.50	386	Wacousta mucky silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			•	•		Very poorly									
Collection Line	2.63	400	Wacousta silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Webster clay loam, 0 to 2												
Collection Line	0.19	L83A	percent slopes	fine-loamy	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Biscay clay loam, 0 to 2	fine-loamy over sandy or					_					_	
Fenced Area	33.74	392	percent slopes	sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
F 1.4	20.21	1.70 4	Canisteo clay loam, 0 to 2	C 1	0.5	D 1 1 ' 1	16.00	D: C 1 1:C1 : 1	2	37	N	NT.	37	g.	NT
Fenced Area	38.21	L78A	percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	0.09	129	Cylinder loam, 0 to 2 percent slopes	fine-loamy over sandy or sandy-skeletal	0-5	Somewhat poorly drained	19.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Teliced Alea	0.09	129	Dakota loam, 0 to 2 percent	Salidy-Skeletal	0-3	dramed	19.00	An areas are prime fariniand	28	INO	NO	NO	168	Severe	110
Fenced Area	4.92	5	slopes	fine-loamy	0-5	Well drained	8.00	All areas are prime farmland	2s	No	No	No	No	Severe	No
- Jacob I field	,2		2201-02			Very poorly	0.00	are prime farinalia		1.0	1,5	1,5	1.0	30.010	1,0
Fenced Area	4.33	183	Dassel loam	coarse-loamy	0-5	drained	23.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
				•		Very poorly									
Fenced Area	30.52	300	Dassel mucky loam	coarse-loamy	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Dundas silt loam, 0 to 2												
Fenced Area	7.72	123	percent slopes	fine-loamy	0-5	Poorly drained	10.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
F 14	,,,,,	1.00	Fieldon loam, 0 to 2 percent	,	0.7	D 1	1.00	D. C. 1 1.61	2				37		, , , , , , , , , , , , , , , , , , ,
Fenced Area	11.47	160	slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fanad Area	16.62	L84A	Glencoe clay loam, 0 to 1	fine-loamy	0-5	Very poorly drained	39.00	Prime farmland if drained	2,,,,	Yes	No	No	Yes	Carrana	No
Fenced Area	10.02	L04A	percent slopes Hanska loam, 0 to 2 percent	me-mamy	0-3	uraineu	39.00	Frime fariniand if drained	3w	res	1/10	1/10	res	Severe	No
Fenced Area	34.82	282	slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
1 Sheed Thea	34.02	202	Klossner muck, 0 to 1	coarse rounny	0.5	Very poorly	17.00	Farmland of statewide		103	110	110	103	Severe	110
Fenced Area	530.41	L13A	percent slopes	loamy	0-5	drained	9.00	importance	3w	Yes	No	Yes	Yes	Severe	No
			Le Sueur loam, 1 to 3	,		Somewhat poorly		*							
Fenced Area	38.92	239	percent slopes	fine-loamy	0-5	drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No

