

DRAFT ENVIRONMENTAL ASSESSMENT

for

Hardin County Radio Communications Tower Facility

Hardin County, Iowa

prepared for

Hardin County Sheriff's Department

PART 2

APPENDICES A - G

prepared by

Land Recyclers Inc.

4853 Lilac Place North

Lake Elmo, MN 55042

(651) 430 - 3854

landrecycle@comcast.net

July 2011

PART 2

LIST OF APPENDICES A - G

APPENDIX A – Survey of Site & Site elevation data certified to FAA “2C” Standards

APPENDIX B – Historic Plat, Historic Aerial Photos, & Jackson Township Zoning Map

APPENDIX C – Soil Map in the Vicinity of the Tower Site

APPENDIX D – Farmland Classification Map in the Vicinity of the Tower Site

APPENDIX E – Soil Boring Logs

APPENDIX F – USFWS Correspondence

APPENDIX G – IDNR Correspondence

Appendix A

Survey of Site

Site Elevation Certified to FAA "2C" Standards

STONEBRAKER LAND SURVEYING CO.

1002 11th Street
Eldora, Iowa 50627

FAA 2C CERTIFICATION

Date: April 16, 2011

Re: 2C Certification

Eldora 375' Tall Guyed Cellular Tower, Hardin County, Iowa

To: Mr. Tim Smith, Sheriff, Hardin County Iowa, 1116 14th Ave., Eldora, IA 50627

The following is a 2C Certification for the Eldora Tower

Geodetic Coordinates

Latitude N42 Degrees 23 Minutes 54.40 Seconds (NAD 83)

Longitude W93 Degrees 08 Minutes 38.00 Seconds (NAD 83)

Existing Ground Elevation: 1082.0 (NAVD 88)

The Horizontal Datum (coordinates) are in terms of North American Datum of 1983 (NAD 83) and are expressed as Degrees, Minutes and Seconds. The Vertical Datum (heights) are in terms of the North American Vertical Datum of 1988 (NAVD 1988) and are expressed in feet.

I certify that the latitude and the longitude shown hereon are accurate to within plus or minus 50 feet horizontally and the site elevations are accurate to within plus or minus 20 feet vertically.

By:

John A. Stonebraker
Signature

4/16/11
Date

John A. Stonebraker, P.L.S., State of Iowa

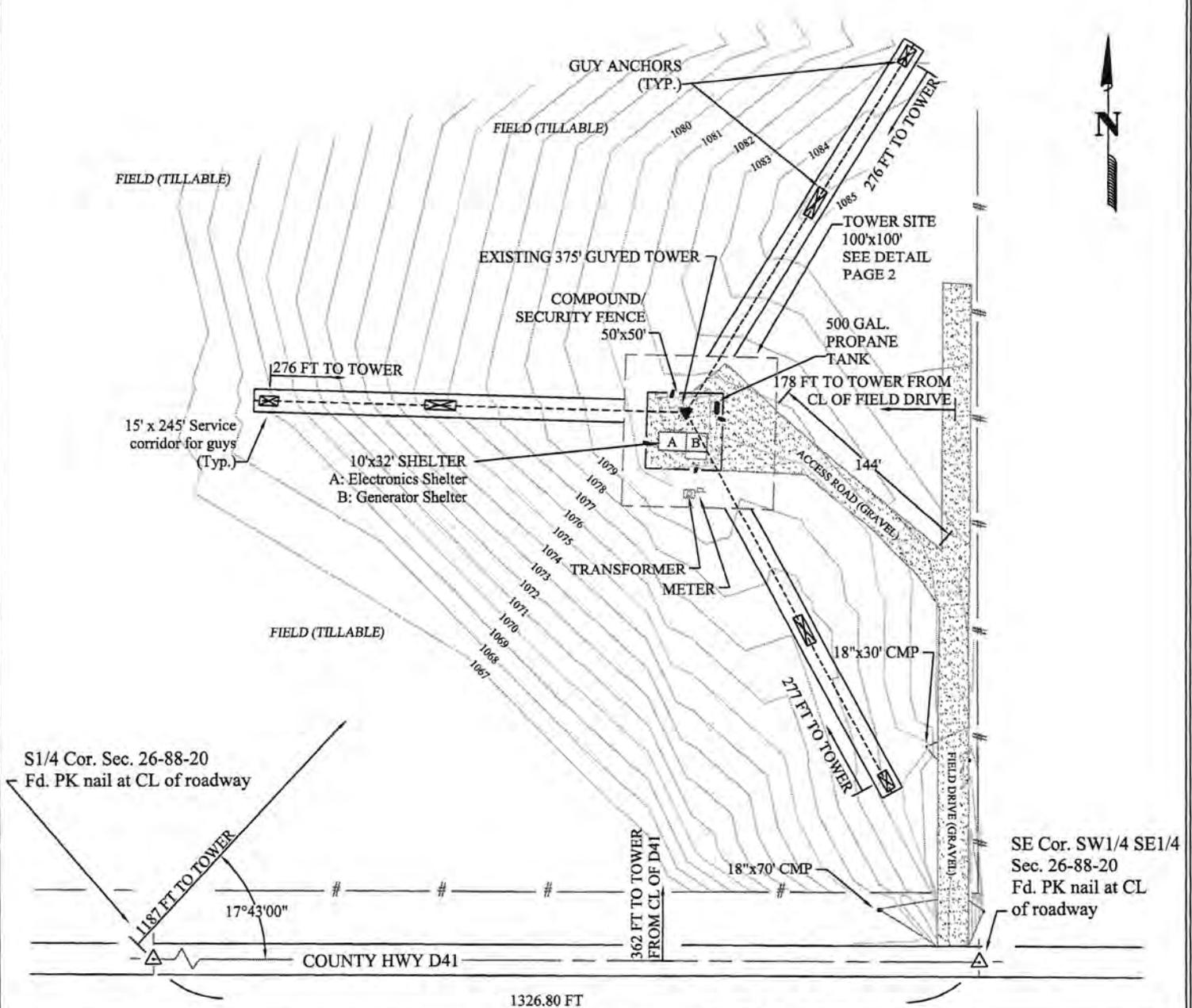
Professional Land Surveyor Number 8507

	<p>I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct personal supervision and that I am a duly licensed Land Surveyor under the laws of the State of Iowa.</p>
	<p>Signature: <u>John A. Stonebraker</u> Date: <u>4/16/11</u></p> <p>JOHN A. STONEBRAKER, License No. 8507 My license renewal date is December 31, 2012</p> <p>Pages or sheets covered by this seal: <u>1</u></p>

SURVEY OF SITE

HARDIN COUNTY 375 FT GUYED RADIO TOWER

LOCATED IN THE SW1/4 SE1/4 SEC. 26, T-88 N, R-20 W
OF THE 5th P.M. IN HARDIN COUNTY, IOWA.



I hereby certify that this land surveying document was prepared and the related survey work was performed by me or under my direct supervision and that I am a Duly licensed Professional Land Surveyor under the laws of the State of Iowa.

Signature: John A. Stonebraker Date: 5/26/11

JOHN A. STONEBRAKER, License No. 8507
My license renewal date is December 31, 2012

Pages or sheets covered by this seal: 1 & 2



LEGEND

- △ U.S. PUBLIC LAND SURVEY MONUMENT FOUND OR SET
- ▼ 375 FT. RADIO TOWER
- #- EXISTING FENCE LINE
- CMP CORRUGATED METAL PIPE
- ⊠ GUY ANCHORS

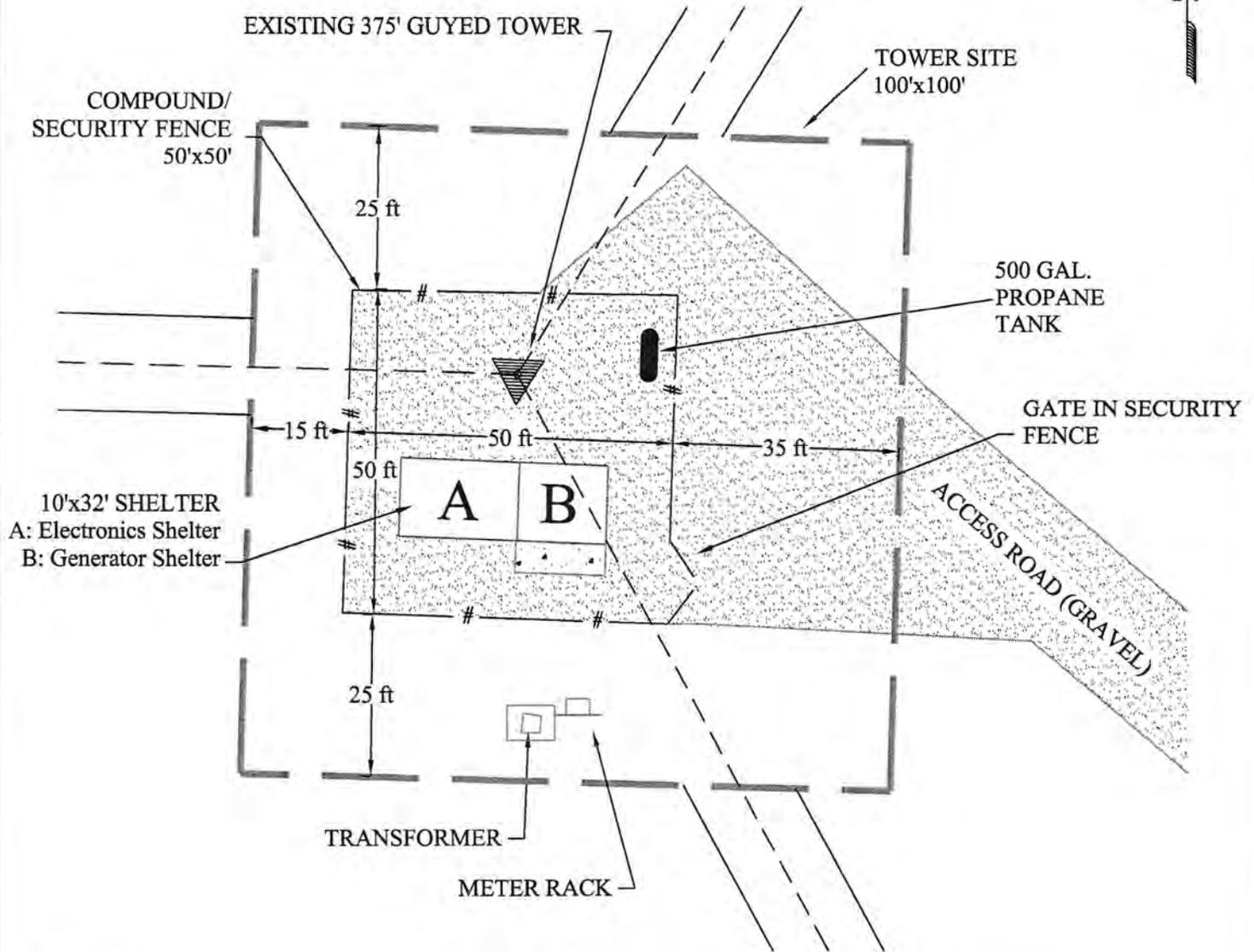
0 50' 100'
SCALE: 1" = 100'

PN 1113

SURVEY OF SITE

HARDIN COUNTY 375 FT GUYED RADIO TOWER

COMPOUND DETAIL SHEET



Site Name

Hardin County 375-Foot Radio Tower

Land & Tower Owner

Hardin County

Site Contact Information

Attn Sheriff Tim Smith
 Hardin County Sheriff's Office
 1116 - 14th Ave
 Eldora, Iowa 50627

