ENVIRONMENTAL
LAND MANAGEMENT LLC
waste byproduct landspreading specialists

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Wednesday May 1, 2024

Theresa Stiner
Iowa Department of Natural Resources
Land Quality Bureau
502 E 9th Street
Des Moines, IA 50319-0034

Re: Swift Pork Company, Ottumwa, IA: Permit # 90-SDP-15-16
Land Application of Solid Waste Additional Sites Application

Ms. Stiner,

Enclosed is an application to add an additional land application site to the referenced permit for Swift Pork Company. There are a few items to note in the checklist.

- There will be no increased volume for storage since the previous permit renewal application, so the closure cost estimate has not been revised.
- This land application site has been soil sampled recently and will be soil sampled again in the future as necessary prior to application.
- Site Adam Silo was previously on the Cargill Corn Milling – Eddyville land application permit. Due to the proximity of this site to the Swift Pork facility in Ottumwa, the site is being assigned to the Swift permit, if approved.
    - This site has **not** been used previously for land application under the Cargill Corn Milling - Eddyville permit.

Please let us know if you have any questions.

Sincerely,

MJ Klema

Michael Klema
Environmental Land Management, LLC

Cc: IDNR FO #6, 1023 W Madison St, Washington, IA 52353

IOWA DEPARTMENT OF NATURAL RESOURCES

Land Application of Solid Waste

Additional Sites

Application to add sites to an existing solid waste land application permit must be accompanied by the information required by the applicable solid waste rules under Iowa Administrative Code 567 Chapter 121.

Send completed applications with attached information to:

Iowa Department of Natural Resources
Land Quality Bureau
Solid Waste Section
502 East Ninth Street
Des Moines, IA 50319-0034

For questions concerning this application please contact the Department at (515) 281-8646.

SECTION 1. FACILITY CONTACT INFORMATION

Permit # 90 -SDP- 15 - 16P -LAN

Solid Waste Generator Name/Address:

Swift Pork Company, 600 South Iowa Ave, Ottumwa, IA 52501

Phone #: 641-682-8532 **Fax #:** 641-683-4793

SECTION 2. PERMIT APPLICATION CHECKLIST

Checking the appropriate boxes below certifies that the documents submitted in conjunction with this application form are complete and in compliance with the applicable chapters of the Iowa Administrative Code. One (1) copy of each document shall be submitted. If an application is found by the department to be incomplete, it may be denied and returned to the applicant.

Required Documents			Attached
	Document/Information	**Administrative Code**	
Section A	List of all the sites being added. For each site include: • Name of site • Legal description of the site • Total acres in the site • Acres to be used for disposal • Name of landowner or tenant		X
Section B	Financial Assurance. **If** the additional site(s) will include additional storage of materials, include a revised cost estimate and proof of financial assurance in the revised amount.	IAC 567 121.8	*Checklist

For each site attach the following:			
Section C	Site map or aerial photo of the site showing the following: • The specific area where the material will be applied • Buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads, and other applicable details. • Soil types and slope • Location of wells *Please remember that the area to be used for land disposal:* • *may not have a slope of greater than 9%,* • *may not be within 200 feet of an occupied residence* • *may not be within 500 feet of a well* ***If the specific area requested includes any of the above the entire field will not be approved.***	IAC 567 121.7(1)"a"(1) IAC 567 121.7(1)"a"(1) IAC 567 121.7(1)"a"(2) IAC 567 121.7(1)"a"(1)	X
Section D	Soil testing	IAC 567 121.7(1)"a"(9)	*Checklist
Section E	Water table levels	IAC 567121.7(1)"a"(10)	X
Section F	Review by Soil Conservation District that includes the following: • Soil loss limits applicable to the site • Design soil loss levels for the site • Estimated current soil loss levels *The review may be done by the Natural Resources Conservation Service or a Professional Agronomist in lieu of the Soil Conservation District.*	IAC 567 121.7(1)"a"(3) IAC 567 121.7(1)"a"(6) IAC 567 121.7(1)"a"(7) IAC 567 121.7(1)"a"(8)	X
Section G	Proof of ownership or legal entitlement to use the site. (Agreement with landowner or tenant) *One document may be submitted for multiple sites with the same landowner or tenant.*	IAC 567 121.7(1)"b"(6)	X

SECTION 3. APPLICANT CERTIFICATION

CERTIFICATION

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

I further certify that the construction and operation of the above described facility will be in accordance with the plans, specifications, reports and related communications accepted by the Iowa Department of Natural Resources and on file in its office; and in accordance with conditions imposed in the permit issued by the Iowa Department of Natural Resources.

