INDUSTRIAL PARK
FEASIBILITY STUDY

PREPARED FOR

STARK DEVELOPMENT CORPORATION
(SDC)

BY

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With Assistance from
Roosevelt Custer Regional Planning Council
&
Strom Center for Entrepreneurship & Innovation

STROM CENTER FOR ENTREPRENEURSHIP AND INNOVATION
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ABSTRACT

This Industrial Park Feasibility Study was undertaken by Stark Development Corporation in an effort to define and determine the following:

- Current industrial needs, in terms of land, utilities, and other required infrastructure, primarily for Stark County but also for a six (6) mile wide portion of Dunn County, which borders on the north boundary of Stark County
- Develop a conclusive map of the defined study area which shows all currently available, industrially zoned land, existing utilities and other infrastructure which may have a positive impact on future industrial development
- Assess current local economy and future energy development potential within the region, defined generally as southwestern North Dakota
- Prepare a written report with support data and information to document findings and relevant costs required to meet future demands.

PLEASE NOTE: Large scale maps and the electronic data base that was developed during the preparation of the report have been presented to Stark Development Corporation.

EXECUTIVE SUMMARY

This report focuses on four (4) general areas of the local and regional economy, in and around Stark and southern Dunn Counties located in western North Dakota. The four areas evaluated herein are defined as:

- Agriculture
- Manufacturing
- Energy
- Tourism

The above general areas, in turn, include and overlap other relevant economic sectors.

For purposes of data collection and dissemination, a majority of the industry specific information such as sales, employment and salaries comes from Stark County data. While the report relies primarily upon statistics from Stark County (due to available data sources) the results presented herein are representative of the eight (8) county region because the majority of the region is affected by and dependent upon very similar needs, services and industries.

The four identified areas provide a good, general overview of the region's overall economy, which in light of the national economy and trends, is in a generally good, healthy and vibrant condition.

Agriculture is the sector with the longest history but is also influenced by all the other sectors in terms of overall economics. Agriculture is affected by manufacturing through farm equipment that is manufactured locally and employs farm help; by energy in terms of supplemental income, employment and land leases to farm families; by tourism in terms of added income and employment brought on by outside visitors especially during hunting season. In summary, agriculture has few direct industrial needs but numerous indirect benefits resulting from local industry.

Manufacturing is a rapidly growing industrial sector of the local and regional economy. Currently Stark County alone is supporting approximately seventy (70) businesses that are in or have direct ties to manufacturing. Manufacturing provides jobs for over 1,250 Stark County residents and produces annual sales revenue in excess of $228,000,000. Besides several large "specialty" type manufacturers such as food, construction equipment, oil field/agricultural storage facilities and office furniture, the region has other smaller, family operated manufacturing facilities. These include; metal fabricators, wood cabinet makers, food processors/producers which include bakeries, butcher shops, as well as specialty shops such as; computer software manufacturers, jewelers, seamstresses and food caterers.

Energy is currently the fastest growing industrial sector within western and southwestern North Dakota, including Stark and Dunn Counties. The most active energy sector currently is in the drilling and production of oil. This area has been especially active due to recent highly productive and extremely promising discoveries within the Bakken and Three Forks-Sanish geological formations. These discoveries, coupled with new horizontal drilling technology, have placed the state of North Dakota fourth in the nation in terms of overall crude oil production. In addition, renewed interest, brought about, again in part, by new technology in lignite coal mining and processing, is showing positive signs for the region. The western part of Stark County has significant amounts of lignite coal which has not been mined or even considered until recently due in part to the high moisture and sulfur content within the coal. New technology involving drying the coal and reducing the sulfur content (Coal Beneficiation Process) is being implemented on a "pilot" basis on a site in southwestern Stark County, near the community of South Heart. If this process proves successful, it will open a significant area within the county for lignite mining and an electrical power generation facility for which the planning is currently underway.

Besides oil, gas and coal, another potentially promising area for energy development within the region lies in the nuclear sector. The region has significant deposits of uranium (U308) and an Australian company did exploration work during the summer of 2009. If positive economic results (to be published in 2010) are obtained from the exploratory research, the mining of uranium is a real possibility.

Other identified forms of renewable energy development such as wind and solar power have also been researched and the region has been identified by the Department of Energy as having potential for development of both wind and solar. Two 20MW "wind forms" are being proposed for construction in 2010 and a larger 60MW form is being

studied. The region also has one producing corn ethanol facility located in eastern Stark County near the community of Richardton. In summary this region, specifically Stark county, has tremendous potential for the development and production of a variety of energy sources and has a very bright future in the foreseeable energy field.

Tourism also plays a key role in the region's economy and future. Study results show that of the four economic sectors evaluated herein for Stark county, the tourism sector employs the highest number of people and contributes the most to annual payroll. Tourism is on a steady and gradual increase attributed to a variety of factors, including: Theodore Roosevelt National Park, the continually growing success of paid hunting, increased energy development, specifically oil field activity, a national economy which keeps Americans traveling within the country rather than abroad and improved air travel within the region. All indications are that tourism is expected to continue as a major economic contributor to the region.

In general the entire region of southwest North Dakota has a very optimistic future due in large part to a diverse and currently vibrant economy. The most identifiable absence of any required resource observed in the preparation of this report is in the population, especially the "work-force" population. As identified in the agricultural section of the report (Table 6), the percentage of farm operators age 55 and older increased by 7% between 2002 and 2007. This sector of the economy is affected especially hard by an aging population and the disappearance of the traditional "family farm". Without the "family" connection, as farmers retire their land is typically taken over by neighbors who, in many cases, also are near retirement. This routine causes farms to become larger and ultimately more difficult to operate due to the decreasing amount of necessary labor. It also makes the larger farms increasingly harder to sell to the younger farmers due to the amount of capital required as land values continue to increase. This, however, isn't a just a regional trend but is a national trend and will require a major change in national farm policy to be rectified.

In evaluating and assessing the Stark and Dunn County areas specifically but southwest North Dakota in general, we find that most of the common day to day needs and demands in areas outside of agriculture, are being met. In a mail survey, to which approximately 50% of those contacted replied or responded, 83% of the businesses indicated that their current location was adequate for anticipated expansion. Of the four businesses who indicated that they did not have room for expansion only one indicated that any expansion was planned within the next 10 years.

An important point to note, relative to the labor shortage mentioned above is that the 23 businesses who responded to the mail survey, expect to employ an additional 271 people within five years and an additional 513 within ten years. This equates to more than 2 persons per responding business per year over the next 10 years. Considering there are over 1,100 businesses in Stark County the potential additional work-force required within the region by the year 2020 will be significant.

In summary, the major items identified within this study that are recommended for improvement include areas such as:

- Improved communication between the Cities and the County in terms of planning for industrial development and related work force and housing needs
- The cooperative development of a county-wide land use plan involving all governmental entities. Due to infrastructure requirements, industrial development should be planned within established city jurisdictions who are capable of providing the necessary services such as fire protection
- Formal acknowledgement by all government entities that the region is faced with a long term work force shortage and development of programs through established institutions such as, Dickinson State University, local high schools and ND Job Services on how the long term needs can be addressed
- Encouragement of organized communities to develop planning and zoning ordinances using similar terminology and guidelines so that planners and building inspectors can be "shared" and development can be complemented between communities with minimal bureaucracy and time and at least cost
- Establishment of a designated individual or office, preferably at the county level (which could be cost shared by the communities) through whom all planning and zoning activity can be planned and coordinated

Based upon the overall potential for industrial development within Stark and southern Dunn Counties all parties involved agreed that designated sites for industrial development within the region are necessary, but the committee further acknowledged that it was not the function of Stark Development Corporation to actually develop a site. The committee felt it had the responsibility to identify sites and set guidelines for industrial development, but would leave actual development up to private developers or city governing bodies.

Given the positive and optimistic environment in both the energy and manufacturing sectors, combined with the general fast pace of required development once needs have been identified within the manufacturing, coal and oil industries, we recommend that preliminary work be started immediately. We further recommend that a site with rail access be considered for the short term and planning and budgeting for additional sites be on-going for the longer term.

The following six potential sites have been identified for industrial development across Stark and southern Dunn Counties and appropriate planning maps have been included within the Appendix. Site location and related estimated costs of development for each site are as follows:

	Potential Site Location Description	Total Estimated Development Cost	Approximate Cost Per Acre
1	Belfield site located east of Belfield bordered by I-94 on the north, US 85 on the west and Old Highway 10 on the south (approx. 164 acres).	$2,837,000	$17,300
2	North Dickinson site located north of Dickinson City Limits in and around currently zoned and developed industrial property (approx. 480 acres). **Does not consider the estimated 1,300 acres that adjoin the area which could also be serviced.*	$10,222,000	$21,300*
3	South Dickinson site located within Dickinson City Limits along Broadway Street West (approx. 30 acres). **Does not include railroad lease costs/fees*	$150,000	$5,000*
4	Dickinson Airport site located by/on Dickinson/Theodore Roosevelt Airport Property (approx. 30 acres). *Does not include airport lease fees or conventional fire protection & has "on site" sanitary wastewater treatment and disposal	$311,000	$10,400*
5	East Dickinson site located in southeast Dickinson within the Dickinson City Limits (approx. 45 acres). *Includes looping of water system and abnormal amount of excavation	$1,766,000	$39,300*
6	Richardton site located immediately southeast of Richardton near and around the current Ethanol Refinery (approx. 80 acres).	$1,671,000	$20,900

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INDUSTRIAL PARK FEASIBILITY STUDY

for

STARK AND SOUTHERN DUNN COUNTIES, NORTH DAKOTA

I. LOCAL ECONOMY ASSESSMENT

A. General—When this study was initially authorized the study area was defined as "Stark County and the adjacent areas of southern Dunn County" located in western North Dakota (See Appendix A herein). Through the contract negotiation process "adjacent areas of southern Dunn County" were further defined as meaning the southern, six mile wide strip, in Dunn County bordering against Stark County for purposes of map development. In addition to defining the study area, two other issues were addressed and resolved during this process.

The first issue involved data collection. Most governmental agency statistical data is assembled by and under organized entities such as cities and/or counties. Therefore, extracting credible, verifiable data for a six mile wide strip within a rural county is not possible. To address this problem it was decided and agreed upon to assume that the demographics and other relevant factors in southern Dunn County are generally the same as those for adjacent Stark County. The second issue involved gathering industry data, specifically energy related industry. The eight county area in southwestern North Dakota, which includes Stark and Dunn counties, is commonly referred to as the "southwest region of North Dakota" or Slope Region. The economy of the eight counties within this Slope Region is nearly identical with the exception of energy development, namely coal, oil and gas which have not been developed in Adams and Hettinger Counties. After discussing this issue with representatives of Stark Development Corporation (OWNER) and Roosevelt Custer Regional Planning Council (who provide planning guidance and technical support for the entire eight county region) it was decided to expand the study area to include the entire Slope Region. The justification for this, is that it provides more in depth assessment of the overall industry potential for Stark County given the fact that Stark County and the City of Dickinson, located within Stark County, serves as the hub/center of the region for economic and industrial activity.

History and demographic information was obtained from a recent, February 2009 Report prepared by Roosevelt Custer Regional Council titled, "Area Profile North Dakota Region VIII". Statistical research was commissioned and completed by the Strom Center for Entrepreneurship and Innovation, and is referenced herein on the number of employees, revenue generated and other related data for the "selected" industries identified. The data was taken and cross referenced between a variety of sources including the US Census Bureau, US Department of Agriculture, North Dakota Job Service Labor Market NDIC Oil and Gas Division, ND Association of Oil & gas Producing Counties and Hoovers and reflects a "point in time" for each identified industry.

In gathering statistical data it is important to note how federal data is submitted, and categorized. Some data relies on self-assigned categories, such as a business choosing their own, individual North American Industry Classification System (NAICS) code, thereby disregarding an already established code by the Census Bureau. Other identical data may be coded differently because the person completing the submission was unaware that a code has been previously assigned. There is no centralized governmental agency with the role of assigning, monitoring or approving NAICS codes. Therefore, since Hoover's and the Labor Dept categorize businesses differently, the "same" data may not be coded the same and therefore, in some cases, may not compare favorably.

Examples include:

- A manufacturer of drugs may be categorized as Healthcare Support.
- A house construction company may have a Construction NAICS rather than manufacturing NAICS.
- A telephone manufacturer may be classified in the telecommunications industry rather than manufacturing.

- A tire manufacturer could be coded in transportation.
- A company that produces ethanol may be in an Energy NAICS.
- A services company that sub-contracts to produce a "widget" is likely to be classified as a service provider rather than a manufacturer, even though they are functioning as a manufacturer.

A specific example, as noted in the tables, 1 & 2 herein. Table 1, which was compiled from the North Dakota Job Service Labor Market Center does not compare favorably in manufacturing with Table 2, compiled from Hoovers. But overall, for purposes of this report, business totals are considered acceptable when factoring in non-reported and improperly coded industries. The goal is to develop a credible, conclusive and comprehensive report.

B. Brief History, Demographics, Geography & Climate—The study area comprising southwestern North Dakota, commonly called the southwest region, Slope area or Region VIII, is shown in Appendix A. The region covers approximately 9,878 square miles and is bounded on the west by Montana and on the south by South Dakota.

The first residents of this region were the Native American Indians. The Native Americans were followed by Anglo-Saxons (Scottish, Irish & British) who began arriving around 1870. The next group of immigrants consisted of Scandinavians (Norwegian & Swedish) and became the largest and most widely dispersed ethnic group to settle the area now known as Dunn, Adams and Stark Counties. This group came to the region in the early 1880's. The Norwegians came as cattle ranchers and the Swedish as both farmers and ranchers. In the early 1890's the German-Russians (people of German heritage who had previously moved to the Ukraine) began settling in areas of eastern Stark and Hettinger Counties. German-Hungarians also settled in the Stark County area. The last groups of immigrants to settle within the region were; the Russians who settled primarily in the northern Dunn County area, the Bohemians who settled in the southern Dunn County area, and the Ukrainians and Dutch who settled in the western Stark County area in the early 1900's.

Historic population trends within the region have been closely tied to agriculture, mining (primarily coal), and energy (oil & gas) development. The region experienced its peak population in the 1930 census at 56,576. The severe drought and depression of the 1930's began a population "out-migration" which continues today. Because of the development of the initial "oil boom" which began in the 1970's and extended into the early 1980's, the region did experience a modest short-term increase in population which went from a low of 42,609 in 1970 to 45,098 in 1980. The mid 1980's "oil bust" again reversed that trend and the 2000 population was reported at 38,365. All of the cities within the region, except Dickinson, have populations of less than 2,000. Dickinson had a 2000 census population of 16,016. The region has experienced a net population change of -33% from 1930 – 2000. The median age of the region went from 25 in 1950 to 42.3 in 2000. 13.9% of adults, age 65 and older living within the region are living alone. The population for the region by 2015 is projected to decline to 35,729.

The geography of the region is generally irregular and rolling and feeds numerous tributaries of the Missouri River. The most prominent feature of the entire region is the Badlands, comprised of colorful buttes, and formed by centuries of erosion and covering an area up to 20 miles wide and 190 miles long. The highest elevation in the state (3506 feet above sea level) is found within the region. The soils are generally productive if provided with adequate moisture. Shale and limestone are considered the "parent" material for the regions soils.

Regional climate consists of temperatures ranging from below zero in the winter to above one-hundred degrees Fahrenheit in the summer and rainfall ranging from less than ten inches to over thirty inches. Average annual snowfall is thirty-two inches and generally falls between the months of October and May.

C. **Overall Economy Overview**—The overall economy, defined herein as southwestern North Dakota (consisting of an eight county area—see map in APPENDIX A) is supported by the following industries as defined by the Job Service North Dakota Labor Market Center (2008 data):

Table 1—Industry Groups in Stark County (2nd Qtr, 2008)

Industry	# of Establishments	# of Employees
Health Care and Social Assistance	80	1,783
Retail Trade	152	1,636
Manufacturing	39	1,251
Accommodation and Food Services	71	1,156
Construction	112	920
Public Administration	36	679
Mining	32	675
Wholesale Trade	72	641
Transportation and Warehousing	58	587
Finance and Insurance	57	405
Admin., Support, Waste Management, Remediation	48	361
Professional Scientific & Technical Svc	68	316
Information	16	312
Arts, Entertainment and Recreation	15	271
Real Estate and Rental and Leasing	27	88
Other Services (except Public Admin	82	512

Education Services, Utilities Management of Companies and Enterprises and Agriculture, Forestry, Fishing & Hunting are considered confidential and are not reported by this agency.

For purposes of this study, which is to focus on industry and generally specific needs such as; land requirements, transportation access, utility requirements and environmental considerations, the following general areas were selected for detailed evaluation and assessment.

Agriculture—Covers and affects a variety of areas such as retail trade, manufacturing, construction, wholesale trade, transportation and warehousing. (Note: Agriculture includes a variety of services and is based upon information obtained from a variety of reference sources).

Manufacturing—includes the number of establishments, the total employment and the economic effects of related industry from health care to education services.

Energy—a long term key asset for this region due to the number of other industries it affects and the overall potential economic benefits it provides to the region.

Tourism—A stable asset for the region that both directly and indirectly affects a variety of other industries including; health care, retail trade, accommodation and food services, transportation, information, arts, entertainment and recreation and education.

Table 2—Selected Industries in Stark County

Industry	Businesses	Sales (000,000)	Employees	Annual Payroll (000,000)
Agriculture	875	$98.0	334	$2.82
Energy	53	$75.7	523	$25.78
Manufacturing	70*	$228.4	893	$30.73
Tourism	118	$33.5	1,658	$32.55
Totals	**1,116**	**$435.6**	**3,408**	**$91.88**

*Number of businesses does not match table 1 due to different reference source and reporting methods

D. Agriculture—Agriculture, which is very dependent on both weather and commodity prices, is on the rise throughout the region. The number of farms within Stark County has increased approximately twelve percent (12%) over the last five (5) years and the number of acres of farmland has increased approximately eight percent (8%) over the same time period. This relatively dramatic increase is attributable to the following:

- Commodity prices have been very strong, reaching record highs in 2007-2008.
- Land previously enrolled in government set aside programs, such as CRP, is being removed from the program and returned to production.
- More diversity in the types of crops. Historically crops have been limited to small grains and corn. Recently, beans, sunflowers and other oil producing crops have been replacing the traditional small grains.
- Corn production has increased due to higher commodity prices which can be credited to increased competition and demand in the use of corn. Historically corn was primarily produced as an animal feed and cash crop. Whereas more recently the Ethanol Production Industry, which uses corn to make ethanol which is blended to gasoline, has increased the demand for corn, thereby increasing the demand and raising the market price.

1. Local Agricultural Economy Data—The Census of Agriculture is performed every five years by the US Department of Agriculture (USDA) and is the leading source of information and statistics on US agriculture production. For the 2007 Census of Agriculture, a farm is defined as any place from which $1,000 or more of agricultural products were produced, sold or would have been sold during the Census year. Unless otherwise noted, data in this section is from the most recent (2007) Census of Agriculture for Stark County.

Crop and animal production data is also from the USDA. The USDA payroll data from the 2007 census is based on actual time worked and is not annualized. Support activities data is from Hoover's.

Annual payroll for support activities shown were estimated using the overall average for agricultural workers in western North Dakota, as reported by the Bureau of Labor Statistics, May 2008. Average hourly wage was $15.85 ($32,968/yr).

Table 3—Stark County Agriculture Economy

Farms and Agriculture Businesses	Farms or Businesses	Sales (000,000)	Employees	Annual Payroll (000,000)	Operators
111—Crop Production	538	$63.7	313	$2.13	1,253
112—Animal Production	327	$33.1			
1151—Support Activities for Agriculture - Crop	5	$1.0	13	$0.43	-
1152—Support Activities for Agriculture (Animal)	5	$0.2	8	$0.26	-
Totals	**875**	**$98.0**	**334**	**$2.82**	**1,253***

*Does not match the average hourly wage shown above because the payroll for crop and animal workers is from reported data and not calculated since the Agriculture Census does not have a category for support staff

Table 4—Stark County Agriculture- yearly comparisons and % change

Agriculture Measurements	2007	2002	% change
Number of Farms	865	774	+ 12
Land in Farms	837,143 acres	777,118 acres	+ 8
Average Size of Farm	968 acres	1,004 acres	- 4
Market Value of Products Sold	$96,812,000	$47,772,000	+ 103
Crop Sales (66 percent)	$63,674,000	*N/A*	
Livestock Sales (34 percent)	$33,138,000	*N/A*	
Average Per Farm Reporting Sales	$111,922	$61,721	+ 81
Number of Laborers Hired	313	308	+ 2

2. **Stark County 2007 "Census of Agriculture"**—The following selected data provides an overview of agriculture in Stark County. Not disclosed data was from a small sample size and is not shown to protect submitters' privacy. Rank in ND indicates the ranking of Stark County within North Dakota counties with the same attribute.

Table 5—Stark County Agriculture Data

Stark County Agriculture	Quantity	Rank in ND
Market Value Of Agricultural Products Sold ($1,000)		
Total value of agricultural products sold	96,812	27 of 53
Value of crops including nursery and greenhouse	63,674	31 of 53
Value of livestock, poultry, and their products	33,138	8 of 53
Value Of Sales By Commodity Group ($1,000)		
Grains, oilseeds, dry beans, and dry peas	61,033	31 of 53
Vegetables, melons, potatoes, and sweet potatoes	*Not Disclosed*	28 of 34
Nursery, greenhouse, floriculture, and sod	*Not Disclosed*	8 of 23
Other crops and hay	2,374	18 of 53
Poultry and eggs	16	19 of 51
Cattle and calves	26,611	12 of 53
Milk and other dairy products from cows	5,359	4 of 46
Hogs and pigs	59	24 of 52
Sheep, goats, and their products	243	12 of 53
Horses, ponies, mules, burros, and donkeys	127	11 of 53
Other animals and other animal products	724	19 of 52
Top Crop Items (Acres)		
Wheat for grain, all	259,747	8 of 53
Forage - land used for all hay and haylage, grass silage, and greenchop	97,612	6 of 53
Sunflower seed, all	13,037	28 of 53
Barley for grain	11,123	36 of 53
Oats for grain	10,545	6 of 52
Top Livestock Inventory Items (Number)		
Cattle and calves	60,586	10 of 53
Colonies of bees	14,828	9 of 43
Horses and ponies	1,975	5 of 53
Sheep and lambs	1,168	19 of 51
Layers (Poultry)	604	8 of 50

In comparing Stark County to the other counties within the region we find the following based on the Roosevelt Custer Area Profile completed in February 2009 (referencing 2007 data):

- Production Yield per Harvested Acre of Wheat – Stark County is 1 bushel/acre above the regional average
- Head of Livestock (cattle) – Stark County ranked second, behind Dunn County and 30% above the regional average (this also supports the assumption made earlier that Stark and Dunn Counties have similar demographics)

3. **National Agriculture Trend Statistics**—National statistics reported by the Farmland Information Center from the Census of Agriculture website show that the number of farms is increasing while the number of farm acres is decreasing. More than 50 percent of U.S. farmlands are managed by operators over 55 years of age. The slight increase in livestock production over crop production can be attributed to varying market prices and market demands.

Table 6—U.S. Agriculture Trends 1997 to 2007

U.S. Agricultural Statistics	1997	2002	2007
Number of Farms in the United States	2,215,876	2,128,982	2,204,792
Land in farms (acres)	954,752,502	938,279,056	922,095,840
Total land area (acres)	N/A	2,263,960,501	2,260,994,361
Full - time operators	1,044,388	1,224,246	993,881
Part- time operators	1,171,488	904,736	1,210,911
Percentage of operators 55 and older	N/A	50%	57%
Land managed by operators 55 and older (acres)	N/A	472,956,653	527,405,083
Market value of agricultural products sold ($1,000)	201,379,812	200,646,355	297,220,491
Percentage from crop production	50%	47%	48%
Percentage from livestock production	50%	53%	52%

In summary, agriculture within the region is currently very strong and is expected to remain strong for the foreseeable future due to the regions diversity as well as strong international market demand for U.S. grown products.

E. Manufacturing—Stark County is home to several large manufacturers who serve national markets. One manufacturer from the region experienced product output increases over the last three quarters when the rest of the nation suffered decreases both in market share and loss of jobs. Other regional manufacturers experienced only minor work shift reductions. There is no visible indicator to explain this economic strength aside from local work ethic through which employers and employees cooperated in taking time off and utilizing vacation time during a scheduled slow period. Other parts of the state did experience some layoffs as a result of current economical downturn.

Given the diversity of manufacturing within the study region it is difficult to predict what the overall long-term economic impact will be. Two major manufacturers/employers within Stark County, consisting of metal fabrication and wood product manufacturing are seasoned companies who have experienced previous economic “slumps” and are expected to survive this “slump” and recover fully. A third major manufacturer/employer is more diversified with other business interests, such as construction and equipment sales and service as well as multiple offices nationwide giving them a relatively sound financial and economic base with only minor impact from the nationwide economic “slump”. A fourth major employer manufactures

food/bakery products and has actually been experiencing an increase in product demand over the last few months, helping to keep county unemployment levels low.

1. **Local Manufacturing Economy Statistics**—the following tables show the total estimated annual manufacturing payroll by both community and NAICS code.

Table 7—Stark County Annual Manufacturing Payroll

Stark County Estimated Annual Manufacturing Payroll (000,000)								
Location	NAICS Codes							
	311	313	314	321	324	325	326	327
Dickinson	$1.20	$0.31	$0.10	$038	$0.07	$0.07	$0.31	$1.17
Richardton	$0.00	$0.00	$0.00	$0.00	$0.00	$1.34	$0.00	$0.00
South Heart	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Total	**$1.20**	**$0.31**	**$0.10**	**$0.38**	**$0.07**	**$1.41**	**$0.31**	**$1.17**

Table 7—continued

Stark County Estimated Annual Manufacturing Payroll (000,000)									
Location	NAICS Codes								
	332	333	334	335	336	337	339	423820	Grand Total
Dickinson	$0.83	$3.16	$2.79	$0.31	$0.52	$15.27	$0.86	$0.58	**$27.93**
Richardton	$0.07	$0.00	$0.00	$0.07	$0.00	$0.07	$0.00	$1.10	**$1.55**
South Heart	$0.00	$0.00	$0.00	$0.00	$0.00	$0.07	$0.00	$0.00	**$0.07**
Taylor	$0.00	$0.07	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	**$0.07**
Total	**$0.90**	**$3.23**	**$2.79**	**$0.38**	**$0.52**	**$15.41**	**$0.86**	**$1.69**	**$30.73**

Annual Payroll was estimated using the overall average for manufacturing workers in western North Dakota, as reported by the Bureau of Labor Statistics as of May 2008. The average hourly wage used is $16.54, or $34,400 per year.

2. **Manufacturing Sales and Employee Growth**—Sales growth information was provided by only 33 percent of the responding manufacturing business, and contained three very large values (388 percent, 560 percent, and 596 percent). The average manufacturing sales growth reported for Stark County is 142 percent or, if the three large outliers are removed, 48 percent. The maximum sales growth, excluding the largest two outliers, is 130 percent. The lowest sales growth reported was -31 percent.

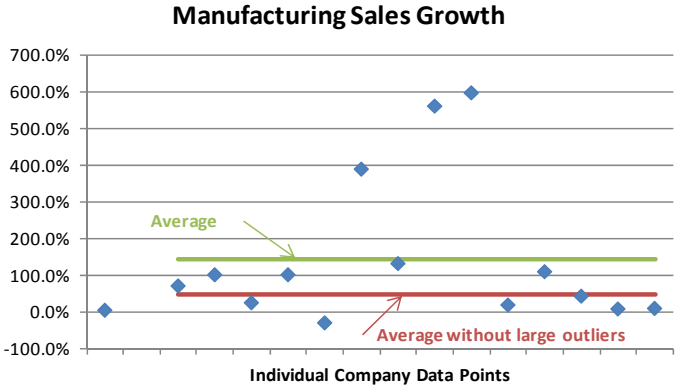


Figure 1: One Year Sales Growth for Manufacturing

Table 8—U.S. Census 2008 Quarterly Manufacturing Jobs

2008 Quarterly Manufacturing Job Dynamics						
	Stark County			North Dakota		
	2008Q1	2008Q2	2008Q3	2008Q1	2008Q2	2008Q3
Total employment	1,225	1,256	1,327	26,229	26,351	26,866
Net job flows	24	79	-37	-39	725	-468
Job creation	44	96	26	812	1,387	1,003
New hires	100	186	150	2,466	3,367	3,093
Separations	101	131	204	2,810	3,279	3,948
Turnover	5.9%	7.0%	9.0%	6.7%	6.7%	7.5%
Average monthly earnings	$3,489	$3,570	$3,376	$3,434	$3,280	$3,360
Average new hire earnings	$2,877	$2,406	$2,288	$2,405	$2,422	$2,412

Table 8 above (US Census data) indicated employee numbers and changes when comparing Stark County to North Dakota.

The total number of manufacturing jobs increased each quarter reported in 2008, as did the number of separations. This indicates that Stark County manufacturers were hiring and creating jobs faster than separations occurred, which can be credited to the regions diverse economy. For example; as one sector was experiencing layoffs (i.e. metal manufacturing), a second sector (i.e. food processing) was hiring. All of North Dakota manufacturing jobs followed these trends.

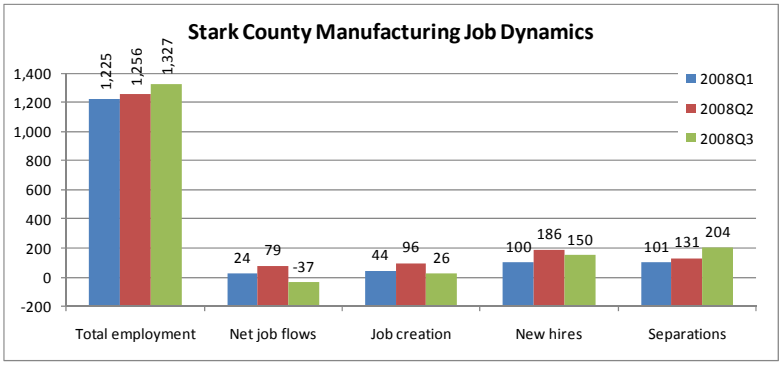


Figure 2: Stark County 2008 Manufacturing Quarterly Data

During the first three quarters of 2008, the average monthly manufacturing salaries in Stark County and overall in North Dakota decreased by similar, small amounts. For new hire manufacturing salaries, however, Stark County saw a steady decrease while overall North Dakota new hire manufacturing salaries remained flat during this time period.

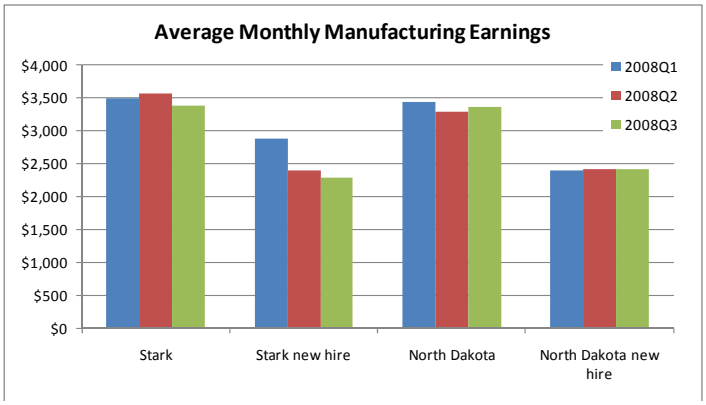


Figure 3: Manufacturing 2008 Quarterly Salaries

Manufacturing within the local economy, as a whole, is currently experiencing minor slowdowns over the short term due to the slump in the national economy, but maintains an overall positive outlook for the foreseeable future. Information supporting this outlook is documented by recent announcements that working shifts which had been cut back earlier in the year are slowly being re-instated as the economy recovers.

F. Energy—Energy related industry, which currently makes up less than 5% of the local economy in terms of NAICS coded labor force is on an upward trend within the region. Stark County, while directly impacted with oilfield and natural gas activity in the area, primarily west of North Dakota State Highway 22, is currently on the southeastern edge of the most heavily impacted oil producing region within the state. The relatively new "find/discovery" of crude oil in the Bakken-Sanish-Three Forks Formations, is extremely promising. The Bakken Formation was recently assessed by the US Geological Survey (USGS) as one of the most significant finds in the lower 48 states. The USGS estimated that there are 3.8-4.3 billion barrels of recoverable crude in this formation. Several large, national/international crude oil exploration companies have stated that they believe based on the production results obtained to date, the actual recoverable crude amounts could double the USGS estimates. The Bakken formation covers northwest North Dakota, northeast Montana and a sizeable portion of southern Saskatchewan, Canada. The southern boundary of the Bakken covers Stark County although, as of this writing, no Bakken wells have been completed in Stark County.

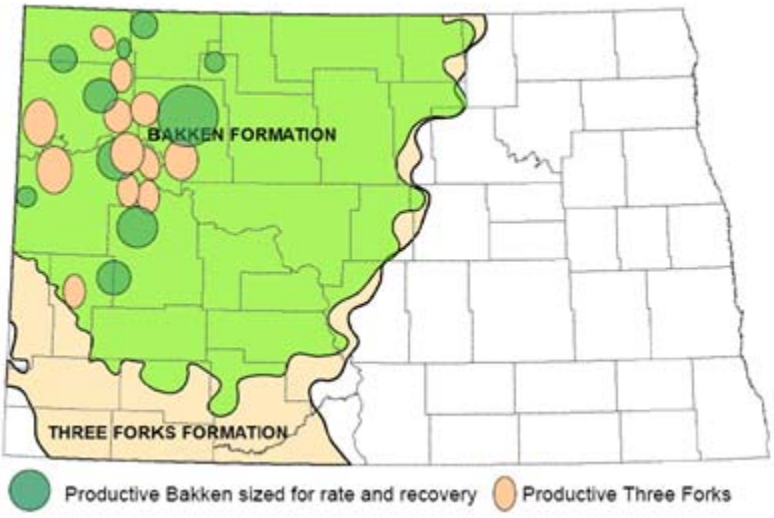


Figure 4: Courtesy of NDIC – Oil & gas Division

1. Local Energy Economy—The following table provides an overview of the total annual payroll by Stark County community as identified by NAICS code.

