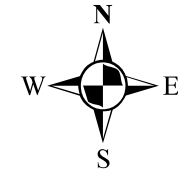


Dare Farms

Individual Fields

Soil Map



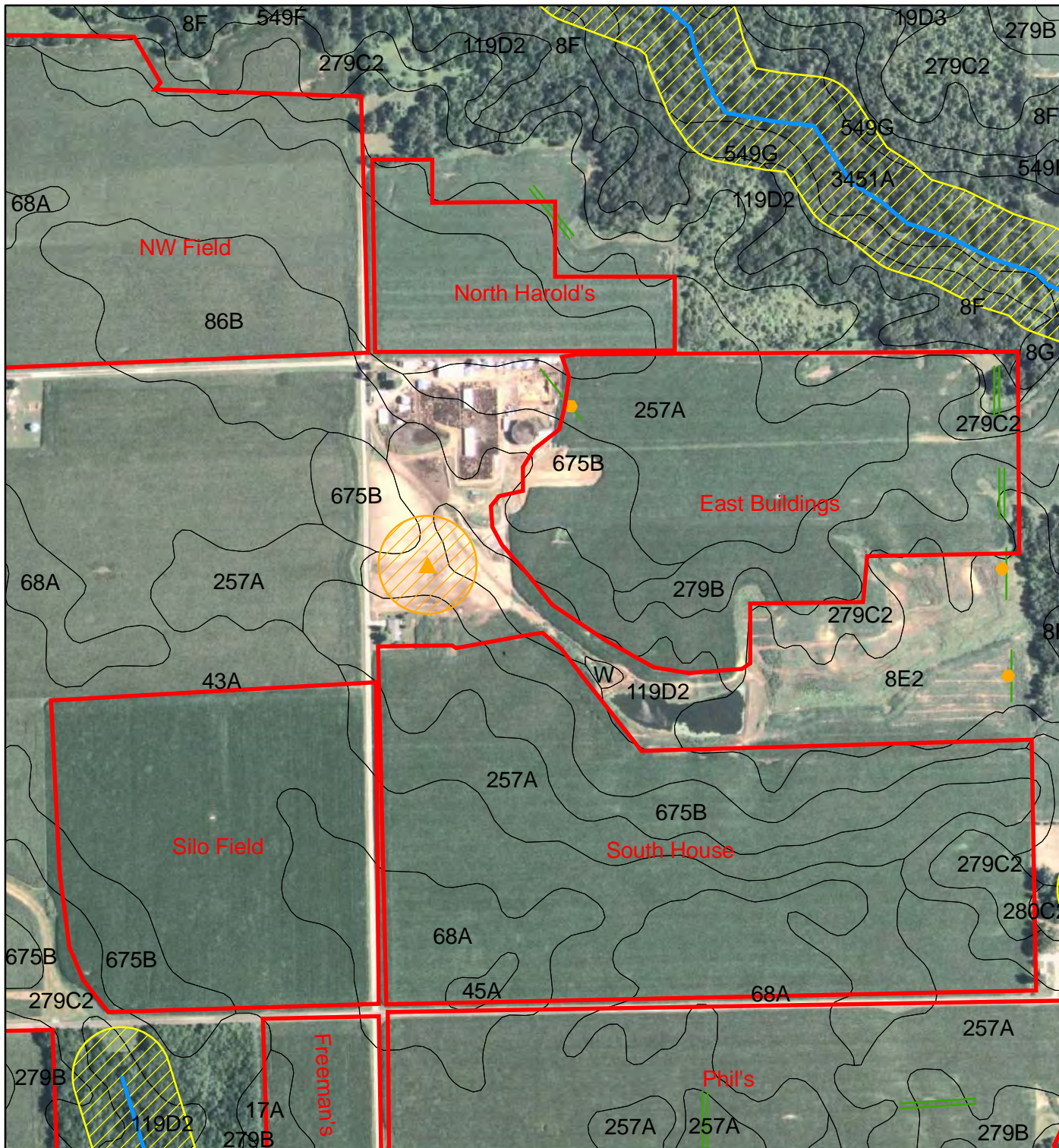
Legend

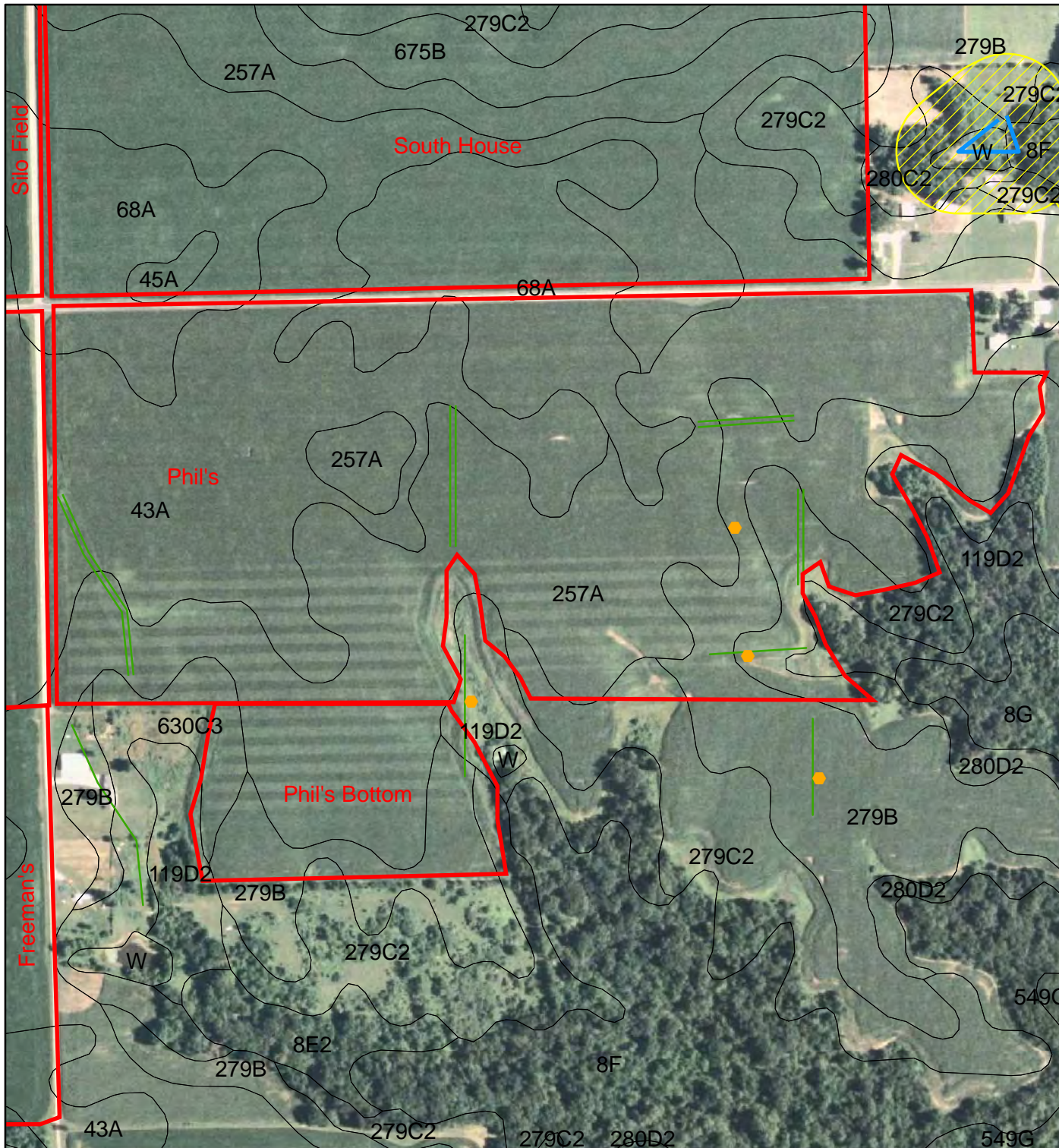
- Fields
- Water
- Water Buffer
- Well
- Well Buffer
- Tile Risers
- Existing Structures

1,300

Feet

 **Frank & West**
Environmental Engineers, Inc.
7226 N. State Route 29 Phone: 217/487-7686
Springfield, IL 62707 Fax: 217/487-7687

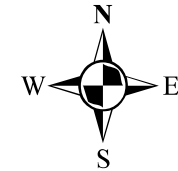




Dare Farms

Individual Fields

Soil Map



Legend

- Fields
- Water
- Water Buffer
- Well
- Well Buffer
- Tile Risers
- Existing Structures

1,000

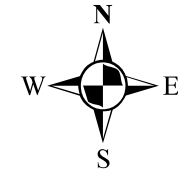
Feet

 **Frank & West**
Environmental Engineers, Inc.
7226 N. State Route 29 Phone: 217/487-7686
Springfield, IL 62707 Fax: 217/487-7687