Site Legal Description

SW1/4, SE1/4, Section 26, T88N, R20W of the 5th P.M. Hardin, County, Iowa

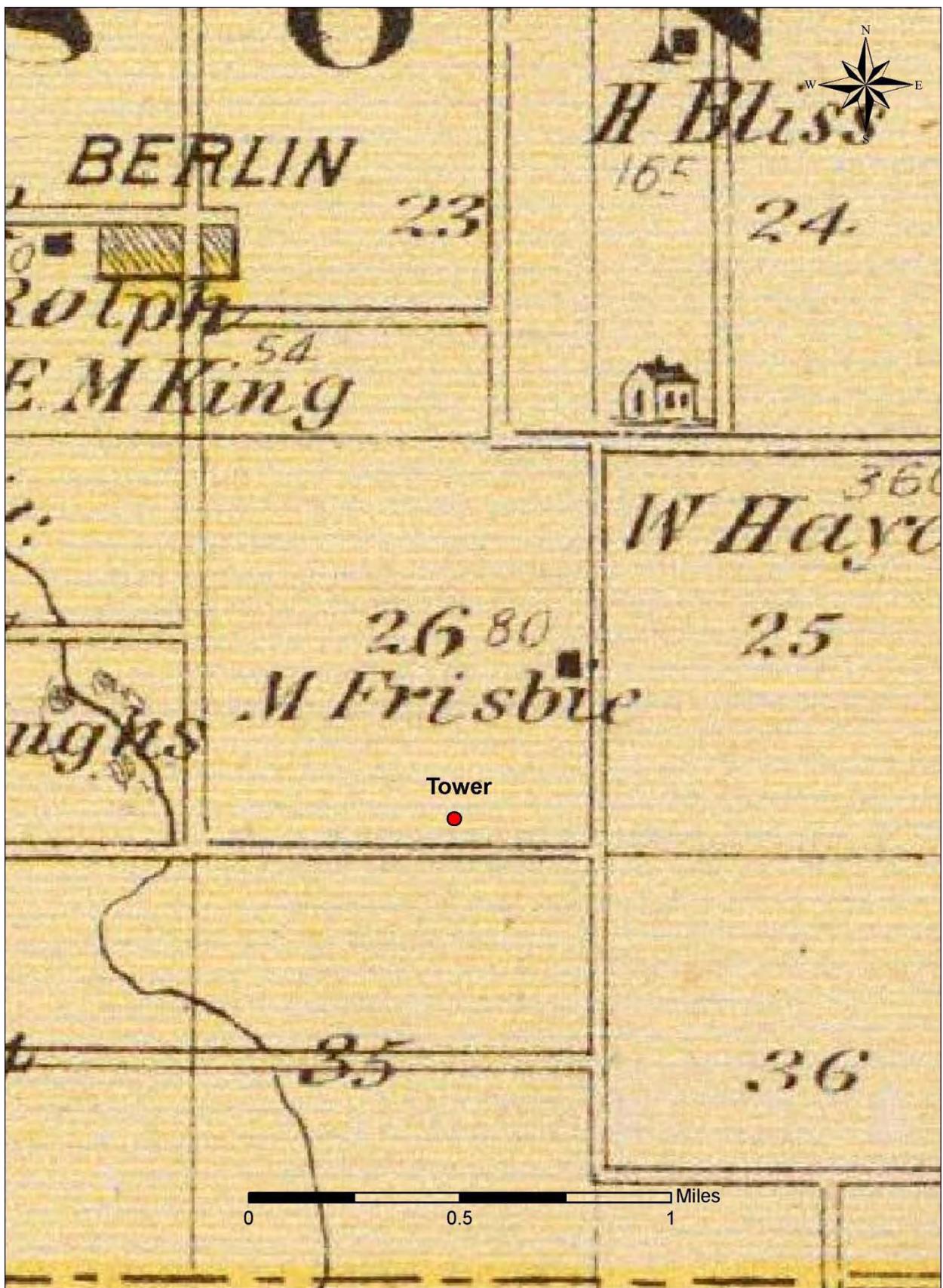
Site Location

The site is located approximately 1/4 mile west of the junction of County Roads D41 & S55, about 400 ft north of County Road D41 & 3.5 miles NW of Eldora, Iowa

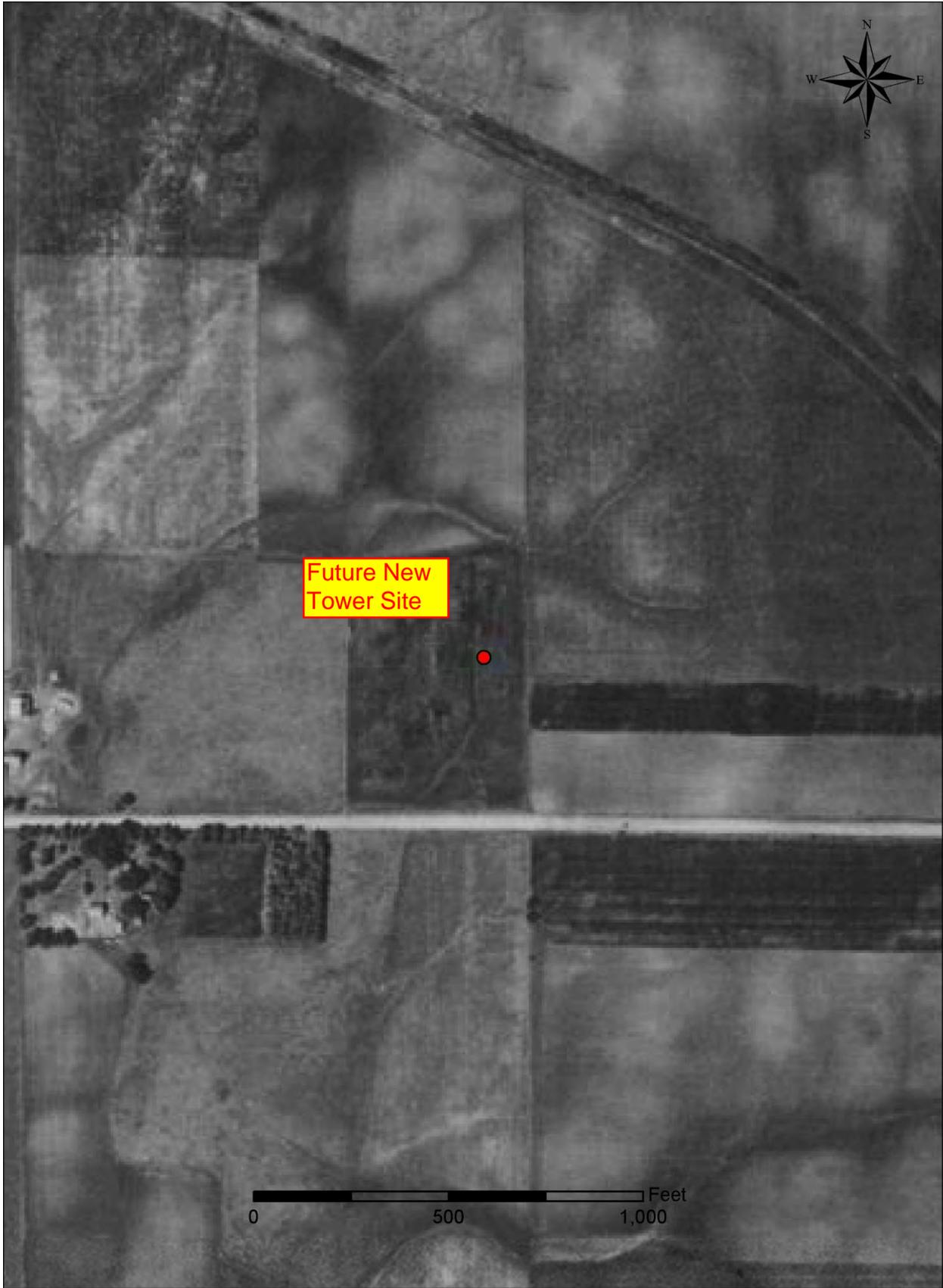
Tower Coordinates

FAA 2C Accuracy: +/-50' Hz., +/-20' Vt.
 N42°23'54.4" (NAD83)
 W93°08'38.0" (NAD83)
 Elevation: 1082.0 ft (NAVD 88)