Table 9—Stark County Annual Energy Payroll

Stark County Estimated Annual Energy Payroll (000,000)						
Location	NAICS Codes					
	486	22112	22121	213111	213112	Total
Belfield	$0.69	$0.00	$0.00	$0.15	$7.99	**$8.82**
Dickinson	$0.39	$1.97	$0.00	$1.92	$12.18	**$16.46**
Gladstone*						**$0.00**
Richardton	$0.00	$0.20	$0.00	$0.00	$0.05	**$0.25**
South Heart	$0.00	$0.00	$0.00	$0.00	$0.25	**$0.25**
Taylor*						**$0.00**
Total	**$1.08**	**$2.17**	**$0.00**	**$2.07**	**$20.46**	**$25.78**

*Organized communities within Stark County who support businesses which are not identified within the NAICS Code database

Annual Payroll was estimated using the overall average for energy workers in North Dakota, as reported by the Bureau of Labor Statistics as of May 2008. The average hourly wage used is $23.70, or $49,294 per year.

2. **Energy Sales and Employee Growth**—Sales growth information was provided for only 40 percent of the responding business, and contained two very large values (539 percent and 567 percent). The average energy sales growth reported for Stark County is 102 percent or, if the two large outliers are removed, 21 percent. The maximum sales growth, excluding the two outliers, is 138 percent. The lowest sales growth reported was -90 percent.

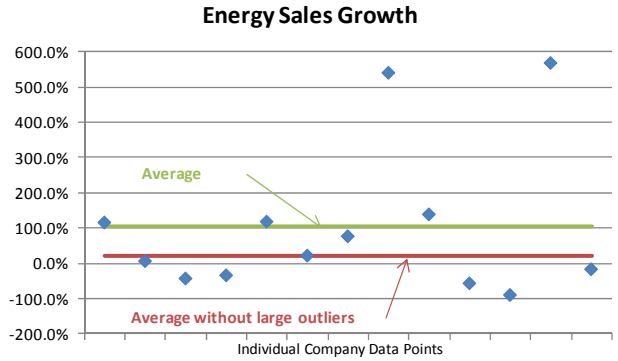


Figure 5: One Year Sales Growth for Energy (based on Hoover's data)

Table 10—Stark County Energy Employment

Stark County Energy Employees								
	2001	2002	2003	2004	2005	2006	2007	2008
Employee count	172	200	189	259	293	286	356	567
Annual change	-	1.40%	-0.55%	3.49%	1.70%	-0.35%	3.49%	10.51%

The above Table 10 provides historical details on the number of employees, and annual change as reported by NAICS codes. Due to the difficulty in obtaining current data, this data is based on 2008 government indicators and statistics. It does not fully reflect the recent impact of the herein previously noted Bakken Discovery which is significant in terms of employment in increased drilling alone. In 2000 the rig count (average number of drilling rigs operating in the state within a given period of time) was below 20. In 2008 the rig count exceeded 90 and current projections are that it could exceed 100 in 2010 (NDIC - Oil & Gas Division Report). Each operating rig will directly support approximately 40 employees and indirectly support 80-100 employees (ND Job Service).

3. **Non-Renewable Energy Assessment**
   - **Oil**—The Bakken Discovery, coupled with a record $140+ per barrel of crude oil during the summer of 2008, has brought new life and excitement into the entire region and state oil industry. Although crude oil prices dropped by fifty percent (50%) from the 2008 all time highs to approximately $70 per barrel within the last year, drilling and other related oil field activity has remained relatively steady with an average monthly rig count of over fifty (50) operating rigs statewide. The increased oil drilling and production has moved North Dakota into 4th place in crude oil production among the oil producing states. This increased drilling and production has also put additional demand on existing utilities and pipelines which are necessary to move the product to market refineries. This increased demand to get the product to market has in turn brought about increased construction of electrical transmission lines, oil and gas pipelines, crude oil pumping and "off-load" stations, rail car loading facilities and storage tanks.

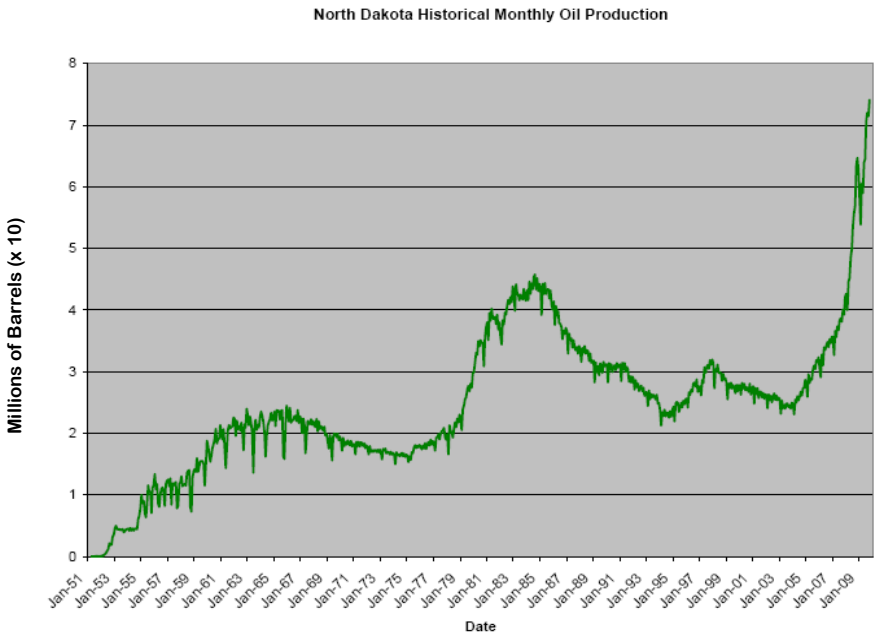


Figure 6

Total production in North Dakota for 2008 was 62,776,123, compared to 45,120,636 in 2007. Total production in 2009 exceeded 50 million barrels in August 2009 and is expected to be near 80 million barrels by the end of the year. (Reported by ND Industrial Commission—Oil and Gas Division.)

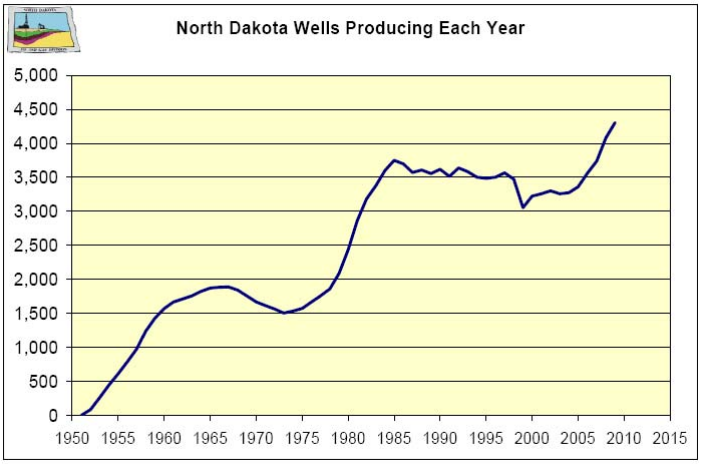


Figure 7: Courtesy of NDIC – Oil & Gas Division

The increasing demand also increases the tariffs charged by pipeline utilities which affects the cost for which North Dakota crude can be sold. This in turn has resulted in further study on whether the state of North Dakota should construct a crude oil to gasoline refinery. Currently the state has only one, privately owned, refinery, which has a capacity of 58,000 barrels per day or approximately 25% of the state's current production rate. Other options being evaluated include the shipment of crude oil to market by rail and several facilities are currently either in use, under construction or in the planning stages.

1075 wells X 281 BOPD

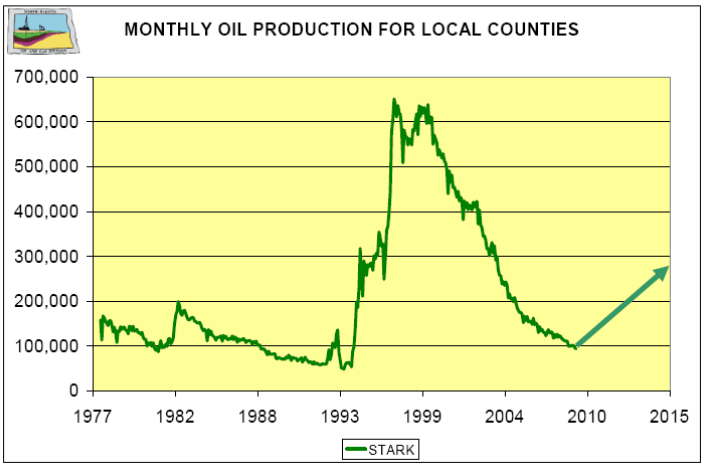


Figure 8: Courtesy of NDIC – Oil & Gas Division

1580 wells X 561 BOPD

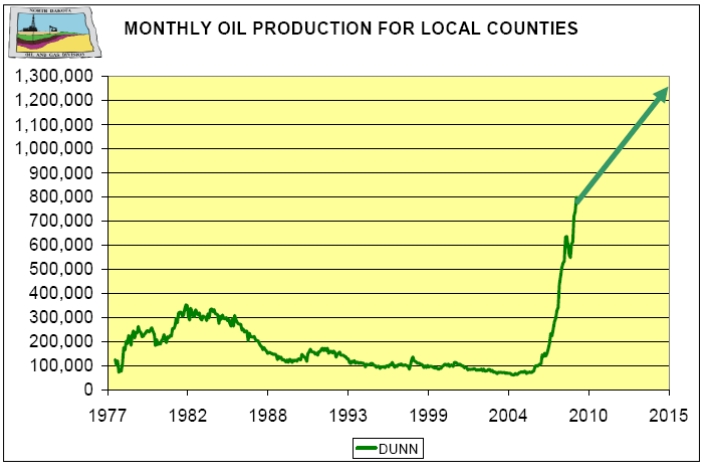


Figure 8a: Courtesy of NDIC – Oil & Gas Division

In summary, the oil industry in the region is both vibrant and strong and is expected to continue to grow as technology and "new discoveries" continue to develop.

- **Natural Gas**—Natural gas production is closely linked to crude oil since natural gas in the region is essentially a co-product of crude oil. The Bakken wells have however, been found to contain significantly larger amounts of natural gas than previous wells drilled into the shallower formations. This further verifies the enormous potential of this formation and adds credibility to the USGS estimates and optimism to the oil exploration companies. Natural gas, like crude oil, must be collected and treated before it can be marketed. A newly constructed gas plant located in Mountrail County, approximately 120 miles north, northeast of Dickinson, was placed on-line within the last year to address this issue.

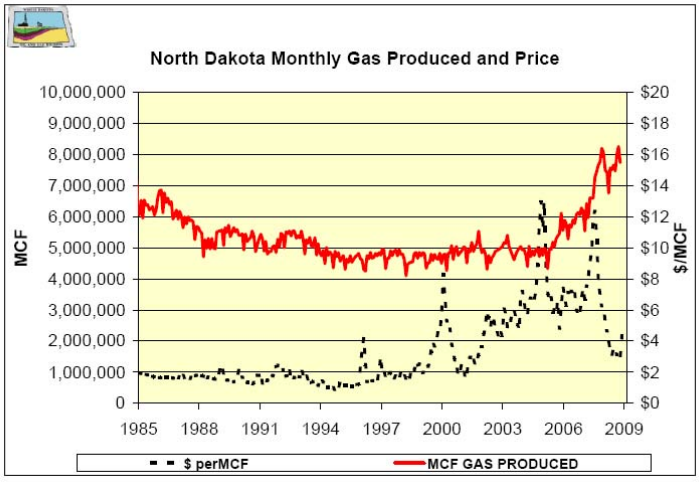


Figure 9: Courtesy of NDIC – Oil & Gas Division

- **Coal**—A coal beneficiation plant (a facility which will reduce emissions and add value to locally mined, high sulfur lignite coal) has been constructed within Stark County. This facility is located approximately three (3) miles south, southwest of the City of South Heart, North Dakota in southwestern Stark County. A long range plan has been proposed to open a lignite coal mine and power generating facility in this area with construction scheduled to begin in 2011. See APPENDIX D for an overview of the lignite mining potential in Stark County—Courtesy of North Dakota Geological Survey.

  Detailed concept planning on the proposed South Heart mine and power generating facility began in 2001. Work which has been completed includes; zoning changes, land acquisitions, ground water data acquisition, mine permit application internal project technology is fully "vetted" and vendors have been identified, electrical transmission line studies have been completed, CO2 pipeline routing studies have been completed, CO2 "off-takers" have been identified and preliminary environmental permitting applications have been submitted. This facility is being carefully planned due to current regulatory and environmental issues which could severely impact all coal-fired facilities. The potential products around which the facility is being planned include; electrical power, captured and compressed CO2, exportable lignite coal and sulfuric acid.

  Two electrical power generation outlets have been identified for maximum flexibility due to current limitations on existing electrical transmission exportability from the region. The project is also monitoring proposed future transmission options.

  Under the current plan, the short term goals of this facility include; fine tuning of the current beneficiation process currently in operation, filing of key permit applications and initiate environmental impact statement filing, finalize product "off-taker" agreements commercial product relationships, arrange power interconnection points and "push" for resolution on the proposed new regulations and environmental standards.

- **Nuclear**—Southwestern Stark County, as well as other defined areas within Southwestern North Dakota have been identified as having the potential to produce low grade uranium. Two identified areas (one in southeastern Billings County, approximately 18 miles south, southwest of Belfield, located in western Stark County and a second in Bowman County—between the Cities of Bowman and Rhame—in extreme southwestern North Dakota) were "experimentally" mined in the 1960's to determine the overall economics of mining this resource. The "mines" had relatively short lives due to the process being used at the time to extract the uranium from the lignite as well as the economy. There has, however, been recent discussion about possibly "reopening" at least one of these identified areas to uranium mining operations.

  Known areas of uranium occurrence within 200 feet of the surface in western North Dakota are shown in Figure 10: Uranium in western North Dakota.

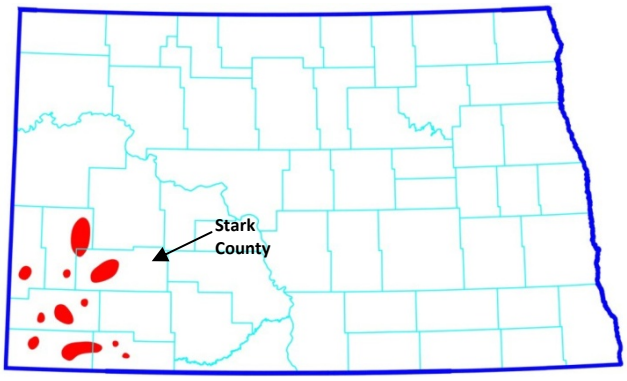


Figure 10: Uranium in western North Dakota
(see larger scale map for Study Region in Appendix)

In 2008 drilling permits were issued to an Australian company which currently holds the mineral lease on the property previously mined in southeastern Billings County (south, southwest of Stark County). The drilling was done to collect lignite samples for germanium, a semi-metal or metalloid, which has electrical properties and is used in the manufacturing of solar panels, fiber optics, infrared sensors, high speed electronics and plastics. The results of this drilling will not become public until 2010. If the results of the drilling are positive in terms of quantity within the leased area, the company will assess the economics and environmental constraints of removing uranium, molybdenum and germanium from the lignite and if cost effective, could proceed to the mining phase. (Uranium information and locations obtained, is the courtesy of the North Dakota Geological Survey as shown on a map in APPENDIX E)

4. Renewable Energy Assessment

- **Biofuels**—A corn ethanol production facility is located in eastern Stark County, near the city of Richardton. This is the only ethanol facility within the study region of southwestern North Dakota.

- **Wind**—Wind power generation has begun within the study region. There currently are two wind driven generators located at a religious convent near Richardton, in eastern Stark County. MDU is constructing 13 wind towers in southwestern Bowman County. A private investment group is in the process of constructing a 20MW wind form in eastern Bowman county and three additional sites are planned within the region.

The following graph from windpoweringamerica.gov shows the recent growth of North Dakota's wind power.

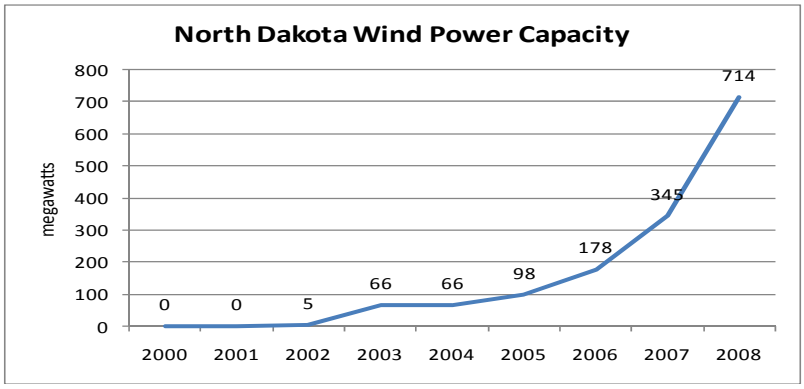


Figure 11: Installed Wind Capacity

Given current national trends, governmental policies and programs, wind power can be expected to continue in the near future depending upon transmission availability. A wind farm is also being constructed in southeastern Montana (just west of the North Dakota state line) by Montana Dakota Utilities (MDU) as part of a Montana state mandate requiring all public utilities to meet an established goal of utilizing renewable type energy.

- **Solar**—Areas within the region (see map under section II,B,4,b, Figure 25 herein) have been identified by the US Department of Energy as having potential for solar development but no interest in developing this resource has been expressed to date.

The entire study region, including Stark County, is heavily impacted and somewhat restricted by energy utilities such as pipelines which convey crude oil/natural gas as well as electrical transmission lines which transport electrical power across the region to other parts of the state and nation. These utilities are viable components of the energy sector and are expected to gradually increase in number, size and capacity proportional to the relative energy production within the region as previously mentioned herein.

In summary, the energy industry as a whole has a very bright economic future not just within Stark County, or even within the Southwest region study area, but within a large portion of western North Dakota.

G. Tourism—Tourism is on the increase within the region. This is attributable to a variety of reasons, which include:

- Stark County is impacted by Theodore Roosevelt National Park, located approximately 40 miles west along Interstate Highway 94
- "Paid" hunting is on the increase and hunters from all parts of the country come to the region to hunt wild upland game and migratory birds, spending one or more weeks, bringing along family, friends and cliental
- The increased oil activity within the region contributes to the traditional indicators used to determine tourism trends, such as hotel accommodations, food services and automobile fuel sales
- The state of the national economy dictates travelers to visit sites closer to home and within the continental United States, thereby increasing visits to local parks and amusement facilities
- Air travel has become more convenient with the recent airport facility improvements and an increase in the number of daily flights

1. **Local Tourism Economy Data**—Table 11—Stark County Tourism Economy shows the total number of tourism business, total sales, number of employees, and estimated annual payroll for Stark County broken down by NAICS codes. Annual Payroll was estimated using the overall average for tourism workers in western North Dakota, as reported by the Bureau of Labor Statistics as of May 2008. The average hourly wage used was $9.40, or $19,600 per year.

Table 11—Stark County Tourism Economy

Tourism NAICS Code and Title	Businesses	Sales (000,000)	Employees	Annual Payroll (000,000)
711—Performing Arts, Spectator Sports, and Related Industries	5	$0.7	20	$0.39
712—Museums, Historical Sites, and Similar Institutions	3	$0.5	16	$0.31
713—Amusement, Gambling, and Recreation Industries	16	$11.4	370	$7.23
721—Accommodation	25	$4.7	204	$3.99
722—Food Services and Drinking Places	69	$16.2	1,048	$20.62
Totals	**118**	**$33.5**	**1,658**	**$32.54**

The following table shows the total estimated annual tourism payroll by community and NAICS code.

Table 12—Stark County Annual Tourism Payroll

Stark County Estimated Annual Tourism Payroll (000,000)						
Location	NAICS Codes					
	711	712	713	721	722	Total
Belfield	$0.00	$0.00	$0.00	$1.27	$1.62	**$2.89**
Dickinson	$0.35	$0.31	$6.94	$2.40	$18.49	**$28.49**
Gladstone	$0.00	$0.00	$0.00	$0.00	$0.14	**$0.14**
Richardton	$0.04	$0.00	$0.00	$0.31	$0.33	**$0.68**
South Heart	$0.00	$0.00	$0.29	$0.00	$0.02	**$0.31**
Taylor	$0.00	$0.00	$0.00	$0.00	$0.02	**$0.02**
Total	**$0.39**	**$0.31**	**$7.23**	**$3.99**	**$20.62**	**$32.54**

2. **Tourism Sales and Employee Growth**—Sales growth information was provided by only 33 percent of the responding tourism businesses, and contained one very large value (596 percent). The average tourism sales growth reported for Stark County is 43 percent or, if the large outlier is removed, 2 percent. The maximum sales growth, excluding the outlier, is 106 percent. The lowest sales growth reported was -59 percent.

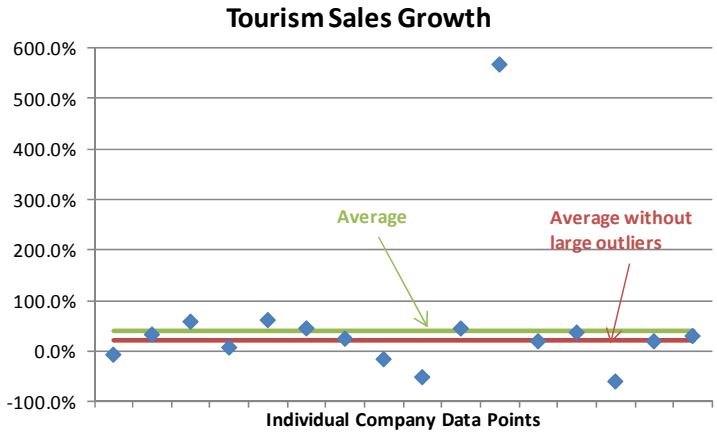


Figure 12: One Year Sales Growth for Tourism

U.S. Bureau of Labor Statistics data available for Accommodation and Food Services employment for Stark County for 2001 through 2008 is shown in the following table. The 2008 data is preliminary.

Table13—Stark County Tourism Employment

Stark County Accommodation and Food Services Employees								
	2001	2002	2003	2004	2005	2006	2007	2008
Employee count	1,052	1,094	1,092	1,061	1,105	1,134	1,160	1,146
Annual change	N/A	2.10%	-0.10%	-1.55%	2.20%	1.45%	1.30%	-0.70%

3. **Stark County Tourism Features**—The National Association of State Park Directors 2008 Annual Information Exchange reports that there are 18 State Parks in North Dakota, visited by 917,000 people in 2008, with revenue of $1.524 million. There are no North Dakota State Parks located in Stark County; however, Dickinson Parks & Recreation own, maintain, and manage 23 parks and four trails. Other towns in Stark County also provide local park facilities.

   There are three National Wildlife Refuges in neighboring counties: Lake Ilo in Dunn County, and White Lake and Stewart Lake in Slope County. Eastern Stark County has a dedicated parcel called the Schnell Ranch which has been privately dedicated toward maintaining a "nature trail" type environment within the region.

   Six, well known National Parks/Historic Sites are located in North Dakota, but none are in Stark County. Yellowstone National Park, approximately 490 miles from Dickinson, is the closest national park that is within the top ten national parks visited annually.

   The following table was generated by taking the number of various tourism features found the eight counties of southwest North Dakota, and calculating what percentage of those features are found in Stark County. The data was taken from the Roosevelt-Custer Regional Council 2007 Area Profile (Region VIII) from February 2009.

Table 14—Occurrence of Tourism Features in Stark County

Tourism Feature	Number in Stark County	Stark percentage within 8-County Area
All Accommodations		20.57%
Cabins Lodges Inns	8	12.70%
Hotels motel	14	42.42%
Campground	7	15.56%
Annual Events and Festivals	16	18.18%
All Sites Cemeteries Attractions		21.54%
Historic Sites and Markers	10	27.03%
Cemeteries	32	19.05%
Attractions	11	34.38%
Scenic Drives/Walks*	2	75.00%
Unique and Antique Retail	24	26.67%
All Adventure Recreation Sports		34.95%
Golf courses	2	18.18%
Swimming pools	4	33.33%
Sports fields, arenas, facilities	17	35.42%
City Parks	28	59.57%
Federal recreational land	2	25.00%
State Parks	0	0.00%
Lakes Dams Rivers Marinas	4	16.00%
Trail Rides, Horses	7	50.00%
Hunting Services	7	20.00%
Bird watching	1	20.00%
Dining	52	49.06%
All Transportation		50.00%
Rental vehicles	3	50.00%
Air services/Airstrip	2	28.57%
Bus service	2	50.00%
U-Haul	2	66.67%
Cab, limousine service	2	100.00%

* A portion of the *Enchanted Highway*, a scenic highway with privately supported attractions, is within Stark County (the attraction headquarters is in Hettinger County); the Schnell Ranch and Nature Trail is located in eastern Stark County (approximately 3 miles east of Richardton along old Hwy 10). Dickinson, located in Stark County, has nearly 20 miles of trails

Tourism is a $1.7 billion business in North Dakota (from The Power of Travel: Economic Impact of Travel and Tourism, July 22, 2009). Tourism spending in North Dakota has increased over the past several years, and the employment numbers are on the increase.

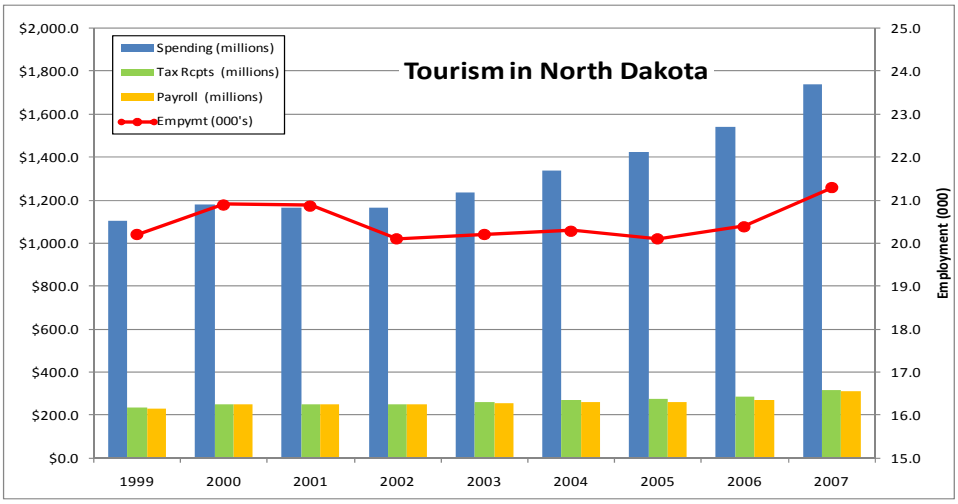


Figure 13: North Dakota Tourism Summary

Tourism, given its nature and diversity, is expected to remain positive for the foreseeable future.

II. NATURE, MAGNITUDE AND INFLUENCE OF ENERGY DEVELOPMENT WITHIN REGION

A. General Nature—Energy, as we know it, is generated in multiple ways and from a variety of sources. The following Figure, obtained from information available through the US Department of Energy (EIA) provides an overview.

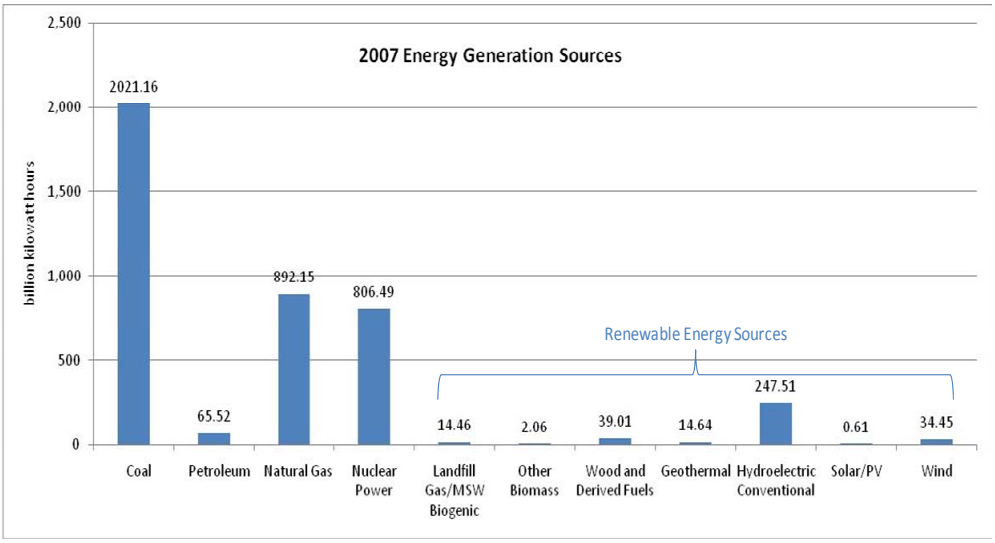


Figure 14: Sources of U.S. Energy 2007

The general nature of energy development within southwestern North Dakota has historically been centered on oil and gas development, collection and transportation/(collection & distribution) within the region. Electrical power generation in North Dakota began in the late 1950's and early 1960's after the completion of the Garrison Dam (Lake Sakakawea).

Lignite coal was the first energy source to be mined and marketed commercially within Stark County primarily for heating of homes and businesses. A coal bricketting plant, located southeast of Dickinson, was in operation during the period 1950-1980. Aside from that industry, which provided for significant employment to Dickinson/Stark County, coal was not viewed as having major industry potential for the area until recently when discussions about a coal gasification plant surfaced. The extreme southern portion of the study area (Bowman County) did also have a commercial coal mine which supplied coal to an electrical power plant in eastern Minnesota. However due to increasing regulations, environmental restrictions and overall costs of operation this mine was closed approximately 20 years ago.

Coal mining within Stark County has regained a "new life" with the construction of the beneficiation plant and planning, as well as the permitting of a proposed power plant. This activity, coupled with the most recent discussions of "mineral" mining, all point toward continued growth potential in the energy arena.

As part of the discussion about lignite coal within this region it's important to note that it is currently estimated that the State of North Dakota is home to 351 billion tons of lignite coal. This is the single largest known deposit in the world. An estimated 25 billion tons of this coal is currently considered economically mineable. At an annual mining rate of 30 million tons per year from the current six active mines, the state has enough coal to last for approximately 800 years (ND Geological Survey Data). According to the US Bureau of Land Management, the US Federal Government owns approximately 20 present of the known coal reserves within Stark County.

Total coal production nationwide is forecasted to increase through 2030, but at a slower rate than in the past. The average growth from 2007 to 2030 is projected to be 0.6 percent, slightly less than the 0.9 percent average growth for 1980 to 2007. Energy generated at coal-fired power plants in 2030 is expected to be 19 percent higher than in 2007. This higher volume will actually be a smaller percentage for coal when measured as part of total energy generated (US Dept of Energy).

After the discovery of oil in North Dakota in the early 1950's a refinery was constructed within Stark County which operated until the late 1960's. Oil and gas production, development and industry growth has remained relatively steady since the initial discovery of oil in the Billings County area, west of Stark County, with gradual expansion and growth toward the east. With the recent discovery of the Bakken formation and its proximity to Dickinson and Stark County, oil and gas development and the overall economic effect to the area is expected to grow for some time. Currently, Stark County has approximately 350 producing oil and gas wells and even though annual crude oil production is down to approximately 98,000 barrels from a high of over 633,000 barrels in 1999, more wells are being permitted, planned and drilled. Through modern technology such as horizontal drilling, several highly productive oil wells have been constructed on the "out skirts" of the city of Dickinson and are pulling oil from below the city. As this type of technology evolves and new techniques are developed further, the Dickinson, Stark County area and much of southwestern North Dakota can expect continued benefits from the oil industry. The "Sanish-Three Forks" Discovery near New Town, North Dakota,(another, more recent new discovery) approximately 100 miles north of Dickinson, is another example of what is in store for the region's future in terms of crude oil drilling and recovery. The NDIC – Oil & Gas Division is projecting, as the "Sanish – Three Forks" exploration and production moves south, the number of wells in Stark County could triple within the next 5 years and the number of producing wells in Dunn County could increase by one-third.

During the "oil boom" of the late 1970's and early 1980's the Billings and Golden Valley County areas west of Stark County experienced significant impact from crude oil activity. More recently, within the last 10-15 years, the Bowman and Slope County areas have also experienced a significant increase in oil and gas development. This pattern of growth is expected to continue and grow based upon the market trends and evolving technology noted above.

Oil prices vary greatly, and historically have tracked the economy. Oil prices have at least twice the impact that the technology advances have on the 2030 oil projections. The baseline oil forecast shows oil regaining the same production level in 2030 as the high of 1990. If oil prices rise higher than the baseline predictions, the daily oil production in 2030 is forecast to exceed the 1990 levels by one billion barrels a day, world-wide.

B. Magnitude and Influence—the magnitude of energy development within the study area is significant. Energy development affects six (6) of the eight (8) counties within the area generally defined as southwestern North Dakota. If the current projections are correct and the Tree Forks develops as expected, all eight counties will benefit.

