DAKOTA ACCESS, LLC

1300 Main Street
Houston, TX 77002
713-989-2000

March 6, 2015

Ms. Sharon Tahtinen
Iowa Department of Natural Resources
Sovereign Lands and Construction Permit Program
502 E 9th St.
Des Moines, IA 50319

Re: Iowa Department of Natural Resources Joint Permit Application
Dakota Access, LLC
Dakota Access Pipeline Project, Iowa

Dear Ms. Tahtinen:

Dakota Access, LLC (Dakota Access), in coordination with Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell), submits this letter and enclosed information to satisfy the requirements for the Joint Permit Application for the proposed Dakota Access Pipeline Project (DAPL; Project). The proposed Project would traverse parts of North Dakota, South Dakota, Iowa, and Illinois for a total length of approximately 1,134 miles. Within Iowa, Dakota Access proposes to construct, own, and operate approximately 346 miles of a 30-inch diameter pipeline, one pump station, and other ancillary facilities. A completed Joint Application Form is provided in Attachment A.

This Joint Permit Application contains a letter to present information necessary to address the requirements of a Flood Plain Development Permit Application for proposed underground crossings of the regulated floodplain (Attachment A).

A separate letter addresses the information required for a Sovereign Lands Construction Permit Application and request for easement. Specifically, the letter addresses the proposed crossing of a tract of land associated with the Big Sioux Complex Wildlife Management Area and the proposed crossings of Meandered Sovereign Rivers: the Big Sioux, Des Moines, and Mississippi Rivers in Lyon, Boone, and Lee Counties, respectively (Attachment B).

Dakota Access appreciates your efforts to review and process this request for authorization. Proposed construction is scheduled to begin in at the end of 2015, so your timely review of this application is appreciated. If we can be of any assistance during your review, please do not hesitate to contact Monica Howard at 713-898-8222 or 713-989-7186, Monica.howard@energytransfer.com, or Nathan Olday at 832-214-1999, naolday@burnsmcd.com.

Sincerely,
Dakota Access, LLC

Monica Howard
Director Environmental Sciences

cc: Mike Hayes – USACE, Rock Island District
Jack Edwards – Dakota Access

Attachments
A – Joint Application Form
B – Flood Plain Development Permit Application
C – Sovereign Lands Construction Permit Application

Attachment A – Joint Application Form

JOINT APPLICATION FORM FOR IOWA

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3. and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant)	4. Authorized Agent (an agent is not required)
Monica Howard		Nathan Olday
Company Name (if any) Dakota Access, LLC	Company Name (if any)	Company Name (if any) Burns & McDonnell
Address 1300 Main Street	Address	Address 1700 West Loop South, Ste. 1500
City, State, Zip Houston, Texas, 77002	City, State, Zip	City, State, Zip Houston, Texas, 77027
Email Address monica.howard@energytransfer.com	Email Address	Email Address naolday@burnsmcd.com
Applicant's Phone Nos. w/area code Business: (713) 989-7186 Residence: Cell: (713) 898-8222 Fax:	Applicant's Phone Nos. w/area code Business: Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: (832) 214-1999 Residence: Cell: (281) 460-5706 Fax:

STATEMENT OF AUTHORIZATION

I hereby authorize, Nathan Olday to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Monica Howard — Applicant's Signature

03/06/15 — Date

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body)

Name	Mailing Address	Phone No. w/area code
1. Not Applicable	Not Applicable	Not Applicable
2.		
3.		

6. PROJECT TITLE:
Dakota Access Pipeline Project

7. PROJECT DESCRIPTION (Include all features):
See attached Project Description titled "Block 7"

8. PURPOSE AND NEED OF PROJECT:
See attached Purpose and Need titled "Block 8"

Submission of the appropriate form(s) **is required** by the Iowa Department of Natural Resources Flood Plain Management Program (also known in this form as the Flood Plain Permits Section). The forms for various project types can be obtained online within http://floodplain.iowadnr.gov/ or by calling 866/849-0321.

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

9. REASON(S) FOR DISCHARGE:

See attached "Block 9" for Reason(s) for Discharge.

10. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS:

TYPE: Not applicable for authorization under Nationwide Permit 12 or Sovereign Lands Permit.

AMOUNT IN CUBIC YARDS: Not applicable

11. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED, AND STREAM LENGTH IF APPLICABLE (See Instructions) N/A

12. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)

A description of Avoidance, Minimization and Compensation for Sovereign Lands is included in the Sovereign Lands Application Letter.

13. PROJECT LOCATION

LATITUDE: 42 01 46.62 (Project Midpoint in Iowa)

LONGITUDE: -93 45 30.05 (Project Midpoint in Iowa)

GIS Coordinates in NAD 1983 UTM Zone 15

Northing:

Easting:

STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION	LEGAL DESCR	QUARTER	SECTION	TOWNSHIP NO.	RANGE
See attached "Block 13"					

☐ IN OR ☐ NEAR CITY OR TOWN (check appropriate box)

Municipality Name Not Applicable

COUNTY	STATE	ZIP CODE
multiple	Iowa	multiple

WATERWAY	RIVER MILE (if applicable)
Waterways are addressed specifically in the attached Applications	N/A

14. Date activity is proposed to commence 12/1/2015 Date activity is expected to be completed 12/31/2016

15. Is any portion of the activity for which authorization is sought now complete? ☐ Yes ☒ No

NOTE: If answer is "YES" give reasons in the Project Description and Remarks section.

Month and Year the activity was completed _____ Indicate the existing work on drawings.

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial

17. CONSENT TO ENTER PROPERTY LISTED IN PART 13 ABOVE IS HEREBY GRANTED. ☒ Yes ☐ No

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Marva Howard — 03/06/15

Signature of Applicant or Authorized Agent — Date

Mark Olding — 03/06/15

Signature of Applicant or Authorized Agent — Date

Signature of Applicant or Authorized Agent — Date

☐ Corps of Engineers ☒ Iowa Dept of Natural Resources ☒ Iowa Dept of Natural Resources ☐ Applicant's Copy

Revised 2011 ATTN: Floodplain Permits Section ATTN: Sovereign Lands

ATTACHMENT TO THE
JOINT APPLICATION FORM FOR IOWA

Block 7:
The Dakota Access Pipeline Project traverses parts of North Dakota, South Dakota, Iowa, and Illinois for a total length of approximately 1,134 miles. Dakota Access proposes to construct, own, and operate approximately 346 miles of a 30-inch diameter pipeline, one pump station, and other ancillary facilities in Iowa. The enclosed information only pertains to the facilities in Iowa, specifically in Lyon, Sioux, O'Brien, Cherokee, Buena Vista, Sac, Calhoun, Webster, Boone, Story, Polk, Jasper, Mahaska, Keokuk, Wapello, Jefferson, Van Buren, and Lee Counties.

Block 8:
The DAPL Project's purpose is to move an economical, abundant, reliable, and domestic supply of crude oil from the Bakken and Three Forks production region in North Dakota to a crude oil market hub located near Patoka, Illinois. The Dakota Access Pipeline is being designed to safely carry 570,000 barrels per day (bpd) or more of light sweet crude (approximately 450,000 bpd initially) through the States of North Dakota, South Dakota, Iowa, and Illinois and ultimately terminate in Patoka, Illinois. From the Patoka hub, the crude oil would be transported by other pipelines to refineries located in the Midwest and the Gulf Coast, where 80 percent of the U.S. refining capabilities exist today to further our Country's goal of energy independence.

Dakota Access has secured binding long term transportation and deficiency contracts from multiple committed shippers to support development of the Dakota Access Pipeline with a crude oil transportation capacity of approximately 450,000 bpd, with 90 percent of the transportation capacity subscribed by those committed shippers and the remaining 10 percent of the transportation capacity reserved for walk-up shippers. Transportation service on the DAPL Project would be provided by Dakota Access pursuant to the Interstate Commerce Act and in accordance with the rules and regulations of the Federal Energy Regulatory Commission for common carrier crude oil pipeline transportation service thereunder. Subscriptions from committed shippers were obtained by Dakota Access in connection with an initial open season that ran from March 12 to May 23, 2014, and an expansion open season that commenced on September 23, 2014, and will conclude in December 2014.

In addition to moving the crude oil from the production region, the Project purpose can be summed up in four major categories:

1. First, the DAPL Project would improve overall safety to the public and environment. It would reduce crude oil shipped by truck and by rail and increase the amount shipped by pipeline. Pipelines are the safest and most efficient means to transport crude oil, according to statistics compiled by the U.S. DOT. Pipelines are heavily regulated and are subject to intense scrutiny and oversight. Time and time again, pipelines have proven to be the safest and most reliable form of transporting oil.

2. Second, the DAPL Project would play a role in increasing America's energy independence. The pipeline is a means to transport domestic produced crude oil to support U.S. consumers' energy demands. The United States still imports half of the oil it consumes per day, and the pipeline will would provide a critical link to help close the gap between what we produce as a country and what we consume.

3. Third, the DAPL Project would create another reliable transportation route for crude oil from the Bakken. The Bakken and Three Forks production area has witnessed a significant increase in the production of crude oil, from 309,000 bpd in 2010 to more than 1 million bpd in 2014. Through the DAPL Project, Midwest and Gulf Coast refineries would have better access to more reliable United States crude oil production to be used to meet United States consumers' need for gasoline, diesel fuel, and other petroleum products.

4. Finally, the DAPL Project would ease transportation constraints for agricultural products. The DAPL Project would free-up rail capacity for the transportation of crops and other commodities currently held up by crude oil cargos. For example, a lack of rail capacity to move grain out of South Dakota has resulted in tariffs on grain railcars increasing from $50 to nearly $1,400 per car. These cost increases can carve up to $1.00 from every bushel of corn shipped.

The pipeline would not only provide a long term safe, reliable, and energy efficient option to move crude oil out of the Bakken and Three Forks production area to continue to enhance America's energy independence, it would also provide direct benefits to communities located along and near the DAPL Project route. These benefits would include, but not be limited to, providing: temporary construction employment; full time, local jobs to operate and maintain the pipeline; ROW payments; additional sales tax revenues from the sale of goods and services during construction and long term to operate and maintain the pipeline; annual State and local community revenue from property taxes; and long term support of regional contractors, manufacturers, distributers, and retailers through ongoing purchase of goods and services to operate and maintain the DAPL Project.

Briefly, the DAPL Project would deliver domestically produced crude oil from the abundant Bakken and Three Forks production area to U.S. refineries where the crude oil would be refined into products to meet consumers' need for fuels (e.g., gasoline, diesel, and kerosene), and, after further processing, for crude oil derivative products (e.g., plastics, paints, and chemicals). The overall DAPL Project would be a $3.78 billion dollar investment directly impacting the local, regional, and national labor force by creating nearly 12,000 construction jobs. As Dakota Access's standard practice and commitment on this Project, Dakota Access would utilize U.S. labor to build the pipeline. Dakota Access has teamed up with the various craft and labor unions in the Project regions and nationally to confirm the DAPL Project would be constructed by highly qualified and experienced local and regional labor resources. These well-paying construction jobs would create considerable labor income and State income tax revenue – including the generation of more than $13.4 million in ad valorem taxes. Upon authorization, the DAPL Project would put welders, mechanics, electricians, pipefitters, heavy equipment operators, and others within the heavy construction industry to work.

Construction of the DAPL Project would also contribute more than $1 billion in direct spending for materials – the majority of which would be purchased in the United States. Fifty-seven percent of the pipe; the majority of the valves, fittings, valve actuators; and the majority of the remaining materials would be manufactured in the United States, creating significant opportunities for regional and national manufacturing. In addition to manufactured goods and services, the DAPL Project would provide $195 million in easement payments to the landowners whose property would be crossed by the proposed pipeline.

Overall, the DAPL Project's purpose is to provide an efficient, safe, and reliable transportation

solution to move crude oil from the Bakken and Three Forks production areas to U.S. markets, which meets the need to improve U.S. energy independence, and provide a more reliable supply of crude oil to U.S. refineries for processing to meet domestic needs for fuels and other petroleum derivative products. It also would have tremendous secondary and sustainable economic benefits for the United States by supporting energy independence, increasing employment opportunities, and adding to demand in many manufacturing sectors, which would be a boost to the overall economy. When considering the economic impact and benefit, once United States workers are employed on the DAPL Project, consistent with most mega-infrastructure projects, the workers would spend their earnings in the communities where they work and live, resulting in multiplied economic impacts that would be nearly $5 billion just during the construction phase. This economic impact would affect manufacturing in many domestic sectors, such as the following examples. It would result in the purchase of new vehicles, which would positively impact the auto industry. It would result in new homes construction, which would improve and increase the housing construction, resale, and lending business located in the region and across the United States. It would impact the food industry by requiring more food services and products to be delivered and consumed in the DAPL Project region. The list could continue with a description of many secondary benefits, but in summary, the beneficial economic impact to the United States as well as the immediate region where the pipeline would be located would be tremendous and critical to keep Americans employed and the U.S. economy moving forward.

Block 9:

Discharges into waters of the U.S., including wetlands, are necessary to install the proposed 30-inch diameter pipeline in order to accomplish the Project Purpose and Need. Details of construction techniques that necessitate discharges are provided in the "Construction Procedures" section of the Flood Plain Development Permit Application dated March 2015.

Dakota Access is also working with the USACE Omaha and Rock Island Districts to seek authorization under Nationwide Permit 12 to install the pipeline across waters of the U.S., including wetlands, An application for locations requiring a pre-construction notification was submitted to the USACE Rock Island District on December 30, 2014, and a copy was provided to the Iowa DNR.

Block 13:

Directions to the Site(s):

Flood Plain Sites

In Iowa, the proposed project will consist of approximately 346 miles of new buried pipeline constructed across 18 counties in a northwest to southeasterly direction from Lyon to Lee County. Portions of the proposed project requiring flood plain development permitting are addressed in the attached Flood Plain Development Permit application documents. Directions to each flood plain and floodway pipeline crossing can be provided upon request at the time of any scheduled field visits. Dakota Access, LLC requests that site visits be coordinated in advance so that appropriate landowner notifications can be made.

To Nelson Tract – Sovereign Lands

From Des Moines:

Take **I-80 W** towards **Omaha**
Keep **right** onto **I-680 W** and follow signs for **N Omaha/Sioux City** - approx. 16.6 miles
Exit **13B** to merge onto **I-29 N** towards **Sioux City** - approx. 142.0 miles
Exit **62** for **US-18 E** toward **Canton** - approx. 0.2 miles
Turn **right** onto **US-18 E** (signs for **Canton 9**) - approx. 14.1 miles
Turn **left** onto **Beech Ave** - approx. 1.1 miles
Turn **left** to stay on **Beech Ave** - approx. 1.2 miles
Turn **left** onto **220th St** - approx. 0.5 miles
Turn **right** onto **Nelson Tract** and travel **north** to **alignment** - approx. 0.4 miles

To Big Sioux River Crossing – Sovereign Lands

From Des Moines:

Take **I-80 W** towards **Omaha**
Keep **right** onto **I-680 W** and follow signs for **N Omaha/Sioux City** - approx. 16.6 miles
Exit **13B** to merge onto **I-29 N** towards **Sioux City** - approx. 142.0 miles
Exit **62** for **US-18 E** toward **Canton** - approx. 0.2 miles
Turn **right** onto **US-18 E** (signs for **Canton 9**) - approx. 14.1 miles
Turn **left** onto **Beech Ave** - approx. 1.1 miles
Turn **left** to stay on **Beech Ave** - approx. 2.1 miles
Turn **left** onto **210th St** - approx. 0.5 miles
Continue **straight** onto **private road** to **alignment** - approx. 0.8 miles

To Des Moines River Crossing – Sovereign Lands

From Des Moines:

Take **I-35 N** towards **Ames**
Exit **111B** to merge onto **U.S 30 W** towards **Ames/I-35 BUS W/Iowa State University** - approx. 12.5 miles
Turn **right** onto **T Ave** - approx. 9.3 miles
Turn **left** onto **130th St** - approx. 8.8 miles
Turn **right** onto **Private Rd** and continue **north** to **alignment** - approx. 200 feet

To Mississippi River Crossing – Sovereign Lands

From Des Moines:

Take **IA-163 E** from Des Moines
Continue onto **US-63 S** - approx. 27.0 miles
Continue onto **US-34 E** - approx. 47.5 miles
Merge onto **IA-27 S/US-218 S/US-34 E** - approx. 26.4 miles
Take the **US-218 S** ramp to **Keokuk** - approx. 0.4 miles
Turn **left** onto **US-218 S** - approx. 9.6 miles
Turn **right** onto **US-218 S/US-61 S** - approx. 3.3 miles
Turn **left** onto **340th St/Airport Rd** - approx. 3.0 miles
Turn **left** onto **Mississippi River Rd** and continue to **alignment** - approx. 1.0 miles

Attachment B – Flood Plain Development Permit Application

DAKOTA ACCESS, LLC

1300 Main Street
Houston, TX 77002
713-989-2000

March 6, 2015

Ms. Colleen Conroy
Flood Plain Management & Dam Safety
Iowa Department of Natural Resources
502 E. 9th St.
Des Moines, IA 50319-0034

Re: Flood Plain Development Permit Application
Dakota Access Pipeline Project, Iowa

Dear Ms. Conroy:

Dakota Access, LLC (Dakota Access), in coordination with Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell) submits this letter and the attached information to satisfy the Flood Plain Development Permit (permit application) as required by the Iowa Department of Natural Resources (Iowa DNR) for the proposed Dakota Access Pipeline Project (Project). The Project traverses parts of North Dakota, South Dakota, Iowa, and Illinois for a total length of approximately 1,134 miles. Dakota Access proposes to construct, own, and operate approximately 346 miles of a 30-inch diameter pipeline, one pump station, and other ancillary facilities in Iowa. The enclosed information only pertains to the facilities in Iowa, specifically in Lyon, Sioux, O'Brien, Cherokee, Buena Vista, Sac, Calhoun, Webster, Boone, Story, Polk, Jasper, Mahaska, Keokuk, Wapello, Jefferson, Van Buren, and Lee Counties. (**Attachment 1**).

PERMIT APPLICATION PURPOSE AND OVERVIEW

Dakota Access is requesting approval of the construction, operation, and maintenance of the buried 30-inch diameter pipeline, and other ancillary facilities in Iowa where the Project crosses flood plains and/or floodways. In accordance with the Iowa Administrative Code, Natural Resources Department – Environmental Protection Commission (Iowa Regulations), Chapter 567-71.8 (455B), dated July 2008, approval by the Iowa Department of Natural Resources (Iowa DNR) is required for the construction, operation, and maintenance of buried pipeline crossings on a flood plain or floodway in rural areas where the pipeline crossing on a river or stream drains more than 100 square miles. The Iowa Regulations, Chapter 567-72.10 (455B), dated July 2008, indicates pipeline crossings at rivers or streams shall meet the following criteria:

- Be sufficiently buried in the stream bed and banks or otherwise sufficiently protected to prevent rupture;

- Be constructed, operated, and maintained so as not to create premature overbank flow or excessive scour to the channels or banks; and
- Spoil material resulting from the construction of a pipeline crossing shall be disposed of in a manner which will not obstruct low flow or flood flows.

This permit application will provide a general Project overview, an explanation of the proposed work, a summary of the flood plain and floodway crossings, a description of the proposed construction procedures, a summary of how the project meets the criteria set forth in the Iowa Regulations, and a listing of concurrent environmental studies and determinations Dakota Access is pursuing. Attached you will also find:

1: Vicinity Map
2: Typical Right-of-Way Configuration Drawings
3: Flood Plain and Floodway Crossing Table
4: Lyon County FEMA FIRM Information
5: Sioux County FEMA FIRM Information
6: Cherokee County FEMA FIRM Information
7: Calhoun County FEMA FIRM Information
8: Boone County FEMA FIRM Information
9: Story County FEMA FIRM Information
10: Jasper County FEMA FIRM Information
11: Mahaska County FEMA FIRM Information
12: Lee County FEMA FIRM Information

Permittee:
Dakota Access, LLC
c/o Monica Howard
1300 Main Street, Rm 14.030
Houston, TX 77002
713-989-7186

Environmental Consultant:
Burns & McDonnell
c/o Nathan Olday
1700 West Loop South, Suite 1500
Houston, TX 77027
832-214-1999

PROJECT OVERVIEW

The pipeline facilities associated with the Project will involve the construction and operation of approximately 346 miles of new 30-inch diameter pipeline, one pump station, and other ancillary facilities in Iowa. The proposed pipeline will be constructed primarily through agriculture, open land, industrial, residential, and forest land uses.

The Project is a proposed 1,134 mile, 12-inch to 30-inch crude oil pipeline system being designed to safely carry 570,000 barrels per day or more of United States light sweet crude (450,000 bpd initially) through the states of North Dakota, South Dakota, Iowa, and Illinois and ultimately terminating in Patoka, Illinois.

PROPOSED WORK

A variety of temporary and permanent facilities will be constructed and/or impacted as a result of the construction of the new 30-inch diameter pipeline. Details on these project components are provided in the sections below.

Aboveground Facilities

Aboveground facilities associated with the Project include one new pump station, pigging facilities (launchers and receivers), and multiple mainline valve locations in Iowa. Dakota Access is siting all of these facilities outside of flood plains and floodways.

Temporary Right-of-Way and Permanent Easement

Construction of the new pipeline will require a typical construction ROW width of 125 feet in uplands, 100 feet in non-forested wetlands, 85 feet in forested uplands and wetlands, and up to 150 feet in agricultural areas to accommodate topsoil segregation. Typical ROW configuration drawings are included as **Attachment 2**. Following construction, a 50-foot wide permanent easement will be retained in all the above described circumstances; in some forested areas, 30 of this 50 feet will be maintained in an herbaceous state in an effort to minimize impacts.

Additional Temporary Workspace (ATWS)

Where necessary, Dakota Access will utilize ATWS outside of their construction ROW to facilitate specialized construction procedures, such as horizontal directional drills (HDDs); railroad, road, wetland, waterbody, and foreign utility line crossings; areas where topsoil segregation is required; tie-ins with existing pipeline facilities; areas with steep side slopes; and pipeline crossovers. These ATWS will be allowed to revert to pre-existing conditions following construction activities, so there will be no permanent impacts on these areas.

Staging/Contractor Yards

During construction of the pipeline, the contractor will require off ROW areas for the storage of pipe and equipment necessary for the construction of the Project facilities. These staging/contractor yards will be located near the Project at locations with convenient and safe access to the Project areas. Staging/Contractor yards will be situated in upland areas on private property and outside of flood plains and floodways.

Access Roads

Dakota Access will utilize existing public and private roads to access the pipeline ROW and aboveground facilities to the extent practicable. Existing roads utilized will include paved, gravel, or pasture roads, and other conveyances. Some roads will require modification or improvement to facilitate safe access for construction equipment and personnel. The Project may require construction of new temporary and permanent roads to provide access to the new pipeline both during construction and for access to above-ground facilities. Temporary access roads located in a flood plain will be planned and constructed to fall below the flood plain obstruction thresholds identified in the Iowa Regulations. Permanent access roads will not be constructed within the flood plain. New temporary and permanent access roads will not be constructed in floodways.

FLOOD PLAIN AND FLOODWAY CROSSING SUMMARY

Dakota Access evaluated the Project route for locations where the proposed 30-inch diameter pipeline is anticipated to cross a flood plain and/or floodway. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) were used to identify the locations of pipeline crossings at Special Flood Hazard Areas (SFHA); determined to be the land area covered by the floodwaters from the base flood (1% annual chance flood). In coordination with the Iowa DNR, tributary drainage areas were determined at each location the pipeline crossed a SFHA (**Attachment 3**). For each pipeline crossing a SFHA that drains more than 100 square miles, additional FEMA FIRM information was collected and grouped by county for inclusion in this permit application (**Attachments 4-12**). The additional FEMA FIRM information provided for the nine (9) counties includes a county index map showing the number of permitable pipeline crossings in the county, a site specific map for each pipeline crossing, the FEMA FIRM map associated with each pipeline crossing, and a conceptual site plan and profile of each pipeline crossing. A summary of the eleven (11) pipeline crossings at SFHAs that drain more than 100 square miles is provided in **Table 1**.

Table 1
Summary of Pipeline Crossings at SFHAs with > 100 sq. mi. Tributary Drainage Areas

Crossing ID	County in Iowa	Stream	FEMA FIRM Map No.	FEMA Zone Designation	Crosses a Floodway?
LYN001	Lyon	Big Sioux River	190886B Panel 24	A	No
SIO009	Sioux	Rock River	190906B Panel 0002	A	No
SIO022	Sioux	Floyd River	190906B Panel 0006	A	No
CHE026	Cherokee	Mill Creek	190854B Panel 03	A	No
CHE034	Cherokee	Little Sioux River	190854B Panel 09	A	No
CAL039	Calhoun	Cedar Creek	19025C0050A	A	No
BOO064	Boone	Des Moines River	19015C0075C	A	No
STR076	Story	South Skunk River	19169C0410E	A	No
JAS082	Jasper	Indian Creek	19099C0175C	A	No
MAH104	Mahaska	South Skunk River	19123C0275C	A	No
LEE131	Lee	Mississippi River	19111C0410C	AE	Yes

CONSTRUCTION PROCEDURES

All facilities associated with the Project will be designed, constructed, tested, operated and maintained in accordance with the U.S. DOT regulations in Title 49 CFR Part 195. Dakota Access is currently developing Project specific plans and will implement Best Management Practices (BMPs) to mitigate for potential construction related impacts associated with stormwater runoff. Additionally, Dakota Access will require construction contractors to have a *Spill Prevention Control and Countermeasure Plan* and *Horizontal Directional Drill Contingency Plan* to protect sensitive resources from inadvertent releases during construction activities. The Project will be constructed via a combination of conventional and specialized construction procedures as described below.

Clearing and Grading
Prior to commencement of ground disturbing activities, a standard survey and stakeout will be conducted to identify ROW and workspace boundaries and to locate existing foreign utility lines within the construction ROW. Following the completion of the surveys, the construction ROW will be cleared of vegetation and debris. Within wetlands, stumps will be cut flush with the ground and left in place except where removal is necessary to facilitate the creation of a safe and level workspace. Cleared vegetation and debris along the ROW will be disposed of in accordance with federal, state, and local regulations either by burning, chipping and spreading, or transportation to a commercial disposal facility. Temporary erosion control devices (ECDs) will be installed prior to initial ground disturbance and will be maintained throughout construction at adequate locations to contain soils disturbed during clearing and grading in upland areas, and to minimize potential erosion and sedimentation of wetlands and waterbodies.

Trenching
Trenching involves excavation of a ditch for pipeline placement, and is accomplished through the use of a trenching machine, backhoe, or similar equipment. Trench spoil will be deposited adjacent to each trench within the construction work areas with topsoil segregation utilized where necessary based on land use (see the typical ROW configuration drawings in **Attachment 2**). In standard conditions, the trench will be excavated to a depth of approximately eight feet to allow for a minimum of three feet of cover over the pipe as required by 49 CFR Part 195 and Dakota Access' landowner commitments. Typically the bottom of the trench will be cut at least 12-inches greater than the width of the pipe. The width at the top of the trench will vary to allow the side slopes to be adapted to local conditions at the time of construction.

Pipe Stringing, Bending, and Welding
Following preparation of the trench, the new pipe will be strung and distributed along the ROW parallel to the trench. Depending on available workspace, some pipe may be fabricated off-site and transported to the ROW in differing lengths or configurations. Pipe will be bent by hydraulic bending machines, as necessary, to conform the pipe to the trench. Once in place along the ROW, pipe lengths will be aligned, bends fabricated, and joints welded together. Welding will be performed in accordance with the American Petroleum Institute Standards and DOT-PHMSA pipeline safety regulations, and company welding specifications. All welds will be coated for

corrosion protection and visually and radiographically inspected to ensure there are no defects. Additionally, the entire pipeline will be visually inspected prior to lowering-in.

Pipeline Installation and Trench Backfilling
Completed sections of pipe will be lifted off the temporary supports by side boom tractors or similar equipment, and placed into the trench. Prior to lowering-in, the trench will be visually inspected to ensure that it is free of rock and other debris that could damage the pipe or the coating. Additionally, the pipe and the trench will be inspected to ensure that the configurations are compatible. Tie-in welding and pipeline coating will occur within the trench to join the newly lowered-in section with the previously installed sections of pipe. Following this activity, the trench will be backfilled with the previously excavated material and crowned to approximately six inches above its original elevation to compensate for subsequent settling.

Waterbody Crossings

Open-Cut
Construction methods utilized at waterbody crossings are highly dependent on the characteristics of the waterbody encountered. Barring any sensitive resources or restrictions, the majority of minor and intermediate waterbodies will typically be crossed via the conventional open-cut method. This method employs the same general construction procedures that were described above for upland pipeline construction. Equipment will operate from the banks of the waterbody to the maximum extent practicable to excavate a trench. Flow will be maintained at all times. Excavated material from the trench will be placed on the bank above the ordinary high water mark for use as backfill. The pipe segment will be prefabricated and weighted, as necessary, to provide negative buoyancy and placed below scour depth. Typical backfill cover requirements will be met, contours will be restored within the waterbody, and the banks will be stabilized via seeding and/or the installation of erosion control matting or riprap. Excess excavated materials will be distributed in an upland area in accordance with applicable regulations.

Impacts to water quality will be minimized through the implementation of BMPs. The pipeline trench will be excavated immediately prior to pipe installation to limit the duration of construction within the waterbody to the extent practical. Excavated materials will be stored no less than 10 feet from the edge of the waterbody and temporary ECDs will be utilized to prevent the sediment from reentering the waterbody.

Flume
The flume crossing method is an alternative to the open-cut method in which water flow is temporarily directed through one or more flume pipes placed over the excavation area. The use of the flume(s) allows trenching and pipeline installation to occur primarily under dry conditions without significant disruption of water flow.

Dam and Pump
The dam and pump crossing method is similar to the flume crossing method in that it is an alternative to the open-cut method that allows trenching and pipeline installation to occur under relatively dry conditions with minimal impact to water flow. This method involves the temporary installation of dams (consisting of sandbags, bladders, or other impervious materials) upstream and

downstream of the proposed crossing. Pumps are then used to dewater the excavation area and to transport the water flow around the construction work area.

Horizontal Directional Drill (HDD)
The HDD method allows for construction across a feature without the excavation of a trench, by drilling a hole significantly below conventional pipeline depth, and pulling the pipeline through the pre-drilled hole. Dakota Access will utilize HDDs at several locations to avoid direct impacts to resources, such as wetlands and waterbodies, and/or to avoid areas in which constructability by conventional means is not feasible.

Depending on the HDD equipment utilized, to help guide the drill bit along the pipeline ROW, electric-grid wires may be laid along the predetermined HDD route. In thickly vegetated areas, a small path may be cut to accommodate laying the electric-grid guide wires (no large diameter vegetation would be cleared for this purpose). Once the electric grid guide wires are installed, the directional drilling rig will drill a small diameter pilot hole along the prescribed profile.

Following the completion of the pilot hole, reaming tools will be utilized to enlarge the hole to accommodate the pipeline diameter. The reaming tools will be attached to the drill string at the exit point and will then be rotated and drawn back to incrementally enlarge the pilot hole. During this process, drilling mud consisting of bentonite clay and water will be continuously pumped into the pilot hole to remove cuttings and maintain the integrity of the hole. When the hole has been sufficiently enlarged, a prefabricated segment of pipe will be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole towards the drill rig.

Wetland Crossings
As depicted on the enclosed typical construction drawings (**Attachment 2**), the construction ROW width will be limited to 85 feet in forested wetlands and 100 feet in emergent wetlands during construction activities. Operation of construction equipment through wetlands will be limited to only that necessary for each stage of pipe installation (e.g., clearing, trenching, etc.). Topsoil segregation techniques will be utilized in unsaturated wetlands to preserve the seed bank and allow for expedited successful restoration of the disturbed area.

Conventional Lay
Wetland crossings for the Project may be accomplished via the conventional lay method in accordance with all applicable permit conditions. Construction techniques for this method are similar to the open-cut method in upland areas; however, top soil segregation techniques will be utilized to facilitate re-vegetation following the completion of construction activities where soils are not saturated. In some cases, site-specific conditions may not support construction equipment, but the area is still proposed for the conventional lay crossing method. In these instances construction mats will be used to minimize disturbances to wetland hydrology and maintain soil structure.

IOWA REGULATIONS – CRITERIA CONFORMANCE

The proposed design, construction, operation, and maintenance of the buried 30-inch diameter pipeline, and other ancillary facilities in Iowa will sufficiently bury the pipeline, will minimize channel overtopping and scour, and will require proper management of construction spoils to avoid

obstructing low flow or flood flows at river and stream crossings. As previously indicated, the pipe will be designed and constructed with a minimum of three feet of cover as required by 49 CFR Part 195. Areas disturbed by construction within SFHAs will be restored to preconstruction contours and conditions to minimize channel overtopping or excessive scour to the channel or banks. Trench crowning of two to six inches depending on soil conditions, may be utilized to account for anticipated settling. Seeding and/or erosion control matting or riprap will be installed at existing grades within the channels, banks, and other areas within the flood plain that could experience increased velocities resulting from land clearing activities and require stabilization to re-establish vegetation and minimize future erosion. Excess spoil materials not used for backfilling activities in SFHAs will be distributed in an upland area in accordance with applicable regulations.

CONCURRENT ENVIRONMENTAL STUDIES AND DETERMINATIONS

The following environmental permitting determinations are underway in Iowa based on environmental studies and on-site investigations conducted by Burns & McDonnell staff:

- A pre-construction notification (PCN) for Nationwide Permit 12 was submitted for review to the U.S. Army Corps of Engineers Rock Island District on December 30, 2014. Dakota Access requested a preliminary jurisdictional determination as part of the PCN submittal. The PCN submittal also included an evaluation of the Project route for "Waters of the United States" as well as threatened and endangered species and cultural resources.
- A Sovereign Lands Construction Permit is being prepared for concurrent submittal and review with this flood plain permit application to the Iowa DNR.

CONCLUSION

As outlined above, the proposed Project will cross eleven (11) streams or rivers in nine (9) Iowa counties having SFHAs and draining more than 100 square miles. The proposed design, construction, operation, and maintenance of the Project within these SFHAs will sufficiently bury the pipeline, will minimize channel overtopping and scour, and requires proper management of construction spoils to avoid obstructing low flow or flood flows at river and stream crossings in accordance with Iowa Regulations.

This letter and attachments constitute the permit application for the proposed Project within Iowa for your approval. Dakota Access appreciates your efforts to review and process this request for approval. Proposed construction for this Project is scheduled to begin at the end of 2015, so your timely review of this application is appreciated. If I can be of any assistance during your review, please do not hesitate to contact me at 713-898-8222 or 713-989-7186, Monica.howard@energytransfer.com or Nathan Olday with Burns & McDonnell at 832-214-1999, or naolday@burnsmcd.com.

Sincerely,
Dakota Access, LLC

Monica Howard
Director Environmental Sciences

cc: Sharon Tahtinen, Iowa Department of Natural Resources
Mike Hayes, Project Manager, U.S. Army Corps of Engineers
Jack Edwards, Project Manager, Dakota Access
Nathan Olday, Environmental Project Manager, Burns & McDonnell
Stacy Kanaga, Flood Plain Permitting, Burns & McDonnell

Attachments: as referenced

Attachment 1 – Vicinity Map

Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ETC_DAPL_Vicinity_Map.mxd DCHEEK 3/5/2015

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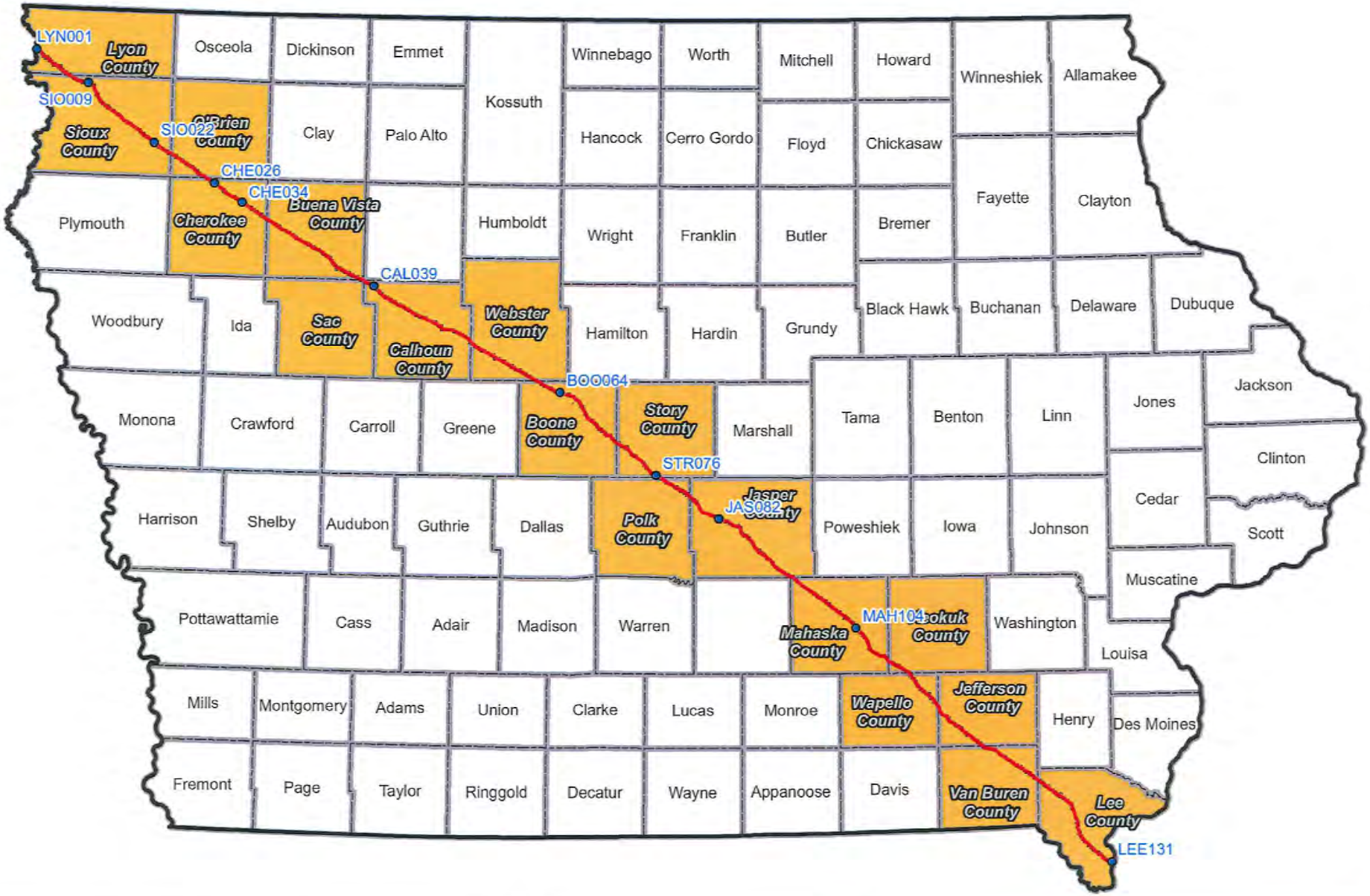


Crossing with Tributary Drainage Area >100 sq.mi.

Proposed Pipeline

County Boundary

NORTH

Scale in Miles: 35 17.5 0 35

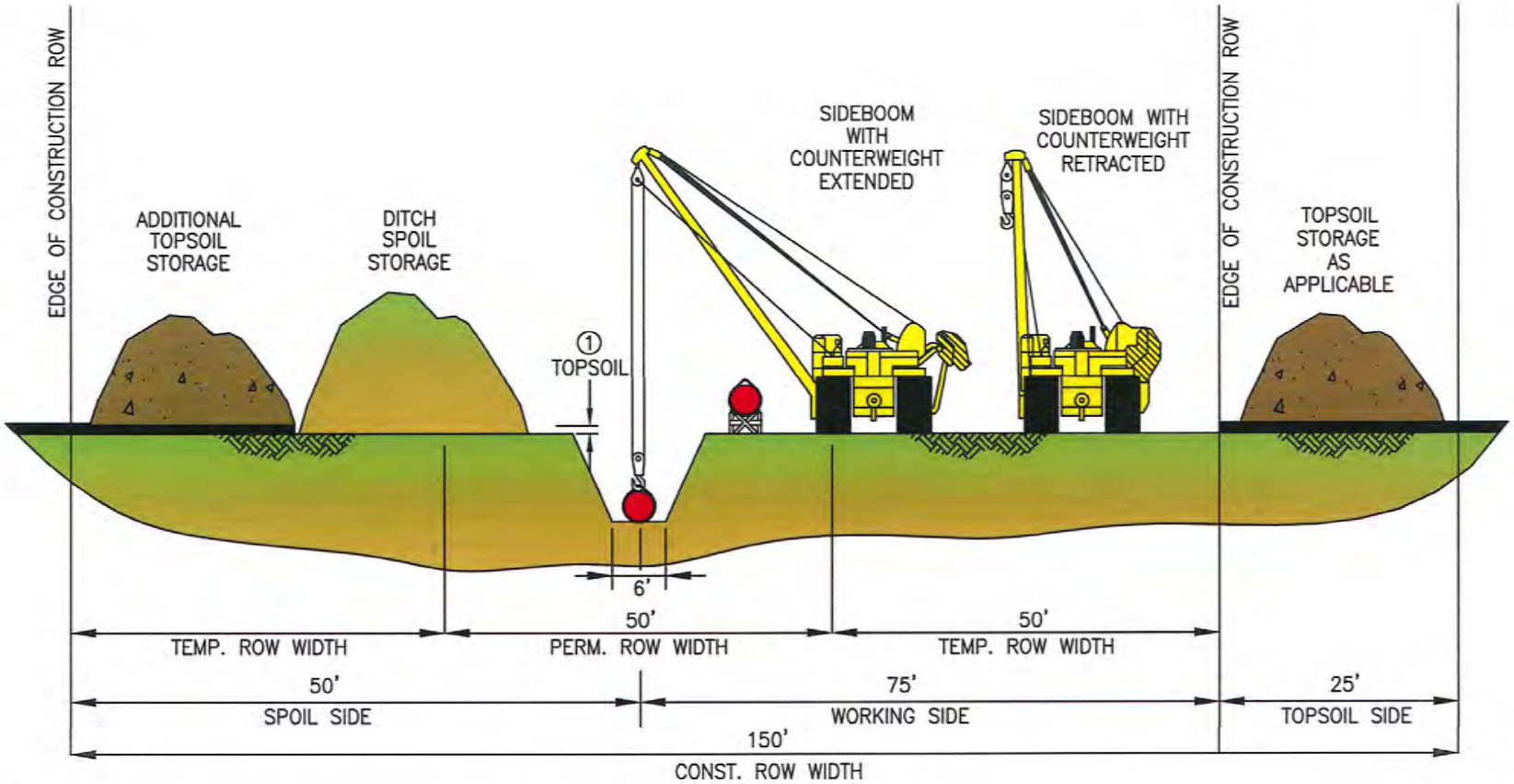
DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Vicinity Map
Iowa

Source: Esri, BMcD, and the GIS User Community

Issued: 3/5/2015

Attachment 2 – Typical Right-of-Way Configuration Drawings



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE-SPECIFIC CONDITIONS.

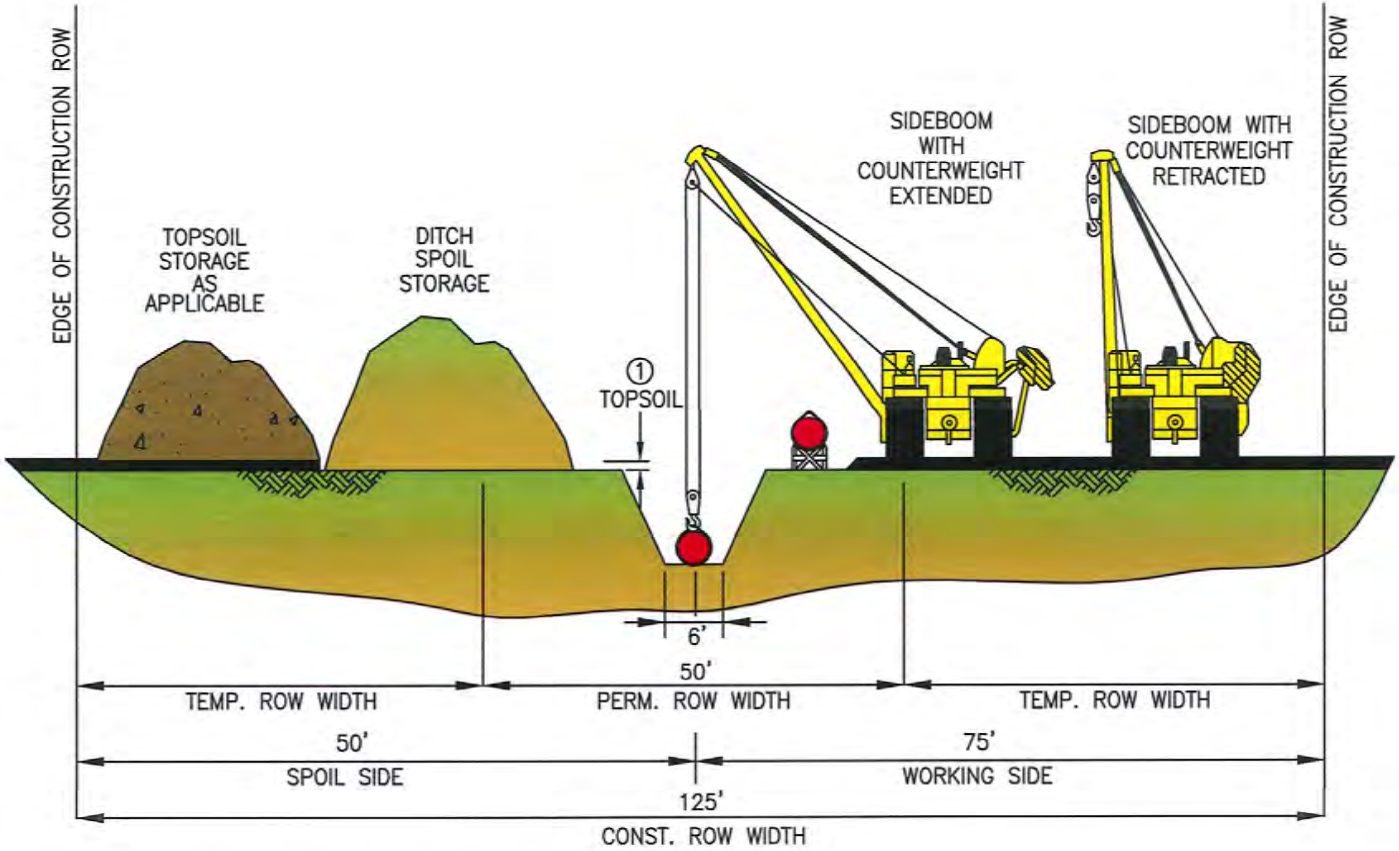
REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/16/14	MR	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

UPLAND CONSTRUCTION FULL WIDTH TOPSOIL SEGREGATION

DRAWN BY: MR	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: RL	DATE: 09/15/14	P12-55	C
SCALE: N.T.S.	APP.:		



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE-SPECIFIC CONDITIONS.

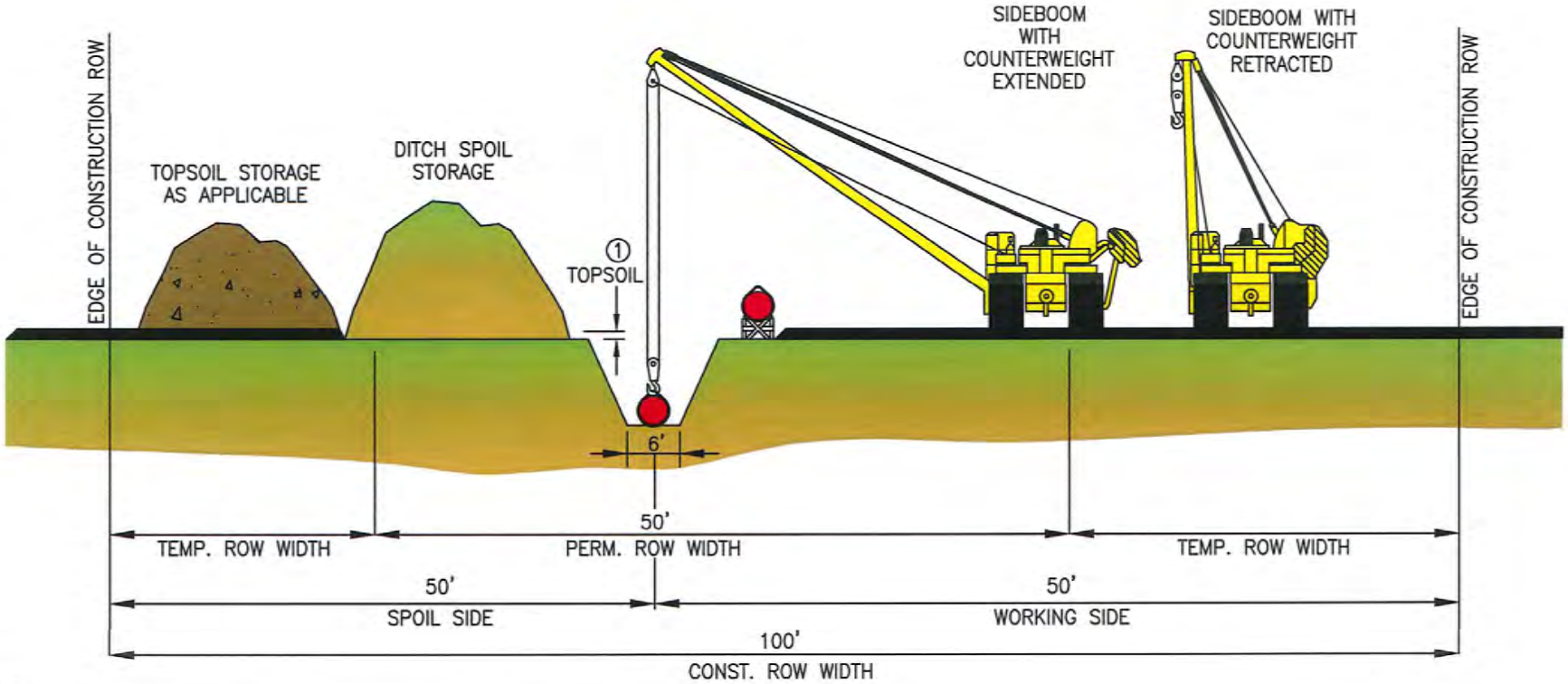
REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/16/14	MR	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

UPLAND DITCH LINE AND SPOIL SIDE TOPSOIL SEGREGATION

DRAWN BY: MR	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: RL	DATE: 09/15/14	P12-56	C
SCALE: N.T.S.	APP.:		



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE–SPECIFIC CONDITIONS.

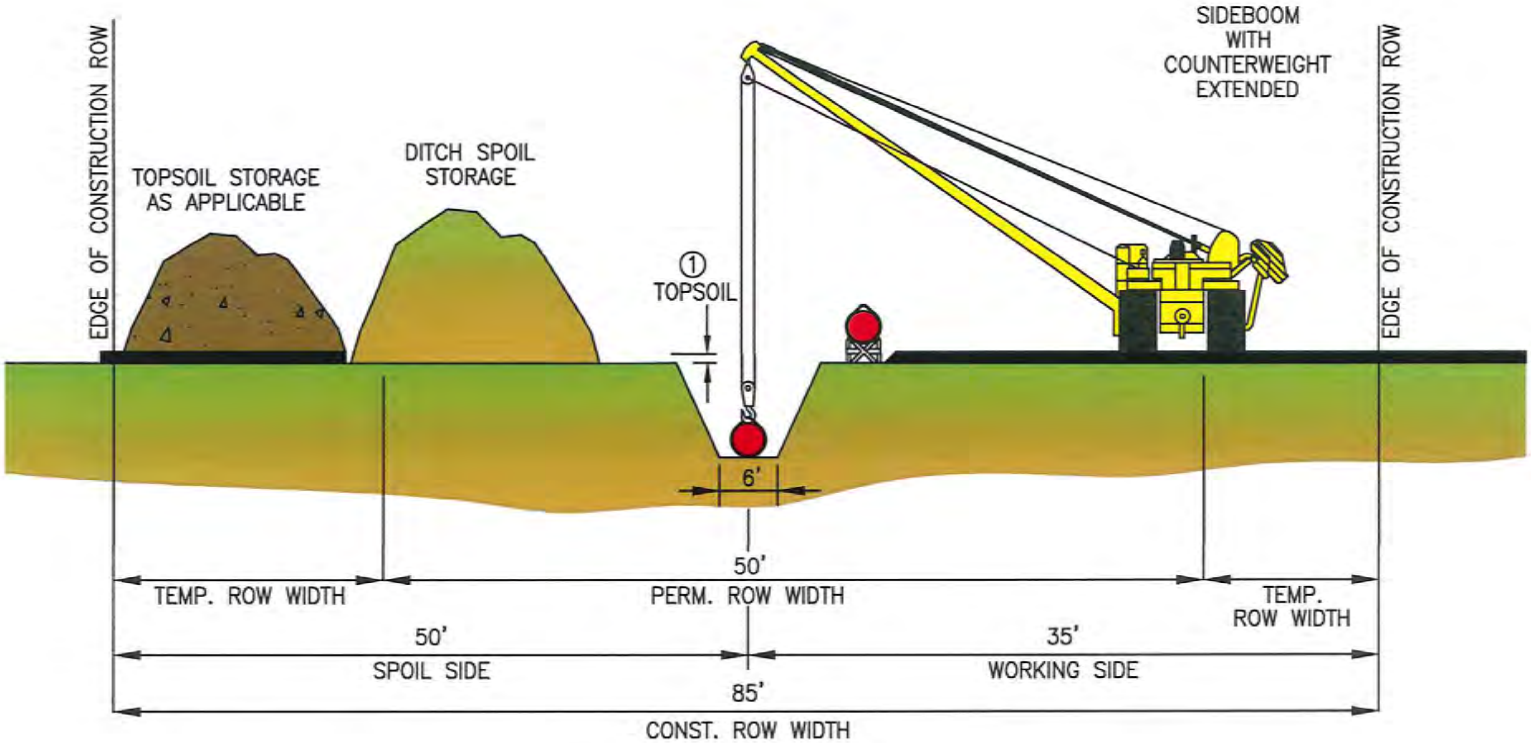
REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/15/14	JWH	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

EMERGENT NON–SATURATED WETLANDS

DRAWN BY: JWH	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: DAH	DATE: 09/19/14	P12–57	C
SCALE: N.T.S.	APP.:		



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE-SPECIFIC CONDITIONS.

REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/15/14	JWH	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

UPLAND AND WETLAND FORESTED AREAS

DRAWN BY: JWH	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: DAH	DATE: 08/18/14	P12-58	C
SCALE: N.T.S.	APP.:		

Attachment 3 – Flood Plain and Floodway Crossing Table

SFHA and Floodway Crossing Summary - All Crossings	Company Name:	Dakota Access, LLC
	Project Name:	Dakota Access Pipeline Project
	Description:	30-inch Crude Oil Pipeline

CROSSING ID	LOCATION				NFIP FLOOD INSURANCE RATE MAP	DRAINAGE AREA
	COUNTY	SECTION	TOWNSHIP	RANGE	FLOOD ZONE DESIGNATION	(SQ. MI.)
LYN001	Lyon	5	98N	48W	A	>>100
LYN002	Lyon	3	98N	48W	A	12.1
LYN003	Lyon	10	98N	48W	A	<1
LYN004	Lyon	11	98N	48W	A	5.4
LYN005	Lyon	28	98N	47W	A	1.3
LYN006	Lyon	28	98N	47W	A	<1
SIO007	Sioux	1	97N	47W	A	<1
SIO008	Sioux	1	97N	47W	A	21.4
SIO009	Sioux	10	97N	46W	A	1574
SIO010	Sioux	14	97N	46W	A	<1
SIO011	Sioux	25	97N	46W	A	3.1
SIO012	Sioux	36	97N	46W	A	<1
SIO013	Sioux	6	96N	45W	A	2.3
SIO014	Sioux	8	96N	45W	A	1.5
SIO015	Sioux	15	96N	45W	A	<1
SIO016	Sioux	24	96N	45W	A	<1
SIO017	Sioux	30	96N	44W	A	59.2
SIO018	Sioux	30	96N	44W	A	<1
SIO019	Sioux	33	96N	44W	A	<1
SIO020	Sioux	3	95N	44W	A	3.5
SIO021	Sioux	18	95N	43W	A	2.4
SIO022	Sioux	20	95N	43W	A	244
SIO023	Sioux	28	95N	43W	A	7.8
SIO024	Sioux	34	95N	43W	A	<1
CHE025	Cherokee	3	93N	41W	A	1.5
CHE026	Cherokee	11	93N	41W	A	219
CHE027	Cherokee	12	93N	41W	A	1.6
CHE028	Cherokee	12	93N	41W	A	4.8
CHE029	Cherokee	28	93N	40W	A	<1
CHE030	Cherokee	27	93N	40W	A	<1
CHE031	Cherokee	27	93N	40W	A	16.6
CHE032	Cherokee	26	93N	40W	A	<1
CHE033	Cherokee	36	93N	40W	A	1.1
CHE034	Cherokee	36	93N	40W	A	1863
CHE035	Cherokee	9	92N	39W	A	7.1
CHE036	Cherokee	14	92N	39W	A	12.5
CHE037	Cherokee	13	92N	39W	A	1.5

SFHA and Floodway Crossing Summary - All Crossings	Company Name:	Dakota Access, LLC
	Project Name:	Dakota Access Pipeline Project
	Description:	30-inch Crude Oil Pipeline

CROSSING ID	LOCATION				NFIP FLOOD INSURANCE RATE MAP	DRAINAGE AREA
	COUNTY	SECTION	TOWNSHIP	RANGE	FLOOD ZONE DESIGNATION	(SQ. MI.)
BVN038	Buena Vista	29	92N	38W	A	14.6
CAL039	Calhoun	9	89N	34W	A	223.3
CAL040	Calhoun	15	89N	34W	A	8.8
CAL041	Calhoun	32	89N	33W	A/X	15.7
CAL042	Calhoun	33	89N	33W	A/X	12.8
CAL043	Calhoun	5	88N	33W	A/X	1.5
CAL044	Calhoun	10	88N	33W	A/X	20
CAL045	Calhoun	10	88N	33W	A/X	12.8
CAL046	Calhoun	13	88N	33W	A/X	10.4
CAL047	Calhoun	19	88N	32W	A/X	53.3
CAL048	Calhoun	20	88N	32W	A/X	54.4
CAL049	Calhoun	21	88N	32W	A/X	10.5
CAL050	Calhoun	22	88N	32W	A/X	<1
CAL051	Calhoun	35	88N	32W	A/X	10.4
CAL052	Calhoun	31	88N	31W	A/X	14.4
CAL053	Calhoun	3	87N	31W	A/X	59.9
WEB054	Webster	19	87N	30W	A	15
WEB055	Webster	20	87N	30W	A	1.9
WEB056	Webster	28	87N	30W	A	1.4
WEB057	Webster	35	87N	30W	A	38.1
WEB058	Webster	35	87N	30W	A	2.3
WEB059	Webster	6	86N	29W	A	4.4
WEB060	Webster	9	86N	29W	A	8.4
WEB061	Webster	14	86N	29W	A	10.9
WEB062	Webster	24	86N	29W	A	1.8
BOO063	Boone	8	85N	27W	A	9.6
BOO064	Boone	14	85N	27W	A	5507
BOO065	Boone	19	85N	26W	A	3.5
BOO066	Boone	16	84N	26W	A	2.2
BOO067	Boone	29	84N	25W	A	1.4
BOO068	Boone	32	84N	25W	A	1.2
BOO069	Boone	32	84N	25W	A	1.4
BOO070	Boone	13	83N	25W	A	5.6
STR071	Story	34	83N	24W	A	8.5
STR072	Story	34	83N	24W	A	4.9
STR073	Story	18	82N	23W	A	21.9
STR074	Story	20	82N	23W	A	3.4
STR075	Story	28	82N	23W	A	1.5

SFHA and Floodway Crossing Summary - All Crossings	Company Name:	Dakota Access, LLC
	Project Name:	Dakota Access Pipeline Project
	Description:	30-inch Crude Oil Pipeline

CROSSING ID	LOCATION				NFIP FLOOD INSURANCE RATE MAP	DRAINAGE AREA
	COUNTY	SECTION	TOWNSHIP	RANGE	FLOOD ZONE DESIGNATION	(SQ. MI.)
STR076	Story	34	82N	23W	A	654
JAS077	Jasper	4	80N	21W	A	3.1
JAS078	Jasper	14	80N	21W	A	<1
JAS079	Jasper	14	80N	21W	A	1.2
JAS080	Jasper	24	80N	21W	A	<1
JAS081	Jasper	19	80N	20W	A	<1
JAS082	Jasper	29	80N	20W	A	412.4
JAS083	Jasper	28	80N	20W	A	<1
JAS084	Jasper	27	80N	20W	A	23
JAS085	Jasper	35	80N	20W	A	<1
JAS086	Jasper	36	80N	20W	A	2.6
JAS087	Jasper	7	79N	19W	A	28.6
JAS088	Jasper	8	79N	19W	A	<1
JAS089	Jasper	17	79N	19W	A	<1
JAS090	Jasper	16	79N	19W	A	6.1
JAS091	Jasper	22	79N	19W	A	1.3
JAS092	Jasper	27	79N	19W	A	<1
JAS093	Jasper	35	79N	19W	A	9
JAS094	Jasper	2	78N	19W	A	3.3
JAS095	Jasper	7	78N	18W	A	3.2
JAS096	Jasper	36	78N	18W	A	58.2
MAH097	Mahaska	9	77N	17W	A	30.1
MAH098	Mahaska	15	77N	17W	A	<1
MAH099	Mahaska	19	76N	15W	A	3.5
MAH100	Mahaska	19	76N	15W	A	<1
MAH101	Mahaska	20	76N	15W	A	1.1
MAH102	Mahaska	28	76N	15W	A	1.1
MAH103	Mahaska	34	76N	15W	A	<1
MAH104	Mahaska	2	75N	15W	A	1683
MAH105	Mahaska	11	75N	15W	A	1.1
MAH106	Mahaska	13	75N	15W	A	3.3
MAH107	Mahaska	18	75N	14W	A	<1
MAH108	Mahaska	32	75N	14W	A	1.2
MAH109	Mahaska	32	75N	14W	A	<1
KEO110	Keokuk	19	74N	13W	A	<1
WAP111	Wapello	7	73N	12W	A	3.5
WAP112	Wapello	19	73N	12W	A	2.8

SFHA and Floodway Crossing Summary - All Crossings	Company Name:	Dakota Access, LLC
	Project Name:	Dakota Access Pipeline Project
	Description:	30-inch Crude Oil Pipeline

CROSSING ID	LOCATION				NFIP FLOOD INSURANCE RATE MAP	DRAINAGE AREA
	COUNTY	SECTION	TOWNSHIP	RANGE	FLOOD ZONE DESIGNATION	(SQ. MI.)
VAN113	Van Buren	5	70N	09W	A	2.2
VAN114	Van Buren	9	70N	09W	A	1.7
VAN115	Van Buren	23	70N	09W	A	1.6
VAN116	Van Buren	30	70N	08W	A	1.1
VAN117	Van Buren	30	70N	08W	A	1.3
VAN118	Van Buren	33	70N	08W	A	1.4
VAN119	Van Buren	3	69N	08W	A	<1
VAN120	Van Buren	3	69N	08W	A	10.6
VAN121	Van Buren	3	69N	08W	A	<1
VAN122	Van Buren	11	69N	08W	A	<1
LEE123	Lee	28	69N	07W	A	4.1
LEE124	Lee	27	69N	07W	A	6.3
LEE125	Lee	34	69N	07W	A	<1
LEE126	Lee	34	69N	07W	A	1.1
LEE127	Lee	28	68N	06W	A	2.1
LEE128	Lee	3	67N	06W	A	1.9
LEE129	Lee	10	67N	06W	A	1.4
LEE130	Lee	26	66N	05W	A	2.8
LEE131	Lee	31	66N	04W	AE/Floodway	>>100

Notes:

Zone A: Special Flood Hazard Areas (SFHAs) subject to inundation by the 1% annual chance flood. Base Flood Elevations (BFEs) have not been determined.

Zone X: 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile

Zone A/E: Special Flood Hazard Areas (SFHAs) subject to inundation by the 1% annual chance flood. Base Flood Elevations (BFEs) have not been determined.

LYN001 Tributary Drainage Area to Crossing is Greater than 100 acres, requires Iowa DNR Flood Plain Permitting

SFHA and Floodway Crossing Summary - Crossings with Tributary Drainage > 100 sq. mi.		
	Company Name:	Dakota Access, LLC
	Project Name:	Dakota Access Pipeline Project
	Description:	30-inch Crude Oil Pipeline

CROSSING ID	STREAM	ADDED LOCATION INFORMATION		FEMA FIRM MAP NO.	LATEST EFFECTIVE/ REVISED DATE	COMMUNITY NAME	COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	BASE FLOOD ELEV. (BFE) [NAVD 88]
		LATITUDE	LONGITUDE							(feet)
LYN001	Big Sioux River	43 20 42.28W	96 31 35.31N	NA	5/1/2011	Lyon	190886	24	B	NA
SIO009	Rock River	43 14 1.04W	96 16 8.65N	NA	5/1/2011	Sioux	190906	0002	B	NA
SIO022	Floyd River	43 01 43.43	95 56 30.60	NA	5/1/2011	Sioux	190906	0006	B	NA
CHE026	Mill Creek	42 53 27.89	95 38 38.83	NA	5/1/2011	Cherokee	190854	03	B	NA
CHE034	Little Sioux River	42 49 34.03	95 30 30.65	NA	5/1/2011	Cherokee	190854	09	B	NA
CAL039	Cedar Creek	42 32 13.97	94 51 54.65	19025C0050A	Prelim. 7/14/2014	Calhoun	190851	0050	A	NA
BOO064	Des Moines River	42 10 06.34	93 57 54.89	19015C0075C	5/3/2011	Boone	190846	0075	C	NA
STR076	South Skunk River	41 52 11.26	93 30 21.44	19169C0410E	2/20/2008	Story	190907	04110	E	NA
JAS082	Indian Creek	93 12 24.09	41 42 56.82	19099C0175C	12/4/2007	Jasper	190880	0175	C	NA
MAH104	South Skunk River	92 33 34.67	41 19 21.04	19123C0275C	6/16/2011	Mahaska	190888	0275	C	NA
LEE131	Mississippi River	91 22 36.49	40 28 32.16	19111C0410C	5/3/2011	Lee	190182	0410	C	520

Notes:

Zone A: Special Flood Hazard Areas (SFHAs) subject to inundation by the 1% annual chance flood. Base Flood Elevations (BFEs) have not been determined.

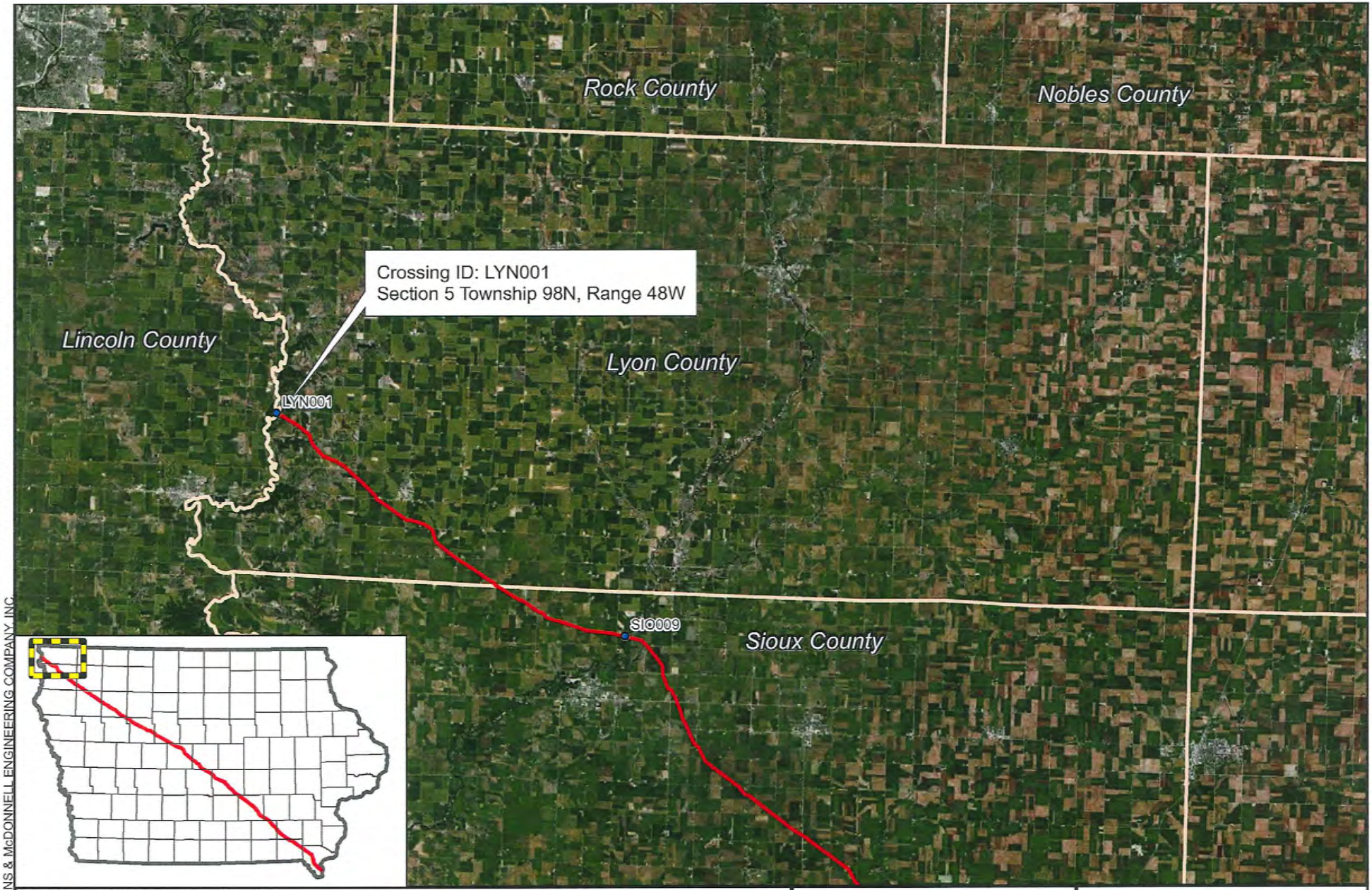
Zone X: 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile

Zone A/E: Special Flood Hazard Areas (SFHAs) subject to inundation by the 1% annual chance flood. Base Flood Elevations (BFEs) have not been determined.

LYN001 Tributary Drainage Area to Crossing is Greater than 100 acres, requires Iowa DNR Flood Plain Permitting

NA: Not Applicable

Attachment 4 – Lyon County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Lyon County, Iowa

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file lyon.mxd DCHEEK 2/9/2015

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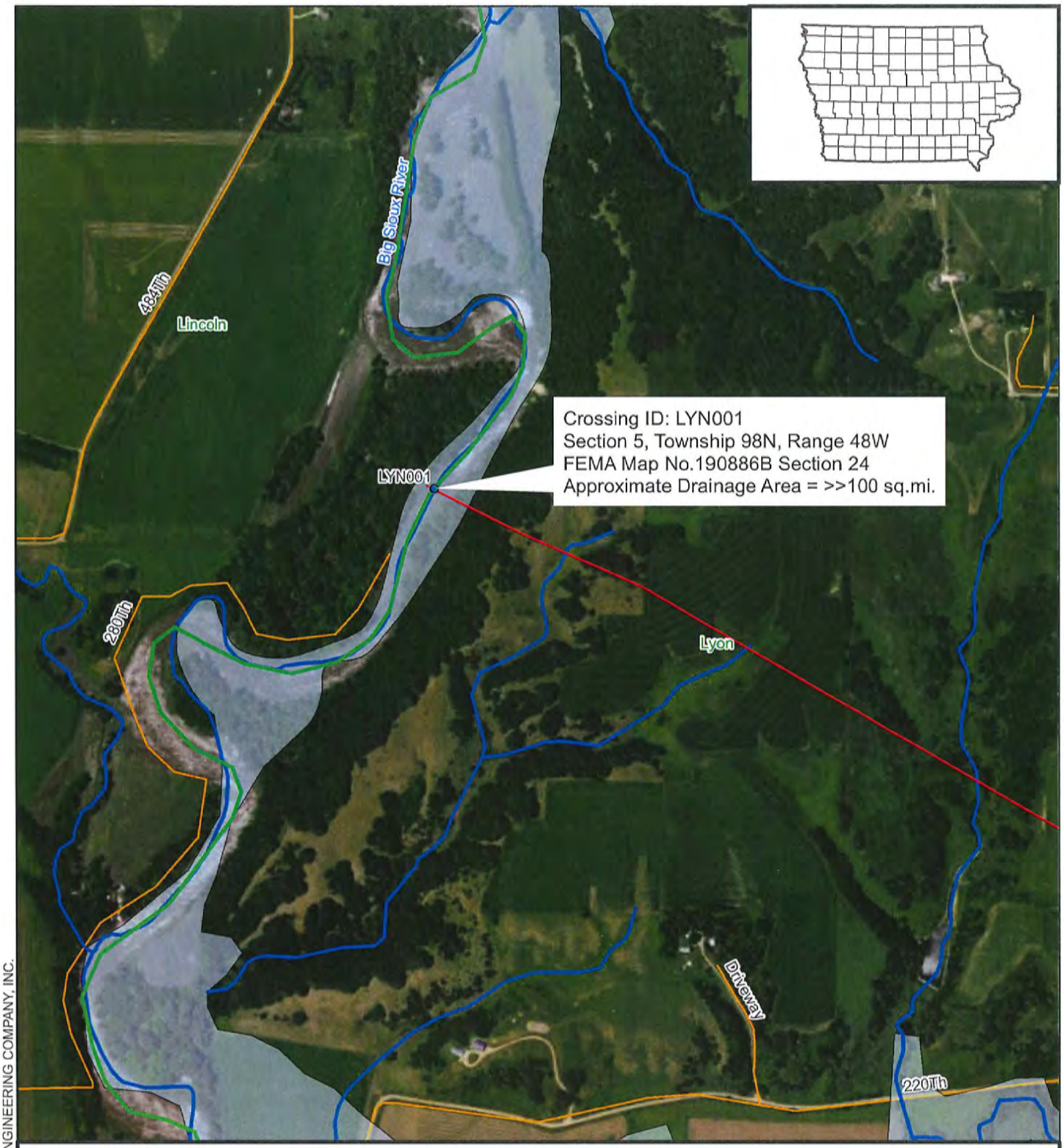
Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015



FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- County Line
- Approximate Stream Centerline
- Streets

NORTH

0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: LYN001
Lyon County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map Lyon a.mxd DCHEEK 2/10/2015

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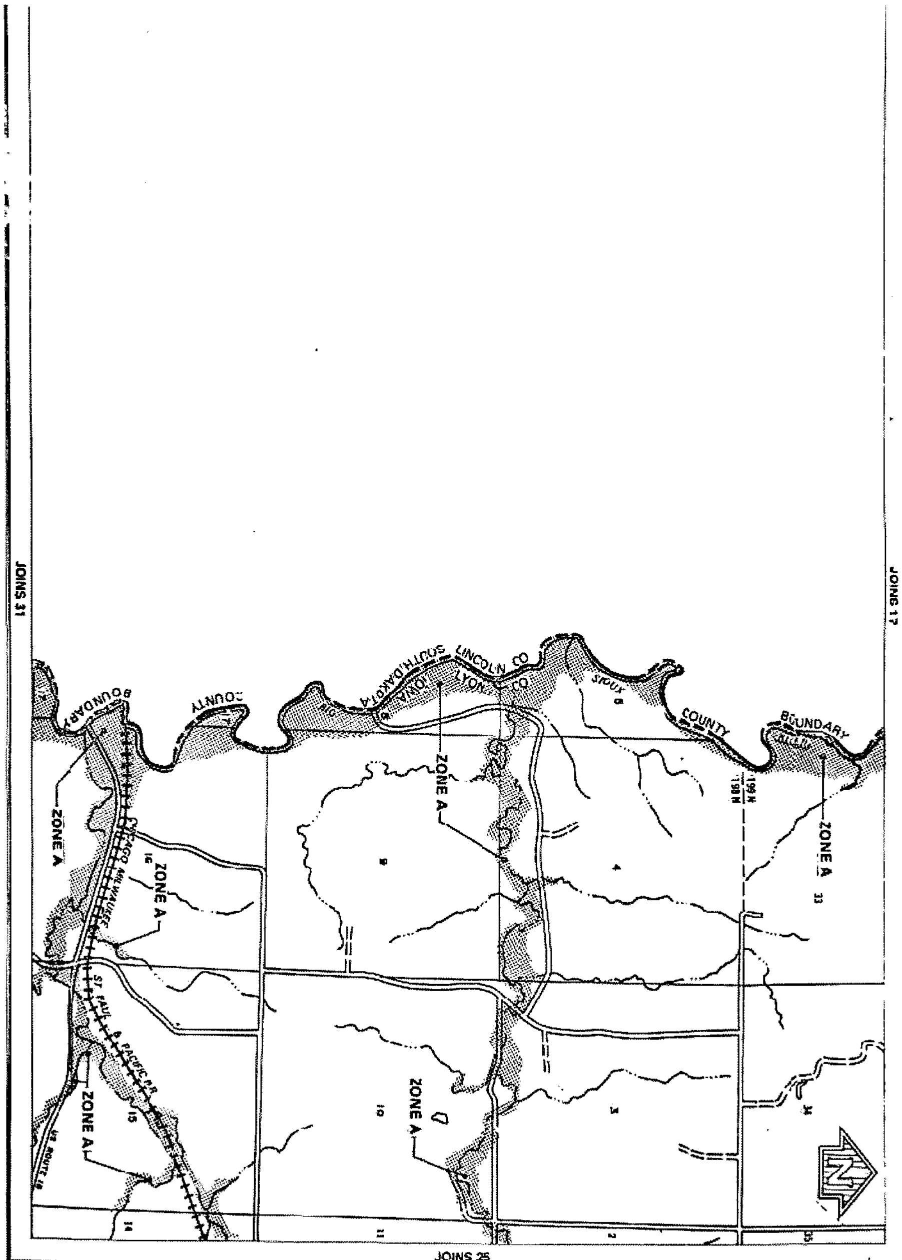


24

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

LYON CO., IA
(UNINC. AREA)

APPROXIMATE SCALE
2000 0 2000 4000 6000 FEET

FLOOD HAZARD BOUNDARY MAP

EFFECTIVE DATE
5/31/77

Federal Emergency Management Agency

Washington, D.C. 20472

IN REPLY REFER TO: 198

THIS IS A SPECIAL NOTICE REGARDING THE CONVERSION FROM THE EMERGENCY PHASE TO THE REGULAR PHASE, WHICH SHOULD BE ATTACHED TO THE MAP FOR THE COMMUNITY CITED BELOW.

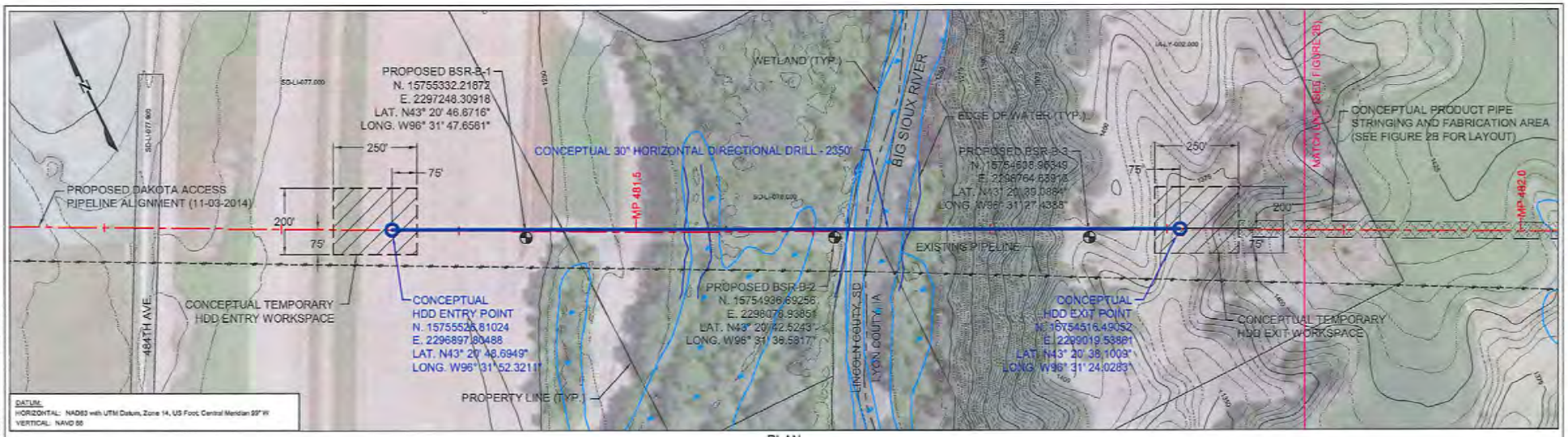
Community Number	Community Name	County Name	State
190886	Lyon County	Lyon	IA

Flood Hazard Boundary Map Date	Old Suffix	Regular Program Entry Date	New Suffix
May 31, 1977	A	May 1, 2011	B

This community will be converted to the Regular Phase of the National Flood Insurance Program, effective as indicated above. This action has the effect of converting the Flood Hazard Boundary Map (FHBM), which is referenced above, to a Flood Insurance Rate Map (FIRM). The Federal Emergency Management Agency does not intend to republish the FHBM as a FIRM at this time. Therefore, for insurance application and rating purposes, please note that the map suffix has been advanced from that shown on the FHBM to the next letter, shown above. Also note that the Special Flood Hazard Areas, which are the shaded areas on the map, are designated Zone A and all other areas are designated Zone X (unshaded). The conversion of a community to the Regular Program affords additional limits of insurance coverage. If the above is unclear, please call the NFIP Call Center, toll-free, at (800) 427-4661, for more details.

YOU ARE ONLY BEING SENT ONE COPY OF THE NOTICE TO SAVE ON PRINTING, DISTRIBUTION, AND POSTAGE COSTS. YOU MAY REPRODUCE THE NOTICE AS NEEDED.

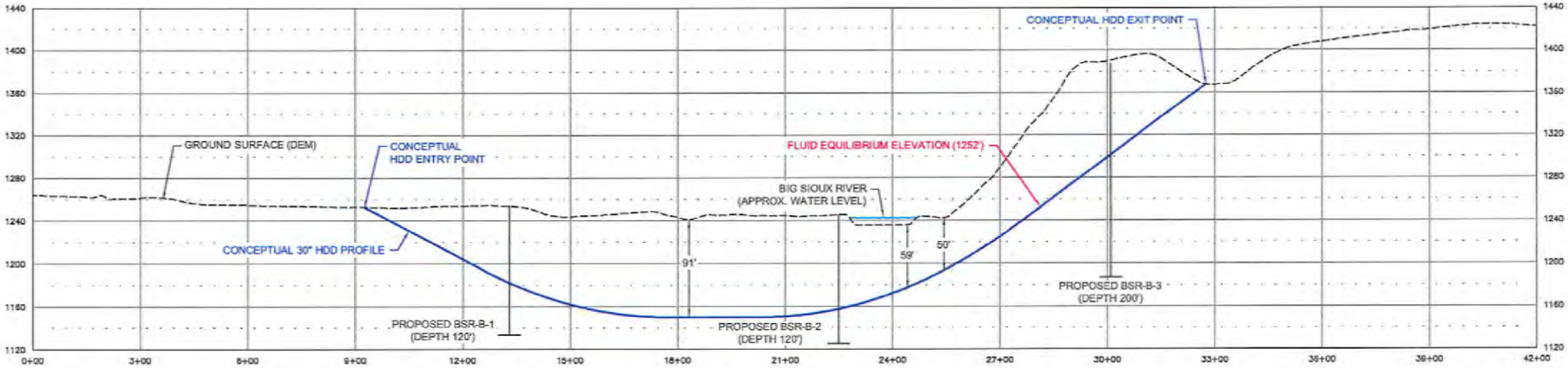
FOR YOUR CONVENIENCE, PLEASE PERMANENTLY MARK YOUR COPY OR COPIES OF THE APPLICABLE FHBM AS A FIRM WITH THE NEW EFFECTIVE DATE AND SUFFIX.



PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/3 Arc Second) downloaded from http://datagateway.nrcs.usda.gov/GDGOrder.aspx. Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/20/13. Base files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
BIG SIOUX RIVER HDD
LINCOLN COUNTY, SD & LYON COUNTY, IA

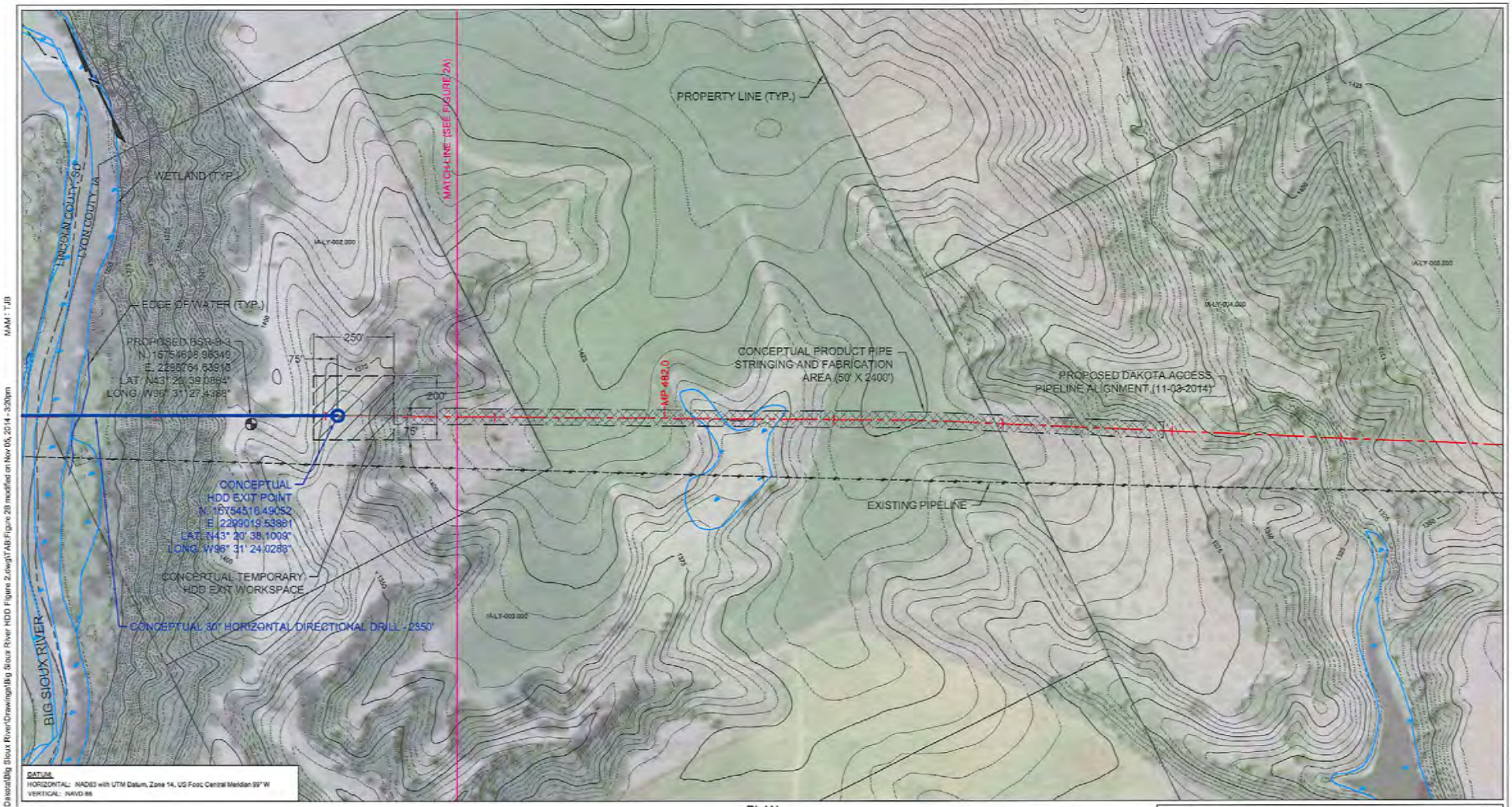
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 05, 2014

MAN : TJB

P:\181\187920\11\01\CAD\Crossings\South Dakota\Big Sioux River\Drawings\Big Sioux River HDD Figure 2.dwg\TAB:Figure 2A modified on Nov 05, 2014 - 2:19pm



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/20/13.
Base files provided by Contract Land Staff, LLC.

PLAN

300' 0 300'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
BIG SIOUX RIVER HDD
LINCOLN COUNTY, SD & LYON COUNTY, IA

GEOENGINEERS

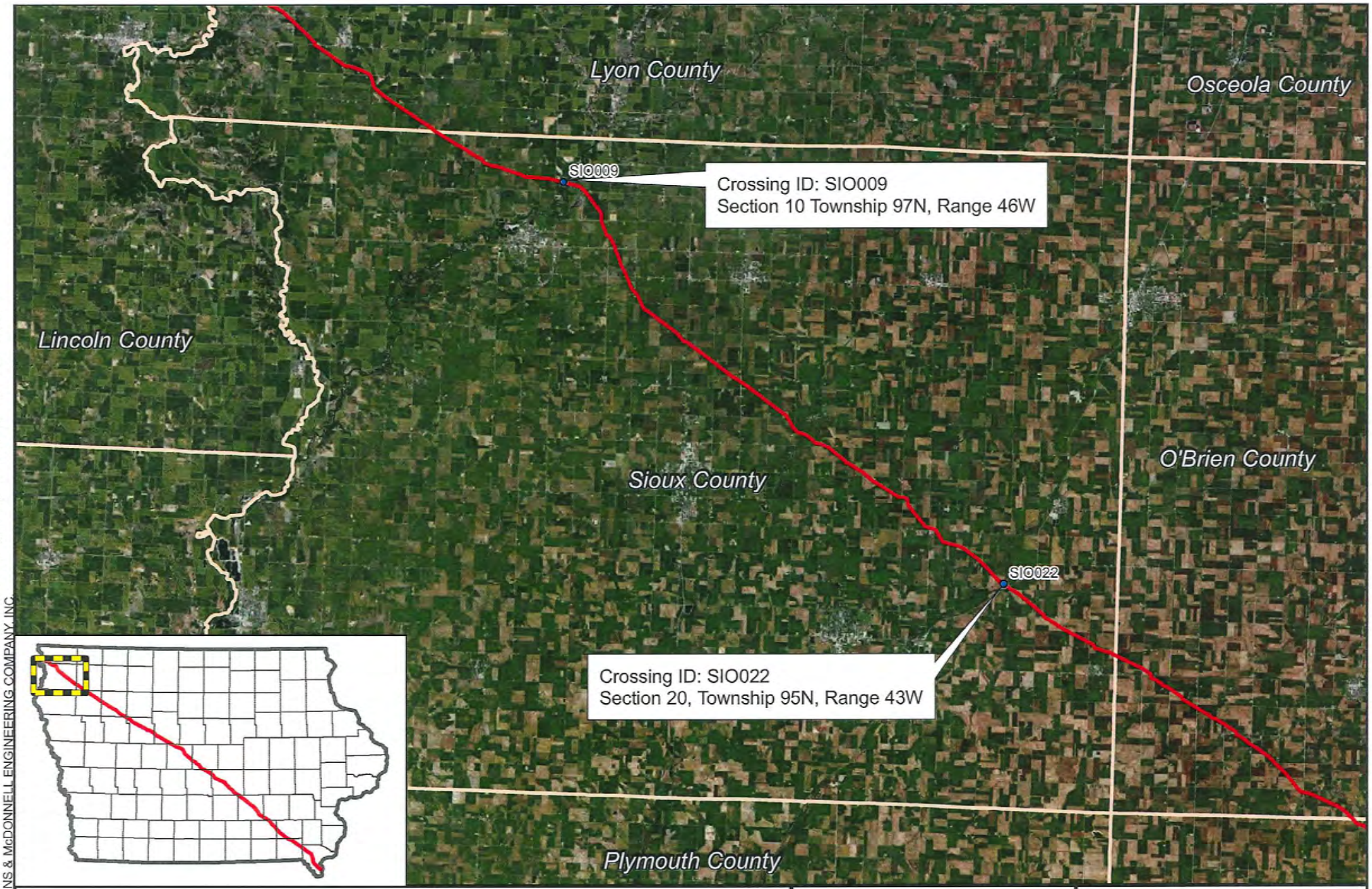
FIGURE 2B

ISSUED DATE: NOVEMBER 05, 2014

P:\18\18782011\01\CAD\Crossings\South Dakota\Big Sioux River\Drawings\Big Sioux River HDD Figure 2.dwg\TAB:Figure 2B modified on Nov 05, 2014 - 3:20pm

NAM : TJB

Attachment 5 – Sioux County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Sioux County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file sioux.mxd DCHEEK 2/9/2015

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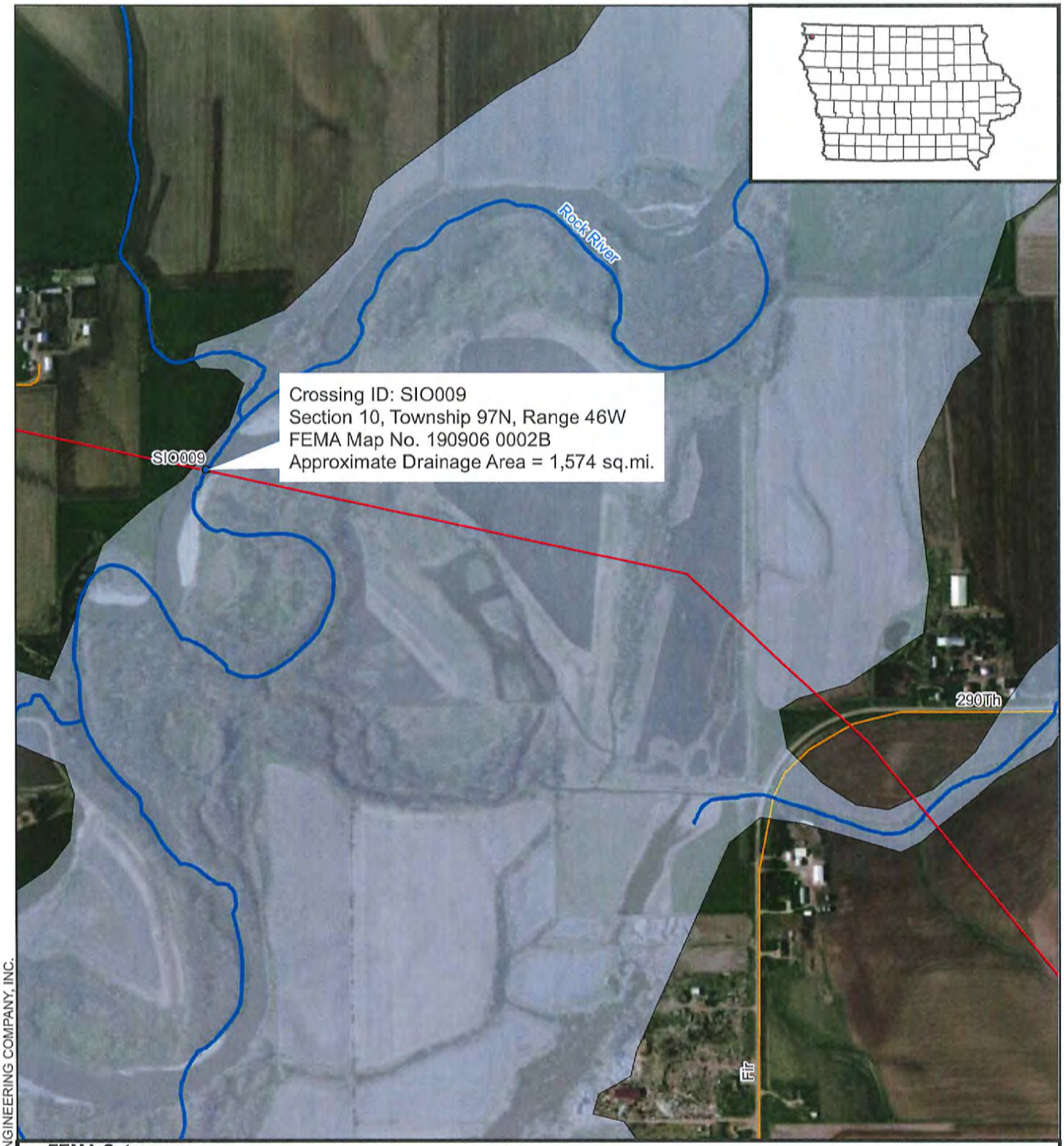


FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

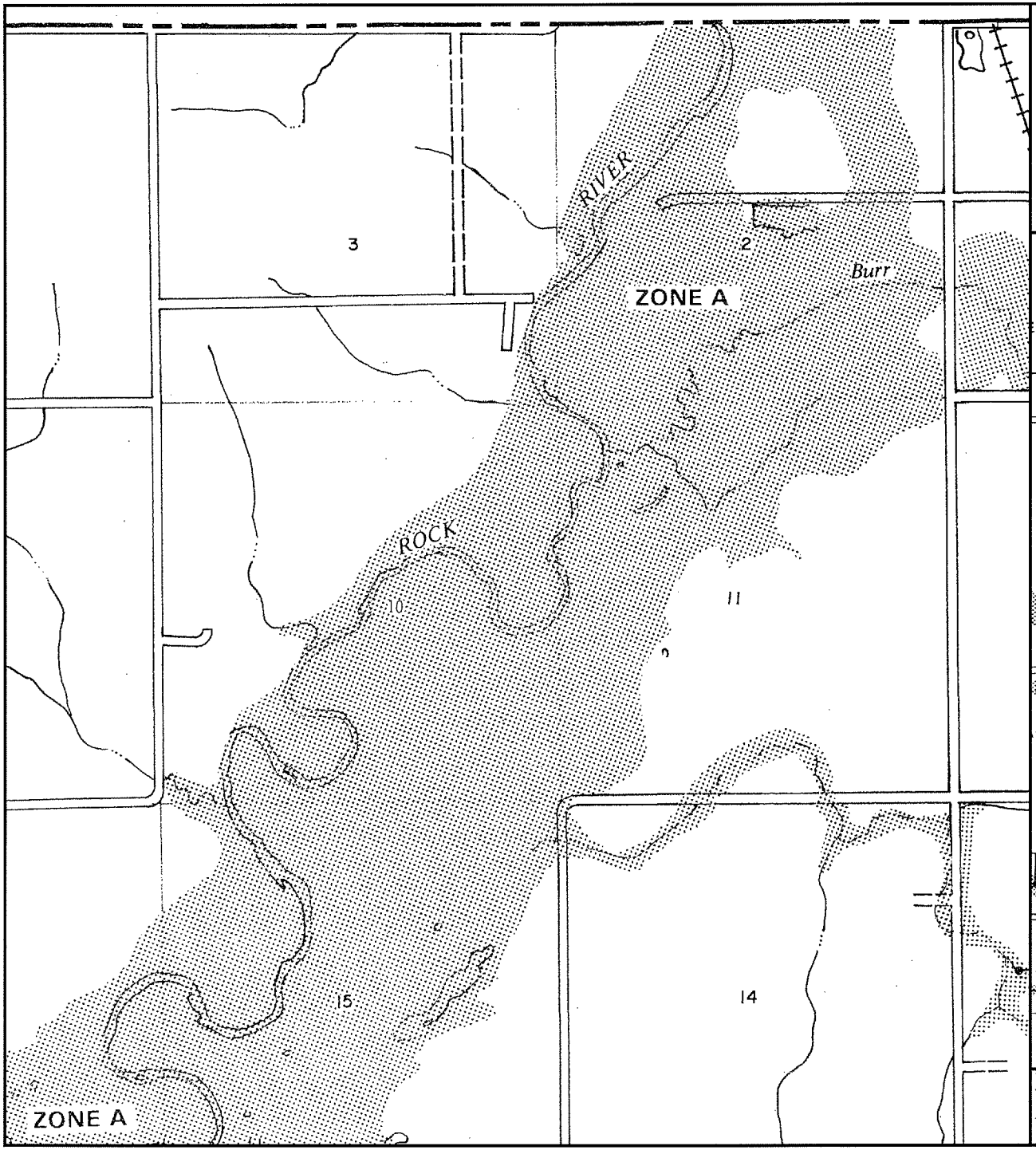
0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: SIO009
Sioux County, Iowa

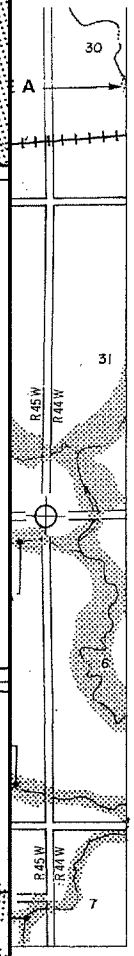
Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map Sioux 009.mxd DCHEEK 2/11/2015
COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC.



SPECIAL F
A

Note: These
Areas in the



FLOOD HAZARD BOUNDARY MAP

SIOUX COUNTY, IOWA

UNINCORPORATED AREA

PAGE 2 OF 9

(SEE MAP INDEX FOR PAGES NOT PRINTED)

EFFECTIVE DATE:
OCTOBER 25, 1977

CONVERTED BY LETTER
EFFECTIVE 5/1/2011

COMMUNITY-PANEL NO.
190906 0002 A

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Federal Emergency Management Agency

Washington, D.C. 20472

IN REPLY REFER TO: 198

THIS IS A SPECIAL NOTICE REGARDING THE CONVERSION FROM THE EMERGENCY PHASE TO THE REGULAR PHASE, WHICH SHOULD BE ATTACHED TO THE MAP FOR THE COMMUNITY CITED BELOW.

Community Number	Community Name	County Name	State
190906	Sioux County	Sioux	IA

Flood Hazard Boundary Map Date	Old Suffix	Regular Program Entry Date	New Suffix
October 25, 1977	A	May 1, 2011	B

This community will be converted to the Regular Phase of the National Flood Insurance Program, effective as indicated above. This action has the effect of converting the Flood Hazard Boundary Map (FHBM), which is referenced above, to a Flood Insurance Rate Map (FIRM). The Federal Emergency Management Agency does not intend to republish the FHBM as a FIRM at this time. Therefore, for insurance application and rating purposes, please note that the map suffix has been advanced from that shown on the FHBM to the next letter, shown above. Also note that the Special Flood Hazard Areas, which are the shaded areas on the map, are designated Zone A and all other areas are designated Zone X (unshaded). The conversion of a community to the Regular Program affords additional limits of insurance coverage. If the above is unclear, please call the NFIP Call Center, toll-free, at (800) 427-4661, for more details.

YOU ARE ONLY BEING SENT ONE COPY OF THE NOTICE TO SAVE ON PRINTING, DISTRIBUTION, AND POSTAGE COSTS. YOU MAY REPRODUCE THE NOTICE AS NEEDED.

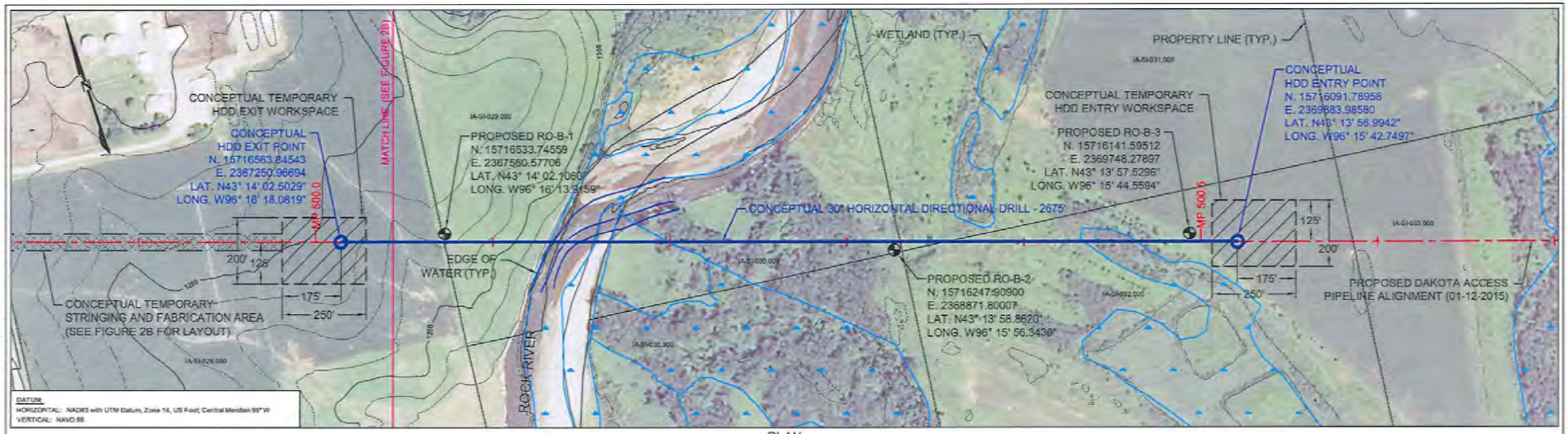
FOR YOUR CONVENIENCE, PLEASE PERMANENTLY MARK YOUR COPY OR COPIES OF THE APPLICABLE FHBM AS A FIRM WITH THE NEW EFFECTIVE DATE AND SUFFIX.