Dare Farms

Individual Fields

Soil Map



Legend

-  Fields
-  Water
-  Water Buffer
-  Well
-  Well Buffer
-  Tile Risers
-  Existing Structures

1,000

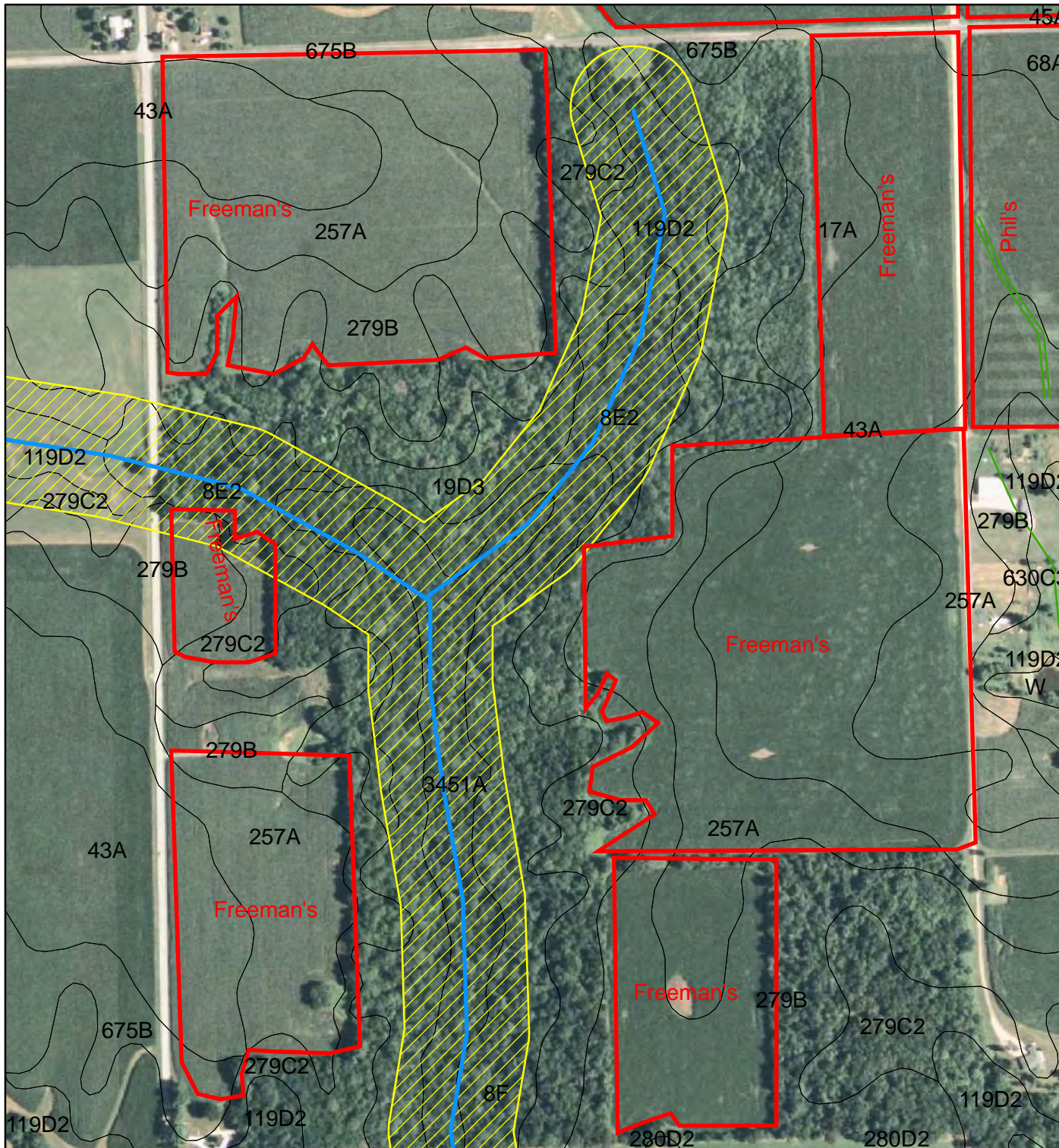
Feet



Frank & West

Environmental Engineers, Inc.