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		Map Unit				Selected Soil Physica	al Features		Se	elected Soil Class	sifications			/Reclamation and Limitatio	Interpretations
Feature Type	Acres ²	Symbol ³	Map Unit Name ³	Particle Size Family ³	Slope Range ⁴	Drainage Class ⁵	Topsoil Thickness ⁶	Prime Farmland ³	Land Capability Classification ³	Hydric Soil Rating ³	Highly Erodible Water ⁷	Highly Erodible Wind ⁸	Compact Prone ⁹	Rutting Hazard ¹⁰	Droughty ¹¹
			Lemond loam, 0 to 2 percent												
Fenced Area	5.44	227	slopes	coarse-loamy	0-5	Poorly drained	18.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
T 14	7.75	2.47	Linder sandy loam, 0 to 3	,	0.7	Somewhat poorly	12.00		2				37	G	N
Fenced Area	7.75	247	percent slopes Madelia silty clay loam, 0 to	coarse-loamy	0-5	drained	12.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Fenced Area	17.82	136	2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
101100011100	17.102	100	2 percent stopes	fine-loamy over sandy or		1 sorry dramed	13.00		2	100	110	110	105	501010	1.0
Fenced Area	5.13	252	Marshan silt loam	sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	21.66	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Fenced Area	8.77	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Mayer loam, 0 to 2 percent	fine-loamy over sandy or											
Fenced Area	46.31	255	slopes	sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Б 1.4	22.04	124	Okoboji silty clay loam, 0 to	C.	0.5	Very poorly	22.00	D. C. I. 1:CI . 1	2	37	NT.	NT.	37	C	NI
Fenced Area	32.84	134	1 percent slopes Spicer silt loam,	fine	0-5	drained	33.00	Prime farmland if drained Farmland of statewide	3w	Yes	No	No	Yes	Severe	No
Fenced Area	16.40	391	depressional	fine-silty	0-5	Very poorly drained	20.00	importance	3w	Yes	No	No	Yes	Severe	No
T checa 7 trea	10.40	371	Spicer silty clay loam, 0 to 2	•	0-3	dramed	20.00	ппротапсе	3 W	103	110	110	103	Bevere	110
Fenced Area	37.80	140	percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			1 1	,		Very poorly									
Fenced Area	75.50	386	Wacousta mucky silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
						Very poorly									
Fenced Area	88.56	400	Wacousta silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Webster clay loam, 0 to 2		0.5		• • • • •								
Fenced Area	1.25	L83A	percent slopes	fine-loamy	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Invertor	0.02	392	Biscay clay loam, 0 to 2	fine-loamy over sandy or sandy-skeletal	0-5	Doorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.02	392	percent slopes Canisteo clay loam, 0 to 2	sandy-skeletai	0-3	Poorly drained	20.00	Fillile failliand if dramed	ZW	1 68	NO	NO	1 es	Severe	NO
Inverter	0.02	L78A	percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
555, 05105			passan asspes			Very poorly									- 1,0
Inverter	0.01	300	Dassel mucky loam	coarse-loamy	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Glencoe clay loam, 0 to 1			Very poorly									
Inverter	0.01	L84A	percent slopes	fine-loamy	0-5	drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Hanska loam, 0 to 2 percent												
Inverter	0.01	282	slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Torrestor	0.20	T 12 A	Klossner muck, 0 to 1	1	0.5	Very poorly	0.00	Farmland of statewide	2	V	NI-		V	C	NI-
Inverter	0.29	L13A	percent slopes Le Sueur loam, 1 to 3	loamy	0-5	drained Somewhat poorly	9.00	importance	3w	Yes	No	Yes	Yes	Severe	No
Inverter	0.01	239	percent slopes	fine-loamy	0-5	drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
III voi toi	0.01	237	Madelia silty clay loam, 0 to	· ·	0.5	Granica	14.00	areas are prime rarimana	1	110	110	110	103	Severe	1.0
Inverter	0.04	136	2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
				fine-loamy over sandy or											
Inverter	0.01	252	Marshan silt loam	sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Inverter	0.01	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
	0 - :		Mayer loam, 0 to 2 percent	fine-loamy over sandy or				.						_	
Inverter	0.04	255	slopes	sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Instantan	0.01	140	Spicer silty clay loam, 0 to 2		0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Covers	No
Inverter	0.01	140	percent slopes	fine-silty	0-3	Very poorly	10.00	rinne ranniana n dramed	ΔW	1 es	110	140	1 68	Severe	110
Inverter	0.07	386	Wacousta mucky silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
111.01101	0.07	230	acousta macky site found	inc bitty	, ,	aramed	12.50		5 ,,	- 00	110	110	2 05	20,010	110