OLD PANEL NUMBER	OLD SUFFIX	OLD DATE
1909060001	A	10/25/1977
1909060002	A	10/25/1977
1909060003	A	10/25/1977
1909060004	A	10/25/1977
1909060005	A	10/25/1977

NEW PANEL NUMBER	NEW SUFFIX	NEW DATE
1909060001	B	05/01/2011
1909060002	B	05/01/2011
1909060003	B	05/01/2011
1909060004	B	05/01/2011
1909060005	B	05/01/2011

1909060006	A	10/25/1977
1909060007	A	10/25/1977
1909060008	A	10/25/1977
1909060009	A	10/25/1977
190906IND		10/25/1977

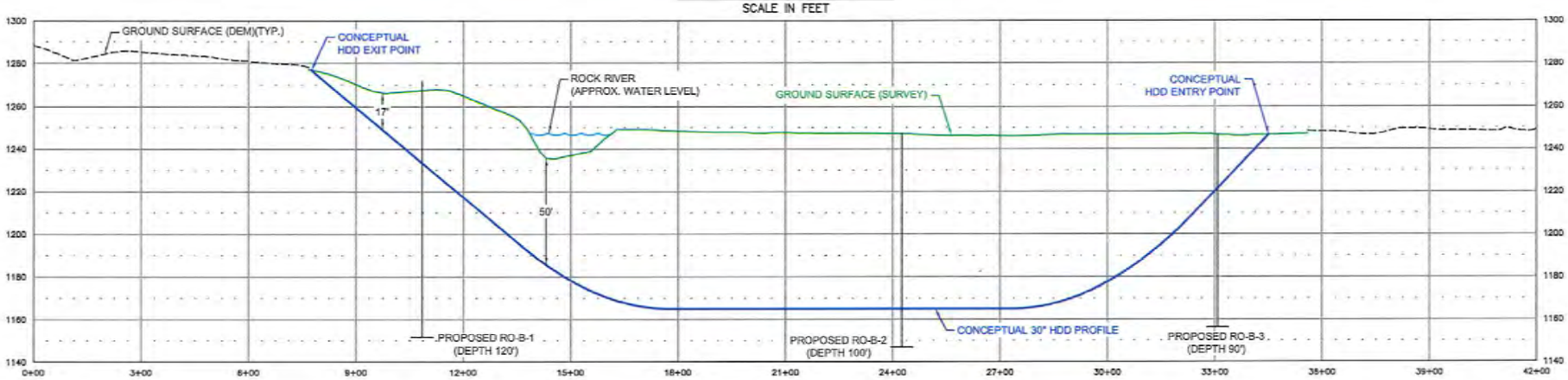
1909060006	B	05/01/2011
1909060007	B	05/01/2011
1909060008	B	05/01/2011
1909060009	B	05/01/2011
190906IND	A	05/01/2011



PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface survey and survey data provided by Wood Group Mustang, Inc.
Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Shape files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 20' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
ROCK RIVER HDD - SHORT OPTION
SIOUX COUNTY, IOWA

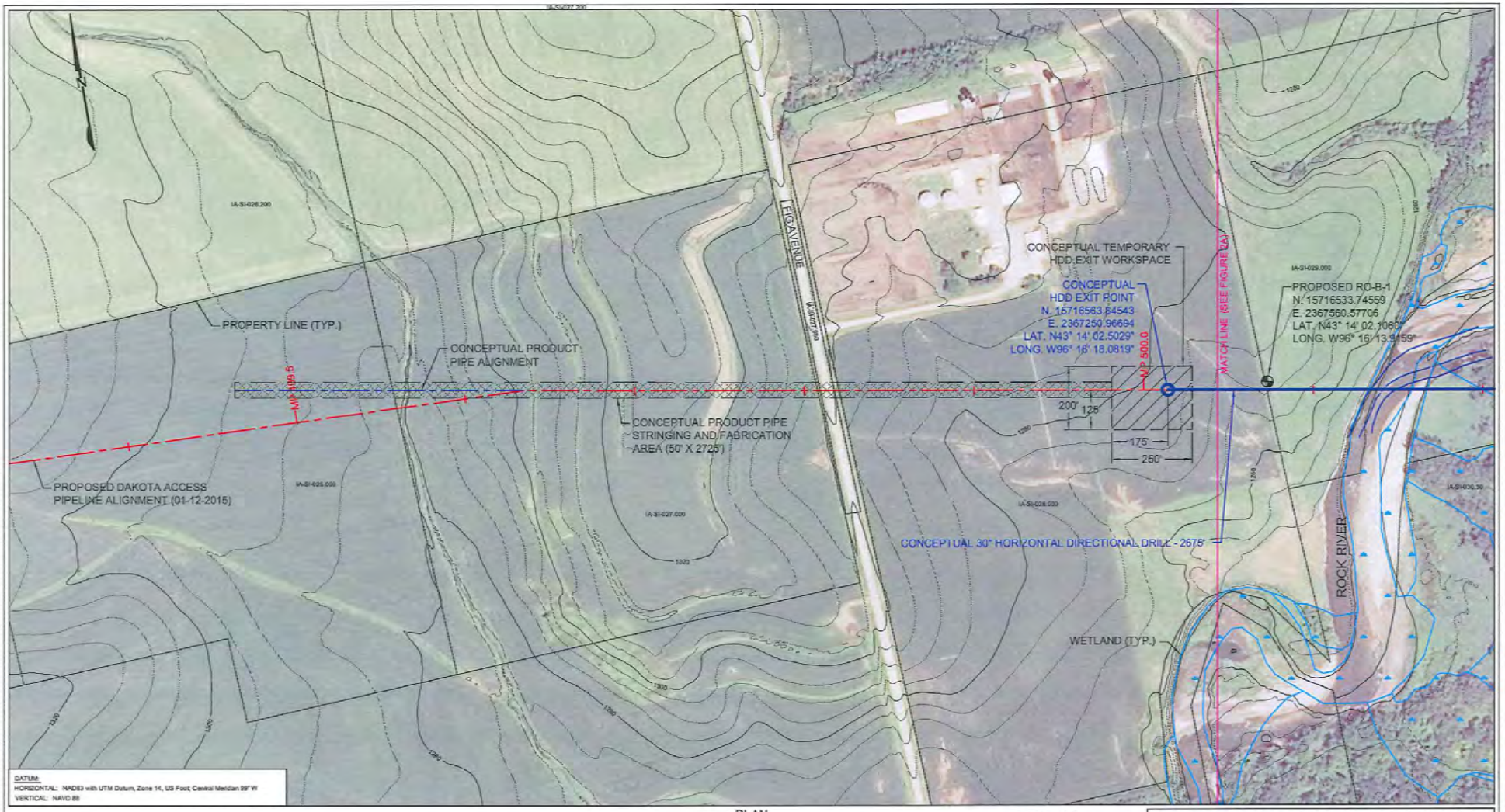
GEOENGINEERS

FIGURE 2A

ISSUED DATE: JANUARY 12, 2015

MAM - MWC

P:\18\1878\2011\01\CAD\Crossings\Iowa\Rock River\Drawings\Rock River HDD Figure 2.dwg\TAB: Figure 2A modified on Jan 12, 2015 - 11:1pm



Notes:
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2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

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Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Shape files provided by Contract Land Staff, LLC.

PLAN
300' 0 300'
SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:
- Proposed Boring Location
- Major Contour - 20' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
ROCK RIVER HDD - SHORT OPTION
SIOUX COUNTY, IOWA

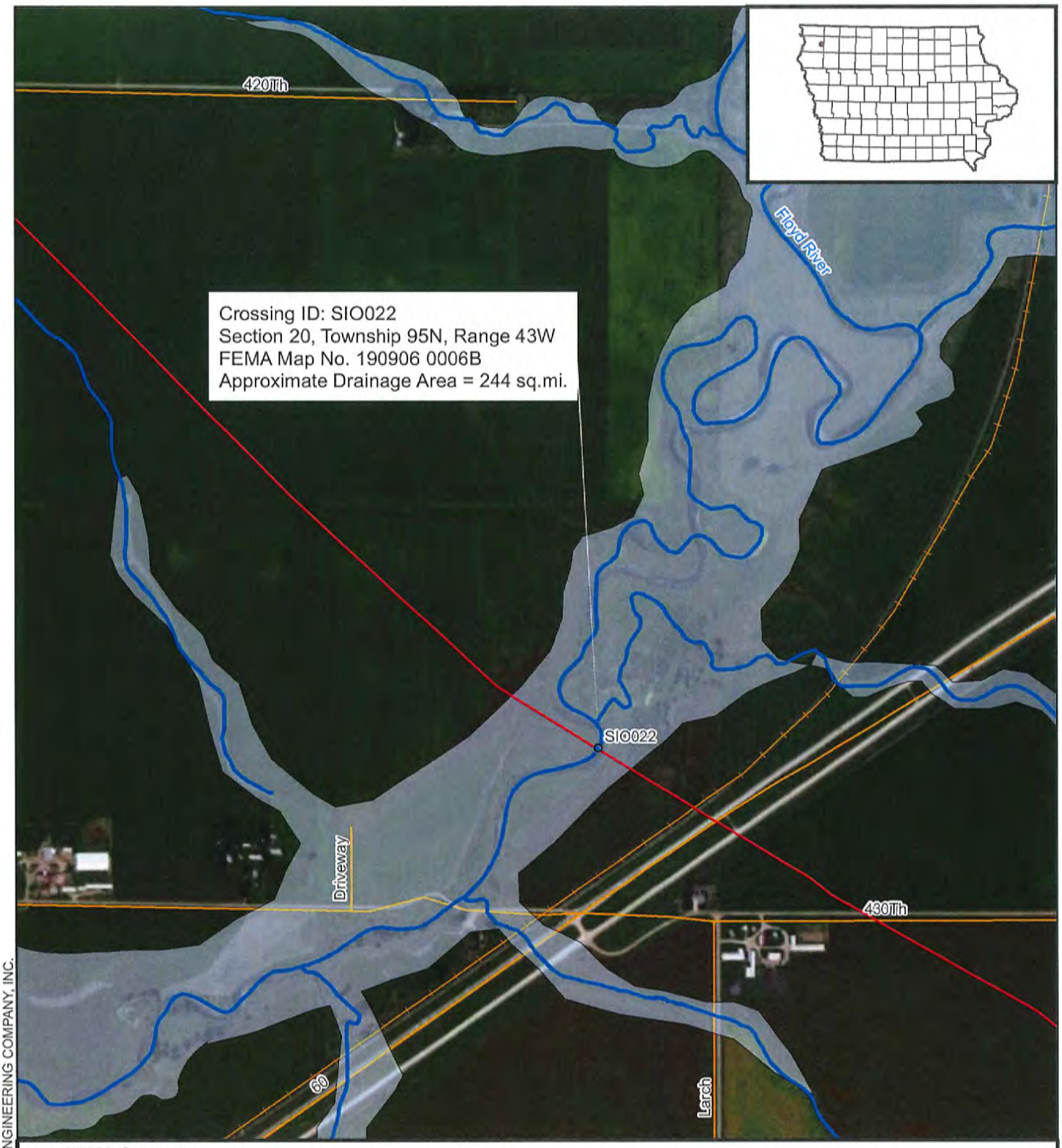
GEOENGINEERS

FIGURE 2B

ISSUED DATE: JANUARY 12, 2015

NAM : MWC

P:\18\18782\011\01\CAD\Crossings\Iowa\Rock River\Drawings\Rock River HDD Figure 2.dwg\TAB:Figure 2B modified on Jan 12, 2015 - 1:10pm



FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- County Line
- Approximate Stream Centerline
- Streets

NORTH

0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: SIO022
Sioux County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map Sioux 022.mxd DCHEEK 2/9/2015
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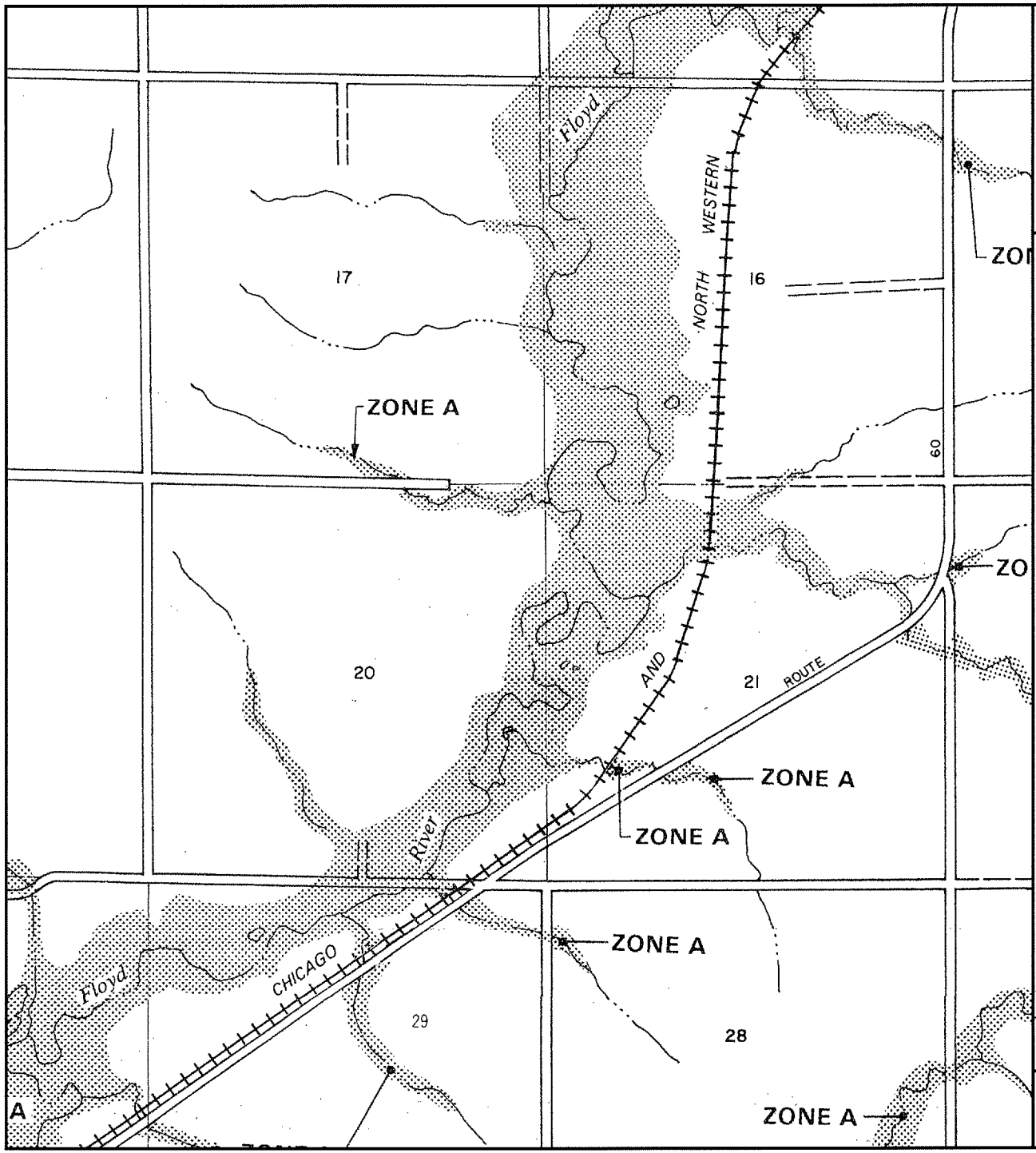


APPROXIMATE SCALE IN FEET

2000 0 2000

FLOOD HAZARD BOUNDARY MAP

SIOUX COUNTY, IOWA

UNINCORPORATED AREA

PAGE 6 OF 9

(SEE MAP INDEX FOR PAGES NOT PRINTED)

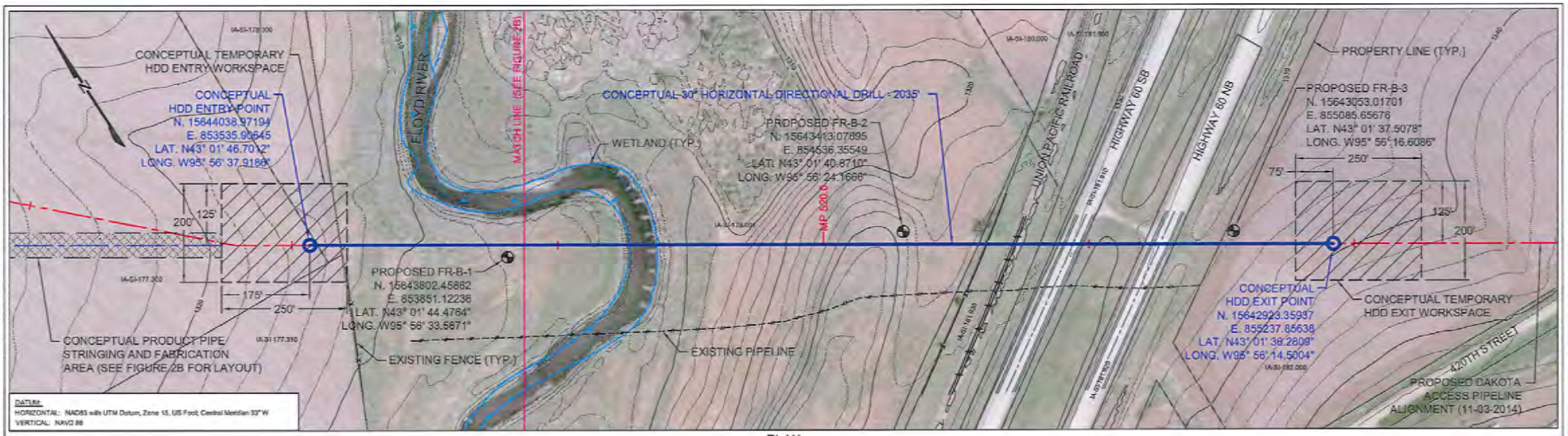
EFFECTIVE DATE:
OCTOBER 25, 1977

CONVERTED BY LETTER
EFFECTIVE 5/1/2011

COMMUNITY-PANEL NO.
190906 0006 A

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL INSURANCE ADMINISTRATION

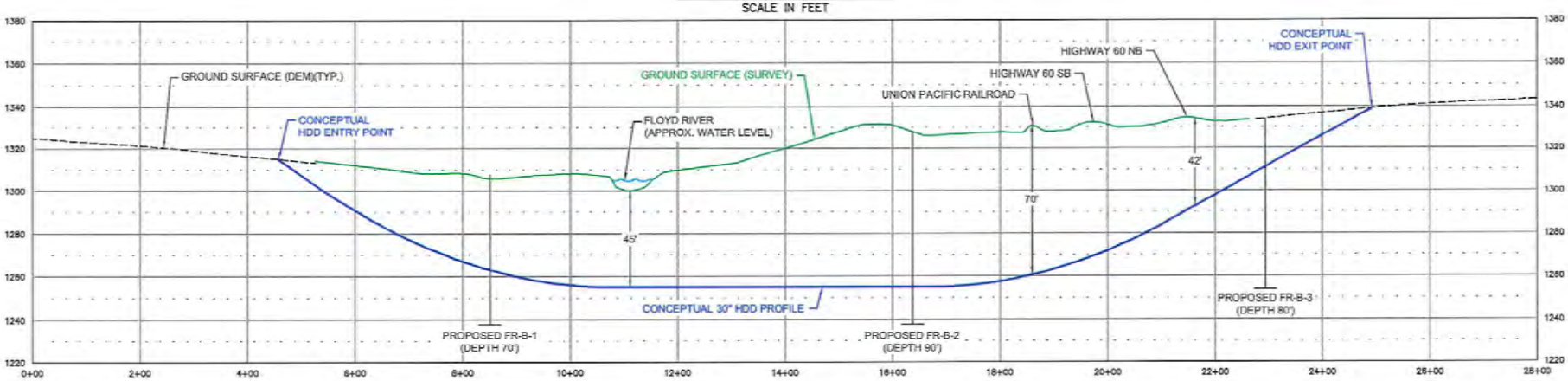
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



PLAN

200' 0 200'

SCALE IN FEET



PROFILE

200' 0 200'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9th Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 04/10/12.
Ground surface survey and survey data provide by Wood Group Mustang, Inc.
Shape files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
FLOYD RIVER HDD
SIOUX COUNTY, IOWA

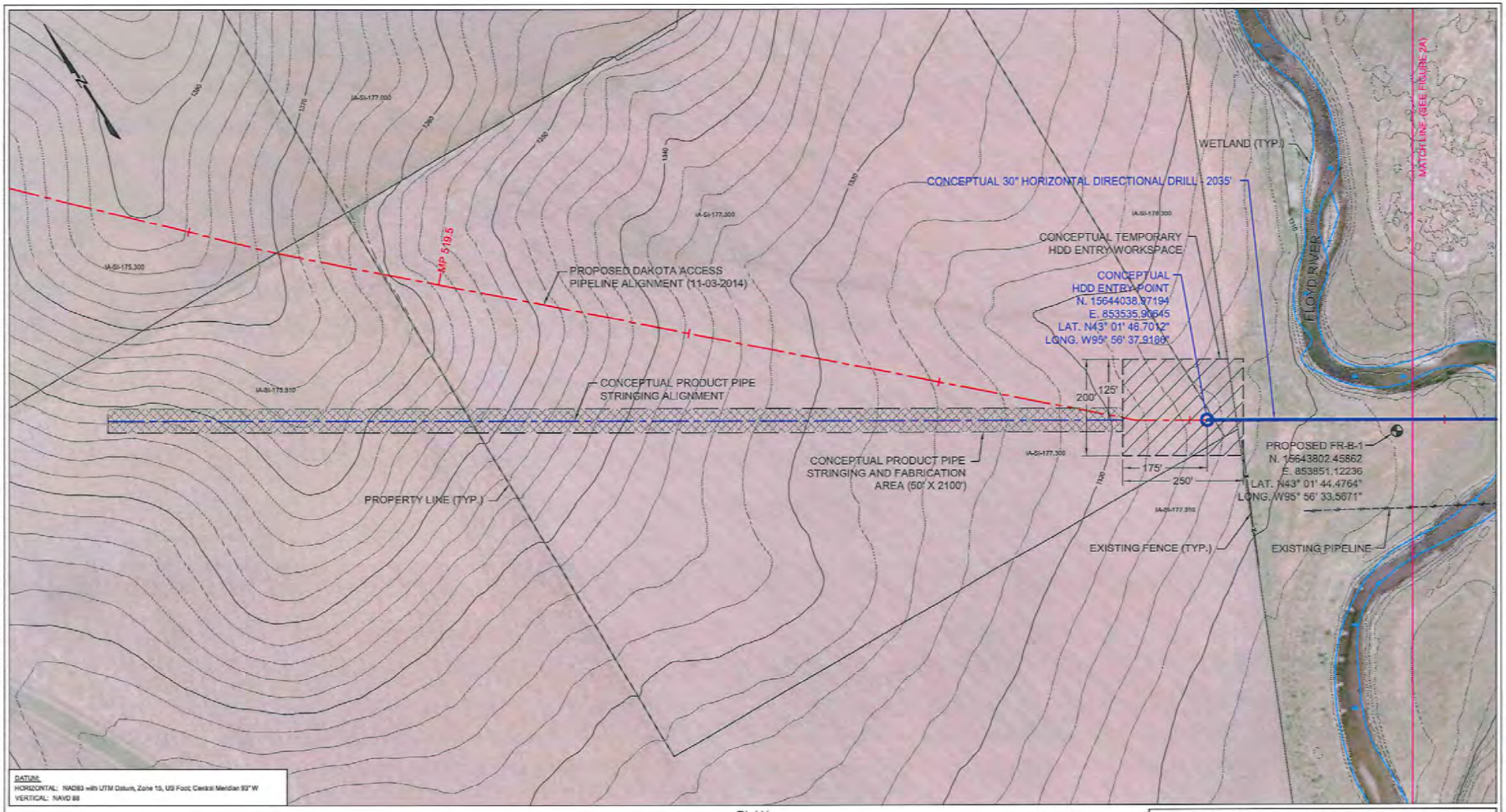
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 05, 2014

MAM : MWC

P:\18\1878201\01\CAD\Crossings\Iowa\Floyd River\Drawings\Floyd River HDD .dwg[TAB Figure 2A modified on Nov 05, 2014 - 2:17pm



Notes:
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Reference: Ground surface DEM (1/9th Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 04/10/12.
Ground surface survey and survey data provide by Wood Group Mustang, Inc.
Shape files provided by Contract Land Staff, LLC.

PLAN

200' 0 200'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
FLOYD RIVER HDD
SIOUX COUNTY, IOWA

GEOENGINEERS

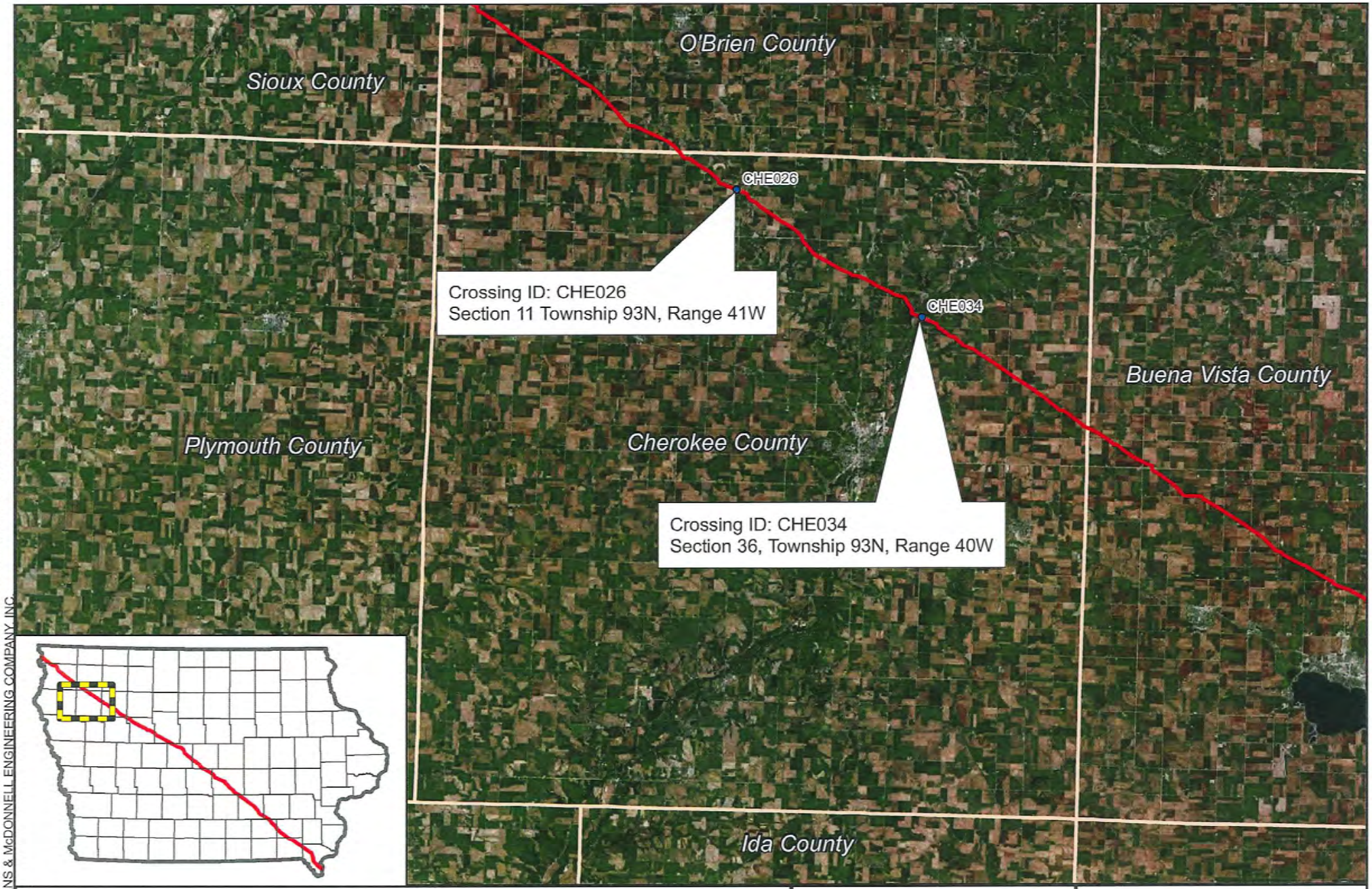
FIGURE 2B

ISSUED DATE: NOVEMBER 05, 2014

P:\18\18782\01\10\CAD\Crossings\Iowa\Floyd River\Drawings\Floyd River HDD.dwg\TAB-Figure 2B modified on Nov 05, 2014 - 2:19pm

MAM : TJB

Attachment 6 – Cherokee County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Cherokee County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file cherokee.mxd DCHEEK 2/9/2015

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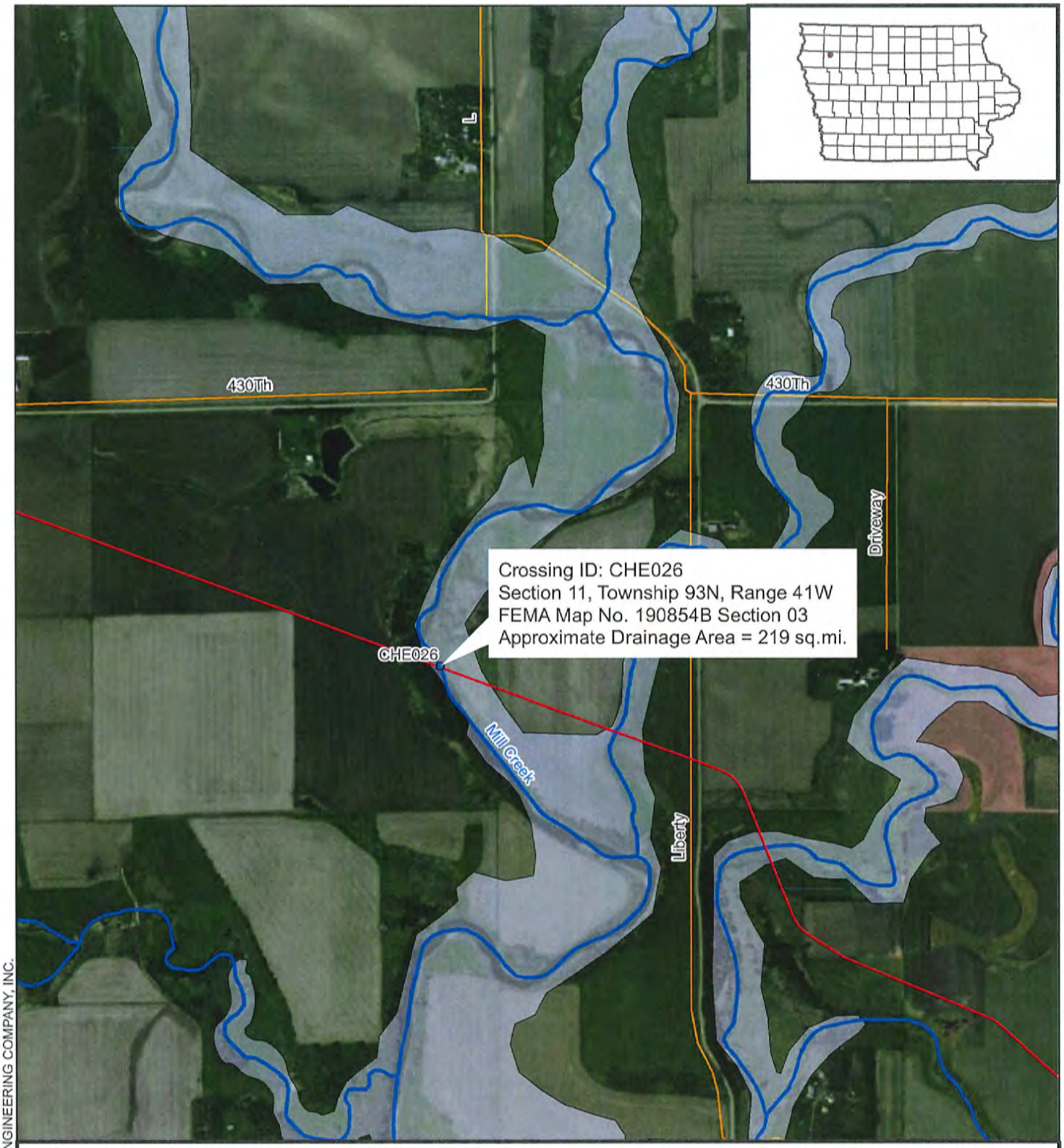

FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: CHE026
Cherokee County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map cherokee 026.mxd DCHEEK 2/9/2015

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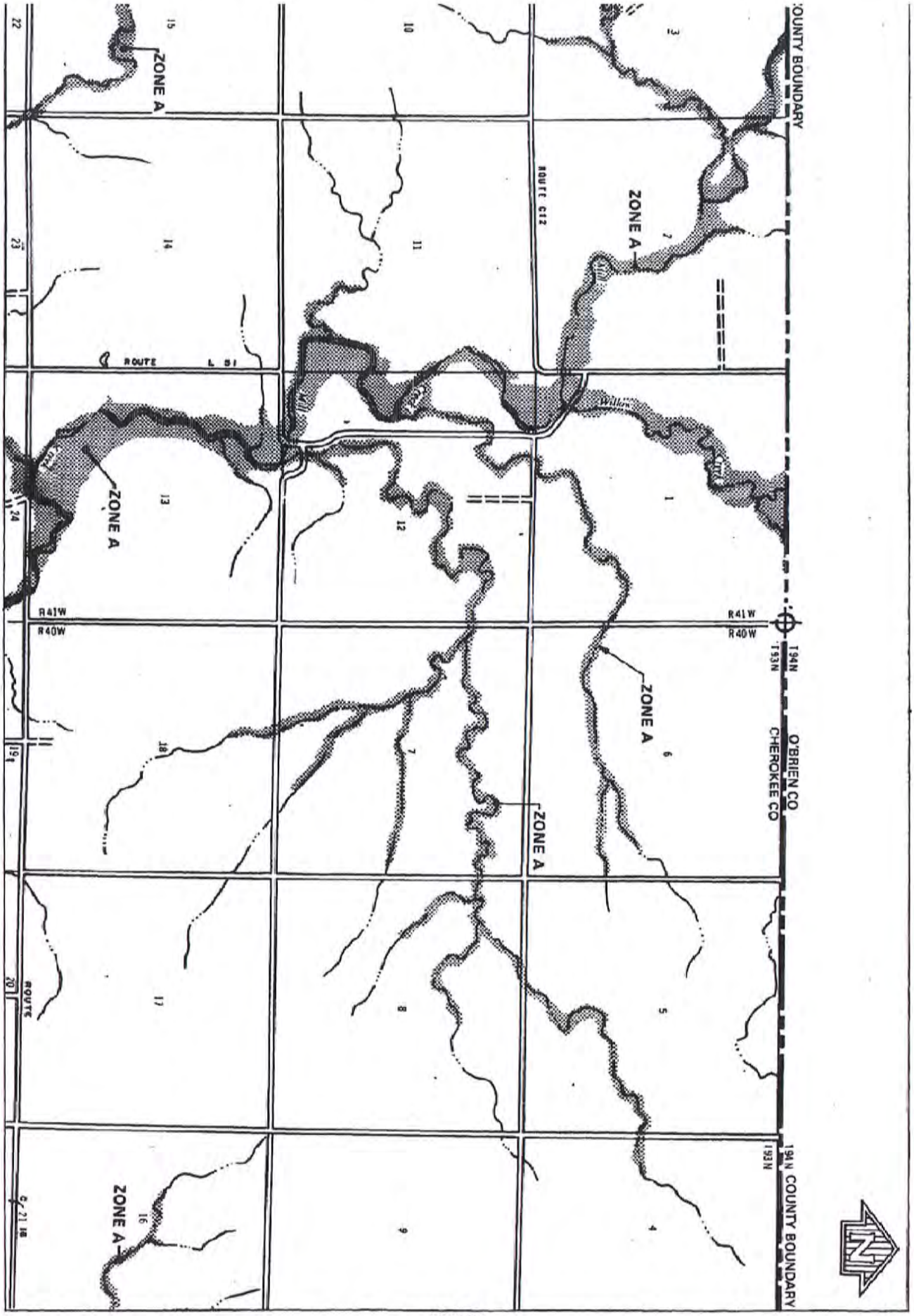


DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

CHEROKEE CO., IA
(UNINC. AREA)

APPROXIMATE SCALE
2000 0 2000 4000 6000 FEET

FLOOD HAZARD BOUNDARY MAP

EFFECTIVE DATE
5/6/77

03

Federal Emergency Management Agency

Washington, D.C. 20472

IN REPLY REFER TO: 198

THIS IS A SPECIAL NOTICE REGARDING THE CONVERSION FROM THE EMERGENCY PHASE TO THE REGULAR PHASE, WHICH SHOULD BE ATTACHED TO THE MAP FOR THE COMMUNITY CITED BELOW.

Community Number	Community Name	County Name	State
190854	Cherokee Co (Unincorporated)	Cherokee	IA

Flood Hazard Boundary Map Date	Old Suffix	Regular Program Entry Date	New Suffix
May 6, 1977	A	May 1, 2011	B

This community will be converted to the Regular Phase of the National Flood Insurance Program, effective as indicated above. This action has the effect of converting the Flood Hazard Boundary Map (FHBM), which is referenced above, to a Flood Insurance Rate Map (FIRM). The Federal Emergency Management Agency does not intend to republish the FHBM as a FIRM at this time. Therefore, for insurance application and rating purposes, please note that the map suffix has been advanced from that shown on the FHBM to the next letter, shown above. Also note that the Special Flood Hazard Areas, which are the shaded areas on the map, are designated Zone A and all other areas are designated Zone X (unshaded). The conversion of a community to the Regular Program affords additional limits of insurance coverage. If the above is unclear, please call the NFIP Call Center, toll-free, at (800) 427-4661, for more details.

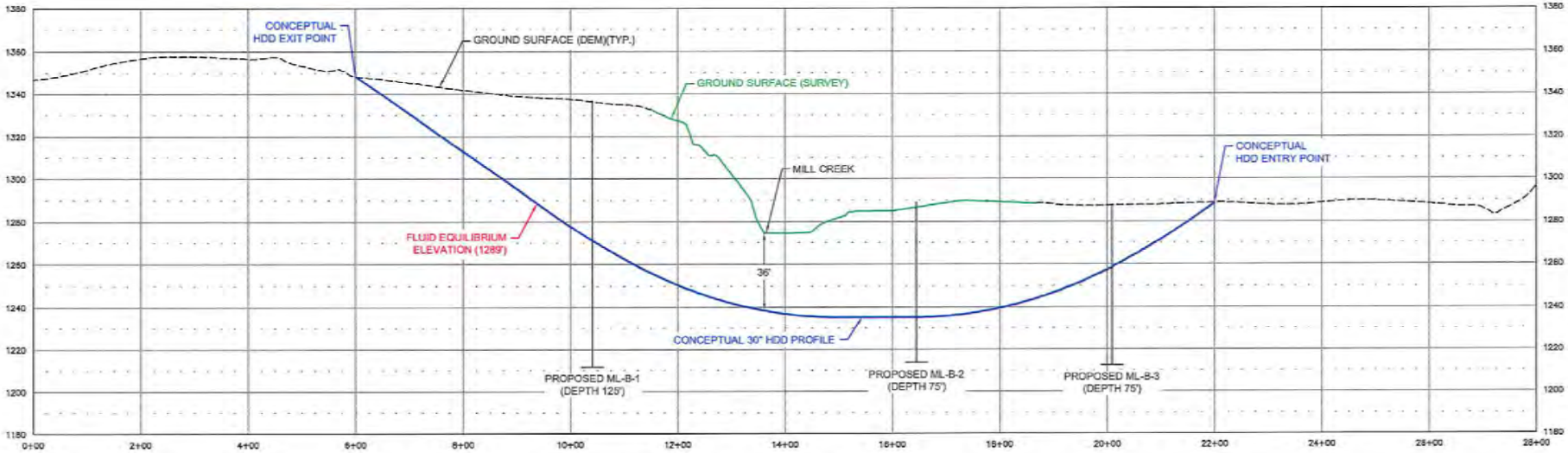
YOU ARE ONLY BEING SENT ONE COPY OF THE NOTICE TO SAVE ON PRINTING, DISTRIBUTION, AND POSTAGE COSTS. YOU MAY REPRODUCE THE NOTICE AS NEEDED.

FOR YOUR CONVENIENCE, PLEASE PERMANENTLY MARK YOUR COPY OR COPIES OF THE APPLICABLE FHBM AS A FIRM WITH THE NEW EFFECTIVE DATE AND SUFFIX.

PLAN

200' 0 200'

SCALE IN FEET



PROFILE

200' 0 200'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey data provided by Wood Group Mustang, Inc.
Aerial Image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 09/30/13.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
MILL CREEK HDD
CHEROKEE COUNTY, IOWA

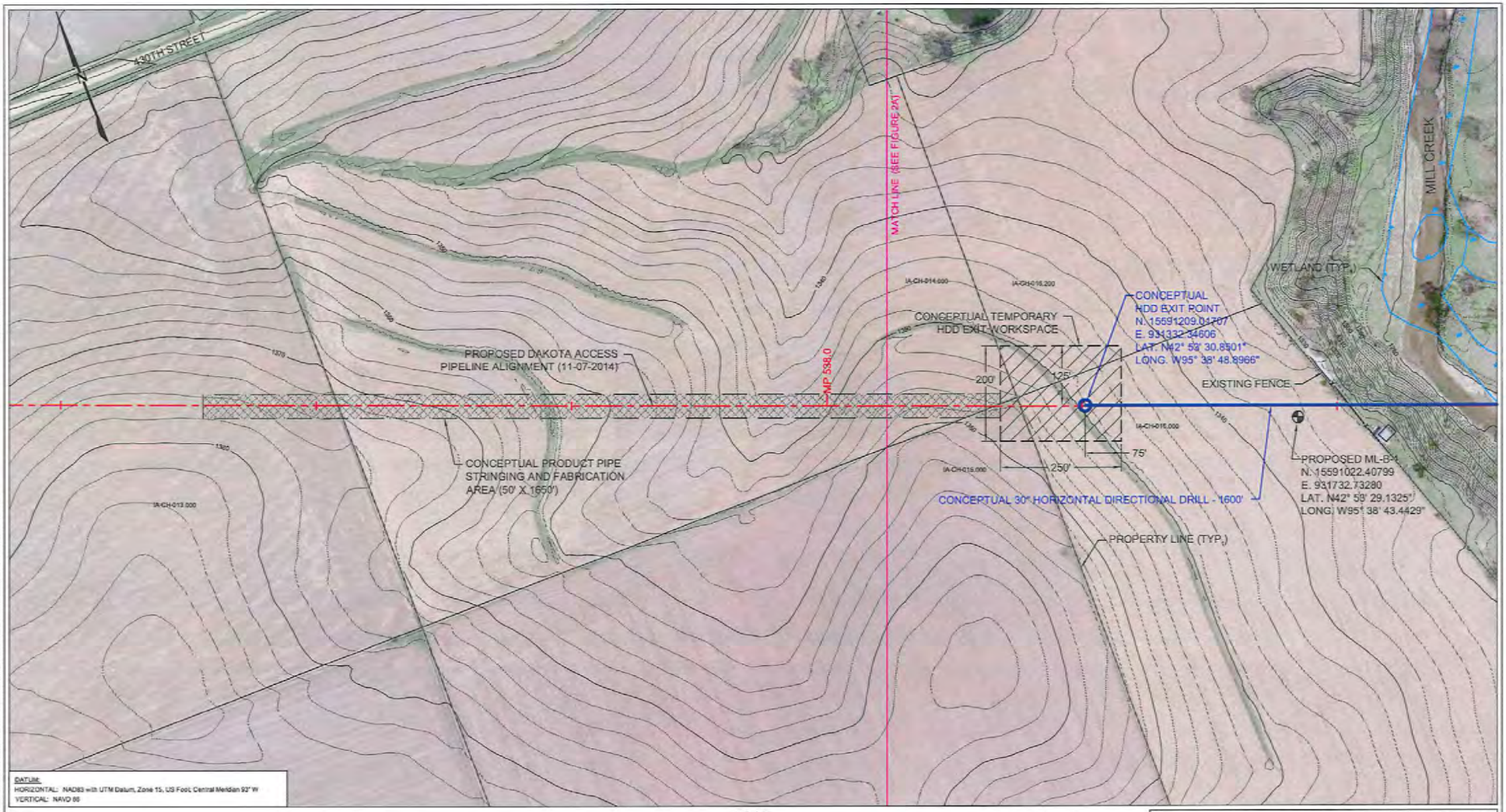
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 11, 2014

MAM : MWC

P:\18\18782011\01\CAD\Crossings\Iowa\Mill Creek\Drawings\Mill Creek HDD.dwg\TAB:Figure 2A modified on Nov 10, 2014 - 2:19pm



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Aerial Image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 09/30/13.

PLAN
200' 0 200'
SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:
- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
MILL CREEK HDD
CHEROKEE COUNTY, IOWA

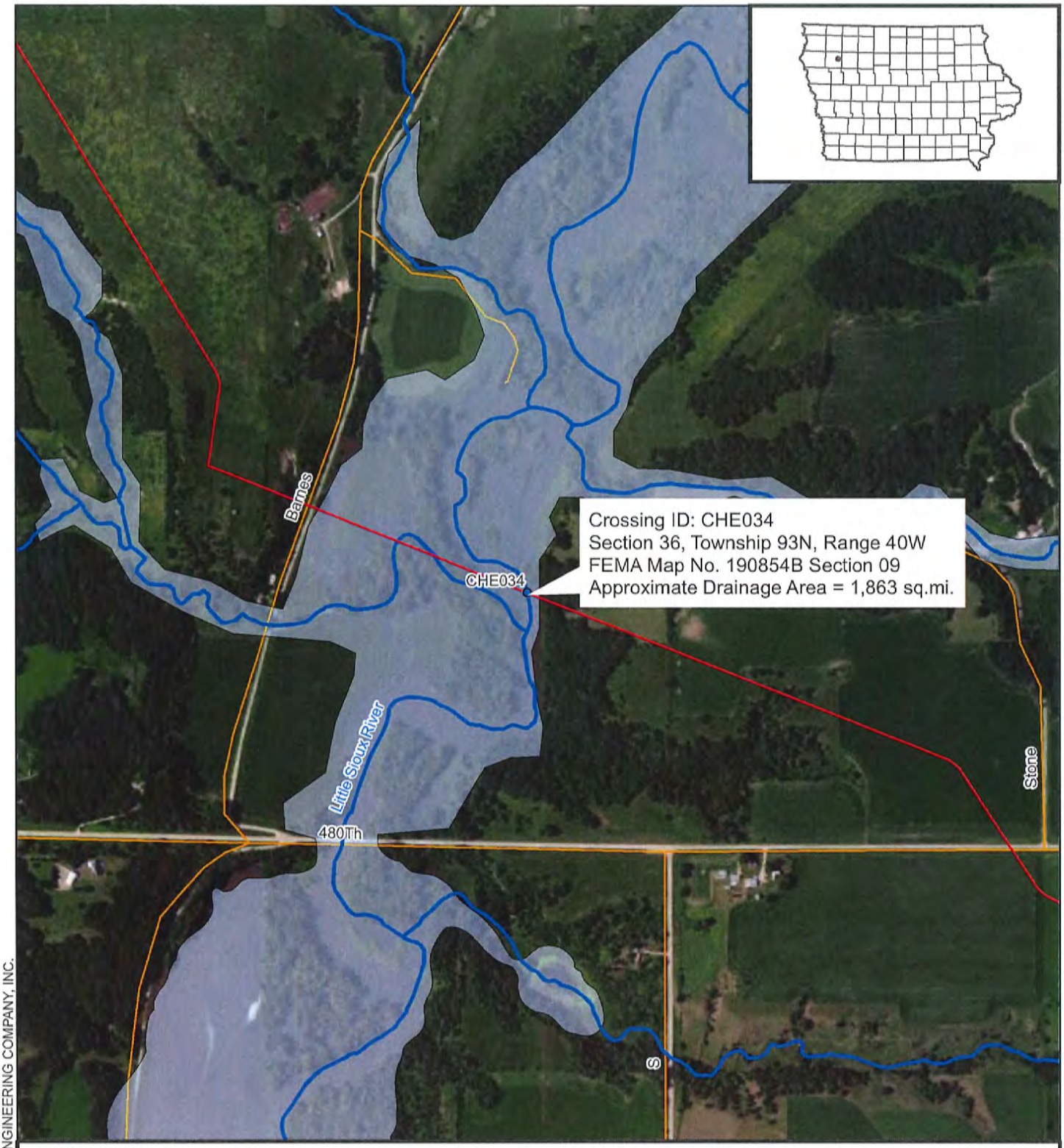
GEOENGINEERS

FIGURE 2B

ISSUED DATE: NOVEMBER 11, 2014

P:\18\18782\001\01\GIS\Crossings\Iowa\Mill Creek HDD.dwg\TAB-Figure 2B modified on Nov 10, 2014 - 2:17pm

MAX: RWC



FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

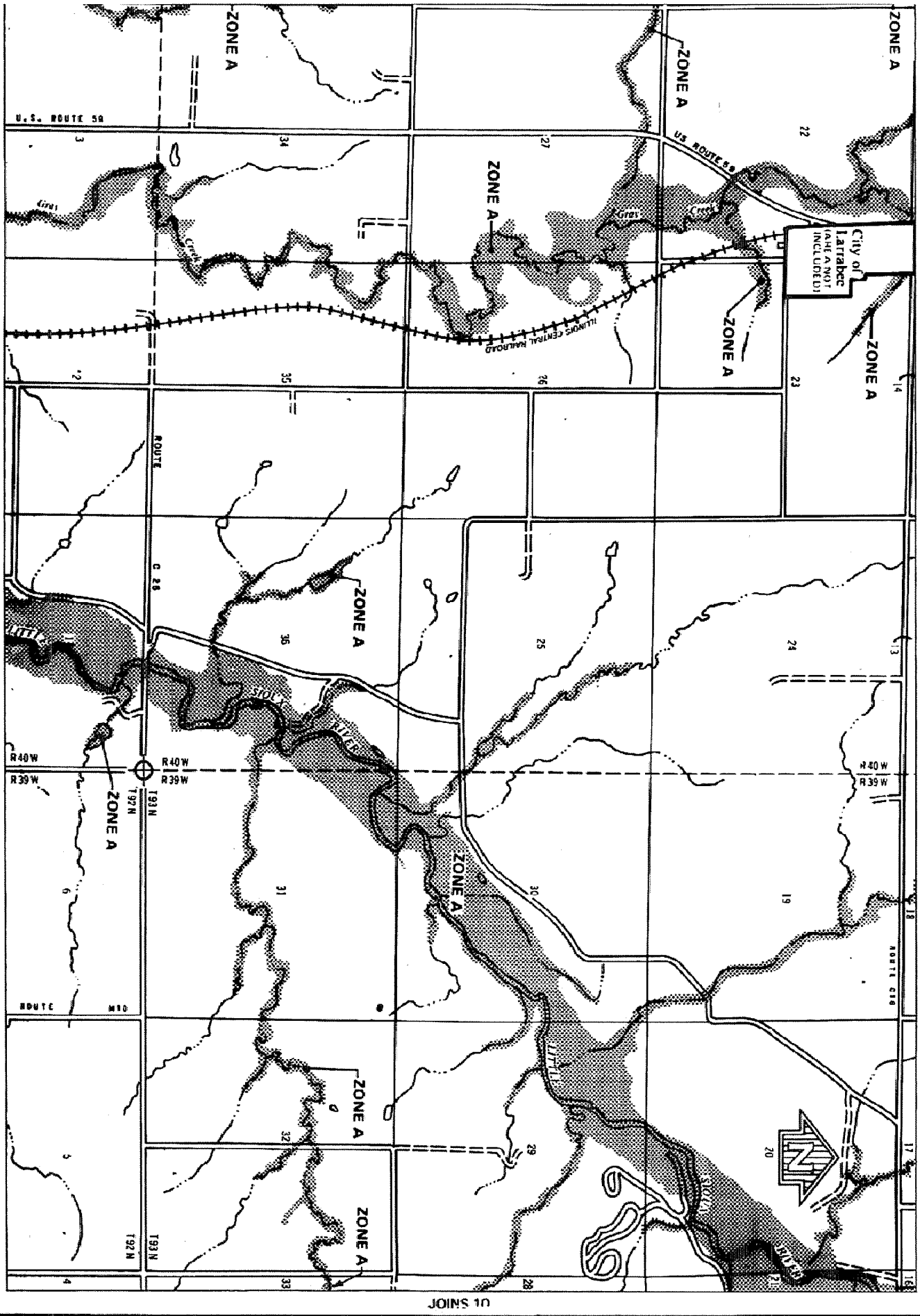
0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: CHE034
Cherokee County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map cherokee 034.mxd DCHEEK 2/9/2015
COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC.



DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Federal Insurance Administration

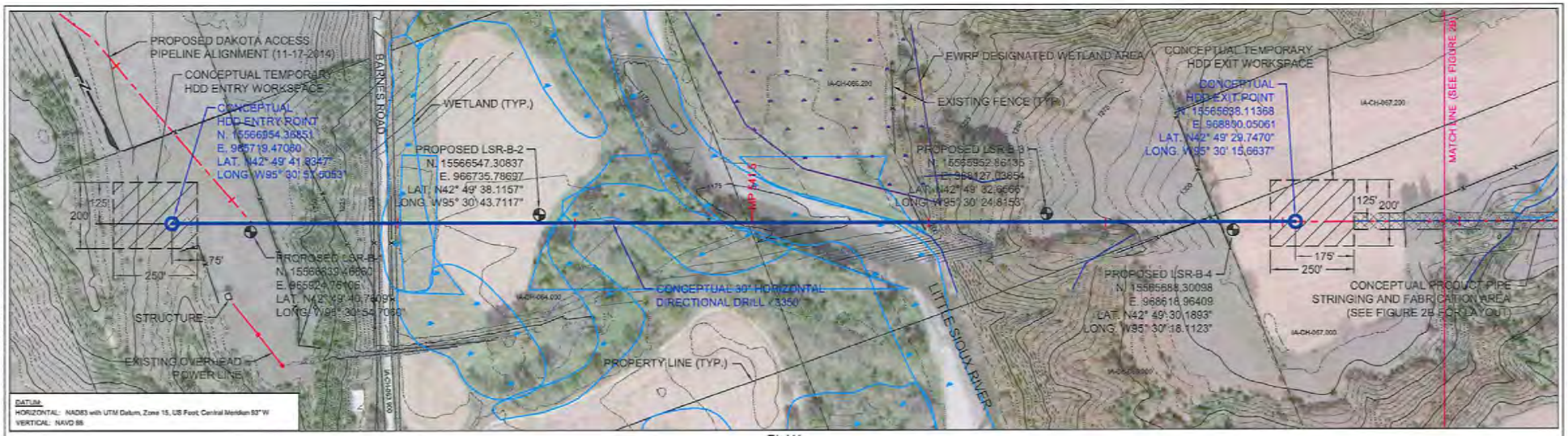
CHEROKEE CO., IA
(UNINC. AREA)

APPROXIMATE SCALE
2000 0 2000 4000 6000 FEET

FLOOD HAZARD BOUNDARY MAP

EFFECTIVE DATE
5/6/77

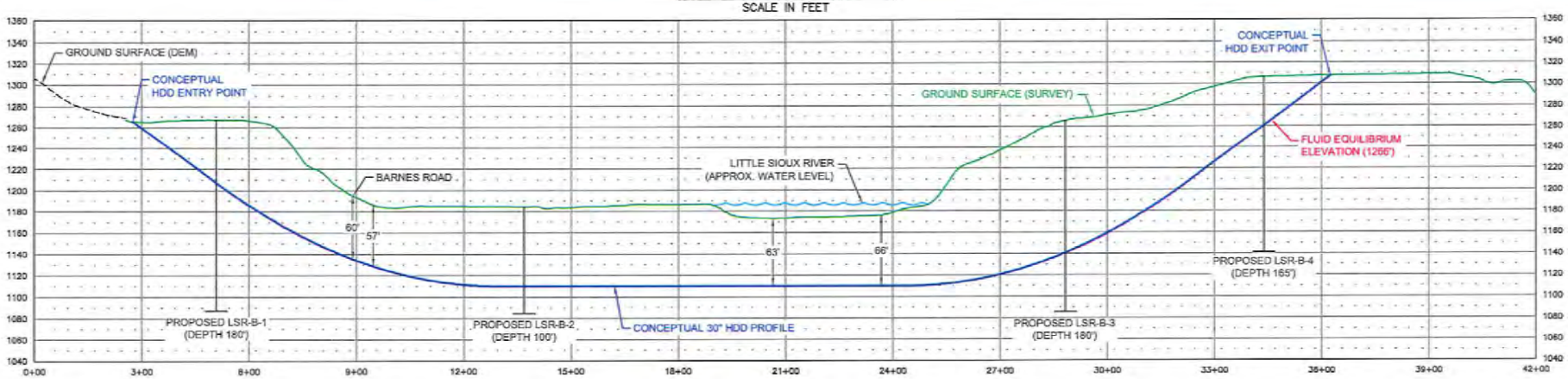
09



PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Ground surface survey and survey data provided by Wood Group Mustang, Inc.
Ground surface DEM (1/9 Arc Second) downloaded from http://viewer.nationalmap.gov/viewer/.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
LITTLE SIOUX RIVER HDD
CHEROKEE COUNTY, IOWA

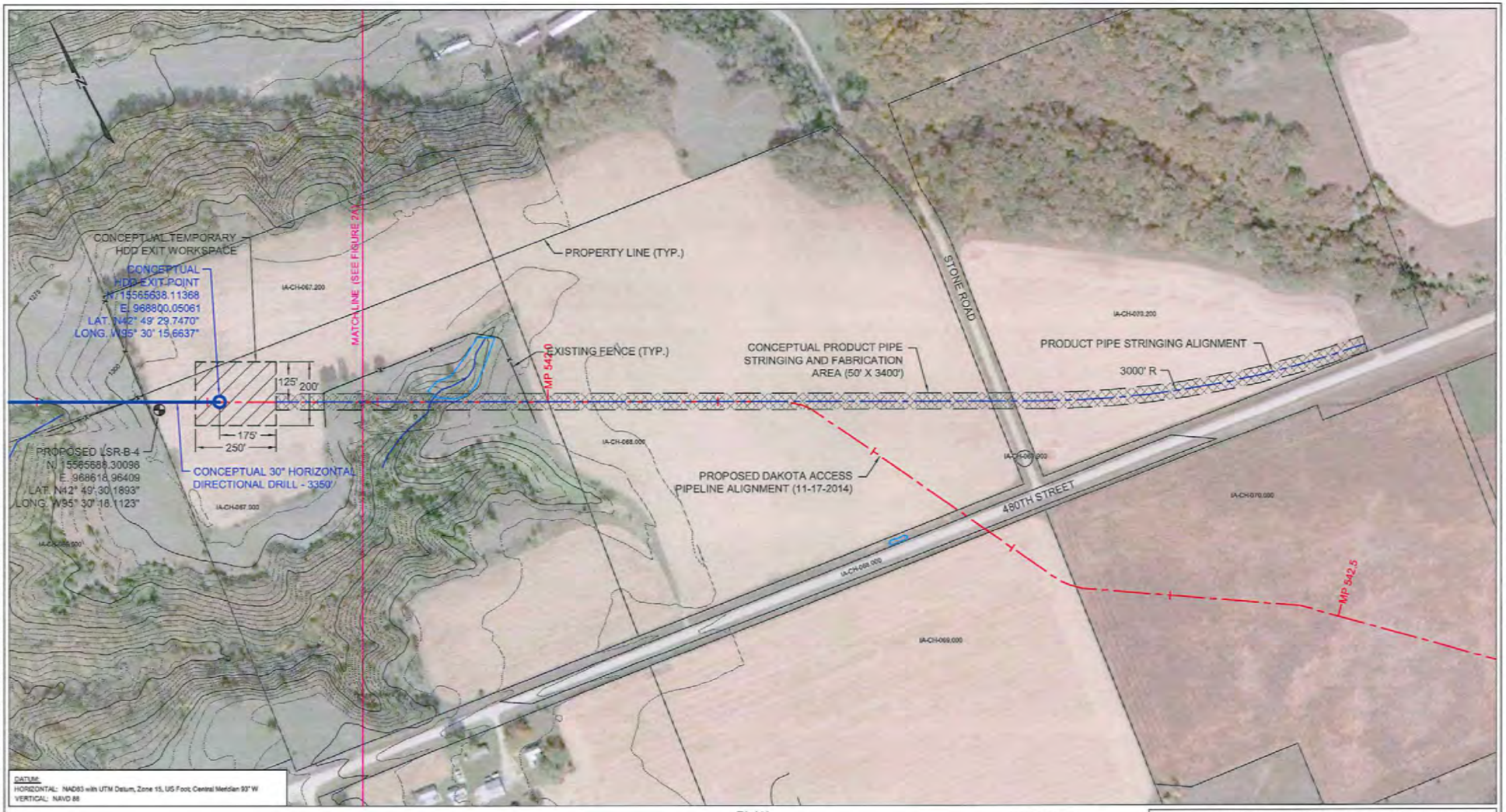
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 18, 2014

MAM - MWC

P:\18\18782\01\10\CAD\Crossings\Iowa\Little Sioux River\Drawings\Little Sioux River HDD Figure 2.dwg\7AB Figure 2A modified on Nov 18, 2014 - 3:14pm



Notes:
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Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey data provided by Wood Group Mustang, Inc.
Ground surface DEM (1/9 Arc Second) downloaded from http://viewer.nationalmap.gov/viewer/.

PLAN
300' 0 300'
SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:
- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE
PROPOSED 30" PIPELINE
LITTLE SIOUX RIVER HDD
CHEROKEE COUNTY, IOWA

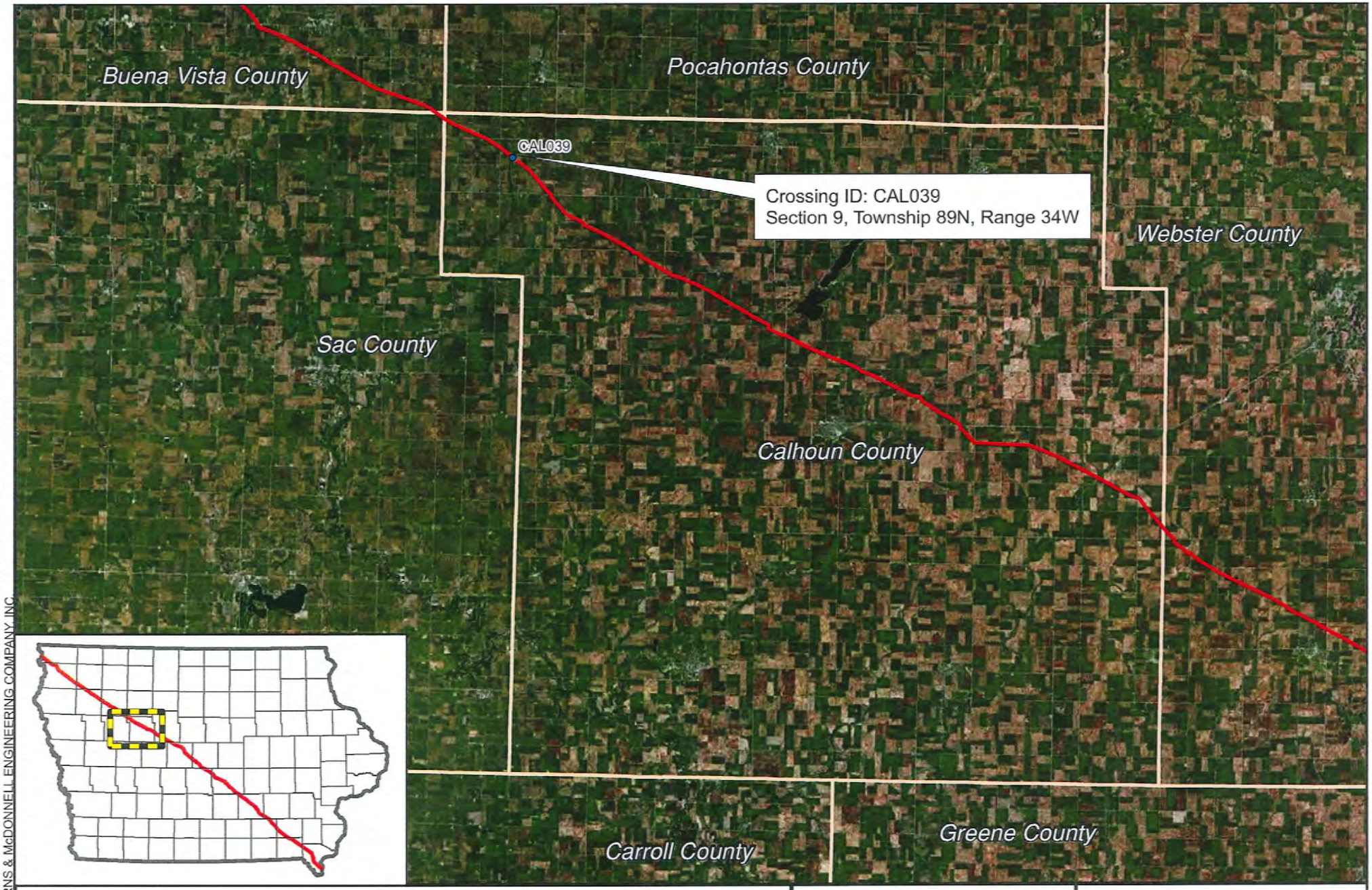
GEOENGINEERS

FIGURE 2B

ISSUED DATE: NOVEMBER 18, 2014

P:\181\6782\2011\01\CAD\Crossings\Iowa\Little Sioux River\Drawings\Little Sioux River HDD Figure 2.dwg\TABI'Figure 2B modified on Nov 18, 2014 - 3:18pm MAM : NWC

Attachment 7 – Calhoun County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Calhoun County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file calhoun.mxd DCHEEK 2/9/2015

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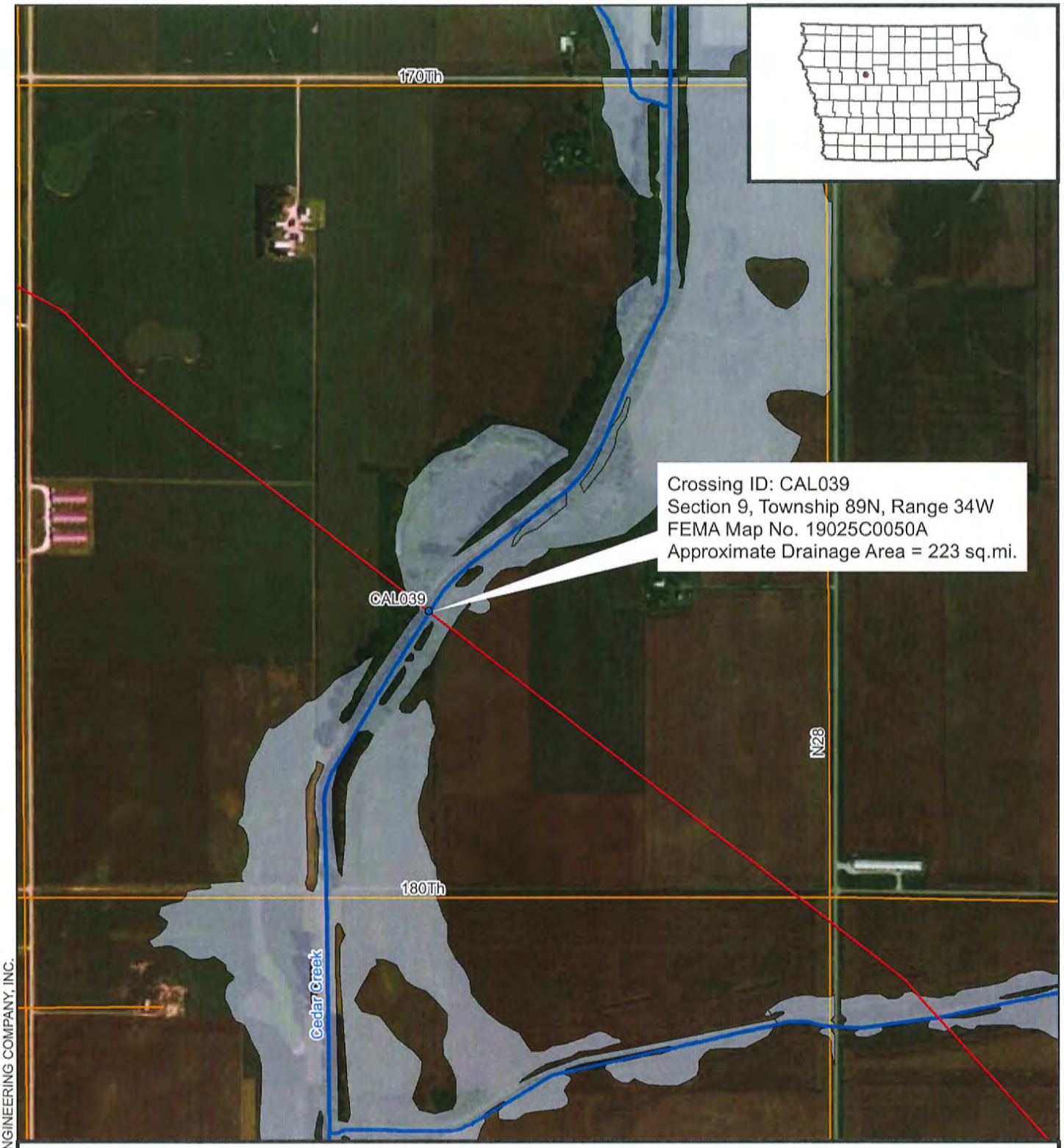


FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

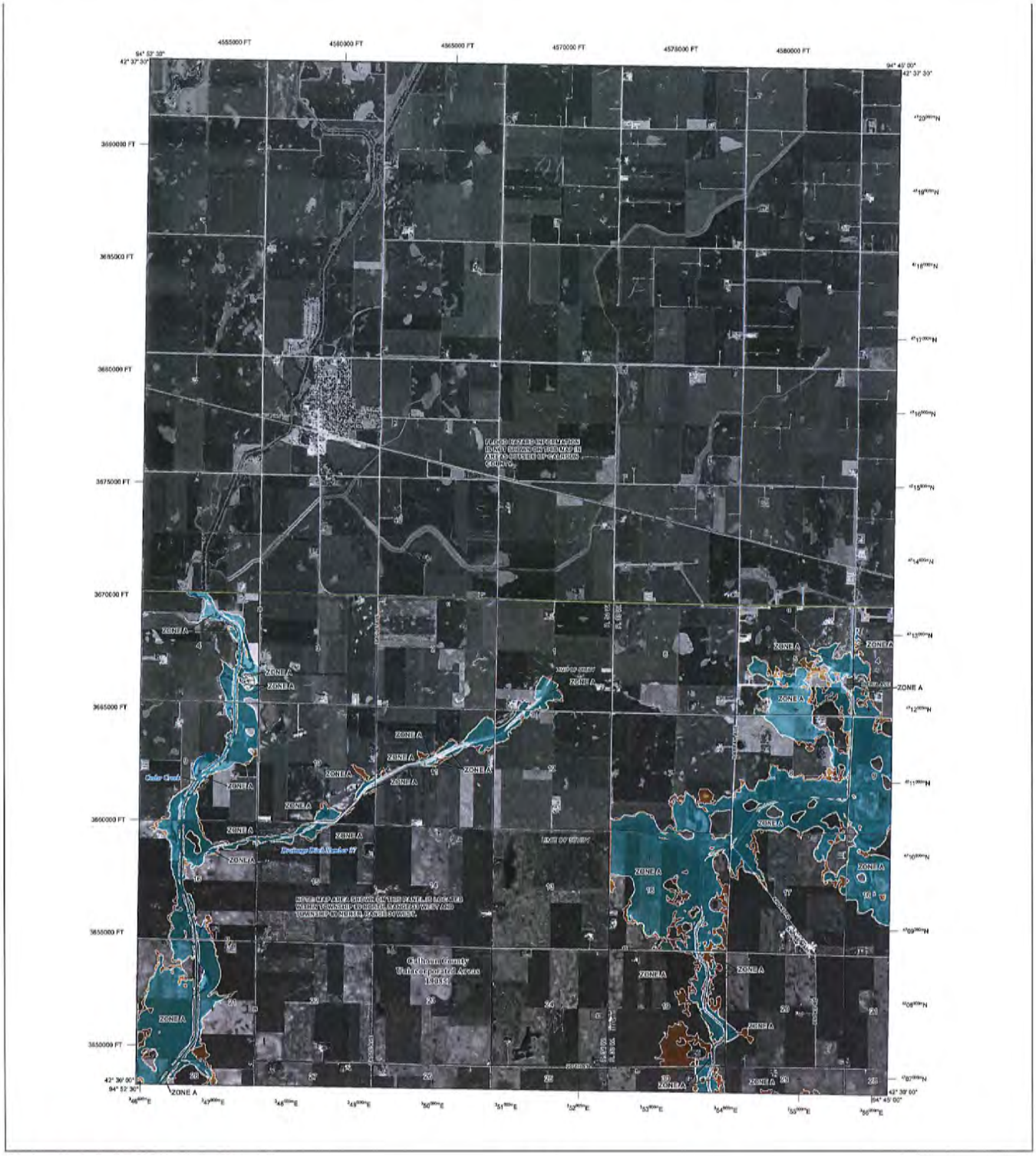
0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: CAL039
Calhoun County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map calhoun.mxd DCHEEK 2/10/2015
COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC.



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT
HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99* With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
OTHER AREAS	NO SCREEN Areas Determined to be Outside the 0.2% Annual Chance Floodplain *Zone X*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Accredited or Provisionally Accredited Levee, Dike, or Floodwall
	Non-accredited Levee, Dike, or Floodwall
	E 16.2 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	E Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
OTHER FEATURES	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Map Service Center website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the United States Geological Survey (USGS). This information was derived from digital orthophotography at a 2-foot resolution from photography dated 2011.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) NOTE

This map includes approximate boundaries of the CBRS for informational purposes **only**. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see http://www.fws.gov/cbra/Maps/Mapper.html, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

CBRS Area

Otherwise Protected Area

SCALE

Map Projection:
NAD 1983 StatePlane Iowa North FIPS 1401 Feet
Western Hemisphere, Vertical Datum: NAVD 88

1 inch = 2,000 feet 1:24,000

0 2,000 4,000 8,000 Feet

0 500 1,000 2,000 Meters

PANEL LOCATOR

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

CALHOUN COUNTY, IOWA
AND INCORPORATED AREAS

PANEL 50 OF 450

FEMA

Panel Contains:

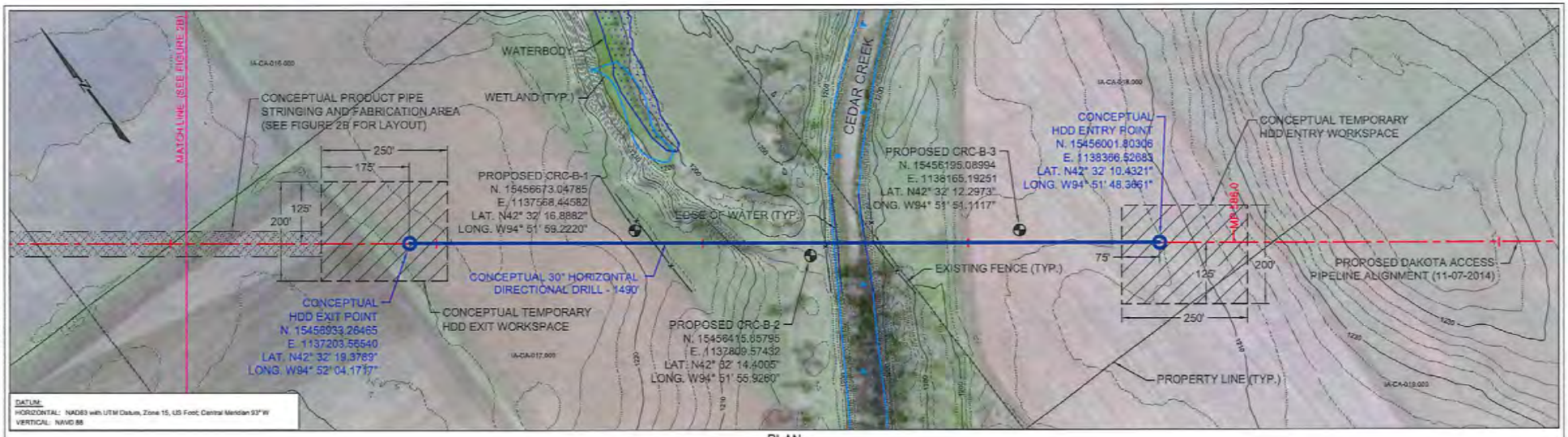
COMMUNITY	NUMBER	PANEL	SUFFIX
CALHOUN COUNTY	190851	0050	A

PRELIMINARY
07/14/2014

VERSION NUMBER
2.3.2.2

MAP NUMBER
19025C0050A

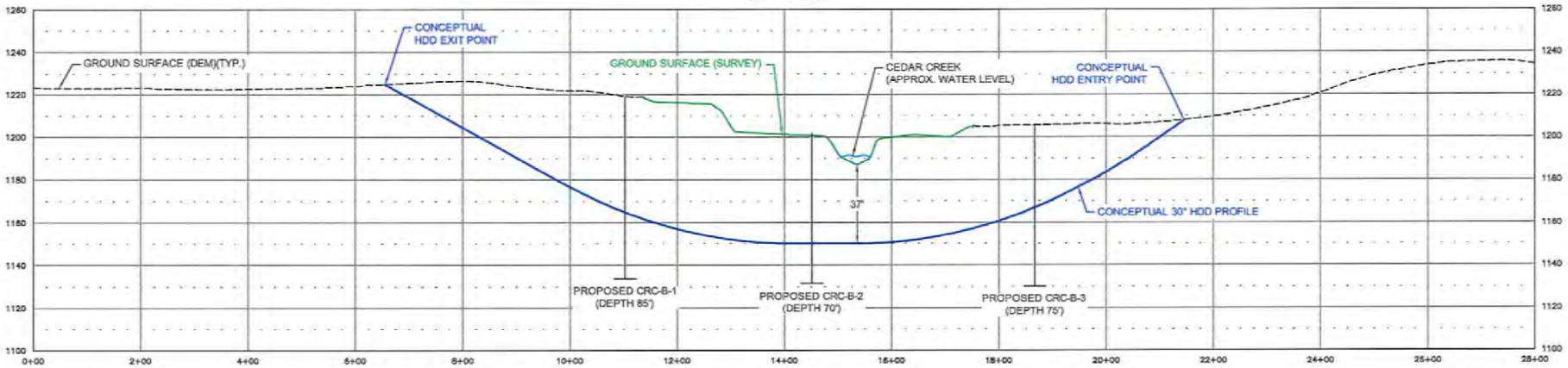
EFFECTIVE DATE



PLAN

200' 0 200'

SCALE IN FEET



PROFILE

200' 0 200'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
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Shape files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
CEDAR CREEK HDD
CALHOUN COUNTY, IOWA

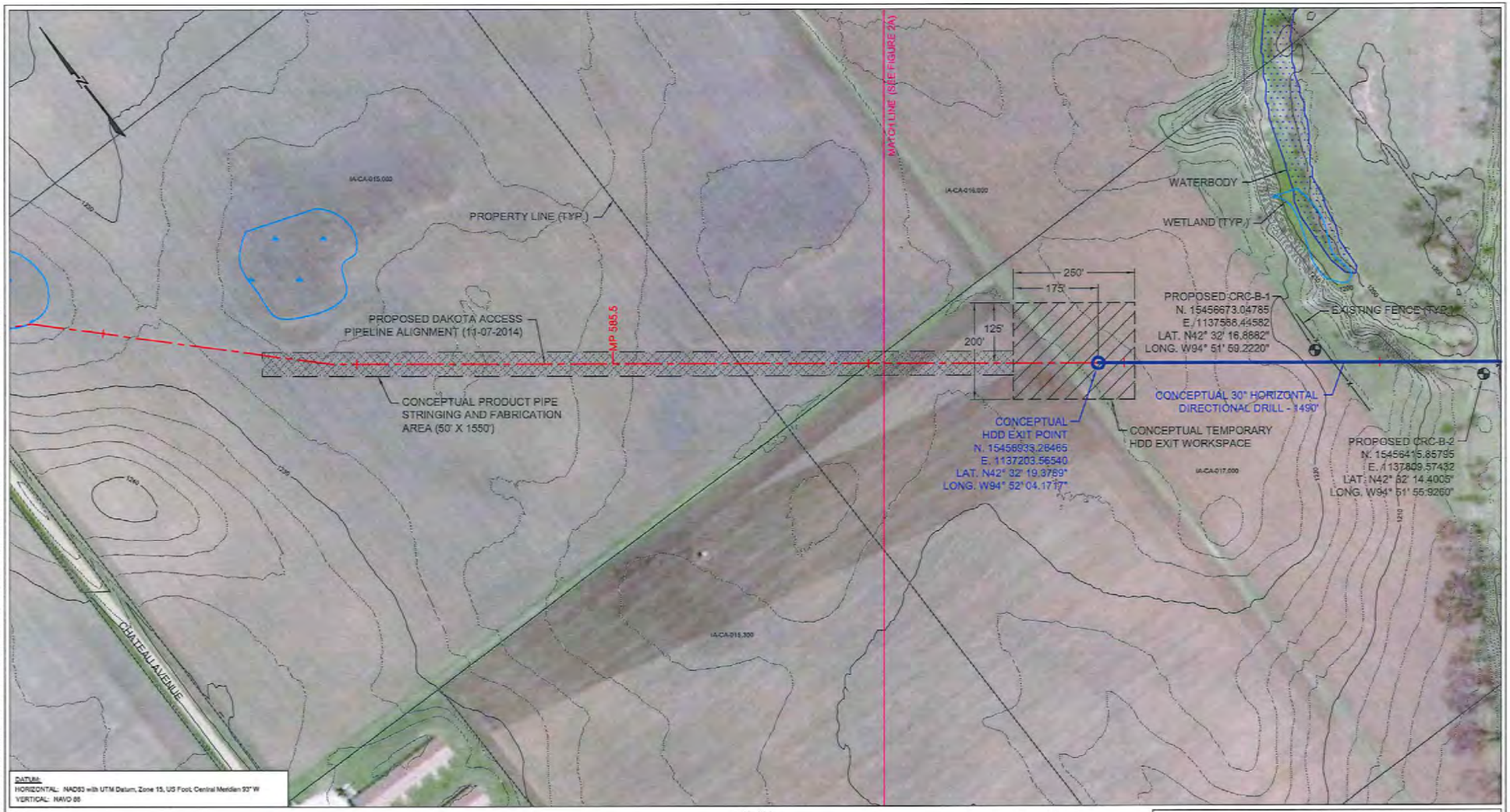
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 11, 2014

MAM : NWC

P:\18\1878201\10\CAD\Crossings\Iowa\Cedar Creek\Drawings\Cedar Creek HDD.dwg\TAB:Figure 2A modified on Nov 10, 2014 - 9:33pm



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Shape files provided by Contract Land Staff, LLC.

PLAN

200' 0 200'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
CEDAR CREEK HDD
CALHOUN COUNTY, IOWA

GEOENGINEERS

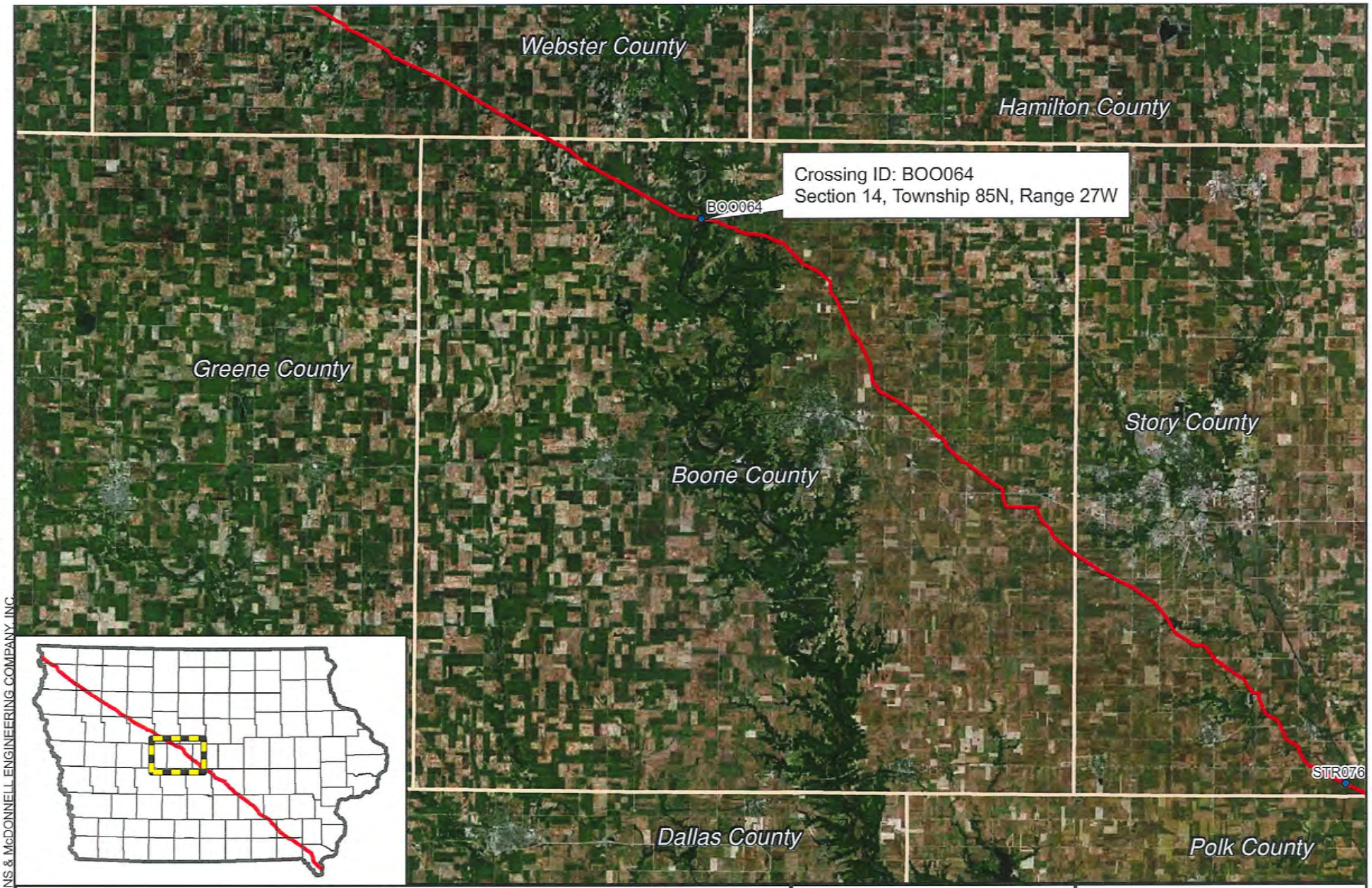
FIGURE 2B

ISSUED DATE: NOVEMBER 11, 2014

MAX: 1 MWC

P:\18\1878201\101\CAD\Crossing\Iowa\Cedar Creek\Drawings\Cedar Creek HDD.dwg\TAB:Figure 2B modified on Nov 10, 2014 - 9:37pm

Attachment 8 – Boone County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Boone County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/3/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file boone.mxd DCHEEK 2/3/2015

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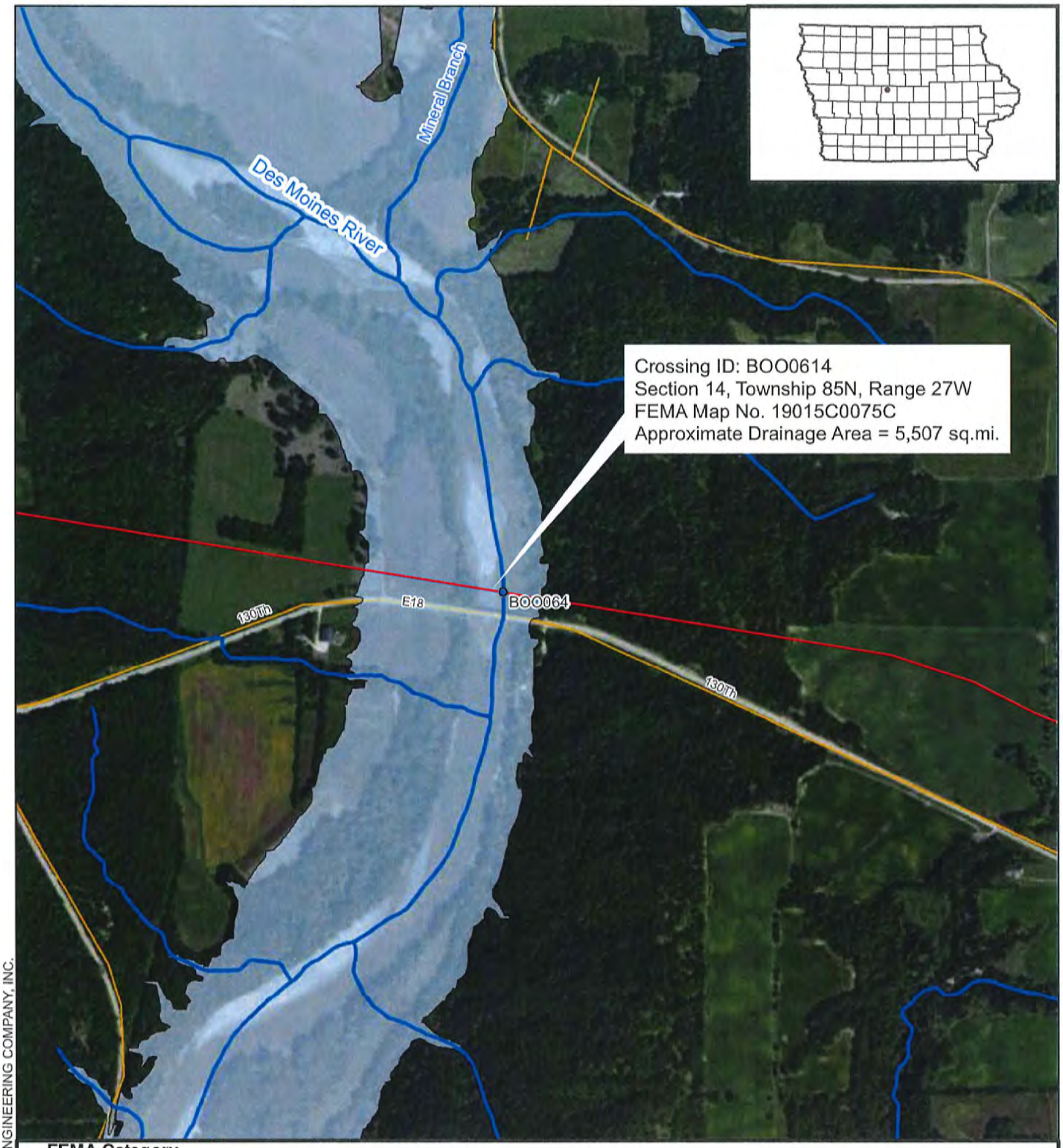

FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: BOO064
Boone County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map boone.mxd DCHEEK 2/10/2015
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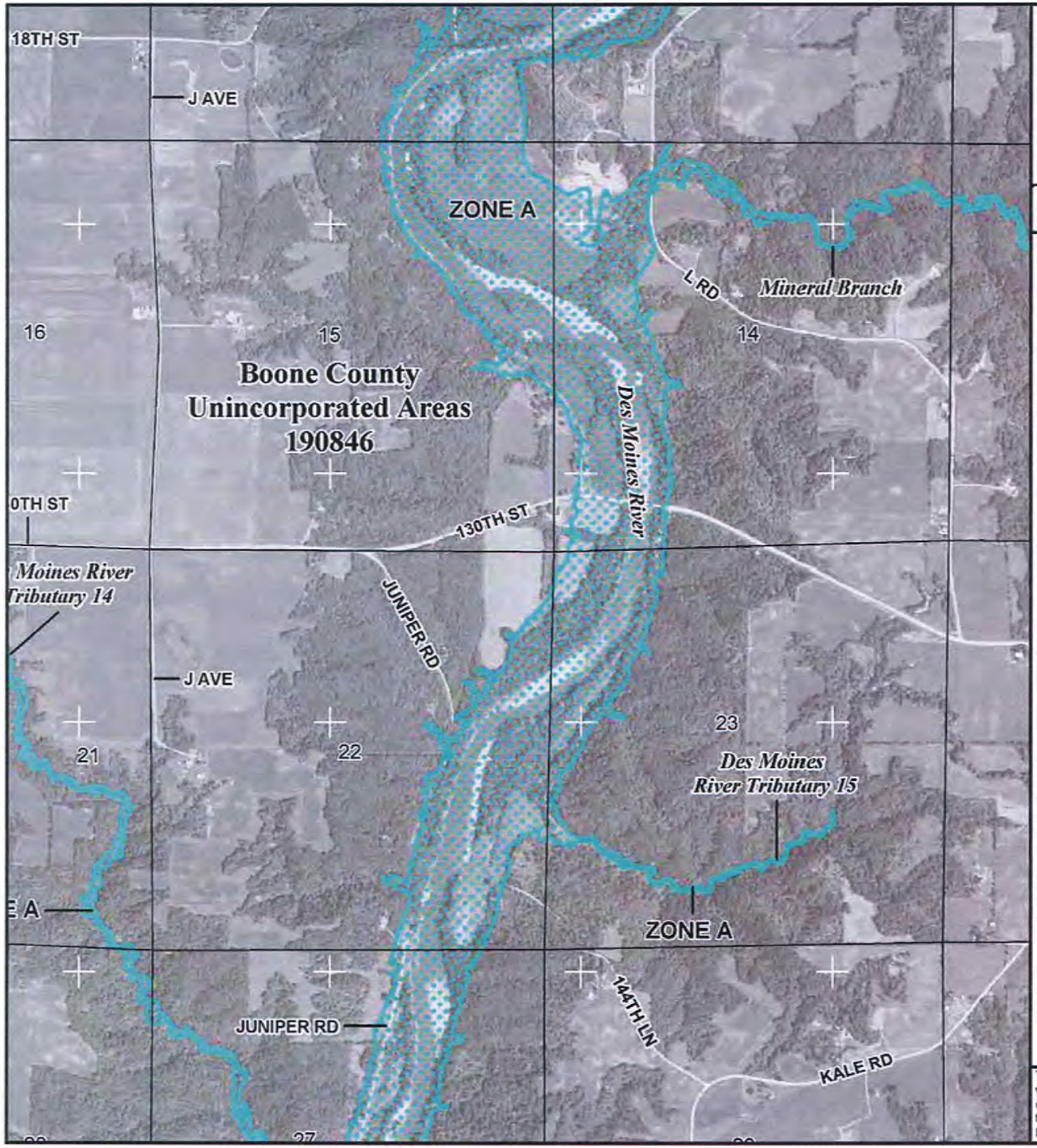


MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0075C

FIRM

FLOOD INSURANCE RATE MAP

BOONE COUNTY, IOWA AND INCORPORATED AREAS

PANEL 75 OF 500

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BOONE COUNTY	190846	0075	C
FRASER, CITY OF	190324	0075	C

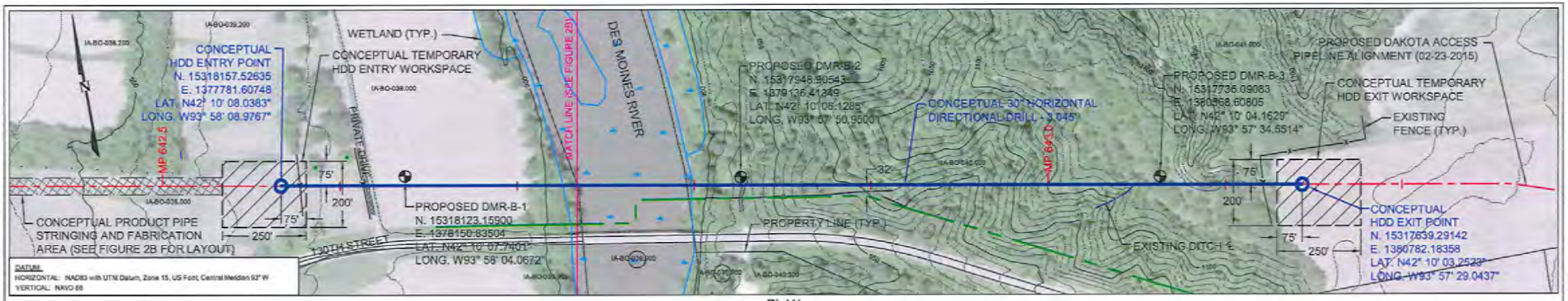
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
19015C0075C

EFFECTIVE DATE
MAY 3, 2011

Federal Emergency Management Agency

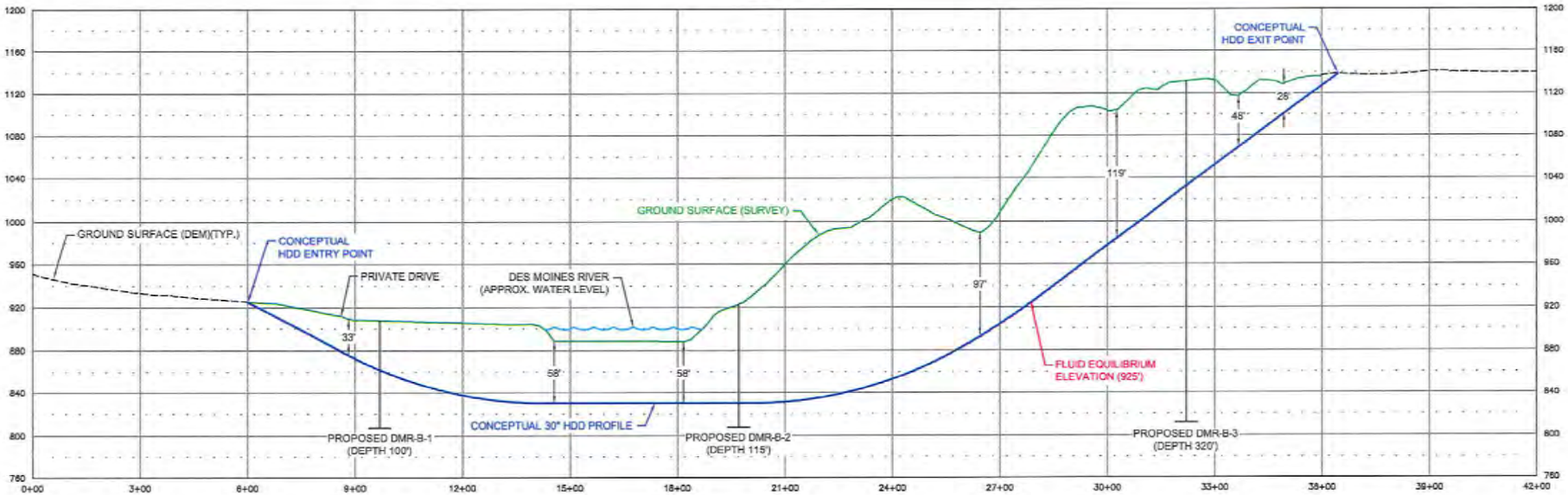
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro © 2015, licensed to GeoEngineers, Inc., image dated 06/11/12.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey base file provided by Wood Group Mustang, Inc.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 50' Interval
- Minor Contour - 10' Interval

DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
DES MOINES RIVER HDD
BOONE COUNTY, IOWA

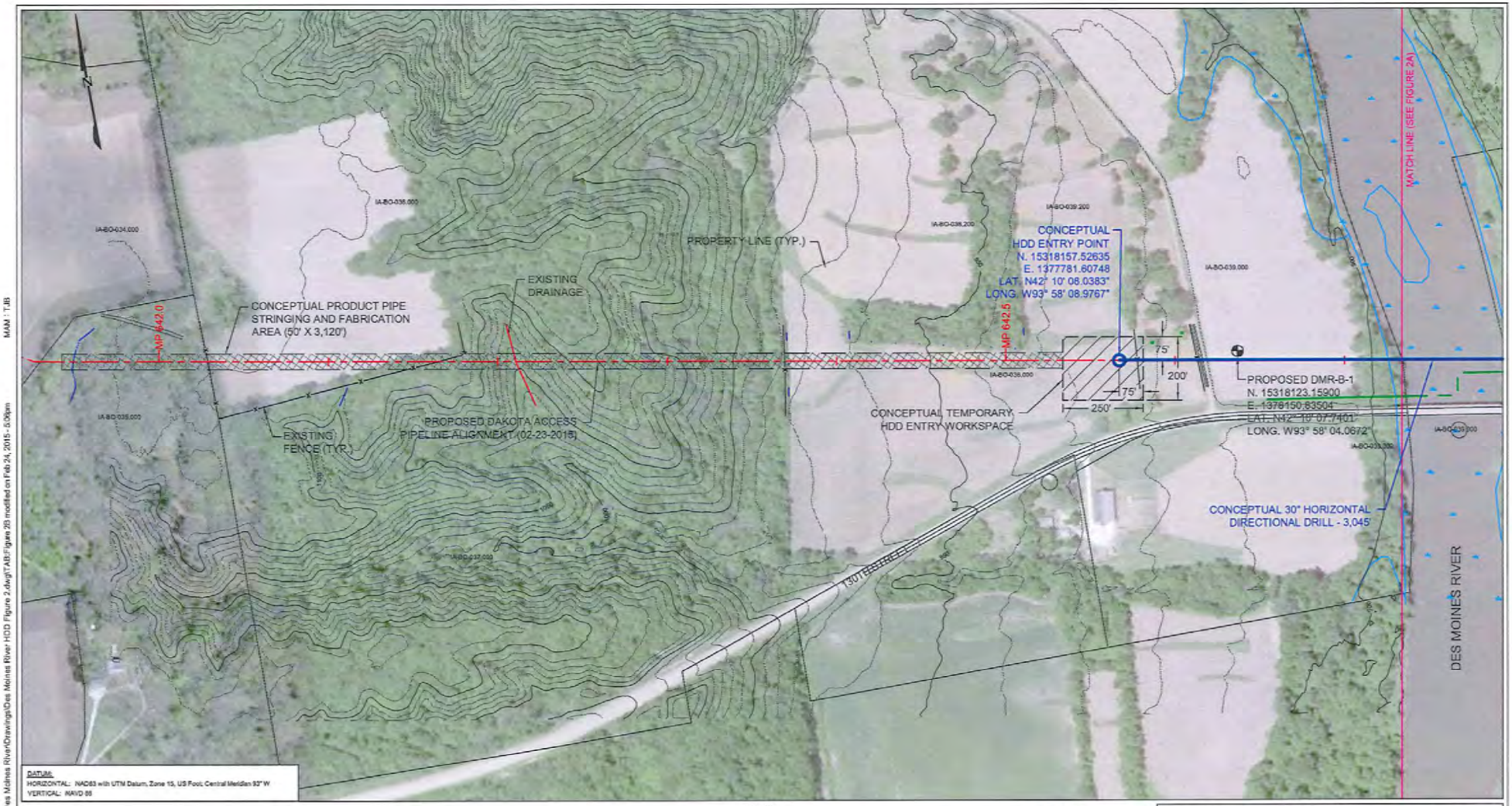
GEOENGINEERS

FIGURE 2A

ISSUED DATE: FEBRUARY 24, 2015

MAM : RBM

P:\18\18780\011\01\CAD\Crossings\Iowa\Des Moines River\Drawings\Des Moines River HDD Figure 2.dwg\TAB:Figure 2A modified on Feb 24, 2015 - 5:05pm



Notes:
1. The locations of all features shown are approximate.
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3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

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Aerial image taken from Google Earth Pro © 2015, licensed to GeoEngineers, Inc., image dated 06/11/12.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey base file provided by Wood Group Mustang, Inc.