Signature: Jonathan Hopkins **Date:** 5-1-24

Printed Name: Jonathan Hopkins **Title:** General Manager

Swift Pork Company, Ottumwa, IA

Iowa DNR Land Application Permit # 90-SDP-15-16
Additional Sites Application Checklist: Sections A-G

A. List of All Sites Being Added

1. See attached Additional Sites List and Table 1 Master Site List including additional land application site and all previously approved land application sites. Each site list includes:
    - i. Name of Site
    - ii. Legal Description of Site
    - iii. Total Acres in the Site
    - iv. Acres to be used for disposal / Suitable Acres
    - v. Name of Landowner or Tenant

B. Financial Assurance

1. Financial assurance will not be updated or changed due to this being a new site addition with no additional volumes expected.

C. Site Map or Aerial Photo of Sites

1. See attached aerial site map of each additional site detailing:
    - i. The specific area where the material will be applied
        1. Site boundaries outlined on each aerial map
    - ii. Buildings, lakes, ponds, watercourses, wetlands, dry runs, rock outcroppings, roads, and other applicable details
        1. Site features and setbacks detailed on aerial maps
    - iii. Soil types and slope
        1. NRCS soil maps attached for each site
    - iv. Location of wells
        1. IDNR Well Search information attached for each site and active wells highlighted on aerial maps by 500 foot circular setback

D. Soil Testing

1. Soil testing will be completed as soon as possible prior to application of the site. Additional site soil sampling will be completed as necessary when site is used for application and discussed in annual agronomist reports.

E. Water Table Levels

1. See attached Depth to Water Table outline for each specific site provided by NRCS.

F. Review by Professional Agronomist

1. See attached land application site suitability review performed by Extended Ag Services discussing soil loss levels through erosion and flooding potential.
    i. Extended Ag Services - Jim Nesseth, Certified Agronomist, License # 17118 and Andy Nesseth, Environmental Consultant.
2. See attached T Factor erosion potential outlines for each specific site provided by NRCS.

G. Proof of Ownership or Legal Entitlement to Use the Site

1. See attached Contractual Consent of Landowner, Lessee and/or Land Operator for the specific individual with this additional sites application.

Swift Pork Co. Ottumwa Permit # 90-SDP-15-16P: Master Site List - IDNR Table 1

Site Name	Legal Description	Section	Township	Township	County	State	Acreage	Spreadable Acres	Farmer Name
Adam Campbell	W 1/2 of SE 1/4	29	Competine	73N, 12W	Wapello	IA	77	69	Nick Adam
Adam Dahlonega	NE1/4	10	Agency	72 N; 13 W	Wapello	IA	157	124	Nick Adam
Adam Davis Franklin	Sec 1, SE1/4 Sec 2, NW1/4 & NE1/4 Sec 12	1, 2, 12	Franklin	70 N; 12 W	Davis	IA	743	709	Nick Adam
Adam Emery	W 1/2 of SW 1/4	6	Des Moines	71N, 11W	Jefferson	IA	112	85	Nick Adam
Adam Home	NW1/4, NE1/4, SW1/4 & SE1/4 Sec 1, NE1/4 Sec 12	1, 12	Washington	71N, 12W	Wapello	IA	562	417	Nick Adam
Adam Libertyville West	E 1/2	12	Des Moines	71N, 11W	Jefferson	IA	263	263	Nick Adam
Adam Mast	NW1/4 Sec 27, NE1/4 Sec 28	27, 28	Lancaster	74N, 12W	Keokuk	IA	120	120	Nick Adam
Adam Silo	SE1/4, SW1/4	3	Locust Grove	72N, 11W	Jefferson	IA	201	133	Nick Adam
Adam South McNeil	NW1/4	6	Des Moines	71N, 11W	Jefferson	IA	78	76	Nick Adam
Adam Teninty	NE1/4	21	Pleasant	72 N; 12 W	Wapello	IA	38	25	Nick Adam
Adam Thomann South	SW 1/4	28	Pleasant	72N, 12W	Wapello	IA	120	120	Nick Adam
Adam Vandenberg	SW1/4, SE1/4 Sec 22; SW1/4 Sec 23; NW1/4, NE1/4 Sec 27	22, 23, 27	Pleasant	72 N; 12 W	Wapello	IA	453	417	Nick Adam
Gary South	E 1/2 SE1/4 Sec 13; E1/2 NE1/4 Sec 24	13, 24	Agency	72 N; 13 W	Wapello	IA	119	102	Mike Hammes
Charlie's House	NW1/4 NW1/4	19	Agency	72 N; 12 W	Wapello	IA	29	21	Mike Hammes
Johnson 70 & 40	E1/2 SW1/4, SW1/4 SE1/4	24	Agency	72 N; 13 W	Wapello	IA	107	106	Mike Hammes
Watkins	SW1/4	25	Agency	72 N; 13 W	Wapello	IA	116	110	Mike Hammes
Robinson 100	NE1/4 NW1/4, N1/2 NE1/4	26	Agency	72 N; 13 W	Wapello	IA	97	97	Mike Hammes
Bender	SE1/4 SW1/4, S1/2 SE1/4 Sec 26; NE1/4 NW1/4, N1/2 NE1/4 Sec 35	26, 35	Agency	72 N; 13 W	Wapello	IA	158	150	Mike Hammes
Jirsa	NE1/4	32	Pleasant	72 N; 12 W	Wapello	IA	140	138	Mike Hammes
Barriers	NE1/4 SW1/4, N1/2 SE1/4	20	Pleasant	72 N; 12 W	Wapello	IA	117	105	Mike Hammes
Kenny Black	E1/2 SW1/4, W1/2 SE1/4	29	Pleasant	72 N; 12 W	Wapello	IA	135	97	Mike Hammes
Durflingers	N1/2 SE1/4	34	Pleasant	72 N; 12 W	Wapello	IA	82	81	Mike Hammes
Walkers	NW1/4 SW1/4	36	Pleasant	72 N; 12 W	Wapello	IA	38	37	Mike Hammes
Cardinal School	NE1/4 SE1/4	6	Washington	71 N; 12 W	Wapello	IA	83	83	Mike Hammes
Sedore	E1/4 NE1/4, N1/2 & SW1/4 SW1/4 Sec 5; NE1/4 NW1/4, NW1/4 NE1/4 Sec 8; SW1/4 NE1/4 Sec 9	5, 8, 9	Keokuk	71 N; 13 W	Wapello	IA	198	181	Mike Hammes
Kenny Black	E 1/2 SW 1/4, SE 1/4 Sec 29; W 1/2 SW 1/4 Sec 28	28, 29	Pleasant	72N, 12W	Wapello	IA	240	202	Mike Hammes
Brown Gibson	SE1/4, SW1/4 Sec 35; NE1/4, NW1/4, SE1/4, SW1/4 Sec 36	35, 36	Harrison	74N; 14W	Mahaska	IA	543	379	Dennis Brown
Brown Ewing	NW1/4, SW1/4	31	Cedar	74N; 14W	Mahaska	IA	139	129	Dennis Brown