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Inverter	0.01	400	Wacousta silt loam	fine-silty	0-5	Very poorly drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Fieldon loam, 0 to 2 percent												
O&M Building	0.78	160	slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
O %-M D.::14:	0.00	201	Spicer silt loam,	£: :14	0.5	Very poorly	20.00	Farmland of statewide	2	V	N-	NI-	V	C	NI-
O&M Building	0.08	391	depressional	fine-silty	0-5	drained Very poorly	20.00	importance	3w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.89	300	Dassel mucky loam	coarse-loamy	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Hanska loam, 0 to 2 percent								- , ,				
Stormwater Basin	0.85	282	slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Klossner muck, 0 to 1			Very poorly		Farmland of statewide							
Stormwater Basin	11.27	L13A	percent slopes	loamy	0-5	drained	9.00	importance	3w	Yes	No	Yes	Yes	Severe	No
Stormwater Basin	0.00	940	Maxcreek-Barbert complex	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
	0.00		Mayer loam, 0 to 2 percent	fine-loamy over sandy or			24.00	5.						_	
Stormwater Basin	0.28	255	slopes Okoboji silty clay loam, 0 to	sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.04	134	1 percent slopes	fine	0-5	Very poorly drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Stormwater Basin	0.04	134	1 percent stopes	inic	0-3	Very poorly	33.00	Time farmand if dramed		103	110	110	103	Bevere	110
Stormwater Basin	0.33	386	Wacousta mucky silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Fieldon loam, 0 to 2 percent												
Substation	1.67	160	slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Switchyard	2.85	160	Fieldon loam, 0 to 2 percent slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Spicer silt loam,			Very poorly		Farmland of statewide							
Switchyard	1.14	391	depressional	fine-silty	0-5	drained	20.00	importance	3w	Yes	No	No	Yes	Severe	No
Transmission Line	0.80	160	Fieldon loam, 0 to 2 percent	anama laamu	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Transmission Line	0.80	100	slopes Biscay clay loam, 0 to 2	coarse-loamy fine-loamy over sandy or		Poorty drained	10.00	Prime fariniand if drained	2W	res	NO	NO	ies	Severe	NO
Undeveloped Area	38.95	392	percent slopes	sandy-skeletal	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
1			Canisteo clay loam, 0 to 2			, , , , , , , , , , , , , , , , , , , ,									
Undeveloped Area	14.66	L78A	percent slopes	fine-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
			Cylinder loam, 0 to 2	fine-loamy over sandy or		Somewhat poorly									1
Undeveloped Area	0.99	129	percent slopes	sandy-skeletal	0-5	drained	19.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
Undeveloped Area	1.92	183	Dassel loam	coarse-loamy	0-5	Very poorly drained	23.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Ondeveloped Area	1.72	103	Dassel loani	coarse-roamy	0-3	Very poorly	23.00	Time farmand if dramed	3 W	103	140	110	TCS	Severe	No
Undeveloped Area	20.87	300	Dassel mucky loam	coarse-loamy	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Î			Fieldon loam, 0 to 2 percent	j											
Undeveloped Area	73.80	160	slopes	coarse-loamy	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
TTd. 1 1 4	7.70	T 0.4.4	Glencoe clay loam, 0 to 1	£. 1	0.7	Very poorly	20.00	D.: f. 1 1:01 : 1	2	37	NT.	NT.	37	C	NT.
Undeveloped Area	7.70	L84A	percent slopes Hanska loam, 0 to 2 percent	fine-loamy	0-5	drained	39.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Area	9.52	282	slopes	coarse-loamy	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Undeveloped Area		380	Havana silt loam	fine-loamy	0-5	Poorly drained	17.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Chacveroped Tited	. 0.02	300	Hayfield silt loam, 1 to 3	fine-loamy over sandy or		Somewhat poorly	17.00	. Inne immana n dramed	2 **	100	110	110	103	Severe	110
Undeveloped Area	7.81	190	percent slopes	sandy-skeletal	0-5	drained	9.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
			Klossner muck, 0 to 1			Very poorly		Farmland of statewide							
Undeveloped Area	113.22	L13A	percent slopes	loamy	0-5	drained	9.00	importance	3w	Yes	No	Yes	Yes	Severe	No

	Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations														
		Map Unit				Selected Soil Physica	ll Features		Se	elected Soil Class	sifications		Construction/Reclamation Interpretations and Limitations		
Feature Type	Acres ²	Symbol ³	Map Unit Name ³	Particle Size Family ³	Slope Range ⁴	Drainage Class ⁵	Topsoil Thickness ⁶	Prime Farmland ³	Land Capability Classification ³	Hydric Soil Rating ³	Highly Erodible Water ⁷	Highly Erodible Wind ⁸	Compact Prone ⁹	Rutting Hazard ¹⁰	Droughty ¹¹
			Le Sueur loam, 1 to 3			Somewhat poorly									
Undeveloped Area	17.77	239	percent slopes	fine-loamy	0-5	drained	14.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
			Linder sandy loam, 0 to 3			Somewhat poorly			_					_	
Undeveloped Area	1.74	247	percent slopes	coarse-loamy	0-5	drained	12.00	All areas are prime farmland	2s	No	No	No	Yes	Severe	No
	ć1 7 1	106	Madelia silty clay loam, 0 to		0.5		10.00	D. 6 1 1:61 . 1	_			3.7	***	G	
Undeveloped Area	61.51	136	2 percent slopes	fine-silty	0-5	Poorly drained	19.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
TT 1 1 1 1 A	10.14	252	N 1 7/1	fine-loamy over sandy or		D 1 1 1 1	15.00	D: 6 1 1:61 : 1	2	37	N	3.7	37	G.	
Undeveloped Area	10.14	252	Marshan silt loam	sandy-skeletal	0-5	Poorly drained	15.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
TT 1 1 1 A	40.00	252	M 1 1/2 1 1	C 11	0.5	D 1 1 1 1	21.00	D: C 1 1:C1 : 1	2	37	NT	N.T.	37	G.	NT.
Undeveloped Area	40.09	253	Maxcreek silty clay loam	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
TTdd-A	0.02	92	Maxcreek silty clay loam,	£::14	0.5	Danda dada d	21.00	Duine - fermale - d if duained	2	V	NI-	NI-	V	C	NI-
Undeveloped Area	0.93	83	swales	fine-silty	0-5	Poorly drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Undeveloped Ages	13.02	940	Maxcreek-Barbert complex	fine-silty	0-5	Doorly, droined	21.00	Prime farmland if drained	2	Yes	No	No	Yes	Carrama	No
Undeveloped Area	13.02	940	Mayer loam, 0 to 2 percent	fine-loamy over sandy or		Poorly drained	21.00	Frime farilland if drained	2w	ies	NO	NO	res	Severe	NO
Undeveloped Area	53.49	255	slopes	sandy-skeletal	0-5	Poorly drained	21.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
Olideveloped Area	33.47	233	siopes	fine-loamy over sandy or		Very poorly	21.00	Time farmand if dramed	Z-W	105	140	110	103	Severe	110
Undeveloped Area	0.67	318	Mayer loam, swales	sandy-skeletal	0-5	drained	21.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
Chacveropea / frea	0.07	310	Merton silt loam, 1 to 3	sandy-skeletai	0-3	Moderately well	21.00	Time farmand if dramed	3 W	103	110	110	103	Bevele	110
Undeveloped Area	15.75	377	percent slopes	fine-loamy	0-5	drained	16.00	All areas are prime farmland	1	No	No	No	No	Severe	No
Chac veroped Thea	13.73	377	Newry silt loam, 1 to 3	inic rouniy	0.5	Moderately well	10.00	The areas are prime farmana	1	110	110	110	110	Bevere	1,0
Undeveloped Area	0.13	381	percent slopes	fine-loamy	0-5	drained	8.00	All areas are prime farmland	1	No	No	No	No	Severe	No
Chack croped Thea	0.12	301	Nicollet clay loam, 1 to 3	inic rouni	0.0	Somewhat poorly	0.00	The areas are prime ranname	-	1,0	110	1,0	1,0	Severe	1,0
Undeveloped Area	5.44	L85A	percent slopes	fine-loamy	0-5	drained	17.00	All areas are prime farmland	1	No	No	No	Yes	Severe	No
			Okoboji silty clay loam, 0 to	•		Very poorly	2,100	The second secon						20.000	
Undeveloped Area	31.06	134	1 percent slopes	fine	0-5	drained	33.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
*			Spicer silt loam,			Very poorly		Farmland of statewide							
Undeveloped Area	13.68	391	depressional	fine-silty	0-5	drained	20.00	importance	3w	Yes	No	No	Yes	Severe	No
•			Spicer silty clay loam, 0 to 2	,				•							
Undeveloped Area	77.74	140	percent slopes	fine-silty	0-5	Poorly drained	16.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
•			<u> </u>	fine-loamy over sandy or											
Undeveloped Area	8.51	393	Udolpho silt loam	sandy-skeletal	0-5	Poorly drained	14.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No
-						Very poorly									
Undeveloped Area	18.72	386	Wacousta mucky silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
						Very poorly									
Undeveloped Area	10.97	400	Wacousta silt loam	fine-silty	0-5	drained	12.00	Prime farmland if drained	3w	Yes	No	No	Yes	Severe	No
			Webster clay loam, 0 to 2												
Undeveloped Area	15.01	L83A	percent slopes	fine-loamy	0-5	Poorly drained	20.00	Prime farmland if drained	2w	Yes	No	No	Yes	Severe	No

Project Area include soils under Elk Creek Solar lease but that are not anticipated to be disturbed during construction or operations.

Data obtained by merging facility polygons with the SSURGO spatial date in ArcGIS. Summations were performed in Microsoft Excel.

^{3.} Obtained directly by query of the SSURGO geospatial database.