7226 N. State Route 29 Phone: 217/487-7686
 Springfield, IL 62707 Fax: 217/487-7687



Individual Field Information**Dare Farms**

Field Name:	<u>N Harold's</u>	Total Acres	19.6
		Non-Spreadable Acres	0.0
Township	Canton	Total Spreadable Acres	19.6
Section	12		
FSA Farm #	6183	Predominant Soil Type:	43A Ipava silt loam, 0-2% slope
FSA Tract #	29660	P test	33
FSA Field #'s	4	K test	185

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Corn	Corn	Corn	Corn	Corn
Yield	(bu/acre OR ton/acre)		200	200	200	200	200
N needed (lbs/ac)	lbs/ac		240	240	240	240	240
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	14.2	7.1	3.5	46.0
Total N Credits	(lb/acre)		0	14.2	7.1	3.5	46.0
Crop N Need Minus Credits	(lb/acre)		240	226	233	236	194
Maintenance P needed *	(lb/acre)		86	86	86	86	86
Maintenance K needed *	(lb/acre)		56	56	56	56	56

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
N Harold's		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Corn	Corn	Corn	Corn	Corn
Storage			Liquid			Solid	Solid
Application Method			Inject			Incorporate	Incorporate
Storage/Application Method			LINE1			LINE2	LINE2
1st Year Available N ($Am-N * N$ <i>retention due to app method</i>) + ($OrgN$ $* .35$)	(lb/1000 gal or lb/ton)		11.84			12.15	12.15
N App Rate ($Crop\ N\ Need / 1st\ Yr\ Av\ N$)	(1000 gal/acre or ton/acre)		20.3			19.5	16.0
P App Rate ($Maintenance\ P / P\ in\ analysis$)	(1000 gal/acre or ton/acre)		5.65			4.78	4.78
Apply at Prate or Nrate?			Nrate			Nrate	Nrate
Application Rate to Use	(1000 gal or Ton)	0.0	6.0	0.0	0.0	19.5	16.0
Total application ($App\ Rate * Spreadable\ Acres$)	(gallons or Tons)		117,600			381	313
N applied ($1st\ Year\ AvN * App\ rate$)	(lb/acre)		71			236	194
P applied ($P\ in\ manure * App\ rate$)	(lb/acre)		71			350	287
K applied ($K\ in\ manure * App\ rate$)	(lb/acre)		91			506	415
Additional N Needed	(lb/acre)		169	226	233	0	0
Acres Covered	(acres)		19.6	0.0	0.0	19.6	19.6

Individual Field Information**Dare Farms**

Field Name:	<u>East Buildings</u>	Total Acres	48.5
		Non-Spreadable Acres	0.0
Township	Canton	Total Spreadable Acres	48.5
Section	13		
FSA Farm #	3361	Predominant Soil Type:	675B Greenbush silt loam, 2-5% slopes
FSA Tract #	3160	P test	211
FSA Field #'s	1	K test	619

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Corn	Corn	Silage	Corn	Corn
Yield	(bu/acre OR ton/acre)		200	200	34	200	200
N needed (lbs/ac)	lbs/ac		240	240	204	240	240
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	14.2	7.1	40.4	57.6
Total N Credits	(lb/acre)		0	14.2	7.1	40.4	57.6
Crop N Need Minus Credits	(lb/acre)		240	226	197	200	182
Maintenance P needed *	(lb/acre)		86	86	88.4	86	86
Maintenance K needed *	(lb/acre)		56	56	238	56	56

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
East Buildings		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Corn	Corn	Silage	Corn	Corn
Storage			Liquid		Solid	Solid	
Application Method			Inject		Incorporate	Incorporate	
Storage/Application Method			LINE1		LINE2	LINE2	
1st Year Available N ($Am-N * N$ <i>retention due to app method</i>) + ($OrgN$ $* .35$)	(lb/1000 gal or lb/ton)		11.84		12.15	12.15	
N App Rate ($Crop\ N\ Need / 1st\ Yr\ Av\ N$)	(1000 gal/acre or ton/acre)		20.3		16.2	16.4	
P App Rate ($Maintenance\ P / P\ in\ analysis$)	(1000 gal/acre or ton/acre)		5.65		4.91	4.78	
Apply at Prate or Nrate?			Nrate		Nrate	Nrate	
Application Rate to Use	(1000 gal or Ton)	0.0	6.0	0.0	16.2	16.4	0.0
Total application ($App\ Rate * Spreadable\ Acres$)	(gallons or Tons)		291,000		786	797	
N applied ($1st\ Year\ AvN * App\ rate$)	(lb/acre)		71		197	200	
P applied ($P\ in\ manure * App\ rate$)	(lb/acre)		71		292	296	
K applied ($K\ in\ manure * App\ rate$)	(lb/acre)		91		421	427	
Additional N Needed	(lb/acre)		169	226	0	0	182
Acres Covered	(acres)		48.5	0.0	48.5	48.5	0.0