Appendix B
Historic Plat Map, Aerial Photos, &
Jackson Township Zoning Map



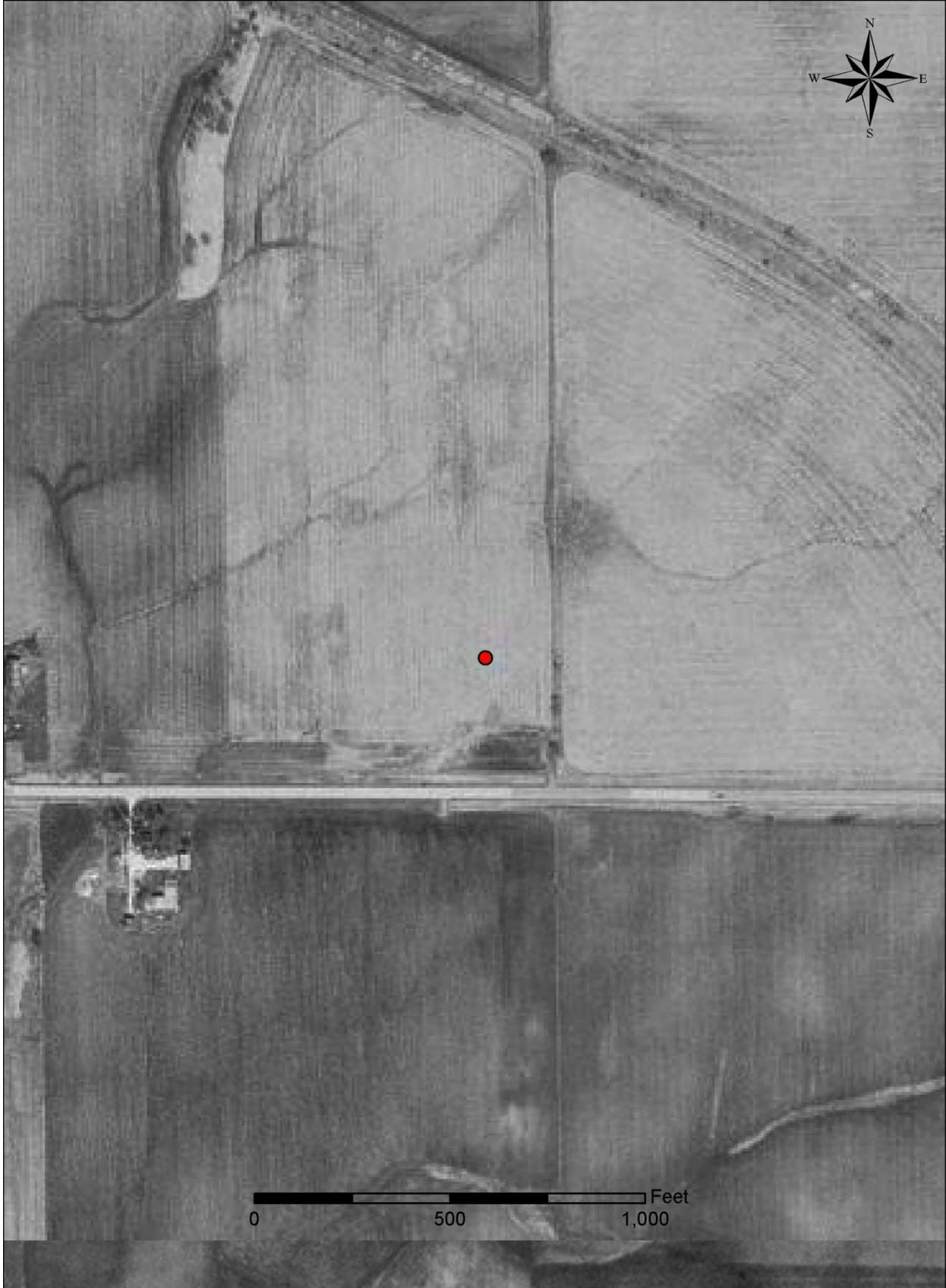
1875 Andreas map of Eldora Tower area



1930s aerial photograph of Eldora Tower area



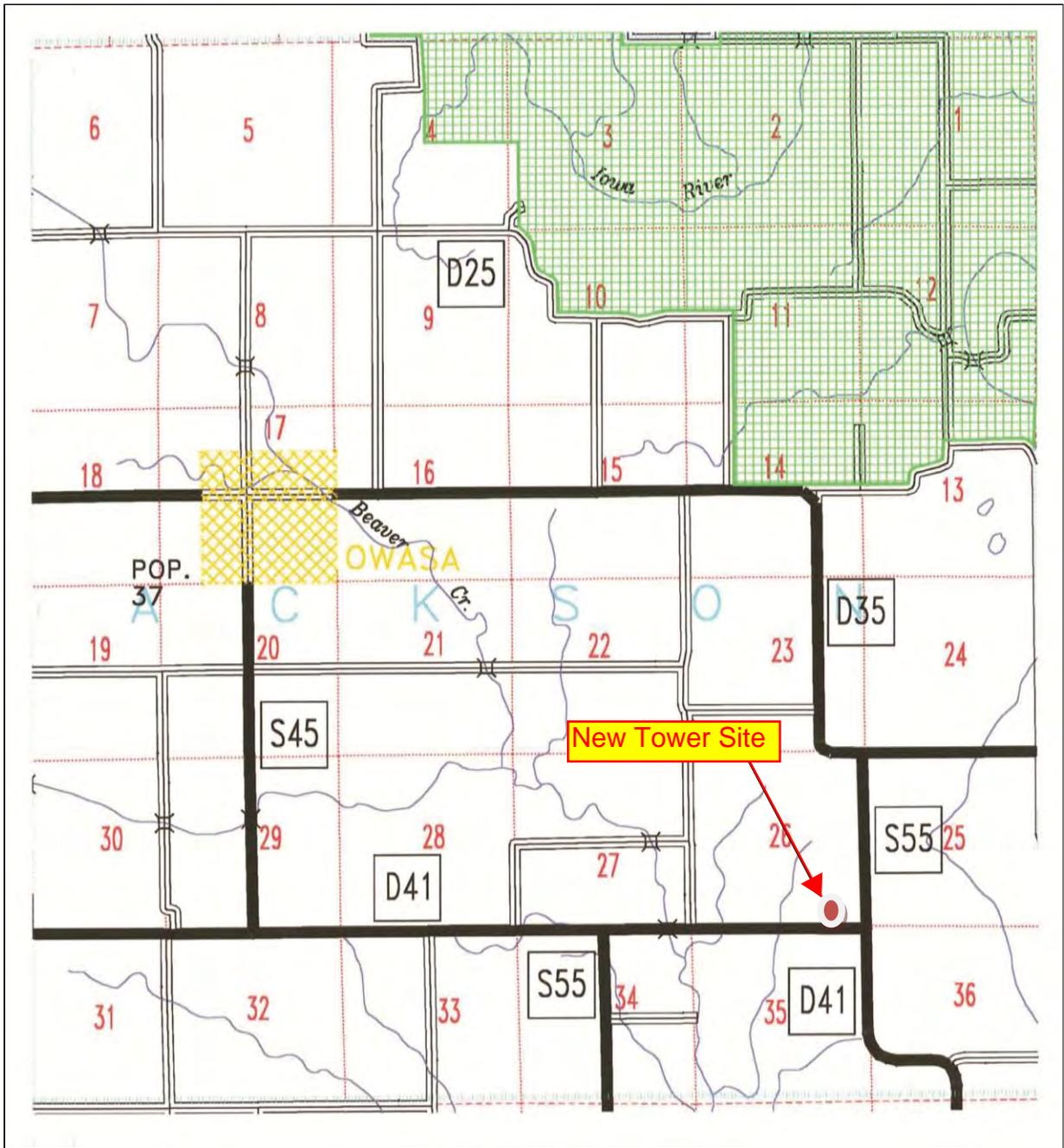
1950s aerial photograph of Eldora Tower area



1990s aerial photograph of Eldora Tower area



2010 digital orthophoto of Eldora Tower area



District Zoning Map, Jackson Township,
Harding County, Iowa

Appendix C

Soil Map in the Vicinity of Hardin County Tower Site

Soil Map—Hardin County, Iowa
(Eldora Tower Site Soils Map)

93° 8' 47"

93° 8' 28"

42° 24' 4"

42° 24' 4"



42° 23' 45"

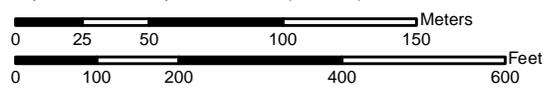
42° 23' 45"

93° 8' 47"

93° 8' 28"



Map Scale: 1:2,790 if printed on A size (8.5" x 11") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

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

-  Gully
-  Short Steep Slope
-  Other

Political Features

-  Cities

Water Features

-  Oceans
-  Streams and Canals

Transportation

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

MAP INFORMATION

Map Scale: 1:2,790 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:15,840.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 15N NAD83

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

Soil Survey Area: Hardin County, Iowa
Survey Area Data: Version 16, Feb 23, 2009

Date(s) aerial images were photographed: 8/31/2006

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

Hardin County, Iowa (IA083)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
55	Nicollet loam, 1 to 3 percent slopes	2.0	6.0%
107	Webster silty clay loam, 0 to 2 percent slopes	5.0	15.2%
138B	Clarion loam, 2 to 5 percent slopes	8.8	26.5%
138C2	Clarion loam, 5 to 9 percent slopes, moderately eroded	10.4	31.3%
201B	Coland-Terril complex, 2 to 5 percent slopes	6.1	18.4%
329	Webster-Nicollet complex, 1 to 3 percent slopes	0.4	1.1%
507	Canisteo silty clay loam, 0 to 2 percent slopes	0.4	1.4%
733	Calco silty clay loam, 0 to 2 percent slopes	0.0	0.1%
Totals for Area of Interest		33.1	100.0%

Appendix D
Farmland Classification Map in the Vicinity of
Tower Site

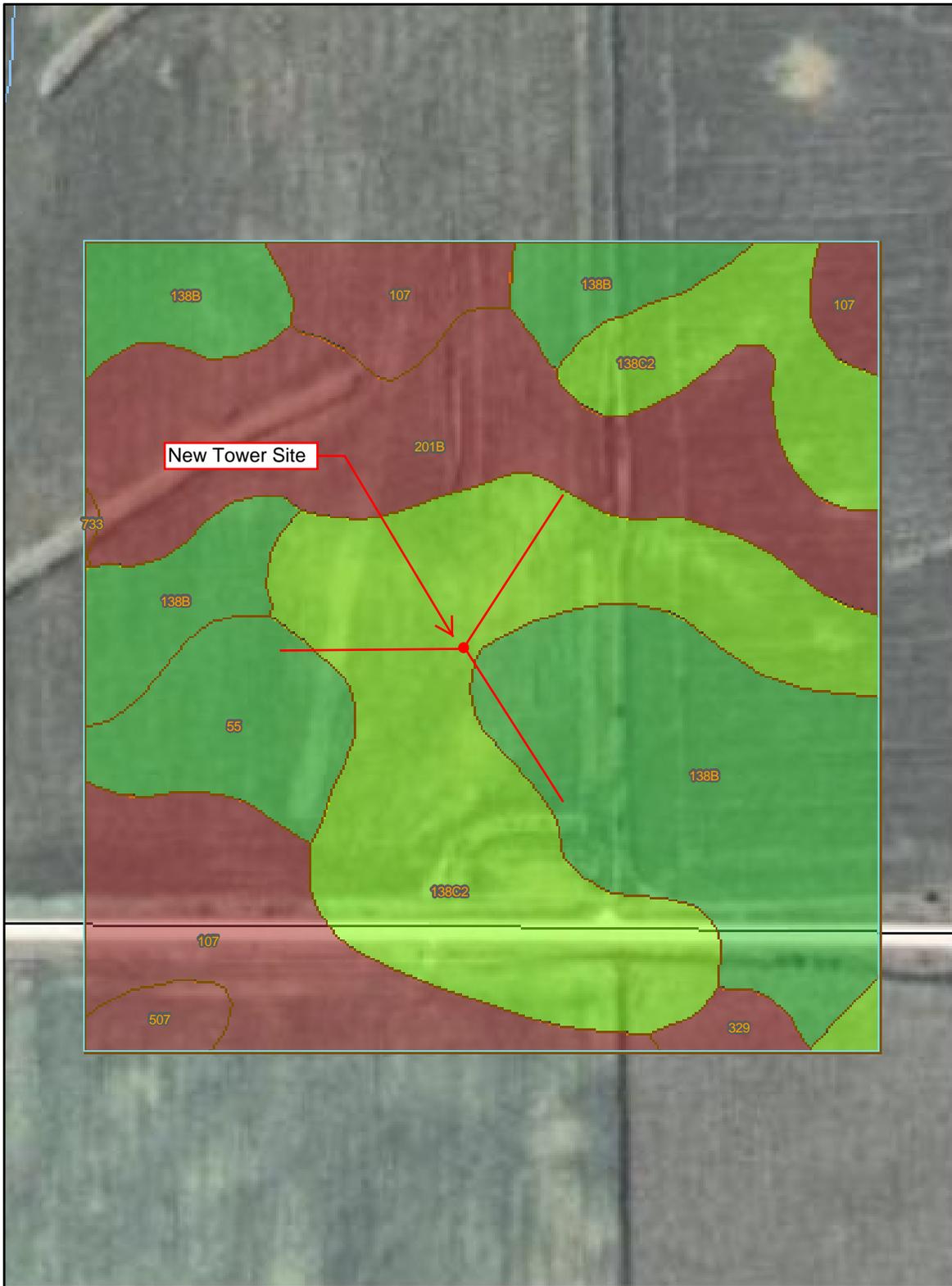
Farmland Classification—Hardin County, Iowa
(Eldora Tower Site - Farmland Classification)

93° 8' 47"

93° 8' 28"

42° 24' 4"

42° 24' 4"



42° 23' 45"

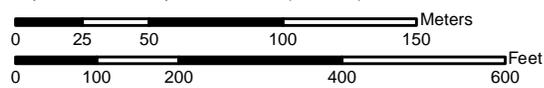
42° 23' 45"

93° 8' 47"

93° 8' 28"



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MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Units

Soil Ratings

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of local importance
-  Farmland of unique importance
-  Not rated or not available

Political Features

 Cities

Water Features

-  Oceans
-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways

-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

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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.