1. Introduction—Energy consists of resources to generate power. The U.S. Energy Information Administration (EIA) reports that the United States used 99.3 quadrillion Btu's in 2008, equivalent to energy consumption of 327 million Btu's per person. Also in 2008, the United States consumption was 21.14 percent of the total energy used worldwide.

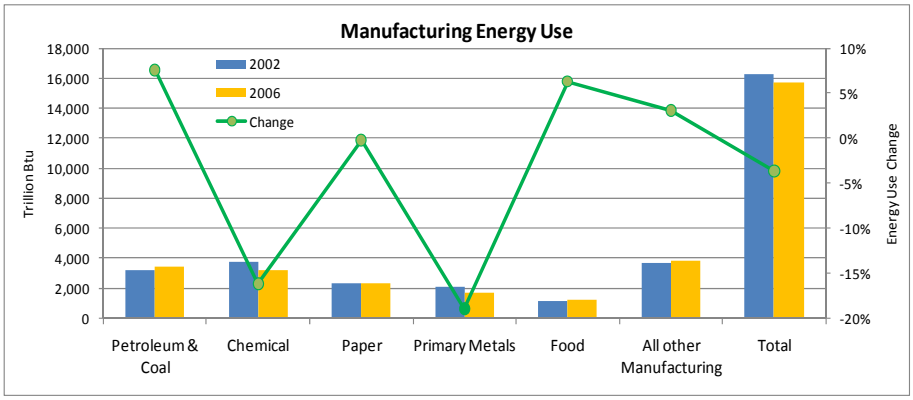
Electricity is used as a summary of energy sources because the other energy sources either generate electricity or are used as fuel to generate electricity. In addition to electricity, the following energy sources are discussed:

- Renewable: Biofuels, Solar, and Wind
- Non-renewable: Coal, Natural Gas, Oil, and Nuclear

The most current, verifiable data was used. In some instances however, that data is from 2007 or earlier sources.

2. **Energy Overview**—The need for energy continues to grow as the population grows. At the same time, energy reductions are taking place due to more energy-efficient household appliances, growing awareness of the environmental cost of energy generation, and increased legislation to support energy conservation. Industry groups also are working to decrease their energy consumption and their environmental footprint.

   One of the largest users of energy is the manufacturing industry. Manufacturing fuel consumption declined 3.6 percent from 16,276 trillion Btu's in 2002 to 15,689 trillion Btu's in 2006.



EIA, Manufacturing Energy Consumption Survey 2002-2006
Figure 15: Energy Consumption 2002-2006

In June 2009, the Investments for Manufacturing Progress and Clean Technology (IMPACT) Act was introduced in Congress as part of the Waxman-Markey Clean Energy and Security Act. This bill supports the development of domestic clean energy manufacturing and production by making a $30 billion manufacturing revolving loan fund available to small and medium-sized manufacturers. The manufacturers would use the loans to:

- Become more energy efficient
- Retool facilities for cleaner manufacturing
- Retrain workers to produce clean energy products

The bill also provides $1.5 billion over five years for the Manufacturing Extension Partnership (MEP) to help manufacturers access clean energy markets and adopt innovative, energy-efficient manufacturing technologies.

Energy demand projections based on increased population growth and reductions in personal and industrial energy use indicate continued growth in energy demand, but at a reduced rate from that of the past decades.

3. **Electrical Energy Sources**—Both renewable and non-renewable energy sources are used to generate electricity. Figure 9 represents the rate of growth of electricity demand over eighty years. The December 2009 US electricity consumption data shows a larger decrease than previously forecast. Long term forecast shows less than a 2% annual increase.

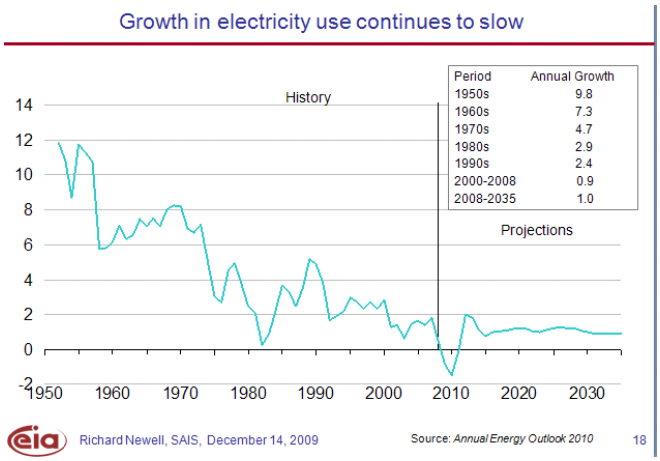


Figure 16: Electricity Demand Growth with Trend Line

The mix of different energy sources that provide electricity is projected to change, with the percentage of renewable energy increasing from 8.5 percent in 2007 to 14.5 percent in 2030. The gross amounts of coal, petroleum, natural gas, and nuclear energy all increase, but at a much slower rate than renewable energy sources.

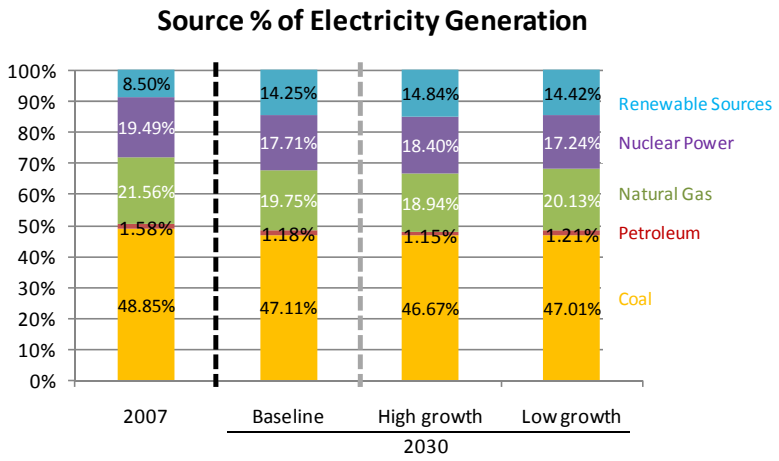


Figure 17: Breakdown by Percent of Electricity Sources

North Dakota has three policies that apply to electricity generation: Building Energy Codes, Net Metering, and a non-binding Renewable Portfolio Standard. The primary source for data in this section is the US Department of Energy, Energy Information Agency (EIA).

a. Short-Term Projections—Over the past ten years there was a gradual increase in electricity consumption until a two-year decline began in 2008. The industrial sector is buying less electricity, and retail sales of electricity fell by 12 percent during the first quarter of 2009 (same quarter 2008 comparison). The total consumption of electricity is projected to fall by 2 percent for 2009 and then rise by 0.8 percent in 2010.

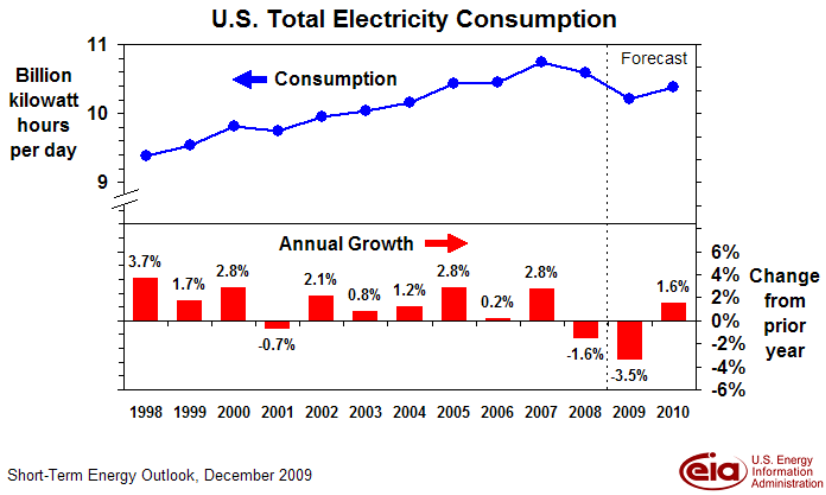


Figure 18: Electricity Consumption and Growth

b. Long-Term Projections—Demand for electricity continues to grow, but the rate of growth is predicted to slow.

Electricity growth slowed each decade from 9 percent per year in the 1950s to less than 2.5 percent in the 1990s to an average of 1.1 percent for 2000 through 2007. The slowdown is expected to continue due to increasing energy prices and new efficiency standards for lighting, heating and cooling, and other appliances.

Demand will continue to grow an average of 1.0 percent per year through 2030 due to increased demands for products, services, and floor space generated by population growth and rising disposable incomes. Population shifts to warmer regions will also increase the use of electricity for cooling.

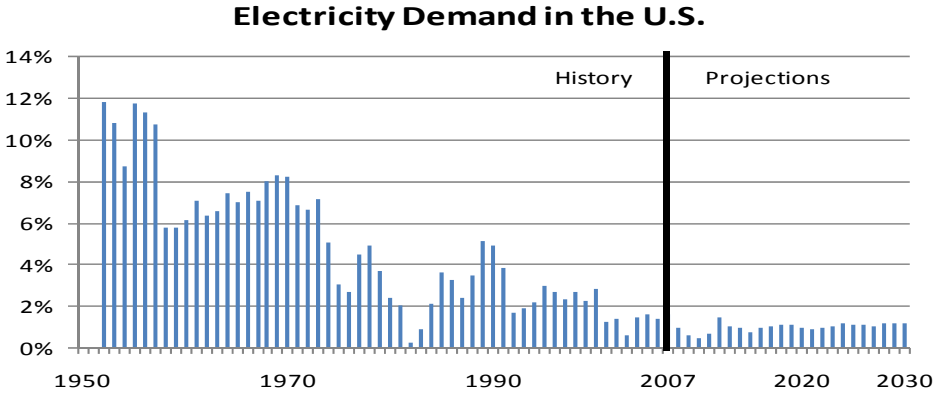


Figure 19: Electricity Demand Growth

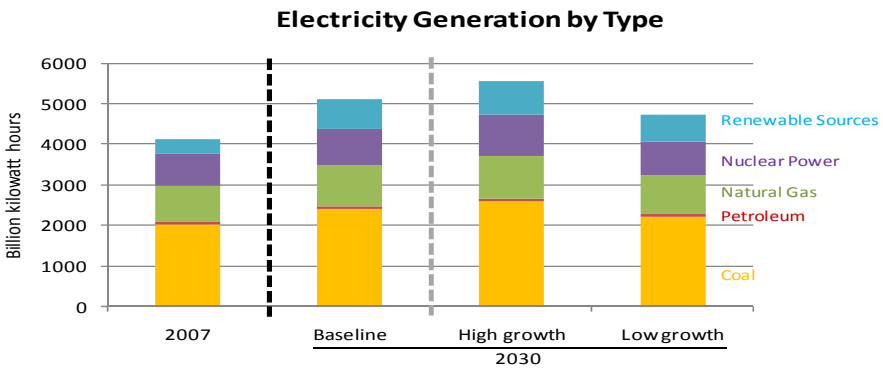


Figure 20 Projected Sources of Electricity

Coal is expected to continue to be the primary source of electrical energy, decreasing slightly in volume between 2007 and 2030. Natural gas and nuclear power quantities also are projected to decrease slightly.

Renewable electricity generation is predicted to almost double by 2030, in both quantity and the percent contributed to total energy generation. Renewable sources include solar, biomass, wind, geothermal, and municipal solid waste and landfill gas (MSW/LFG).

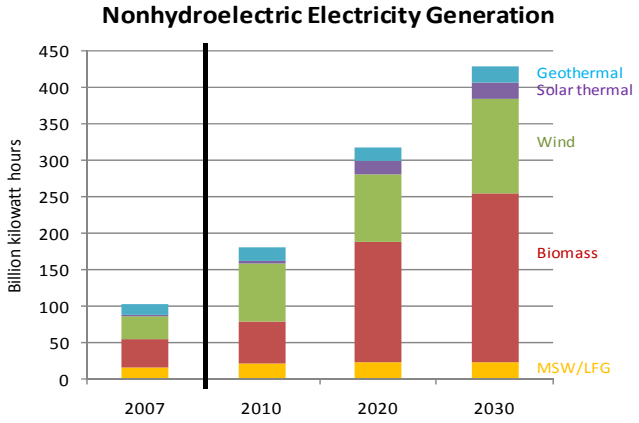


Figure 21: Electricity Generation from Other Sources

Geothermal generation is projected to increase very slowly. Current assessments show limited potential for expansion at conventional geothermal sites, and enhanced geothermal development remains economically unfeasible.

Electricity generation from solar sources is expected to increase. Solar energy is forecast to be privately generated and used, especially in areas without sufficient transmission grids.

Electricity from wind power is projected to increase between 2007 and 2030. There are a variety of factors that influence the growth of electricity generation from wind power:

- Fossil fuel costs
- State renewable energy programs
- Technology improvements
- Access to transmission grids
- Public concerns about environmental and other impacts
- The future of the Federal renewable electricity production tax credit (PTC) for wind

The predictions through 2030 have generation from wind power increasing from 0.8 percent of total generation in 2007 to 2.5 percent in 2030.

Generation from biomass is expected to grow from 39 billion kilowatt hours in 2007 (0.9 percent of the total) to 231 billion kilowatt hours (4.5 percent of the total) in 2030.

Municipal solid waste and landfill gas (MSW/LFG) prediction show slow growth through 2030.

North Dakota is part of the Mid-Continent Area Power Pool (MAPP) Electricity Market Module region which is expected to be ranked sixth for regional non-hydroelectric renewable generation by 2030.

c. Legislation—The North Dakota government has passed the following policies applicable to electricity generation.

- North Dakota Building Energy Codes requires certain energy standards be met for commercial structures, state and local government-owned and government-funded buildings, and buildings receiving federal grants from the Office of Integrative Activities.
- North Dakota—Net Metering applies to renewable-energy systems and combined heat and power (CHP) systems up to 100 kilowatts capacity. Net metering is available to all customers of investor-owned electric utilities, and there is no specified statewide limit on the total of all net-metered systems.
- Renewable Portfolio Standard (non-binding) establishes an objective that ten percent of all retail electricity sold in the state be from renewable energy and recycling by 2015. The objective is voluntary, with no penalties or sanctions if not met.

4. Renewable Energy Discussion—Currently, 24 states plus the District of Columbia, have renewable portfolio standards (RPS). A renewable portfolio standard is a state policy that requires electricity providers to obtain a minimum percentage of their power from renewable energy resources by a certain date. North Dakota is one of five additional states that have nonbinding goals for adoption of renewable energy.

North Dakota has seven financial incentives for renewable and energy efficiencies.

- Corporate Tax Credit—Renewable Energy Tax Credit (Corporate)
- Personal Tax Credit—Renewable Energy Tax Credit (Personal)
- Property Tax Assessment—Large Wind Property Tax Reduction
- Property Tax Exemption—Geothermal, Solar and Wind Property Exemption
- State Grant Program—State Buildings Energy Conservation Program
- Utility Loan Program
  - Cass County Electric Cooperative—Residential Energy Efficiency Loan Program
  - Northern Plains EC—Residential and Commercial Energy Efficiency Loan Program
  - Otter Tail Power Company—Dollar Smart Financing Program
- Utility Rebate Program—Otter Tail Power Company—Energy Efficiency Rebate Program

a. Biofuels Overview—Biofuels research has received large amounts of money and resources as governments attempt to reduce dependency on oil. The two most common biofuels are ethanol and biodiesel. Ethanol production is expected to lag behind ethanol consumption through 2017, but biodiesel production is forecast to be consistently higher than biodiesel consumption through 2017, providing an energy alternative for motor fuels.

Recent key federal alternative fuel and fuel economy legislative actions address fuel economy to reduce dependence on petroleum, tax credits for alternative fuels, and support of alternative fuel through grants, tax credits, and other measures. North Dakota has four biofuel incentives in place, including grants, loans, and two tax credits (see Section C, biofuel legislation below).

Many components influence the demand for biofuels. The major factors are gasoline prices, concern about global warming due to automobile emissions, and the availability of engines that run on biofuels. Federal and state legislative changes also play a role. As these factors change, the attractiveness of biofuels also changes.

Biofuels are produced from living organisms or from metabolic by-products (organic or food waste products) which have been converted into biomass. In order to be considered a biofuel the fuel must contain over 80 percent renewable materials.

The Bio Diesel Sustainably Organization (www.biodieselsustainability.org) reports that biodiesel alone has replaced tens of millions of barrels of petroleum, added $4 billion the U.S. economy last year, and reduces carbon monoxide, hydrocarbons, and other harmful emissions. Biofuels can be produced and distributed locally, and reduce dependence on oil produced outside of the United States. Current research is looking at ways to generate biomass from cellulose and other organic matter.

Current data for gasoline, diesel, and biofuel use in North Dakota is shown in the following table.

Table 15—Fuel Usage and Availability 2007 (annual usage)

North Dakota Fuel Data	
Gasoline Use	300 million gal.
Diesel Use	158 million gal.
Total Cellulosic Biomass	6.7 million dry T
Total Crop Biomass	3.3 million dry T
E85 Stations (No. Operating)	24
Biodiesel Stations (No. Operating)	0
Ethanol Plants (No. Operating)	5
Ethanol Production Capacity	244 million gal.
Biodiesel Plants (No. Operating)	3
Biodiesel Production Capacity	117 million gal.

According to the research report Global Biofuel Market Analysis from www.bharatbook.com, global ethanol production is forecast to increase approximately six percent during 2009-2018. Global biodiesel production is forecast to increase over five percent during the same period. The Research and Markets Group (www.researchandmarkets.com) made the following predictions for biofuel and ethanol in the U.S.:

- Corn is anticipated to dominate the future ethanol production in the US, however, cellulosic ethanol requirements are expected to boom during the period 2008-2017.
- Biodiesel prices in the US are expected to see a declining trend and so increase commercial usage during 2008-2015.
- Supply of raw material (corn and soybean oil) will be a major concern for the US biofuel industry in coming years.

The following charts show the forecasts for biofuels and ethanol in the U.S. from 2007 to 2017.

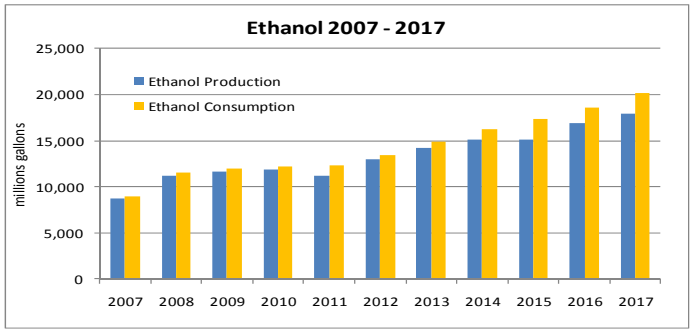


Figure 22: U.S. Ethanol Production and Consumption

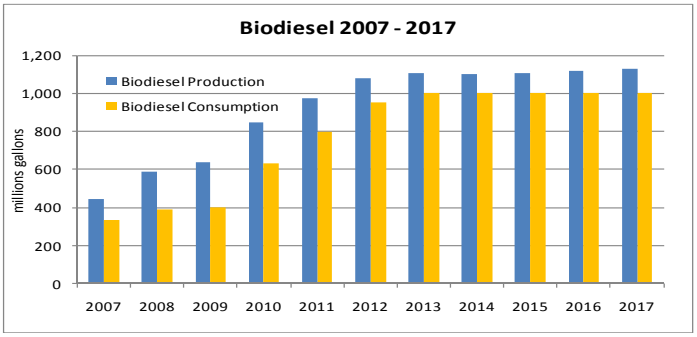


Figure 23: U.S. Biofuel Production and Consumption

aa. Biofuels in Stark County—Stark County does not generate a large quantity of materials/products that currently can be converted into biomass and then into biofuels. However, the August 1, 2009 issue of Science News noted that some of the attractiveness of biofuels is the variety of ingredients that can be used to create biofuels. Research is underway to investigate the use of straw stalks, corncobs, prairie grass, and fast-growing softwoods as sources for biofuels. These additional sources would provide Stark County with more options for production of biomass materials.

Stark County contains one of the state's five ethanol bio-refineries, and the refinery is located near Interstate 94 and the Burlington Northern Santa Fe railroad, both of which provide good transportation for raw and finished materials for the plant.

U.S. Alternative Fuels and Advanced Vehicles Data Center.

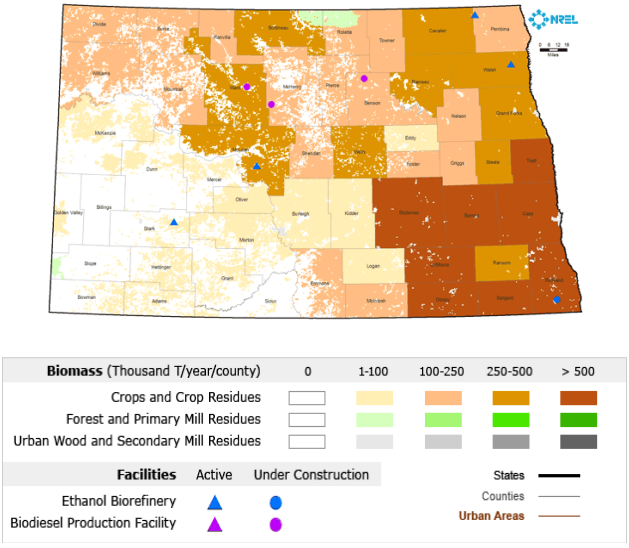


Figure 24: Biofuels Production Facilities in North Dakota

***ab. Biofuel Legislation*—**there has been eight key federal alternative fuel and fuel economy actions enacted, beginning in 1988. The most recent are:

- Energy Independence and Security Act of 2007—aims to improve vehicle fuel economy and help reduce U.S. dependence on petroleum, which includes a minimum amount of renewable fuels sold by 2022
- Energy Improvement and Extension Act of 2008—extends and creates tax credits for biodiesel production and other alternative fuels
- American Recovery and Reinvestment Act of 2009—supports a variety of alternative fuel and advanced vehicle technologies through grant programs, tax credits, research and development, fleet funding, and other measures

The State of North Dakota has four biofuel incentives in place.

- Biofuels Infrastructure Grants—cost-share grants of up to $5,000 per fueling pump available to qualified motor fuel retailers.
- Biofuels Loan Program—The Biofuels Partnership in Assisting Community Expansion (PACE) Loan Program provides an interest buy down of 5% below the note rate for qualified biodiesel and ethanol production facilities, livestock operations feeding byproducts produced at a biodiesel or ethanol facility; and grain handling facilities which provide storage of grain used in biofuels production.
- Biodiesel Blender Tax Credit—Income tax credit of $0.05 per gallon of biodiesel blended fuel for qualified fuel suppliers.
- Biodiesel Sales Equipment Tax Credit—Corporate income tax credit of 10% per year, for up to five years, for qualified retailer's direct costs to adapt or add equipment to enable selling of biodiesel.

In April 2009, U.S. biofuel producers and biotechnology companies lobbied Congress to offer financial support for bringing commercially ready advanced biofuels to market. The Biotechnology Industry Organization (BIO) requested additional capital for:

- Construction
- Feedstock development
- Fuel delivery infrastructure

U.S. biofuel producers also requested that the Renewable Fuel Standard be retained and the cellulosic tax credit extended.

b. Solar Energy Overview—The U.S. Department of Energy (DOE) has an objective to make electricity from solar technologies cost-competitive with grid electricity by 2015. Scientific American predicts that solar could provide 35 percent of the U.S. total energy by 2050, assuming a massive switch from non-renewable sources to solar.

The U.S. Department of Energy (DOE) has implemented broad-reaching changes in program strategy in order to achieve high market penetration of solar energy technologies. DOE seeks to make electricity from solar technologies cost-competitive with grid electricity by 2015.

Research funded by DOE has helped the cost of electricity from solar photovoltaic (PV) drop more than tenfold from 1976 to today. DOE's Solar Energy Technologies Program (SETP) will focus on PV technology that has the best chance of becoming cost competitive by 2015.

DOE rates southwestern North Dakota as having "good" or "very good" potential for solar power generation.

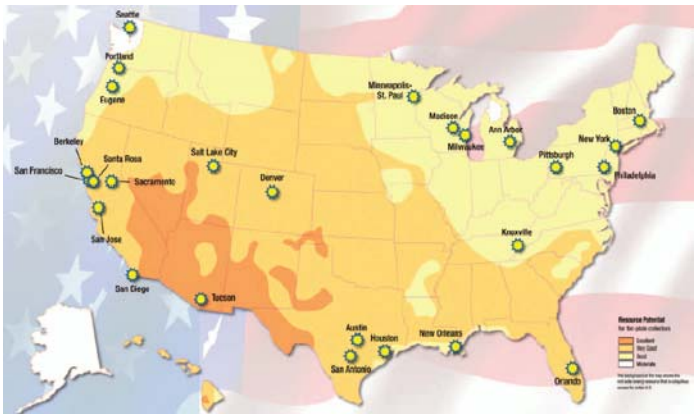


Figure 25: Solar Resource Potential

ba. Indicators—To demonstrate the commitment by states, retailers, and utility companies, the DOE's Energy Efficiency and Renewable Energy group summarized recent solar energy activities as of September 2008.

- In 2007, Pacific Gas and Electric Company announced a 550-megawatt (MW) PV plant and a 250-MW PV project, both to be constructed in phases between 2010 and 2013.
- On February 21, 2008, Arizona Public Service Company announced plans for one of the world's largest solar facilities—a 280-MW CSP plant called the Solana Generating Station. When operational by 2011, it will produce enough energy to serve 70,000 Arizona customers when running at full capacity.
- Duke Energy Carolinas has a $100-million plan to install solar panels (20 MW) at up to 850 North Carolina sites, including homes, schools, stores, and factories.
- Florida Power & Light Company plans to install 25 MW of solar panels at a site in DeSoto County, and will also install a 10-MW PV project at the Kennedy Space Center.
- Pepco Energy Services will install a 2.36-MW PV system on the roof of the Atlantic City Convention Center in New Jersey (operational March 2009).
- Large retailers Kohl's and Macy's have dramatically ramped up their solar installations. Kohl's Department Stores is expanding its solar program to 43 locations in six states and plans to include 85 additional sites in the program. By the end of 2008, Macy's will have solar panels on more than 30 of its stores, primarily in California. These installations will offset a significant amount of each store's energy use.
- At the end of 2007, 11 states and Washington, D.C., had committed to installing 550 MW by 2010 and 6,700 MW by 2025 of solar by requiring solar set-asides in their renewable portfolio standards (RPS).

bb. Projections—Scientific American projected in September 2008 that a massive switch from coal, oil, natural gas, and nuclear power plants to solar power plants could supply 69 percent of the U.S.'s electricity and 35 percent of its total energy by 2050. Scientific American also projected that $420 billion in subsidies from 2011 to 2050 would be required to fund the infrastructure [needed for solar power] and make it cost-competitive.

bc. Legislation—In October 2008, the 30 percent federal investment tax credit for residential and commercial solar installations was extended for eight years, and the solar industry leaders forecast excellent growth in the U.S. solar market by 2016. In addition to the tax credit, the bill also:

- Eliminates the $2,000 monetary cap for residential solar electric installations
- Eliminates the prohibition on utilities from benefiting from the credit
- Allows Alternative Minimum Tax (AMT) filers, both businesses and individuals, to take the credit
- Authorizes $800 million for clean energy bonds for renewable energy generating facilities, including solar

In July 2009, Pike Research published a study on U.S. solar energy demand that concludes that solar will benefit from increased incentives at the federal level. The credit crisis has tightened funds available for solar projects because of their relatively unproven cash flows. However, the report provides a five-year outlook that projects that solar projects will become more attractive, especially as utilities work towards the RPS goals. The current administration in Washington is also emphasizing climate change, which is expected to have a positive impact on solar energy generation.

In October 2008, the 30 percent federal investment tax credit for residential and commercial solar installations was extended for eight years, and the solar industry leaders forecast excellent growth in the U.S. solar market by 2016. Congress also removed several limitations of the original bill, making it applicable to more businesses and individuals.

North Dakota has a solar easement law that can ensure adequate exposure of a solar energy system. This solar easement law allows parties to enter voluntarily into solar easement contracts to ensure adequate exposure of a solar energy system. The easements must be written (not verbal), and are subject to the same enforcement and recording requirements as other easements.

c. Wind Energy—The following information is from the American Wind Energy Association (AWEA): http://www.awea.org/legislative/wind_energy_facts.html

ca. Wind Energy Facts—Spurring Economic Development

- AWEA reports that for every megawatt (MW) of wind energy produced, $1 million in economic development is generated. This includes revenue from planning, construction, etc.
- Wind energy revitalizes rural communities by providing steady income through lease and royalty payments to farmers and other landowners.
- Supplemental income: It is estimated that the income to a landowner from a single utility-scale turbine is approximately $2000 per year. For a 250-acre farm with income from wind at $55 per acre, this translates into an annual income from wind leases of $14,000, with no more than 2-3 acres removed from production.
- Jobs: Wind energy resources bring needed jobs to rural communities and bolster farm incomes against bad weather. Worldwide, wind and solar industries are likely to be one of the main sources of new manufacturing jobs in the 21st century.
- Consumer Benefits: Wind energy costs for consumers are low and stable. This is particularly beneficial for those on fixed incomes.

As wind energy production becomes more efficient, costs are expected to decline, while fossil fuel prices are expected to rise.

Environmental and Health Benefits:

- A widespread, inexhaustible resource: 46 of 50 states have wind resources that could be developed.
- Low emissions: Reduces smog and eliminates a major source of acid rain; could reduce total US emissions of carbon dioxide (a greenhouse gas) by 1/3 and world emissions by 4%.
- Potential for growth: Development of just 10% of 10 of the windiest states could provide more than enough energy to displace emissions from coal-fired power plants.
- Cleaner air means healthier air, especially for people with respiratory disabilities.

Wind power is globally the fastest growing energy source. The wind in North Dakota alone could produce a third of America's electricity. Wind energy provides an additional source of income for rural communities, benefiting county and local services including schools, health care facilities, and roads. The U.S. Government and industries leaders set a goal for wind energy to supply 20 percent of U.S. electricity by 2030.

Federal legislation in support of wind energy includes income tax credits for use of utility-scale wind turbines and for owners of small wind systems. The American Clean Energy Leadership Act, to be considered by the full Senate this fall, specifies a standard of 15 percent renewable energy by 2020, which benefits all renewable energy systems. North Dakota passed two bills in the last session in support of wind energy and equipment, and one additional bill favorable to the use of renewable energy in the state.

Solar Energy International reports the following concerning wind power:

- Wind power is the fastest-growing energy source in the world. (Worldwatch Institute)
- **The wind in North Dakota alone could produce a third of America's electricity.** (The Official Earth Day Guide to Planet Repair)
- Wind power has the potential to supply a large fraction—probably at least 20 percent—of U.S. electricity demand at an economical price.

The agricultural community can benefit from the winds' many economic, energy, and environmental attributes.
(Source: http://www.windpoweringamerica.gov/agricultural/index.asp)

- Wind energy provides an additional source of income for rural communities, benefiting county and local services including schools, health care facilities, and roads.
- Landowners with wind development on their property receive $2,000 or more per turbine per year.
- Wind energy uses less water than fossil fuel plants.
- Turbines do not take up much land. Crops can be grown and livestock grazed right up to the base of the machine. Turbines do not interfere with daily operations.

Good-to-excellent wind resource areas are located throughout North Dakota. Prominent areas include the area south of Jamestown towards the South Dakota border, the Turtle Mountain area near the Canadian border, and along Minot Ridge. The regions around Dickinson and Williston also have pockets of excellent wind resource. The DOE reports that North Dakota has wind resources consistent with utility-scale production.

The American Wind Energy Association (AWEA) reports the following status for wind energy in North Dakota (as of June 27, 2009):

Table 16—Wind Projects and Status in North Dakota

North Dakota Wind Status	
Power Capacity - Existing projects	1203* MW
Power Capacity - Projects under construction	345 MW
Rank In US by Existing Capacity	13
Rank In US by Potential Capacity	1
Potential Capacity	138,400 MW
Annual Energy	1,210 billion kWh

* February 2009 update by ND Department of Commerce

Wind provided about 40 percent of all new U.S. power-producing capacity added in 2008. This contribution from wind was the largest contribution from any energy source in 2008. Results from a DOE study show that the United States has more than 8,000 gigawatts of available land-based wind resources that could be captured economically.

cb. Projections—Primary source for wind energy forecast is from the U.S. DOE Energy Efficiency and Renewable Energy 2009 report titled Wind Energy Today.

The U.S. Government and industries leaders are working towards a goal that wind energy will supply 20 percent of U.S. electricity by 2030. Achieving this goal is technically feasible, but requires enhanced transmission infrastructure, increased U.S. manufacturing capacity, streamlined permissions for sites and other permitting regimes, and improved reliability and operability of wind systems.

From 2020 to 2030, the 20 percent wind growth scenario would support 100,000 jobs in associated industries such as accountants, lawyers, steelworkers, electrical and steel manufacturing and will generate much needed income for rural communities. Many of the construction and operation jobs would provide a boost to rural communities because most of the wind plants will be located nearby. Farmers and landowners are expected to gain more than $600 million in annual land-lease payments, and regional governments to gain more than $1.5 billion annually in tax revenues by 2030.

Another approach for wind energy is through distributed wind technology (DWT), usually single wind turbines installed at the utility distribution level, including installations on the customer side of the meter. In 2008, the industry found a growing domestic market for distributed wind power systems, including small machines for residential and small farm applications and midsize machines for larger agricultural, commercial, industrial, and public facilities. Again, improvements in technology are needed to make DWT readily available for energy generation.

cc. Legislation—The Senate Energy and Natural Resources Committee approved an energy bill, the American Clean Energy Leadership Act, out of committee on June 17, 2009. The bill contains a standard of 15 percent renewable electricity by 2020, allowing for 4 percent of the standard to be met through energy efficiency improvements. The bill is expected to be considered by the full Senate during the fall of 2009.