PLAN
300' 0 300'
SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:
- Proposed Boring Location
- Major Contour - 50' Interval
- Minor Contour - 10' Interval

DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
DES MOINES RIVER HDD
BOONE COUNTY, IOWA

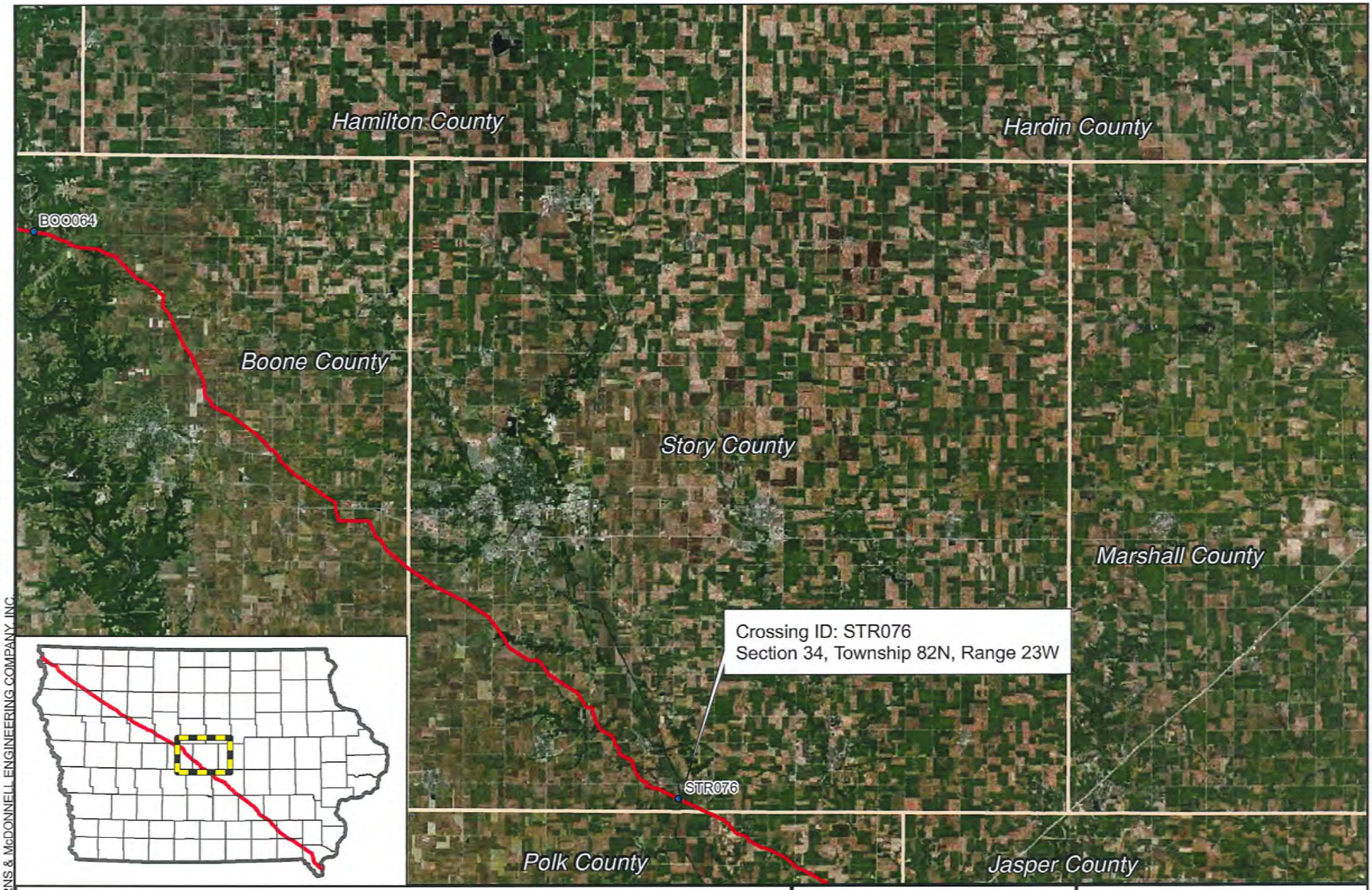
GEOENGINEERS

FIGURE 2B

ISSUED DATE: FEBRUARY 24, 2015

P:\181\87\2015\10\CADD\Crossings\Iowa\Des Moines River\Drawings\Des Moines River HDD Figure 2.dwg\TAB:Figure 2B modified on Feb 24, 2015 - 5:09pm MAM : TJB

Attachment 9 – Story County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Story County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/3/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file story.mxd DCHEEK 2/3/2015

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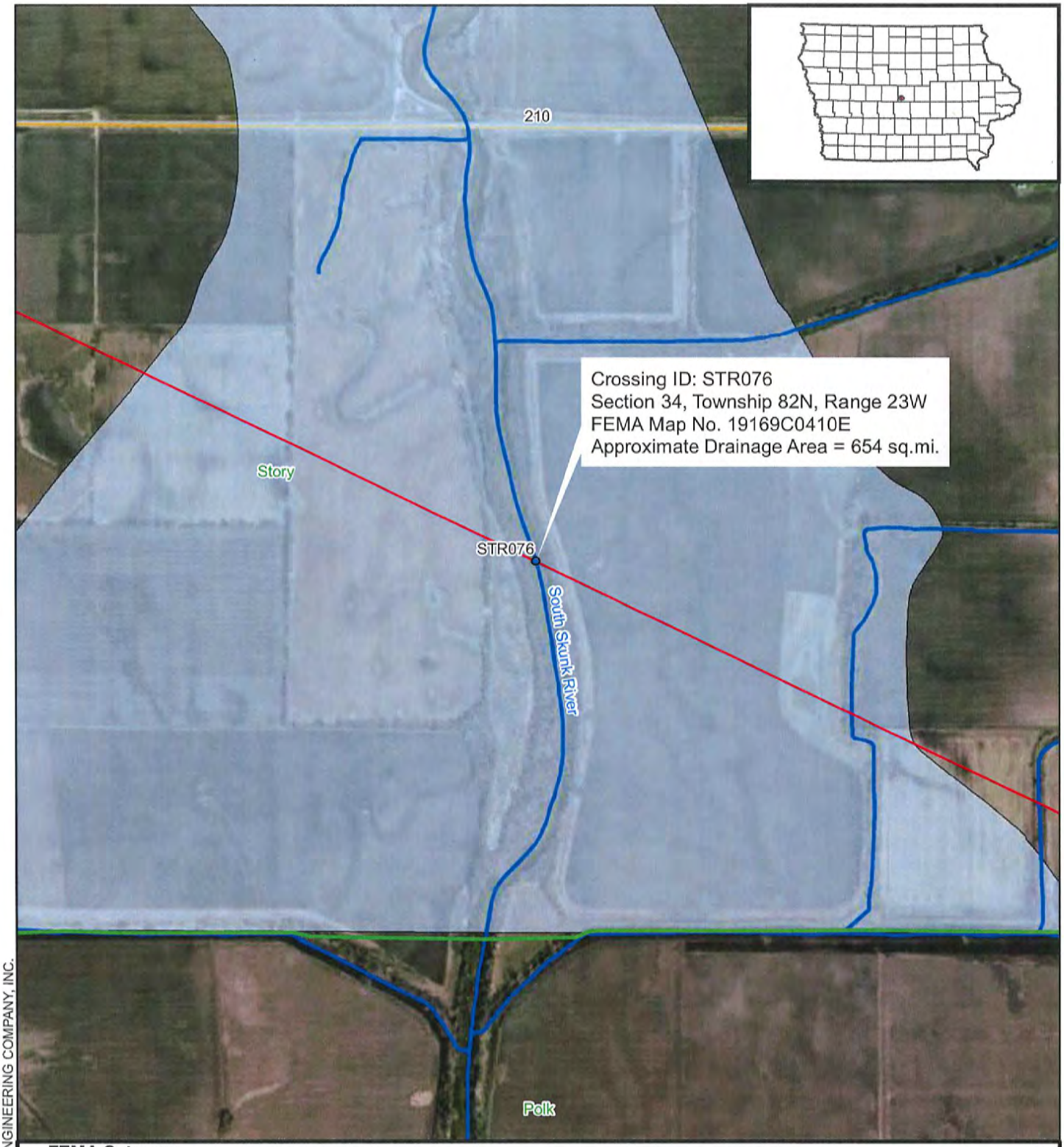


FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- County Line
- Approximate Stream Centerline
- Streets

NORTH

0 0.1 0.2 0.4 Miles

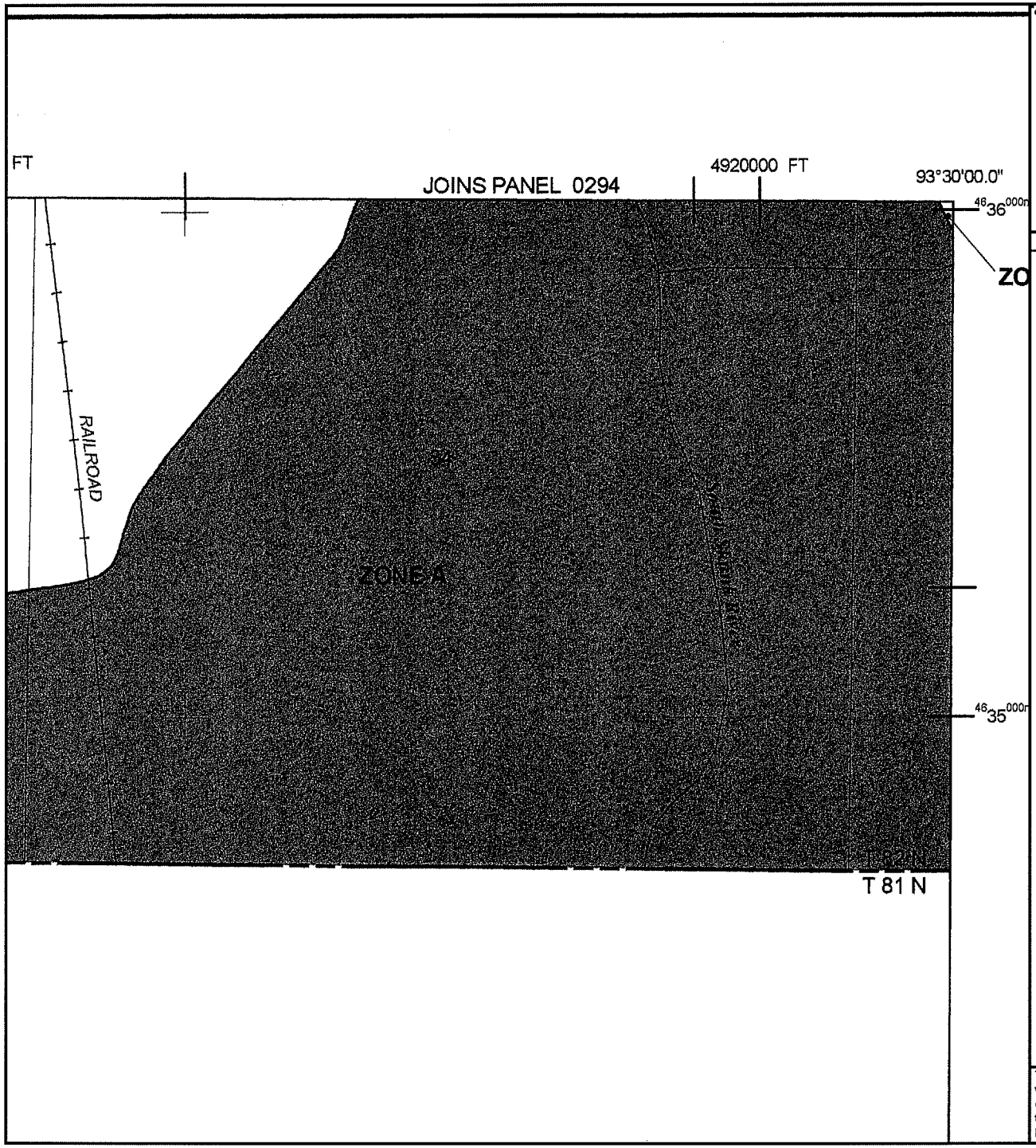
DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: STR076
Story County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map story.mxd DCHEEK 2/9/2015
COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC.

ance Program at 1-800-638-6620.



MAP SCALE 1" = 1000'

500 0 1000 2000 FE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0410E

FIRM

FLOOD INSURANCE RATE MAP

STORY COUNTY, IOWA

AND INCORPORATED AREAS

PANEL 410 OF 500

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
STORY COUNTY	190907	0410	E

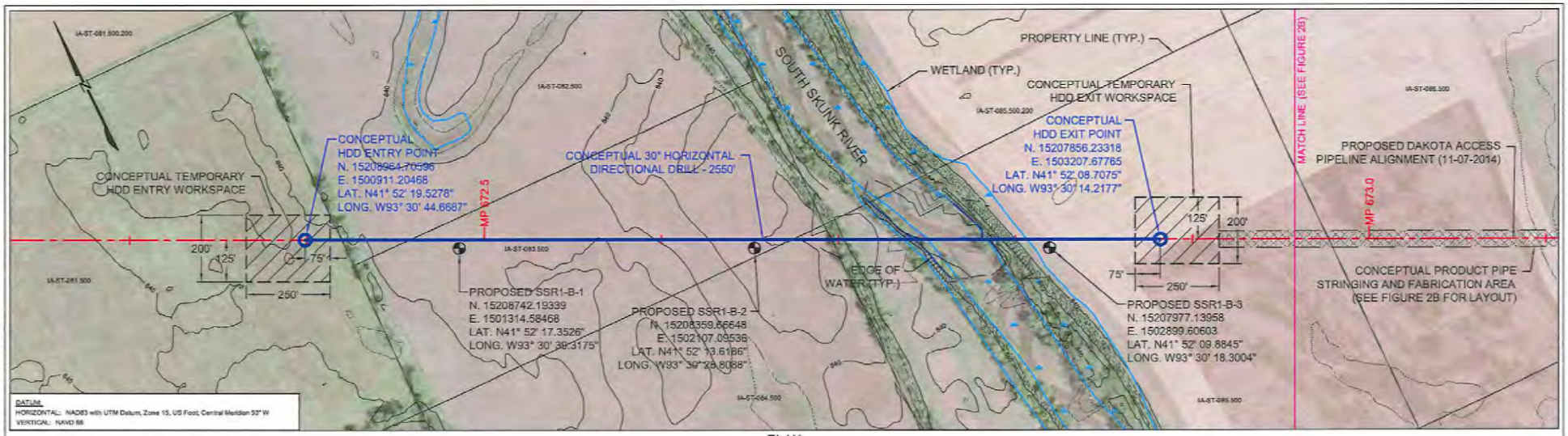
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

MAP NUMBER 19169C0410E

EFFECTIVE DATE FEBRUARY 20, 2008

Federal Emergency Management Agency

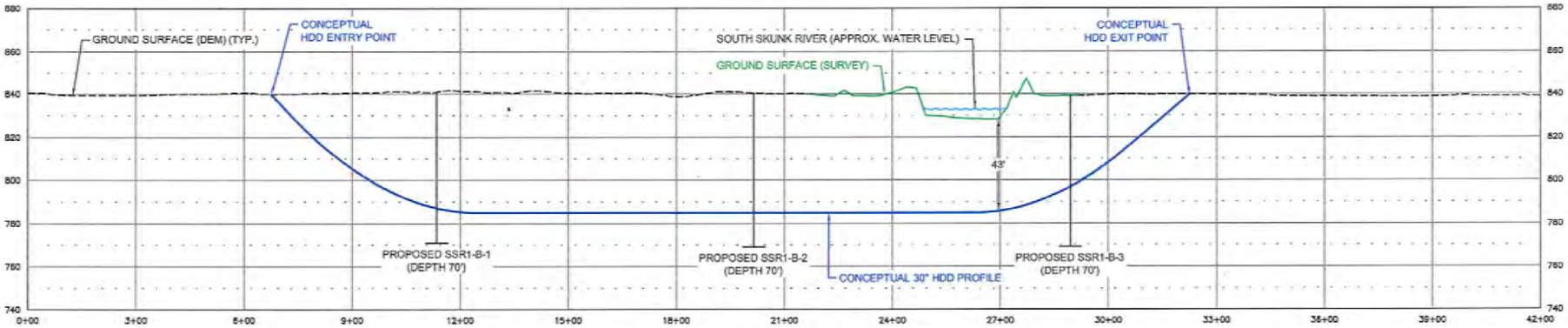
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 09/30/13.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey data provided by Wood Group Mustang, Inc.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
SOUTH SKUNK RIVER #1 HDD
STORY COUNTY, IOWA

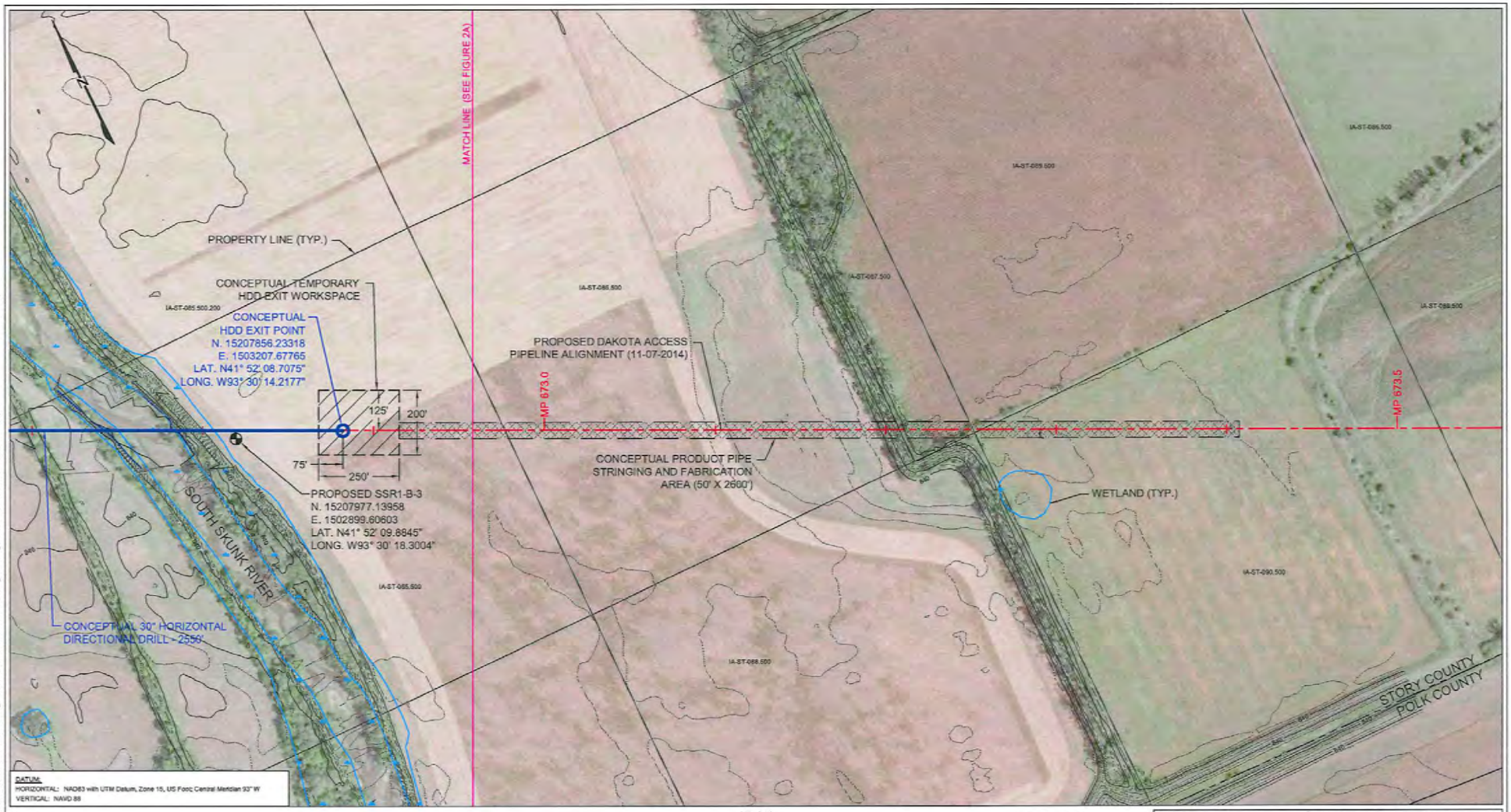
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 11, 2014

MAN: BTL

P:\18\18782\01\10\1\CAD\Crossings\Iowa\South Skunk River 1st\Drawings\South Skunk River 1st HDD.dwg\TAB: Figure 2A modified on Nov 10, 2014 - 9:11pm



Notes:
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Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 09/30/13.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey data provided by Wood Group Mustang, Inc.

PLAN

300' 0 300'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
SOUTH SKUNK RIVER #1 HDD
STORY COUNTY, IOWA

GEOENGINEERS

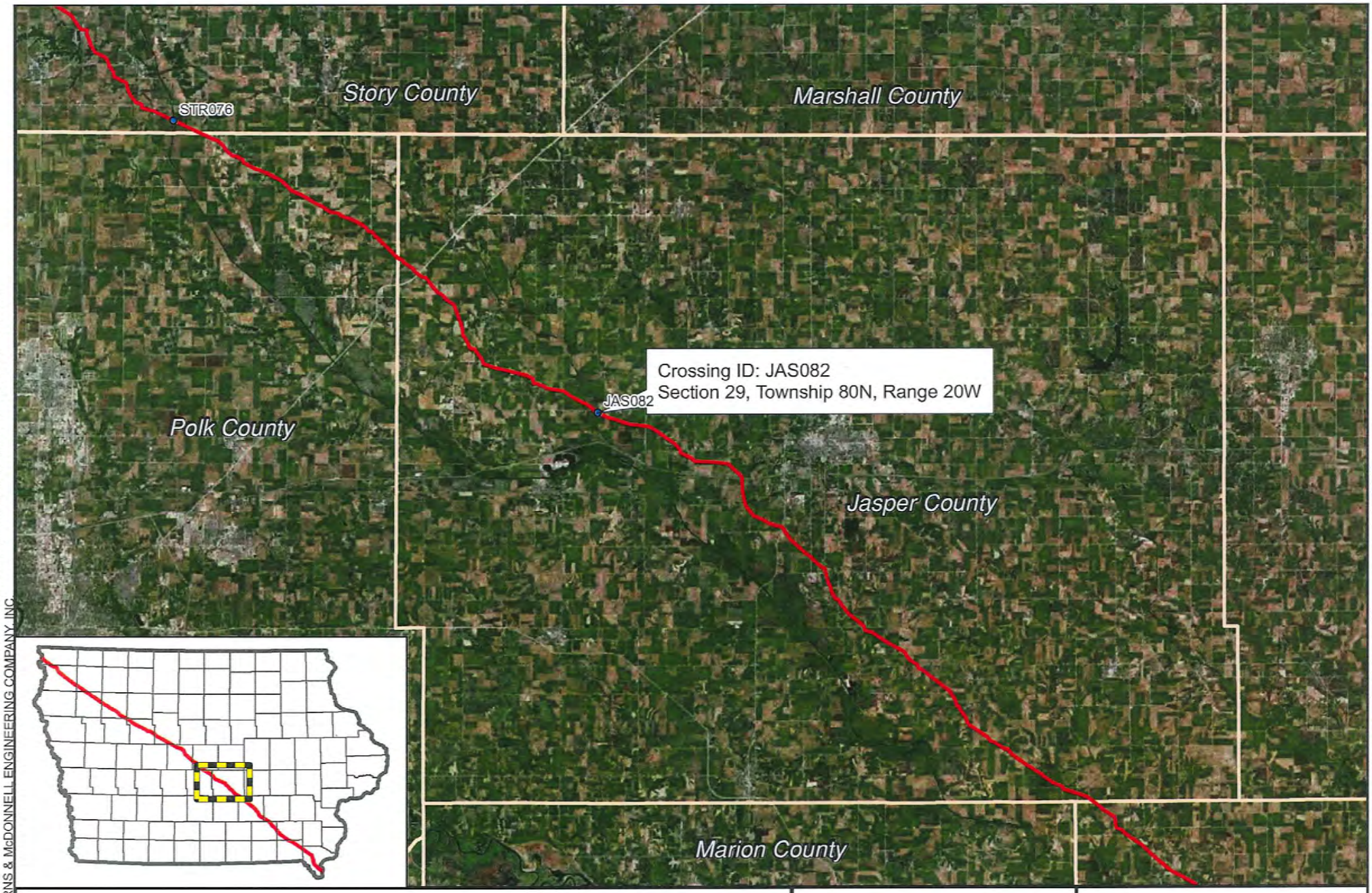
FIGURE 2B

ISSUED DATE: NOVEMBER 11, 2014

P:\18\18782\01\10\CAD\Crossings\Iowa\South Skunk River 1st\Drawings\South Skunk River 1st HDD.dwg\TAB:Figure 2B modified on Nov 10, 2014 - 9:09pm

MAM : MWC

Attachment 10 – Jasper County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Jasper County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file jasper.mxd DCHEEK 2/9/2015

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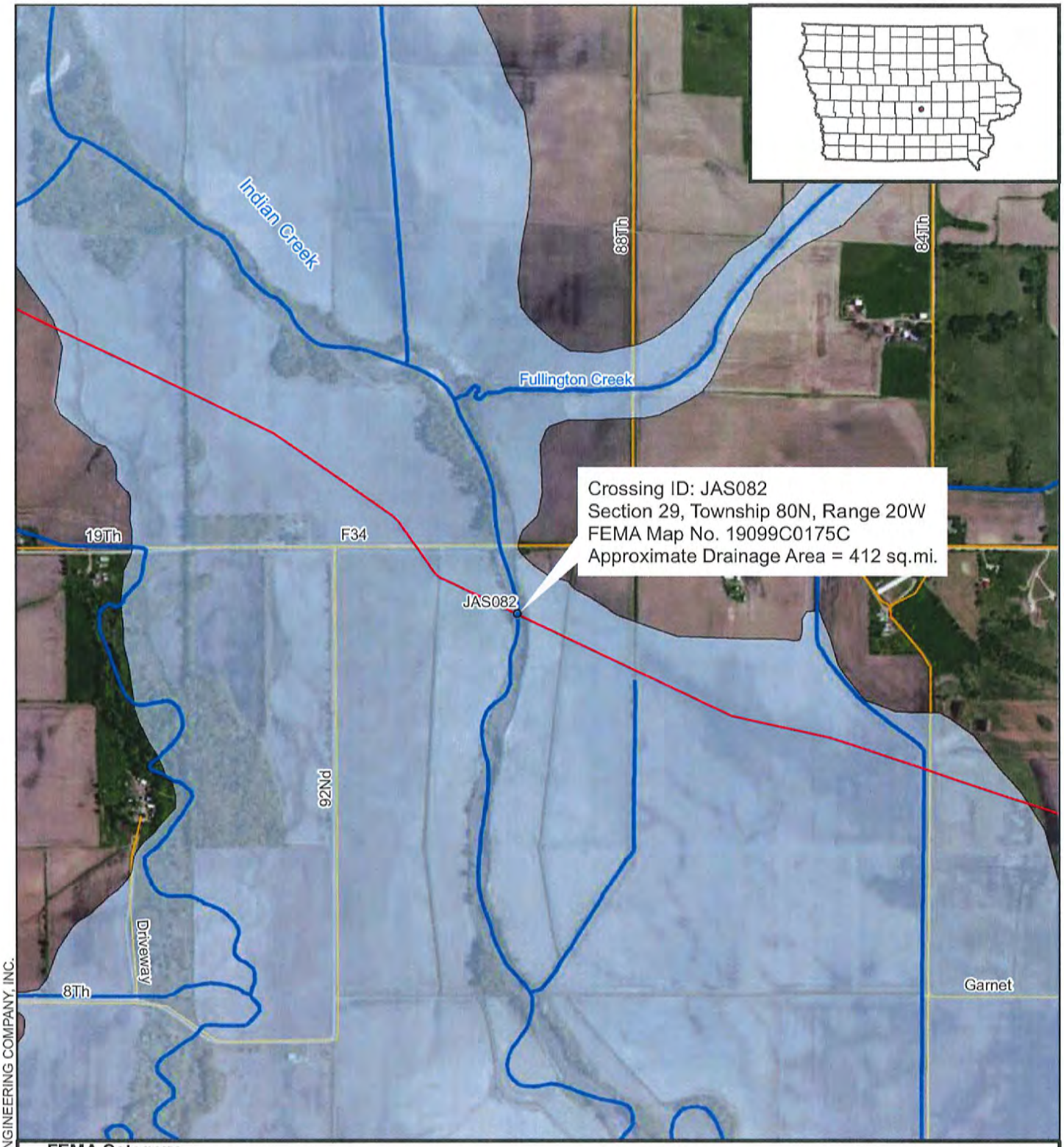

FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

0 0.125 0.25 0.5 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: JAS082
Jasper County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

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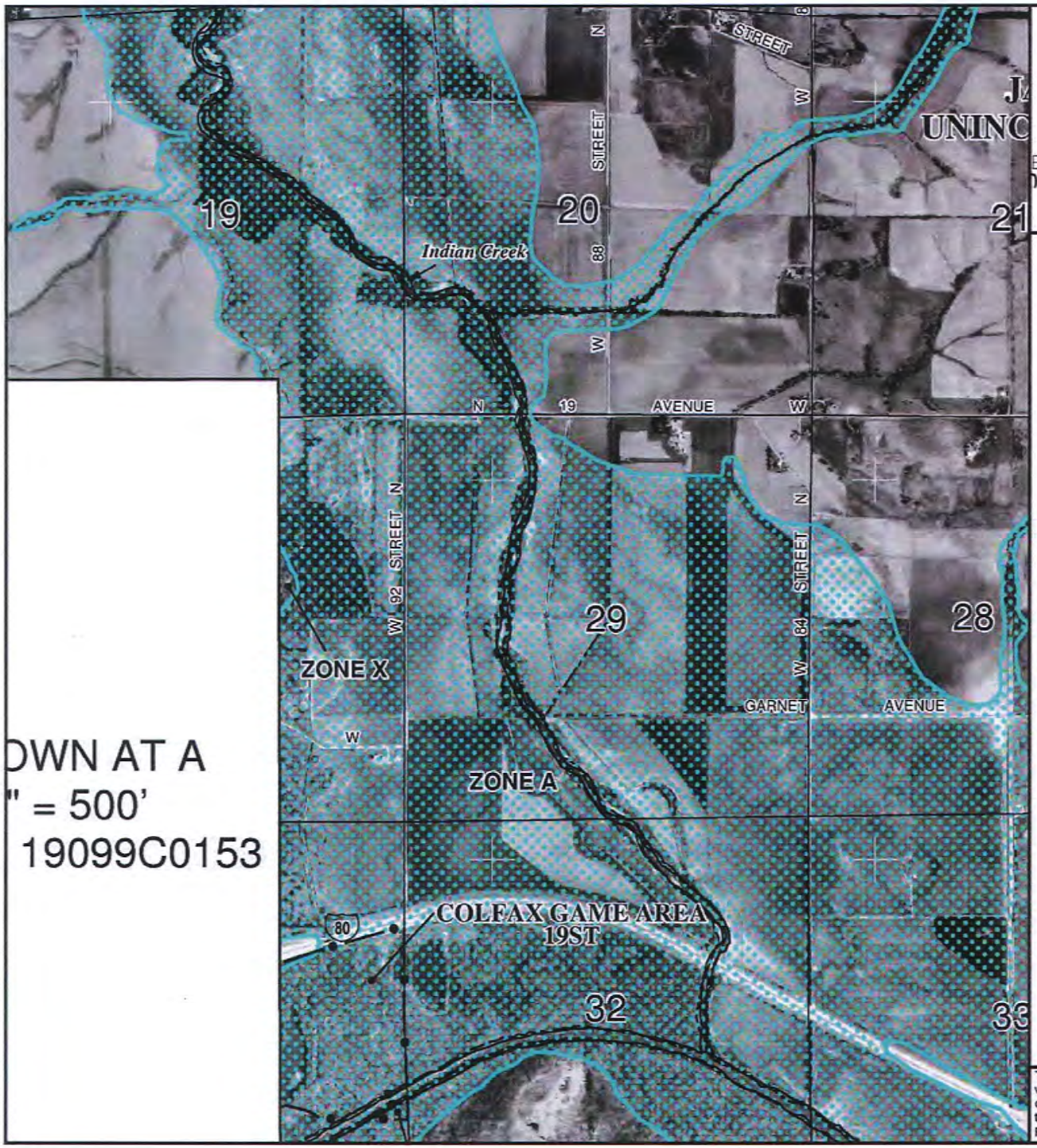
Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map jasper.mxd DCHEEK 2/10/2015



DWN AT A
" = 500'
19099C0153

MAP SCALE 1" = 2000'

1000 0 2000 4000 FEET

00 0 600 1200 ME

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0175C

FIRM

FLOOD INSURANCE RATE MAP

JASPER COUNTY, IOWA

AND INCORPORATED AREAS

PANEL 175 OF 370

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
JASPER COUNTY	190880	0175	C

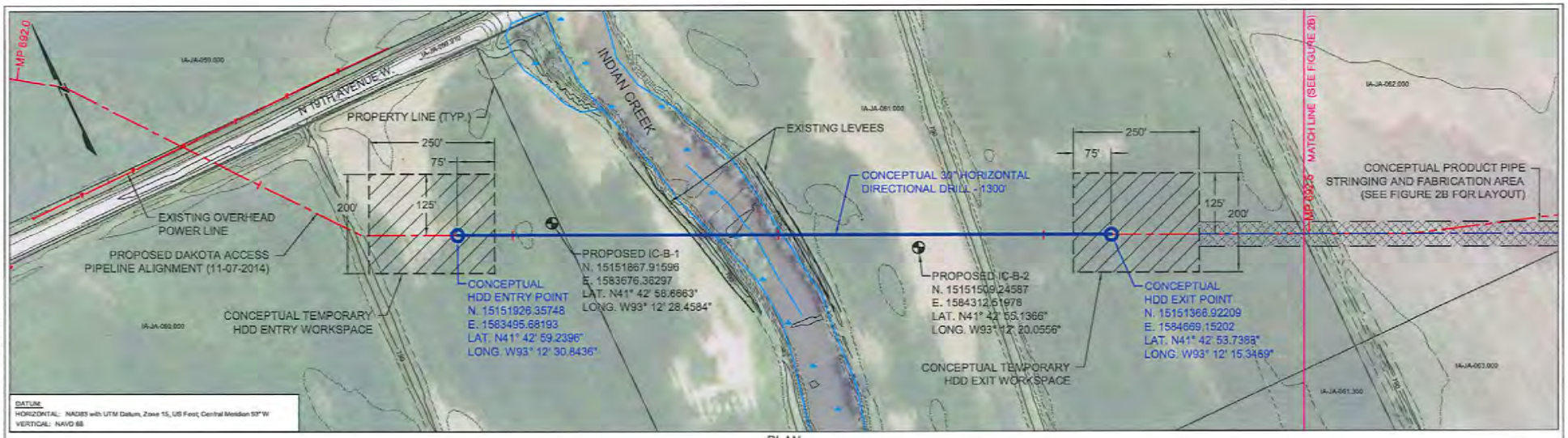
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
19099C0175C

EFFECTIVE DATE
DECEMBER 4, 2007

Federal Emergency Management Agency

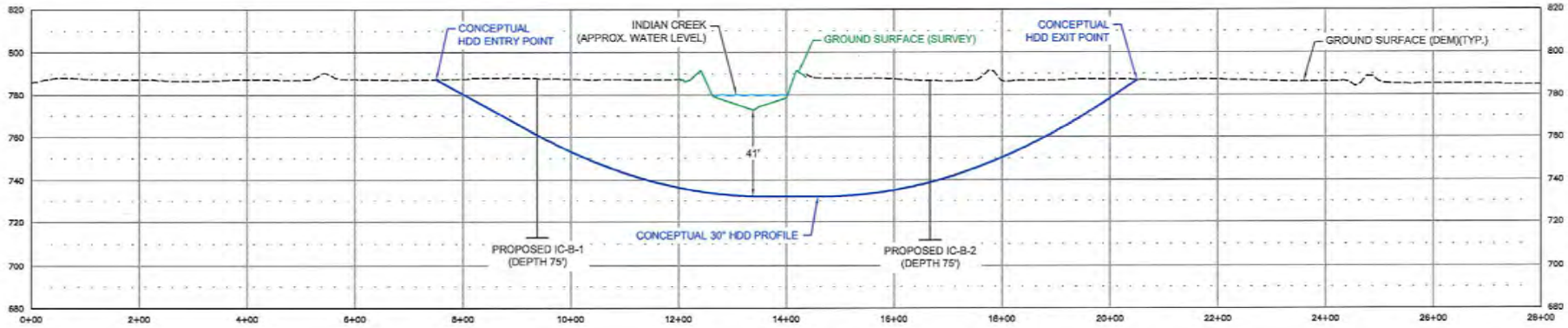
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



PLAN

200' 0 200'

SCALE IN FEET



PROFILE

200' 0 200'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) and aerial imagery downloaded from http://NationalMap.Gov.
Shape files provided by Contract Land Staff, LLC.
Survey data provided by Wood Group Mustang, Inc.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
INDIAN CREEK HDD
JASPER COUNTY, IOWA

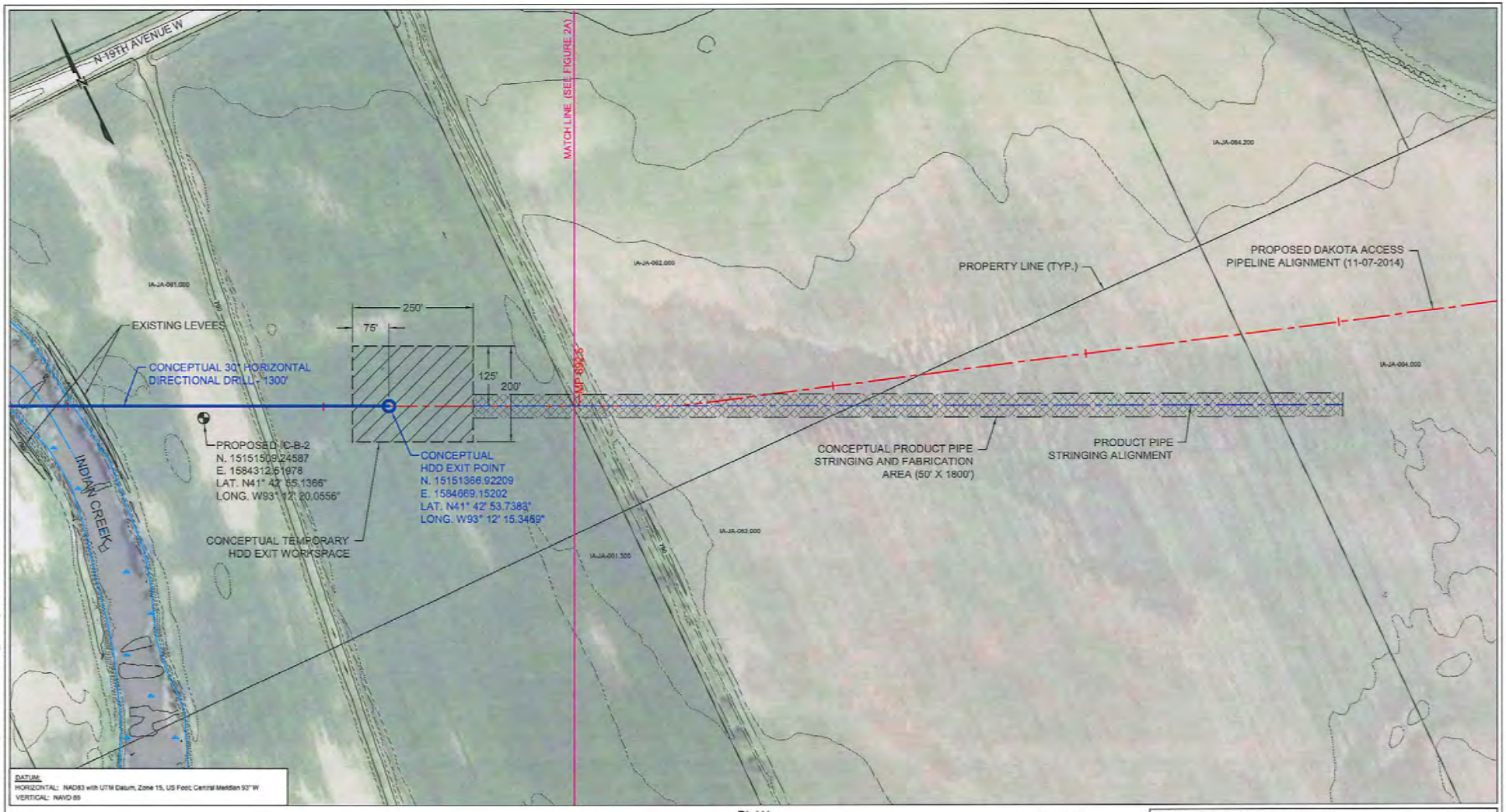
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 11, 2014

MAM : T-B

P:\18\18782011\01\CAD\Crossings\Iowa\Indian Creek\Drawings\Indian Creek HDD.dwg\T AB Figure 2A modified on Nov 11, 2014 - 10:37am



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Reference: Ground surface DEM (1/9 Arc Second) and aerial imagery downloaded from http://NationalMap.Gov.
Shape files provided by Contract Land Staff, LLC.
Survey data provided by Wood Group Mustang, Inc.

PLAN

200' 0 200'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
INDIAN CREEK HDD
JASPER COUNTY, IOWA

GEOENGINEERS

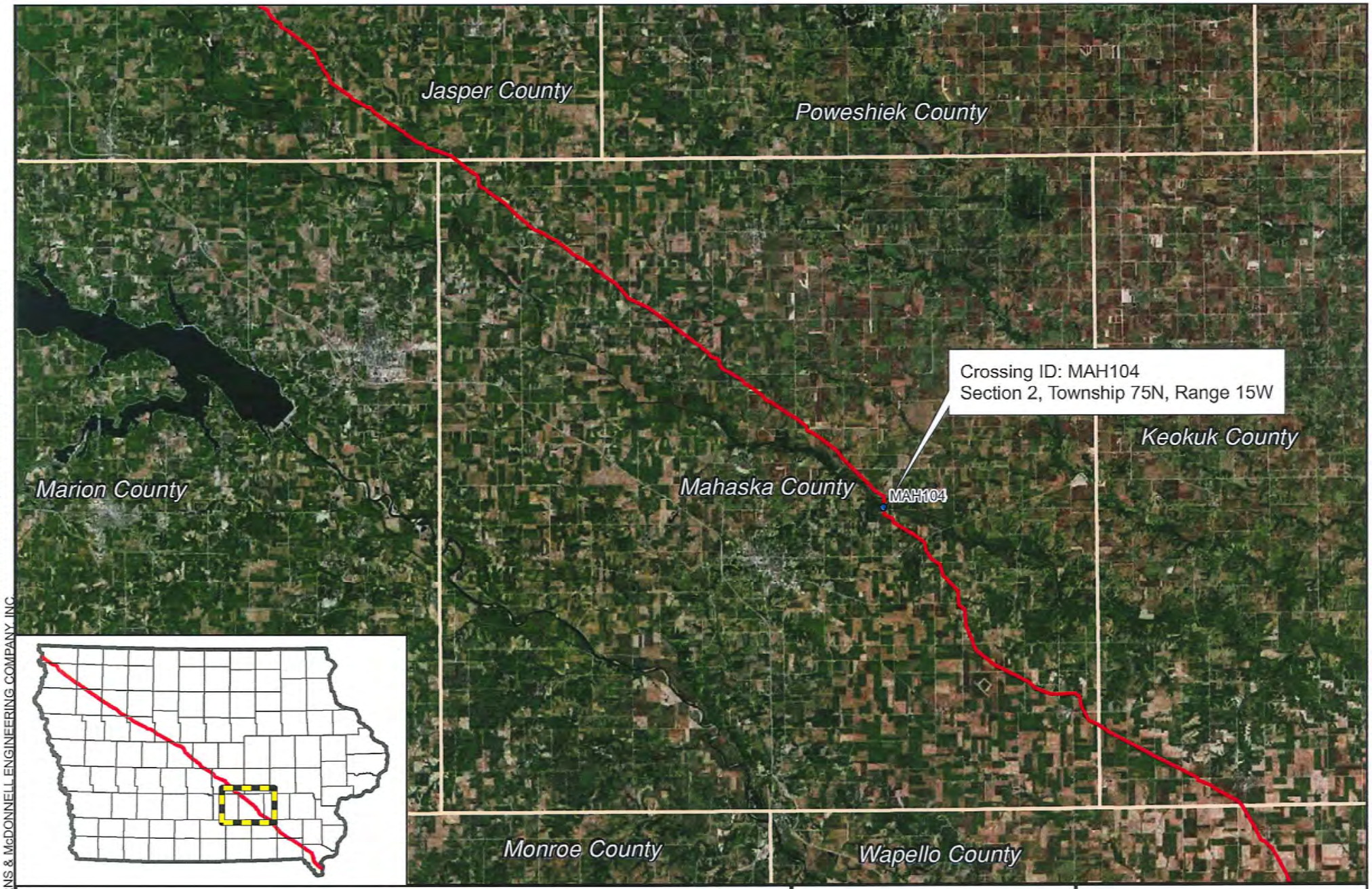
FIGURE 2B

ISSUED DATE: NOVEMBER 11, 2014

P:\18187820\1901\CAD\Crossings\Iowa\Indian Creek\Drawings\Indian Creek HDD.dwg\TAB:Figure 2B modified on Nov 11, 2014 - 10:38am

MAM : MWC

Attachment 11 – Mahaska County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Mahaska County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file Mahaska.mxd DCHEEK 2/9/2015

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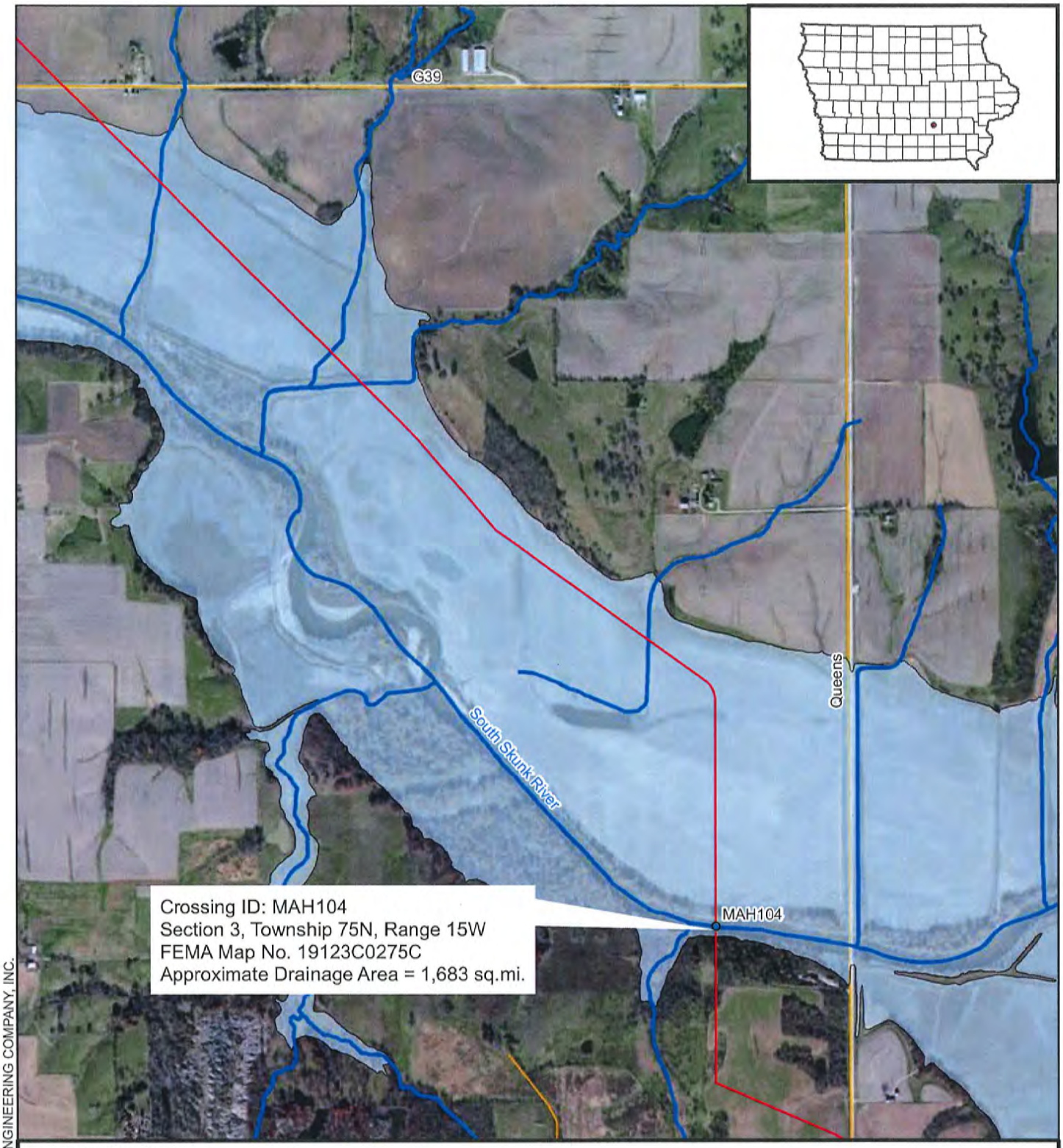


FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

- Zone A : No Base Flood Elevation Determined
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- Streets

NORTH

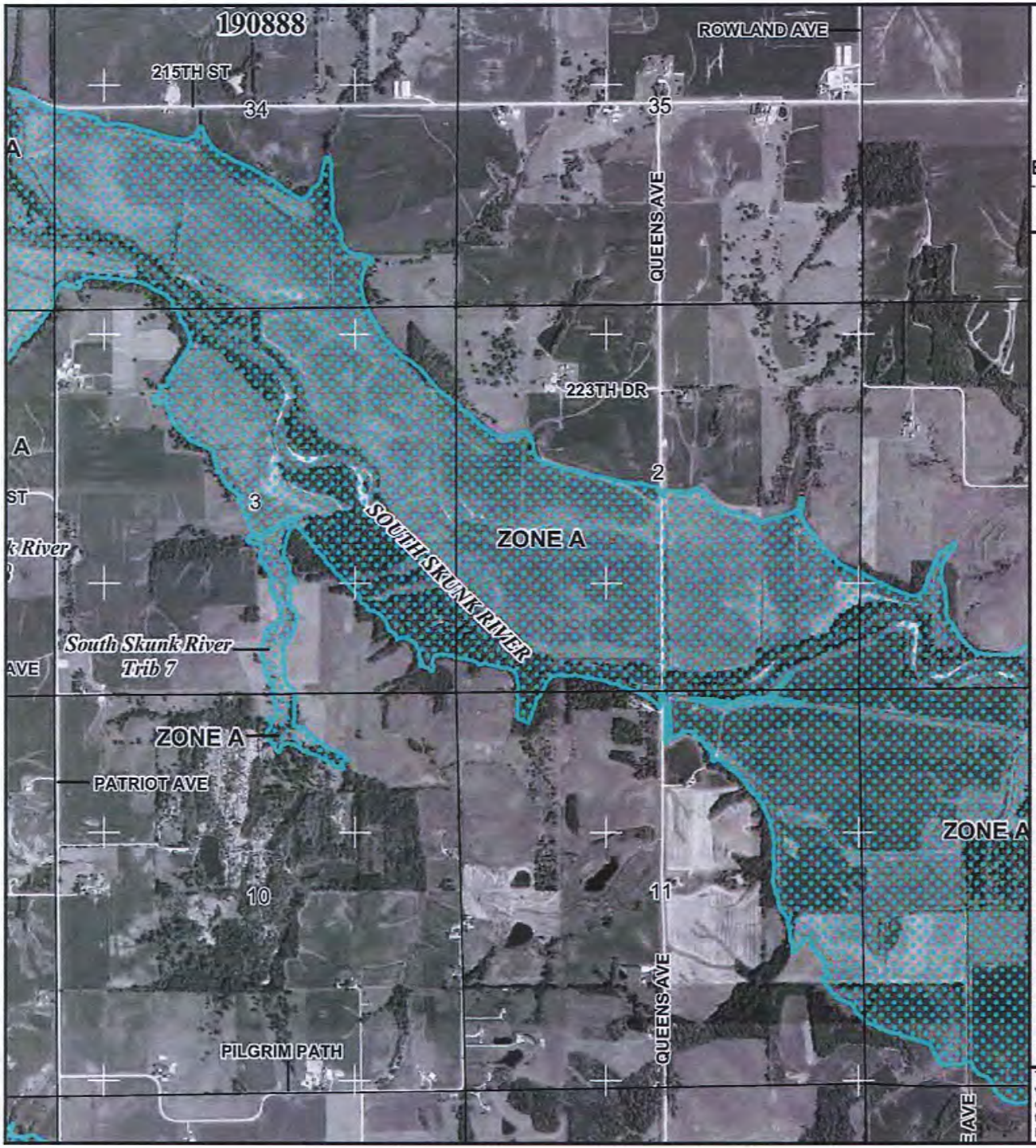
0 0.125 0.25 0.5 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: MAH104
Mahaska County, Iowa

Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, CLS, and the GIS User Community

Path: \\espsrv\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\ENV_Site map mahaska.mxd DCHEEK 2/10/2015
COPYRIGHT © 2015 BURNS & McDONNELL ENGINEERING COMPANY, INC.