Farmland Classification

Farmland Classification— Summary by Map Unit — Hardin County, Iowa				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
55	Nicollet loam, 1 to 3 percent slopes	All areas are prime farmland	2.0	6.0%
107	Webster silty clay loam, 0 to 2 percent slopes	Prime farmland if drained	5.0	15.2%
138B	Clarion loam, 2 to 5 percent slopes	All areas are prime farmland	8.8	26.5%
138C2	Clarion loam, 5 to 9 percent slopes, moderately eroded	Farmland of statewide importance	10.4	31.3%
201B	Coland-Terril complex, 2 to 5 percent slopes	Prime farmland if drained	6.1	18.4%
329	Webster-Nicollet complex, 1 to 3 percent slopes	Prime farmland if drained	0.4	1.1%
507	Canisteo silty clay loam, 0 to 2 percent slopes	Prime farmland if drained	0.4	1.4%
733	Calco silty clay loam, 0 to 2 percent slopes	Prime farmland if drained	0.0	0.1%
Totals for Area of Interest			33.1	100.0%

Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

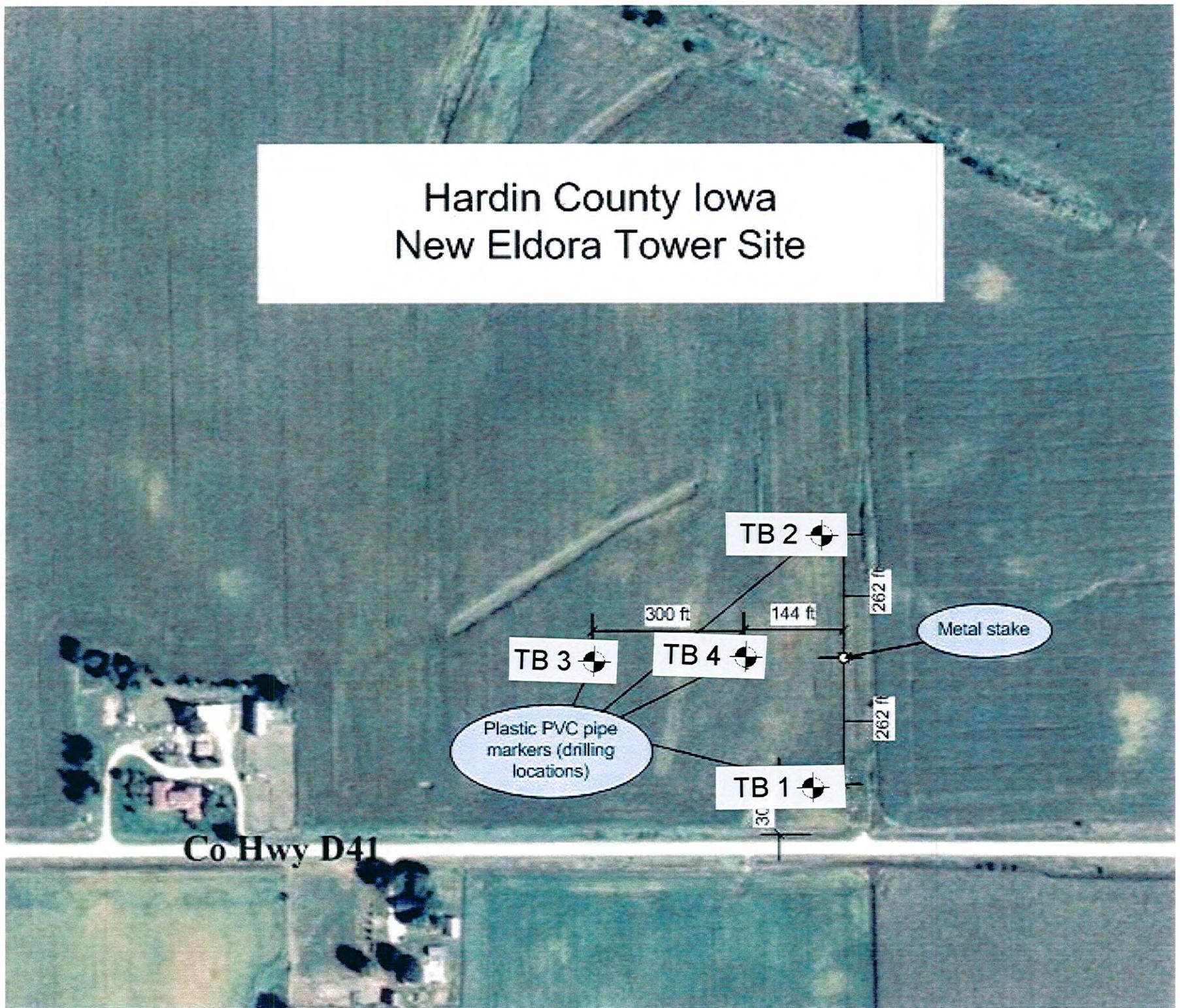
Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

Appendix E
Soil Boring Logs
From Geotechnical Investigation at Tower Site

Hardin County Iowa
New Eldora Tower Site



Co Hwy D41

Metal stake

Plastic PVC pipe markers (drilling locations)

TB 2

TB 4

TB 3

TB 1

300 ft

144 ft

262 ft

262 ft

30

UNIFIED SOIL CLASSIFICATION SYSTEM

GROUP NAME	GROUP SYMBOL	SOIL DESCRIPTION	Comments
Peat	Pt	Highly organic soils	50% or more is smaller than No. 200 sieve
Fat Clay	CH	Clay - Liquid limit > 50% *	
Plastic Silt	MH	Silt - Liquid limit > 50% *	
Lean Clay	CL	Clay - Liquid limit < 50% *	
Silt	ML	Silt - Liquid limit < 50% *	
Silty Clay	CL-ML	Silty Clay *	
Clayey Sand	SC	Sands with 12 to 50 percent smaller than No. 200 sieve *	More than 50% is larger than No. 200 sieve and % sand > % gravel
Silty Sand	SM		
Poorly-graded Sand with Clay	SP-SC	Sands with 5 to 12 percent smaller than No. 200 sieve *	
Poorly-graded Sand with Silt	SP-SM		
Well-graded Sand with Clay **	SW-SC		
Well-graded Sand with Silt **	SW-SM		
Poorly-graded Sand	SP	Sands with less than 5 percent smaller than No. 200 sieve *	
Well-graded Sand **	SW		
Clayey Gravel	GC	Gravels with 12 to 50 percent smaller than No. 200 sieve *	More than 50% is larger than No. 200 sieve and % gravel > % sand
Silty Gravel	GM		
Poorly-graded Gravel with Clay	GP-GC	Gravels with 5 to 12 percent smaller than No. 200 sieve *	
Poorly-graded Gravel with Silt	GP-GM		
Well-graded Gravel with Clay **	GW-GC		
Well-graded Gravel with Silt **	GW-GM		
Poorly Graded Gravel	GP	Gravels with less than 5 percent smaller than No. 200 sieve *	
Well-graded Gravel **	GW		

* See Plasticity Chart for definition of silts and clays.

** See definition for well graded.

LEGEND OF TERMS

SAMPLE IDENTIFICATION

- U - Undisturbed (shelby tube)
- S - Split barrel/SPT (disturbed)
- C - California Sampler
- L - Lasky continuous sampler
- A - Auger cuttings (sack sample)
- B - Bulk sample (auger cuttings)
- H - Head space sample

CONSISTENCY OF COHESIVE SOILS

Unconfined Comp. Strength, q_u , psf

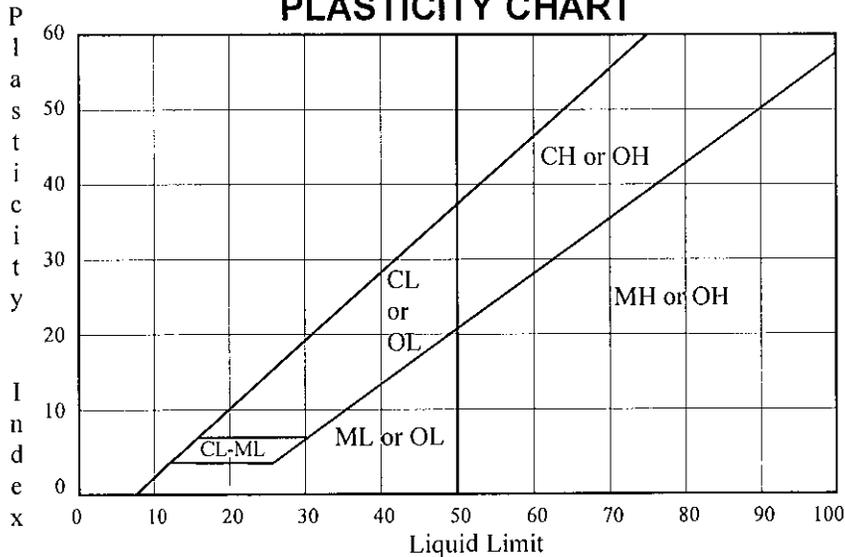
- | | |
|-----------|---------------------|
| <500 | Very Soft |
| 500-1000 | Soft |
| 1000-2000 | Medium stiff (Firm) |
| 2000-4000 | Stiff |
| 4000-8000 | Very stiff |
| >8000 | Hard |

RELATIVE DENSITY OF GRANULAR SOILS

N - blows per foot

- | | |
|-------|--------------|
| 0-3 | Very loose |
| 4-9 | Loose |
| 10-29 | Medium Dense |
| 30-49 | Dense |
| 50-80 | Very Dense |

PLASTICITY CHART



CLASSIFICATION CRITERIA FOR SANDS AND GRAVELS

Well graded sands (SW) $C_u = D_{60}/D_{10} \geq 6$ and $C_c = (D_{30})^2 / (D_{10} \times D_{60}) \leq 3$ and ≥ 1

Well graded gravels (GW) $C_u = D_{60}/D_{10} \geq 4$ and $C_c = (D_{30})^2 / (D_{10} \times D_{60}) \leq 3$ and ≥ 1

Boulders	Cobbles	Coarse Gravel	Fine Gravel	Coarse Sand	Medium Sand	Fine Sand	FINES (silt or clay)
Sieve sizes	10"	3"	3/4"	#4	#10	#40	#200



BORING LOG No. TB 1

BORING NO. TB 1	LOCATION OF BORING Southeast Guy Line Anchor	ELEVATION	DATUM	DRILLER DAH	LOGGER JLW
WATER LEVEL OBSERVATIONS			TYPE OF SURFACE Soybean Field		DRILL RIG Mobile B-47
WHILE DRILLING Dry	END OF DRILLING 11 feet	24 HOURS AFTER DRILLING	DRILLING METHOD 6-inch Continuous Flight Augers		TOTAL DEPTH 15 feet

DEP. FT.	SAMPLE DATA			SOIL DESCRIPTION			LABORATORY DATA			DEP. FT.
	SAMPLE NO. & TYPE	"N" BLOWS (FT)	% REC.	COLOR, MOISTURE, CONSISTENCY	USCS CLASS.	% MC	DRY DENS. pcf	Qu psf		
3	U1			Very dark brown, Damp, Stiff, VERY SANDY LEAN CLAY with organic matter	CL	15.6	103	3040	3	
6	U2			TOPSOIL Light gray rust mottled, Wet, CLAYEY FINE SAND	5.0'	24.3 22.2	99 102	380* 570*	6	
9	U3			* Low UCS due to high sand content	SC	17.6 21.2	110 105	880	9	
12				LOCAL ALLUVIUM Light gray, Moist, Soft, SANDY LEAN CLAY	12.0'				12	
15				LOCAL ALLUVIUM Grayish brown, Wet, MEDIUM TO COARSE SAND	14.0'				15	
				LOCAL ALLUVIUM Bottom of Boring @ 15'	15.0'					
18									18	
21									21	