Other federal legislation includes:

- Production Tax Credit (PTC) - an income tax credit of 2.1 cents/kilowatt-hour is allowed for the production of electricity from utility-scale wind turbines
- Small Wind Systems Tax Credit - Owners of small wind systems with 100 kilowatts (kW) of capacity or less can receive a credit for 30% of the total installed cost of the system.
- National Renewable Electricity Standard (RES) **-** uses market mechanisms to ensure that a growing percentage of electricity is produced from renewable sources, like wind power.

In North Dakota, three bills were signed into law March of 2009 favorable to wind energy. Senate Bills 2031 and 2032 extend property tax reductions and sales and use tax exemptions for wind towers, and Senate Bill 2033 extends an existing income tax credit for the installation of geothermal, solar, wind or biomass energy devices in the state.

5. Non-renewable Energy Discussion—Data in this section is from the U.S. Energy Information Administration and other cited sources.

a. Natural Gas Overview—Natural gas production is forecast to increase from 17.8 trillion cubic feet in 1990 to 23.60 trillion cubic feet in 2030. U.S. production of natural gas is not sufficient to meet all of the predicted U.S. consumption, but imports are expected to make up the difference.

Natural gas plays a vital role in the U.S. energy supply and in achieving the nation's economic and environmental goals. Although natural gas production in North America is projected to increase over time, consumption has begun to outpace available domestic natural gas supply.

aa. Short-Term Projections—Data through September 2009 shows a decrease of 6.6% percent in natural gas production, which is forecast to remain unchanged for 2010. U.S. industrial users reduced their demand for natural gas by 8.2 percent in 2009, and the consumption for residential and commercial sectors is also expected to fall. The projected economic recovery is expected to create slight increases in residential, commercial, and industrial use in 2010. However, natural gas consumption in the electric power section is projected to decline one percent in 2010 due to gas price increases and increased use of coal.

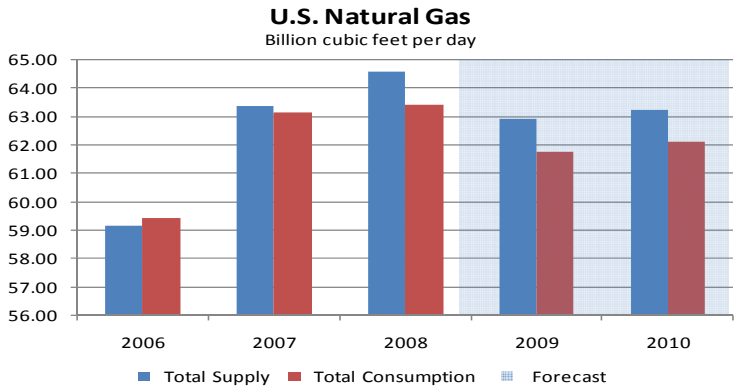


Figure 26: Short Term National Gas Projections

ab. Long-Term Projections—Long term, both natural gas production and consumption are forecast to increase. The contributions of the different sources of natural gas, however, change considerably during the foreseeable future.

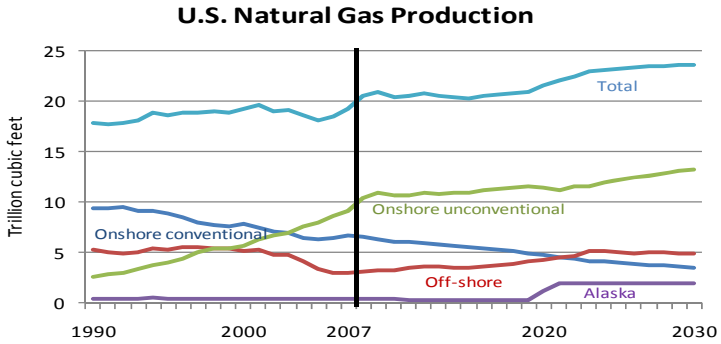


Figure 27: Natural Gas Production by Source

Natural gas consumption and production are forecast to equalize around 2015, and continue in balance through 2030 (Figure 28: Natural Gas Forecast through 2030). Predicted U.S. production of natural gas is not sufficient to meet all of the predicted U.S. consumption, but imports are forecast to make up the difference.

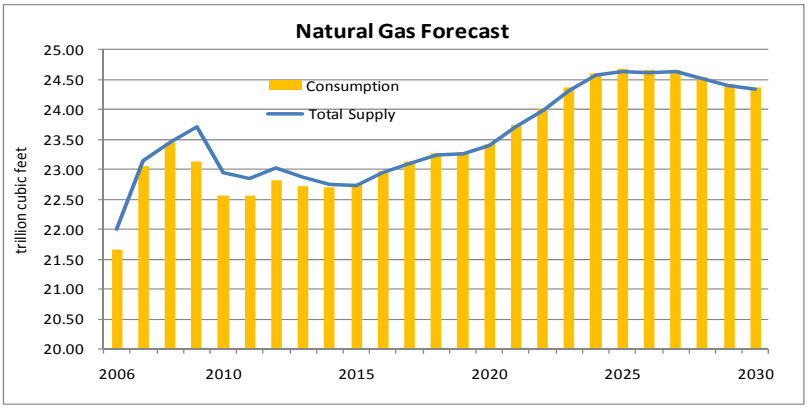


Figure 28: Natural Gas Forecast through 2030 (USEIA)

The amount of natural gas imports is predicted to decline through 2030 as U.S. production increases to meet U.S. demand.

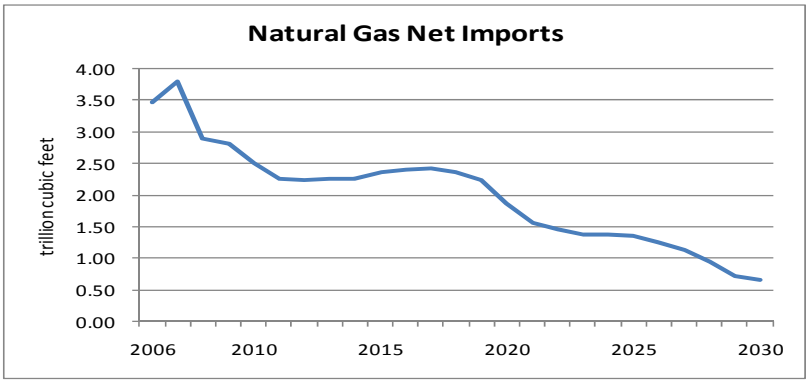
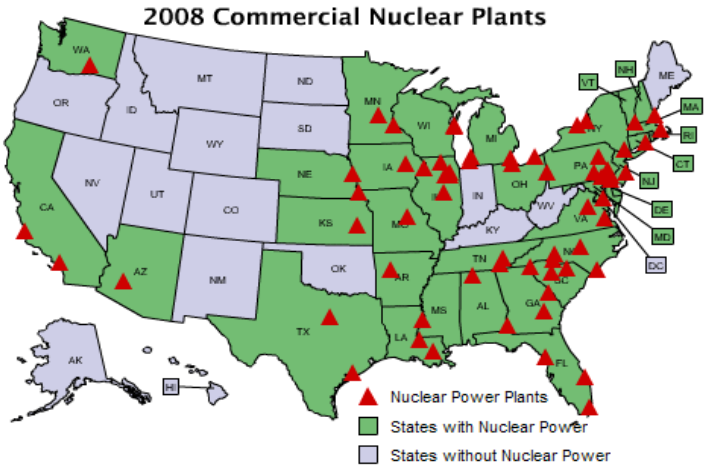


Figure 29: Imported Natural Gas Forecast (USEIA)

b. Nuclear Energy Overview—Any projection of a rapid expansion of nuclear capacity presents challenges, including uncertainty about the cost of the plants and about public acceptance of them. Worldwide concern about the impact of green house gas (GHG) emissions has grown over the past 20 years, and legislation that limits emissions is being developed at the State, regional, Federal and international levels. If regulations make generation of energy that creates GHG more costly, nuclear energy demand could increase.

Nuclear power accounts for about 19 percent of the total electricity generated in the United States. A nuclear power plant operates basically the same way as a fossil fuel plant, except the heat in a nuclear plant occurs due to the fission or splitting of uranium atoms. The U.S. produces 86 percent of the world's nuclear energy.



Source: Energy Information Administration; data are through December 31, 2008

Figure 30: Nuclear Plants in the U.S.

Western North Dakota contains several areas of known radioactive mineral deposits. Investigations done from the late 1940s to the late 1970s discovered several large areas of increased radioactivity in Bowman, Slope, Stark, Billings, and Golden Valley counties. Uranium and other radioactive elements were often found associated with beds of lignite.

As previously noted herein, Stark County also experienced activity in the mining of uranium in the 1960's but that experience was relatively short in tenure. If the drilling results discussed previously herein prove fruitful, and if economic and environmental constraints can be met, a full scale, highly technical mineral mining operation could be started in southwestern North Dakota.

It has been estimated that North Dakota contains a mineable reserve of 480,000 pounds of U3O8 at an $8.00 per pound market price. The uranium reserves of North Dakota represent far less than one percent of the total U.S. reserves.

The last new nuclear reactor power plant to enter commercial service was the Tennessee Valley Authority's (TVA) Watts Bar 1 in Tennessee in 1996. Despite plant closings, U.S. nuclear capacity today is about the same as it was in 1996. This is due to advances in technology that enabled modifications to the plants to increase capacity. Nuclear energy continues to maintain a share of approximately 20 percent of total electricity output; however, maintaining that share requires new reactors to be built.

Construction of nuclear power plants has decreased due to safety concerns, anticipation of possible new regulations, and price-overruns of earlier projects. It is unclear whether utilities would be willing to incur the high costs of building new nuclear plants in the absence of concerns about potential GHG regulations.

ba. Projections—EIA projects that the industry will add nearly 10 gigawatts of nuclear capacity between 2007 and 2030. Any projection of a rapid expansion of nuclear capacity presents challenges, including uncertainty both about the cost of the plants and about public acceptance of them**.**

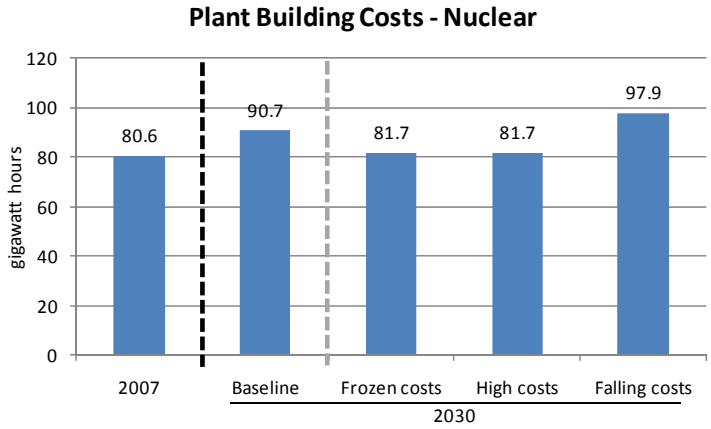


Figure 31: Construction Costs Impact on Nuclear Plants

Figure 31: Construction Costs Impact on Nuclear Plants shows the results of four EIA models for nuclear energy generation in 2030. The baseline value is obtained without any consideration for construction costs. The other three values represent the expected energy generation with varying costs of new plant construction.

Some plant types—coal, nuclear, and most renewables—are more capital-intensive than others, such as natural gas. If construction costs increase proportionately for all plant types, natural-gas-fired capacity will become more economical than more capital-intensive technologies, such as nuclear. Figure shows that high construction costs increase natural gas energy generation; other energy sources' generation decreases or remains the same as construction costs increase.

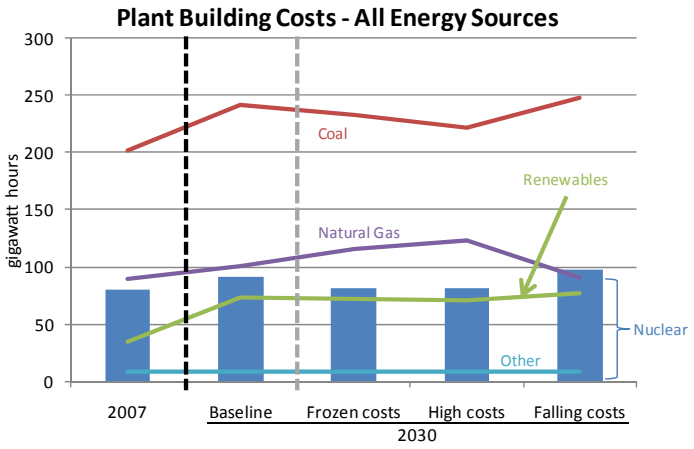


Figure 32: Construction Costs Impact on All Energy Sources

By the end of February 2009, the Nuclear Regulatory Commission (NRC) had received applications for 26 newly designed reactors, although it is unclear how many of these reactors will eventually be built. The NRC estimates 42 months to complete the review of all the applications prior to a final decision, and then construction typically requires another five to seven years for each reactor.

Worldwide concern about the impact of GHG has grown over the past 20 years, and legislation that limits emissions is being developed at the State, regional, and Federal levels. If regulations make generation of energy that creates GHG more costly, nuclear energy demand could increase.

c. Coal Overview—although coal is a nonrenewable energy source, it is the most abundant fossil fuel produced in the U.S. From the three regions shown in the map below, 1,162.8 million short tons of coal were produced in 2006. The Western Coal Region, which includes the western third of North Dakota, produces over half of all coal in the U.S.

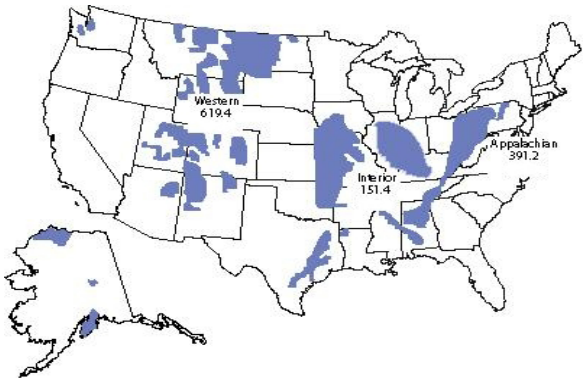


Figure 33: Coal-Producing Regions (Map from the U.S. Department of Energy)
(see larger scale map for Study Region in Appendix)

ca. Short Term Projections—The electric power-sector is projected to consume approximately 900 million short tons of coal in 2009, which will be the first time since 2002 that the annual consumption of coal will fall below one billion short tons. This decline is attributed to less electricity generated and projected increases from other energy sources.

As of December 8, 2009, the 2009 forecast for US coal production is down nearly 7%. As of this writing, actual, final 2009 data is not yet available however the 2010 forecast calls for an additional 2.5% decline.

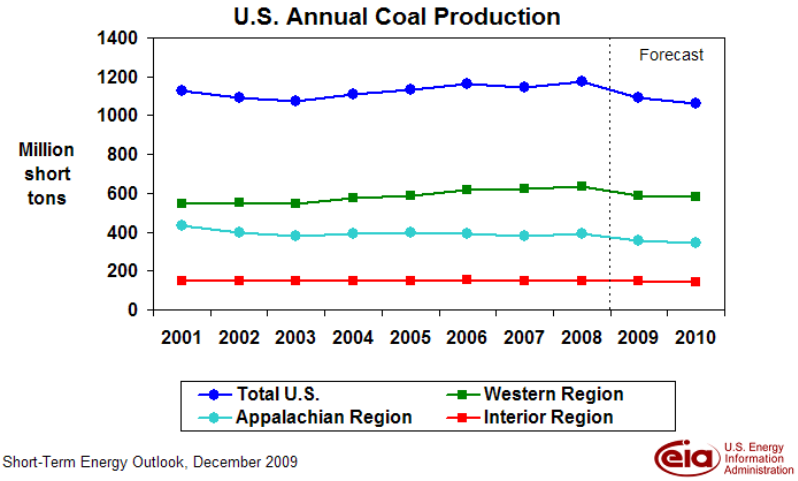


Figure 34: Coal Production 2001-2010

cb. Long Term Projections—Coal consumption continued to decrease in 2009 and is expected to increase in 2010 only if economic conditions improve. Total coal consumption in 2009 decreased approximately 12% from the amount used in 2008. The decrease is predicted as a result of concerns about greenhouse gas (GHG) emissions and the potential for mandated limits. See also Figure 20 Projected Sources of Electricity and Figure 17: Breakdown by Percent of Electricity Sources.

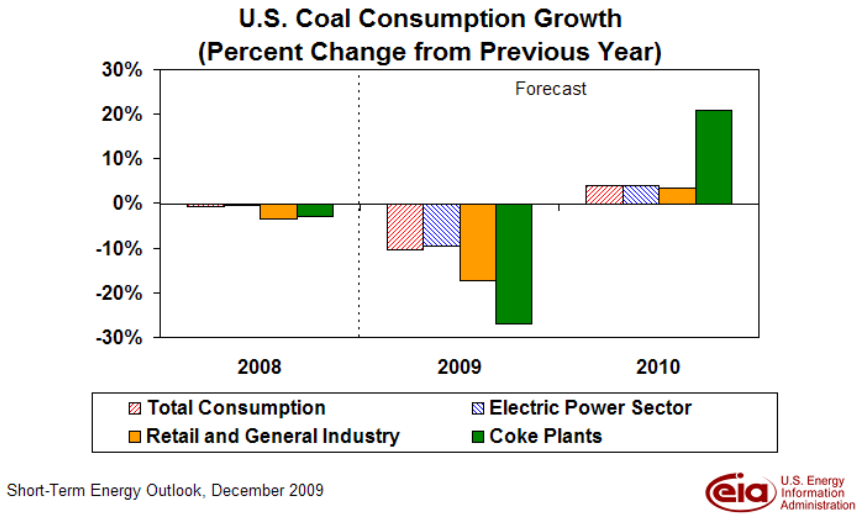


Figure 35: Coal Production Forecast

cc. North Dakota Coal—North Dakota lignite coal mines have produced approximately 30 million tons each year for the past 20 years. North Dakota lignite coal is the lowest coal in heating value and energy. Per ton, lignite coal is less expensive than bituminous and anthracite and slightly more expensive than sub-bituminous. There are several environmental concerns for lignite coal.

- Mining of lignite in large scale, open pits disturbs wilderness habitat and releases carbon dioxide as trees are removed.
- When burned, lignite coal releases sulfur dioxides, nitrogen oxides, and carbon dioxide.

- Burning lignite coal releases 215 pounds of carbon dioxide per million Btu, which is more than bituminous and sub bituminous.

A new use for lignite coal seams is being explored through the U.S. Department of Energy, the National Energy Technology Laboratory (NETL), and the University of North Dakota Energy and Environmental Research Center. The Lignite Field Validation Test in Burke County, North Dakota is exploring the economic and environmental viability of geologic CO2 storage in lignite coal seams. If viable, this use of lignite coal seams would have application in the study region due to the large lignite reserves in the area.

cd. Coal Legislation—The 2009 North Dakota legislative session passed several bills in support of the state's lignite coal industry in the form of coal research and development funding, coal tax exemptions and incentives, and other benefits to coal-related materials.

Partners for Affordable Energy reports that the 2009 North Dakota legislative session passed several bills important to the future growth of the state's lignite coal industry, including one to fully fund the Lignite Research, Development and Marketing Program (Lignite R&D). The Legislature appropriated $19.9 million in funding for pending research and development projects over the next biennium. The money will be used to fund the Lignite Vision 21 program, the lignite coal-marketing program, and several other environmental research related projects.

Legislators also passed the following bills:

- Partial tax exemption from the coal conversion tax for facilities that capture CO2
- Allow the state of North Dakota to regulate the long-term storage of CO2
- Tax incentives for beneficiated coal
- Made permanent the tax exemption for carbon dioxide used for enhanced oil recovery

d. Crude Oil Overview—North Dakota was ranked 8th in the United States for daily oil production from 2003 through 2008. Due primarily to the increase in production from the Bakken/Three Forks formations in 2009, North Dakota moved to fourth (4^{th}) place, ahead of Louisiana but behind Texas, Alaska and California. North Dakota monthly oil production steadily increased over the last five-year period as shown in Figure 6 herein.

da. Short-Term Projections—Compared with 2007, world oil consumption was down three million barrels per day from fourth quarter 2008 through the first two quarters of 2009. This decline is expected to moderate due to an expected gradual global economic increase, especially in Asia. For 2010, global consumption is expected to increase by 900,000 barrels per day over 2009.

db. Long-Term Projections—Total crude oil production in the U. S. decreased from 1990 to a low in 2008, and is expected to reach the 1990 production levels again by 2030. Off-shore deep-water oil from the lower 48 states was the only oil source to increase significantly after 1990 before leveling off in 2000. Off-shore production in the lower 48 states is expected to increase gradually before leveling off at around 2 million barrels per day in 2015. The on-shore and Alaska sources are not expected to reclaim their 1990 levels by 2030.

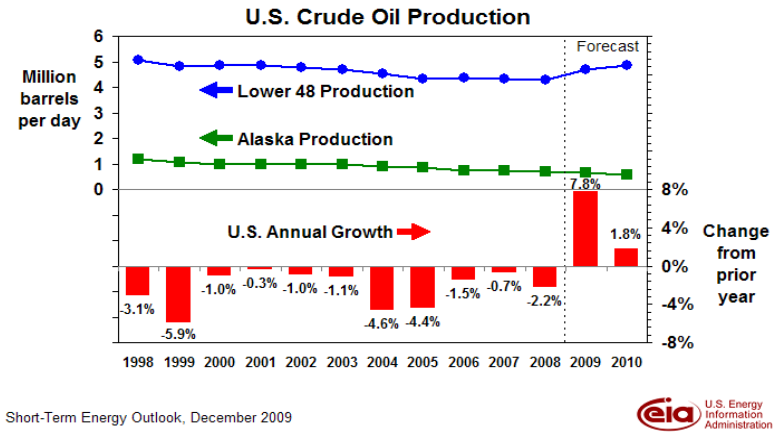


Figure 36: Crude Oil Projections by Source

The graph below predicts the impact of prices and technology advances on oil exploration and development. Oil prices have at least twice the impact that the technology advances have on the 2030 projections.

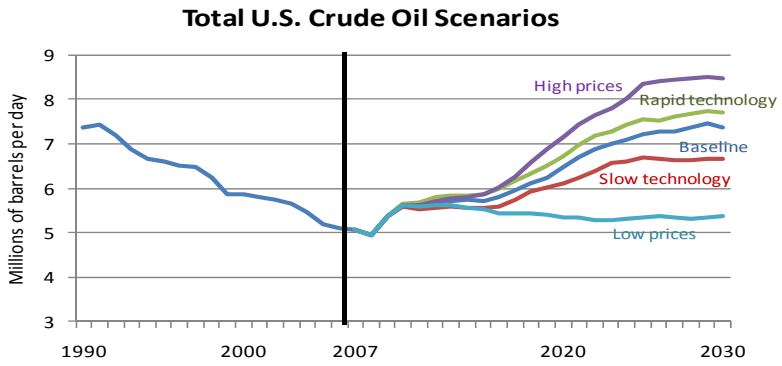


Figure 37: Oil Production Forecast Scenarios

In the summer of 2008, the price of oil was $140 per barrel. By November of 2008, the price fell to $60 per barrel. In July of 2009, the price was $64 per barrel. Analysts from Raymond James were quoted by Environmental Capital, a daily analysis of the business of the environment by The Wall Street Journal, as follows:

> *The bottom line for energy investors is that economic growth does not translate automatically into growth in oil demand. Put another way, with current oil price, technology, and political trends,* ***it will probably take a higher rate of economic growth in the future to achieve the same oil demand growth that was experienced over the past several decades.***
>
> Environmental Capital, July 6, 2009

On a related note, in 2008 and 2009, Headwaters Economics, and independent, a nonprofit research group, released an analysis of the effect of local (county) reliance on fossil fuel extraction in the western US. A county was considered to be energy-focused for the study if at least 7% of the total private sector employment in that county was engaged in natural gas, oil, or coal in 2005. No counties within the study area were evaluated.

Two findings evolved from the study. The first was that counties focused on energy development underperformed economically in the long term when compared to similar counties with little or no energy impact. The second was that a heavy reliance on fossil fuel extraction may point to diminished the future competitiveness of that county. This is due to several factors such as lower levels of education in the workforce, greater gaps between high and low income households and growing wage disparity between energy-related workers and all other workers.

In summary, all indications based upon current energy policies, markets and environmental concerns point in a generally positive direction for continued growth within the affected areas of southwestern North Dakota. Furthermore, with the constantly improving technology, such as horizontal drilling and oil recovery, as well as new techniques utilized in air pollution control, new areas of energy development within this region are certain to develop and expand.

III. IDENTIFIED NEEDS FOR AN INDUSTRIAL PARK FACILITY

A. General—A list of general needs was determined and then distributed by mail to a select list of businesses within the Stark and Dunn County study area. The mailing list was determined by Stark Development Corporation. Approximately fifty percent (50%) of the questionnaires mailed, were returned. All questionnaires are considered confidential since the information requested may be considered proprietary and so the information obtained was extracted from the questionnaires and consolidated in a generic format in order to develop workable conclusions. The following needs were identified on the questionnaires:

- Access to Rail Service Required/Preferred
- Access to Air Service Required/Preferred
- Access to Interstate Highway Required/Preferred
- Access to U.S. Highway Required/Preferred
- Access to State Highway Required/Preferred
- Access to City Sewer Required/Preferred
- Access to Potable Water Required/Preferred
- Access to Natural Gas Required/Preferred
- Access to Electrical Power Required/Preferred
- Growth Potential in five (5) years?
- Growth Potential in ten (10) years?
- Building plans within three (3) years?
- Building plans within five (5) years?
- Building plans within ten (10) years?
- No building expansion is/will be planned/needed
- Does current location have room to expand?

B. Results of Public Input Questionnaire—See summation table in APPENDIX G

C. Conclusions and Recommendations—Of the forty seven (47) entities contacted with the questionnaire, that was mailed, twenty-three (23) responses were returned. Based on this level of response any one or more of the following conclusions could be reached:

- Many of the businesses contacted do not have plans for expansion
- Many of the businesses contacted have needs that they felt were not important enough to report
- The questions asked were considered too “confidential” for this particular format and respondents were reluctant to answer
- Many of the businesses contacted are comfortable/satisfied with the current arrangement/situation
- Many of the businesses contacted do not see the need for an industrial park
- Other possibilities?

Of the twenty-three (23) businesses who responded, nineteen (19) or eighty three percent (83%) indicated that their current location is adequate for anticipated expansion.

Of the four (4) businesses who indicated that they did not have room for expansion, only one (1) indicated that they planned to expand within ten (10) years.

It is interesting to note that with a potential employee increase of two-hundred and seventy one (271) within five (5) years and five-hundred and thirteen (513) within ten (10) years in practically all areas surveyed, the need for additional space (buildings, land, infrastructure etc) was a relatively low priority.

One conclusion which could be drawn from the public input results obtained is that an industrial park, based on a defined need for expansion is not justified, at least at this time, within the study area. However, there are several considerations that go beyond the direct need for additional industrial space which must be factored into a final conclusion, recommendation and decision.

For example, of the responses returned, thirty percent (30%) indicated that rail service was important and they would use it if available. Forty-eight percent (48%) indicated that air service was important or even critical and fifty-six percent (56%) indicated that air service would be utilized if available. Fifty-two percent (52%) indicated that city sewer was critical or important and one indicated that they don't have city sewer service but they need it now.

In summary, the following recommendations are offered for consideration based upon the input received:

- Recommend that several sites be identified, evaluated and zoned for industrial development within Stark County and/or southern Dunn County
- Recommend that at least one industrial site/park with rail service, as near to the airport as possible, be identified and considered for development.
- Recommend that the Stark County Commission and Dunn County Commission be advised to:
    1. Develop a land use plan for the county in close coordination with the cities
    2. Revise the current planning and zoning ordinances to stop the "strip developing" of industrial sites along major highways and beyond established city limits
    3. Work with and encourage local communities within the counties to develop, maintain and implement zoning ordinances as well as review and approval methodologies consistent with one another and with the county in which they are located.
- Recommend that the Stark Development Corporation (SDC), in coordination with the Stark and Dunn County Planning and Zoning Boards as well as County Commissions and interested city governments "target" and prioritize selected areas as "preferred" or "potential" industrial areas for development. Once these areas have been identified, work could proceed, as necessary, to rezone (if necessary), and begin planning for the required funding for construction/development of these sites as well as securing interested tenants for use and occupancy.

Due to the competition among the various entities and well as the overall political considerations having and maintaining an ongoing dialogue among all the county entities about this particular subject is extremely important for overall success.

A recent experience in Stark County concerning rezoning for the proposed coal mining facility is a good example of what can happen without proper planning and preparation. Economic development is vital to maintaining a healthy and robust local economy within a region. The entire region studied herein has very good potential for future energy development and all levels of government should be encouraged to cooperate with each other and plan ahead. Preplanning for an area is generally much easier to implement on a "proactive basis" rather than a "reactive basis" as was learned with the proposed coal mine in Stark County.

IV. LAND USE

A. General—Local land use is currently controlled by the different levels of jurisdiction. Land use within an organized city is controlled by the city council/commission. This includes land within the designated one-half (1/2) to two (2) mile extraterritorial zone beyond the established city limits. This extraterritorial zone is meant to serve as a "buffer" in that it allows the both city and the county jurisdictions to have input in how the land is zoned/rezoned or developed within a defined area/corridor. Land use outside of the established extraterritorial zone surrounding, of a city, is controlled solely by the County Commission.

B. Trends—Land use trends have remained relatively consistent over the last 20 – 30 years, controlled by the governing bodies and their respective advisory subcommittees such as planning and zoning boards. Prior to that period land use was, for the most part, uncontrolled allowing anyone to purchase property anywhere and to develop it as they saw fit.

Current trends appear to lean toward allowing industrial development along major transportation arterials (strip zoning). While this practice may appear practical in giving industry direct access to a good all weather transportation network it encourages "sprawling" of development which ultimately causes problems such as:

- The need for controlled access corridors along highways—generally state and federal highway standards maintain minimum distances between approaches for safety reasons
- Increased rural fire department needs and equipment—due to generally limited water supplies in rural areas coupled with generally more complicated fire fighting techniques and equipment, departments are required to purchase additional equipment and in certain instances, additional facilities to minimize response time.
- Increased operating costs for cities and counties—covering a larger area generally requires more manpower and equipment.
- Uncontrolled development—differing industries with the same area (i.e. general industries, limited industries, light/heavy industries) become inter-mingled causing increased traffic and utility issues.

C. Recommendation—Recommendations for future land use are as previously stated under section III, c, herein. City and County Commissions should be encouraged to review existing practices and procedures and to revise current planning zoning procedures as necessary to accommodate current development needs and environmental concerns.

Protocol for developing land outside a city limit line should involve the current and anticipated utilities/services that a development may/will need. For example, if sanitary wastewater treatment/disposal is required, then consideration should be given to locating the facility as near to those existing services as possible. Issues of fire and police protection must also be given closer scrutiny and consideration than have been practiced in the past. The concept of locating industry away from developed areas of cities must be more closely evaluated in terms of future needs and costs. Areas where infrastructure is in place or at least nearby and the potential industrial area can be appropriately "buffered" from existing residentially developed areas should be pursued first. Often infrastructure is given too little consideration and ultimately issues such a fire protection or even police protection/security becomes expensive "after-thoughts". This planning procedure has worked in the past, but given the increasing costs on structures and the potential for fires in an industrial facility, fire protection should be a priority.

In summary adding practical, modern day needs and services into the "up-front" consideration for industrial zoning and development both for current use as well as for future use would lead to more efficient development and reduce future problems and related costs.

V. SUBDIVISION ZONING ORDINANCES

A. General—All but one of the governing entities within Stark County currently has their own, established planning and zoning ordinances. Most of these ordinances were developed from models in use during the late 1970's and early 1980's. When the models were developed and implemented, most of the smaller cities had full time auditors who handled the day-to-day activities and development which took place. Currently, only the counties and larger cities have full time staff due to the generally declining populations and revenues in the smaller cities. This requires many changes in how day to day operations are conducted and in many instances causes backlogs and delays in filing and other related administrative activities. This in turn causes other problems. For example, several Stark County communities currently "share" a building inspector. If ordinances differ between the communities, that presents potential problems in interpretation and enforcement. Based upon the current trends and future needs, all ordinances should be brought up-to-date and in some cases completely rewritten.

B. Existing Ordinances, when adopted and when last revised

- Stark County—Planning and zoning ordinances were last fully revised and adopted on August 2, 1983 and have been updated as necessary since that time
- Dunn County—Initial planning and zoning ordinances adopted on December 6, 1977 and updated/revised on October 1, 2008
- City of Dickinson—Planning and zoning ordinances were revised and adopted on May 2, 1983 and have been updated as necessary since that date
- City of Belfield—Planning and zoning ordinances were originally adopted in June 1975 and have been updated as necessary but never completely revised
- City of Richardton—Planning and zoning ordinances were adopted on January 3, 1985 and have been updated as necessary since that date but have not been completely revised
- City of South Heart—Initial planning and zoning ordinances adopted in the early 1980's and have not been updated or revised.
- City of Gladstone—Initial ordinances were adopted prior to 1979 based upon available information. An updated city zoning map was completed in 2003.
- City of Taylor—The City of Taylor does not have any planning and zoning ordinances.