4. Representative slope values are taken directly from the SSURGO database. The SSURGO database provides representative slope values for all component soil series. Slope classes represent the slope class grouping in percent that contains the representative slope value for a major component soil series. For example, a soil mapped in the 2-6% slope class has an average slope of 4%, which is within the 0-5% slope range.

^{5.} Drainage class as taken directly from the SSURGO database. ED, PD, and VPD indicate Excessively Drained, Poorly Drained, and Very Poorly Drained soils, respectively.

^{6.} Topsoil thickness is the aggregate thickness of the A horizons described in the SSURGO database.

	Appendix A: Selected Soil Physical Features, Classifications, and Interpretations and Limitations														
, Map Unit				Selected Soil Physical Features					Selected Soil Classifications				Construction/Reclamation Interpretations and Limitations		
Feature Type	Acres ²	Symbol ³	Map Unit Name ³	Particle Size Family ³	Slope Range ⁴	Drainage Class ⁵	Topsoil Thickness ⁶	Prime Farmland ³	Land Capability Classification ³	Hydric Soil Rating ³	Highly Erodible Water ⁷	Highly Erodible Wind ⁸	Compact Prone ⁹	Rutting Hazard ¹⁰	Droughty ¹¹

^{7.} Includes soils in land capability classes 4e through 8e or that have a representative slope value greater than or equal to 9%.8. Includes soils in wind erodibility groups 1 and 2.

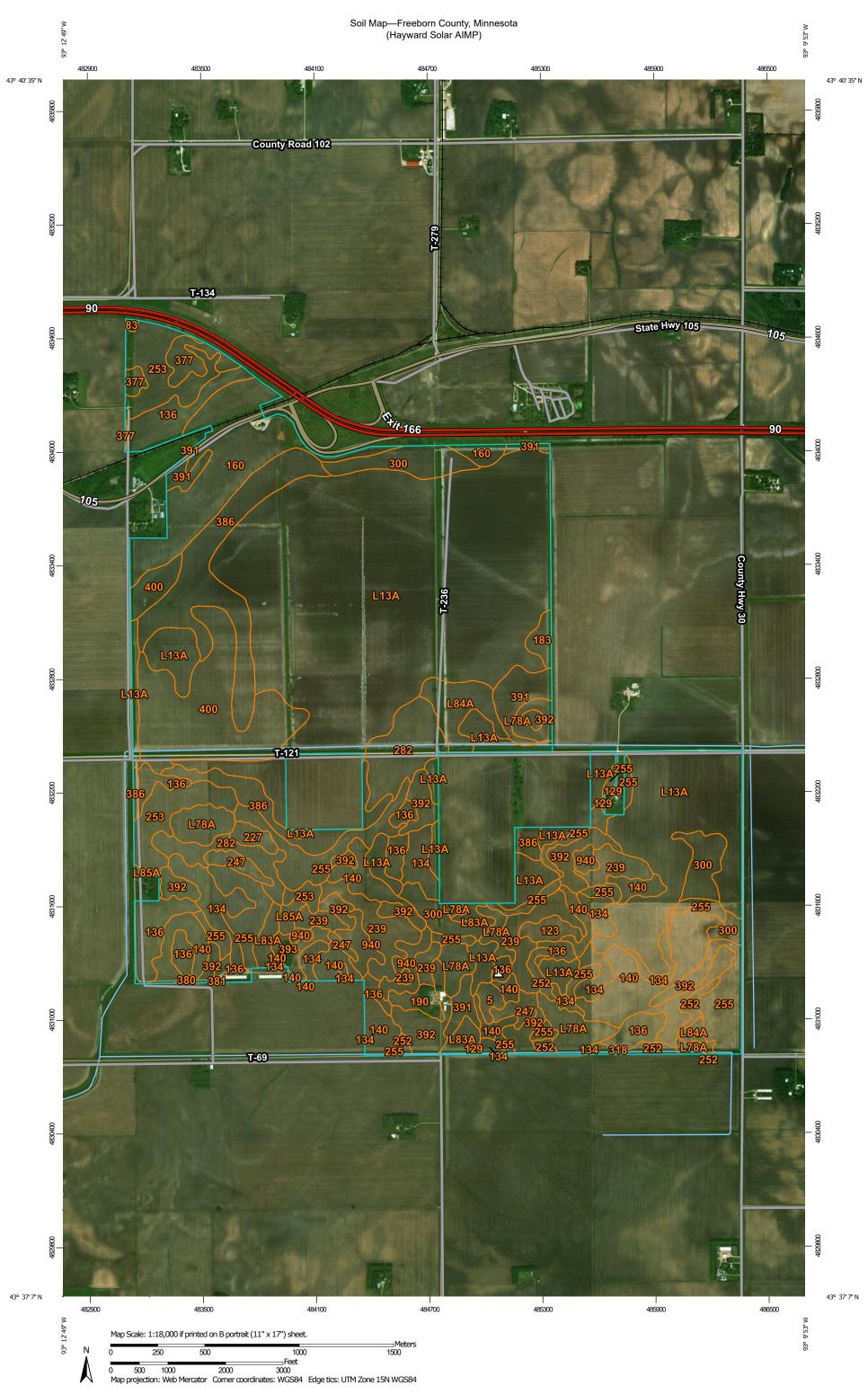
^{9.} Includes soils that are somewhat poorly drained to very poorly drained soils in loamy sands and finer textural classes.