GSI Geotechnical Services, Inc.
 2853 99th Street, Des Moines, IA 50322
 (515) 270-6542 FAX (515) 270-1911

PROJECT: 375-ft Guyed Tower
LOCATION: Co Hwy D41 and Co Hwy S55, Eldora, Iowa
JOB NO.: 086184
DATE: 10-6-2008

BORING LOG No. TB 2

BORING NO. TB 2	LOCATION OF BORING Northeast Guy Line Anchor	ELEVATION	DATUM	DRILLER DAH	LOGGER JLW
WATER LEVEL OBSERVATIONS			TYPE OF SURFACE Soybean Field		DRILL RIG Mobile B-47
WHILE DRILLING Dry	END OF DRILLING	24 HOURS AFTER DRILLING	1½ HOURS AFTER DRILLING Dry	DRILLING METHOD 6-inch Continuous Flight Augers	TOTAL DEPTH 15 feet

DEP. FT.	SAMPLE DATA			SOIL DESCRIPTION			LABORATORY DATA			DEP. FT.
	SAMPLE NO. & TYPE	"N" BLOWS (FT)	% REC.	COLOR, MOISTURE, CONSISTENCY	USCS CLASS.	% MC	DRY DENS. pcf	Qu psf		
3				Very dark brown, Damp, VERY SANDY LEAN CLAY with traces of organic matter	CL				3	
6	U1			TOPSOIL Brown rust mottled, Moist, Medium stiff, SANDY LEAN CLAY		19.9	105	1880	6	
9	U2			Traces of gravel below 8 feet	CL	20.2 19.0	110 111	1170 1930	9	
12				WISCONSINAN SUPRAGLACIAL TILL Dark gray, Moist, Medium stiff, SANDY LEAN CLAY					12	
15	U3			Stiff below 14 feet	CL	16.9 17.2	114 114	1470 2070	15	
18				WISCONSINAN SUBGLACIAL TILL Bottom of Boring @ 15'					18	
21									21	

GSI Geotechnical Services, Inc.
 2853 99th Street, Des Moines, IA 50322
 (515) 270-6542 FAX (515) 270-1911

PROJECT: 375-ft Guyed Tower
LOCATION: Co Hwy D41 and Co Hwy S55, Eldora, Iowa
JOB NO.: 086184
DATE: 10-6-2008

BORING LOG No. TB 3

BORING NO. TB 3		LOCATION OF BORING West Guy Line Anchor		ELEVATION	DATUM	DRILLER DAH	LOGGER JLW
WATER LEVEL OBSERVATIONS				TYPE OF SURFACE Soybean Field		DRILL RIG Mobile B-47	
WHILE DRILLING Dry	END OF DRILLING	24 HOURS AFTER DRILLING	1 HOUR AFTER DRILLING Dry	DRILLING METHOD 6-inch Continuous Flight Augers		TOTAL DEPTH 15 feet	

DEP. FT.	SAMPLE DATA			SOIL DESCRIPTION			LABORATORY DATA			DEP. FT.
	SAMPLE NO. & TYPE	"N" BLOWS (FT)	% REC.	COLOR, MOISTURE, CONSISTENCY	USCS CLASS.	% MC	DRY DENS. pcf	Qu psf		
3				Very dark gray, Moist, LEAN CLAY with organic matter	CL				3	
6	U1			TOPSOIL Brown rust mottled, Damp, Medium stiff, VERY SANDY LEAN CLAY		12.5 14.7	92 104	1440 1190	6	
9	U2			Light gray rust mottled and Stiff with traces of gravel below 8 feet	CL	18.4	111	2010	9	
12				WISCONSINAN SUPRAGLACIAL TILL					12	
15	U3			Dark gray, Moist, Stiff, SANDY LEAN CLAY	CL	16.6	114	2200	15	
18				WISCONSINAN SUBGLACIAL TILL					18	
21				Bottom of Boring @ 15'					21	



GSI Geotechnical Services, Inc.
 2853 09th Street, Des Moines, IA 50322
 (515) 270-6542 FAX (515) 270-1911

PROJECT: 375-ft Guyed Tower
LOCATION: Co Hwy D41 and Co Hwy S55, Eldora, Iowa
JOB NO.: 086184
DATE: 10-6-2008

BORING LOG No. TB 4

BORING NO. TB 4	LOCATION OF BORING Center of Tower	ELEVATION	DATUM	DRILLER DAH	LOGGER JLW
WATER LEVEL OBSERVATIONS			TYPE OF SURFACE Soybean Field		DRILL RIG Mobile B-47
WHILE DRILLING 13 feet	END OF DRILLING 12 feet	24 HOURS AFTER DRILLING	DRILLING METHOD 6-inch Continuous Flight Augers		TOTAL DEPTH 20 feet

DEP. FT.	SAMPLE DATA			SOIL DESCRIPTION			LABORATORY DATA			DEP. FT.
	SAMPLE NO. & TYPE	"N" BLOWS (FT)	% REC.	COLOR, MOISTURE, CONSISTENCY	USCS CLASS.	% MC	DRY DENS. pcf	Qu psf		
3				Very dark gray, Moist, SANDY LEAN CLAY with organic matter	CL				3	
				TOPSOIL						
6	U1			Reddish brown, Dry, FINE TO MEDIUM SAND	SW	6.7 3.9	98 105		6	
				LOCAL ALLUVIUM						
9	S2	6	70	Yellowish brown, Damp, Loose, FINE SAND		8.4			9	
				Moist below 8 feet						
12	S3	4	60		SP	15.7			12	
				LOCAL ALLUVIUM						
15	S4	20	40	Brown, Wet, Medium dense, MEDIUM TO COARSE SAND with gravel		11.5			15	
					SW					
18									18	
21	S5	24	60			15.9			21	
				LOCAL ALLUVIUM						
				Bottom of Boring @ 20'						



PROJECT: 375-ft Guyed Tower
LOCATION: Co Hwy D41 and Co Hwy S55, Eldora, Iowa
JOB NO.: 086184
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Appendix F
Agency Correspondence
U.S. Fish and Wildlife Service



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Rock Island Field Office

1511 47th Avenue

Moline, Illinois 61265

Phone: (309) 757-5800 Fax: (309) 757-5807

IN REPLY REFER

TO: FWS/RIFO

October 16, 2008

Mr. Rey Freeman
GeoComm
13517 Larkin Drive
Minnetonka, Minnesota 55305

Dear Mr. Freeman:

This responds to your request for information regarding your proposed communication tower in Hardin County. When determining whether proposed actions may affect listed species, one first needs to determine whether listed species or critical habitat may be present. This information may be obtained from the Fish and Wildlife Service's Technical Assistance webpage (<http://www.fws.gov/midwest/endangered/section7/s7process/index.htm>). By following the instructions, you can determine what your action area is, whether listed species may be found within the action area, and if the project may affect listed species. Species specific best management practices will also eventually be available.

If no suitable habitat exists within a project area or its area of impact, and no species or critical habitat is present, you may determine the project will have "no effect" on listed species.

If species, their habitat, or critical habitat may be present, Federal agencies or their designated non-federal representative should determine that their action "may affect". If a "may affect" finding applies, Federal agencies or their designated non-federal representative are required to consult with the Fish and Wildlife Service (Service).

In addition to trying to ensure that proposed communications towers do not adversely affect threatened and endangered species, Service is also interested in minimizing potential impacts to other wildlife resources, particularly migratory birds. The siting of new towers, increasing at an estimated 6 to 8 percent annually, creates a potentially significant impact on migratory birds, especially some 350 species of night-migrating neotropical songbirds. Within this group, thrushes, vireos, and warblers appear to be the most vulnerable. Communications towers are currently conservatively estimated to kill 4-5 million birds per year. The problem

is especially acute at tall, lighted, guyed towers, particularly in inclement night time weather conditions during spring and fall songbird migrations.

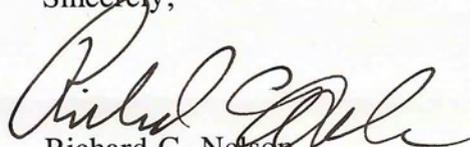
In an effort to minimize impacts to migratory birds, we strongly recommend adhering to the recommendations described below.

1. Where possible, co-locate the communications equipment on an existing communications tower or related structure (e.g., billboard mount, monopole, or building mount).
2. If co-location is not feasible, construct towers using construction techniques which do not require guy wires (e.g., use a lattice structure) and, where possible, restrict tower height so as not to require lighting (generally less than 150 to 200 feet AGL, depending on location, but applicants should confirm requirements with the Federal Aviation Administration (FAA)). If at all possible, site new towers within existing "antenna farms," preferably in non-migratory bird areas. Avoid siting towers in or near (within 3-5 miles) large wetlands, other known bird concentration areas (e.g. refuges), or in critical habitat. Avoid siting towers in areas with an especially high incidence of fog, mist, and low ceilings.
3. If taller towers (greater than 150 to 200 feet AGL) requiring lights for aviation safety must be constructed, the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA should be used. Only white strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) allowable by the FAA (applicants should confirm requirements with FAA). The use of solid red or pulsating red warning lights at night should be avoided. Current research indicates that red lights may be an attractant to night-migrating species.
4. Towers should be constructed so as to limit or minimize habitat loss within the "tower footprint." Road access and fencing should be minimized in order to reduce or prevent habitat fragmentation and disturbance and to reduce above ground obstacles to birds in flight. However, a larger tower footprint is preferable to the use of guy wires in construction.
5. If significant populations of breeding birds are known to occur within the tower footprint, seasonal restrictions on construction should be adopted in order to reduce or avoid impacts to breeding bird populations.
6. New towers should be designed structurally and electrically to accommodate the applicant's antennas and comparable antennas for at least two additional users (minimum of three users for each tower structure), in order to reduce the number of towers needed in the future.

7. Security lighting for on-ground facilities and equipment should be down-shielded to keep light within the boundaries of the site.
8. When communication towers are guyed, exceed 350 feet in height, and/or are lighted, we recommend follow-up monitoring for at least a year on a bi-weekly basis with a report provided to this office to evaluate the impact of the tower to the migrating community.

If you have questions, please contact Mike Stahl of my staff at (309) 757-5800 ext. 222.

Sincerely,



Richard C. Nelson
Field Supervisor



U.S. Fish & Wildlife Service

Ecological Services

Illinois Indiana Iowa Michigan Minnesota Missouri Ohio Wisconsin

Search

Endangered Species

Section 7(a)(2) Consultation Decision Process for "No Effect" Determinations

Telecommunication Projects - Step 6

Step 6: "No Effect" Determination and Documentation

Your project is not located in or adjacent to any officially designated wildlife areas and it does not involve removal of native vegetation (i.e., vegetation other than cultivated plants and lawns). Additionally, your project entails one of the following:

- Addition of communication-related devices to existing tower structures, along with any associated equipment, within existing disturbed areas (e.g., manicured lawns, active agricultural fields, paved, graveled, or otherwise unvegetated areas that do not require impacts to trees)
- Construction of new or existing towers, antennas and associated equipment installed on or in existing buildings, rooftops, billboards, basements, or bridges, or located in previously disturbed areas (e.g. manicured lawns, active agricultural fields, paved, graveled, or otherwise unvegetated areas that do not require impacts to trees).
- Expansion of tower compounds in previously disturbed areas (e.g. manicured lawns, active agricultural fields, paved, graveled, or otherwise unvegetated areas that do not require impacts to trees).