Farmer	Address	Phone
Nick Adam	100 1st St, Batavia, IA 52533	(641) 777-5070
Mike Hammes	1538 200th Street, Batavia, IA 52533	(641) 919-9758
Dennis Brown	2779 340th St, Cedar, IA 52543	(641) 933-4896

Swift Pork Co. Ottumwa Permit # 90-SDP-15-16P: New Site List 4.29.24

Site Name	Legal Description	Section	Township	Township	County	State	Acreage	Spreadable Acres	Farmer Name
Adam Silo	SE1/4, SW1/4	3	Locust Grove	72N, 11W	Jefferson	IA	201	133	Nick Adam

Farmer	Address	Phone
Nick Adam	100 1st St, Batavia, IA 52533	(641) 777-5070

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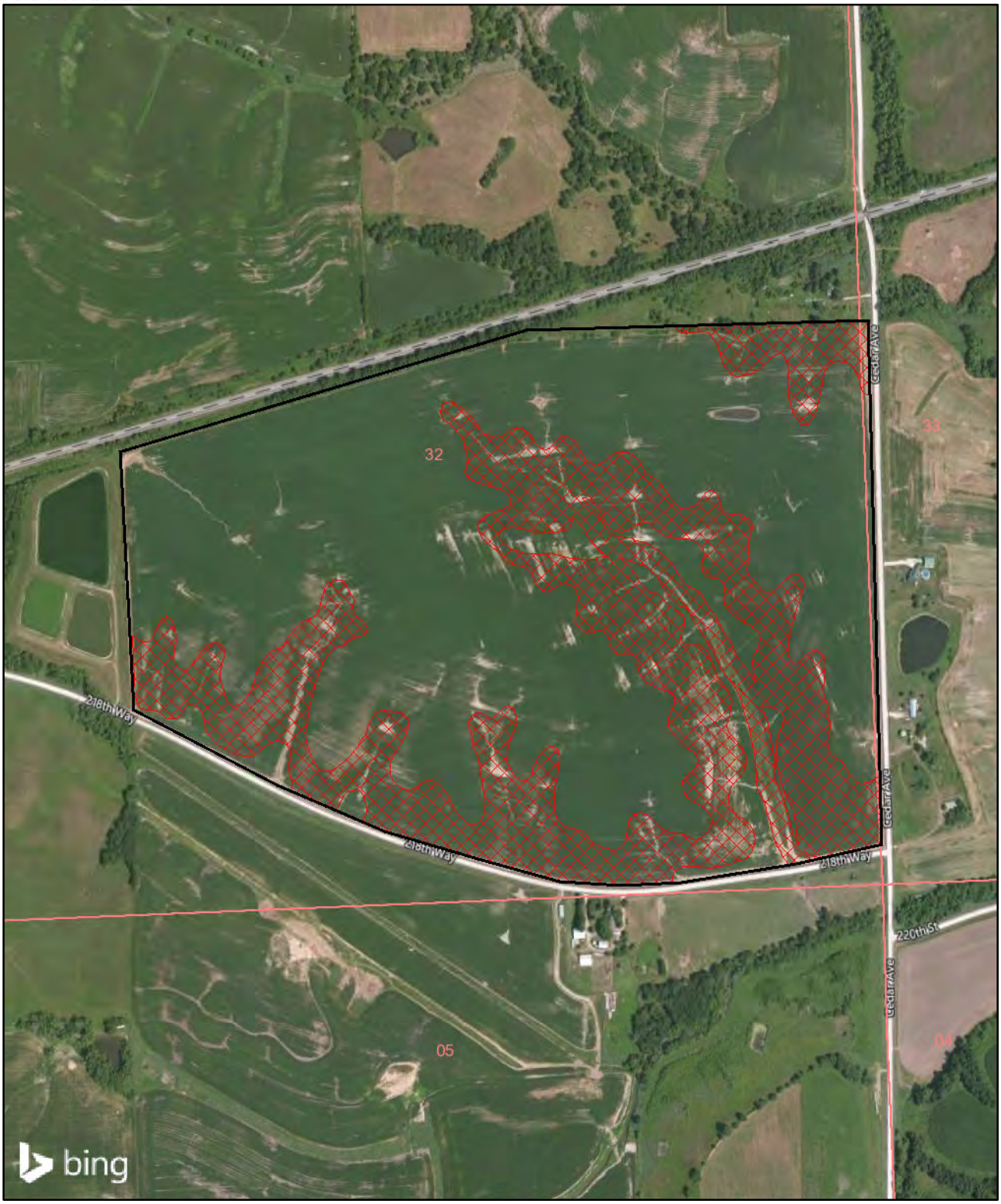
Site Name:Adam Silo