C. Some of the noted discrepancies or deficiencies within the existing ordinances include:

- Inconsistency between the cities and the county in terms of definitions and enforcement
- Lack of enforcement - too much discretion is allowed on interpretation and enforcement issues without proper instruction on potential consequence
- The ordinances as written appear too lengthy/complex for the smaller communities—often require legal opinions which governing bodies are reluctant to obtain due to cost
- Current, mostly part-time, staff doesn't have the time or resources to do all the necessary research and follow-up on questions which arise, therefore, necessary connections aren't made and problems re-occur

D. Recommendations which should be considered include:

- Appoint or establish one county level agency/organization that is in overall charge of maintaining and routinely updating all planning and zoning ordinances within the county – even those of the organized cities.
- Develop consistency among all the entities within the county, and even adjoining counties, on planning and zoning issues so personnel and information can be more easily shared when necessary (i.e. building inspectors and other professional type help)
- Develop standard symbols and definitions for mapping purposes which all entities should be encouraged to use
- Conduct workshops and other informational/educational functions where staff and the general public are invited to attend and learn. Invite building inspectors, contractors, developers and other professionals to do presentations and provide information that helps everyone in attendance understand why we need planning, zoning and public input.
- Become more proactive in planning, zoning and development at all levels of government. Generally, with proper planning, public notice and involvement, conflict can be reduced and even eliminated.
- Allow plenty of time for public comments and input when proposing a change.

VI. INDUSTRIAL PARK SITE SELECTION PROCESS

A. General site selection process involves the following general elements:

- Existing land uses
- Existing industrial activity
- Existing zoning and related subdivision requirements
- Size of site required
- Required transportation (air, rail, ground) and relative network for each
- Access to potable water and domestic sewer
- Access to utilities such as electric and gas
- Soil types
- Topography/drainage
- Land costs

B. Areas evaluated—Areas identified for potential industrial sites as discussed with and concurred by the Stark Development Corporation advisory committee are located:

- North of Belfield along US Highway 85 within already established industrial sites
- East of Belfield in an area defined by I-94 to the north, US Highway 85 to the west and Old Highway 10 to the south.
- North of the Dickinson City Limits approximately two miles in an area surrounded by current industrial development and zoning.
- Within the City of Dickinson in a currently zoned industrial areas and, adjacent to and with access to BNSF Railroad.
- Identified sites on currently master-planned (but unzoned—requires FAA approval) Dickinson/Theodore Roosevelt Airport Property approximately nine (9) miles south of Dickinson.
- In southeast Dickinson in an area platted and already zoned for industrial development with vacant remaining
- East/southeast of Richardton in the area around the site of the current Ethanol Producing Facility which has BNSF rail access.
- Other potential sites discussed located in the most southern township in Dunn County as well as in extreme northern Stark County adjacent to existing salt water disposal wells and existing anhydrous ammonia distribution sites.
- Areas adjoining existing industrial parks adjacent to the City of Dickinson.

A suggested method and rationale offered for use in the evaluation of the identified sites could involve the following general considerations which could be graded using a number from 1 – 10, with 1 being the least preferred and 10 being the most preferred. The site selection matrix was distributed to staff and SDC Board members and a copy of the matrix is included in Appendix N:

- Existing industrial sites were considered first due to land use issues involved. The types of existing industry currently located at the site were a consideration.
- Existing zoning around the existing industrial sites was researched—if an existing site was near a residential development, a buffer zone of at least 300 feet (one (1) city block) would be required.
- What is other nearby zoning (i.e. agricultural or commercial are more acceptable than residential or even public recreational).
- The size of existing sites as well as potential for expansion is a key concern, which by itself could eliminate a site. Larger sites are preferred.

- Current transportation routes were evaluated in terms of load limits and weather issues. Issues such as type of surfacing, road widths, distance from major state or US highway as well as overall distance from air and rail service were evaluated.
- Access to and distance from utilities was a key consideration. The closer to potable water and natural gas the better. Access to sanitary sewer is considered a benefit.
- When water, electrical power and natural gas are accessible, a secondary consideration becomes the size and future capacity of those utilities. Also in the case of electrical power, three phase power is preferred so a location near a substation or a high voltage transmission line is most preferred.
- Soil types, using available USDA maps, were researched. Gravelly and sandy soils are most preferred, clay is less preferred. Ground water depth was a consideration as well. High ground water is not only a determent for construction but is also adds concerns for possible ground water contamination from industrial type development.
- Topography in terms of site development costs/complexities, drainage, runoff containment and constructability were evaluated. A flat site requiring little to no site preparation work but with adequate drainage was most preferred. The steeper the grades on the site, the more site work that will be required and the less preferred they become
- Comments and discussion with the Stark Development Corporation were also incorporated as were environmental type issues, such as difficulty in containing surface runoff, potential for off-site contamination, existing down-wind developments etc.

The following general rules or guidelines are recommended for use in developing a matrix which can be used in evaluating or comparing the various site options:

Highway Access—Access to an interstate highway gets highest rating possible, followed by access to state highway, county paved highway, county gravel road. Distance from any or all of the above lowers rating.

Rail Access—Access to a sidetrack (established connection to main line track) less than one mile from the site gets the highest rating possible. Distance from the sidetrack reduces the rating proportionally. Anything beyond two miles is not considered feasible. Other considerations include; topography (grades), unit train capability, stacking areas etc

Airport Access—Access to airport is rated similar to rail although more emphasis is place on the highway distance from site to airport. The greater the distance, the lower the rating.

Access to Electrical Power—a site within one thousand feet of a substation or an electrical transmission line receives the highest rating. A site within one thousand feet of a three phase power supply rates second highest. Beyond those rating elements, distance becomes a primary rating factor. The farther the distance, the lower the rating. Common, single phase power is not considered an asset, although a site with single phase power rates higher than a site with now available power.

Access to Natural Gas—Entirely dependent upon the size and capacity of the gas line. The larger the gas line, the higher the rating. The greater the distance from the gas line the lower the rating with no available service scoring the lowest.

Site near an Existing Industrial Facility—Scored similarly to utilities, the nearer to an existing site the higher the score. Adjacent to an existing site scores the highest and a site near a residential development scores the lowest.

Existing Zoning—highest rating is if site is currently zoned industrial. Second highest rating is if site is commercial and third highest if agricultural. Lowest is if site is currently zoned residential.

Distance from Residential—Highest rating if site is at least one block from existing residential dwellings or even zoning. Anything less than that looses point value based on topography, existing site conditions, condition of dwellings, etc.

Access to Potable Water—a site which has access to a conventional municipal water supply scores the highest. Access to the Southwest Pipeline (SWPL) scores second highest. A good production well, with approved potable water would be rated third. No water would score low but the value depends on the distance to an approved potable supply and the associated costs.

Access to Fire Protection—Scored or rated similar to access to potable water.

Soil Conditions/Types—Sand or gravely soils score the highest, silt, loams are acceptable and anything with clay would score the lowest. The soils ability to absorb water becomes a factor if an on-site sanitary sewer disposal system is required as will the depth to ground water. Any areas on site which hold or retain water (wetland) would reduce the overall rating for site.

Topography—Flat with positive drainage, up to 2% gradient scores the highest. Anything greater than 10% gradient scores the lowest. Between 2 & 10% discretion can be used, depending on whether the entire site is steep or only portions are, or maybe a draw or creek or valley would restrict development thereby reducing the rating.

Land Costs—Entirely subjective. The higher the cost, generally the lower the rating but also depends on location, access to transportation, access to utilities etc.

Development Costs—Generally evaluated on a cost per acres basis. The least cost the higher the rating. Also development costs can be affected by other factors already discussed such as soil, topography, utilities etc.

Access to Sanitary Sewer—Ready access to sanitary sewer scores highest. Also, depending on soils and distance from nearest conventional type municipal system, an on-site system can be used. This also depends on the type and size of industry, overall size of site etc

Environmental Issues—Includes items such a ability to control surface runoff; distance from residential in terms of noise, dust, odors and overall site topography and conditions. Rating will be mostly subjective and vary greatly from site to site. Even issues such as the amount of environmental detriment that will be caused by developing the site, i.e. fuel consumption, noise, dust etc.

C. Conclusions and Recommendations—Due to current energy related activity and past lessons learned, after reviewing the matrix evaluation from SDC Committee members the general conclusion is that several sites should be designated as approved for development within the defined study area. The SDC Committee members concluded that designating approved areas across the primary study areas of Stark and southern Dunn Counties was the preferred concept based upon previous experiences. The committee felt that final site selection and physical development should be left to "the market". The committee further agreed that a primary consideration for areas to be developed into an industrial park must be that the areas must have access to city water and sanitary wastewater treatment and disposal. Paved, hard surfaced streets with concrete curb and gutter would not be an initial consideration as that work could be completed later, as the area, becomes occupied. Areas determined to be good for industrial development based upon the criteria identified above are defined as follows in no particular order of preference:

- Belfield Site—Area located east of the current Belfield City limits bounded on the north by I-94, on the south by old (county) Highway 10 and on the west by US Highway 85. The area currently supports several commercial and industrial businesses and has access to Southwest Water. Sanitary wastewater treatment and disposal as well as fire protection could be provided by the City of Belfield.
- North Dickinson Site—Area is located approximately 2 miles north of the Dickinson City limits, adjacent to ND Highway 22. The area adjoins several existing industrial zoned parcels and has access to Southwest Water but would require sanitary wastewater treatment and disposal. Fire protection and sanitary services could be provided by the City of Dickinson. Due to development already present in this area, utilities such as fire protection should be a high priority.

- South Dickinson Site—Area is located along West Broadway on Burlington Northern/Santa Fe Railroad property, has ready access to city water, wastewater and paved streets as well as the railroad.
- Dickinson Airport Site—Area is located on Dickinson/Theodore Roosevelt Airport Property adjacent to ND Highway 22 and with access to Southwest Water but would require sanitary wastewater treatment and disposal. Fire protection would have to be provided on site due to distance from City of Dickinson.
- East Dickinson Site—Area is located in southeast Dickinson within the currently industrial zoned Energy Center Subdivision, has access to city water, wastewater and paved streets and adjoins several existing industrial type businesses. Water and sanitary mains will have to be constructed.
- Richardton Site—Area is located adjacent to the Red Trail Ethanol Refinery on refinery property, has access to I-94 via ND Highway 8, the railroad and city water and wastewater as well as Southwest Water. Water and sanitary mains will have to be constructed.

Recommendations for the areas identified and selected as best for development of an industrial park include:

- Conducting public meetings/hearings in the communities/subdivisions nearest the proposed areas allowing the general public to have input early on.
- Change of zoning, if required.
- Notification and coordination with public utilities for required services.
- Updating of costs for development based upon most recent property layout.
- Begin planning for local funding and preparing applications for outside funding.
- Implementation of preliminary survey, plats, construction plans and contractor bidding for construction as funding becomes available.

VII. CONCEPTUAL DESIGN

A. The basic design concepts recommended herein were developed from standard planning and engineering standards and past practice for this region as well as from specific guidance from the Stark Development Corporation on preferred needs. These concepts began with basic needs such as site layout, utilities and transportation access while maintaining the flexibility to add or expand as additional and changing needs come forth.

For example, the general goal is to have dedicated land that is available for occupancy and properly zoned. Many of the specific needs such as; exact lot sizes, gas and electric service requirements, water supply needs etc. are impossible to predict. However, using techniques such as the following we can develop a concept which can be used for estimating necessary infrastructure and development costs:

- Developing a general layout with consideration to adjacent property, zoning and terrain.
- Developing road layouts for access and future flexibility during actual development.
- Laying out lots with appropriate access, and future flexibility (several lots can be combined to suite a particular industry, if required).

Preliminary utility sizing will be based upon assumed use or average historical population density. Generally, water and sanitary sewer mains will be estimated at a minimum of eight inch (8”) diameter, which meet current codes/standards such as those set forth by the American Water Works Association (AWWA) and allows for normal domestic, potable use as well as fire flow requirements. A minimum of one water and wastewater service per purposed block of six inch (6”) diameter water service lines should be considered to provide the necessary industrial fire flows required within structures requiring sprinkler systems. While many potential tenants may not require this large a service, the intent is to provide the necessary access to the property during the initial design to avoid having to excavate the surfaced streets at later dates. This process can also be used for cost estimating purposes for the necessary utilities to assure adequate cash flows.

Dedicated street right of way widths of sixty-six (66) feet are generally adequate in newly platted areas. Although in areas of potentially heavy truck traffic larger (up to 100 foot wide) right-of-way should be considered. For estimating purposes, an 80 foot right of way will be assumed. Proposed improved/hard surfaced street widths of a minimum of forty feet (40’) with minimum intersection radii of thirty feet (30’) are proposed. Typical street construction would consist of conventional excavation to the required grade, scarification of the upper eight inches (8”) of the earthen sub-grade, placement of a minimum of eight inches (8”) of quality gravel base and topped off with a minimum of five inches (5”) of asphalt or six inches (6”) of reinforced concrete.

For purposes of estimating costs on rural or remotely located sites or sites which may only be developed over a 10 year or longer period, rural type gravel surfaced streets with a minimum 28 foot roadway and 10 foot wide flat bottom ditches will be assumed. Drainage will be addressed with 12 inch to 24 inch diameter corrugated metal culverts at intersections, driveways and within drainage ways.

Site grading will consider all environmental issues such as accidental spill and storm water containment and treatment, as well as normal wind patterns to minimize noise, odor and air quality issues.

Site development will include incidental work such as erosion control and seeding.

VIII. COST ANALYSIS

A. Costs will be Determined Based on the Design Concepts Outlined Herein—All estimated costs are based on current engineering and construction scales and fees.

B. Site Development Costs—Site development costs include land costs as well as associated legal, appraisal and rezoning required to convert the land from its present use to industrial use. Land costs will vary between sites based upon access to roads, airports, rail as well as other required utilities such as fire protection and sanitary waste water collection and treatment.

C. Construction Costs—Construction costs include; earth moving to properly grade the site for suitable building/facility construction, access road(s)/street construction and surfacing to provide all weather ingress and egress, costs of installing all required underground utilities such as water, sewer, natural gas, electrical service, as well as environmental items such as surface runoff containment facilities, and seeding of all disturbed areas to reduce erosion.

D. Amortized/Annual Costs, including utilities and other related monthly services—After all the initial costs have been computed and totaled, annual costs will be determined for each site. The annual costs should provide a reasonable guide to potential buyers on what a particular site will cost. This calculated value can also be used by SDC to market the available properties. For annualized/ amortized costs, a repayment term of ten (10) years and an annual interest rate of six percent (6%) will be assumed.

E. Project Management & Maintenance Costs—Project management costs would normally be handled by a realtor or developer and would generally be negotiated based on a percentage of the total estimated project costs. A general range could be 3% - 6% depending on project complexity and scopes of services provided. Maintenance costs would be site specific and could be handled on an "as needed" basis under a "cost plus overhead" contract.

F. Payback Scenarios—Costs for developing a specific site can be recovered in a variety of ways. For example:

- Long-Term Lease – An agreement with a specified length of term and fixed annual cost prorated accordingly to recover all costs.
- Contract for Deed Purchase – Defined contract which recovers all costs over a specific period of time and grants the purchaser all rights and property when paid in full. An interim agreement to allow use of the property during the payment period can be a part of this contract.
- Lump Sum Purchase – Purchaser makes all financial arrangements and pays for all costs "up front" or before property is occupied.
- Rent or Lease Agreement – Established a contractual arrangement whereby the renter pays a monthly or annual fee while paying the owner a predetermined amount to recover all costs within a predetermined time or schedule.

G. Detailed Site Specific Construction Costs—(See proposed site layouts in Appendix H-M) Opinions on Detailed Costs are included on the following pages.

1. **Belfield Site**—located east of Belfield, bordered by I-94, US 85 & Old Highway 10.

   This site consists of primarily private property which should be platted, annexed by the City of Belfield and rezoned.

   Construction costs necessary to make the land conducive for development will involve earthwork, grading, drainage and seeding or other forms of erosion control. Utilities such as water and wastewater are estimated utilizing City of Belfield services. Concrete curb, gutter, pavement will not be included at this time due to the unknowns in terms of need, number of lots, added costs etc.

OPINION OF DETAILED COST

SDC FEASIBILITY STUDY
SITE DEVELOPMENT PROJECT
BELFIELD SITE

Item No.	Description	Quantity	Unit	Unit Cost	Total Sum
1	Contractor Mobilization	1	LS		$ 100,000.00
2	Contractor Bonding	1	LS		$ 28,500.00
	Water System				
3	8" PVC Watermain	4,800	LF	$ 35.00	$ 168,000.00
4	6" PVC Watermain	6,900	LF	$ 30.00	$ 207,000.00
5	8" Gate Valve & Box	4	EA	$ 1,500.00	$ 6,000.00
6	6" Gate Valve & Box	4	EA	$ 1,200.00	$ 4,800.00
7	Service Mains & Control Valves	20	EA	$ 2,000.00	$ 40,000.00
8	Fire Hydrants w/lead & valve	9	EA	$ 4,500.00	$ 40,500.00
9	Pipe Fittings	2,000	LBS	$ 5.00	$ 10,000.00
10	Highway Boring	150	LF	$ 120.00	$ 18,000.00
11	200,000 Gallon Elevated Reservoir	1	LS	$ 650,000.00	$ 650,000.00
12	System Connections	2	EA	$ 1,000.00	$ 2,000.00
	Sanitary Sewer System				
13	8" PVC Sewer Main	11,100	LF	$ 35.00	$ 388,500.00
14	Standard Manholes	30	EA	$ 3,500.00	$ 105,000.00
15	Service Lines	20	EA	$ 2,500.00	$ 50,000.00
16	Highway Boring	150	LF	$ 120.00	$ 18,000.00
	Site Work				
17	Striping and stockpiling of topsoil				$ 25,000.00
18	Common Excavation				$ 50,000.00
19	Water for Compaction				$ 2,000.00
20	Roadway Gravel				$ 88,000.00
21	Roadway Culverts				$ 30,800.00
22	Respreading of Topsoil & Erosion Control				$ 20,000.00
23	Storm Water Runoff Containment				$ 30,000.00
24	Seeding				$ 5,000.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$2,001,300.00**

Other Costs

*Land, rezoning, legal, survey & platting (Approximately 164 Acres)	$335,000.00
Engineering, administration & contingency @ 25% of Construction	$ 500,700.00

***Land costs estimated at $1,500/acre**

Total Other Costs	**$ 835,700.00**
Total Estimated Project Cost	**$2,837,000.00**

Annual costs of developing this entire 164 acre site are estimated at $385,500.

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2. **South Dickinson Site**—located within Dickinson City Limits along Broadway Street West.

This site is already zoned, has access to utilities including rail and will require minimal site preparation work. The site is on Burlington Northern Santa Fe Railroad Property and is being leased by the City of Dickinson. The work involved will depend largely upon the type of industry and the specific needs for the industry which cannot be determined at this time.

OPINION OF DETAILED COST

SDC FEASIBILITY STUDY
SITE DEVELOPMENT PROJECT
SOUTH DICKINSON SITE

Item No.	Description	Quantity	Unit	Unit Cost	Total Sum
	Site Development				
1	Connection to City Water				$ 18,300.00
2	Connection to City Sewer				$ 19,500.00
3	Street Access Approaches				$ 15,000.00
4	Temporary Gravel Surfacing				$ 5,400.00
5	Storm Water Runoff Containment				$ 25,000.00
6	Seeding & Erosion Control				$ 5,000.00
7	Contractor Mobilization				$ 25,000.00
8	Contractor Bonding				$ 2,000.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$ 115,200.00**

Other Costs
Land is owned by BNSF Railroad and will require a lease agreement
Engineering, administration & contingency @ 30% of Construction $ 34,800.00

Total Other Costs	**$ 34,800.00**
Total Estimated Project Cost	**$ 150,000.00**

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Annual costs of developing this approximate 30 acre site are estimated at $20,400, but does not include BNSF fees which will have to be negotiated.

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3. **North Dickinson Site**—approximately two miles North of Dickinson City limits (in and around currently zoned and developed industrial property).

Construction costs necessary to make the land conducive for development will involve earthwork, grading, drainage and seeding or other forms of erosion control. Underground utilities such as water and wastewater are estimated as extending from Dickinson to the site but were not extended onto the property due to large acreage involved. Those costs could be developed and added to the as soon as a defined lot layout plan is developed. Concrete curb, gutter and pavement are also not included at this time due to the many unknowns in terms of need, exact number of lots etc.

OPINION OF DETAILED COST

SDC FEASIBILITY STUDY
SITE DEVELOPMENT PROJECT
NORTH DICKINSON SITE

Item No.	Description	Quantity	Unit	Unit Cost	Total Sum
1	Contractor Mobilization	1	LS		$ 250,000.00
2	Contractor Bonding	1	LS		$ 112,000.00
	Water System				
3	14" PVC Watermain	14,600	LF	$ 42.00	$ 613,200.00
4	12" PVC Watermain	13,800	LF	$ 40.00	$ 552,000.00
5	10" PVC Watermain	13,200	LF	$ 38.00	$ 501,600.00
6	8" PVC Watermain	1,400	LF	$ 35.00	$ 49,000.00
7	14" BF Valve & Box	6	EA	$ 5,500.00	$ 33,000.00
8	12" Gate Valve & Box	14	EA	$ 3,000.00	$ 42,000.00
9	10" Gate Valve & Box	15	LF	$ 2,000.00	$ 30,000.00
10	8" Gate Valve & Box	3	LF	$ 1,500.00	$ 4,500.00
11	Service Mains & Control Valves	120	EA	$ 2,000.00	$ 240,000.00
12	Fire Hydrants w/ lead & valve	70	EA	$ 4,500.00	$ 315,000.00
13	Pipe Fittings	15,000	LBS	$ 5.00	$ 75,000.00
14	500,000 Gallon Ground Level Storage Reservoir	1	LS	$ 1,200,000.00	$ 1,200,000.00
	Sanitary Sewer System				
15	12" PVC Sewer Main	7,400	LF	$ 45.00	$ 333,000.00
16	10" PVC Sewer Main	5,400	LF	$ 42.00	$ 226,800.00
17	8" PVC Sewer Main	22,000	LF	$ 40.00	$ 880,000.00
18	Standard Manholes	90	EA	$ 3,500.00	$ 315,000.00
19	Service Lines	120	EA	$ 2,500.00	$ 300,000.00
20	6" PVC Force Main	13,200	LF	$ 28.00	$ 369,600.00
21	Duplex Lift Station w/controls	3	LS	$ 350,000.00	$ 1,050,000.00
	Site Work				
22	Striping and Stockpiling of Topsoil				$ 54,000.00
23	Common Excavation				$ 115,000.00
24	Water for Compaction				$ 5,000.00
25	Roadway Gravel				$ 160,000.00
26	Roadway Culverts				$ 45,000.00
27	Respreading of Topsoil & Erosion Control				$ 27,000.00
28	Storm Water Runoff Containment				$ 100,000.00
29	Seeding				$ 15,000.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$ 7,825,700.00**

Other Costs

*Land, rezoning, legal, survey & platting	$ 440,000.00
Engineering, administration & contingency @ 25% of Construction	$ 1,956,300.00

***Land Costs estimated at $1,200/acre**

Total Other Costs	**$ 2,396,300.00**
Total Estimated Project Cost	**$ 10,222,000.00**

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Annual costs of developing this site (includes providing utilities to the existing 160 acre tract plus the adjoining proposed industrial parcels estimated at 270 acres) are estimated at $1,388,900

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4. **Dickinson Airport Site**—by/on Dickinson/Theodore Roosevelt Airport Property.

Construction costs necessary to prepare the land for development will involve formal rezoning and federal aviation approval as well as connecting to southwest water and construction of on-site sanitary sewer treatment and disposal as well as minor earthwork and erosion control.

OPINION OF DETAILED COST

SDC FEASIBILITY STUDY
SITE DEVELOPMENT PROJECT
DICKINSON AIRPORT SITE

Item No.	Description	Quantity	Unit	Unit Cost	Total Sum
	Site Development				
1	Stripping and Stockpiling of topsoil				$ 3,000.00
2	Common Excavation & Embankment				$ 5,500.00
3	Southwest water connection & services				$ 99,100.00
4	Sanitary Sewer Sevice (septic tanks & drain fields)				$ 52,500.00
5	Roadway Gravel				$ 5,000.00
6	Culverts for approaches				$ 2,500.00
7	Respreading of Topsoil and Erosion Control				$ 2,000.00
8	Storm Water Runoff Containment				$ 30,000.00
9	Seeding				$ 1,000.00
10	Contractor Mobilization				$ 25,000.00
11	Contractor Bonding				$ 5,000.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$ 230,600.00**

Land is owned by Dickinson Airport and will require a lease agreement with Airport Authority and FAA
Engineering, administration & contingency @ 35% of Construction due to FAA required approvals $ 80,400.00

Total Other Costs	**$ 80,400.00**
Total Estimated Project Cost	**$ 311,000.00**

Annual costs of developing this approximate 30 acre site are estimated at $42,300, plus lease

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5. **East Dickinson Site**—located in Southeast Dickinson within City Limits.

Estimated costs to develop this approximately 80+ acre site will involve considerable earthwork, grading, drainage and seeding or other forms of erosion control. Underground utilities such as water and wastewater service are included based upon the preliminary layout concept developed herein from the existing nearby city of Dickinson System and will open adjoining areas to service. Concrete curb, gutter and pavement are not included at this time due to the unknowns in terms of need, actual route etc.

OPINION OF DETAILED COST

SDC FEASIBILITY STUDY
SITE DEVELOPMENT PROJECT
DICKINSON - EAST SITE

Item No.	Description	Quantity	Unit	Unit Cost	Total Sum
1	Contractor Mobilization	1	LS		$ 90,000.00
2	Contractor Bonding	1	LS		$ 18,000.00
	Water System				
3	12" PVC Watermain	3,400	LF	$ 40.00	$ 136,000.00
4	8" PVC Watermain	4,400	LF	$ 35.00	$ 154,000.00
5	12" Gate Valve & Box	4	EA	$ 3,000.00	$ 12,000.00
6	8" Gate Valve & Box	3	EA	$ 1,500.00	$ 4,500.00
7	Service Mains & Control Valves	7	EA	$ 2,000.00	$ 14,000.00
8	Fire Hydrants w/lead & valve	9	EA	$ 4,500.00	$ 40,500.00
9	Pipe Fittings	3,000	LBS	$ 5.00	$ 15,000.00
10	System Connections	2	EA	$ 1,000.00	$ 2,000.00
	Sanitary Sewer System				
11	8" PVC Sewer Main	5,200	LF	$ 40.00	$ 208,000.00
12	Standard Manholes	14	EA	$ 3,500.00	$ 49,000.00
13	Service Lines	7	EA	$ 2,500.00	$ 17,500.00
14	System Connections	1	EA	$ 1,000.00	$ 1,000.00
	Site Work				
15	Striping and stockpiling of topsoil				$ 145,000.00
16	Common Excavation				$ 300,000.00
17	Water for Compaction				$ 12,000.00
18	Roadway Gravel				$ 22,000.00
19	Roadway Culverts				$ 13,000.00
20	Respreading of Topsoil & Erosion Control				$ 60,000.00
21	Storm Water Runoff Containment				$ 50,000.00
22	Seeding				$ 15,000.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$1,240,500.00**

Other Costs

*Land, rezoning, legal, survey & platting	$215,000.00
Engineering, administration & contingency @ 25% of Construction	$ 310,500.00

*** Land costs estimated at $3,500/acre**

Total Other Costs	**$ 525,500.00**
Total Estimated Project Cost	**$1,766,000.00**

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Annual costs of developing this approximate 45 acre site are estimated at $240,000.

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6. **Richardton Site**—located immediately southeast of the city of Richardton near and adjacent to the current ethanol refinery.

Estimated construction costs required to prepare this 91 acre site, which has rail access, for development involve minor earthwork, access road grading, drainage and seeding and other forms of erosion control as well as underground utilities such as water and wastewater. Water and sanitary sewer service will be extended from the City of Richardton. The access road will be a rural section similar to the existing road to the refinery. Concrete curb, gutter and pavement are not included at this time due to the unknowns in terms of need, actual route, etc.

OPINION OF DETAILED COST

SDC FEASIBILITY STUDY
SITE DEVELOPMENT PROJECT
RICHARDTON SITE

Item No.	Description	Quantity	Unit	Unit Cost	Total Sum
1	Contractor Mobilization	1	LS		$ 100,000.00
2	Contractor Bonding	1	LS		$ 17,500.00
	Water System				
3	8" PVC Watermain	6,800	LF	$ 35.00	$ 238,000.00
4	6" PVC Watermain	1,500	LF	$ 30.00	$ 45,000.00
5	8" Gate Valve & Box	8	EA	$ 1,500.00	$ 12,000.00
6	6" Gate Valve & Box	3	EA	$ 900.00	$ 2,700.00
7	Service Mains & Control Valves	5	EA	$ 2,000.00	$ 10,000.00
8	Fire Hydrants w/leads	10	EA	$ 4,500.00	$ 45,000.00
9	Pipe Fittings	2,000	LBS	$ 5.00	$ 10,000.00
10	Highway/Railroad Boring	400	LF	$ 120.00	$ 48,000.00
11	System Connections	2	EA	$ 1,000.00	$ 2,000.00
	Sanitary Sewer System				
12	8" PVC Sewer Main	5,200	LF	$ 40.00	$ 208,000.00
13	Standard Manholes	14	EA	$ 3,500.00	$ 49,000.00
14	Service Lines	5	EA	$ 2,500.00	$ 12,500.00
15	Duplex Lift Station w/controls	1	LS		$ 250,000.00
	Site Work				
16	Striping and stockpiling of topsoil				$ 20,400.00
17	Common Excavation				$ 28,800.00
18	Water for Compaction				$ 2,000.00
19	Roadway Gravel				$ 48,000.00
20	Roadway Culverts				$ 8,000.00
21	Respreading of Topsoil & Erosion Control				$ 15,000.00
22	Storm Water Runoff Containment				$ 30,000.00
23	Seeding				$ 3,000.00
	TOTAL ESTIMATED CONSTRUCTION COST				**$1,204,900.00**

Other Costs

*Land, rezoning, legal, survey & platting	$ 165,000.00
Engineering, administration & contingency @ 25% of Construction	$ 301,100.00

*** Land costs estimated at $1,500/acre**

Total Other Costs	**$ 466,100.00**
Total Estimated Project Cost	**$1,671,000.00**

Annual costs of developing this approximate 80 acre site are estimated at $227,100.

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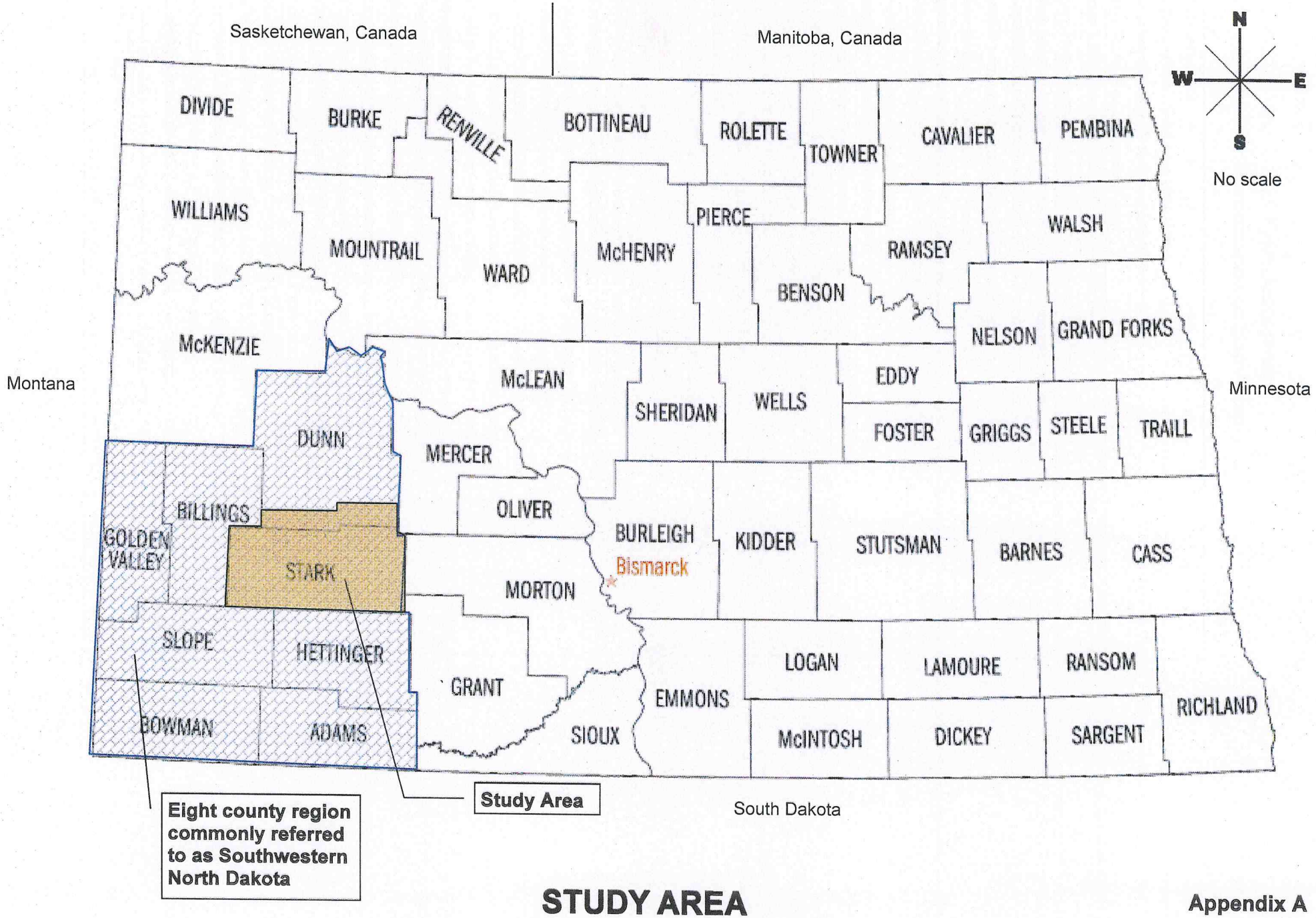
PROJECT NO. 3609127

APPENDIX A



STUDY AREA

Appendix A

APPENDIX B

KLJ Industrial Park Research

Index for NAICS Codes

NAICS Codes

The North American Industry Classification System (NAICS) was used as the basis to select data. The NAICS is what the U.S. Government uses for their classifications, and using these codes allowed the Strom Center direct comparisons between NAICS-based data and U.S. Census and other U.S. agency data.