MAP SCALE 1" = 2000'

1000 0 2000 4000

FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0275C

FIRM

FLOOD INSURANCE RATE MAP

MAHASKA COUNTY, IOWA

AND INCORPORATED AREAS

PANEL 275 OF 400

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
KEOMAH VILLAGE, CITY OF	190968	0275	C
MAHASKA COUNTY	190888	0275	C
OSKALOOSA, CITY OF	190638	0275	C
UNIVERSITY PARK, CITY OF	190671	0275	C

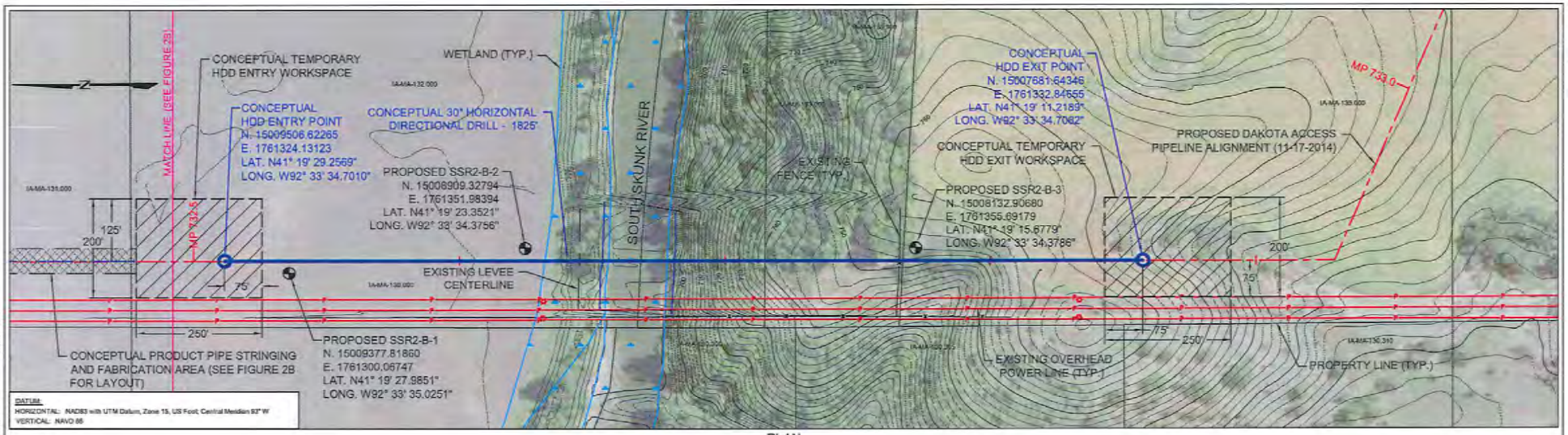
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
19123C0275C

EFFECTIVE DATE
JUNE 16, 2011

Federal Emergency Management Agency

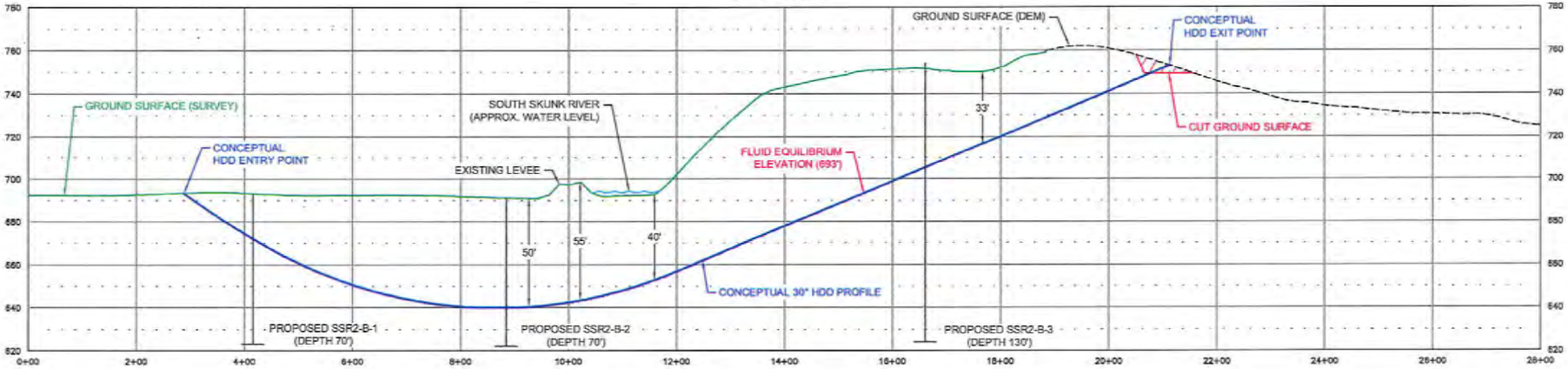
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



PLAN

200' 0 200'

SCALE IN FEET



PROFILE

200' 0 200'

HORIZONTAL SCALE IN FEET

50' 0 50'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Ground surface survey and survey data provided by Wood Group Mustang, Inc.
Shape files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
SOUTH SKUNK RIVER #2 HDD
MAHASKA COUNTY, IOWA

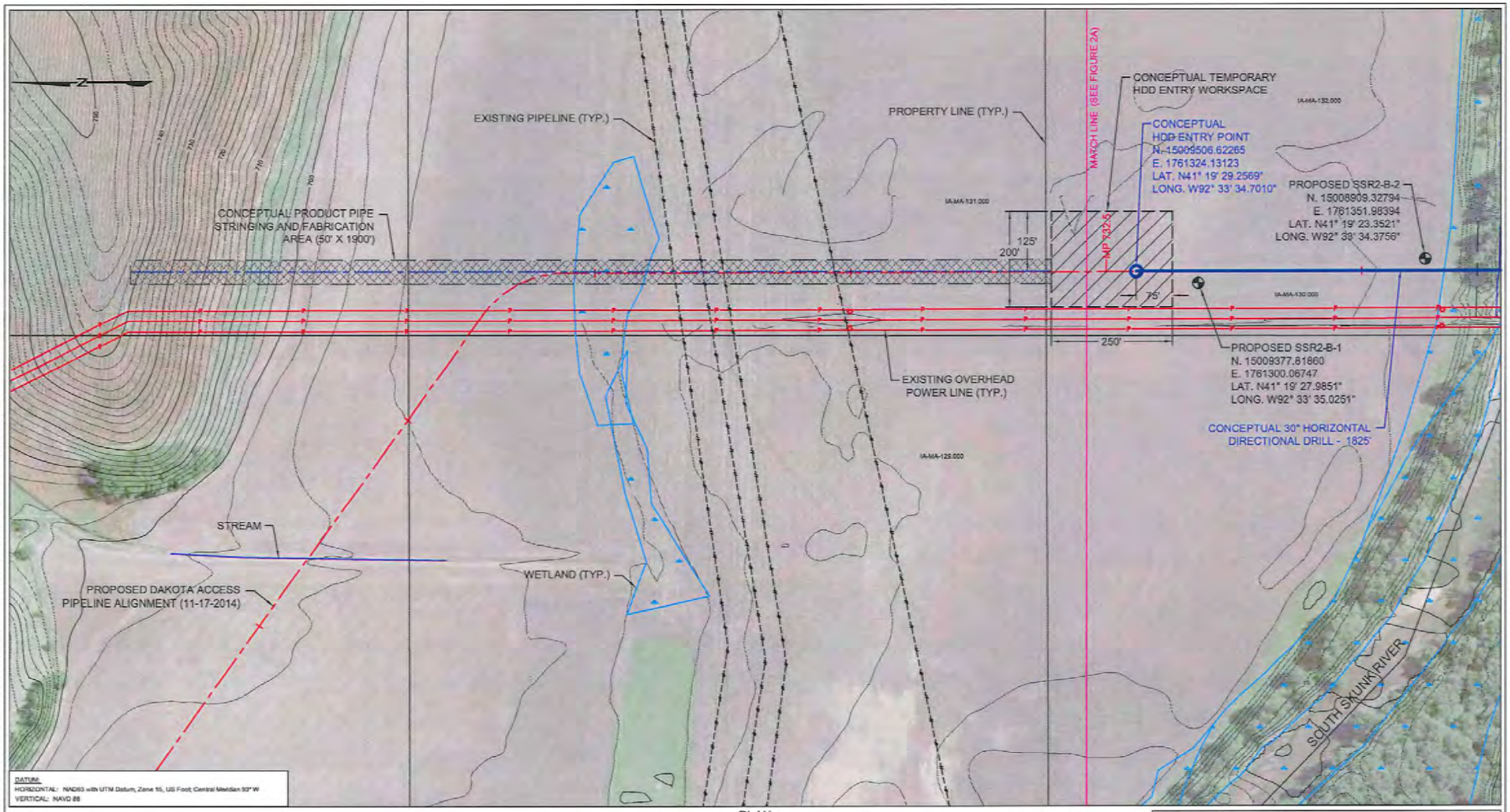
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 18, 2014

MAM / BTL

P:\18\18762\01101\CAD\Crossings\Iowa\South Skunk River 2nd\Drawings\South Skunk River 2nd HDD.dwg\TAB:Figure 2A modified on Nov 18, 2014 - 4:45pm



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Ground surface survey and survey data provided by Wood Group Mustang, Inc.
Shape files provided by Contract Land Staff, LLC.

PLAN

200' 0 200'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 10' Interval
- Minor Contour - 2' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL HDD STRINGING AREA

PROPOSED 30" PIPELINE
SOUTH SKUNK RIVER #2 HDD
MAHASKA COUNTY, IOWA

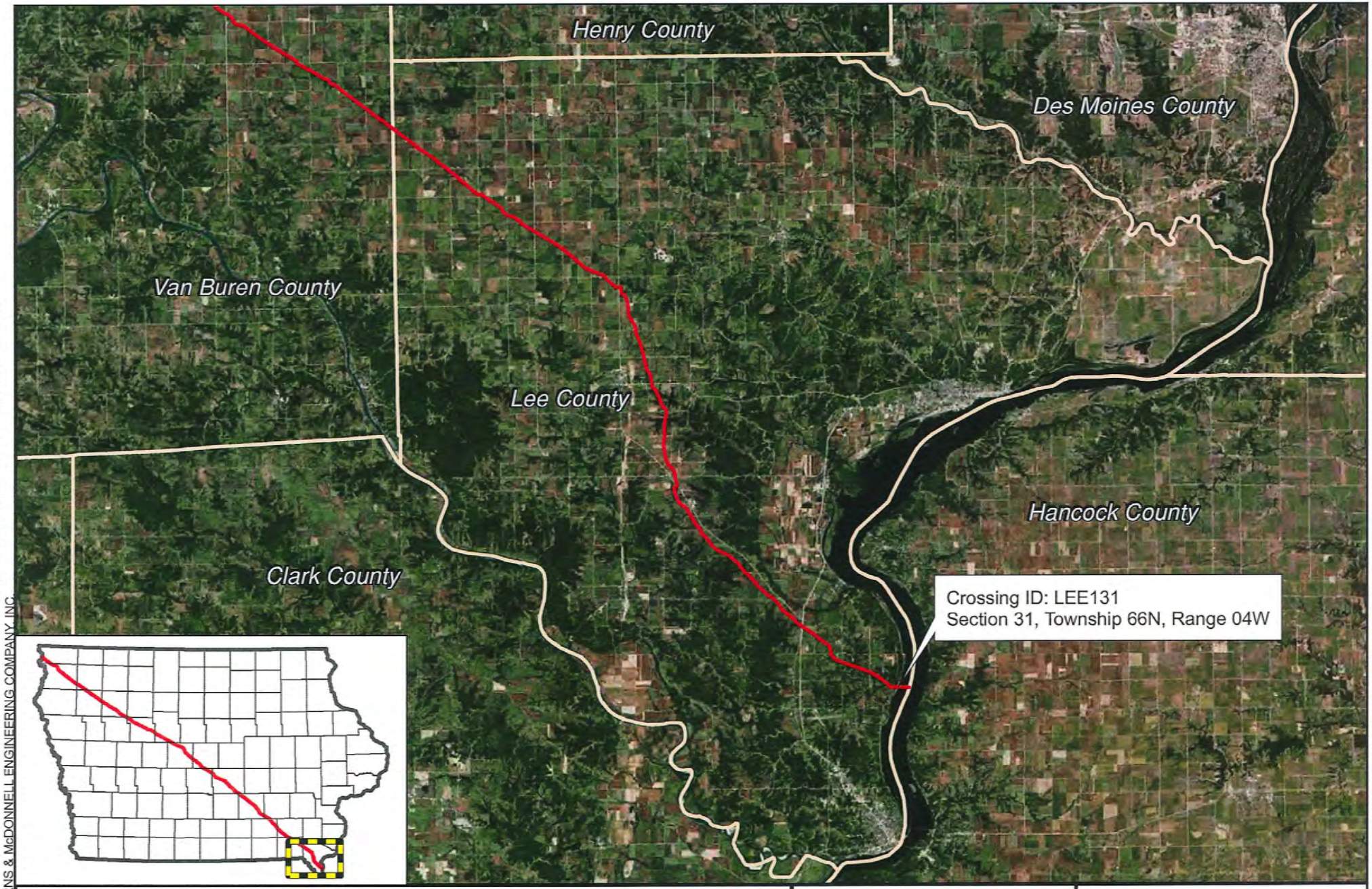
GEOENGINEERS

FIGURE 2B

ISSUED DATE: NOVEMBER 18, 2014

P:\18\87820110\ICAD\Crossings\Iowa\South Skunk River 2nd\Drawings\South Skunk River 2nd HDD.dwg\TAB:Figure 2B modified on Nov 18, 2014 - 4:44pm MAM : TJB

Attachment 12 – Lee County FEMA FIRM Information



County Boundary

Proposed Pipeline

5 2.5 0 5

Miles

NORTH

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Lee County, Iowa

Source: Burns & McDonnell, Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Issued: 2/9/2015

Path: \\ESPSRV\Data\Projects\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ENV_Permitting\County file Lee.mxd DCHEEK 2/9/2015

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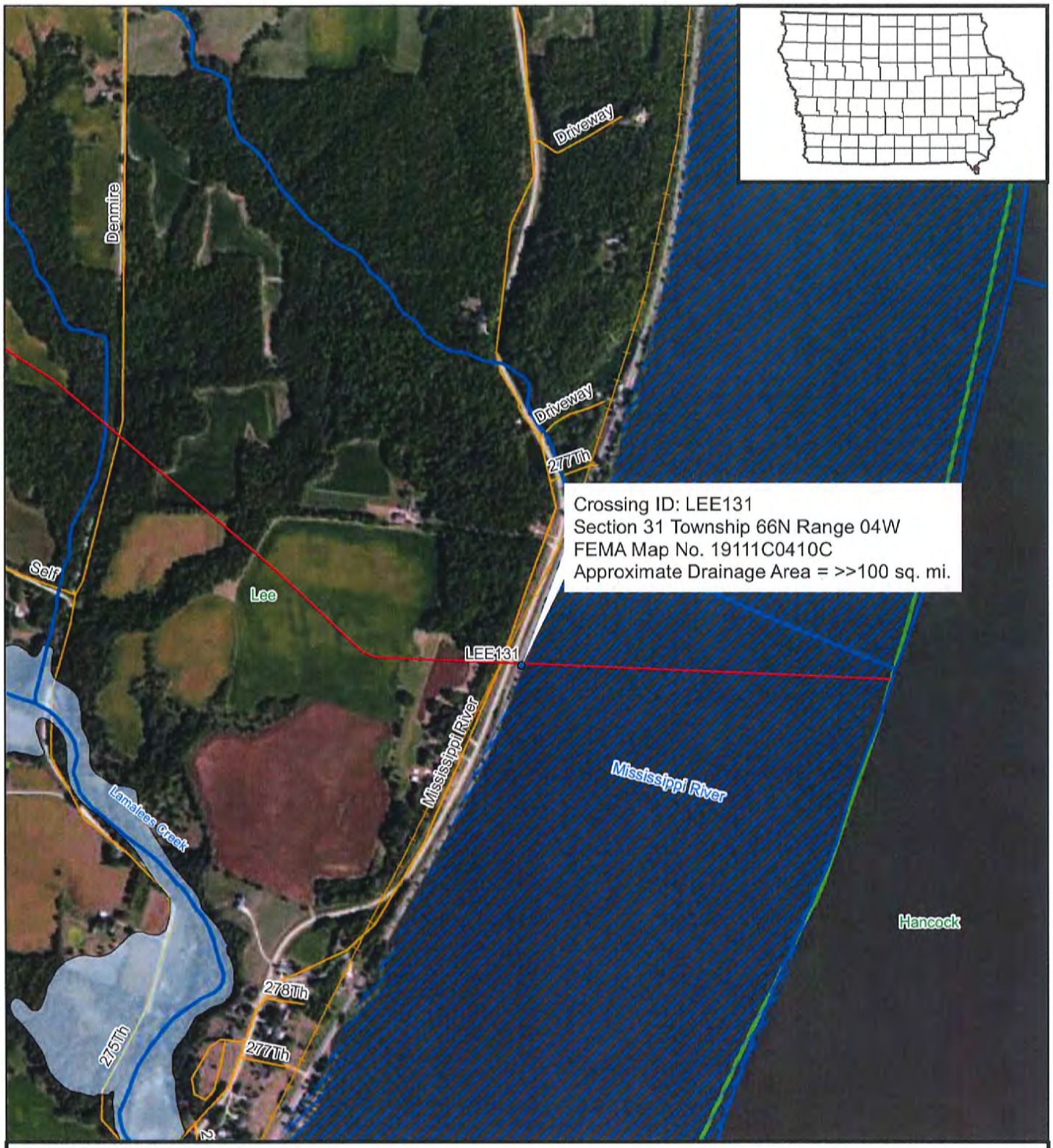


FEMA Category

Special Flood Hazard Areas Subject to Inundation by 1% Annual Chance Flood

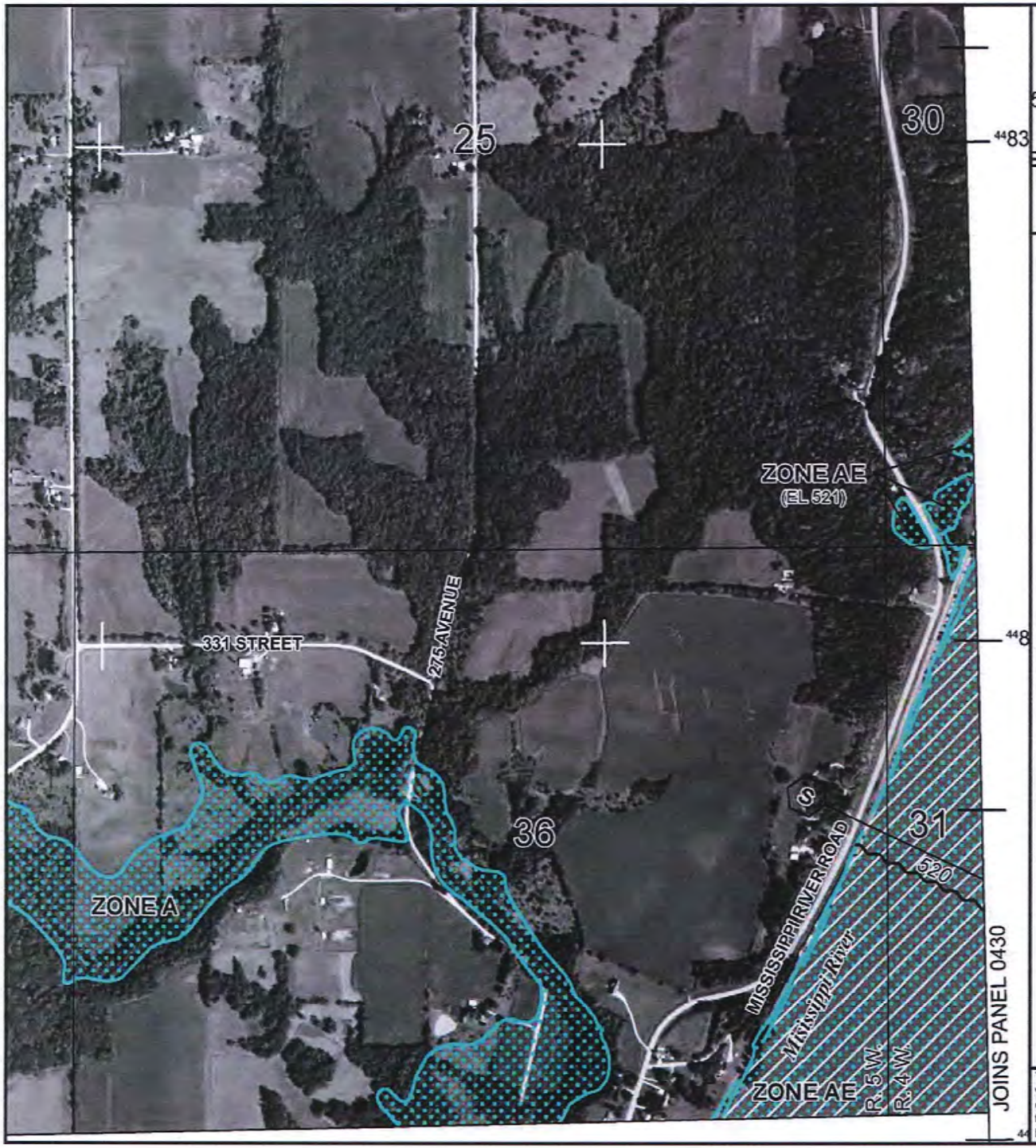
- Zone A : No Base Flood Elevation Determined
- Zone AE and Floodway Areas in Zone AE : Base Flood Elevation Determined (see FEMA Map for Base Flood Elevations)
- Crossing with Tributary Drainage Area >100 sq.mi.
- Proposed Pipeline
- Approximate Stream Centerline
- County Line
- Streets

NORTH

0 0.1 0.2 0.4 Miles

DAKOTA ACCESS, LLC

Dakota Access Pipeline Project
Dakota Access, LLC
Crossing ID: LEE131
Lee County, Iowa



MAP SCALE 1" = 1000'

500 0 1000 2000 FEET

0 300 600 METE

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0410C

FIRM

FLOOD INSURANCE RATE MAP

LEE COUNTY, IOWA

AND INCORPORATED AREAS

PANEL 410 OF 438

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
LEE COUNTY	190182	0410	C

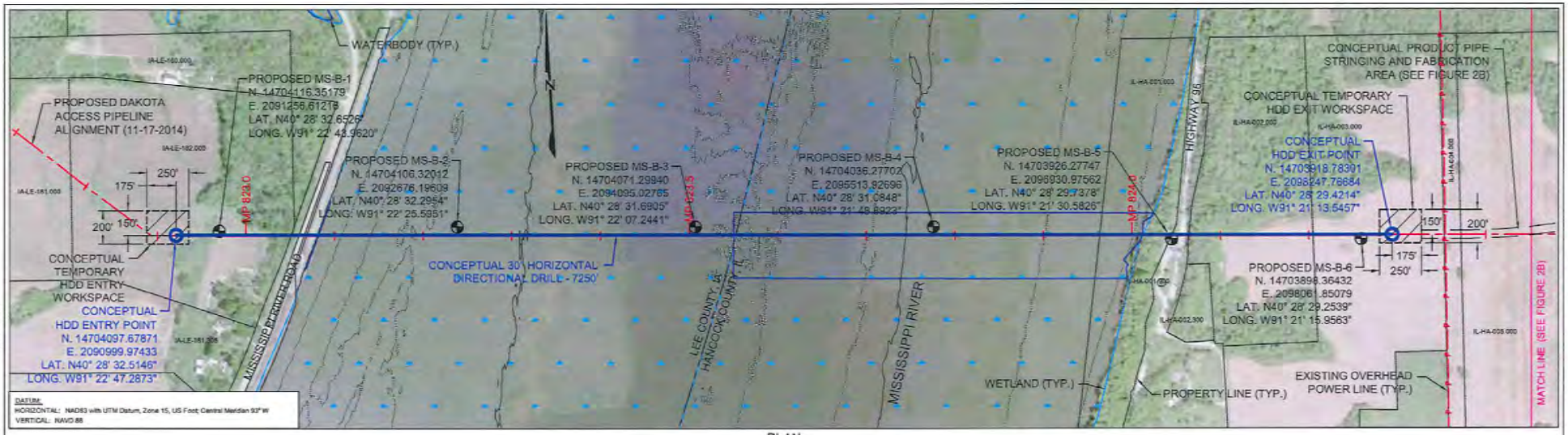
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
19111C0410C

EFFECTIVE DATE
MAY 3, 2011

Federal Emergency Management Agency

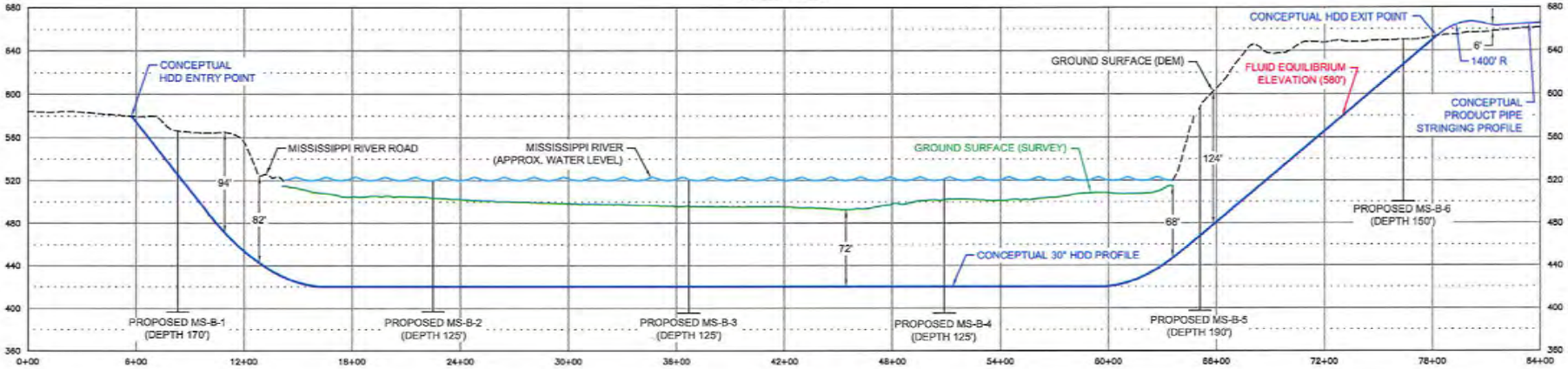
This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



PLAN

600' 0 600'

SCALE IN FEET



PROFILE

600' 0 600'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/3 and 1/9 Arc Second) downloaded from http://NationalMap.Gov.
Ground surface survey provided by Wood Group Mustang, Inc.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Wetland base files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
MISSISSIPPI RIVER HDD
LEE COUNTY, IA & HANCOCK COUNTY, IL

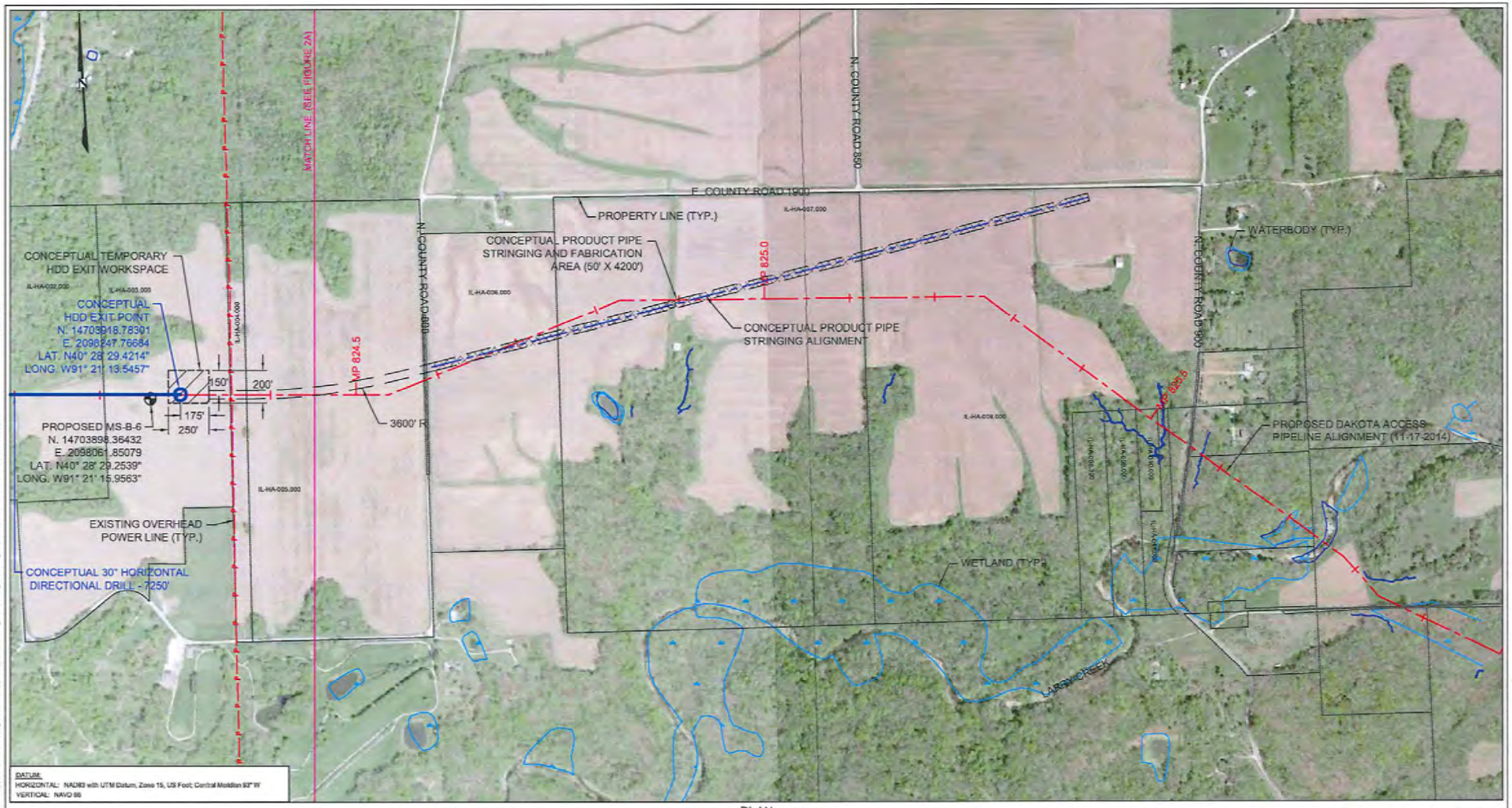
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 18, 2014

MAM : MWC

P:\18\18782\01\01\CAD\Crossings\Iowa\Mississippi RiverDrawings\Mississippi River HDD Figure 2.dwg\TAB:Figure 2A modified on Nov 18, 2014 - 2:06pm



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
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Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Wetland base files provided by Contract Land Staff, LLC.

PLAN

600' 0 600'

SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL HDD STRINGING AREA

PROPOSED 30" PIPELINE
MISSISSIPPI RIVER HDD
LEE COUNTY, IA & HANCOCK COUNTY, IL

GEOENGINEERS

FIGURE 2B

ISSUED DATE: NOVEMBER 18, 2014

MAM - TJB

P:\18\18782\01\01\CAD\Crossings\Iowa\Mississippi River\Drawings\Mississippi River HDD Figure 2.dwg\TAB:Figure 2B modified on Nov 18, 2014 - 2:07pm

Attachment C – Sovereign Lands Construction Permit Application

DAKOTA ACCESS, LLC

1300 Main Street
Houston, TX 77002
713-989-2000

March 3, 2015

Mr. Seth Moore
Iowa Department of Natural Resources
Sovereign Lands and Construction Permit Program
502 E 9th St.
Des Moines, IA 50319

Re: Sovereign Lands Construction Permit Application
Dakota Access Pipeline Project, Iowa

Dear Mr. Moore:

Dakota Access, LLC (Dakota Access), in coordination with Burns & McDonnell Engineering Company, Inc. (Burns & McDonnell), submits this letter and attached information to satisfy the requirements for a Sovereign Lands Construction Permit as required by the Iowa Department of Natural Resources (DNR) for the proposed Dakota Access Pipeline Project (DAPL; Project). The Project alignment would traverse parts of North Dakota, South Dakota, Iowa, and Illinois for a total length of approximately 1,134 miles. Dakota Access proposes to construct, own, and operate approximately 346 miles of a 30-inch diameter pipeline, one pump station, and other ancillary facilities in Iowa. The enclosed information addresses those lands identified to require a Sovereign Lands Construction Permit, specifically the proposed crossings of three Meandered Sovereign Rivers: the Big Sioux, Des Moines, and Mississippi Rivers in Lyon, Boone, and Lee Counties, respectively. Additionally, one Iowa DNR fee-title property would be crossed by the proposed alignment in Iowa. This tract, identified as the Nelson tract in Lyon County, is part of the Big Sioux River Complex Wildlife Management Area (WMA). Aerial and topographic maps depicting the proposed pipeline across each of these Sovereign Lands are included in Attachment A.

In accordance with the Iowa Administrative Code, Natural Resource Commission (Iowa Regulations), 571 Chapter 13, dated March 2009, approval by the Iowa DNR is required for construction or other related activities that alter the physical characteristics of public lands and waters under the jurisdiction of the commission, including those activities that occur over or under such lands and waters. Pursuant to Chapter 13.9 (1) of this rule, this application addresses the following requirements for a complete application. Each application requirement is stated below, followed by the applicants' response and supporting documentation to satisfy each requirement.

a. Is provided on the department's form, and all fields are completed and legible;

A Joint Application Form for Iowa has been provided to the DNR in conjunction with the Sovereign Lands Construction Permit and Flood Plain Development Permit applications.

b. Includes the name(s), mailing address and telephone number of the applicant(s) and authorized agent(s), if applicable;

Permittee:
Dakota Access, LLC
c/o Monica Howard
1300 Main Street, Rm 14.030
Houston, TX 77002
713-989-7186

Authorized Agent / Environmental Consultant:
Burns & McDonnell
c/o Nathan Olday
1700 West Loop South, Suite 1500
Houston, TX 77027
832-214-1999

c. Describes the proposed activity, including:

(1) Physical address and legal description of the location where the proposed activity is to occur; a written description of existing natural and man-made structures and features; an aerial photograph, if possible or available; and a ground-level photograph(s) showing the area where the activity is proposed to occur;

Survey plats showing the location of the proposed Project across each of the three Meandered Sovereign Rivers and Nelson tract are enclosed in Attachment B for review. A sample easement document also accompanies the plat for the Nelson tract. Representative photographs of each location are provided in Attachment C. A description of existing and natural and man-made structures per site is provided below:

Big Sioux River - Located at Section 4, Township 98N, Range 48W, the proposed Project would cross the Big Sioux River via horizontal directional drill (HDD). The river at this location exhibits an Ordinary High Water Mark (OHWM) of approximately 185 feet. The HDD entry/exit point in Iowa would be located approximately 750 feet east of the top bank of the river. The proposed pipeline would be installed approximately 59 feet below the bottom of the river. The eastern bank, within the State of Iowa, is steep and characteristic of an upland forest community dominated by boxelder (*Acer negundo*), red maple (*Acer rubrum*), and eastern cottonwood (*Populus deltoids*). No man-made structures were observed within the footprint of the proposed Project at this location.

Des Moines River - Located at Section 14, Township 85N, Range 14W, the proposed Project would cross the Des Moines River via HDD. The river at this location exhibits an OHWM of approximately 400 feet. The western HDD entry/exit point is approximately 800 feet west of the top bank of the river, and the eastern HDD entry/exit point is approximately 1,750 feet east of the top bank of the river. The proposed pipeline would be installed approximately 58 feet below the bottom of the river. The eastern bank, within the State of Iowa, is steep and characteristic of an upland forest community dominated by green ash (*Fraxinus pennsylvanica*), slippery elm (*Ulmus rubra*), American basswood (*Tilia americana*), common hackberry (*Celtis occidentalis*),

Amur honeysuckle (*Lonicera maackii*), eastern prickly gooseberry (*Ribes cynosbati*), eastern red cedar (*Juniperus virginiana*), northern red oak (*Quercus rubra*), American elm (*Ulmus americana*), and multiflora rose (*Rosa multiflora*). No man-made structures were observed within the footprint of the proposed Project at this location.

Mississippi River - Located at Section 36, Township 66N, Range 05W and Section 31, Township 66N, Range 04W, the proposed Project would cross the Mississippi River via HDD. The river at this location exhibits an OHWM of approximately 4,800 feet. The HDD entry/exit point in Iowa is located approximately 800 west of the top bank of the river. The proposed pipeline would be installed approximately 72 feet below the bottom of the river. The western bank, within the State of Iowa, is bordered by a railroad and Mississippi River Road.

Big Sioux River Complex WMA - Located at Section 4, Township 98N, Range 48W, the proposed Project would cross the Nelson tract of the Big Sioux River Complex WMA for a distance of approximately 1,500 feet. The alignment would be parallel to an existing Northern Natural Gas Company pipeline across this tract. Locating the proposed Project adjacent to an existing right-of-way (ROW) would minimize the development of new utility corridors in the region. The Nelson tract consists of upland pasture and forest communities. One stream, a tributary to the Big Sioux River, would be crossed by the proposed Project on this tract. Two palustrine emergent (PEM) wetlands were recorded adjacent to this stream. No man-made structures were observed within the footprint of the proposed Project at this location.

(2) Schematic or design plans, including cross sections and plan views, that accurately and clearly depict the proposed activities;

Plan and profile exhibits that detail the proposed pipeline construction at each of the Meandered Sovereign Rivers are provided in Attachment D. Aerial and topographic-based maps that depict the proposed alignment across the Nelson tract of the Big Sioux River Complex WMA are provided in Attachment A.

(3) Description of the construction methods used to complete the project, the methods used to transport material to the site, and the type and amount of material to be used;

Facilities associated with the Project will be designed, constructed, tested, operated and maintained in accordance with U.S. Department of Transportation (DOT) regulations in Title 49 Code of Federal Regulations (CFR) Part 195. Dakota Access is currently developing Project-specific plans and will implement Best Management Practices (BMPs) to mitigate for potential construction-related impacts associated with stormwater runoff. Additionally, Dakota Access would implement its Spill Prevention Control and Countermeasure Plan and Horizontal Directional Drill Contingency Plan to protect sensitive resources from inadvertent releases during construction activities.

The Project would be constructed via a combination of conventional and specialized construction procedures, as described below.

Clearing and Grading - Prior to commencement of ground disturbing activities, a standard survey and stakeout would be conducted to identify ROW and workspace boundaries and to locate existing foreign utility lines within the construction ROW. Following the completion of the surveys, the construction ROW would be cleared of vegetation and debris. Within wetlands, stumps would be cut flush with the ground and left in place except where removal is necessary to facilitate the creation of a safe and level workspace. Cleared vegetation and debris along the ROW would be disposed of in accordance with Federal, State, and local regulations, either by burning, chipping and spreading, or transporting to a commercial disposal facility. Where necessary to contain disturbed soils during clearing and grading in upland areas and to minimize potential erosion and sedimentation of wetlands and waterbodies, temporary erosion control devices (ECDs) would be installed prior to initial ground disturbance and would be maintained throughout construction.

Trenching - Trenching involves excavation of a ditch for pipeline placement and is accomplished through the use of a trenching machine, backhoe, or similar equipment. Trench spoil would be deposited adjacent to each trench within the construction work areas, with topsoil segregation utilized where necessary based on land use (see the typical ROW configuration drawings in Attachment E). In standard conditions, the trench would be excavated to a depth of approximately 8 feet to allow for a minimum of 3 feet of cover over the pipe, as required by 49 CFR Part 195 and Dakota Access's landowner commitments. Typically, the bottom of the trench would be cut at least 12 inches greater than the width of the pipe. The width at the top of the trench would vary to allow the side slopes to be adapted to local conditions at the time of construction.

Pipe Stringing, Bending, and Welding - Following preparation of the trench, the new pipe would be strung and distributed along the ROW parallel to the trench. Depending on available workspace, some pipe may be fabricated offsite and transported to the ROW in differing lengths or configurations. Pipe would be bent by hydraulic bending machines, as necessary, to conform the pipe to the trench. Once in place along the ROW, pipe lengths would be aligned, bends fabricated, and joints welded together. Welding would be performed in accordance with the American Petroleum Institute Standards and DOT-Pipeline and Hazardous Materials Safety Administration (PHMSA) pipeline safety regulations, and company welding specifications. All welds would be coated for corrosion protection and visually and radiographically inspected to verify there are no defects. Additionally, the entire pipeline would be visually inspected prior to lowering-in.

Pipeline Installation and Trench Backfilling - Completed sections of pipe would be lifted off temporary supports by side boom tractors or similar equipment, and placed into the trench. Prior to lowering-in, the trench would be visually inspected to verify that it is free of rock and other debris that could damage the pipe or the coating. Additionally, the pipe and the trench would be inspected to verify that the configurations are compatible. Tie-in welding and pipeline coating would occur within the trench to join the newly lowered-in section with the previously installed sections of pipe. Following this activity, the trench would be backfilled with the previously excavated material and crowned to approximately 6 inches above its original elevation to compensate for subsequent settling.

In addition to the construction procedures described, above, the Project would require waterbody crossings. These crossings would follow one of the following construction methods.

Open-Cut - Construction methods utilized at waterbody crossings are highly dependent on the characteristics of the waterbody encountered. Barring any sensitive resources or restrictions, the majority of minor and intermediate waterbodies would typically be crossed via the conventional open-cut method. This method employs the same general construction procedures that were described above for upland pipeline construction. Equipment would operate from the banks of the waterbody to the extent practicable to excavate a trench. Water flow would be maintained. Excavated material from the trench would be placed on the bank above the OHWM for use as backfill. The pipe segment would be prefabricated and weighted, as necessary, to provide negative buoyancy and placed below scour depth. Typical backfill cover requirements would be met, contours would be restored within the waterbody, and the banks would be stabilized via seeding and/or the installation of erosion control matting or riprap. Excess excavated materials would be distributed in an upland area in accordance with applicable regulations.

Impacts to water quality would be minimized through the implementation of BMPs. The pipeline trench would be excavated immediately prior to pipe installation to limit the duration of construction within the waterbody to the extent practical. Excavated materials would be stored no fewer than 10 feet from the edge of the waterbody, and temporary erosion control devices would be utilized to prevent the sediment from re-entering the waterbody.

Flume - An alternative of the open-cut method, the flume crossing method temporarily directs water flow through one or more flume pipes placed over the excavation area. The use of the flume(s) allows trenching and pipeline installation to occur primarily under dry conditions and without significant disruption of water flow.

Dam and Pump - The dam and pump crossing method is similar to the flume crossing method in that it is an alternative of the open-cut method that allows trenching and pipeline installation to occur under relatively dry conditions with minimal impact to water flow. This method involves the temporary installation of dams (consisting of sandbags, bladders, or other impervious materials) upstream and downstream of the proposed crossing. Pumps are then used to dewater the excavation area and to transport the water flow around the construction work area.

Horizontal Directional Drill (HDD) - The HDD method allows for construction across a feature without the excavation of a trench, by drilling a hole significantly below conventional pipeline depth and pulling the pipeline through the pre-drilled hole. Dakota Access would utilize HDDs at several locations to avoid direct impacts to resources, such as wetlands and waterbodies, and/or to avoid areas in which constructability by conventional means is not feasible.

Depending on the HDD equipment utilized, to help guide the drill bit along the pipeline ROW, electric-grid wires may be placed along the predetermined HDD route. In thickly vegetated areas, a small path may be cut to accommodate placement of the electric-grid guide wires (no large diameter vegetation would be cleared for this purpose). Once the electric grid guide wires

are installed, the directional drilling rig would drill a small diameter pilot hole along the prescribed profile.

Following the completion of the pilot hole, reaming tools would be utilized to enlarge the hole to accommodate the pipeline diameter. The reaming tools would be attached to the drill string at the exit point and would then be rotated and drawn back to incrementally enlarge the pilot hole. During this process, drilling mud consisting of bentonite clay and water would be continuously pumped into the pilot hole to remove cuttings and maintain the integrity of the hole. When the hole has been sufficiently enlarged, a prefabricated segment of pipe would be attached behind the reaming tool on the exit side of the crossing and pulled back through the drill hole towards the drill rig.

Wetland Crossings - As depicted on the enclosed typical construction drawings (Attachment E), the construction ROW width would be limited to 85 feet in Palustrine forested (PFO) wetlands and 100 feet in PEM/palustrine scrub-shrub (PSS) wetlands during construction activities. Operation of construction equipment through wetlands would be limited to only that necessary for each stage of pipe installation (e.g., clearing, trenching, etc.). Topsoil segregation techniques would be utilized in unsaturated wetlands to preserve the seed bank and allow for expedited successful restoration of the disturbed area.

Conventional Lay - Wetland crossings for the Project may be accomplished via the conventional lay method in accordance with applicable permit conditions. Construction techniques for this method are similar to the open-cut method in upland areas; however, top soil segregation techniques would be utilized to facilitate revegetation following the completion of construction activities. In some cases, site-specific conditions may not support construction equipment; in these instances, construction mats would be used to minimize disturbances to hydrology and maintain soil structure.

(4) Description of measures proposed to prevent or minimize adverse impacts on the property in the proposed area;

A priority in selecting the route for the project was to avoid and minimize impacts to publicly owned and managed lands. However, due to the length and direction of the proposed Project, avoiding the Meandering Sovereign Rivers was not feasible. Dakota Access performed a thorough routing analysis incorporating greater than 50 data sets in an effort to avoid and minimize impacts resulting from the Project while optimizing the route. . Additionally, as title was pulled and field surveys performed, additional minor route deviations were incorporated to further avoid and minimize impacts. The HDD crossing method is proposed to avoid wetlands, waterbodies, sensitive habitat, and/or culturally sensitive areas, including the avoidance of the three Meandered Sovereign Rivers crossed by the proposed Project alignment.

Dakota Access would reduce the construction ROW width in wetlands to reduce Project impacts. In general the ROW would be decreased to a width of 85-100 feet in wetlands from the typical ROW width of 125-150 feet in uplands. Areas disturbed by construction, excluding above ground facilities and some access roads, would be restored to preconstruction contours and conditions. While a 50-foot permanent easement would be secured along the pipeline, only 30

feet would be maintained via routine mowing, in compliance with Federal regulations in forested wetlands to reduce the long term impacts to these features.

(5) Description of any borrows or disposal sites, including the location of any borrows or disposal sites and the type and amount of material to be borrowed or disposed of in them;

None/Not applicable.

d. Includes identification of the ordinary high water line, if the proposed activities are in or near a meandered sovereign lake or meandered sovereign river;

The OHWM of each meandered sovereign river was mapped during environmental field investigations. Exhibits depicting the mapped OHWM of each feature are included in Attachment A.

e. Describes alternative plans to undertake the activity that may be available to the applicant;

Due to the length and general direction of the project, route alternatives are not available that would avoid crossing each of the Meandered Sovereign Rivers. Available construction alternatives at the Big Sioux and Des Moines Rivers would include open-cut construction methods. While this alternative method may be possible, it does not represent the best engineering, constructability, or environmental alternative to install the proposed pipeline across these rivers. Therefore, it is Dakota Access's opinion that HDD technology at the locations included in this application represent the best available alternative for installing the proposed pipeline across these features.

Within the Nelson tract of the Big Sioux River Complex WMA, the proposed alignment follows an existing pipeline. This alignment was selected as the preferred alternative because it would minimize impacts associated with the development of a new utility corridor and represented the shortest and most direct alignment that accomplished the Project's purpose and need. Environmental and cultural resources field investigations performed on the alignment across this tract did not identify any features that would prohibit the development of the proposed Project as currently designed. As a comparison to the preferred alignment, Dakota Access evaluated an alternative that would avoid the Nelson tract (see Figures 2 and 3 in Attachment A). Measuring from common points of intersection along the proposed alignment, the alternative alignment would add approximately 2,450 feet of additional corridor to the north in order to avoid the Nelson tract. A southerly reroute was not evaluated due to the presence of additional, larger, WMA parcels to the south. The effect on adjacent property owners through the development of new corridors, increased overall length, and equitable environmental impacts as compared to the preferred alternative, did not provide sufficient justification to pursue further an alternative alignment.

f. Identifies the need for the proposed activity in the proposed project area;

The DAPL Project's purpose is to move an economical, abundant, reliable, and domestic supply of crude oil from the Bakken and Three Forks production region in North Dakota to a crude oil market hub located near Patoka, Illinois. The Dakota Access Pipeline is being designed to safely carry 570,000 barrels per day (bpd) or more of light sweet crude (approximately 450,000 bpd initially) through the States of North Dakota, South Dakota, Iowa, and Illinois and ultimately terminate in Patoka, Illinois. From the Patoka hub, the crude oil would be transported by other pipelines to refineries located in the Midwest and the Gulf Coast, where 80 percent of the U.S. refining capabilities exist today to further our Country's goal of energy independence.

Dakota Access has secured binding long term transportation and deficiency contracts from multiple committed shippers to support development of the Dakota Access Pipeline with a crude oil transportation capacity of approximately 450,000 bpd, with 90 percent of the transportation capacity subscribed by those committed shippers and the remaining 10 percent of the transportation capacity reserved for walk-up shippers. Transportation service on the DAPL Project would be provided by Dakota Access pursuant to the Interstate Commerce Act and in accordance with the rules and regulations of the Federal Energy Regulatory Commission for common carrier crude oil pipeline transportation service thereunder. Subscriptions from committed shippers were obtained by Dakota Access in connection with an initial open season that ran from March 12 to May 23, 2014, and an expansion open season that commenced on September 23, 2014, and will conclude in December 2014.

The pipeline would not only provide a long term safe, reliable, and energy efficient option to move crude oil out of the Bakken and Three Forks production area to continue to enhance America's energy independence, it would also provide direct benefits to communities located along and near the DAPL Project route. These benefits would include, but not be limited to, providing: temporary construction employment; full time, local jobs to operate and maintain the pipeline; ROW payments; additional sales tax revenues from the sale of goods and services during construction and long term to operate and maintain the pipeline; annual State and local community revenue from property taxes; and long term support of regional contractors, manufacturers, distributers, and retailers through ongoing purchase of goods and services to operate and maintain the DAPL Project.

g. Provides a statement of consent for the department to enter the property during the term of the proposed permit.

Access to each of the Sovereign Lands identified in this application during the term of the proposed construction permit is authorized by Dakota Access. In the event that Iowa DNR staff requires access across private property in order to access any Sovereign Lands identified herein, Dakota Access requests prior notification so that proper notice and permission may be obtained from any affected private property owner.

AUTHORIZATION REQUEST

As outlined above, the proposed Project would cross a total of three Meandered Sovereign Rivers and one Iowa DNR fee-title tract identified as the Nelson tract of the Big Sioux River Complex WMA. Dakota Access is requesting your review of this information pursuant to issuance of a Sovereign Lands Construction Permit and utility easement to construct and operate the proposed pipeline on each of these Sovereign Lands. The U.S. Army Corps of Engineers (USACE), Rock Island District, is currently evaluating Section 10 permits for the installation of the proposed pipeline under the Des Moines and Mississippi Rivers, and the USACE Omaha District is evaluating a Section 10 permit application for the Big Sioux River.

Dakota Access appreciates your efforts to review and process this request for authorization. Proposed construction for this Project is scheduled to begin in at the end of 2015, so your timely review of this application is appreciated. If we can be of any assistance during your review, please do not hesitate to contact Monica Howard at 713-898-8222 or 713-989-7186, Monica.howard@energytransfer.com or Nathan Olday at 832-214-1999, naolday@burnsmcd.com.