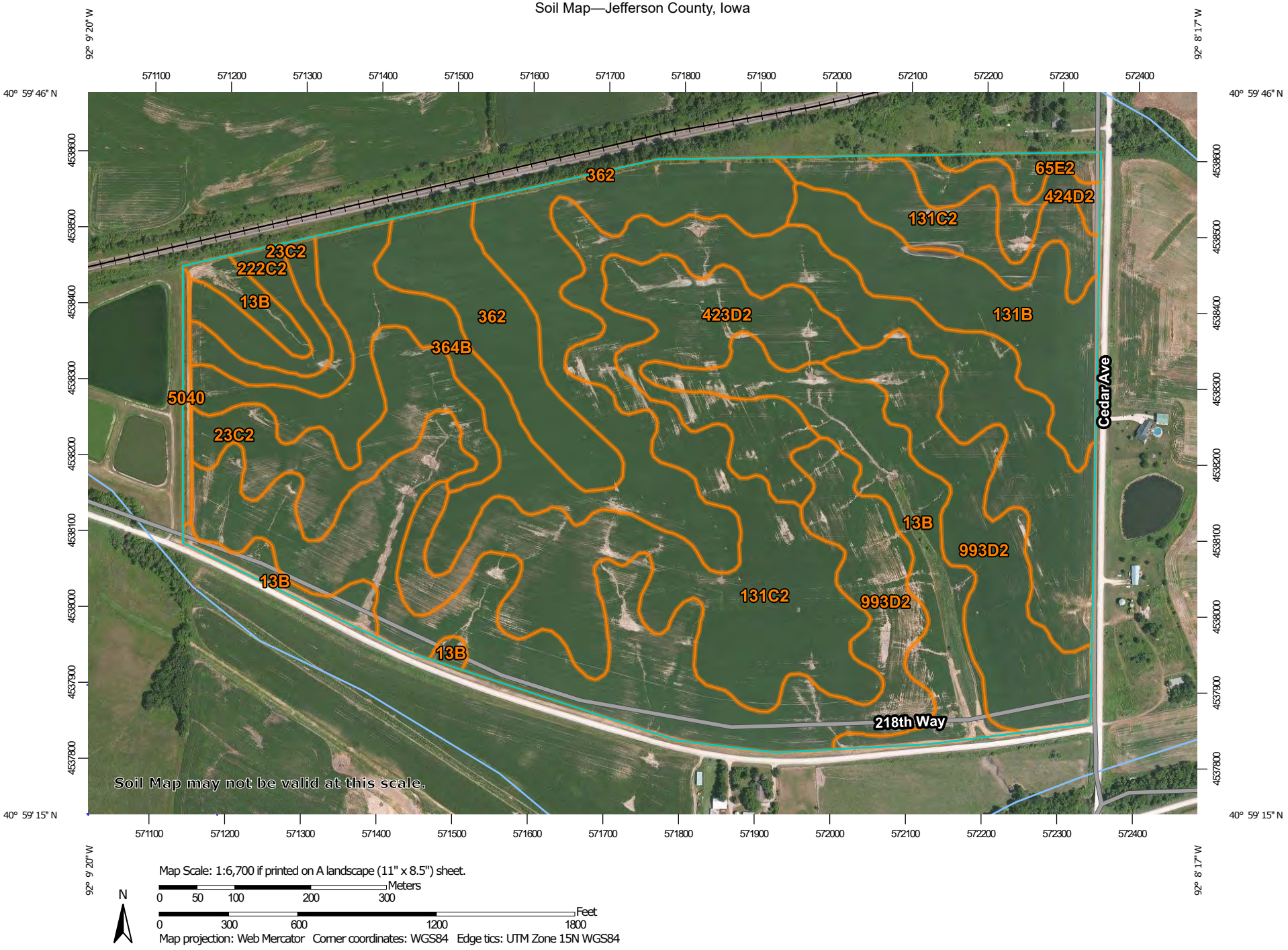
Unsuitable for Land Application

Farmer Name: Jeff Adam Phone: (641)799-9971 Spreadable Acres: 133

I certify I have followed all stockpiling and spreading rules provided by ELM.

Signature_____ Date_____

Soil Map—Jefferson County, Iowa



Map Scale: 1:6,700 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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: Jefferson County, Iowa
Survey Area Data: Version 26, Sep 7, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 24, 2011—Jul 19, 2011

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
13B	Olmitz-Vesser-Zook complex, 0 to 5 percent slopes	17.1	8.5%
23C2	Arispe silty clay loam, 5 to 9 percent slopes, moderately eroded	12.4	6.2%
65E2	Lindley loam, 14 to 18 percent slopes, moderately eroded	1.5	0.8%
131B	Pershing silt loam, 2 to 5 percent slopes	11.6	5.8%
131C2	Pershing silty clay loam, 5 to 9 percent slopes, moderately eroded	53.1	26.5%
222C2	Clarinda silty clay loam, 5 to 9 percent slopes, moderately eroded	3.6	1.8%
362	Haig silt loam, 0 to 2 percent slopes	9.3	4.6%
364B	Grundy silty clay loam, 2 to 5 percent slopes	29.6	14.8%
423D2	Bucknell silty clay loam, 9 to 14 percent slopes, moderately eroded	12.0	6.0%
424D2	Lindley-Keswick complex, 9 to 14 percent slopes, moderately erod	3.4	1.7%
993D2	Gara-Armstrong complex, 9 to 14 percent slopes, moderately erode	46.0	22.9%
5040	Anthroportic Udorthents, 2 to 9 percent slopes	0.9	0.4%
Totals for Area of Interest		**200.3**	**100.0%**

T Factor

Map unit symbol	Map unit name	Rating (tons per acre per year)	Acres in AOI	Percent of AOI
13B	Olmitz-Vesser-Zook complex, 0 to 5 percent slopes	5	17.1	8.5%
23C2	Arispe silty clay loam, 5 to 9 percent slopes, moderately eroded	5	12.4	6.2%
65E2	Lindley loam, 14 to 18 percent slopes, moderately eroded	5	1.5	0.8%