NAICS codes may be up to six digits. A minimum of two digits are required to perform data retrieval. The Strom Center used codes of three digits or more to retrieve data for these reports.

Listed below are the high-level NAICS sectors: Total or partial sectors used for this survey are bolded. Note that multiple federal agencies assign NAICS codes, and there is no central oversight of the assignments.

- **11 Agriculture, Forestry, Fishing, and Hunting 21 Mining**
- **22 Utilities**
- 23 Construction
- **31-33 Manufacturing**
- **42 Wholesale Trade**
- 44-45 Retail Trade
- **48-49 Transportation and Warehousing**
- 51 Information
- 52 Finance and Insurance
- 53 Real Estate and Rental and Leasing
- 54 Professional, Scientific, and Technical Services
- 55 Management of Companies and Enterprises
- 56 Administrative and Support and Waste Management and Remediation Services
- 61 Educational Services
- 62 Health Care and Social Assistance
- **71 Arts, Entertainment, and Recreation**
- **72 Accommodation and Food Services**
- 81 Other Services (except Public Administration)
- 92 Public Administration

Source: US Census Bureau
More information can be found on the NAICS website: http://www.census.gov/eos/www/naics/.

APPENDIX C

KLJ Industrial Park Research

Reference Index for Hoover's Data Selection

The following NAICS codes were used to select businesses in the seven zip codes from Hoover's.

Industry Name	NAICS Code	Comments
Agriculture		
Crop Production	111	
Animal Production	112	
Support Activities for Agriculture - Crop	1151	
Support Activities for Agriculture - Animal	1152	
Energy		
Oil and Gas Wells	213111	
Oil and Gas Well Services	213112	
Coal Mining	213113	No entries
Power Generation	22111	No entries
Electrical	22112	
Natural Gas	22121	
Pipeline Transportation	486	
Manufacturing		
Food Manufacturing	311	
Beverage and Tobacco Product Manufacturing	312	No entries
Textile Mills	313	
Textile Product Mills	314	
Apparel Manufacturing	315	No entries
Leather and Allied Product Manufacturing	316	No entries
Wood Product Manufacturing	321	
Paper Manufacturing	322	No entries
Petroleum and Coal Products Manufacturing	324	
Chemical Manufacturing	325	
Plastics and Rubber Products Manufacturing	326	
Nonmetallic Mineral Product Manufacturing	327	
Primary Metal Manufacturing	331	No entries
Fabricated Metal Product Manufacturing	332	
Machinery Manufacturing	333	
Computer and Electronic Product Manufacturing	334	
Electrical Equipment, Appliance, and Component Manufacturing	335	
Transportation Equipment Manufacturing	336	
Furniture and Related Product Manufacturing	337	
Miscellaneous Manufacturing	339	
Farm and Garden Machinery and Equipment Merchant Wholesalers	423820	
Tourism		
Performing Arts, Spectator Sports, and Related Industries	711	
Museums, Historical Sites, and Similar Institutions	712	
Amusement, Gambling, and Recreation Industries	713	
Accommodation	721	
Food Services and Drinking Places	722	
Scenic and Sightseeing Transportation	487	No entries

Appendix C

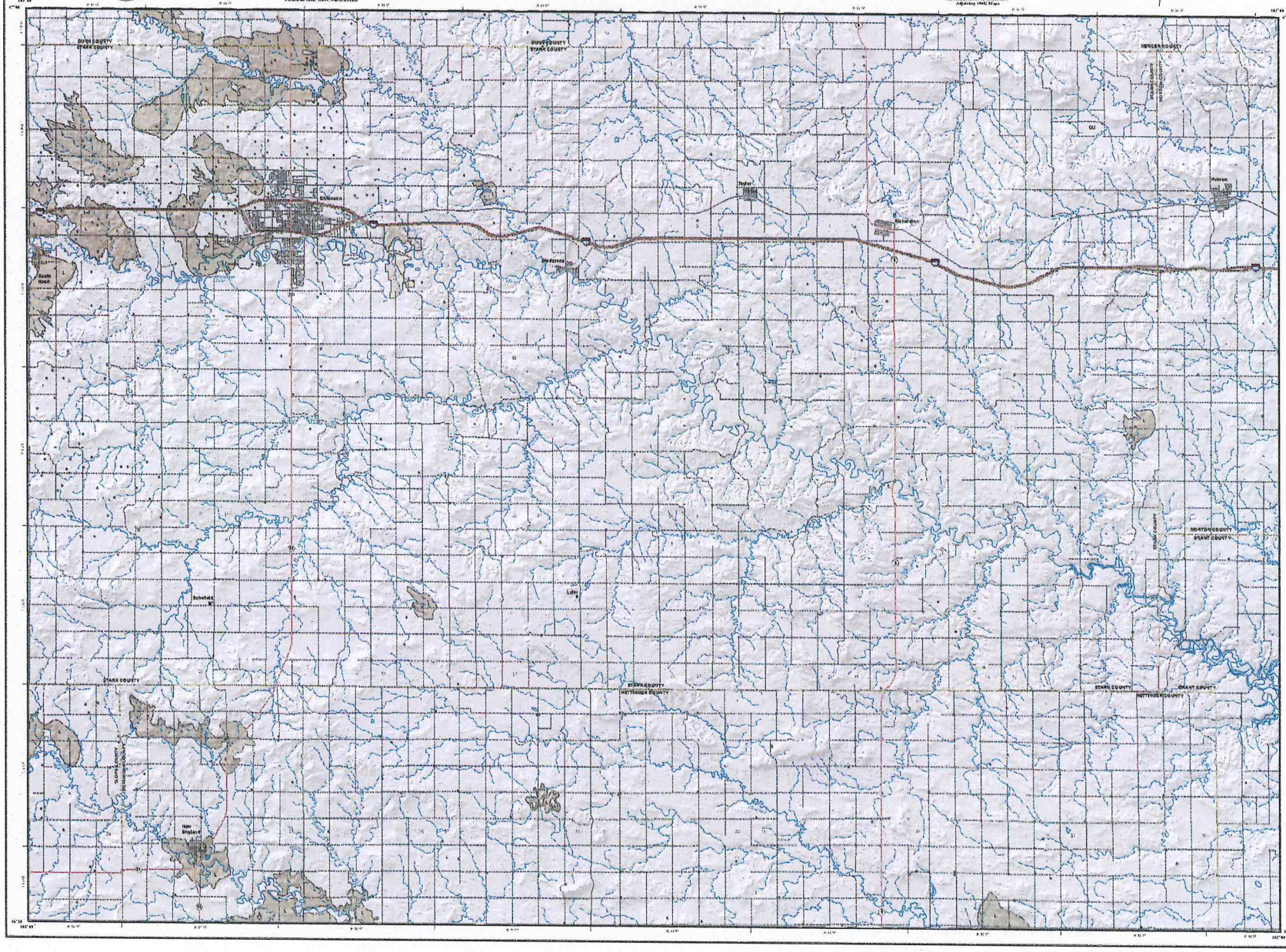
APPENDIX D

North Dakota Geological Survey
100K Series Dkin - e

Lignite Reserves

Dickinson 100K Sheet, North Dakota

Edward C. Murphy, State Geologist
Lynn D. Helms, Director Dept of Mineral Resources



Edward C. Murphy

2005

There are just over one billion tons of economically mineable lignite within the Dickinson 100k Sheet (Murphy et al., in press). As much as 800 million tons of this reserve may be attributable to the Lehigh bed which extends throughout the northwestern corner of this map sheet. The Lehigh coal is more than 25 feet thick north of Dickinson (JK Ranch Deposit) and is 15 to 17 feet thick in the South Heart area (Murphy et al., 2000). JK Ranch (356 million tons), Belfield (201 million tons), West Dickinson (158 million tons), and Duck Creek (92 million tons) are the largest deposits in this map sheet (Murphy et al., in press).

The Lehigh bed is overlain by the Dickinson bed, both seams were mined in the Dickinson area. Underground mining began in the Lehigh area in the 1880s and switched to surface mining in the 1940s. The last coal mine to operate in Stark County was the JK Ranch mine which ceased operation in 1990. Great Northern Properties is currently studying the feasibility of establishing a coal mine and constructing a power plant south of the town of South Heart.

References

Murphy, E.C., Kranzler, N.W., and Groven, D.E., 2000, The major coals in Billings, Golden Valley, and Stark counties, North Dakota: North Dakota Geological Survey Open-File Report 00-1, 42 p.

Murphy, E.C., 2006, in prep., The Lignite Reserves of North Dakota, North Dakota Geological Survey Report of Investigation No. 101.

UNIT DESCRIPTIONS

Geology Undifferentiated

Area of Mined Lignite

L — Economic Coal Deposits

Economic coal deposits are those that meet the minimum criteria established by coal companies operating surface mines in North Dakota. These economic criteria include a minimum cumulative coal thickness of ten feet-bpicallyoccurring in less than two beds, a minimum individual bed thickness of at least 2.5 feet, a ratio of overburden to coalthickness of not more than 10 1, a minimum of 25 feet of overburden, and a maximum depth to coal of approximately 150 feet.

Geologic Symbols

Extent of Local Lignite Reserves

Data Points

Includes coal exploration NDGS/USGS drill holes, sub-surface mineral drill holes, oil & gas wells, and NDSWC drill holes.

Other Features

- Water
- Water - Intermittent
- Water - Inundated
- River/Stream - Perennial
- River/Stream - Intermittent
- Section Corners
- County Boundary
- Interstate Highway
- State Highway
- Paved Road
- Unpaved Road

NOTE: MAP NOT TO SCALE

Scale 1:100,000

0 1 2 3 4

Miles

Projection: Lambert Conformal Conic — Datum: North American Datum 1927
Standard parallel: 46°30' — Central meridian: 102°30'
USGS NED Shaded Relief - Vertical Exaggeration 9x

The North Dakota Geological Survey can publish on demand 1:24,000 scale quadrangle maps (2 ft. - 2 series) of the mineable coal deposits in the Dickinson 100K sheet. These maps would include information on mineable coal thicknesses.

This project was supported, in part, by the U.S. Geological Survey, Department of Interior, under assistance award # 02ERAG0046 and 05ERAG0043.

Cartographic Compilation: Floyd L. Gutsche

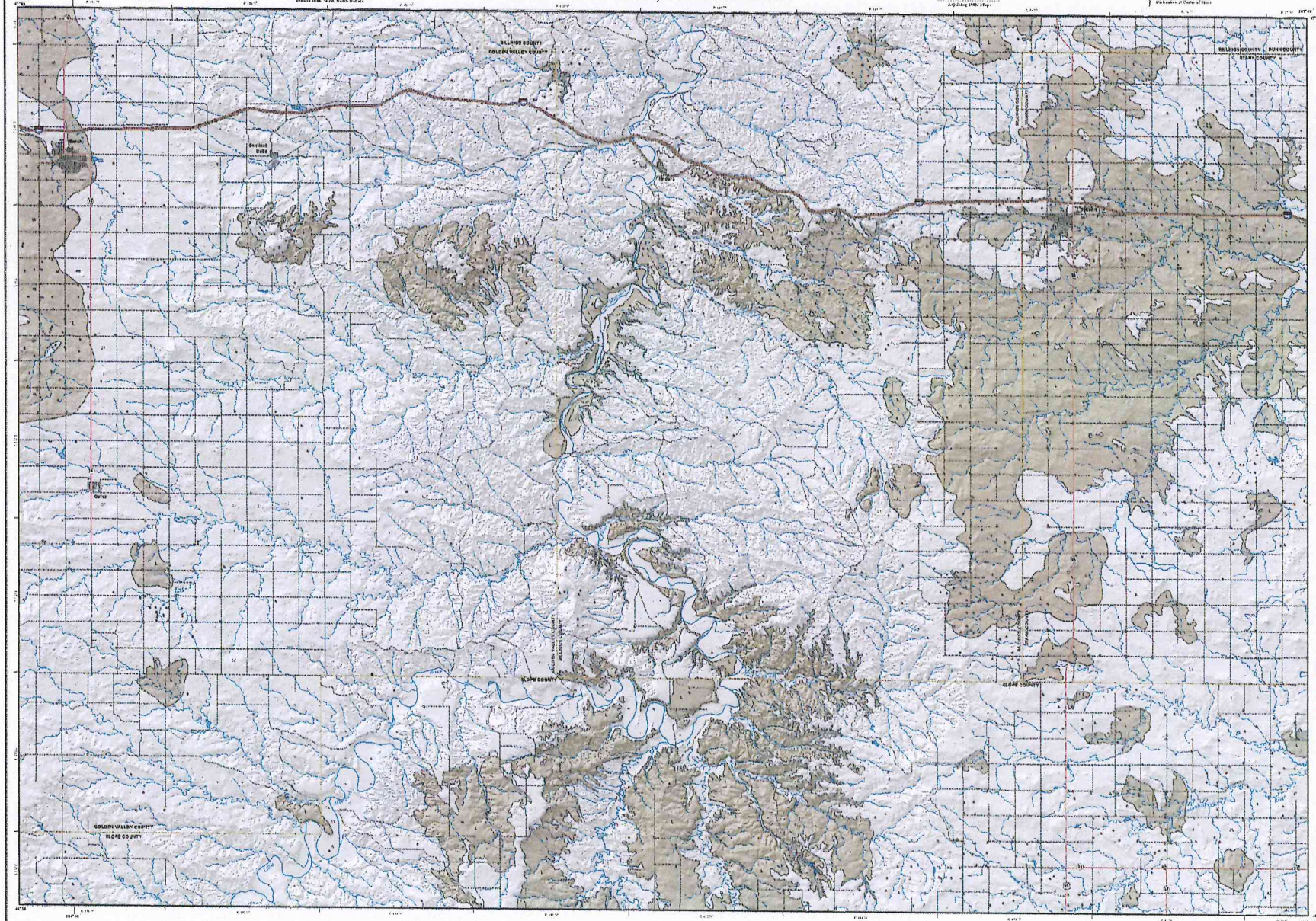
Appendix D

North Dakota Geological Survey
100K Series: BHQ - e

Lignite Reserves

Belfield 100K Sheet, North Dakota

Edward C. Murphy, State Geologist
Lynn D. Helms, Director Dept. of Mineral Resources



Edward C. Murphy

2005

There are more than 6.6 billion tons of economically mineable lignite within the Belfield 100K Sheet (Murphy et al., in press). The Belfield deposit (Ts.137-140N., Rs.98-100W.) contains about 2.9 billion tons of coal and the Beach deposit (Ts.138-141N., R.106W.) contains almost 900 million tons (Murphy et al., in press). These are the two most likely candidates for mining, within this map sheet, because most other deposits fall within the rough topography of the Little Missouri River Badlands. The Belfield deposit consists of one or two beds (the Lehigh and another coal) with cumulative thicknesses of 13 to 19 feet. The Beach deposit consists primarily of the Harmon bed which is 31 feet thick in the vicinity of the town of Beach (Murphy et al., 2000).

In the 1970s and early 1980s, the Tenneco Coal Company investigated the feasibility of establishing a coal gasification plant at Beach. The company abandoned plans when gas prices did not rise to the levels that had been projected in the early 1970s and because of concerns for an adequate source of cooling water. Great Northern Properties is currently investigating the feasibility of establishing a mine and 500 megawatt power plant within the Belfield deposit. The mine and plant would be located southwest of the town of South Heart, along the eastern edge of this map sheet.

References
Murphy, E.C., Kruger, B.W., and Groves, D.E., 2000, The major coals in Billings, Golden Valley, and Slope counties, North Dakota: North Dak. ers Geological Survey Open-File Report 00-1, 42 p.
Murphy, E.C., 2006, in press, The Lignite Reserves of North Dakota: North Dakota Geological Survey Report of Investigation No. 101

UNIT DESCRIPTIONS

Geology Undifferentiated

Economic Coal Deposits

Economic coal deposits are those that meet the minimum criteria established by coal companies operating surface mines in North Dakota. These economic criteria include a minimum cumulative coal thickness of ten feet-typically occuring in less than two beds, a minimum individual bed thickness of at least 2.5 feet, a ratio of over-burden to coal thickness of not more than 10:1, a minimum of 25 feet of overburden, and a maximum depth to coal of approximately 150 feet.

Geologic Symbols

Extent of Coal Lignite Reserves

Data Points
Includes coal exploration NDGS/USGS drill holes, sub-surface mineral drill holes, oil & gas wells, and NDSWC drill holes.

Other Features

Water
Water - Intermittent
River/Stream - Perennial
River/Stream - Intermittent
Section Corners
County Boundary
Interstate Highway
US Highway
State Highway
Paved Road
Unpaved Road

NOTE: MAP NOT TO SCALE

Scale 1:100,000

0 1 2 3 4
Miles

Mercator Projection
Standard parallel 46°30'
1927 North American Datum
Central meridian 103°30'
USGS NED Shaded Relief - Vertical Exaggeration 3x

The North Dakota Geological Survey can publish on demand 1:24,000 scale quadrangle maps (2.5' x 3.5' units) of the mineable coal deposits in the Belfield 100K sheet. These maps would include information on mineable coal thicknesses.

Note: The map was expanded beyond the normal Belfield 100K Sheet to include an additional width of two miles to the Montana border.

This project was supported, in part, by the U.S. Geological Survey, Department of Interior, under assistance awards 98ERAG1016 and 05ERAG0053.

Appendix D

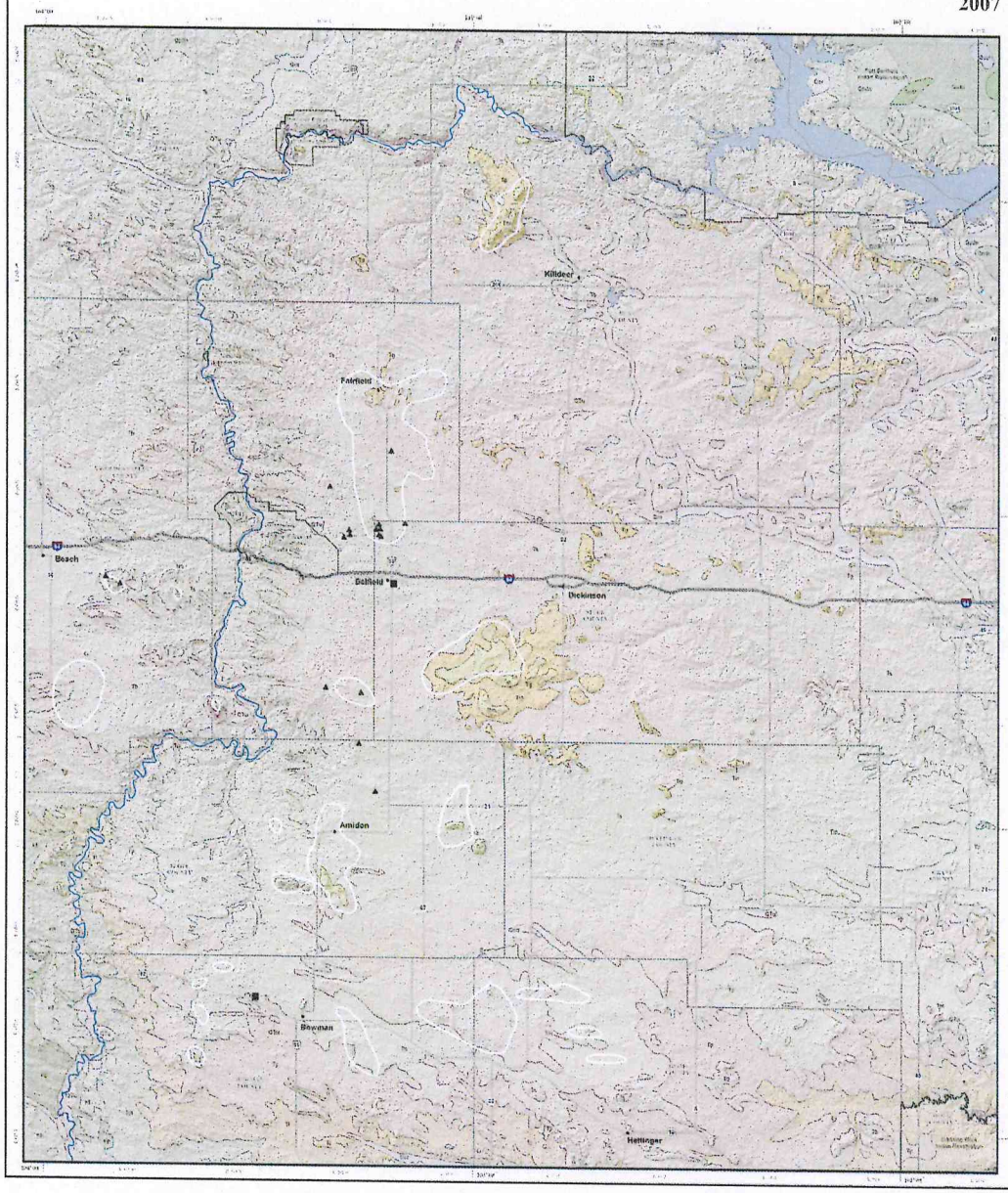
APPENDIX E

North Dakota Geological Survey
Geologic Investigations No. 40

Uranium Deposits in Southwestern North Dakota

Edward C. Murphy
2007

Edward C. Murphy, State Geologist
Lynn D. Helms, Director Dept. of Natural Resources



Introduction

There are at least 21 areas in western North Dakota that contain uranium, primarily within lignites, sandstones, or carbonaceous mudstones. These deposits encompass an area of approximately 250,000 acres. Seven of these deposits cover more than 10,000 acres and each of these, a deposit north of Belfield, extends over an area of more than 83,000 acres. These deposits have been delineated primarily by plotting the locations of gamma logs that contain spikes (high gamma counts). The majority of these gamma logs come from exploratory drill holes generated by mineral companies exploring for uranium in the 1970s. Gamma logs from mineral companies exploring for coal in western North Dakota have also been useful in defining the extent of these deposits. Additional information was also obtained from uranium analyses published in US Geological Survey reports from the 1950s and 1960s.

Exploration and Mining in the 1950s and 1960s

The scientists exploring for uranium in southwestern North Dakota in the 1950s and 1960s came to several important conclusions early in their studies. In the mid-1950s, the volcanic-rich White River and Arikaree strata were identified as likely source rocks for the uranium found in carbonaceous rocks and sandstones in Hell Creek to Golden Valley strata (Late Cretaceous to Eocene) in southwestern North Dakota and northwestern South Dakota (fig. 1) (Hager, 1954; Denson et al., 1959; Denson and Gill, 1965).

The White River and Arikaree rocks sit unconformably on progressively older rocks from north to south (Killdeer Mountains to Medicine Pole Hills) (fig. 2) across western North Dakota. The lack of concentration of uranium within one stratigraphic unit, along with the apparent fact that uranium was restricted to rocks that occurred within 200 feet of the White River unconformity, led scientists to conclude that White River and Arikaree strata were the source rocks (Denson et al., 1959; Moore et al., 1959). Although extensive drilling by mineral companies in the 1970s generated gamma logs that indicate zones of uranium are present more than 800 feet below the probable position of the White River unconformity, the White River and Arikaree source rock theory is still valid (Murphy, 2005, 2006b-e, 2007). The general appearance of White River and Arikaree strata (light colors, lack of organics, lack of ash, etc.) suggests these rocks have been heavily oxidized and leached, further validating this theory (Murphy et al., 1993). Denson and others (1959) noted, by way of a written communication with Wayne Daniels, that the uranium content was relatively uniform throughout White River and Arikaree strata. Daniels' study area was not identified, but it may have been Nebraska or another state where there are extensive deposits of these rocks. In western North Dakota, the remnants of White River and Arikaree strata are, for the most part, only preserved on major buttes that are typically scattered 20 to 30 miles apart. It would be difficult to say anything meaningful about the homogeneity or heterogeneity of these rocks in relation to uranium given the lack of outcrop control. Although most of the uranium deposits depicted on this map are either beneath or immediately adjacent to White River strata, others, such as the deposits southeast of Gascoyne and north of Belfield, are not. These latter deposits may be the result of increased uranium concentrations in White River strata long since leached and eroded, a reflection of the topography on the White River unconformity (i.e., topographic lows), areas where uranium-bearing sediments derived from the erosion of White River strata were concentrated and later leached into the underlying rocks, or a combination of these three factors.

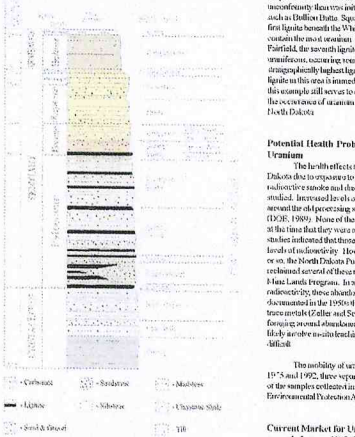


Figure 1. Generalized stratigraphic column for western North Dakota. This column is color coordinated with the map and figure 2.

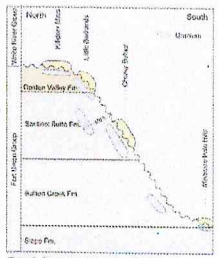


Figure 2. The stratigraphic position of the White River unconformity and uranium deposits in western North Dakota. Modified from Murphy et al., 1993.

Discovery of uranium-rich lignite deposits in western North Dakota by federal scientists led several energy companies to explore for uranium in western North Dakota during the 1950s. In addition, some limited mining also took place during this decade. The mined ore was sent to processing centers where they were attempting to derive an economical method of removing the uranium from the coal. Mining on a larger scale occurred between 1962 and 1988 when somewhere between 9 and 15 mines in western North Dakota produced 85,138 tons of ore which yielded 392,286 pounds of U_3O_8 "yellow cake" (Kosanovich, 1990). Unfortunately, the mining records are very incomplete. Many of the mines formed the uranium-rich lignite in place, a process that reportedly took 30 to 60 days to complete. After 1961, uranium-rich lignite could also be shipped to either Belfield or Griffin for processing. Once the uranium-rich lignite had been reduced to ash, either at the mine site or at the Belfield or Griffin sites, it was shipped to South Dakota, Colorado, or Utah for further processing.

Exploration in the 1970s

In 1976, mineral companies renewed uranium exploration activities in western North Dakota when uranium prices reached $40 per pound. More than 1,900 exploration holes were drilled between 1976 and 1978. Most of these holes were drilled in Slope, Bowman, Adams, Billings, and Stark counties. An accident at the Three Mile Island nuclear power plant in Pennsylvania in March of 1979, coinciding with the release of the movie China Syndrome (a movie critical of nuclear power plant safety) turned many people in this country against nuclear power. As a result, orders for new power plants ceased and most uranium exploration in the region came to a halt as many energy companies disbanded their mineral divisions.

In the 1950s and 60s, scientists suggested several depositional models for predicting the occurrence of uranium in western North Dakota. Amongst these suggested was that uranium is always found within 200 feet of the White River unconformity, that the first lignite beneath the White River unconformity contains the most uranium, that uranium content within uraniferous lignites decreases from top to bottom within the bed, and uranium is generally found concentrated in lignites that are overlain by sandstone (Denson et al., 1959; Moore et al., 1959). As previously noted, we now know zones of uranium are present much deeper below the estimated position of the White River unconformity than was initially reported (fig. 3). In areas such as Bullion Butte, Square Butte, and Sentinel Butte, the first lignite beneath the White River unconformity does contain the most uranium. In other areas, such as near Fairfield, the seventh lignite from the surface is the most uraniferous, occurring some 200 feet beneath the drainage's highest lignite. Although the uraniferous lignite in this area is immediately overlain by a sandstone, this example still serves to demonstrate how unpredictable the occurrence of uranium can be in some areas of western North Dakota.

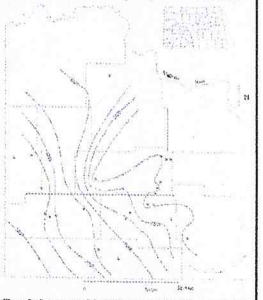


Figure 3. Contour map of the White River unconformity in western North Dakota. Modified from Murphy et al., 1993.

Potential Health Problems Associated with Uranium

The health effects to miners in western North Dakota due to exposure to increased levels of radiation, radioactive smoke and dust, and radon have not been studied. Increased levels of radioactivity are present around the oil processing sites at Griffin and Belfield (DOE, 1989). None of the uranium mines were reclaimed at the time but they were abandoned in the 1960's and later studies indicated that three sites also contained increased levels of radioactivity. However, over the last twenty years or so, the North Dakota Public Service Commission has reclaimed several of the mine sites under their Abandoned Mine Lands Program. In addition to increased radioactivity, these abandoned mines may also pose a threat to livestock due to molybdenosis (molybdenum poisoning). It was documented in the 1950s that increased concentrations of uranium were generally accompanied by increases in molybdenum and other trace metals (Zeller and Schopf, 1959). There have been at least three documented cases of molybdenosis in livestock that had been foraging around abandoned uranium mines or processing sites in the 1960s and 1970s. Any future uranium mining in North Dakota would likely involve in-situ leaching of sandstone. Mining and processing of uraniferous lignites in an environmentally sound manner would prove difficult.

The mobility of uranium and associated trace metals in groundwater within these settings is another area for concern. Between 1978 and 1992, three separate studies analyzed almost 3,600 water samples from southwestern North Dakota for uranium. Three to 4% of the samples collected in these studies exceeded uranium concentrations of 16 micrograms per liter (Roberts, 1992). The U.S. Environmental Protection Agency's maximum contaminant level for uranium is 30.

Current Market for Uranium

In January, 2007, the spot market price for U_3O_8 was $72 per pound as compared to $21 in January of 2005 and $9.60 in January, 2002. This dramatic price increase is a result of the shortfall of uranium between what the 435 nuclear reactors operating in the world need and what is currently being produced. The shortfall, which operates to 70 million pounds of uranium per year, has been made up by depleting stockpiles that were built up during the last boom cycle and by conversion of nuclear weapons, both of which are diminishing (Matthews, 2006). From the previous decade, Colorado Geological Survey Rockbalk, v. 6, n. 2, p. 2.

References

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Murphy, E.C., 2006a, The uranium resources of the Belfield 100K sheet: North Dakota Geological Survey 100K Belfield – n. 1:100,000 scale.

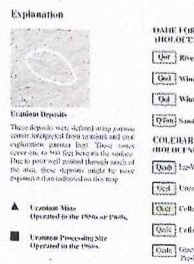
Murphy, E.C., 2006b, The uranium resources of the Hett 100K sheet: North Dakota Geological Survey 100K Hett – n. 1:100,000 scale.

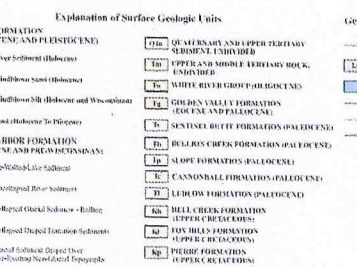
Murphy, E.C., 2006c, The uranium resources of the Dickinson 100K sheet: North Dakota Geological Survey 100K Dickinson 100K scale.

Murphy, E.C., 2007, The uranium resources of the Grassy Butte 100K sheet: North Dakota Geological Survey 100K Grassy Butte – n. 1:100,000 scale.

Roberts, K.D., 1992, A survey of naturally occurring uranium in groundwater in southwestern North Dakota: North Dakota State Department of Health, Division of Water Quality Report, 12 p.

Zeller, H.D. and Schopf, J.M., 1959, Core drilling for uranium-bearing lignite in Harding and Perkins counties, South Dakota, and Bowman County, North Dakota: in Uranium in coal in the western United States, U.S. Geological Survey Bulletin 1055, pp. 69-146





NOTE: MAP NOT TO SCALE

Scale 1:360,000

0 3 6 9 12

Miles

Universal Transverse Mercator
1927 North American Datum
USGS SRTM Shaded Relief + Natural Enhancement

The geologic map that was used as the base for the map was modified from Clayton, Lee, Moran, S.R., Bluemle, J.P., and Carlson, C.G., 1980, Geologic Map of North Dakota: U.S. Geological Survey, 1 sheet, 1:500,000 scale.

Uranium Deposits in Southwestern North Dakota (Western Stark County)

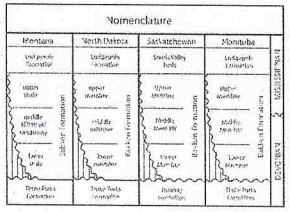
Appendix E

APPENDIX F

Williston Basin Correlation Cross-Section - Bakken Formation

Julie A. LeFever
North Dakota Geological Survey

Geologic Investigations No. 14
Edward C. Murphy, Acting State Geologist
2005



APPENDIX G

CONFIDENTIAL
General Information Survey
Requested by Stark Development Corporation (SDC)
Dickinson, ND

Please note the information requested is for the purpose of helping SDC evaluate the existing conditions and plan and prepare for the future. All information gathered herein will be kept confidential and will not be released to other groups, organizations, government entities or the general public. The information will be presented in a SDC report as tabulated data.