Based on these characteristics, a "No Effect" determination is appropriate for the subject project because it will not occur within suitable habitat for any listed species and/or no habitat disturbance is anticipated. Hence, no listed species or designated critical habitat is anticipated to be directly or indirectly affected by this action.

To document your section 7 review and "No Effect" determination, we recommend that you print this page (go to File<Print Preview), fill-in the project name and date, attach your species list, and file in your administrative record.

Telecommunication Project: _____

Date:

Note: Although federally listed species are not likely to be affected, we have concerns regarding potential negative effects of communications and other towers on protected migratory birds. Towers and guy wires may present collision hazards in the paths of birds during spring and fall migration periods. The extent of the hazard is greatest at night and during periods of low cloud ceiling and/or fog. Other factors which affect the degree of hazard include location of the tower in relation to bird migration flyways, presence of guy wires, tower height and lighting.

We recommend that you also review the proposed project pursuant to the Migratory Bird Treaty Act, which prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. We recommend that you consider our [Guidelines for Communications Tower Siting, Construction, Operation, and Decommissioning](#) and use the [Tower Site Evaluation Form](#) to minimize potential effects on migratory birds.

[Back](#)

[Home - "No Effect" Determination Process](#)

Page revised November 2007

County	Common Name	Scientific Name	Status	Habitat
Hardin	Western prairie fringed orchid	<i>Platanthera praeclara</i>	Threatened	Wet prairies and sedge meadows
	Prairie bush clover	<i>Lespedeza leptostachya</i>	Threatened	Dry to mesic prairies with gravelly soil
	Northern monkshood	<i>Aconitum novaboracense</i>	Threatened	

USFWS Review Request &
ECOLOGICAL REVIEW



REY FREEMAN, COMMUNICATIONS MANAGER

MINNEAPOLIS OFFICE: 13517 LARKIN DR., MINNETONKA, MN 55305
VOICE: 952.541.0747 • FAX: 952.541.0748 • E-MAIL: rfreeman@isd.net

Date: September 26, 2008

US Fish and Wildlife Service
1511 – 47th Avenue
Moline, IL 61265

Subject: Tower Site Data and Response Request for Hardin County, Iowa

Tower Location: Eldora, Iowa

Attn: Richard Nelson

The government entity of Hardin County, Iowa is in the process of planning upgrades to their public safety radio communications system, which will serve all Law Enforcement, Fire, and EMS/Ambulance services within the County, as well as County Highway and Land departments. The construction of new radio communications tower is required as part of the project.

As required by the FCC, we are submitting this letter is to provide the US Fish and Wildlife Service with information about the proposed tower site, and to request a response from your agency for this tower site.

The following information about this proposed tower site is included in this letter:

- A. Tower height and structure type
- B. Physical location and street address
- C. Latitude/longitude, and Township/Range/Section data
- D. A summary of the tower site property
- E. Highway, aerial and topographical maps of the area
- F. Photos of the property

We have also included responses to the normal list of issues requested by your agency.

The property upon which this tower is to be built is farmland, and adjoins the old "County Home" facility, which dates back to 1877. The land upon which the tower would be constructed has been owned by the county and farmed since that time.

Tower Site Data: Eldora, Iowa

A. Tower structure and height:

- 375 feet, guyed tower

B. Street address or physical location:

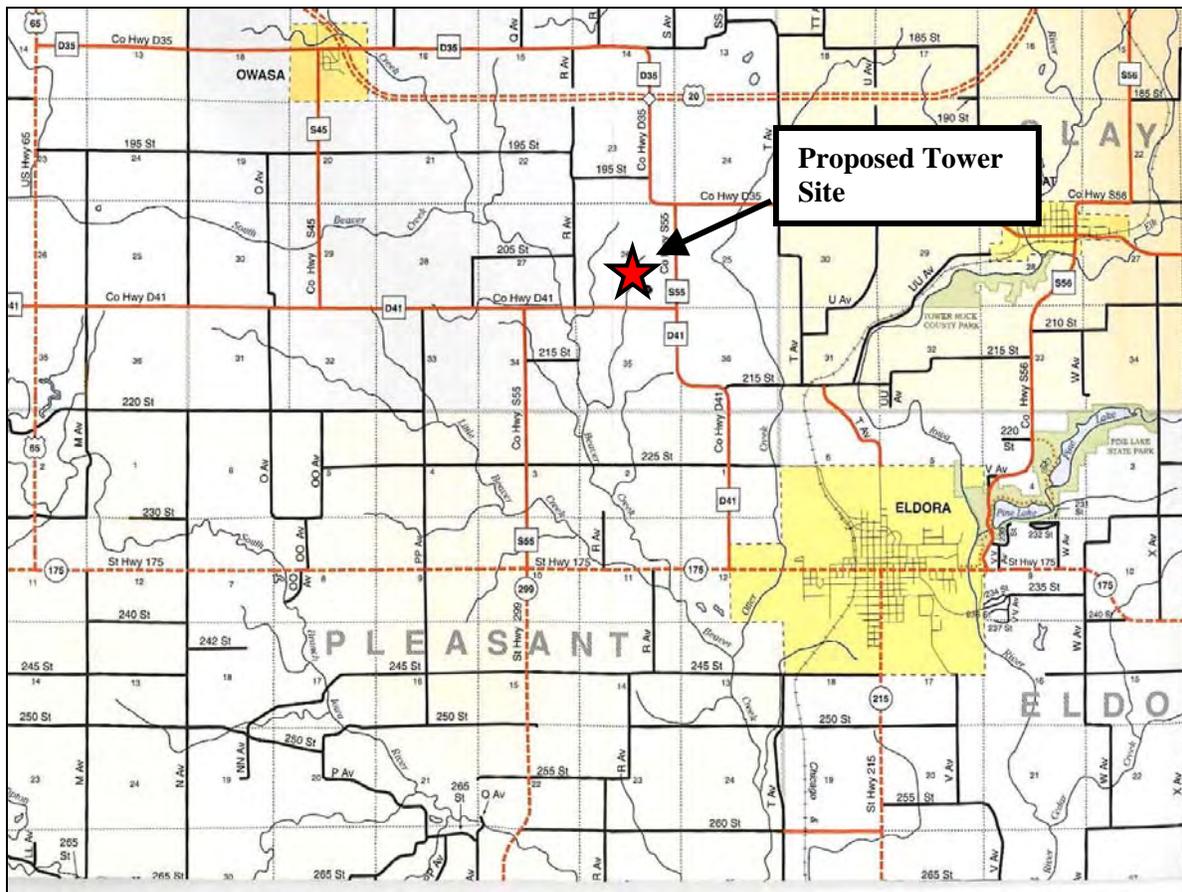
- ¼ mile west of the junction of County Roads D41 and S55
- 400 ft north of County Road D41
- 3.5 miles north west of Eldora, Iowa

C. Latitude/Longitude and Township, Range, Section:

- N42-23-54.9, W093-08-38.0
- T88N, R20W, Section 26

D. Property Summary: This property is County-owned land, located in the central area of Hardin County. The property has been used for farming operations for many decades, and remains so today.

E. Local Map:



Tower Site Data: Eldora, Iowa

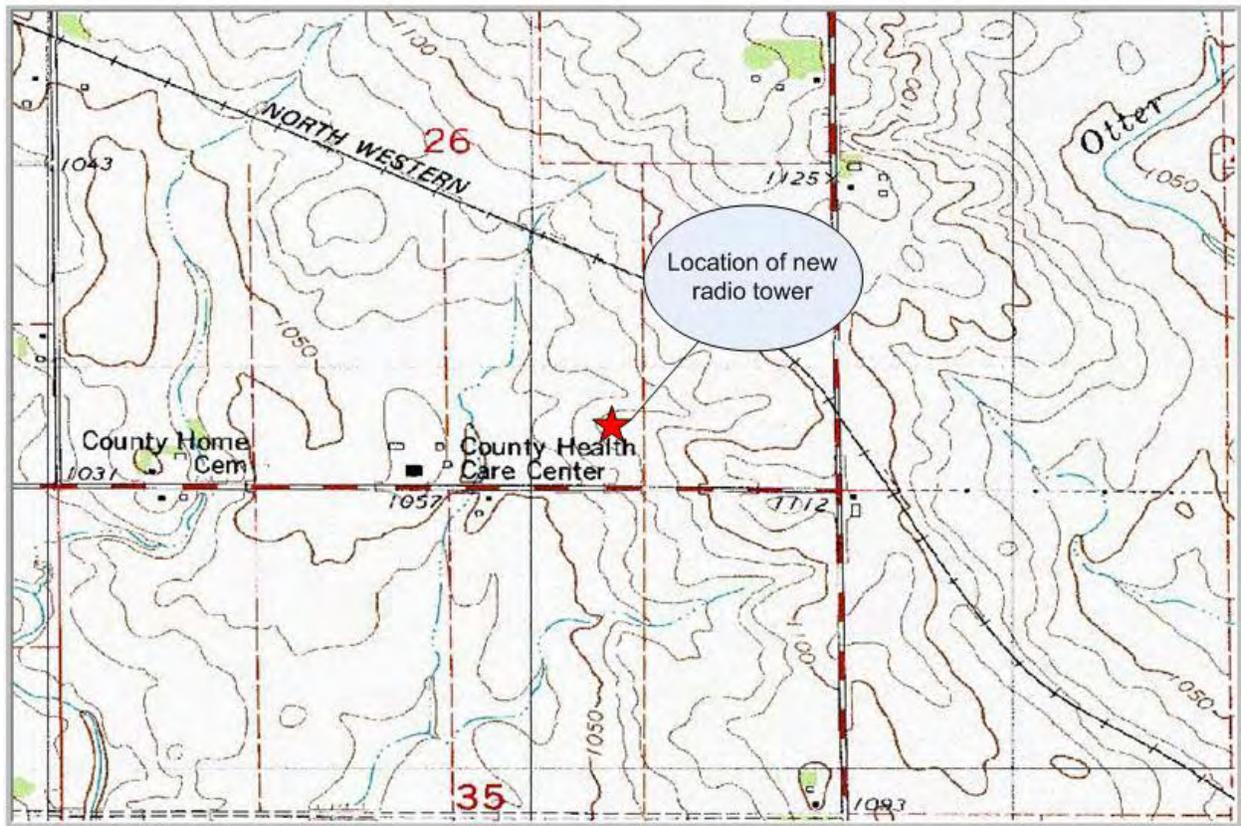
Eldora Tower Site – Aerial Photo

Hardin County Iowa
New Eldora Tower Site



Tower Site Data: Eldora, Iowa

Hardin County Iowa
New Eldora Tower Site Topo Map



Eldora Tower Site Photos

#1: View of property looking north



#2: View of property looking northwest



Eldora Tower Site Photos

#3: View of property looking southwest



US Fish & Wildlife Data

Through our previous work with the US Fish & Wildlife Service, we have come to understand the standard questions and issues associated with tower construction, and this information is provided below:

1. Collocation: The option of collocation with an existing tower has been explored, but no other towers are available in the immediate area that will serve the county's needs, or are available for lease.