Individual Field Information**Dare Farms**

Field Name:	<u>South House</u>	Total Acres	69.2
		Non-Spreadable Acres	0.0
Township	Canton	Total Spreadable Acres	69.2
Section	13		
FSA Farm #	3361	Predominant Soil Type:	675B Greenbush silt loam, 2-5% slopes
FSA Tract #	3160	P test	143
FSA Field #'s	3	K test	422

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Corn	Silage	Corn	Corn	Silage
Yield	(bu/acre OR ton/acre)		200	34	200	200	34
N needed (lbs/ac)	lbs/ac		240	204	240	240	204
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	14.2	42.6	21.3	10.7
Total N Credits	(lb/acre)		0	14.2	42.6	21.3	10.7
Crop N Need Minus Credits	(lb/acre)		240	190	197	219	193
Maintenance P needed *	(lb/acre)		86	88.4	86	86	88.4
Maintenance K needed *	(lb/acre)		56	238	56	56	238

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
South House		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Corn	Silage	Corn	Corn	Silage
Storage			Liquid	Solid			Solid
Application Method			Inject	Incorporate			Incorporate
Storage/Application Method			LINE1	LINE2			LINE2
1st Year Available N ($Am-N * N$ <i>retention due to app method</i>) + ($OrgN$ $* .35$)	(lb/1000 gal or lb/ton)		11.84	12.15			12.15
N App Rate ($Crop\ N\ Need / 1st\ Yr\ Av\ N$)	(1000 gal/acre or ton/acre)		20.3	15.6			15.9
P App Rate ($Maintenance\ P / P\ in\ analysis$)	(1000 gal/acre or ton/acre)		5.65	4.91			4.91
Apply at Prate or Nrate?			Nrate	Nrate			Nrate
Application Rate to Use	(1000 gal or Ton)	0.0	6.0	15.6	0.0	0.0	15.9
Total application ($App\ Rate * Spreadable\ Acres$)	(gallons or Tons)		415,200	1,081			1,101
N applied ($1st\ Year\ AvN * App\ rate$)	(lb/acre)		71	190			193
P applied ($P\ in\ manure * App\ rate$)	(lb/acre)		71	281			286
K applied ($K\ in\ manure * App\ rate$)	(lb/acre)		91	406			414
Additional N Needed	(lb/acre)		169	0	197	219	0
Acres Covered	(acres)		69.2	69.2	0.0	0.0	69.2

Individual Field Information**Dare Farms**

Field Name:	<u>Silo Field</u>	Total Acres	38.0
		Non-Spreadable Acres	0.0
Township	Canton	Total Spreadable Acres	38.0
Section	14		
FSA Farm #	3361	Predominant Soil Type:	675B Greenbush silt loam, 2-5% slopes
FSA Tract #	3160	P test	123
FSA Field #'s	2	K test	510

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Silage	Corn	Corn	Silage	Corn
Yield	(bu/acre OR ton/acre)		34	200	200	34	200
N needed (lbs/ac)	lbs/ac		204	240	240	204	240
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	14.2	26.0	13.0	42.3
Total N Credits	(lb/acre)		0	14.2	26.0	13.0	42.3
Crop N Need Minus Credits	(lb/acre)		204	226	214	191	198
Maintenance P needed *	(lb/acre)		88.4	86	86	88.4	86
Maintenance K needed *	(lb/acre)		238	56	56	238	56