10. Rutting potential hazard based on the soil strength as indicated by engineering texture classification, drainage class, and slope. In general, soils on low slopes in wetter drainage classes, and comprised of sediments with low strength will have potential rutting hazards.

11. Includes soils with a surface texture of sandy loam or coarser that are moderately well to excessively drained.

Appendix B Soil Map

Hayward Solar Project
Agricultural Impact Mitigation Plan
Freeborn County, Minnesota



MAP LEGEND

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Water Features

Transportation

Background

Spoil Area

Stony Spot

Wet Spot

Other

Rails

US Routes

Major Roads

Local Roads

Very Stony Spot

Special Line Features

Streams and Canals

Interstate Highways

Aerial Photography

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons



Soil Map Unit Points

Special Point Features

(o) Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Sandy Spot

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Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15.800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Freeborn County, Minnesota Survey Area Data: Version 16, Jun 5, 2020

Soil map units are labeled (as space allows) for map scales 1:50.000 or larger.

Date(s) aerial images were photographed: Jul 1, 2013—Feb 17, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI		
5	Dakota loam, 0 to 2 percent slopes	4.9	0.3%		
83	Maxcreek silty clay loam, swales	0.9	0.0%		
123	Dundas silt loam, 0 to 2 percent slopes	7.7	0.49		
129	Cylinder loam, 0 to 2 percent slopes	1.1	0.1%		
134	Okoboji silty clay loam, 0 to 1 percent slopes	66.1	3.4%		
136	Madelia silty clay loam, 0 to 2 percent slopes	83.0	4.2%		
140	Spicer silty clay loam, 0 to 2 percent slopes	119.6	6.1%		
160	Fieldon loam, 0 to 2 percent slopes	93.4	4.8%		
183	Dassel loam	6.3	0.3%		
190	Hayfield silt loam, 1 to 3 percent slopes	7.8	0.4%		
227	Lemond loam, 0 to 2 percent slopes	6.0	0.3%		
239	Le Sueur loam, 1 to 3 percent slopes	62.5	3.2%		
247	Linder sandy loam, 0 to 3 percent slopes	10.1	0.5%		
252	Marshan silt loam	15.6	0.8%		
253	Maxcreek silty clay loam	63.2	3.2%		
255	Mayer loam, 0 to 2 percent slopes	106.0	5.4%		
282	Hanska loam, 0 to 2 percent slopes	53.2	2.7%		
300	Dassel mucky loam	54.6	2.8%		
318	Mayer loam, swales	0.7	0.0%		
377	Merton silt loam, 1 to 3 percent slopes	15.7	0.8%		
380	Havana silt loam	0.6	0.0%		
381	Newry silt loam, 1 to 3 percent slopes	0.1	0.0%		
386	Wacousta mucky silt loam	108.2	5.5%		
391	Spicer silt loam, depressional	32.1	1.6%		
392	Biscay clay loam, 0 to 2 percent slopes	76.4	3.9%		

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
393	Udolpho silt loam	8.5	0.4%
400	Wacousta silt loam	106.7	5.4%
940	Maxcreek-Barbert complex	23.6	1.2%
L13A	Klossner muck, 0 to 1 percent slopes	718.6	36.7%
L78A	Canisteo clay loam, 0 to 2 percent slopes	57.1	2.9%
L83A	Webster clay loam, 0 to 2 percent slopes	16.5	0.8%
L84A	Glencoe clay loam, 0 to 1 percent slopes	26.2	1.3%
L85A	Nicollet clay loam, 1 to 3 percent slopes	5.5	0.3%
Totals for Area of Interest		1,958.4	100.0%