Company Name _____

Address _____

City, State Zip _____

Telephone _____

E-mail _____

Type of Business _____

Years in Service _____ Number of Employees _____

Growth potential in five years, number of Employees added _____

Growth potential in ten years, number of Employees added _____

We have building expansion plans within the next (three) (five) (ten) years or (no expansion plan).

Rate the following on importance to your business operations and indicate if you have the service or utility.

	Critical	Important	Use if Available	Need if Expanding	Not Needed	Currently Have
Rail Service						
Air Service						
Access to I-94						
Access to HWY 22						
Access to HWY 85						
City Sewer						
City Water						
Southwest Water						
Natural Gas						
Electrical						

Summation Table of Public Comments and Priorities

Respondents were asked to rate the following needs according to how important each need is to their business.

	Importance					
Defined Need	Critical	Important	Would Use if Available	Not Needed	Do Not Have But Need	No Response
Rail Service	1	4	2	10	1	6
Air Service	6	5	3	5	NR	4
Access to I-94	6	8	2	2	NR	5
Access to ND 22	3	10	3	1	NR	6
Access to US 85	3	6	4	2	NR	8
City Sewer	7	5	1	4	1	6
Potable Water	10	7	NR	2	NR	4
Natural Gas	9	7	NR	1	NR	6
Electrical Power	12	7	NR	NR	NR	4

NR = No Response

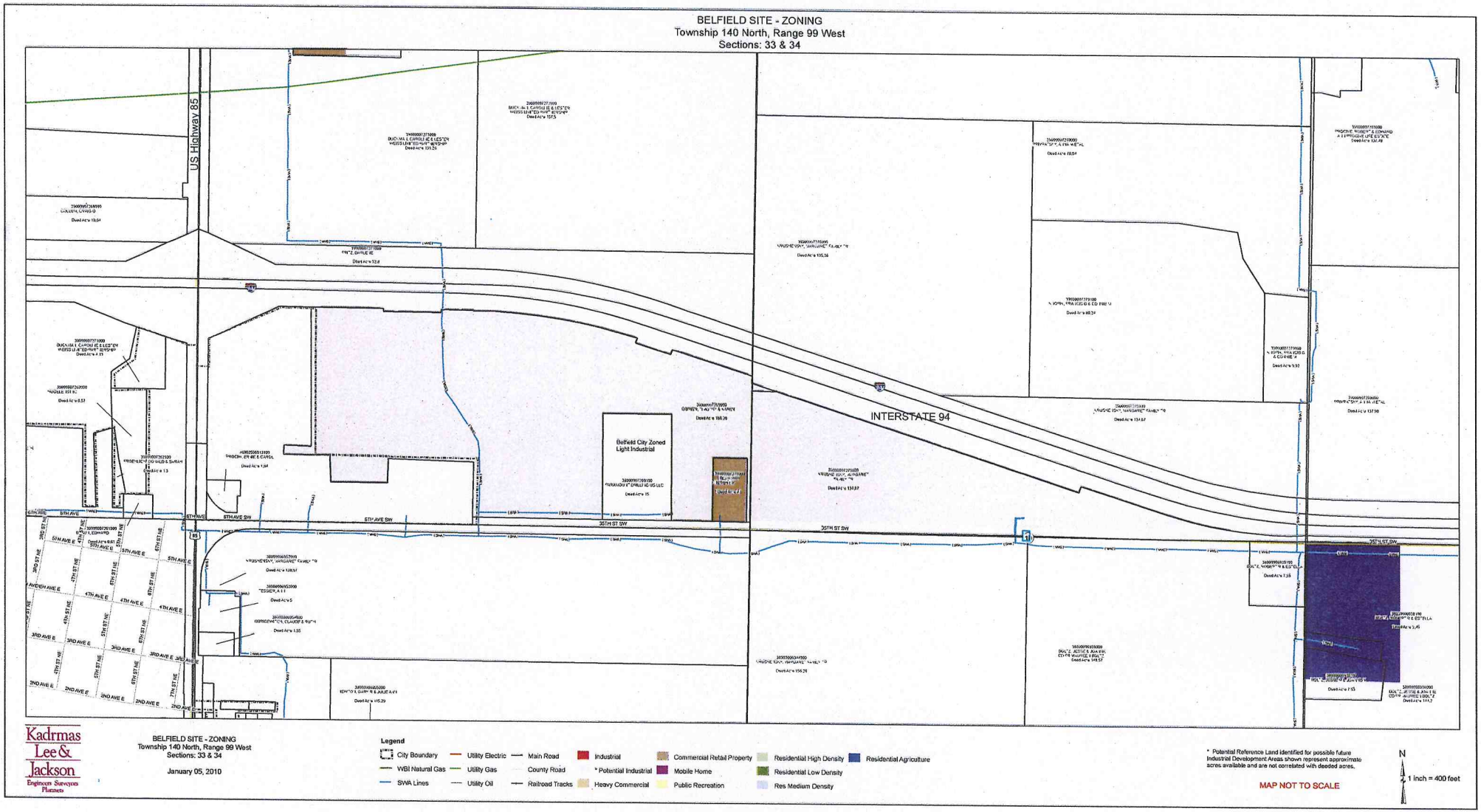
Growth potential in five (5) years (number of employees to be added): 271

Growth potential in ten (10) years (number of employees to be added): 513

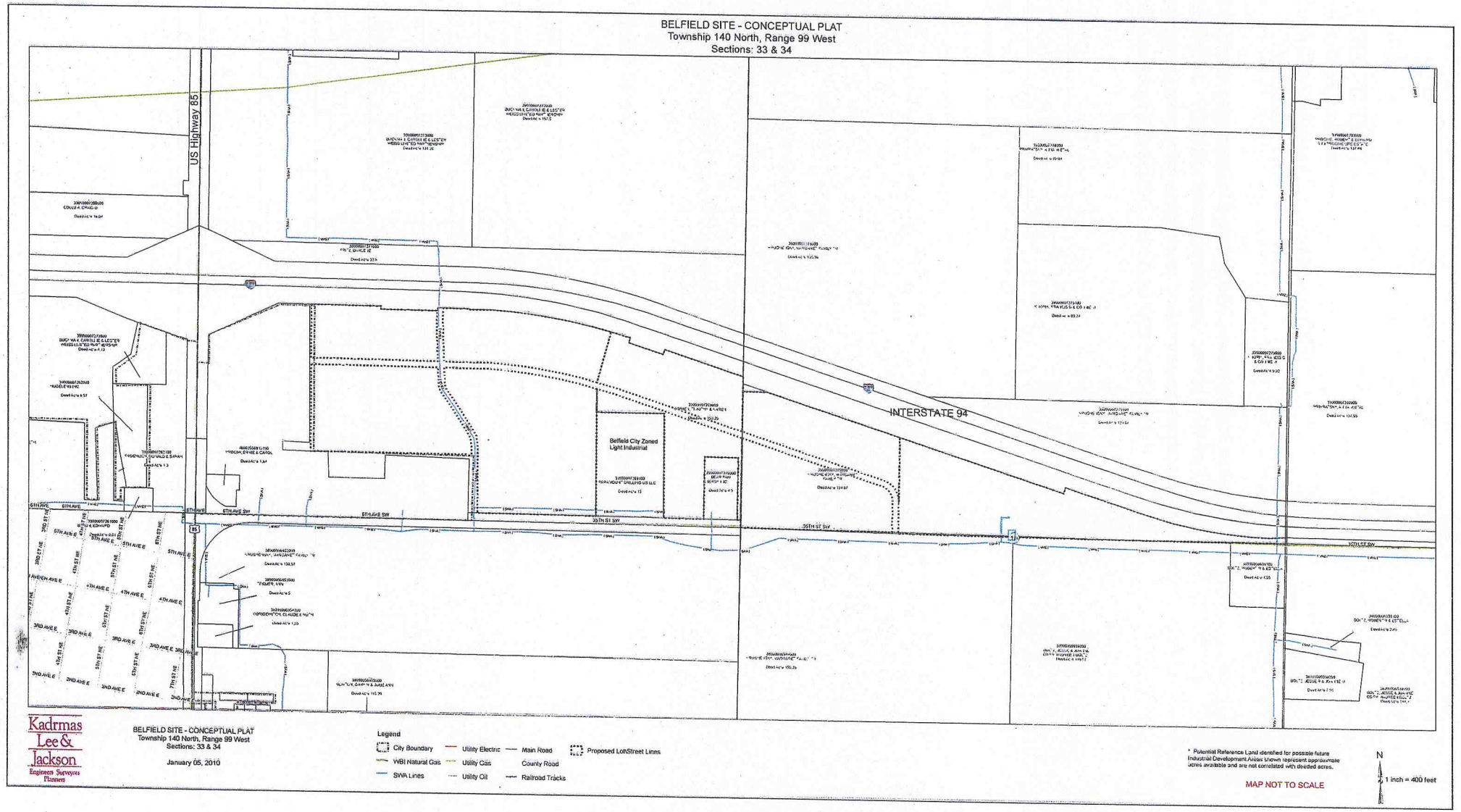
Building plans within: 3 years = 4 5 years = 3 10 years = 2 No Expansion Plans = 9

Room to expand at current location: Yes 19 No 4

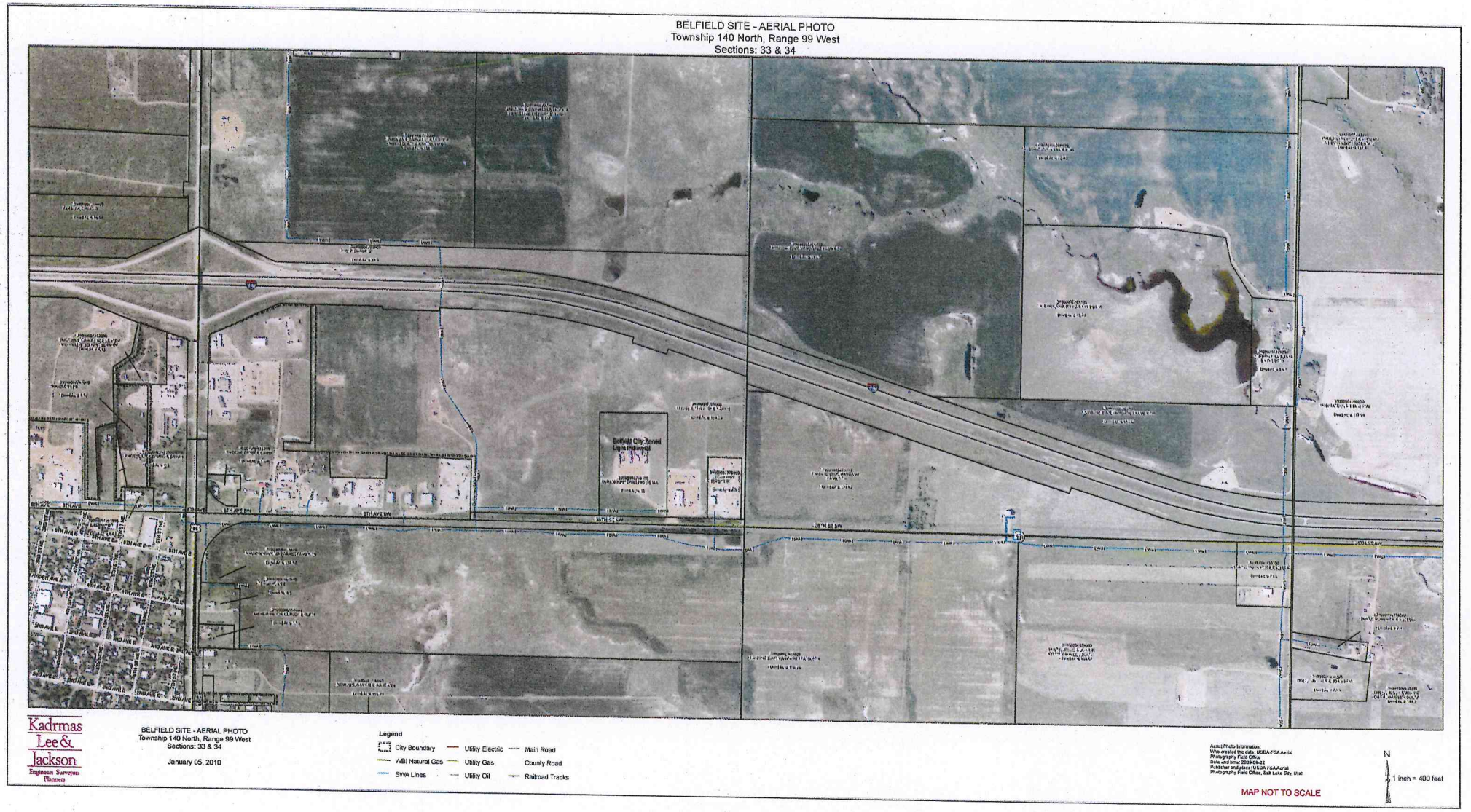
APPENDIX H



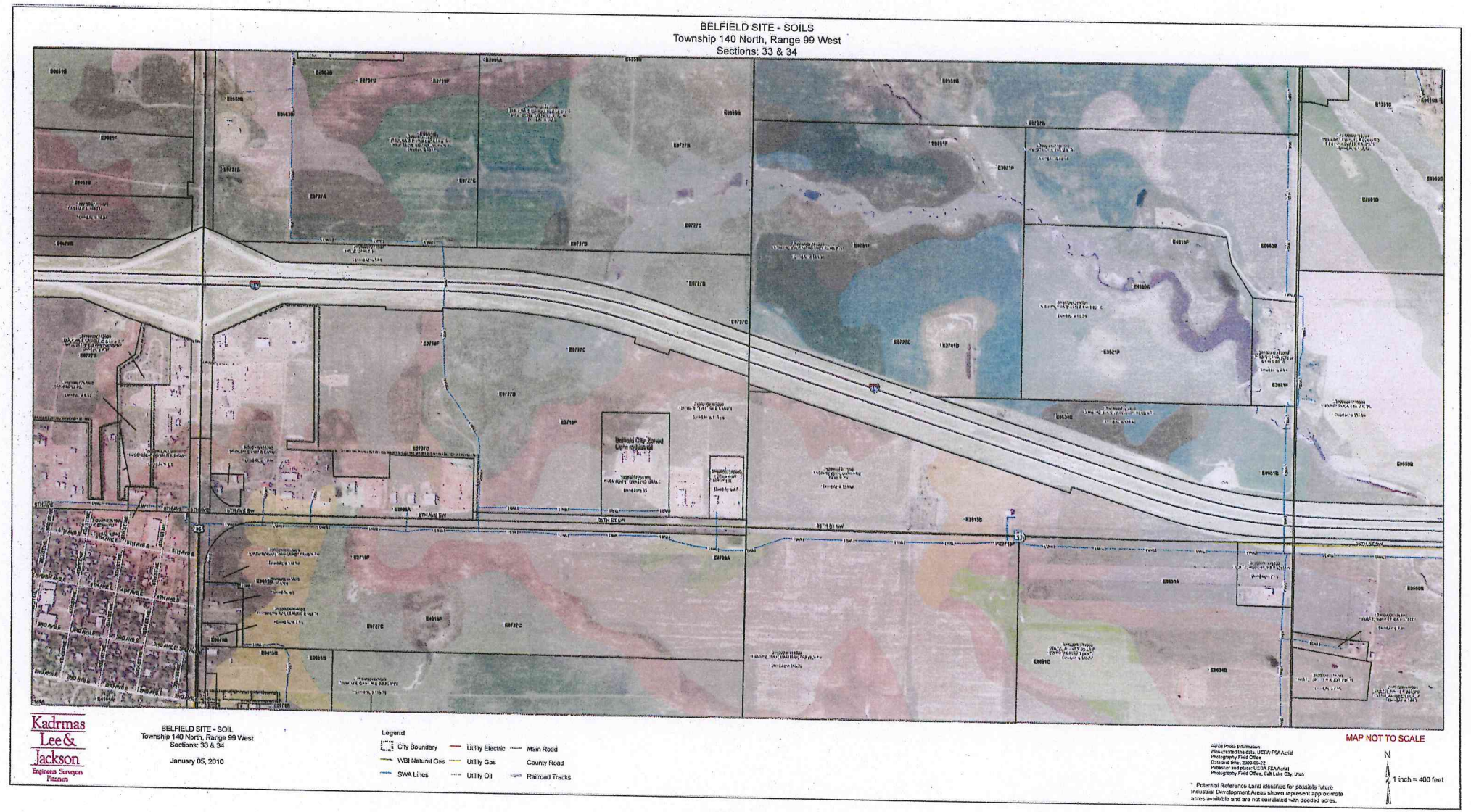
BELFIELD SITE – ZONING
Township 140 North, Range 99 West
Section: 33 & 34



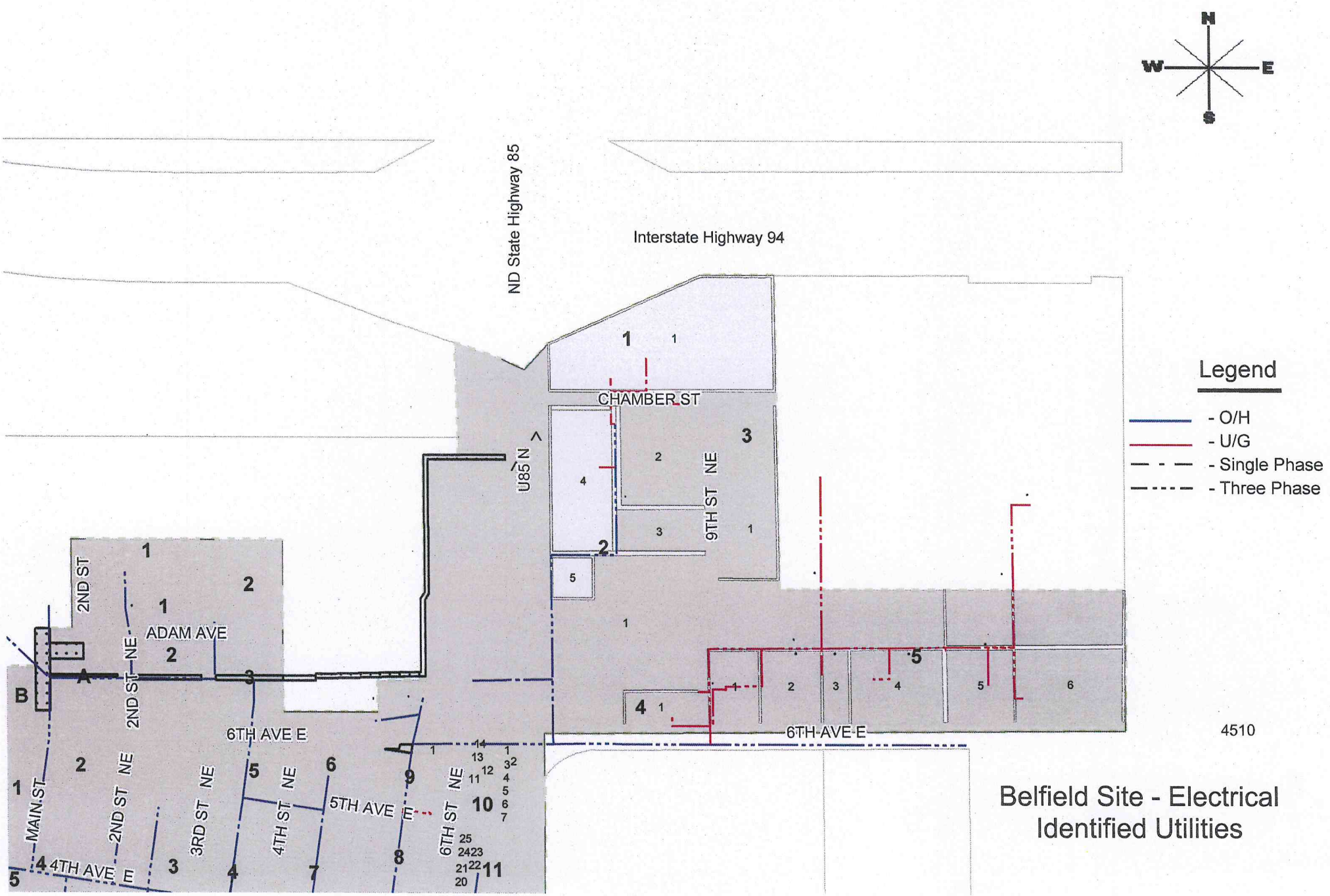
BELFIELD SITE – CONCEPTUAL PLAT
Township 140 North, Range 99 West
Section: 33 & 34

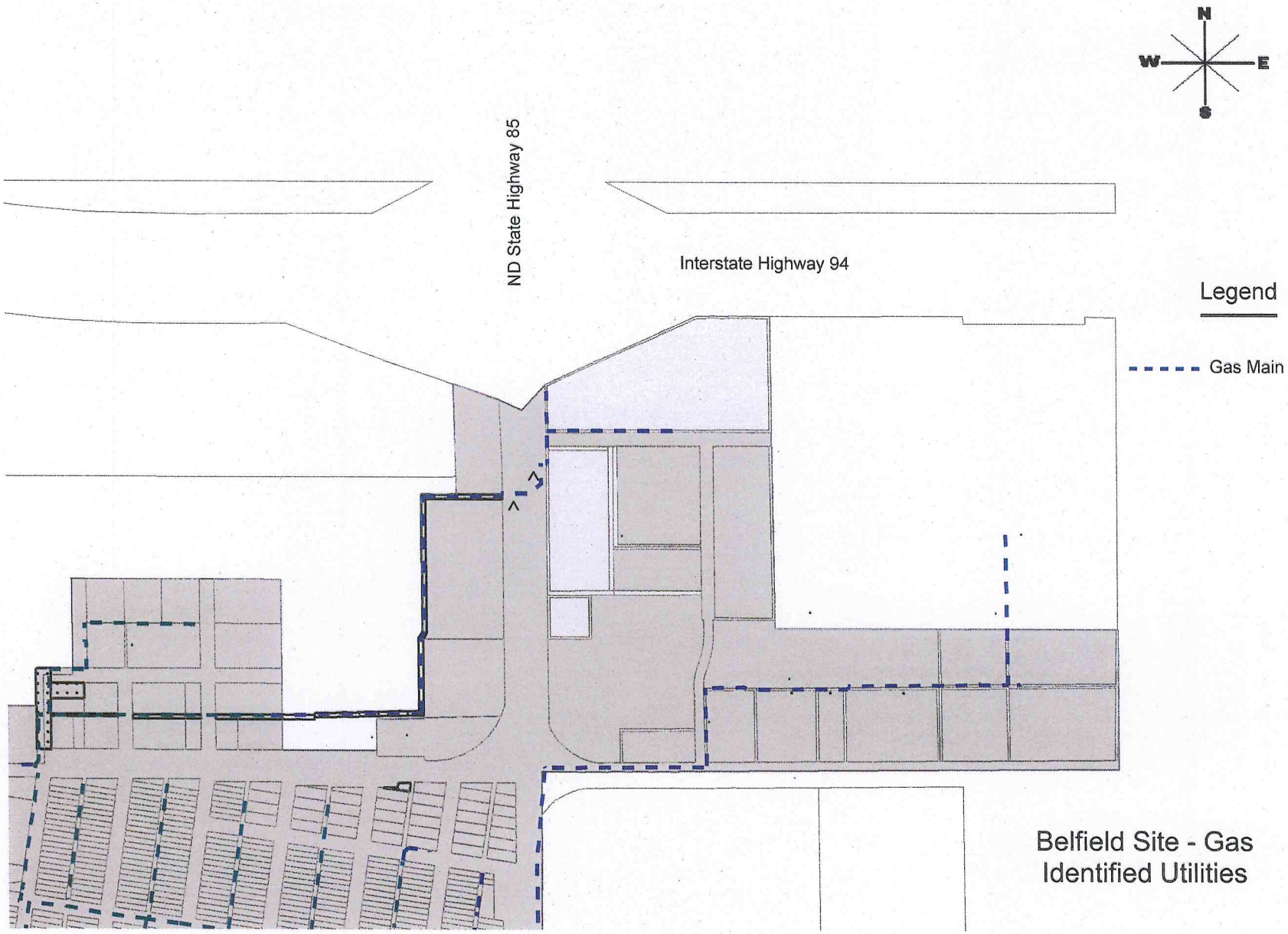


BELFIELD SITE – AERIAL PHOTO
Township 140 North, Range 99 West
Section: 33 & 34

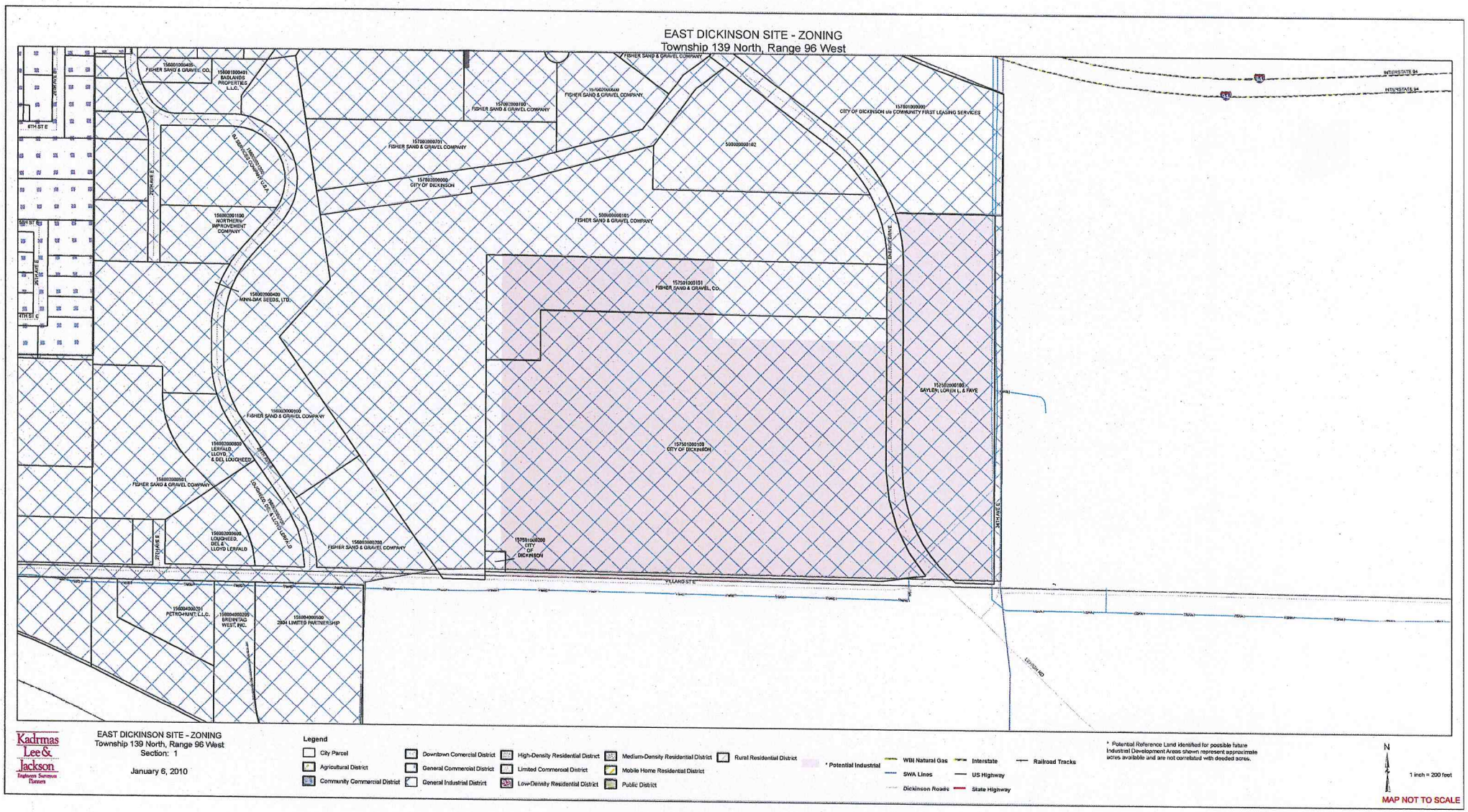


BELFIELD SITE – SOILS
Township 140 North, Range 99 West
Section: 33 & 34

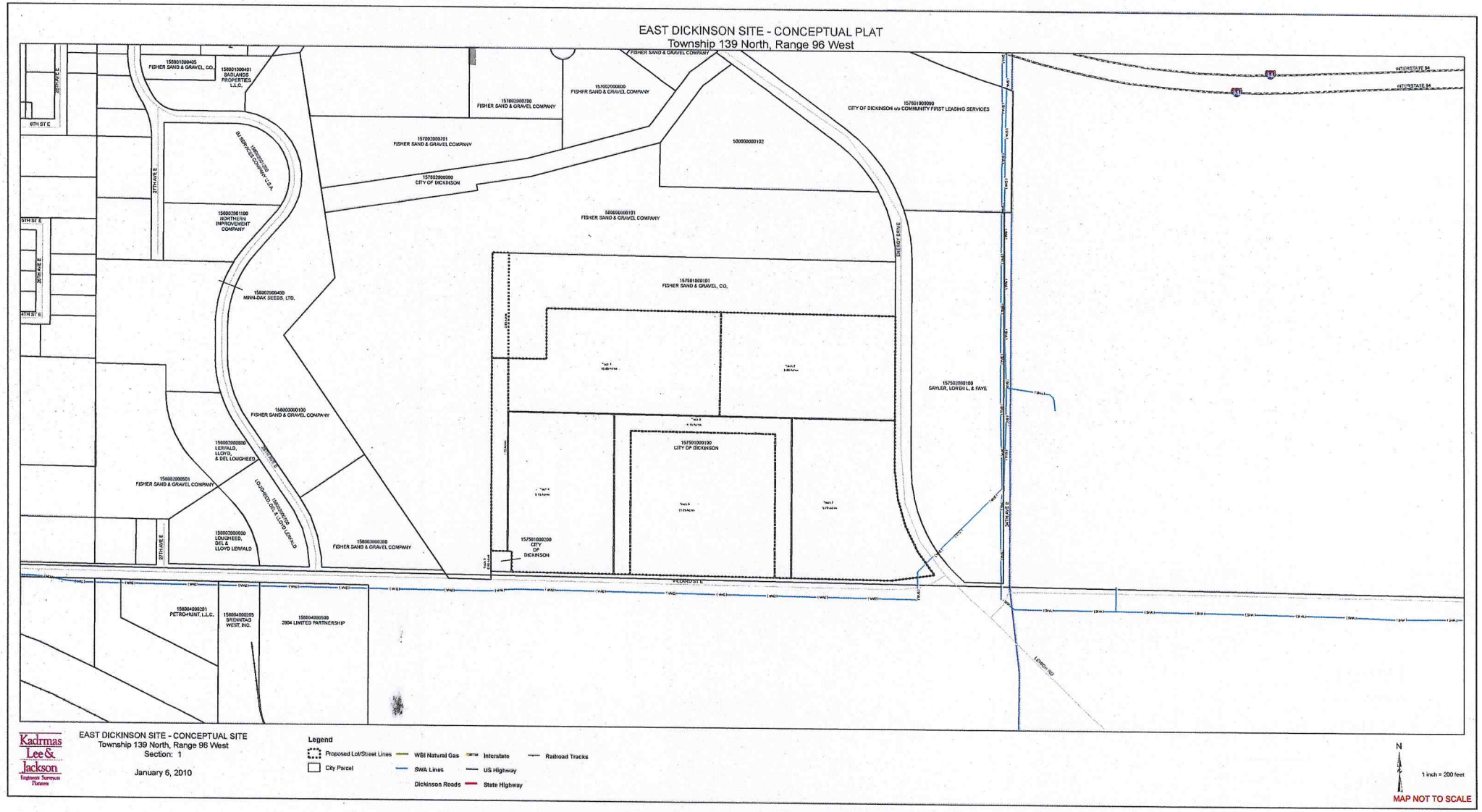

N
W
E
S
ND State Highway 85
Interstate Highway 94
CHAMBER ST
U85 N
9TH ST NE
2ND ST
ADAM AVE
2ND ST NE
6TH AVE E
MAIN ST
2ND ST NE
3RD ST NE
4TH ST NE
5TH AVE E
6TH ST NE
4TH AVE E
6TH AVE E
Legend
- O/H
- U/G
- Single Phase
- Three Phase
4510
Belfield Site - Electrical
Identified Utilities


N
W
E
S
ND State Highway 85
Interstate Highway 94
Legend
Gas Main
Belfield Site - Gas
Identified Utilities