131B	Pershing silt loam, 2 to 5 percent slopes	5	11.6	5.8%
131C2	Pershing silty clay loam, 5 to 9 percent slopes, moderately eroded	5	53.1	26.5%
222C2	Clarinda silty clay loam, 5 to 9 percent slopes, moderately eroded	3	3.6	1.8%
362	Haig silt loam, 0 to 2 percent slopes	5	9.3	4.6%
364B	Grundy silty clay loam, 2 to 5 percent slopes	5	29.6	14.8%
423D2	Bucknell silty clay loam, 9 to 14 percent slopes, moderately eroded	3	12.0	6.0%
424D2	Lindley-Keswick complex, 9 to 14 percent slopes, moderately erod	3	3.4	1.7%
993D2	Gara-Armstrong complex, 9 to 14 percent slopes, moderately erode	3	46.0	22.9%
5040	Anthroportic Udorthents, 2 to 9 percent slopes	5	0.9	0.4%
Totals for Area of Interest			**200.3**	**100.0%**

Description

The T factor is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Depth to Water Table

Map unit symbol	Map unit name	Rating (centimeters)	Acres in AOI	Percent of AOI
13B	Olmitz-Vesser-Zook complex, 0 to 5 percent slopes	122	17.1	8.5%
23C2	Arispe silty clay loam, 5 to 9 percent slopes, moderately eroded	30	12.4	6.2%
65E2	Lindley loam, 14 to 18 percent slopes, moderately eroded	>200	1.5	0.8%
131B	Pershing silt loam, 2 to 5 percent slopes	30	11.6	5.8%
131C2	Pershing silty clay loam, 5 to 9 percent slopes, moderately eroded	30	53.1	26.5%
222C2	Clarinda silty clay loam, 5 to 9 percent slopes, moderately eroded	0	3.6	1.8%
362	Haig silt loam, 0 to 2 percent slopes	0	9.3	4.6%
364B	Grundy silty clay loam, 2 to 5 percent slopes	30	29.6	14.8%
423D2	Bucknell silty clay loam, 9 to 14 percent slopes, moderately eroded	30	12.0	6.0%
424D2	Lindley-Keswick complex, 9 to 14 percent slopes, moderately erod	30	3.4	1.7%
993D2	Gara-Armstrong complex, 9 to 14 percent slopes, moderately erode	>200	46.0	22.9%
5040	Anthroportic Udorthents, 2 to 9 percent slopes	122	0.9	0.4%
Totals for Area of Interest			**200.3**	**100.0%**