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
Silo Field		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Silage	Corn	Corn	Silage	Corn
Storage			Liquid	Liquid		Solid	Solid
Application Method			Inject	Inject		Incorporate	Incorporate
Storage/Application Method			LINE1	LINE1		LINE2	LINE2
1st Year Available N ($Am-N * N$ <i>retention due to app method</i>) + ($OrgN$ $* .35$)	(lb/1000 gal or lb/ton)		11.84	11.84		12.15	12.15
N App Rate ($Crop\ N\ Need / 1st\ Yr\ Av\ N$)	(1000 gal/acre or ton/acre)		17.2	19.1		15.7	16.3
P App Rate ($Maintenance\ P / P\ in\ analysis$)	(1000 gal/acre or ton/acre)		5.81	5.65		4.91	4.78
Apply at Prate or Nrate?			Nrate	Nrate		Nrate	Nrate
Application Rate to Use	(1000 gal or Ton)	0.0	6.0	8.0	0.0	15.7	16.3
Total application ($App\ Rate * Spreadable\ Acres$)	(gallons or Tons)		228,000	304,000		597	618
N applied ($1st\ Year\ AvN * App\ rate$)	(lb/acre)		71	95		191	198
P applied ($P\ in\ manure * App\ rate$)	(lb/acre)		71	122		283	293
K applied ($K\ in\ manure * App\ rate$)	(lb/acre)		91	151		409	423
Additional N Needed	(lb/acre)		133	131	214	0	0
Acres Covered	(acres)		38.0	38.0	0.0	38.0	38.0

Individual Field Information**Dare Farms**

Field Name:	<u>Phil's</u>	Total Acres	75.0
		Non-Spreadable Acres	0.0
Township	Canton	Total Spreadable Acres	75.0
Section	13		
FSA Farm #	5518	Predominant Soil Type:	279B Rozetta silt loam, 2-5% slopes
	3166 &		
FSA Tract #	28698	P test	43
FSA Field #'s	1 & 1	K test	405

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Corn	Corn	Corn	Corn	Corn
Yield	(bu/acre OR ton/acre)		200	200	200	200	200
N needed (lbs/ac)	lbs/ac		240	240	240	240	240
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		14.2	21.2	10.6	24.2	51.6
Total N Credits	(lb/acre)		14.2	21.2	10.6	24.2	51.6
Crop N Need Minus Credits	(lb/acre)		226	219	229	216	188
Maintenance P needed *	(lb/acre)		86	86	86	86	86
Maintenance K needed *	(lb/acre)		56	56	56	56	56

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
Phil's		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Corn	Corn	Corn	Corn	Corn
Storage		Liquid	Liquid		Liquid	Solid	
Application Method		Inject	Inject		Inject	Incorporate	
Storage/Application Method		LINE1	LINE1		LINE1	LINE2	
1st Year Available N ($Am-N * N$ <i>retention due to app method</i>) + ($OrgN$ $* .35$)	(lb/1000 gal or lb/ton)		11.84		11.84	12.15	
N App Rate ($Crop\ N\ Need / 1st\ Yr\ Av\ N$)	(1000 gal/acre or ton/acre)		19.1		19.4	17.8	
P App Rate ($Maintenance\ P / P\ in\ analysis$)	(1000 gal/acre or ton/acre)		5.65		5.65	4.78	
Apply at Prate or Nrate?			Nrate		Nrate	Nrate	
Application Rate to Use	(1000 gal or Ton)	6.0	6.0	0.0	8.0	17.8	0.0
Total application ($App\ Rate * Spreadable\ Acres$)	(gallons or Tons)		450,000		600,000	1,332	
N applied ($1st\ Year\ AvN * App\ rate$)	(lb/acre)		71		95	216	
P applied ($P\ in\ manure * App\ rate$)	(lb/acre)		71		122	320	
K applied ($K\ in\ manure * App\ rate$)	(lb/acre)		91		151	462	
Additional N Needed	(lb/acre)		155	219	135	0	188
Acres Covered	(acres)		75.0	0.0	75.0	75.0	0.0

Individual Field Information**Dare Farms**

Field Name:	<u>Phil's Bottom</u>	Total Acres	26.0
		Non-Spreadable Acres	0.0
Township	Canton	Total Spreadable Acres	26.0
Section	13		
FSA Farm #	5518	Predominant Soil Type:	279B Rozetta silt loam, 2-5% slopes
FSA Tract #	3166	P test	39
FSA Field #'s	2	K test	369

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Corn	Corn	Corn	Corn	Corn
Yield	(bu/acre OR ton/acre)		175	175	175	175	175
N needed (lbs/ac)	lbs/ac		210	210	210	210	210
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		14.2	21.2	10.6	24.2	11.2
Total N Credits	(lb/acre)		14.2	21.2	10.6	24.2	11.2
Crop N Need Minus Credits	(lb/acre)		196	189	199	186	199
Maintenance P needed *	(lb/acre)		75.25	75.25	75.25	75.25	75.25
Maintenance K needed *	(lb/acre)		49	49	49	49	49