However, the county plans to build this tower with the option of offering collocation space to others, to include cellular carriers, as well as the State of Iowa (who is in the process of planning for an expanded statewide radio network).

2. Guyed tower vs. Self-supporting structure: A guyed tower structure is planning for this installation, rather than a self-supporting structure, due to cost considerations. The cost of a self-supporting structure for a tower of this height (375-ft), when compared to a guyed structure, is roughly twice the cost. Because this tower will be funded by local tax dollars, the county is working to minimize the costs associated with this project, and believes that a guyed tower is the best option.
3. Multiple Towers: Not applicable to this project.
4. Tower Siting and location: The general area planned for this tower is not located within or near any wetlands, refuges, or other known bird or waterfowl areas, to the best of our knowledge.

We request that the US Fish & Wildlife Service review and verify our conclusions on this matter.

5. Tower Aviation Lighting: The lighting system planned for this tower will include a) medium-intensity white strobe lights for daytime visibility, and b) red strobe lights for nighttime visibility.
6. Guy Wire Markings: We will add aviation markers to the guy wires of this tower if requested by the US Fish & Wildlife Service.
7. Habitat Loss: There should be no habitat loss caused by the construction of this tower.
8. Impact on Local Birds: We have not observed any breeding, feeding or roosting birds in the area of this proposed tower site.
9. Future Tower Loading: As noted in Item 1 (above), this new tower will be built with significant additional future capacity for leasing to interested parties in this area of Iowa.
10. Security Lighting On-Ground: Any security lighting for on-ground facilities will be installed so as to direct light in a downward direction.
11. Access to Site for Agency Personnel: We will gladly allow the US Fish & Wildlife staff, or other staff involved in the study of the impact of towers on birds and wildlife, access into the site for research purposes.

Summary

We are requesting that your agency conduct a review of the tower site data provided in this letter to determine if your agency has any interest or objection to the proposed tower site, and provide for us a written confirmation of your findings.

Responses can be sent either via US Postal Mail to the address listed below, or via email.

Rey Freeman
GeoComm
13517 Larkin Drive.
Minnetonka, MN 55305

Please contact us (GeoComm) directly with any questions or if additional information is required.

Thank you in advance for you assistance with this project.

Sincerely,

A handwritten signature in black ink that reads "Rey Freeman". The signature is written in a cursive style with a long horizontal flourish at the end.

Rey Freeman
952-541-0747
rfreeman@isd.net



Project: Eldora 375-foot Guyed Cellular Tower
Hardin County, Iowa

Project Description: Hardin County Sheriff's Department constructed a 375-ft guyed cell tower located approximately 3.5 miles northwest of the town of Eldora, Iowa. This new tower is a 375-foot guyed structure, and includes a 32-foot x 12-foot prefabricated communications equipment shelter located within a 50-ft x 50-ft secured fenced compound area. This guyed tower configuration consists of the tower structure and six guy wire anchor points. Total long term disturbance acreage is 0.30 acres and an additional 0.32 acres for short-term during construction.

Project Location: SW $\frac{1}{4}$ SE $\frac{1}{4}$ Section 26, T88N, R20W, Hardin County, IA

Purpose: Threatened and Endangered Species and Environmental Review

Site Reviewer: Amber Travsky, Real West Natural Resource Consulting

Determination: The USFWS lists three threatened (and no endangered) species as potentially occurring in Hardin County, Iowa including the Western Prairie Fringed Orchid (*Platanthera praeclara*), the Prairie Bush Clover (*Lespedeza leptostachya*), and the Northern Monkshood (*Aconitum novaboracense*). Habitat for these three plant species is lacking on the tower site and in the vicinity. The Proposed Action is expected to have "no effect" on any federally listed species.

Site Characteristics: The tower site is located on flat to slightly rolling terrain at an elevation of 1,082 feet. The site itself is on a slight rise within cultivated agriculture lands and is in an area surrounded primarily by agriculture lands. The area lacks trees except for those associated primarily with farm residences scattered in the area. Narrow strips of non-native grasses and forbs are found between the cultivated fields but the site lacks native vegetation.

Major Vegetation: The tower site is within cultivated fields that are planted in corn and soybeans. The site lacks any native vegetation.

Wetland Habitats in Vicinity: The National Wetland Inventory (NWI) map of the site and surrounding area indicates there is no wetland on the Tower Site. However, a wetland is shown to exist about 700 ft northwest of the tower location. This wetland is classified as a palustrine, emergent wetland that is temporarily flooded and on farmed land (PEMAf). At the time of the site visit, March 24, 2011, no standing or ponded water was noted in the vicinity of the wetland. It is likely the NWI wetland area is a slight depression where wetland could establish should farming cease.

Threatened and Endangered Species:

The USFWS lists three threatened (and no endangered) species as potentially occurring in Hardin County, Iowa including the western prairie fringed orchid, the prairie bush clover, and the northern monkshood. Habitat for these three plant species is lacking on the tower site and in the vicinity since the site has no native habitat and is all cultivated agriculture land. The Proposed Action is expected to have “no effect” on any federally listed species.

As stated in their correspondence for the project, the State of Iowa DNR conducted a search of their species database. They reported that there are no records of rare species or significant natural communities on the site or in the vicinity.

Avian Species: Short and long term minor impacts on migratory birds would be expected as a result of construction-related activities from the tower site. Impacts to migratory birds might have occurred during erection of the tower and facility construction but these would have been limited to temporary displacement. These impacts would have been minimal due to the existing frequent disturbances related to cultivation; tower construction would have had no significant impact on migratory birds.

Long-term impacts on migratory birds may occur as a result of the tower due primarily to possible collisions with the guylines. While such collisions are possible, the tower location does not appear to be within any notable avian flight corridors. The area lacks wetlands that might attract waterfowl and shorebirds and there are no trees in the immediate vicinity where birds are likely to nest and roost. While there are trees in the surrounding area, they are scattered and are primarily associated with farm houses and outbuildings and are not concentrated in any one location. As a result of the site lacking any unique habitat characteristics that would attract avian species, impacts are not expected to be significant.

Summary and Recommendations: Construction and operation of the proposed communication tower will result in a “no effect” for any federally listed Threatened and Endangered species. The site appears to be outside any obvious avian flight path corridors with the lack of wetlands and woodland habitat and, for that reason, is expected to have minimal impact to avian species.

This report is considered preliminary and may be subject to revision pending new information. It is based on the best information available at the time of report preparation.

Amber Travsky
Wildlife Biologist
Real West Natural Resource Consulting
1116 Albin St
Laramie, WY 82072
(307) 742-3506

Appendix G
Agency Correspondence
Iowa Department of Natural Resources



CHESTER J. CULVER, GOVERNOR
PATTY JUDGE, LT. GOVERNOR

STATE OF IOWA

DEPARTMENT OF NATURAL RESOURCES
RICHARD A. LEOPOLD, DIRECTOR

October 17, 2008

Rey Freeman
GeoComm
13517 Larkin Dr.
Minnetonka, MN 55305

RE: Environmental Review for Natural Resources
375-foot guyed radio communications tower construction
Hardin County
Section 26, Township 88N, Range 20W

Dear Mr. Freeman:

Thank you for inviting our comments on the impact of the above referenced project. We have searched our records of the project area and found no site-specific records of rare species or significant natural communities that would be impacted by this project. However, our data are not the result of thorough field surveys. If listed species or rare communities are found during the planning or construction phases, additional studies and/or mitigation may be required.

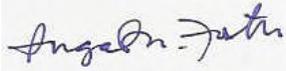
This letter is a record of review for protected species, rare natural communities, state lands and waters in the project area, including review by personnel representing state parks, preserves, recreation areas, fisheries and wildlife but does not include any potential comment from the Environmental Services Division of this Department. This letter does not constitute a permit and before proceeding with this project, permits may be needed from this Department or from other state or federal agencies.

Any construction activity that bares the soil of an area greater than or equal to 1 acre including clearing, grading or excavation may require a storm water discharge permit from the Department. Construction activities may include the temporary or permanent storage of dredge material. For more information regarding this matter, please contact Ruth Rosdail at (515) 281-6782.

The Department administers regulations that pertain to fugitive dust IAW Iowa Administrative Code 567-23.3(2)"c". All persons shall take reasonable precautions to prevent the discharge of visible emissions of fugitive dusts beyond the lot line of property during construction, alteration, repairing or demolishing of buildings, bridges or other vertical structures or haul roads. All questions regarding fugitive dust regulations should be addressed to Jim McGraw at (515) 242-5167.

If you have any questions about this letter or require further information, please contact me at (515) 281-8967.

Sincerely,

A handwritten signature in blue ink that reads "Inga Foster". The signature is written in a cursive style.

Inga Foster
Environmental Specialist
Conservation and Recreation Division

FILE COPY: Inga Foster

Tracking Number: 2841

IDNR Project Review Request



REY FREEMAN, COMMUNICATIONS MANAGER

MINNEAPOLIS OFFICE: 13517 LARKIN DR., MINNETONKA, MN 55305
VOICE: 952.541.0747 • FAX: 952.541.0748 • E-MAIL: rfreeman@isd.net

Date: September 26, 2008

State of Iowa Department of Natural Resources
502 E. 9th
Des Moines, IA 50319

Subject: Tower Site Data and Review Request for Hardin County, Iowa

Tower Location: Eldora, Iowa

Attn: Environmental Review Staff:

The government entity of Hardin County, Iowa is in the process of planning upgrades to their public safety radio communications system, which will serve all Law Enforcement, Fire, and EMS/Ambulance services within the County, as well as County Highway departments. The construction of new radio communications tower is required as part of the project.

As required by the FCC, we are submitting this letter to provide the State of Iowa DNR with information about the proposed tower site, and to request a response from your agency for this tower site.

The following information about this proposed tower site is included in this letter:

- A. Tower height and structure type
- B. Physical location and street address
- C. Latitude/longitude, and Township/Range/Section data
- D. A summary of the tower site property
- E. Highway, aerial and topographical maps of the area
- F. Photos of the property

The property upon which this tower is to be built is farmland, and adjoins the old "County Home" facility, which dates back to 1877. The land upon which the tower would be constructed has been owned by the county and farmed since that time.