Well Search

Well Search Report

Site: Adam Silo

Included in search	No. of wells	Database
X	2	IGS well database General well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 8/2005.
X	0	Public wells Muncipal and nonmunicipal public well databases maintained by IGS, location varies 3,730 to 25 ft., under development.
X	0	SDWIS public wells Public well database developed from the Safe Drinking Water Information System database maintained by IDNR, estimated locational accuracy varies from 15m. to 3300m. Created from 5/2005 data.
X	2	Private well tracking system IDNR database management system for Grants-to-counties-covered wells. Locational accuracy unknown, assumed to be +/- 17 m., Last update 7/2005.
X	0	Wells registered for testing Wells tested under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	0	Permitted private wells Wells permitted under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	1	Registered abandoned wells Wells abandoned under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	0	Water use facilities Wells used by facilities permitted to withdraw >25,000 gallons per day, locational accuracy is +/-20m to 1150 m. Created from 7/2005 data.
X	0	Municipal wells and intakes Locational accuracy 220 m., last updated 8/96.
X	0	Ag drainage wells Locational accuracy 100 m., last updated 4/98.

Well Search Detail

Subject: XY UTM Coordinates: 571819/4538212
Search Radius (mi): 1

IGS Well Database

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
351025	53461	T72N, R11W, 29, SE SE SE SW	Calc. +/- 230 ft.	(m)	315	1/10/2001	Foreman, Rodger	Bedrock Depth: 39 Well Type: Private
353078	16687	T71N, R11W, 4, NW	Calc. +/- 1870 ft.	1253 (m)	226	11/26/1963	Peebler, Wayne	Bedrock Depth: 65 Well Type: Private

Public Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

SDWIS public wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

Private Well Tracking System

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
349740	2087092	T72N, R11W, S31	nom. +/- 25m.	(m)	25	1/1/1950	Hartman, Mark	Status: Plugged
351577	2178413	T72N, R11W, S28	nom. +/- 25m.	1445 (m)	22	1/1/1940	Phillips, Todd	Status: Plugged

Wells Registered For Testing

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

Permitted Private Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

Abandoned Wells (plugged)

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information

351393	5039	T72N, R11W, Sec. 28, SW, SW, SE	Calc. +/- 140m.	1534 (m)	28	n.a.	Forman Brothers, Foreman Brothers	Well plugged: 6/5/1991; Well type: > 18" dia.

Water Use Facilities

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

Municipal Wells And Intakes

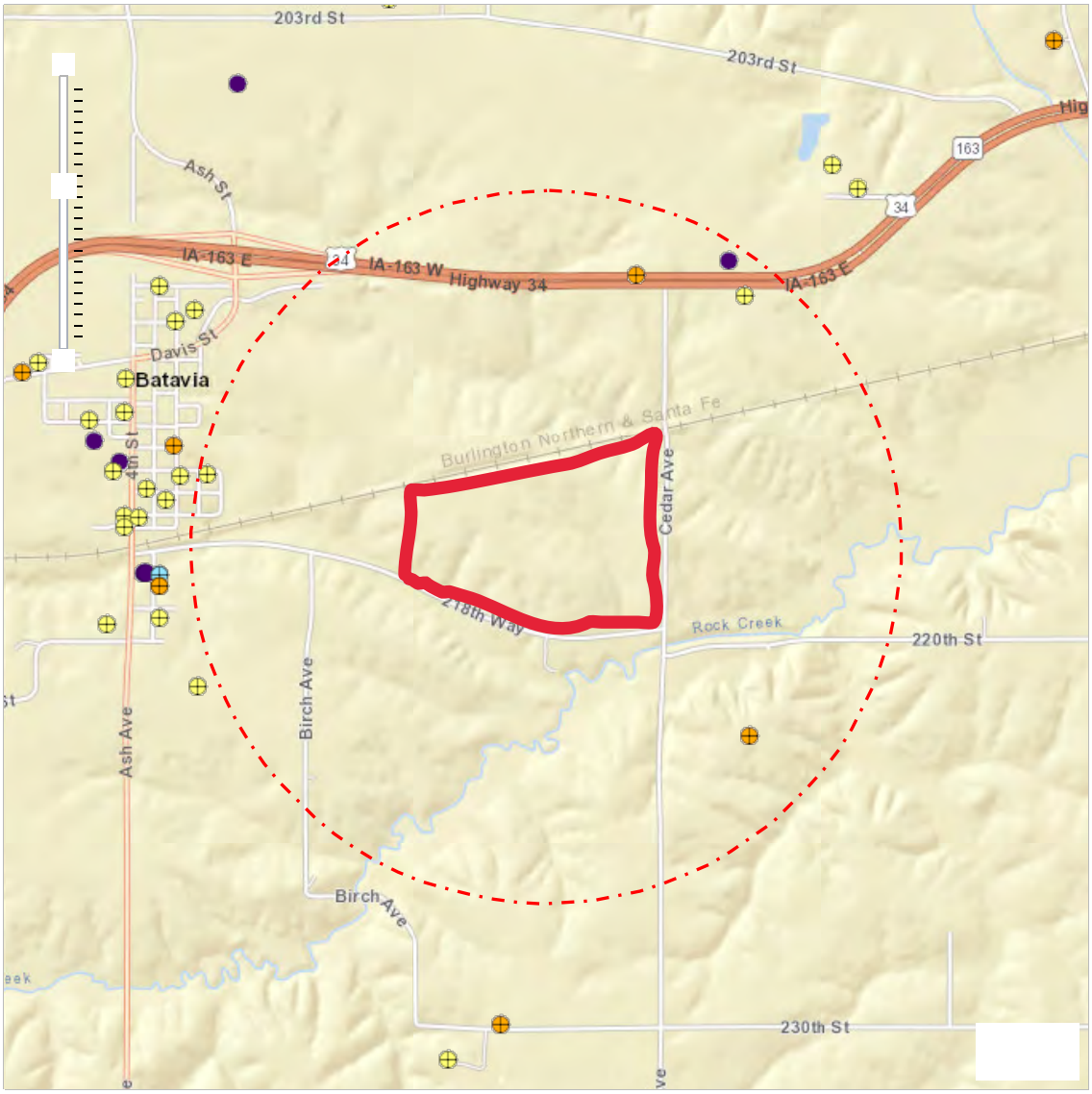
Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