Sincerely,
Dakota Access, LLC

Monica Howard
Director Environmental Sciences

cc: Martha Chipley, Chief of Regulatory, Omaha District USACE
Sharon Tahtinen – Iowa DNR

Attachments
- A – Project Maps
- B – Survey Plats
- C – Representative Photographs
- D – Plan and Profile Drawings
- E – Typical Right-of-Way Configuration Drawings

Attachment A – Project Maps

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ETC_DAPL_BigSiouxRiver_Vicinity.mxd rewilliams 2/25/2015

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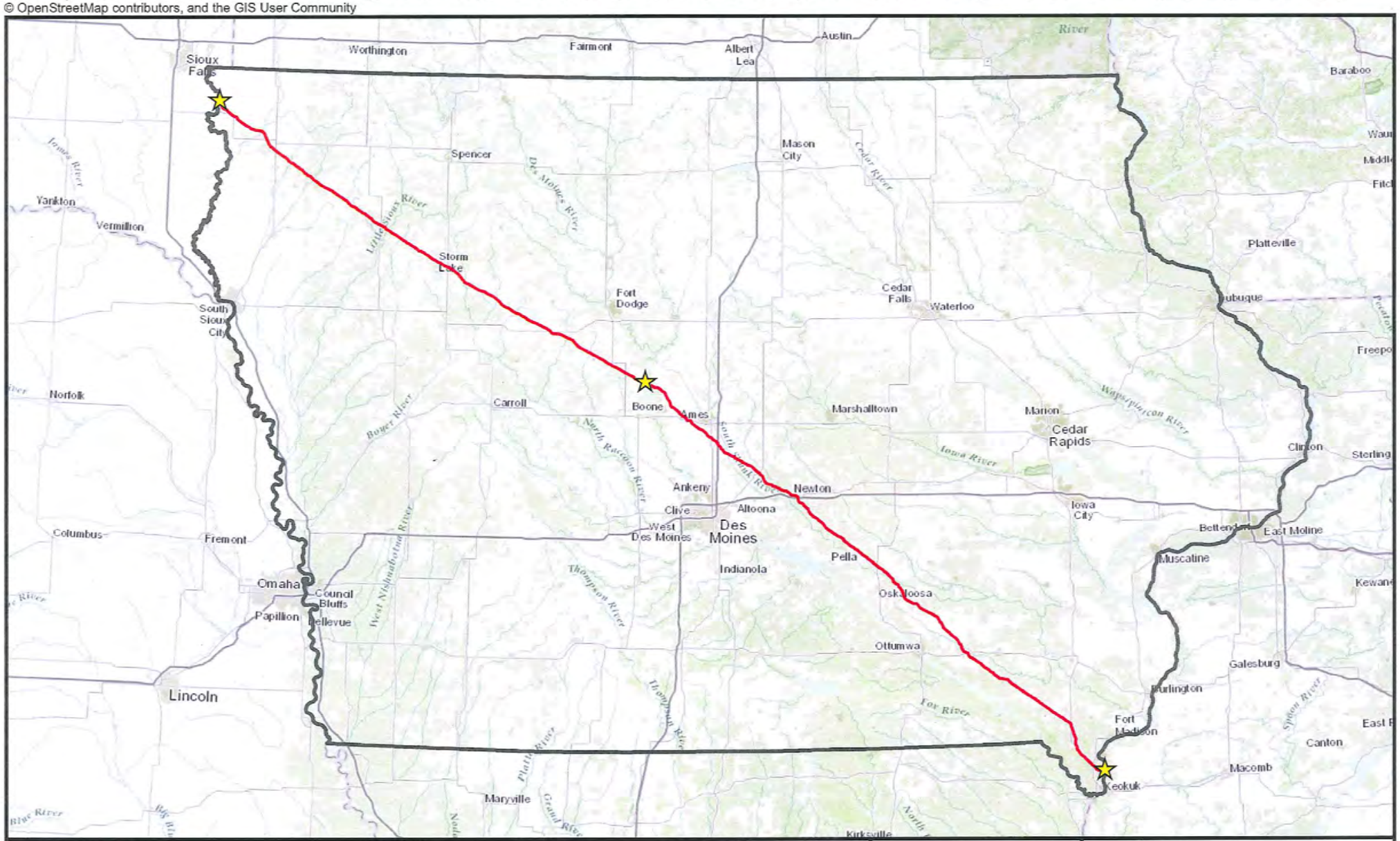

Project Location

Proposed Alignment

State Boundary

40 20 0 40

Miles

NORTH

DAKOTA ACCESS, LLC

Figure 1
Dakota Access Pipeline Project
Sovereign Lands
Iowa

Source: Burns & McDonnell Engineering Company, Inc., Dakota Access, LLC

Issued: 2/25/2015

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ETC_DAPL_BigSiouxRiver_Reroute2.mxd rewilliams 3/5/2015

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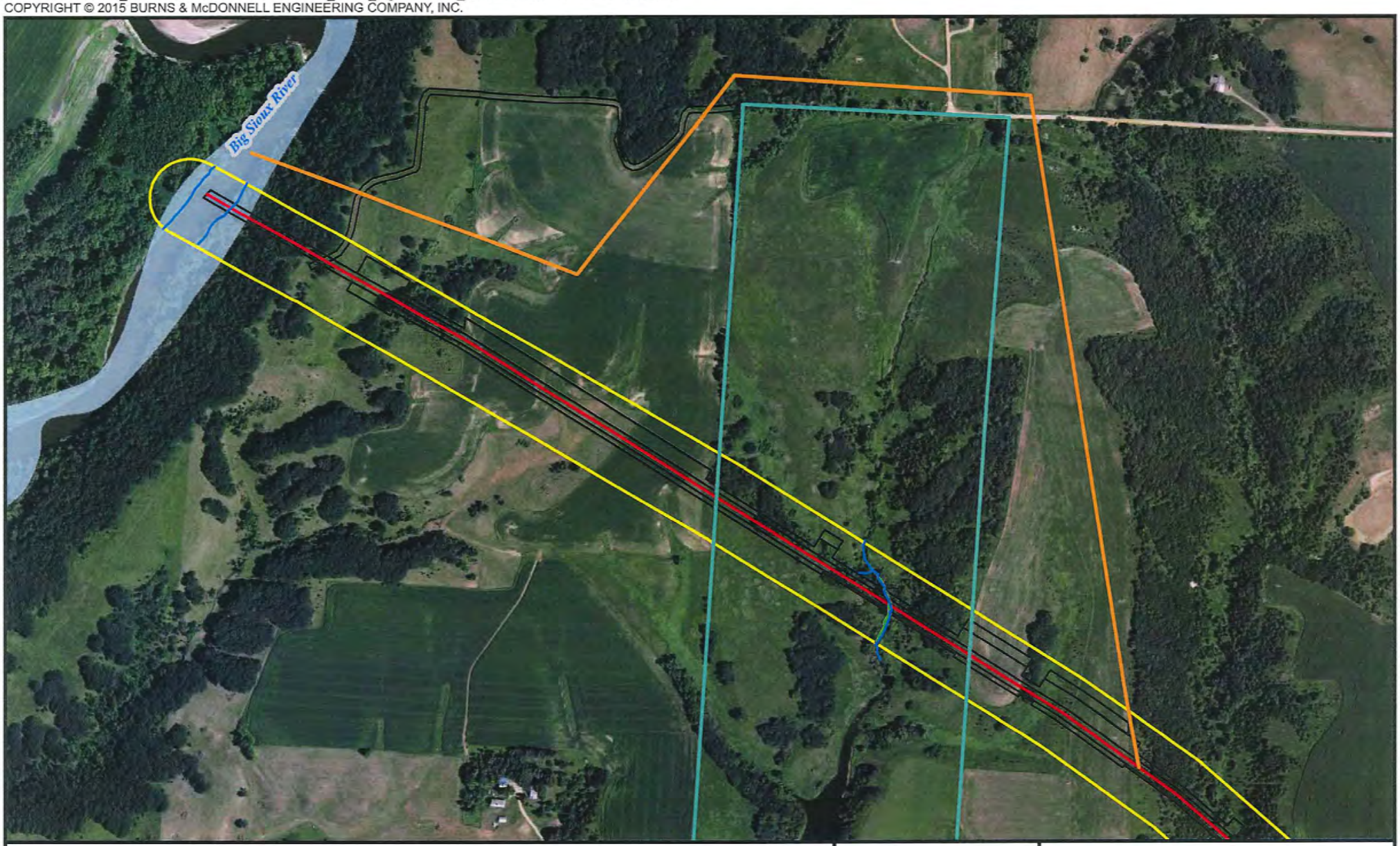

Alternative Alignment
Proposed Alignment
Survey Corridor
Big Sioux Complex WMA, Nelson Tract
FEMA Floodplain
Workspace
Ordinary High Water Mark
Wetland

NORTH

500 250 0 500
Scale in Feet

DAKOTA ACCESS, LLC

Figure 2
Dakota Access Pipeline Project
Project Location Map, Sovereign Lands
2014 Aerial Map
Lyon County, Iowa

Source: Burns & McDonnell, Perennial Environmental, Dakota Access, LLC

Issued: 3/5/2015

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\ETC_DAPL_BigSiouxRiver_Reroute_Topo_v2.mxd rewilliams 3/5/2015

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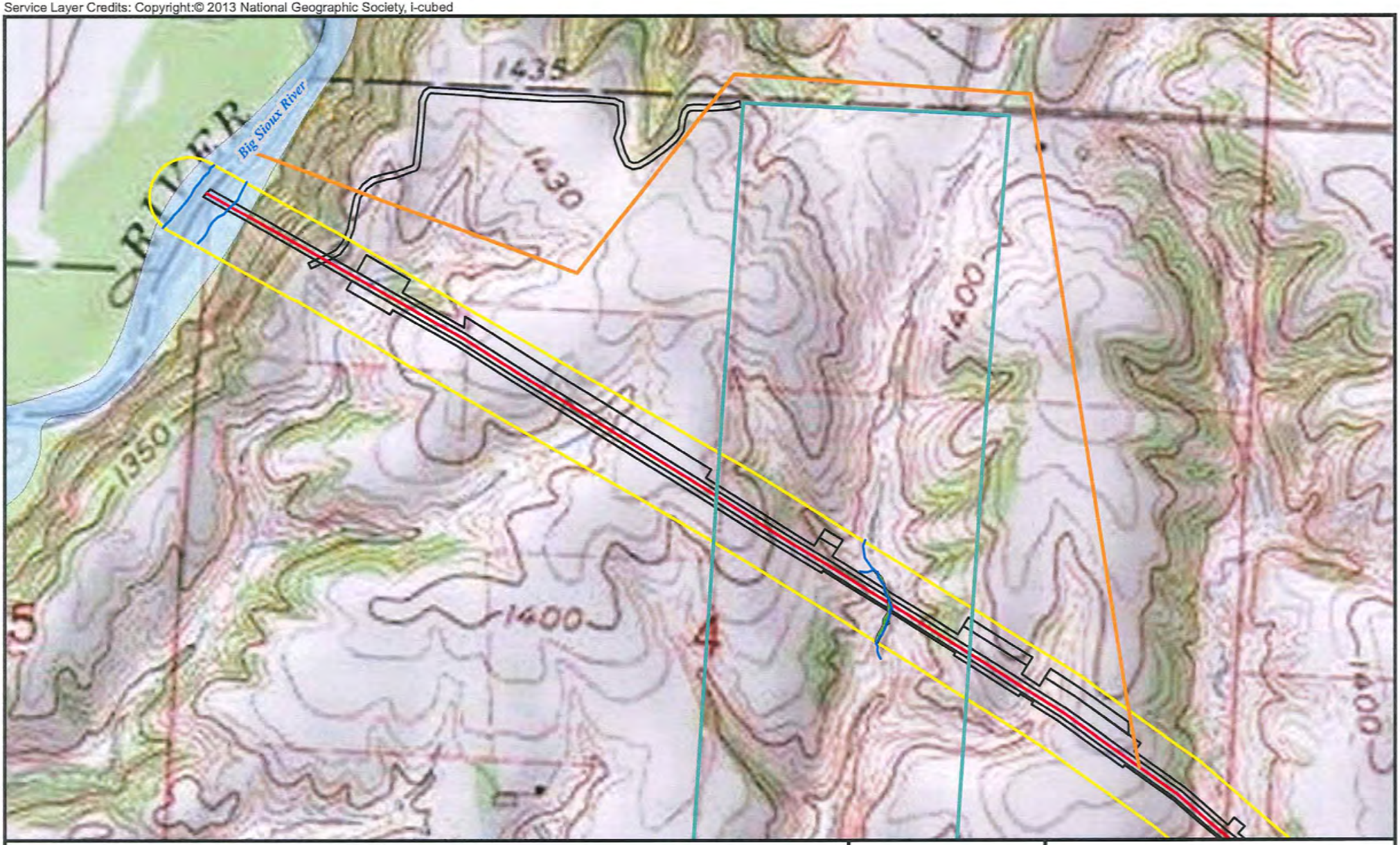
Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed



Alternative Alignment
Proposed Alignment
Survey Corridor
Big Sioux Complex WMA, Nelson Tract
FEMA Floodplain
Workspace
Ordinary High Water Mark
Wetland

NORTH

500 250 0 500
Scale in Feet

DAKOTA ACCESS, LLC

Figure 3
Dakota Access Pipeline Project
Project Location Map, Sovereign Lands
USGS Topographic Map
Canton Quadrangle
Lyon County, Iowa

Source: Burns & McDonnell, Perennial Environment, Dakota Access, LLC

Issued: 3/5/2015

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\Sov_Lands_DesMoines_Aerial_Env.mxd rewilliams 3/3/2015

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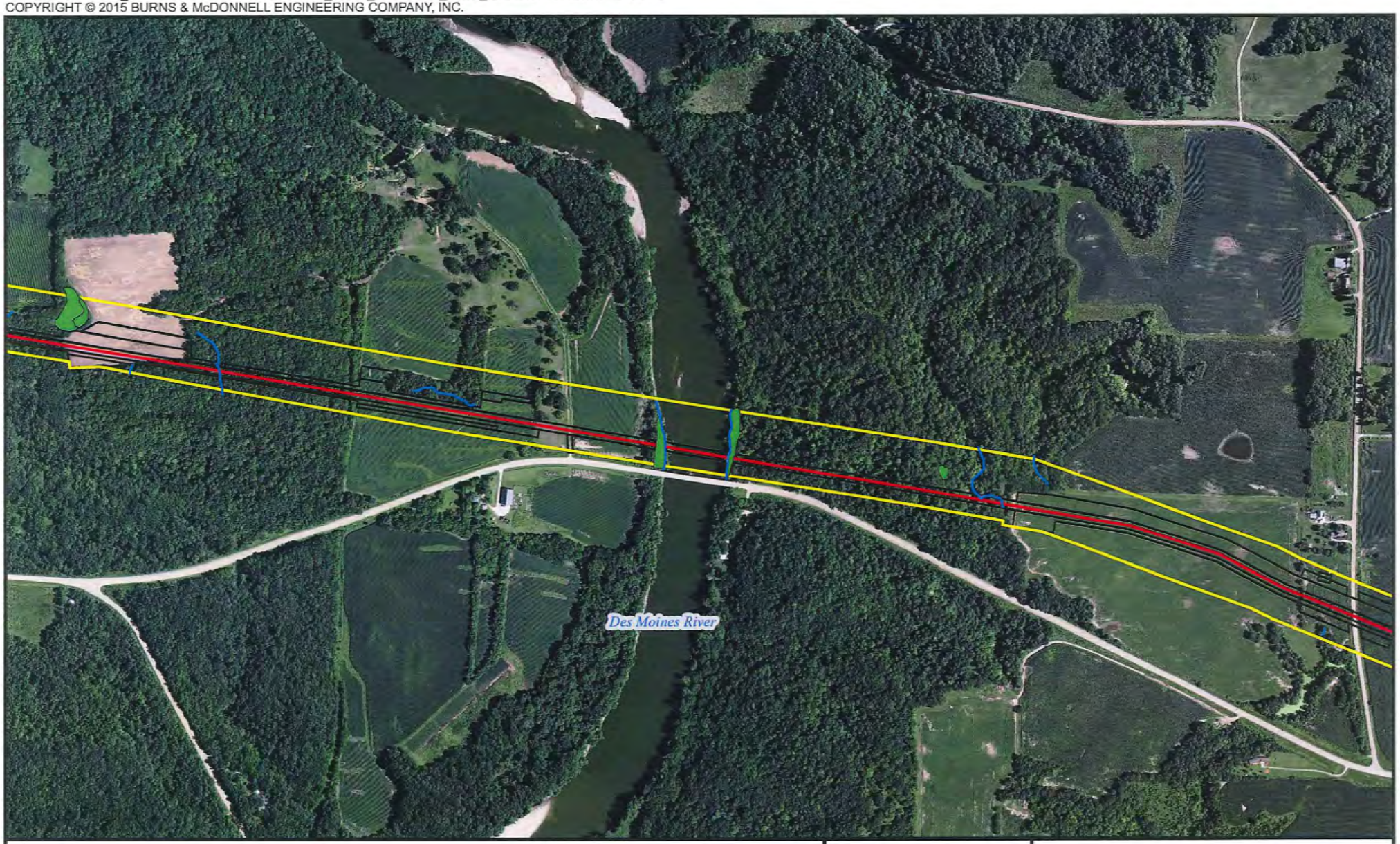

Proposed Alignment

Wetland

Survey Corridor

Workspace

Ordinary High Water Mark

NORTH

800 400 0 800

Scale in Feet

DAKOTA ACCESS, LLC

Figure 2
Dakota Access Pipeline Project
Project Location Map, Sovereign Lands
2014 Aerial Map
Boone County, Iowa

Source: Burns & McDonnell Engineering Company, Inc., Dakota Access, LLC

Issued: 3/3/2015

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\Sov_Lands_DesMoines_Topo_Env.mxd rewilliams 3/3/2015

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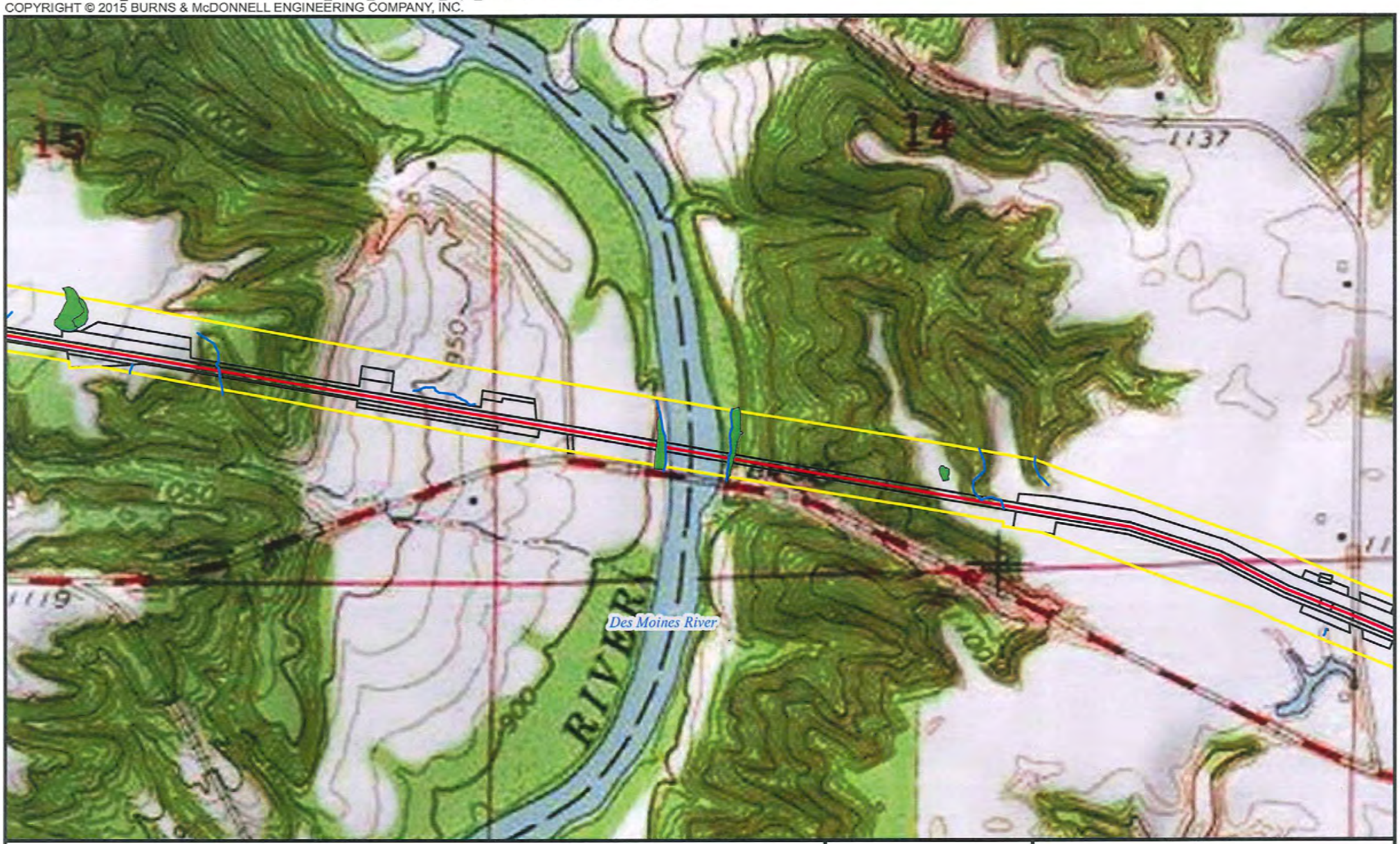

Proposed Alignment

Wetland

Survey Corridor

Workspace

Ordinary High Water Mark

NORTH

800 400 0 800

Scale in Feet

DAKOTA ACCESS, LLC

Figure 3
Dakota Access Pipeline Project
Project Location Map, Sovereign Lands
USGS Topographic Map
Canton Quadrangle
Boone County, Iowa

Source: Burns & McDonnell Engineering Company, Inc., Dakota Access, LLC

Issued: 3/3/2015

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\Sov_Lands_MissRiver_Aerial_Env.mxd rewilliams 3/3/2015

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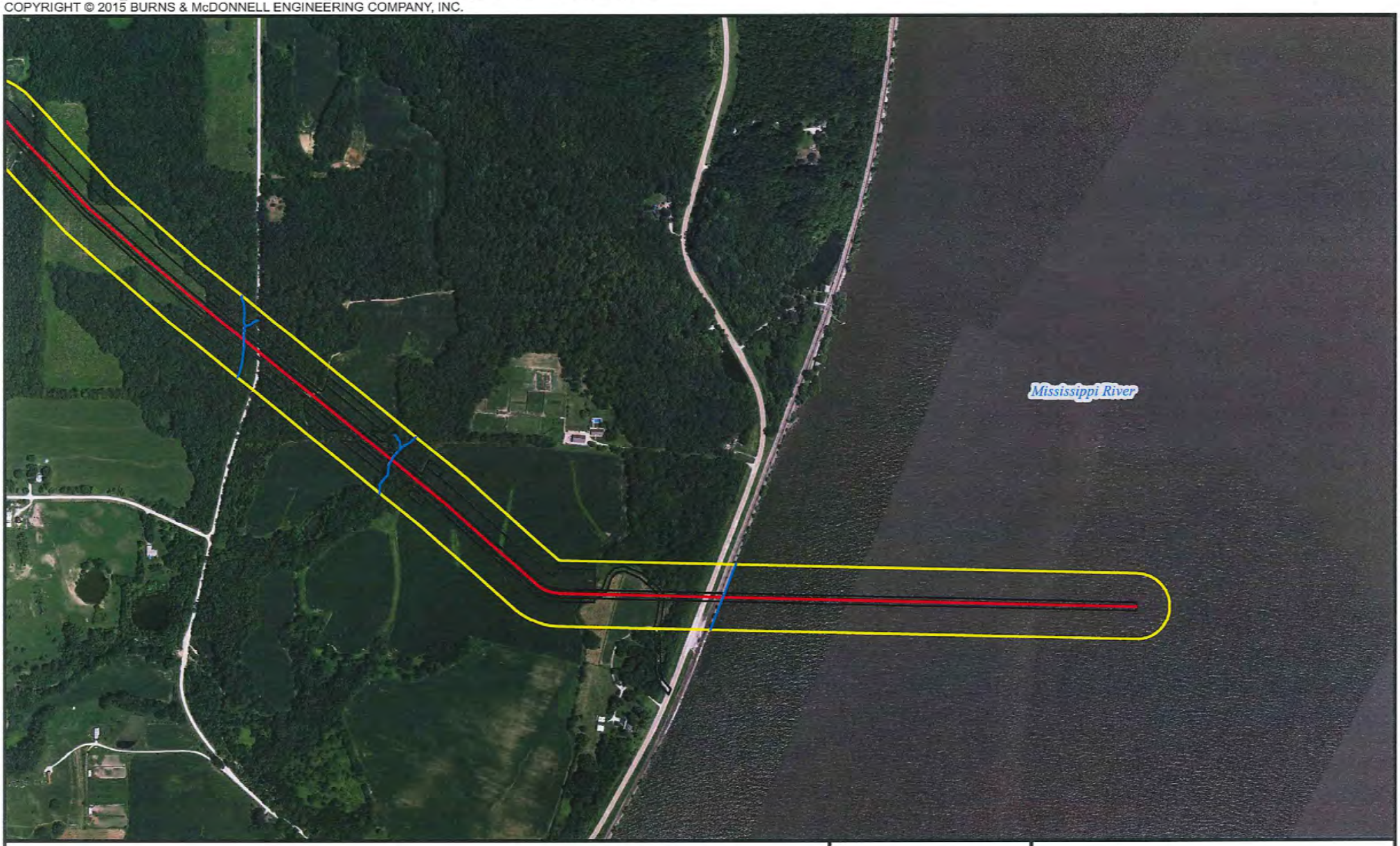

Proposed Alignment

Wetland

Survey Corridor

Workspace

Ordinary High Water Mark

NORTH

800 400 0 800

Scale in Feet

DAKOTA ACCESS, LLC

Figure 2
Dakota Access Pipeline Project
Project Location Map, Sovereign Lands
2014 Aerial Map
Lee County, Iowa

Source: Burns & McDonnell Engineering Company, Inc., Dakota Access, LLC

Issued: 3/3/2015

Path: R:\ETC\80879_DAPL\GIS\DataFiles\ArcDocs\Sov_Lands_MissRiver_Topo_Env.mxd rewilliams 3/3/2015
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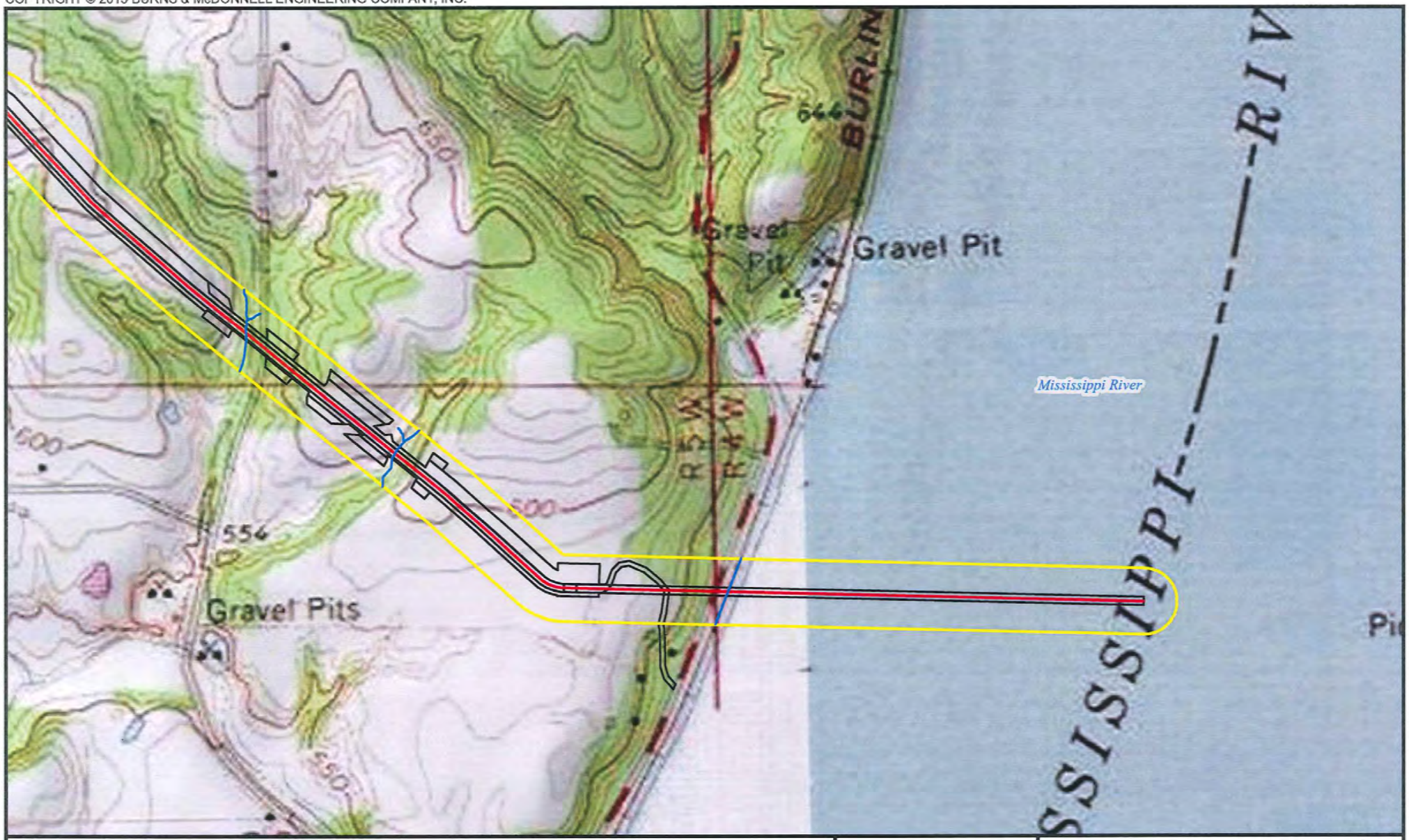


Proposed Alignment
Survey Corridor
Workspace
Ordinary High Water Mark
Wetland

NORTH

800 400 0 800
Scale in Feet

DAKOTA ACCESS, LLC

Figure 3
Dakota Access Pipeline Project
Project Location Map, Sovereign Lands
USGS Topographic Map
Keokuk and Hamilton Quadrangles
Lee County, Iowa

Source: Burns & McDonnell Engineering Company, Inc., Dakota Access, LLC

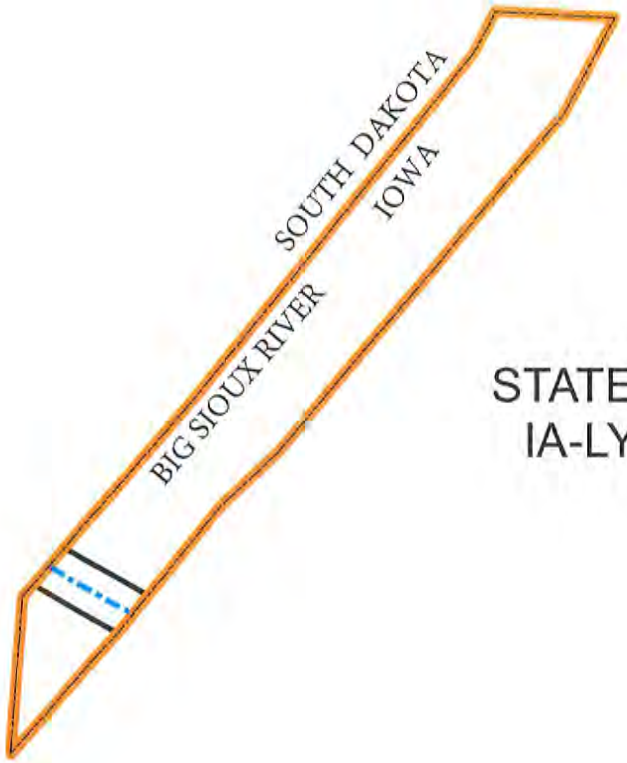
Issued: 3/3/2015

Attachment B – Survey Plats

Exhibit A

LYON COUNTY, IA

S4T98NR48W



STATE OF IOWA
IA-LY-002.900

ROW Length: 100.00 = Rods 6.06
Proposed Permanent Easement: 0.11 Ac.
Temp Easement/ Workspace: 0.00 Ac.
Add Temp Easement/ Workspace: 0.0 Ac.
Valve Site: 0.0 Ac.
Permanent Access Road: 0.0 Ac.
Temporary Access Road: 0.0 Ac.
Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 15N

Tract No.: IA-LY-002.900

N

0 350 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:

STATE OF IOWA

Center Line
Property_Boundaries
Easement/Workspace

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

_____
Landowner Initials

Date Exported: Monday, March 2, 2015 1:10:48 PM

Exhibit A

LYON COUNTY, IA

S4T98NR48W

ROW Length: 100 = Rods 6.06
Proposed Permanent Easement: 0.11 Ac.
Temp Easement/ Workspace: 0.00 Ac.
Add Temp Easement/ Workspace: 0.0 Ac.
Valve Site: 0.0 Ac.
Permanent Access Road: 0.0 Ac.
Temporary Access Road: 0.0 Ac.
Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 15N

Tract No.: IA-LY-002.900

N

0 — 320 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:

STATE OF IOWA

Center Line
Property_Boundaries
Easement/Workspace

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

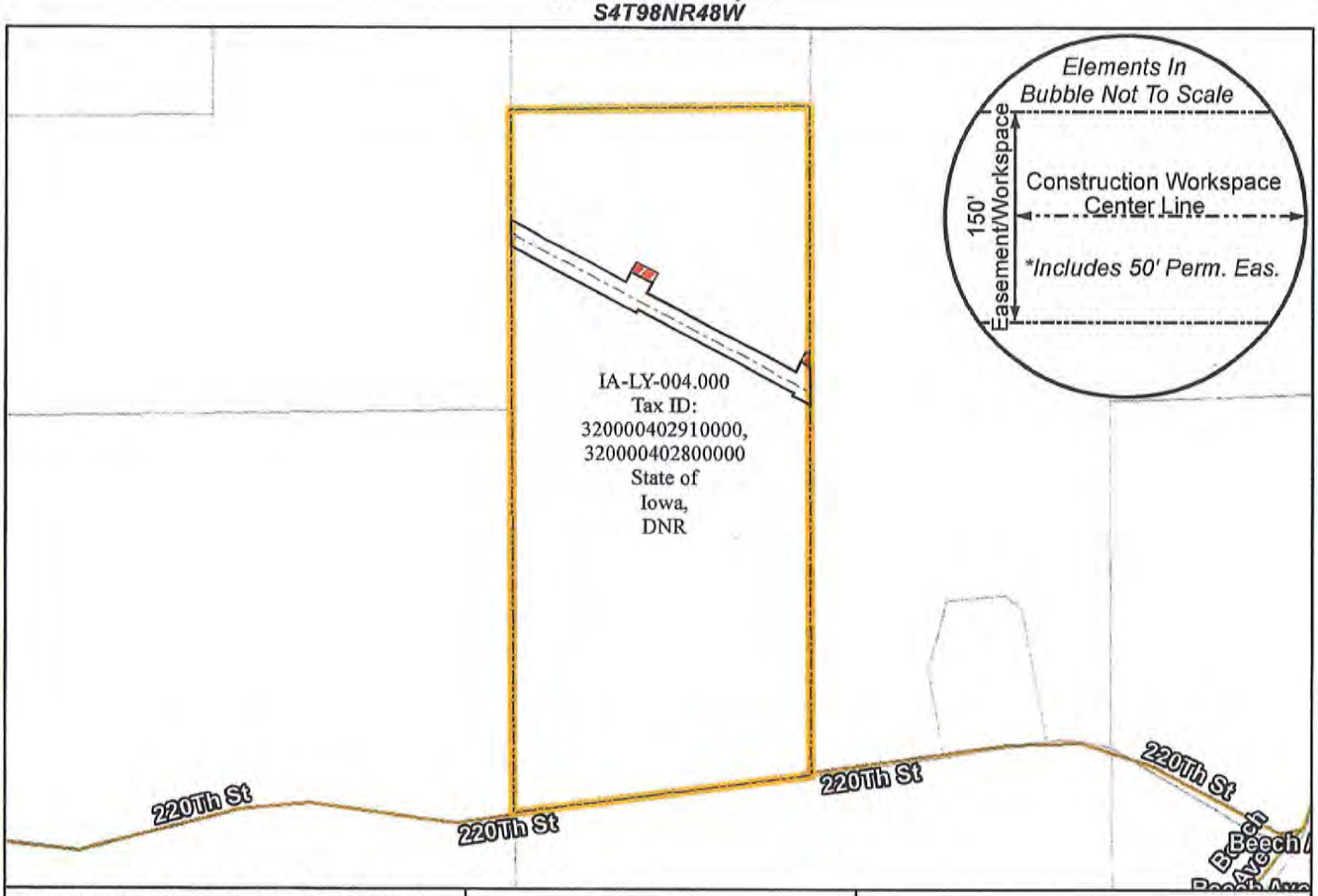
_____
Landowner Initials

Date Exported: Monday, March 2, 2015 4:35:37 PM

Exhibit A

LYON COUNTY, IA

S4T98NR48W



ROW Length: 1499.97 Ft. = 90.91 Rods
Proposed Permanent Easement: 1.72 Ac.
Temp Easement/ Workspace: 1.64 Ac.
Add Temp Easement/ Workspace: 0.16 Ac.

Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 14N

Tract No.: IA-LY-004.000

N

0 500 1,000 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:
State of Iowa, DNR

Center Line

Additional Temporary Easement_Workspace

Easement/Workspace

Property Boundaries

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

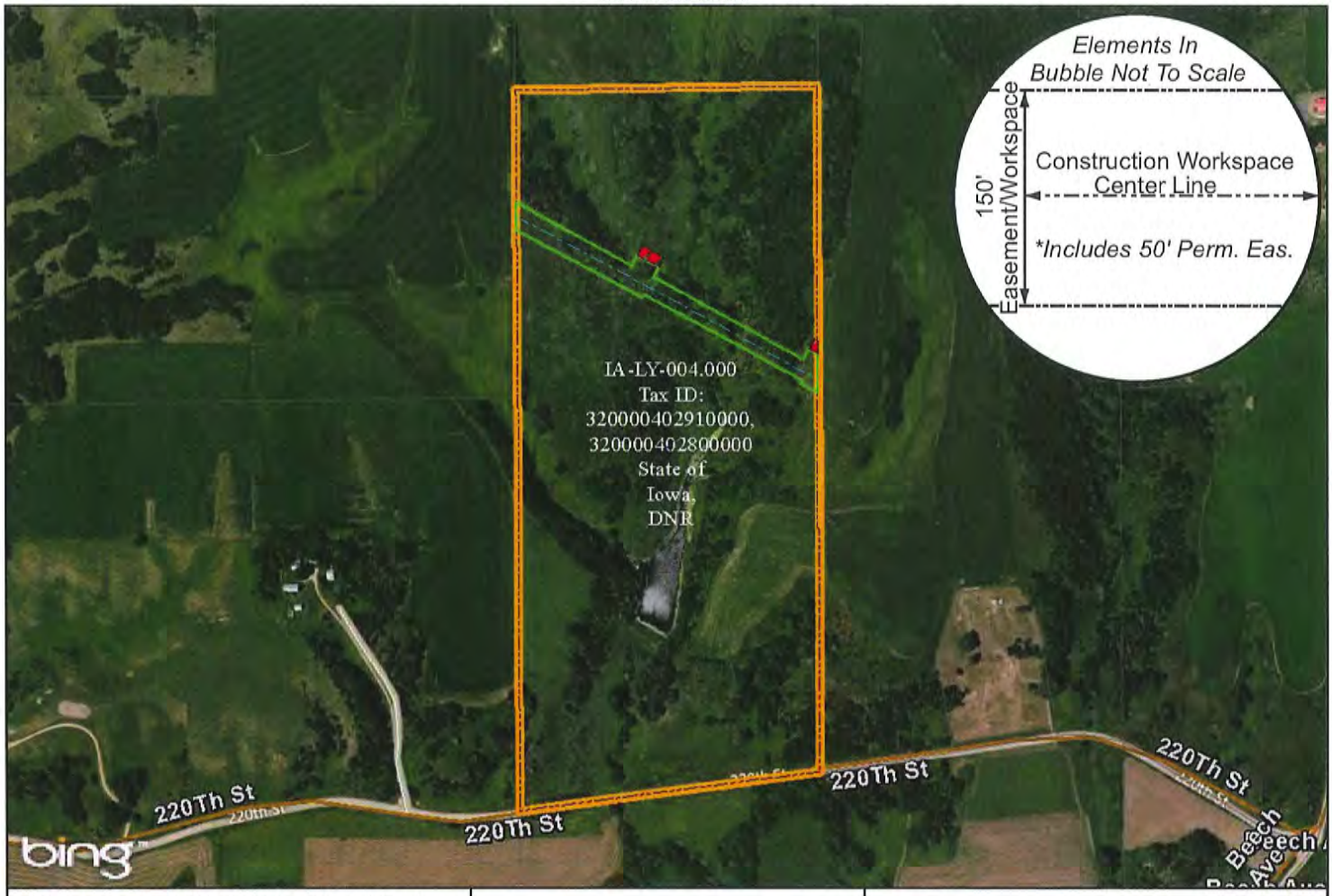
_____
Landowner Initials

Date Exported: Saturday, January 31, 2015 10:30:40 AM

Exhibit A

LYON COUNTY, IA

S4T98NR48W



ROW Length: 1499.97 Ft. = 90.91 Rods
Proposed Permanent Easement: 1.72 Ac.
Temp Easement/ Workspace: 1.64 Ac.
Add Temp Easement/ Workspace: 0.16 Ac.

Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 14N

Tract No.: IA-LY-004.000

N

0 500 1,000 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:
State of Iowa, DNR

Center Line

Additional Temporary Easement_Workspace

Easement/Workspace

Property Boundaries

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

_____
Landowner Initials

Date Exported: Saturday, January 31, 2015 10:31:49 AM

PROJECT: DAPL/Dakota Access Pipeline 30"
TRACT NUMBER: IA-LY-004.000
COUNTY: Lyon

EASEMENT AGREEMENT

This easement agreement ("Agreement"), dated _____, 2015, is between **State of Iowa acting through the Department of Natural Resources (DNR)**, whose mailing address is **c/o Property Tax Coordinator, Realty Services 502 East 9th Street / Iowa DNR, Wallace Bldg Des Moines, Iowa 50319** (hereinafter referred to as "Grantor", whether one or more), and **Dakota Access, LLC** whose mailing address is 1300 Main Street, Houston, Texas 77002, and its successors and assigns (such entity and its successors and assigns are collectively referred to as the "Grantee"). For the consideration of TEN AND No/100 Dollars ($10.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Grantor hereby grants, sells and conveys unto Grantee (i) a fifty foot (50') wide free and unobstructed permanent pipeline easement ("Pipeline Easement"), as more particularly described below, (ii) a temporary construction easement one hundred feet (100') in width and any such additional areas indicated on the Exhibit A more particularly described below ("Temporary Construction Easement"), and (iii) an easement not to exceed twenty five feet (25') in width for access to and from the Pipeline Easement and the Temporary Construction Easement ("Access Easement"). The Pipeline Easement, the Temporary Construction Easement, and the Access Easement (collectively, the "Easements") are being granted, sold, and conveyed from Grantor to Grantee for the purposes of accessing, establishing, laying, constructing, reconstructing, installing, realigning, modifying, replacing, improving, altering, substituting, operating, maintaining, accessing, inspecting, patrolling, protecting, repairing, changing the size of, relocating and changing the route or routes of, abandoning in place and removing at will one pipeline not to exceed thirty inches (30") in nominal diameter, and any appurtenant facilities, in, over, through, across, under, and along land owned by the Grantor (hereafter the "Grantor's Property"), which is more particularly described as follows:

That certain tract of land situated in the SW 1/4 of the NE 1/4, the NW 1/4 of the SE 1/4, and the SW 1/4 of the SE 1/4, all in Section 4, Township 98 North, Range 48 West of the 5th P.M., Lyon County, Iowa, more particularly described in Warranty Deed dated December 22, 2003 from Paul A. Lee and Joyce A. Lee, husband and wife to the State of Iowa acting through the Department of Natural Resources (DNR), recorded in Volume 2003, Page 4191, Office of the Recorder, Lyon County, Iowa, less and except any conveyances heretofore made.

Exhibit A attached hereto is a sketch or image of all or part of the Grantor's Property showing the approximate location of the Pipeline Easement, Temporary Construction Easement, and Access Easement. The precise location of the Temporary Construction Easement or "workspace" will be in an area immediately adjacent to the planned or actual Pipeline Easement and shall not exceed one hundred feet in width exclusive of the Pipeline Easement, and any such additional areas indicated on Exhibit A, if any.

Within one hundred eighty (180) days following the completion of construction of the pipeline, Grantee may supplement Exhibit A with a new **Exhibit A-1** that will (a) show the definite location of the installed pipeline as determined by an as-built survey, and (b) provide the legal description of the definite location of the Pipeline Easement and the Access Easement. Unless otherwise indicated on Exhibit A-1 or in the event Grantee does not provide Exhibit A-1, the parties hereto agree that the Pipeline Easement shall extend 25' outward in each direction at a 90 degree angle from the centerline of the pipeline as originally constructed. Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

It is further agreed as follows:

1. The right to use the Temporary Construction Easement and Pipeline Easement shall belong to the Grantee and its agents, employees, designees, contractors, guests, invitees, successors and assigns, and all those acting by or on behalf of it for the purposes of accessing, establishing, laying, constructing, reconstructing, installing, realigning,

modifying, replacing, improving, altering, substituting, operating, maintaining, accessing, inspecting, patrolling, protecting, repairing, changing the size of, relocating and changing the route or routes of, abandoning in place and removing at will, in whole or in part, a pipeline, for the transportation of oil, natural gas, natural gas liquids, hydrocarbon liquids, and the products thereof, together with below-ground appurtenances (and also for pipeline markers and cathodic protection test leads which Grantee is specifically allowed to install upon the surface of the Pipeline Easement) as may be necessary or desirable for the operation of the pipeline, over, across, under and upon the Grantor's Property.

a. Grantee shall have the right to select the exact location of the Pipeline Easement and the location of the pipeline within the Pipeline Easement, such that the centerline of the pipeline may not, in all instances, lie in the middle of the Pipeline Easement as it is approximately shown in Exhibit A; but regardless of the location of the pipeline, the Pipeline Easement shall not exceed fifty feet in width.

b. The Temporary Construction Easement or workspace will be used to construct one pipeline and any appurtenant facilities in, over, through, across, under, and along the Pipeline Easement area. The term of this Temporary Construction Easement shall be for a period to extend eighteen (18) months from the date of construction commencement. However, if Grantee has completed its use of this Temporary Construction Easement prior to the eighteen (18) month period and so states in writing, then the Temporary Construction Easement shall immediately terminate. Grantee shall have the right of ingress and egress over and across the Pipeline Easement (and the Temporary Construction Easement while in effect) to survey, conduct reasonable and necessary construction activities, to remove structures and objects located within the Pipeline Easement and the Temporary Construction Easement.

2. Further, Grantee shall have the right to construct, maintain and change slopes of cuts and fills within the Pipeline Easement Area to ensure proper lateral and subjacent support for and drainage for the pipeline and appurtenant facilities related to this pipeline project.

3. Grantee shall also have the non-exclusive right of unimpeded entry and access (hereafter "Access Easement") in, to, through, on, over, under, and across the Grantor's Property for all purposes necessary and at all times convenient and necessary to exercise the rights granted to it by this Agreement. The approximate location of the Access Easement, if it involves property other than the Pipeline Easement and any existing roads on Grantor's Property, may be shown on Exhibit A and definitely located and described on the subsequent as-built survey and Exhibit A-1. If Grantor erects any fences across the Access Easement or Pipeline Easement (if permitted in accordance with other terms and conditions of this Agreement), Grantor must install a gate, and if any gate across the Access Easement is locked, Grantor must supply Grantee with a key. Grantor shall allow Grantee to install its own lock if Grantee so chooses, provided that the method of locking the gates allows both Grantor and Grantee to use its/his/her own key or lock to open the gate without further assistance.

4. The consideration paid by Grantee in this agreement includes the market value of the Easements, both permanent and temporary, conveyed by Grantor and any and all damages to the Grantor's Property, excluding the Easements. Grantor has been paid (or, if leased, Grantor's tenant has been paid) for all damages caused to growing crops on the Pipeline Easement, Temporary Construction Easement, and Access Easement. However, Grantee will pay Grantor (or if leased to Grantor's tenant) for any damages caused to livestock due to Grantee's construction activities during the periods of the original construction of the pipeline.

5. Grantee will, insofar as practicable, restore the ground disturbed by the Grantee's use of the Pipeline Easement and will construct and maintain soil conservation devices on the Pipeline Easement as may be reasonably required to prevent damage to the property of Grantor from soil erosion resulting from operations of Grantee hereunder. Grantee shall leave the surface of the Temporary Construction Easement, Pipeline Easement, or Access Easement as nearly as reasonably possible as it was prior to the use of same and will restore all fences as nearly as possible to as good, or better, condition as they were prior to the use of said Easements and completion of the work for which said use was made, except for that part of the property within the Easements that is permanently altered in accordance with rights given under this Agreement.

6. Grantor may use the Easements for any and all purposes not inconsistent with the purposes set forth in this Agreement. Grantor's uses may include but shall not be limited to using those easement areas for agricultural, open space, set-back, density, street and roadway purposes, provided that any such use is not otherwise prohibited by applicable law and provided that such use does not cause a safety hazard or unreasonably interfere with Grantee's

rights under this Agreement. Grantor is permitted, after review and approval by Grantee, to construct any and all streets and roadways, at any angle of not less than forty five (45) degrees to Grantee's pipeline, across the Pipeline Easement which do not damage, destroy or alter the operation of the pipeline and its appurtenant facilities. Grantor may also construct and/or install, upon Grantee's review and approval, water, sewer, gas, electric, cable TV, telephone or other utility lines across the Pipeline Easement at any angle of not less than forty five (45) degrees to Grantee's pipeline, provided that all of Grantee's required and applicable spacings, including depth separation limits and other protective requirements are met by Grantor. The use of the Pipeline Easement by Grantor shall be regulated by all appropriate ordinances, regulations, resolutions or laws of the governmental entity with authority over the Pipeline Easement. Grantor must notify Grantee in writing before streets, roadways, utilities or other encroachments are installed.

7. Grantor may not use any part of the Easements in a way that may damage, destroy, injure, and/or interfere with the Grantee's right to use said Easements for the purposes set forth in this Agreement. Grantor is not permitted to conduct any of the following activities on the Easements without the written permission of Grantee: (1) construct or permit the construction or installation of any temporary or permanent building or site improvements, other than streets and roads; (2) drill or operate any well; (3) remove soil or change the grade or slope; (4) impound surface water; or (5) plant trees or landscaping. Grantor further agrees that no above or below ground obstruction that may interfere with the purposes for which the Easements under this Agreement are being acquired may be placed, erected, installed or permitted to exist without the written permission of Grantee. In the event the terms of this paragraph are violated, such violation shall immediately be eliminated upon receipt of written notice from Grantee or Grantee shall have the immediate right to correct or eliminate such violation at the sole expense of Grantor. Grantor shall promptly reimburse Grantee for any expense related thereto. Grantor further agrees that it will not interfere in any manner with the purposes for which the easements under this Agreement are conveyed. Any improvements, whether above or below ground, installed by Grantor subsequent to the date that Grantee acquires possession of the Easements, may be removed by Grantee without liability to Grantor for damages.

8. Grantee has the right to trim or cut down or eliminate trees or shrubbery to the extent, in the sole judgment of Grantee, its successors and assigns, as may be necessary to prevent possible interference with its rights under this Agreement, including the operation of the pipeline and to remove possible hazards thereto, and the right to remove or prevent the construction of, any and all buildings, structures, reservoirs or other obstructions on the Easements which, in the sole judgment of the Grantee, may endanger or interfere with the efficiency, safety, or convenient operation of the pipeline and appurtenant facilities or use of the Easements.

9. Grantor shall retain all the rights to oil, gas, and other minerals in, on and under the Easements; provided, however, that Grantor shall not be permitted to drill or operate equipment for the production or development of minerals on the Easements, but it will be permitted to extract the oil and other minerals from and under the Easements by directional drilling and other means, so long as such activities do not damage, destroy, injure, and/or interfere with the Grantee's use of the Easements for the purposes for which the Easements are being sought by Grantee.

10. Upon completion of the project construction, permanent fencing destroyed or disturbed by project construction activities shall be installed by Grantee, at its sole expense, along the same alignment and approximate location of the Grantor's existing fences. Grantee and its designated contractors, employees and invitees agree to keep all gates in fences closed at all times so that cattle, horses and/or other livestock located on the remainder portion of Grantor's Property cannot stray from the fenced pastures.

11. Grantee agrees that after it has exercised its rights to use the Easements in any manner that disturbs the surface of the Easements, it will restore the surface to the condition in which it was in prior to the immediately preceding use of the Easement, except as the surface may be permanently modified in accordance with the rights granted under this Agreement.

12. Grantee hereby agrees to indemnify and hold Grantor harmless from and against any claim or liability or loss from personal injury, property damage resulting from or arising out of the use of the Easements by Grantee, its servants, agents or invitees, excepting, however, such claims, liabilities or damages as may be due to or caused by the acts of Grantor, or its servants, agents or invitees.

13. Grantee shall have the right to assign this Agreement, as amended from time to time, and the Easements granted under it, in whole or in part, to one or more assignees. The Pipeline Easement and Access Easement shall be in perpetuity, and provisions of this Agreement, including all benefits and burdens, shall run with the land. The undersigned Grantor(s) warrant(s) that it/he/she/they is/are the owner(s) of Grantor's Property and has/have authority to execute this Agreement on behalf of Grantor. Grantor hereby binds himself/herself/themselves/itself, his/her/their/its heirs, assigns, devisees, successors, and legal representatives to warrant and forever defend all and singular the above described Easements and rights, unto the said Grantee, and Grantee's successors and assigns, against every person whomsoever lawfully claiming or to claim the same, or any part thereof.

14. Notwithstanding any rule of law or equity, unless otherwise sold, bartered or conveyed to another party, the pipeline and all related infrastructure and facilities shall at all times remain the property of the Grantee notwithstanding that the pipeline or those facilities may be annexed or affixed to the freehold or abandoned in place by Grantee.

15. This Agreement and the Easements granted under it shall be interpreted in accordance with the laws of the State of Iowa and all applicable federal laws.

16. This Agreement may be signed in counterparts and all such counterparts shall be deemed as originals and binding upon each party executing any counterpart and upon his/her/their/its respective heirs, devisees, representatives, successors and assigns. This Agreement, Exhibit A, and subsequent Exhibit A-1 and the as-built survey, may be recorded in the real estate records of the county or counties where Grantor's Property lies.

17. This Agreement contains the entire agreement between the parties and there are not any other representations or statements, verbal or written that have been made modifying, adding to, or changing the terms of this Agreement.

18. If any provision of this Agreement is invalid under any applicable statute or is declared invalid by a court of competent jurisdiction, then that provision shall be deemed to be severed herefrom and the remainder of this Agreement shall continue in full force and effect and shall be construed to the furthest extent legally possible so as to accomplish the purposes set forth in this Agreement.

EXECUTED this _____ day of _____, 2015.

GRANTOR:

_____

State of Iowa
c/o Property Tax Coordinator, Realty Services
502 East 9th Street / Iowa DNR, Wallace Bldg
Des Moines, Iowa 50319

ACKNOWLEDGMENT

(Individual)

State of IOWA)
)ss
County of _____)

This record was acknowledged before me on the _____ day of _____, 2015, by State of Iowa.