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
Phil's Bottom		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Corn	Corn	Corn	Corn	Corn
Storage		Liquid	Liquid		Liquid		Liquid
Application Method		Inject	Inject		Inject		Inject
Storage/Application Method		LINE1	LINE1		LINE1		LINE1
1st Year Available N (<i>Am-N * N retention due to app method</i>) + (<i>OrgN * .35</i>)	(lb/1000 gal)		11.84		11.84		11.84
N App Rate (<i>Crop N Need / 1st Yr Av N</i>)	(1000 gal/acre)		16.5		16.8		16.8
P App Rate (<i>Maintenance P / P in analysis</i>)	(1000 gal/acre)		4.95		4.95		4.95
Apply at Prate or Nrate?			Nrate		Nrate		Nrate
Application Rate to Use	(1000 gal)	6.0	6.0	0.0	8.0	0.0	8.0
Total application (<i>App Rate * Spreadable Acres</i>)	(gallons)		156,000		208,000		208,000
N applied (<i>1st Year AvN * App rate</i>)	(lb/acre)		71		95		95
P applied (<i>P in manure * App rate</i>)	(lb/acre)		71		122		122
K applied (<i>K in manure * App rate</i>)	(lb/acre)		91		151		151
Additional N Needed	(lb/acre)		125	189	105	186	104
Acres Covered	(acres)		26.0	0.0	26.0	0.0	26.0

Individual Field Information**Dare Farms**

Field Name:	<u>Freeman's</u>	Total Acres	104.0
		Non-Spreadable Acres	0.6
Township	Canton	Total Spreadable Acres	103.4
Section	14		
FSA Farm #	3912	Predominant Soil Type:	279B Rozetta silt loam, 2-5% slopes
FSA Tract #	3165	P test	53
FSA Field #'s	38723	K test	349

Individual Field Application & Nutrients

Crop needs	Year	2008	2009	2010	2011	2012	2013
Crop		Corn	Corn	Corn	Corn	Corn	Corn
Yield	(bu/acre OR ton/acre)		200	200	200	200	200
N needed (lbs/ac)	lbs/ac		240	240	240	240	240
- Legume N credits	(lb/acre)		0	0	0	0	0
- Commercial fertilizer N credits	(lb/acre)						
- Manure N carryover credit **	(lb/acre)		0.0	14.2	7.1	22.4	30.1
Total N Credits	(lb/acre)		0	14.2	7.1	22.4	30.1
Crop N Need Minus Credits	(lb/acre)		240	226	233	218	210
Maintenance P needed *	(lb/acre)		86	86	86	86	86
Maintenance K needed *	(lb/acre)		56	56	56	56	56

* Maintenance P & K needed are listed for calculation & uptake purposes only

** Manure N carryover credit = Previous years' apps * Org N * Mineralization factor

Dare Farms							
Freeman's		2008	2009	2010	2011	2012	2013
Manure Application		Corn	Corn	Corn	Corn	Corn	Corn
Storage			Liquid		Liquid	Liquid	
Application Method			Inject		Inject	Inject	
Storage/Application Method			LINE1		LINE1	LINE1	
1st Year Available N ($Am-N * N$ <i>retention due to app method</i>) + ($OrgN$ $* .35$)	(lb/1000 gal or lb/ton)		11.84		11.84	11.84	
N App Rate ($Crop\ N\ Need / 1st\ Yr\ Av\ N$)	(1000 gal/acre or ton/acre)		20.3		19.7	18.4	
P App Rate ($Maintenance\ P / P\ in\ analysis$)	(1000 gal/acre or ton/acre)		5.65		5.65	5.65	
Apply at Prate or Nrate?			Nrate		Nrate	Nrate	
Application Rate to Use	(1000 gal or Ton)	0.0	6.0	0.0	8.0	8.0	0.0
Total application ($App\ Rate * Spreadable\ Acres$)	(gallons or Tons)		620,400		827,200	827,200	
N applied ($1st\ Year\ AvN * App\ rate$)	(lb/acre)		71		95	95	
P applied ($P\ in\ manure * App\ rate$)	(lb/acre)		71		122	122	
K applied ($K\ in\ manure * App\ rate$)	(lb/acre)		91		151	151	
Additional N Needed	(lb/acre)		169	226	138	123	210
Acres Covered	(acres)		103.4	0.0	103.4	103.4	0.0