Ag Drainage Wells

Map ID	Well No.	Location	Accuracy	Dist. From Point	Well Depth	Construction/ Permit Date	Owner/ Permittees	Other Information
No records found from this data source								

Well Search Buffered Map

Subject: XY UTM Coordinates: 571819/4538212
Search Radius (mi): 1



Map Notes:
- UST
- LUST
- Wells

Please refer to the Accuracy column in Well Search Detail.
Since multiple points can be at the same spot (as those located to the center of a quarter section), points were randomly dispersed within 10 meters around that spot so all points can be seen.

EXTended Ag Services, Inc.

202 South Highway 86
Lakefield, MN 56150
507.662.5005 phone
507.662.5105 fax
info@extendedag.com

April 29, 2024

Environmental Land Management

1602 11th Drive NE

Austin, MN 55912

RE: Review of Potential Land Application Sites – JBS – Ottumwa, IA

Michael,

We have completed our review of the proposed land application site for the JBS facility in Ottumwa, Iowa. Thank you for the opportunity to provide our input on this project. The following field was included in this review, all acres are approximate:

Field Name	Acres
Cargill Eddyville Adam Silo	201.5
Grand Total	**201.5**

Imagery provided by the National Ag Imagery Program (2021) was utilized to determine whether land application sites were in crop production, pasture/hay or non-farmed land. Overall the land application sites have some limitations regarding slope steepness and length, and general erosion potential.

There are approximately 201.5 acres available for land application of the industrial by-product. The land application sites primarily consist of silty clay loam, silt loam soils, and loam soils with 68.9% of the tillable acres having acceptable slopes for the land application the JBS byproducts (0-9%). According to the NRCS soil survey, 34.6% of the soils are classified as having slight erosion potential, 64.38% are classified as having moderate erosion potential, and the remaining are classified as having none. Field specific planning and/or residue management should be utilized when applying the byproduct to reduce the potential for movement offsite, on all sites. Application can and should be limited to areas with the lowest slope first and then be directed to areas with structural controls in place to control soil erosion. The application of the byproduct is not expected to conflict with any Conservation Plans associated with the observed soils. A summary of slope ratings for the potential land application sites is included below:

Slope Range	Acres
0-2%	12.1
0-5%	18.0
2-5%	41.7
5-9%	67.1
9-14%	60.5
14-18%	2.2
Grand Total	**201.5**

None of the soils identified as potential land application sites are listed by the NRCS soil survey as commonly or frequently flooded. Still, it is assumed that agricultural drain tile has been installed, to varying degrees, on soils with poor or somewhat poor drainage. Flooding frequency is not expected to be a limiting factor for land application. However, land application on saturated soils should be avoided at all times. Further, land application on fields with higher slope ranges and predicted rainfall within 24 hours should be limited. A complete breakdown of flooding frequency ratings is shown below:

NRCS Flooding Frequency	Acres
------	2.0
NONE	199.5
Grand Total	**201.5**

Determining appropriate land application rates for any by-product is dependent on the most restrictive variable. This can be either slope, erosivity, flooding potential, soil fertility levels, soil texture or byproduct characteristics, to name a few. The recommendations given herein are independent of any byproduct reviews and only consider the known field characteristics discussed in this review.