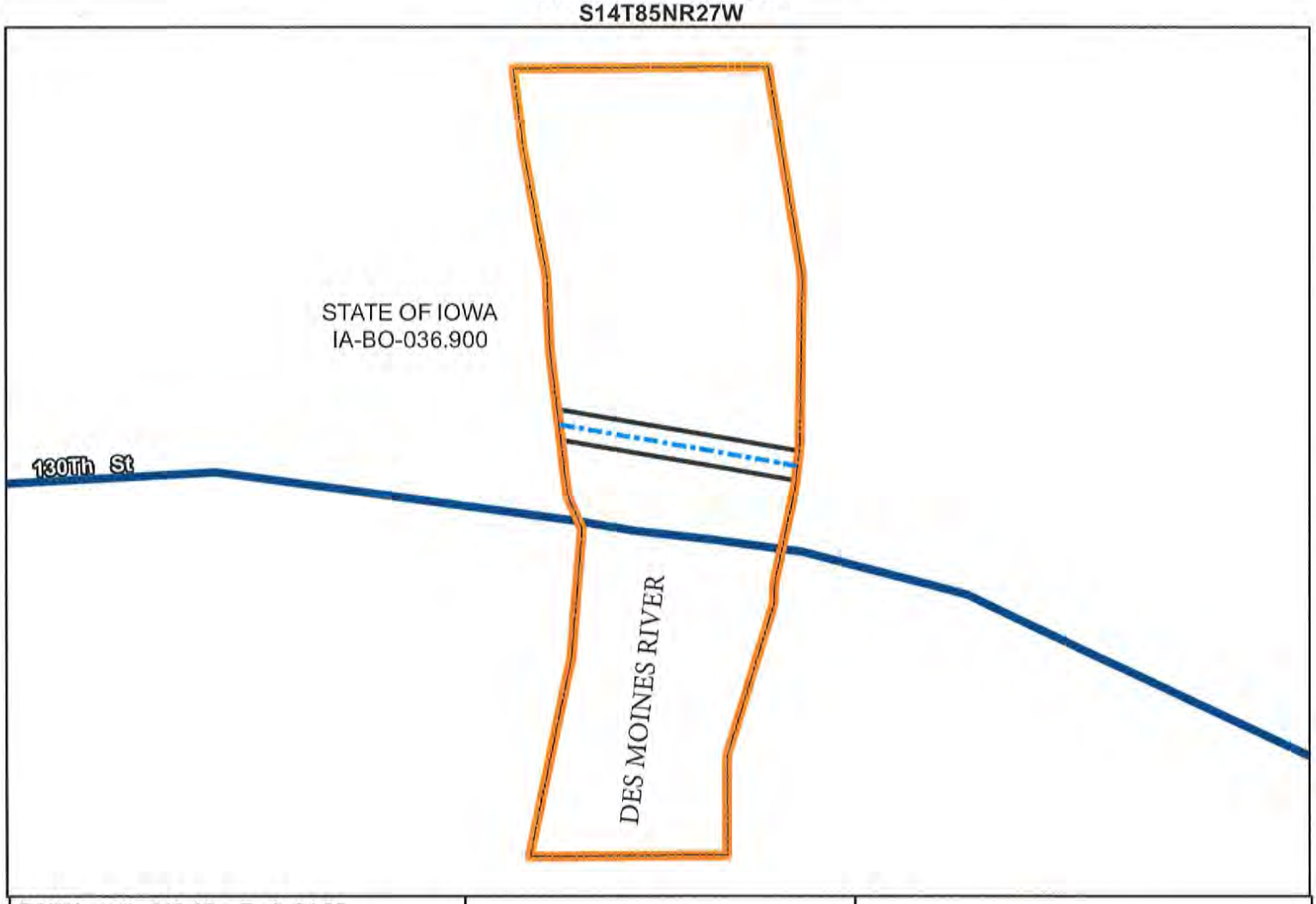
_____
Notary Public

My Commission Expires:_____

Exhibit A

BOONE COUNTY, IA

S14T85NR27W



ROW Length: 410.00 = Rods 24.85
Proposed Permanent Easement: 0.47 Ac.
Temp Easement/ Workspace: 0.00 Ac.
Add Temp Easement/ Workspace: 0.0 Ac.
Valve Site: 0.0 Ac.
Permanent Access Road: 0.0 Ac.
Temporary Access Road: 0.0 Ac.
Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 15N

Tract No.: IA-BO-036.900

N

0 500 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:

STATE OF IOWA

Center Line
Property Boundaries
Easement/Workspace

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

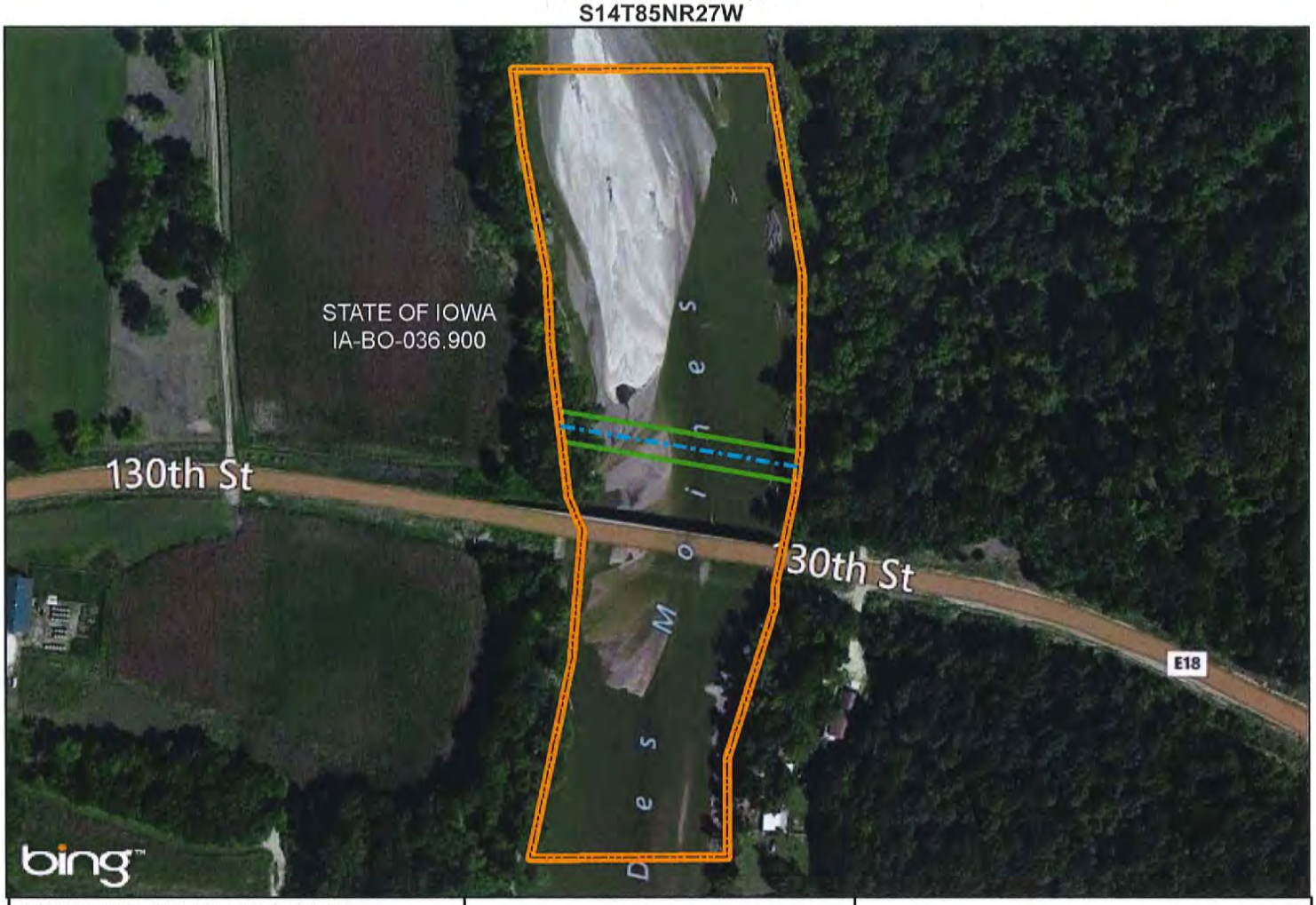
_____
Landowner Initials

Date Exported: Monday, March 2, 2015 2:04:54 PM

Exhibit A

BOONE COUNTY, IA

S14T85NR27W



ROW Length: 410.00 = Rods 24.85
Proposed Permanent Easement: 0.47 Ac.
Temp Easement/ Workspace: 0.00 Ac.
Add Temp Easement/ Workspace: 0.0 Ac.
Valve Site: 0.0 Ac.
Permanent Access Road: 0.0 Ac.
Temporary Access Road: 0.0 Ac.
Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 15N

Tract No.: IA-BO-036.900

N

0 500 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:

STATE OF IOWA

Center Line
Property Boundaries
Easement/Workspace

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

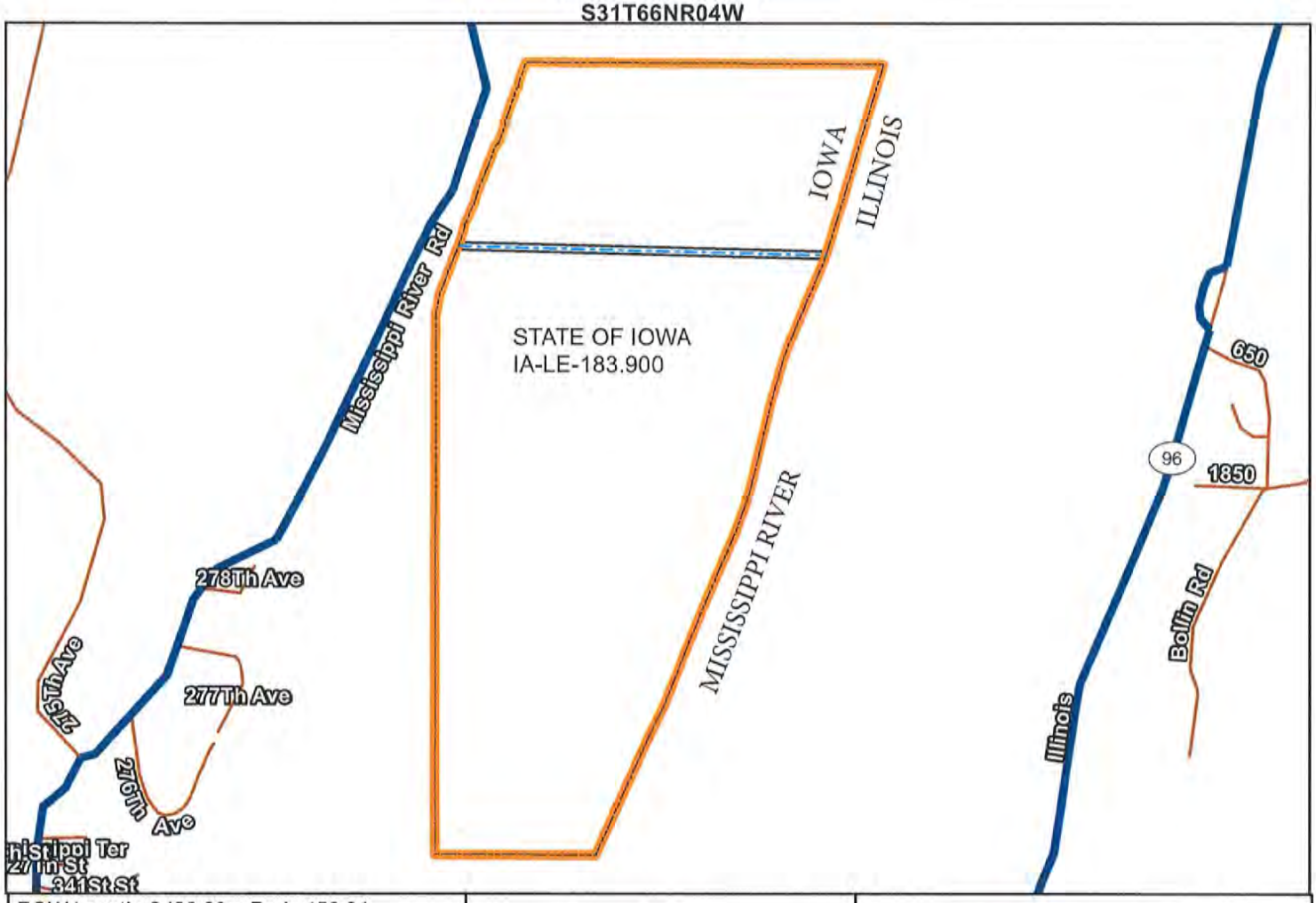
_____
Landowner Initials

Date Exported: Monday, March 2, 2015 2:00:00 PM

Exhibit A

LEE COUNTY, IA

S31T66NR04W



ROW Length: 2490.00 = Rods 150.91
Proposed Permanent Easement: 2.86 Ac.
Temp Easement/ Workspace: 0.00 Ac.
Add Temp Easement/ Workspace: 0.0 Ac.
Valve Site: 0.0 Ac.
Permanent Access Road: 0.0 Ac.
Temporary Access Road: 0.0 Ac.
Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 15N

Tract No.: IA-LE-183.900

N

0 1,000 2,000 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:

STATE OF IOWA

Center Line
Property Boundaries
Easement/Workspace

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

_____
Landowner Initials

Date Exported: Monday, March 2, 2015 3:48:32 PM

Exhibit A

LEE COUNTY, IA

S31T66NR04W

ROW Length: 2490.00 = Rods 150.91
Proposed Permanent Easement: 2.86 Ac.
Temp Easement/ Workspace: 0.00 Ac.
Add Temp Easement/ Workspace: 0.0 Ac.
Valve Site: 0.0 Ac.
Permanent Access Road: 0.0 Ac.
Temporary Access Road: 0.0 Ac.
Areal calculations and linear distances were calculated using: NAD 1983 UTM Zone 15N

Tract No.: IA-LE-183.900

0 1,000 2,000 Feet

DAKOTA ACCESS, LLC

Proposed Pipeline Easement Across:

STATE OF IOWA

Center Line
Property Boundaries
Easement/Workspace

Grantor hereby agrees that Grantee shall have the right to and is hereby authorized, with or without the joinder of Grantor, to file Exhibit A-1 by affidavit, to amend this Agreement to include such new Exhibit A-1 or to attach such new Exhibit A-1 to this Agreement, and to record or re-record such affidavit, amendment, or Agreement with the new Exhibit A-1. Grantee shall provide Grantor with a copy of the recorded affidavit, amendment or re-recorded Agreement.

_____
Landowner Initials

Date Exported: Monday, March 2, 2015 3:49:39 PM

Attachment C – Representative Photographs

Photo 1: View of PEM wetland (W_BM-1_LY_1) on the Nelson tract, facing northeast.

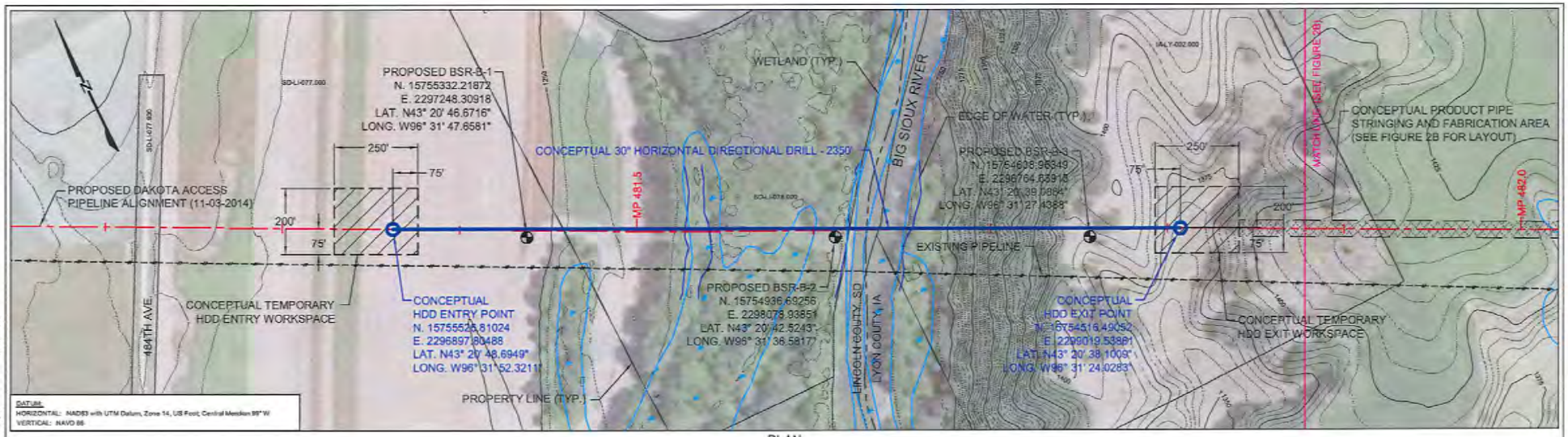
Photo 2: View of upland pasture west of W_BM-1_LY_1 on the Nelson tract, facing southwest.

Photo 3: View of the Big Sioux River (S_KC3_LY_1), facing northwest.

Photo 4: View of the Des Moines River (S_BM-1_BO_3), facing north.

Photo 5: View of the Mississippi River (S_BM-2_LE_6), facing east.

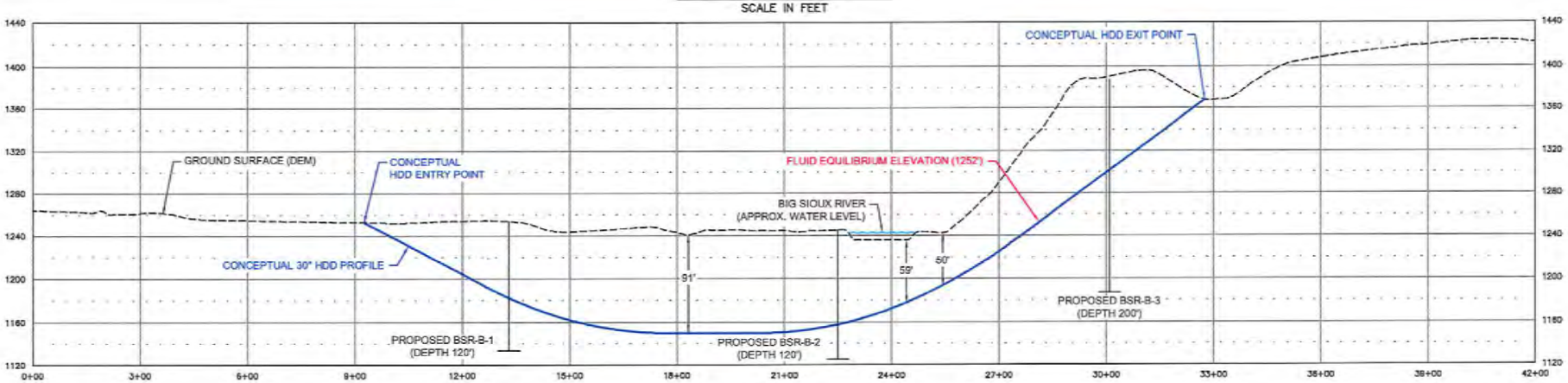
Attachment D – Plan and Profile Drawings



PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/3 Arc Second) downloaded from http://datagateway.nrcs.usda.gov/GDGOrder.aspx.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/20/13.
Base files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
BIG SIOUX RIVER HDD
LINCOLN COUNTY, SD & LYON COUNTY, IA

GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 05, 2014

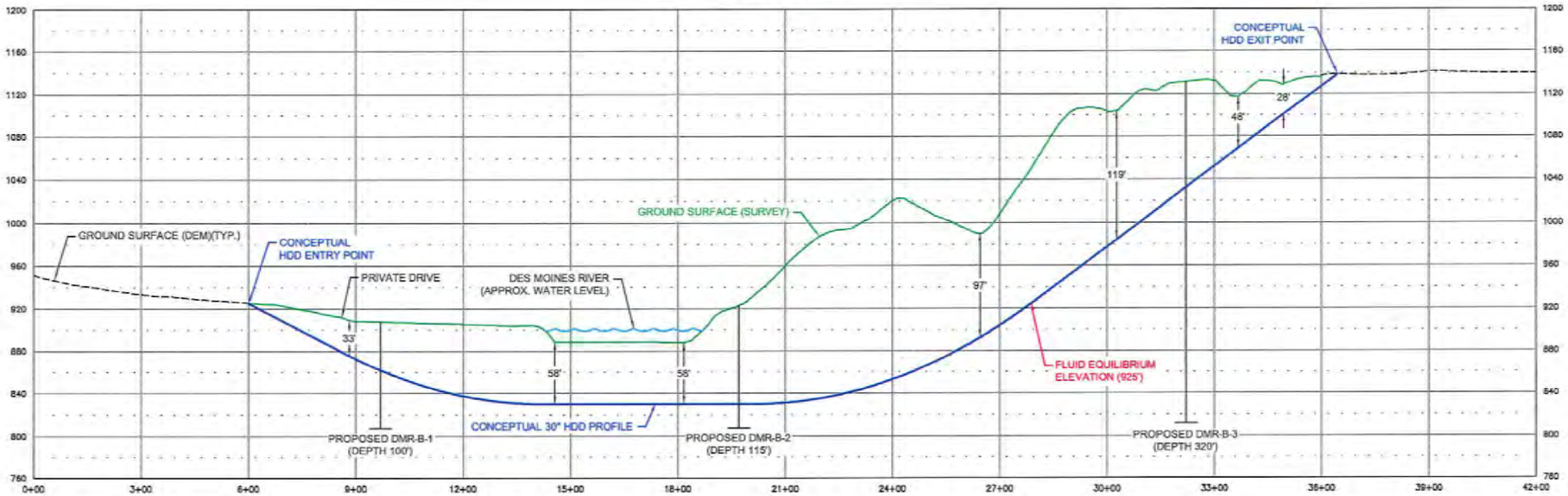
MAM : TJB

P:\16\1878\2011\01\CAD\Crossings\South Dakota\Big Sioux River\Drawings\Big Sioux River HDD Figure 2.dwg\TAB:Figure 2A modified on Nov 05, 2014 - 3:19pm

PLAN

300' 0 300'

SCALE IN FEET



PROFILE

300' 0 300'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro © 2015, licensed to GeoEngineers, Inc., image dated 06/11/12.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey base file provided by Wood Group Mustang, Inc.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 50' Interval
- Minor Contour - 10' Interval

DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
DES MOINES RIVER HDD
BOONE COUNTY, IOWA

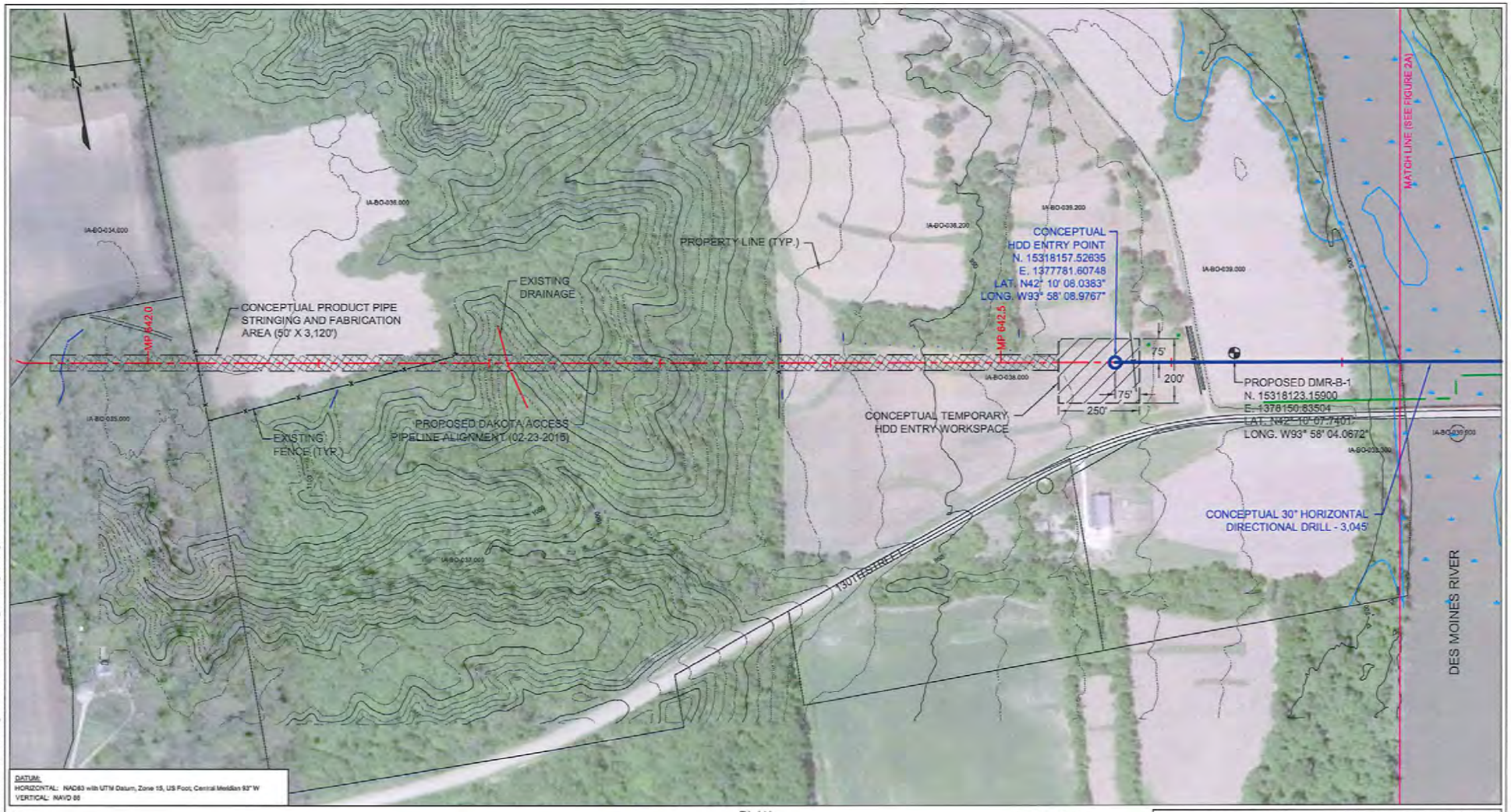
GEOENGINEERS

FIGURE 2A

ISSUED DATE: FEBRUARY 24, 2015

MAM / RBM

P:\18187820110\CAD\Crossings\Iowa\Des Moines River\Drawings\Des Moines River HDD Figure 2-dwg\TAB Figure 2A modified on Feb 24, 2015 - 5:06pm



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro © 2015, licensed to GeoEngineers, Inc., image dated 06/11/12.
Shape files provided by Contract Land Staff, LLC.
Ground surface survey and survey base file provided by Wood Group Mustang, Inc.

PLAN
300' 0 300'
SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:
- Proposed Boring Location
- Major Contour - 50' Interval
- Minor Contour - 10' Interval

DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL STRINGING WORKSPACE

PROPOSED 30" PIPELINE
DES MOINES RIVER HDD
BOONE COUNTY, IOWA

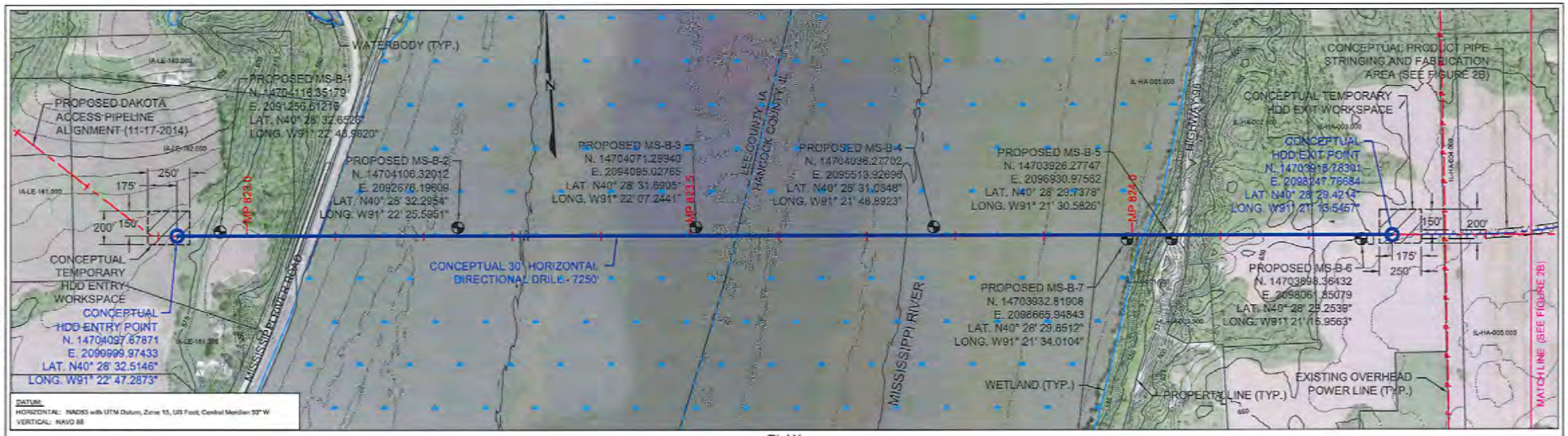
GEOENGINEERS

FIGURE 2B

ISSUED DATE: FEBRUARY 24, 2015

P:\18\1878\2011\01\CAD\Crossings\Iowa\Des Moines River\Drawings\Des Moines River HDD Figure 2.dwg\TAB:Figure 2B modified on Feb 24, 2015 - 3:06pm

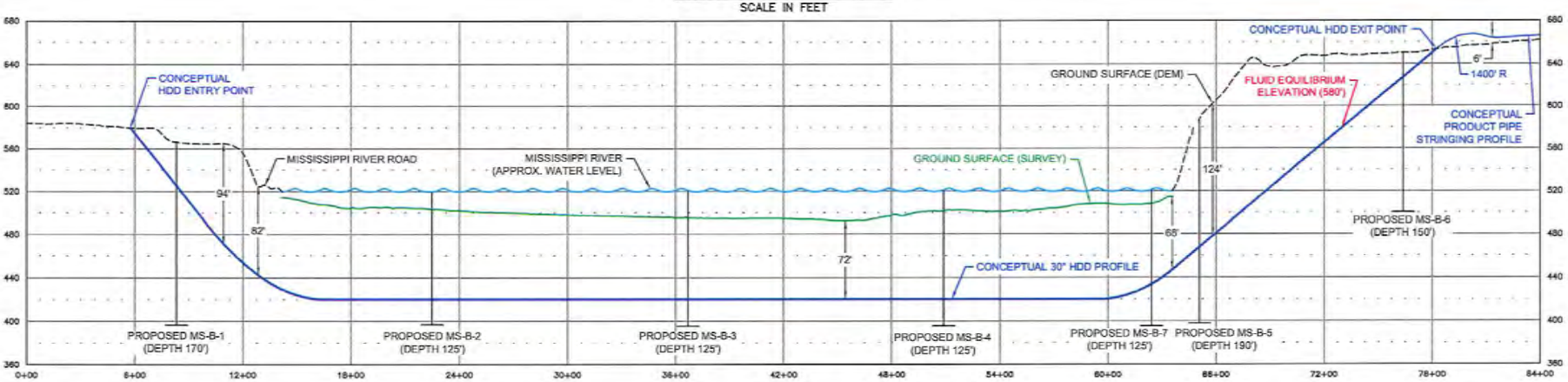
MAN : TJB



PLAN

600' 0 600'

SCALE IN FEET



PROFILE

600' 0 600'

HORIZONTAL SCALE IN FEET

100' 0 100'

VERTICAL SCALE IN FEET

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/3 and 1/9 Arc Second) downloaded from http://NationalMap.Gov.
Ground surface survey provided by Wood Group Mustang, Inc.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Wetland base files provided by Contract Land Staff, LLC.

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:

- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL SITE PLAN AND PROFILE

PROPOSED 30" PIPELINE
MISSISSIPPI RIVER HDD
LEE COUNTY, IA & HANCOCK COUNTY, IL

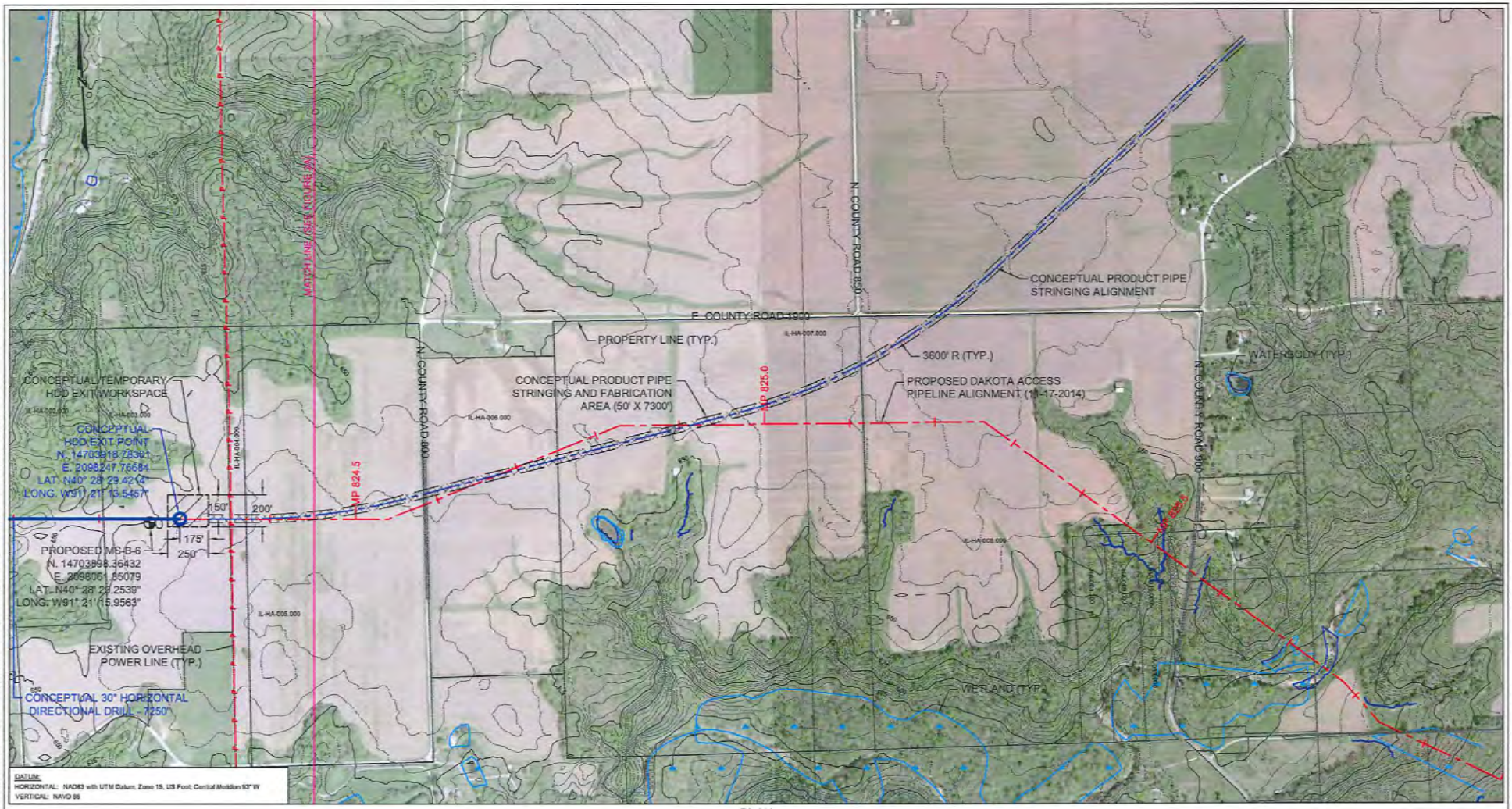
GEOENGINEERS

FIGURE 2A

ISSUED DATE: NOVEMBER 18, 2014

MAW : MWC

P:\18\1676\201101\CAD\Crossings\Iowa\Mississippi River\Drawings\Mississippi River HDD Figure 2.dwg\TABI\Figure 2A modified on Nov 18, 2014 - 6:06pm



Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. GeoEngineers, Inc. has not verified the field location of the existing utilities.

Reference: Ground surface DEM (1/3 and 1/9 Arc Second) downloaded from http://NationalMap.Gov.
Aerial image taken from Google Earth Pro, licensed to GeoEngineers, Inc., image dated 08/19/13.
Wetland base files provided by Contract Land Staff, LLC.

PLAN
600' 0 600'
SCALE IN FEET

NOT FOR CONSTRUCTION
FOR DISCUSSION ONLY

LEGEND:
- Proposed Boring Location
- Major Contour - 25' Interval
- Minor Contour - 5' Interval

ETC - DAKOTA ACCESS PIPELINE PROJECT
CONCEPTUAL HDD STRINGING AREA

PROPOSED 30" PIPELINE
MISSISSIPPI RIVER HDD
LEE COUNTY, IA & HANCOCK COUNTY, IL

GEOENGINEERS

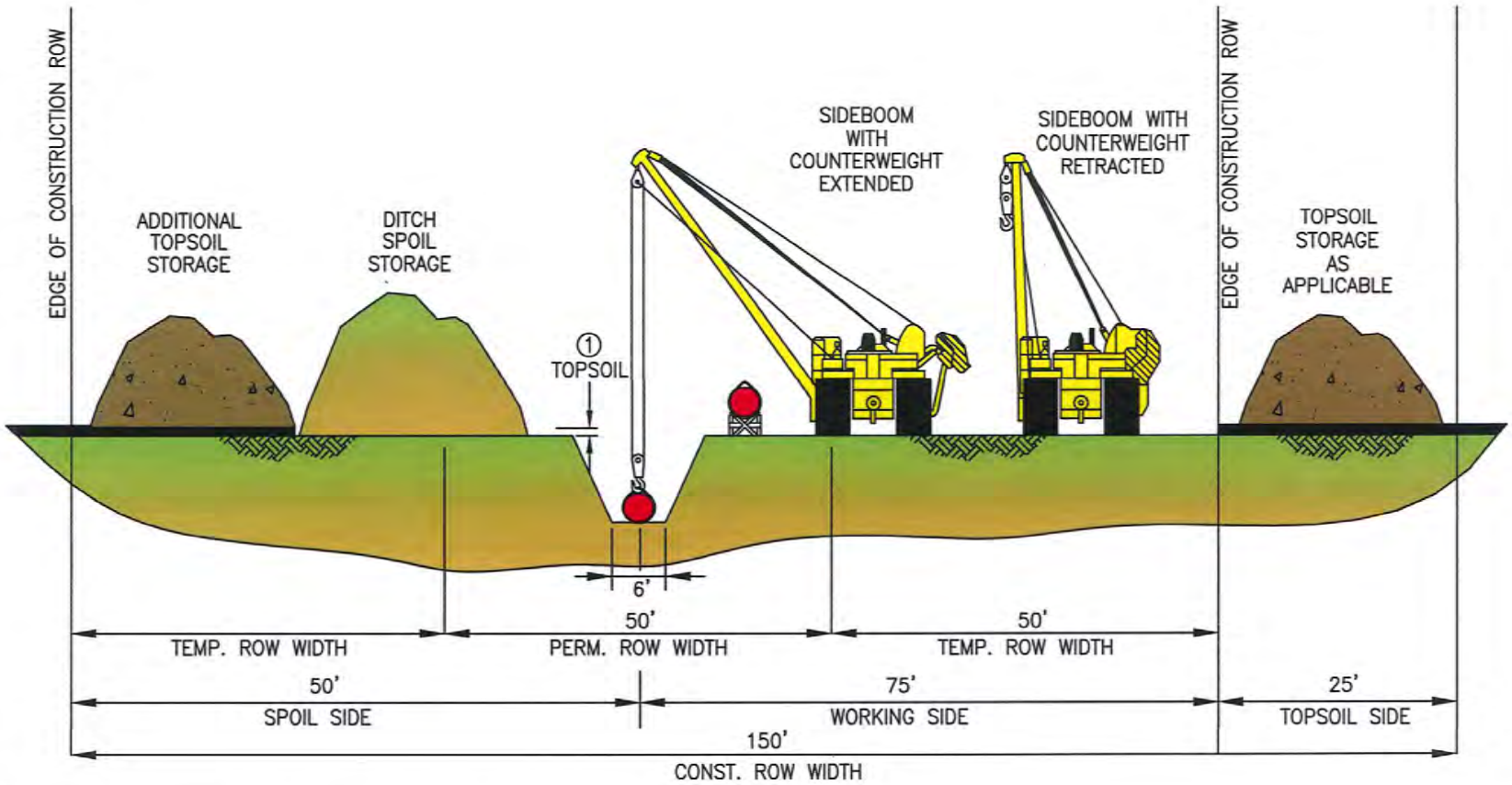
FIGURE 2B

ISSUED DATE: NOVEMBER 18, 2014

P:\18\18782\01\01\CAD\Crossings\Iowa\Mississippi River\Drawings\Mississippi River HDD Figure 2.dwg\TAB:Figure 2B modified on Nov 18, 2014 - 8:03pm

MAM : TJB

Attachment E – Typical Right-of-Way Configuration Drawing



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE–SPECIFIC CONDITIONS.

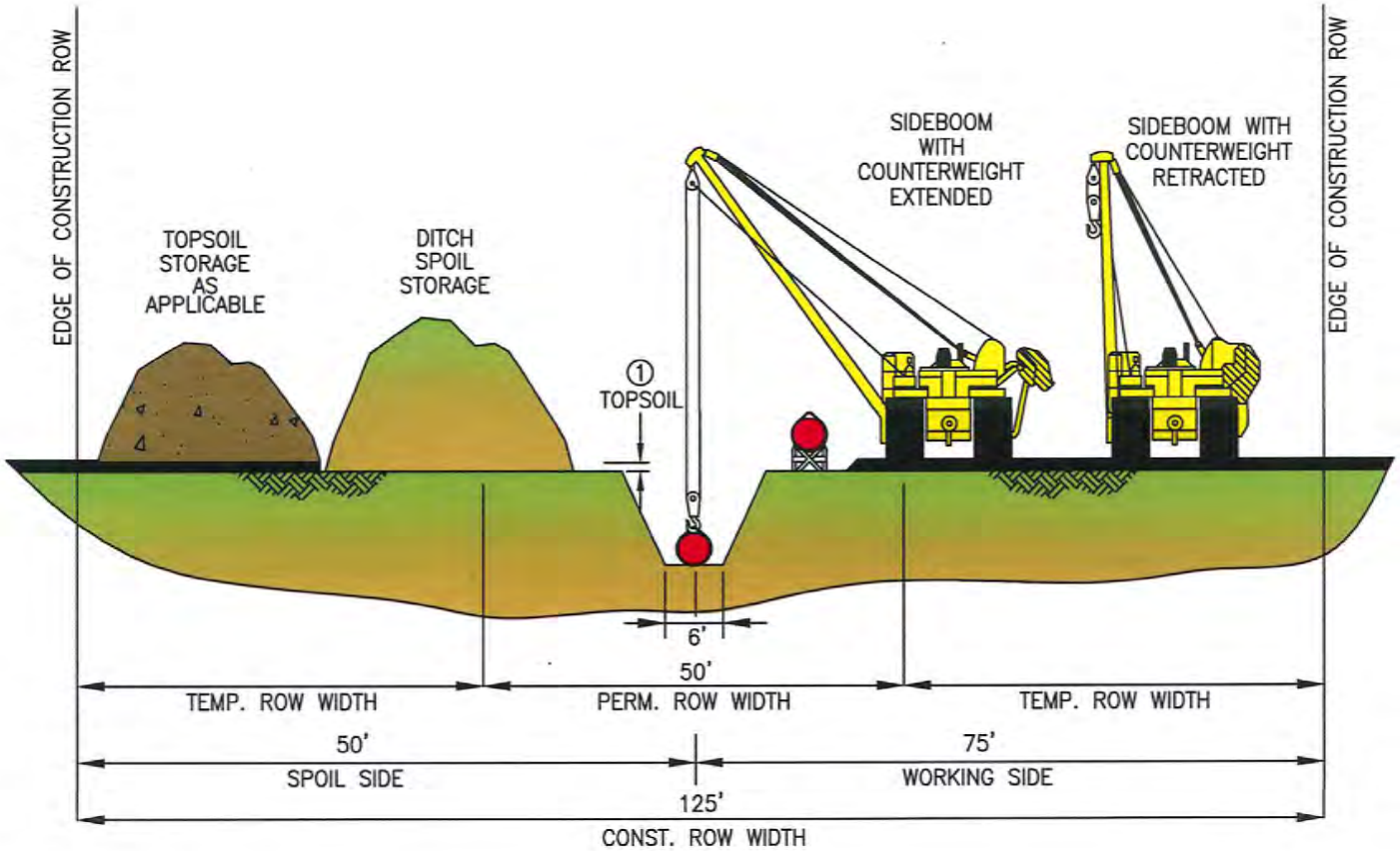
REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/16/14	MR	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

UPLAND CONSTRUCTION FULL WIDTH TOPSOIL SEGREGATION

DRAWN BY: MR	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: RL	DATE: 09/15/14	P12–55	C
SCALE: N.T.S.	APP.:		



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE–SPECIFIC CONDITIONS.

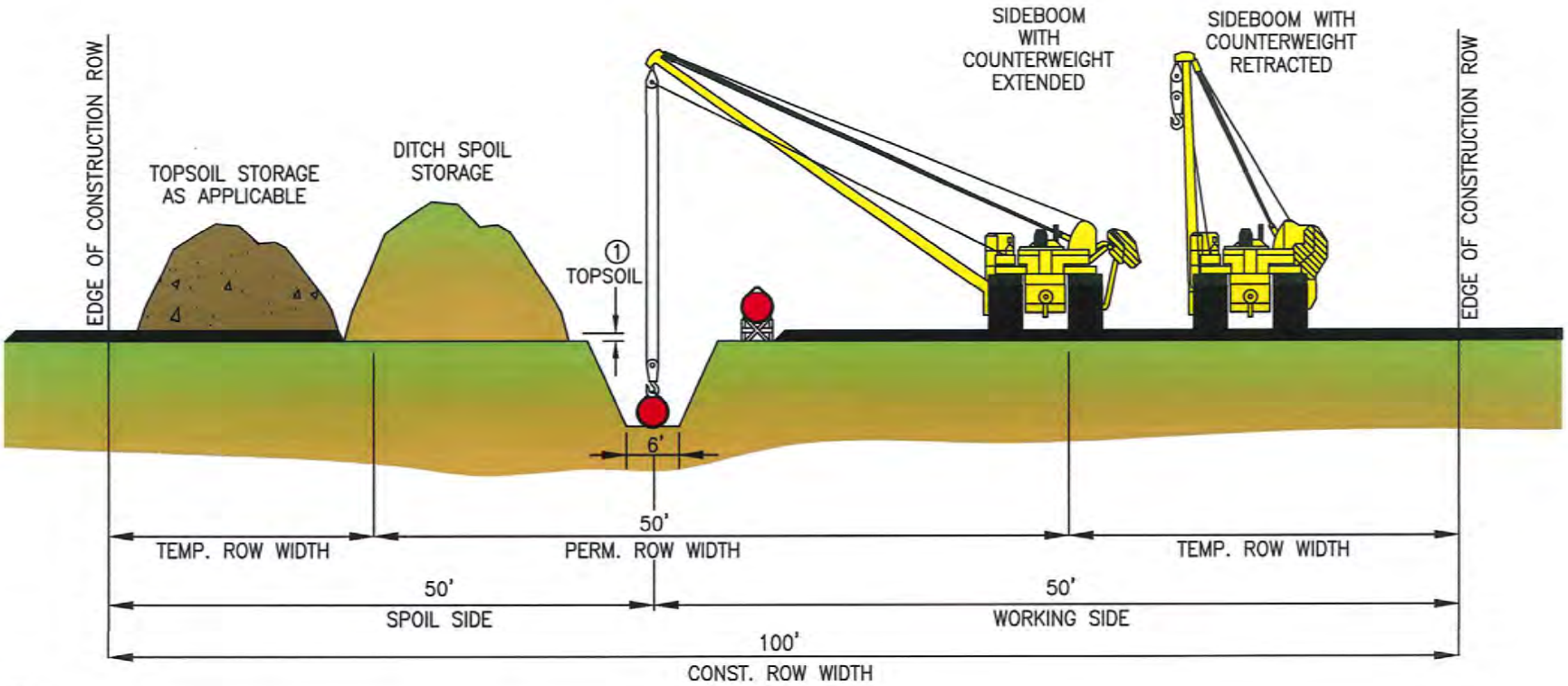
REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/16/14	MR	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

UPLAND DITCH LINE AND SPOIL SIDE TOPSOIL SEGREGATION

DRAWN BY: MR	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: RL	DATE: 09/15/14	P12–56	C
SCALE: N.T.S.	APP.:		



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE–SPECIFIC CONDITIONS.

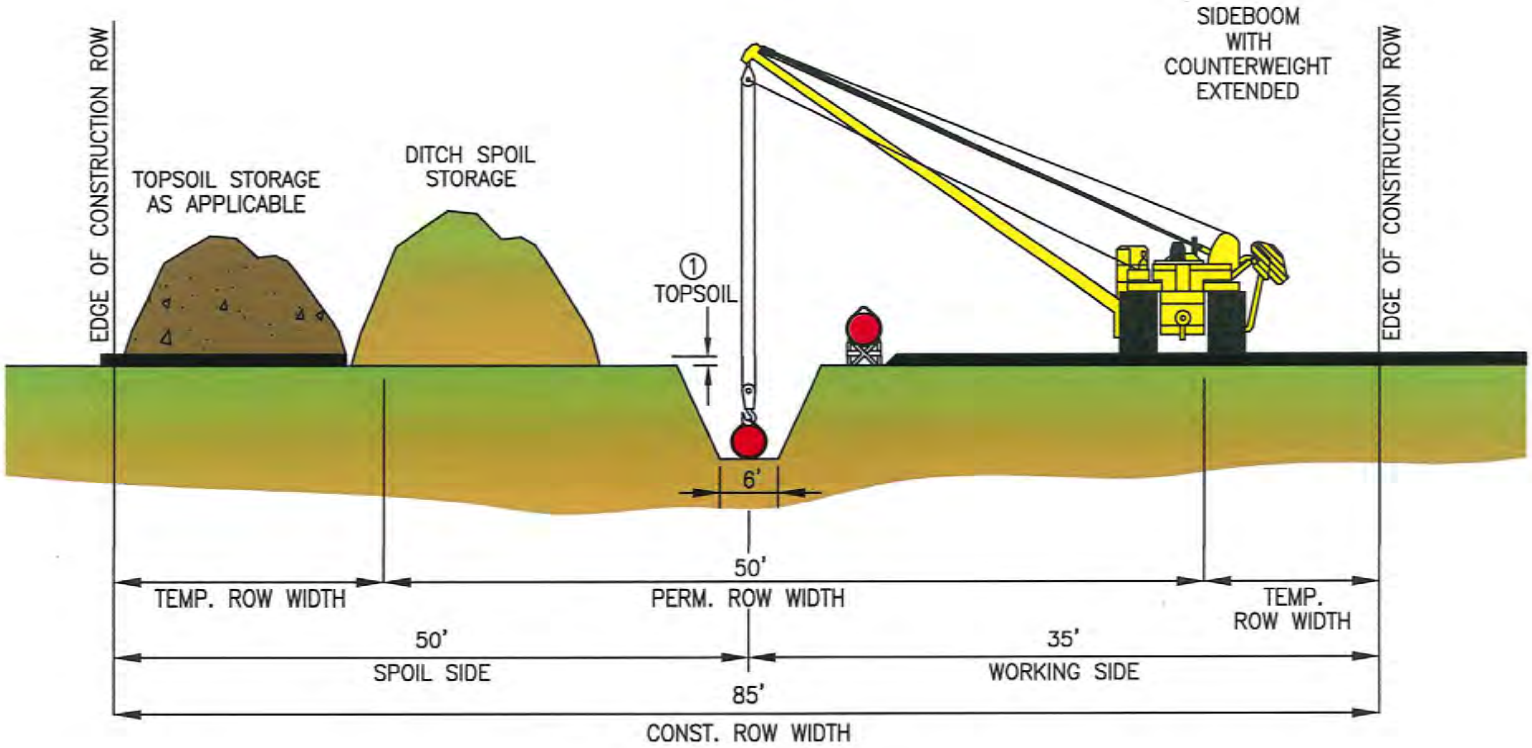
REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/15/14	JWH	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

EMERGENT NON–SATURATED WETLANDS

DRAWN BY: JWH	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: DAH	DATE: 09/19/14	P12–57	C
SCALE: N.T.S.	APP.:		



NOTES:

① DEPTH OF TOPSOIL SEGREGATED BASED UPON SITE-SPECIFIC CONDITIONS.

REV.	DATE	BY	DESCRIPTION	CHK.
C	12/12/14	RER	ISSUED FOR REVIEW	
B	12/12/14	RER	ISSUED FOR REVIEW	
A	9/15/14	JWH	ISSUED FOR REVIEW	

PROJECT NO. 10395700

TYPICAL RIGHT-OF-WAY CONFIGURATION

UPLAND AND WETLAND FORESTED AREAS

DRAWN BY: JWH	DATE: 09/15/14	DWG. NO.	REV.
CHECKED BY: DAH	DATE: 08/18/14	P12-58	C
SCALE: N.T.S.	APP.:		