Tower Site Data: Eldora, Iowa

A. Tower structure and height:

- 375 feet, guyed tower

B. Street address or physical location:

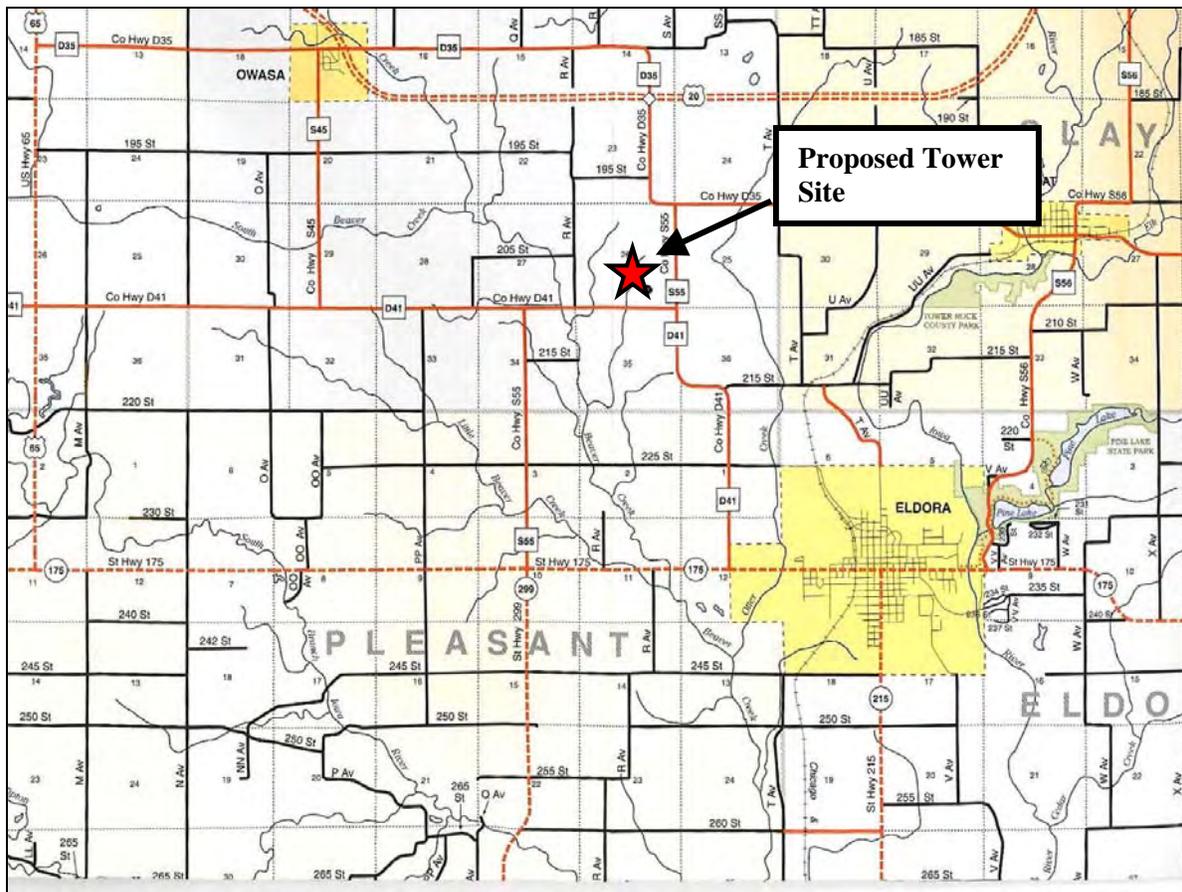
- ¼ mile west of the junction of County Roads D41 and S55
- 400 ft north of County Road D41
- 3.5 miles north west of Eldora, Iowa

C. Latitude/Longitude and Township, Range, Section:

- N42-23-54.9, W093-08-38.0
- T88N, R20W, Section 26

D. Property Summary: This property is County-owned land, located in the central area of Hardin County. The property has been used for farming operations for many decades, and remains so today.

E. Local Map:



Tower Site Data: Eldora, Iowa

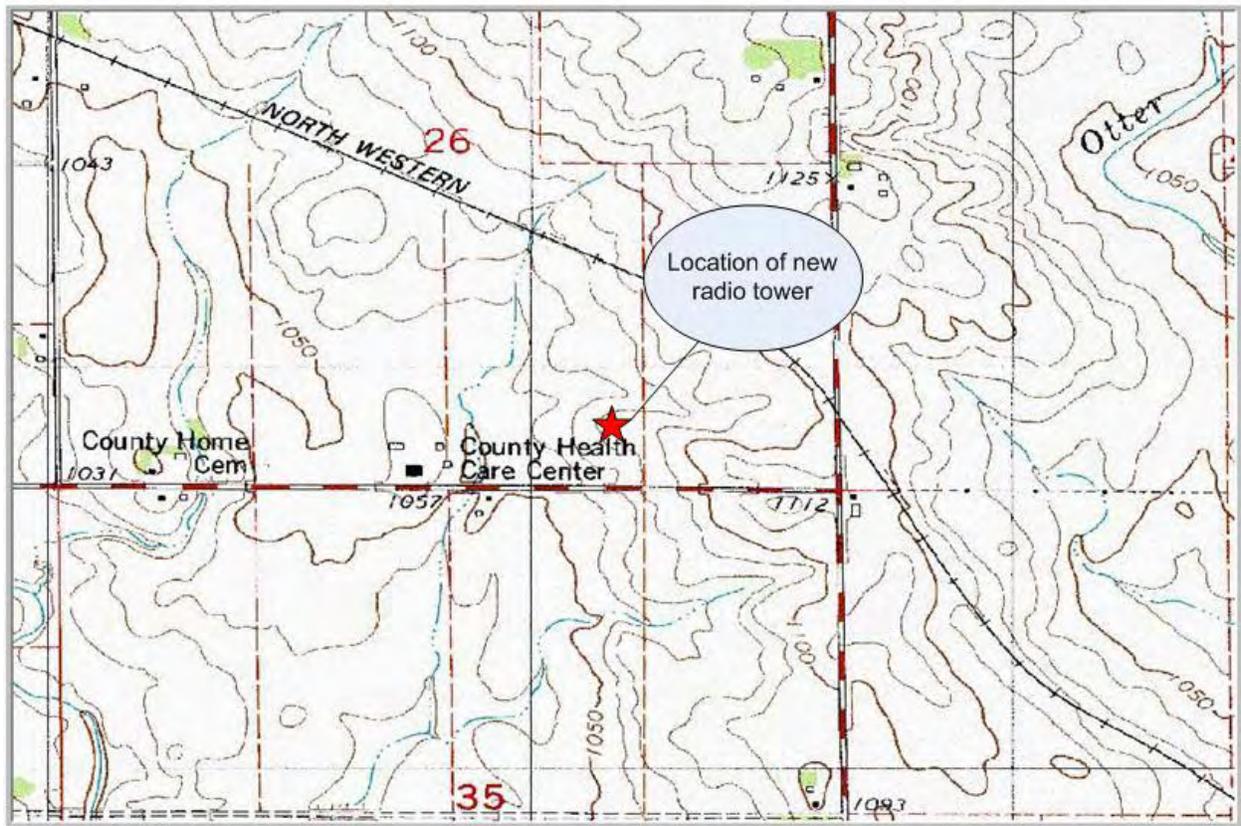
Eldora Tower Site – Aerial Photo

Hardin County Iowa
New Eldora Tower Site



Tower Site Data: Eldora, Iowa

Hardin County Iowa
New Eldora Tower Site Topo Map



Eldora Tower Site Photos

#1: View of property looking north



#2: View of property looking northwest



Eldora Tower Site Photos

#3: View of property looking southwest



Summary

We are requesting that your agency conduct a review of the tower site data provided in this letter to determine if your agency has any interest or objection to the proposed tower site, and provide for us a written confirmation of your findings.

Responses can be sent either via US Postal Mail to the address listed below, or via email.

Rey Freeman
GeoComm
13517 Larkin Drive.
Minnetonka, MN 55305

Please contact us (GeoComm) directly with any questions or if additional information is required.

Thank you in advance for you assistance with this project.

Sincerely,

A handwritten signature in black ink that reads "Rey Freeman". The signature is written in a cursive style with a long horizontal flourish at the end.

Rey Freeman
952-541-0747
rfreeman@isd.net

IDNR Air Quality Bureau
Correspondence on Permitting / Registration of
On-Site Emergency Backup Generator



STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
ROGER L. LANDE, DIRECTOR

May 26, 2011

CERTIFIED MAIL

Mr. Barry Harrison
Principal
Land Recyclers, Inc.
4853 Lilac Pl. North
Lake Elmo, MN 55042

Re: Registration of Spark Ignition Engine
Hardin County Sheriff's Office – Eldora Communications Tower

Dear Mr. Harrison:

On April 8, 2011, a registration application for a stationary spark ignition engine was submitted on behalf of the Hardin County Sheriff's Office. This engine is a rich burn LPG (propane) Kohler engine, Model 25 RZGB, rated at 40 horsepower. The engine was installed in 2010 and will be used for emergency power. The registration form indicated that the engine was manufactured in 2009; emissions data was provided with the registration; however, the engine was not certified by the manufacturer to meet the emission standards from NSPS Subpart JJJJ (Standards of Performance for Stationary Spark Ignition Internal Combustion Engines).

Based on my review of the regulation and the registration, I sent you an email on April 13, 2011, stating that the NSPS required any new rich burn LPG engine larger than 25 horsepower, built after January 1, 2009, to be certified by the manufacturer to meet the emission standards from JJJJ and that the engine was not eligible for registration.

You submitted additional information from the manufacturer on May 18, 2011. Kohler stated that the engine in the engine-generator set was actually built on December 2, 2008. Based on this information, the engine is not subject to NSPS Subpart JJJJ in accordance with §60.4230(a)(2)(ii) and, therefore, is not required to be registered (see question 5 of Section 2 of the SI registration form). The application for registration is therefore being returned to you.

Finally, the engine is exempt from construction air permit requirements in accordance with Iowa Administrative Code 22.1(2)"r" because the engine is rated at less than 400 brake horsepower.

Your cooperation in this matter is appreciated. Please contact me at (515) 281-8012 if there are any additional questions about this determination.

Sincerely,

John Curtin
Environmental Engineer
Construction Permit Section
Air Quality Bureau

cc: DNR Field Office 2, without enclosure
Hardin County Folder - 42

Enclosure: Registration Form for SI engine



May 18, 2011

RE: Kohler Model 25RZGB serial number 2273234 - Engine serial number - 3.0L-45599

To whom it may concern,

The engine used on this generator set was manufactured on 12-2-2008. Therefore it was exempt from the current EPA standards for stationary spark ignited generator sets providing the generator set was installed before January 1, 2011. The in-service date listed in our system for this unit is 09/07/2010, so it meets all the current EPA requirements. Please see below listed the applicable Parts of Federal Regulation, Title 40.

- The effective date for spark ignited stationary emergency standby units was January 1, 2009.

Reference - Title 40: Protection of Environment

Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

Source: 73 FR 3591, Jan. 18, 2008, unless otherwise noted.

§ 60.4230 Am I subject to this subpart?

2) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

(ii) On or after January 1, 2009, for emergency engines

§ 60.4236 what is the deadline for importing or installing stationary SI ICE produced in the previous model year?

(c) For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011.

Sincerely,

A handwritten signature in black ink that reads "Timothy A. Jahnke".

Timothy A. Jahnke
Area Manager
Kohler Power Systems

Reg Hofer
Generator Sales
3E – Electrical Engineering & Equipment Company

Barry Harrison

From: Fitzsimmons, Sean [DNR] [Sean.Fitzsimmons@dnr.iowa.gov]
Sent: Friday, April 29, 2011 3:52 PM
To: 'landrecycle@comcast.net'
Subject: Status of Hardin County with Respect to the National Ambient Air Quality Standrds

Dear Mr. Harrison,

EPA has national ambient air quality standards for six air pollutants: ozone, particulate matter, carbon monoxide, nitrogen dioxide, sulfur dioxide and lead. An area that does not meet these standards is designated as a "non-attainment area" by EPA. Iowa (including Hardin County) does not have non-attainment areas for any of the six criteria pollutants. See: <http://www.epa.gov/oaqps001/greenbk/mapnpoll.html> .

Sincerely,

Sean Fitzsimmons, PhD
Lead Worker
Ambient Air Monitoring Group
Air Quality Bureau
Iowa DNR
Windsor Heights, IA 50324

sean.fitzsimmons@dnr.iowa.gov
Phone: (515) 281-8923