Application rates of approximately 10-12 Wet Tons per acre are appropriate for the slope conditions of the land application sites discussed in this review. Appropriate measures should be taken to ensure minimal movement of the waste respect to adequate setbacks from sensitive features (surface water, karst features, conduits to water and high slopes) and land application rates. Special care should be given to applying wastes no less than 48 hours prior to rainfall events of greater than 0.5 inches. Wastes should be incorporated whenever possible, if such practices do not conflict with existing NRCS conservation plans. Applications of organic by-products can result in improved soil fertility, tilth and structure, if properly managed. Careful consideration of loading rates and potential for pollutant movement should be considered when determining suitability for any particular site. Special attention should be paid to existing soil levels and any additions from manure, commercial fertilizers or other biosolids.

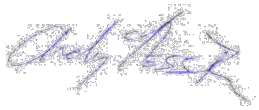
The soils and parent material on the proposed land application site are naturally acidic to pH neutral in nature. Agricultural lime should be used to ensure the soil pH is above 6.0 prior to land application of any byproducts.

Summary

The specified land application material should be evaluated for constituents that pose a risk to the general health and welfare of the public. In general, land utilized for the land application of solid waste containing nutrients needed for pasture or crop production will benefit from such applications. Careful consideration should be taken to ensure nutrients are not applied at levels greater than crop need, once soils have reached the high fertility range as defined by Iowa State University. As mentioned, the fields included in this review have generally acidic soil characteristics that may require agricultural lime to maximize productivity. Fields should be limed accordingly. Careful consideration should also be given to ensure that any solid waste applications do not significantly build soil sodium, soil salt levels or increase their SAR value. High SAR values are associated with poor soil tilth and structure, and poor water infiltration due to the replacement of calcium and magnesium in the soil by sodium. A review of individual site's soil fertility levels, soil pH, or other pertinent soil characteristics was not done and is beyond the scope of this analysis.

In summary, we believe the field conditions are very suitable for land application of solid wastes done in accordance with all applicable rules, permits and laws. If you have any questions, please do not hesitate to contact us.

Sincerely,



Jim Nesseth
Certified Agronomist
License #: 17118

Andrew Nesseth
Environmental Consultant
NRCS Technical Service Provider

Contractual Consent of Landowner

Landowner, Lessee and/or Landoperator: Nick Adam
Location of storage sites and spreading site(s): All permitted sites owned, leased and rented.
Description of byproduct to be stored and land applied on site(s): Byproduct waste consisting of wastewater solids generated from the JBS facility in Ottumwa, IA. The facility has a pre-treatment plant and a de-watering process, in which solids are recovered.

Water treatment plant byproduct is generated from: JBS in Ottumwa, IA

Analysis of pretreatment byproduct on a "dry" basis:
****Analysis is not guaranteed for agronomic value. Byproduct output will be variable.*

Total Solids	13.8	%	Arsenic	none detected	
pH	6.97		Barium	72.7	mg/kg
Tot.Kjeldahl Nitrogen	7.91	%	Cadmium	none detected	
Ammonia Nitrogen	0.13	%	Chromium	6.9	mg/kg
Phosphorus	1.18	%	Copper	193.5	mg/kg
Phosphate	2.69	%	Iron	2299	mg/kg
Potassium	0.42	%	Lead	none detected	
Potash	0.51	%	Manganese	137.6	mg/kg
Calcium	1.64	%	Mercury	none detected	
Magnesium	0.41	%	Molybdenum	4.6	mg/kg
Sodium	0.43	%	Nickel	7.4	mg/kg
Sulfur	1.54	%	Selenium	5.4	mg/kg
Zinc	0.06	%	Silver	none detected	

***Check with your Agronomist to verify that these nutrients and other constituents are not harmful to the crops you are growing during the coming year.

At an application rate of 8 "as received" tons per acre per year, each acre will receive the following estimated amounts of nutrients on a first year availability basis:
****Analysis is not guaranteed for agronomic value. Byproduct output will be variable.*

Nitrogen	90	lbs. per acre (estimated 50% TKN availability)
Phosphorus (P2O5)	50	lbs. per acre (estimated 80% P2O5 availability)
Potassium (K2O)	8	lbs. per acre (estimated 90% K2O availability)

***Check with your Agronomist to verify and calculate availability of these nutrients to the crops you are growing during coming year.

I have reviewed this information and am authorized to hereby give permission to Environmental Land Management, LLC to store and land apply the above byproduct on the spreading sites. If, in the future, I decide not to allow Environmental Land Management, LLC to store and land apply the aforementioned byproducts on these sites, I will inform them before it is delivered to the sites.

Signed: Nick Adam Date: 4/17/19