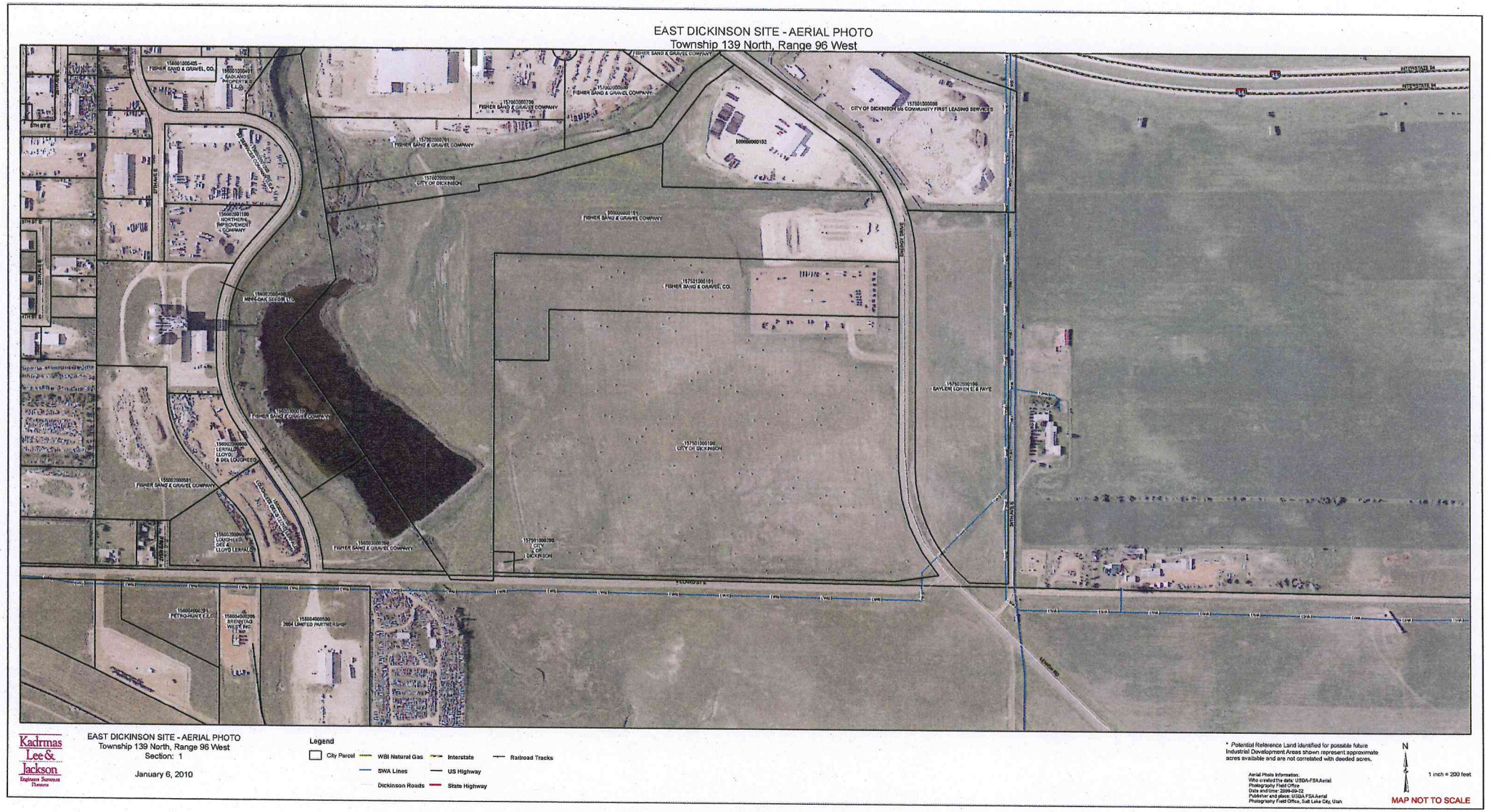
APPENDIX I



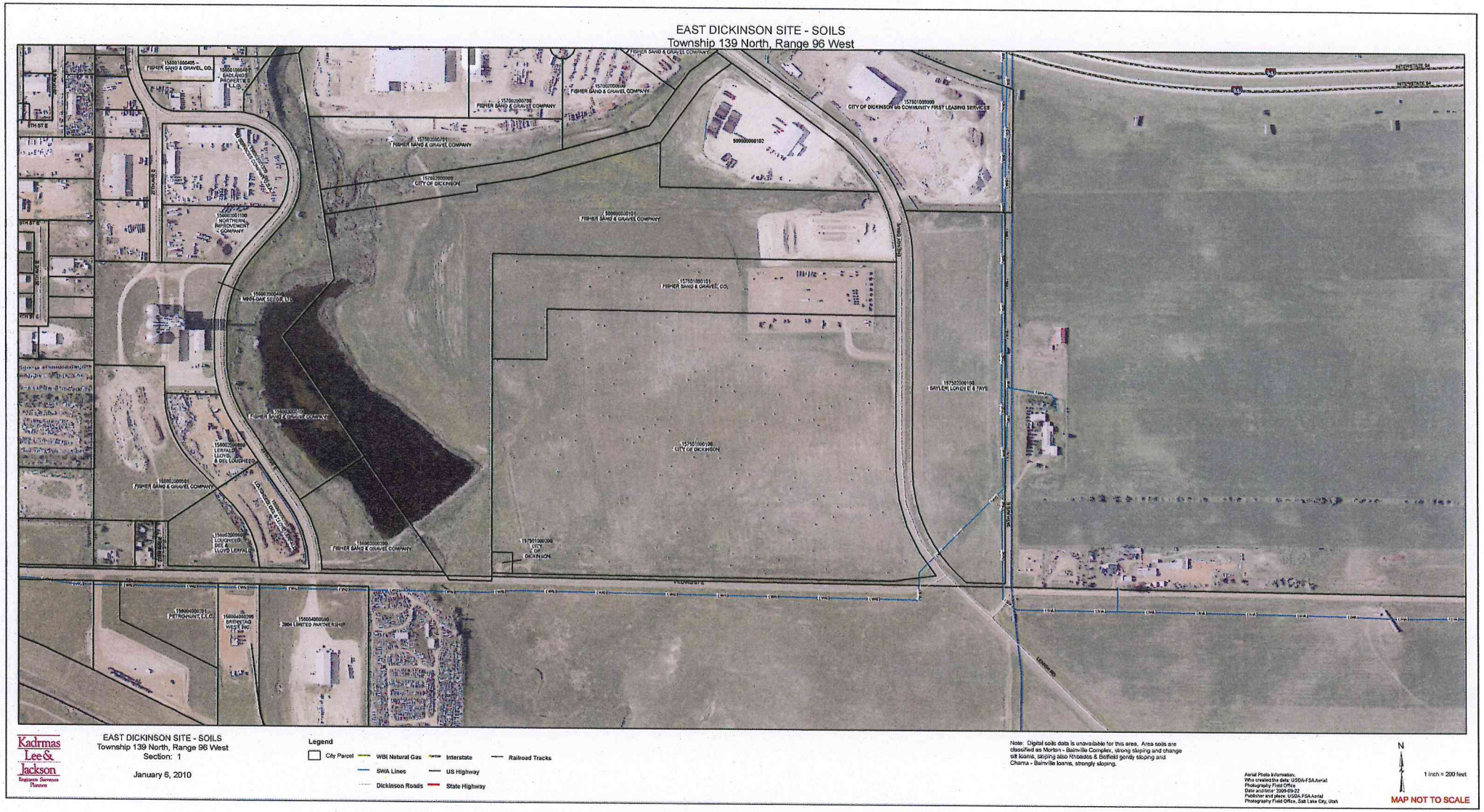
EAST DICKINSON SITE – ZONING
Township 139 North, Range 96 West
Section: 1



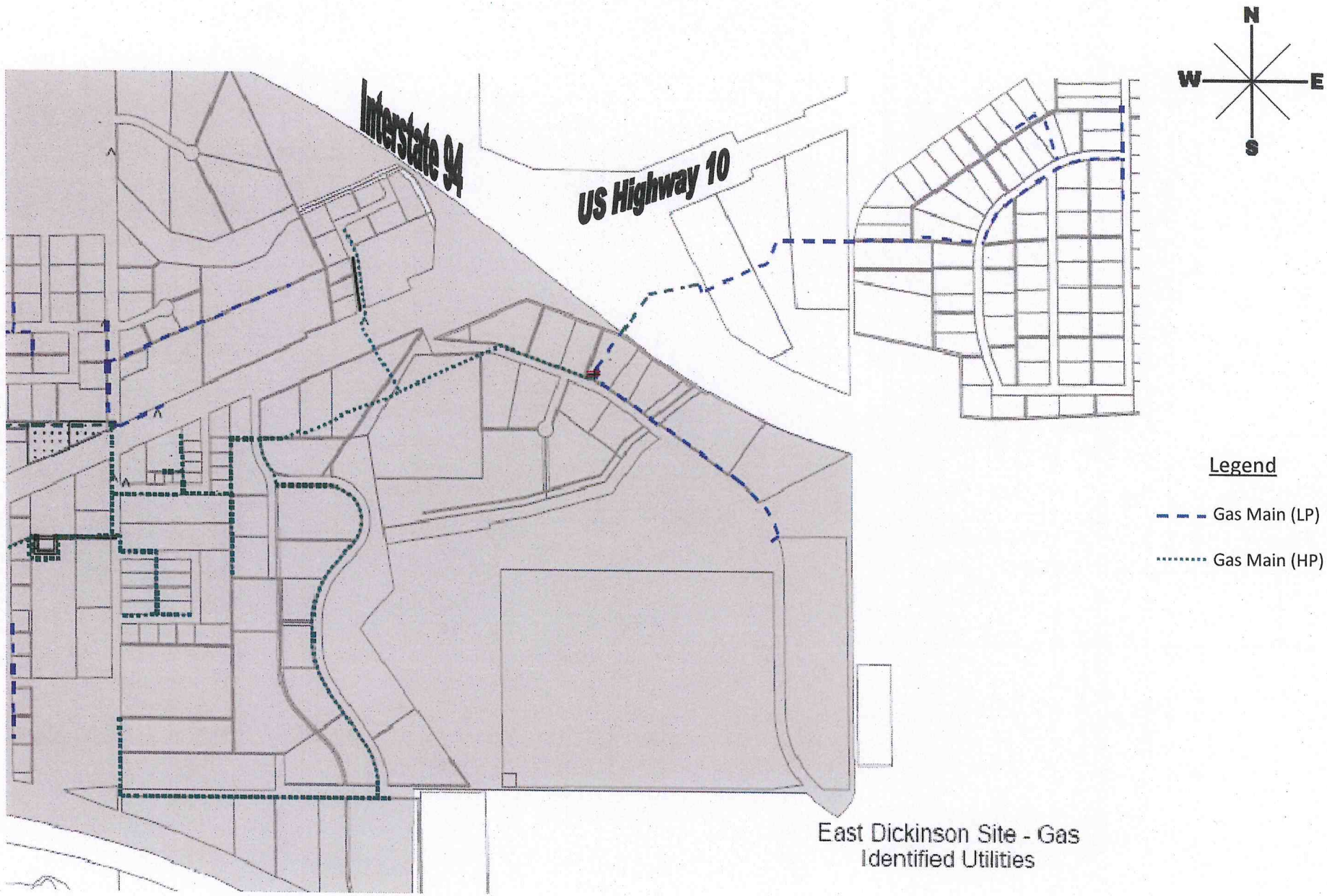
EAST DICKINSON SITE – CONCEPTUAL PLAT
Township 139 North, Range 96 West
Section: 1



EAST DICKINSON SITE – AERIAL PHOTO
Township 139 North, Range 96 West
Section: 1

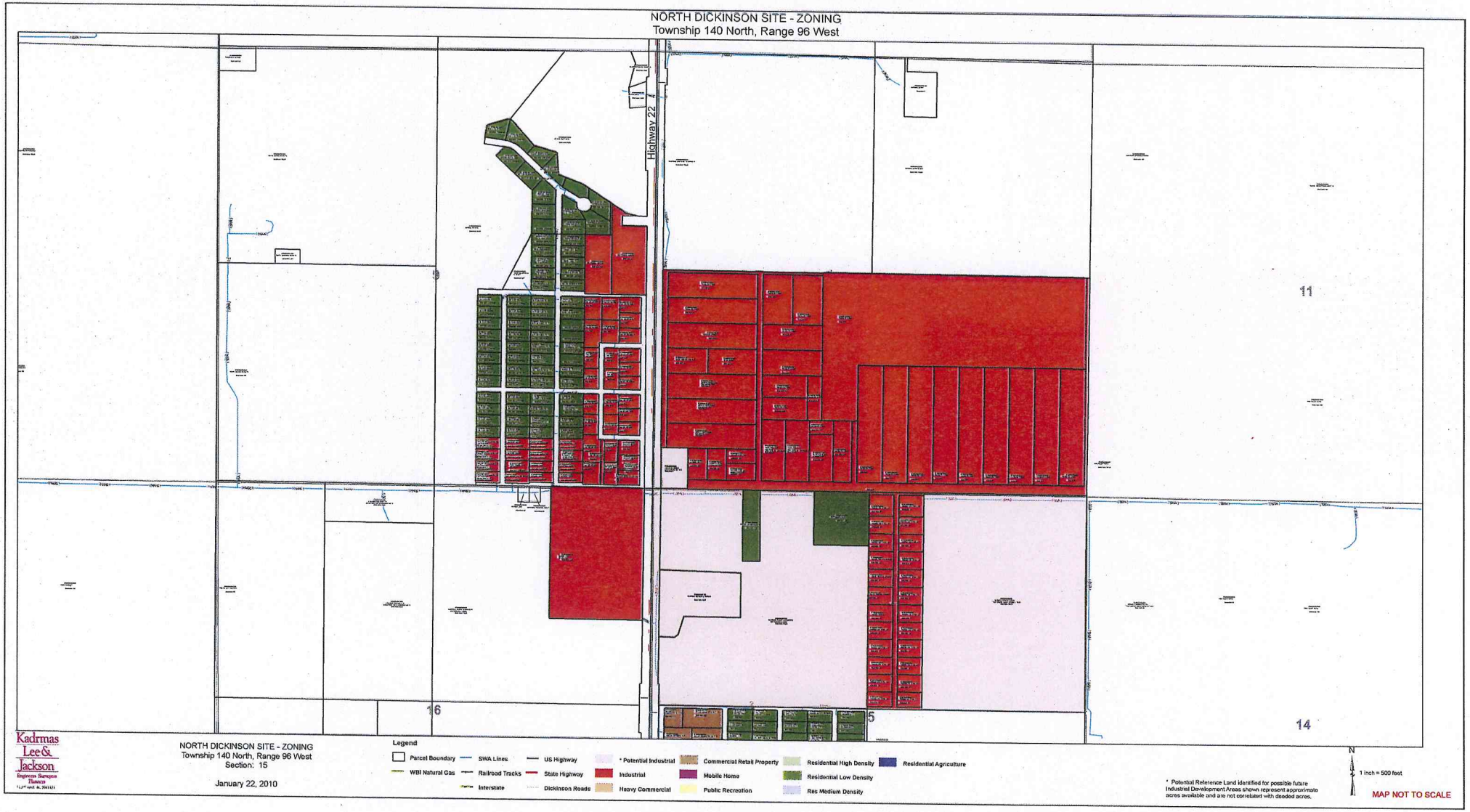


EAST DICKINSON SITE – SOILS
Township 139 North, Range 96 West
Section: 1

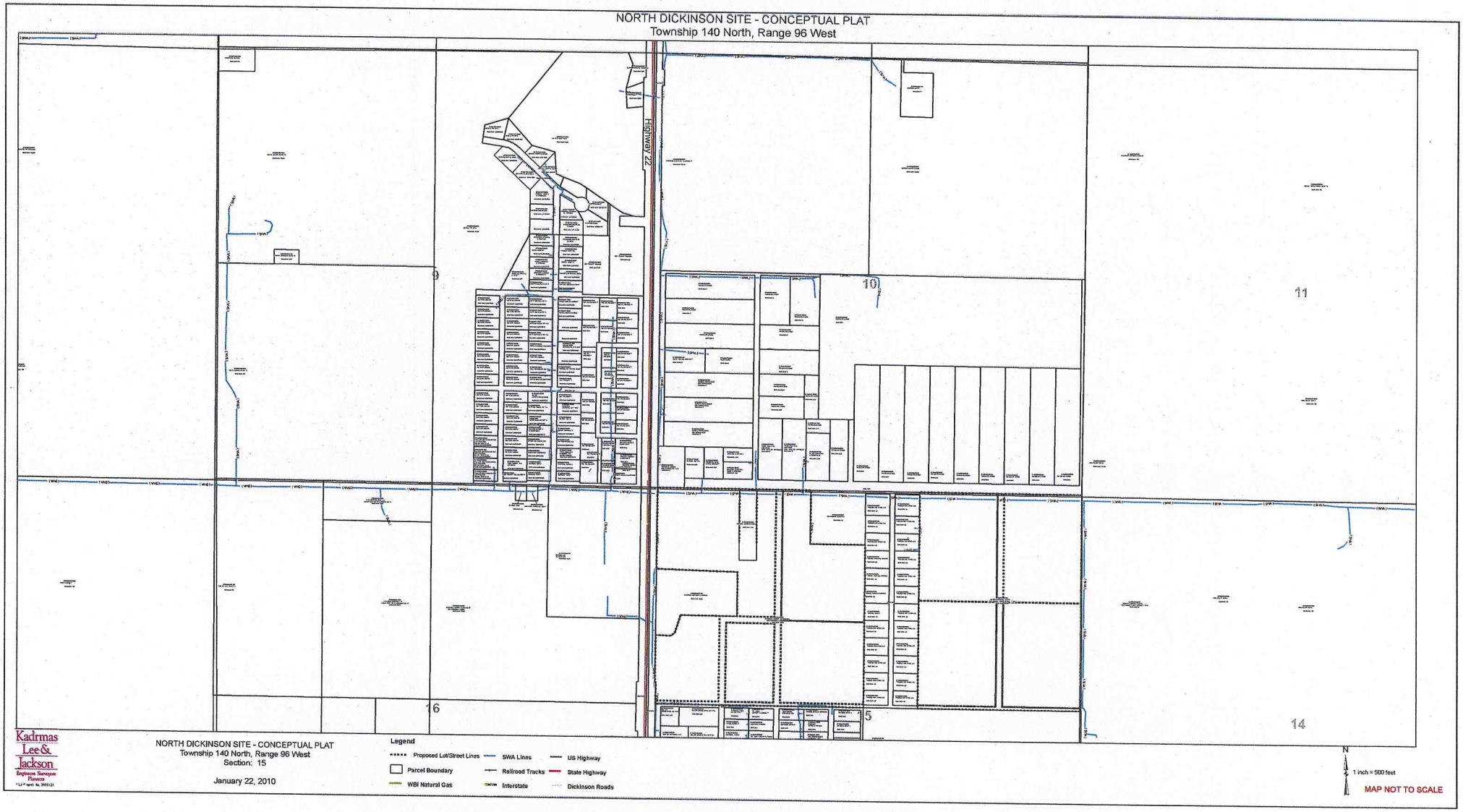


East Dickinson Site - Gas
Identified Utilities

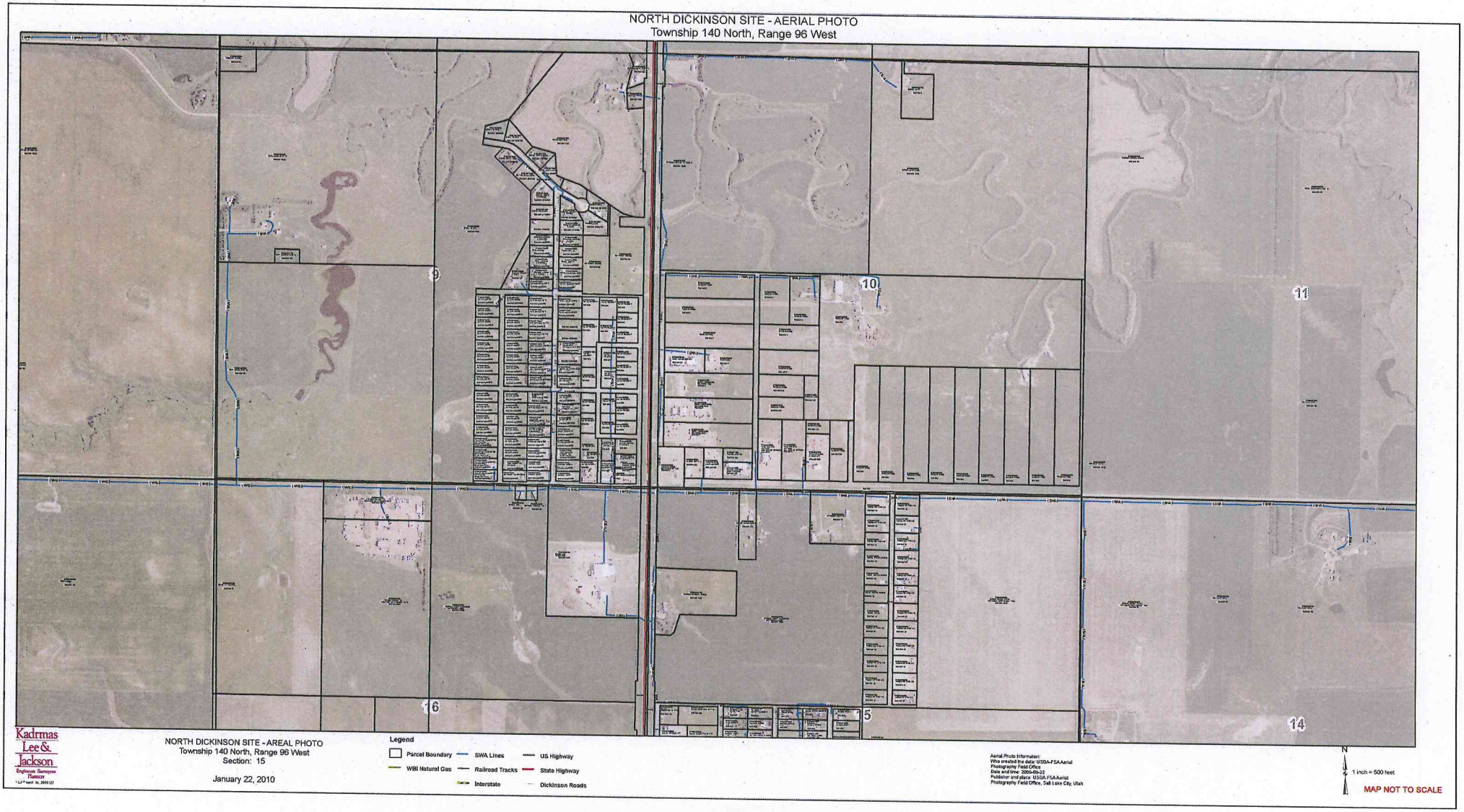
APPENDIX J



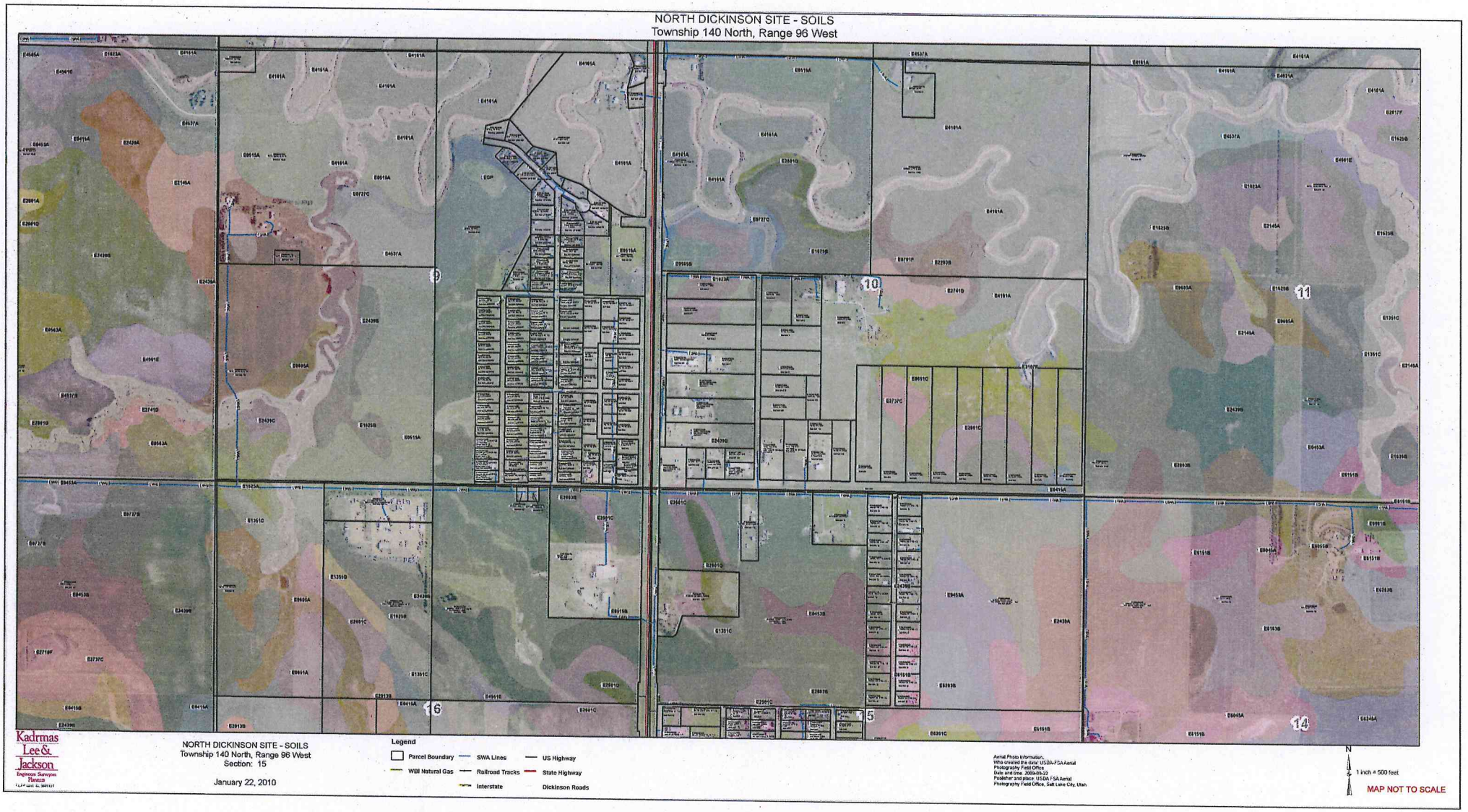
NORTH DICKINSON SITE – ZONING
Township 140 North, Range 96 West
Section: 15



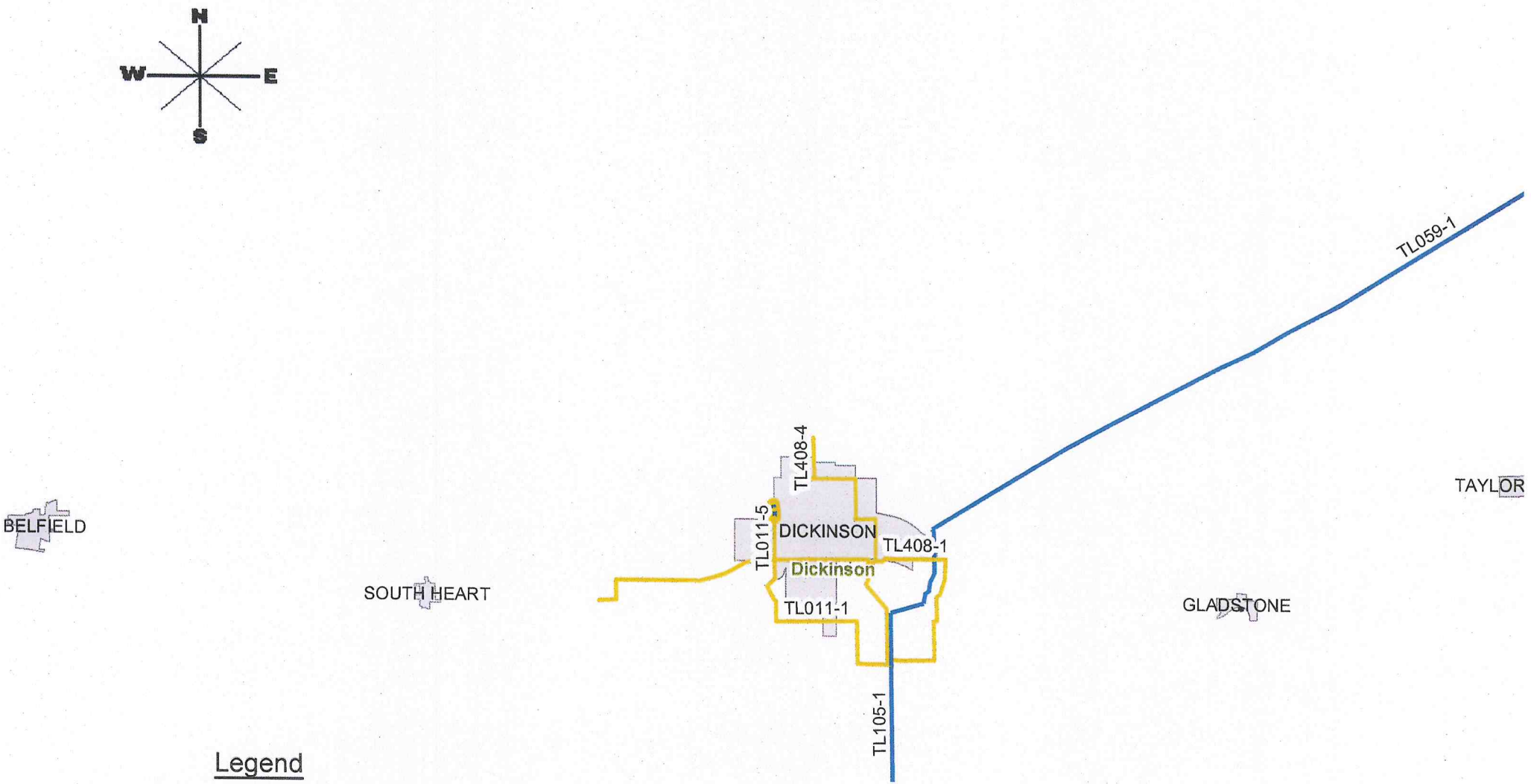
NORTH DICKINSON SITE – CONCEPTUAL PLAT
Township 140 North, Range 96 West
Section: 15



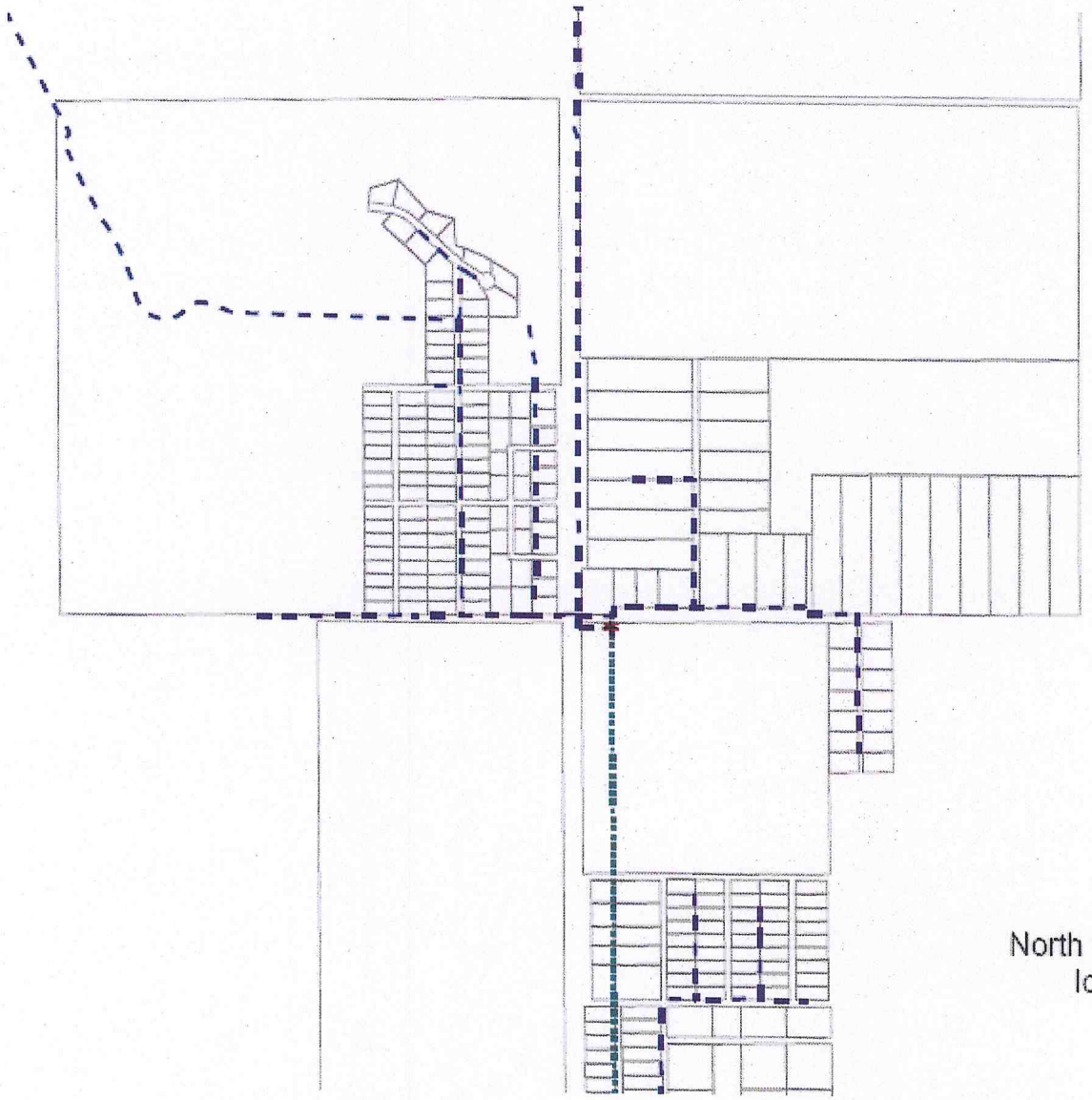
NORTH DICKINSON SITE – AERIAL PHOTO
Township 140 North, Range 96 West
Section: 15

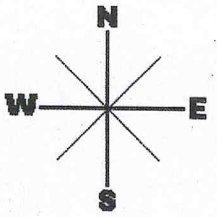


NORTH DICKINSON SITE – SOILS
Township 140 North, Range 96 West
Section: 15



Electrical Transmission - Dickinson
Identified Utilities





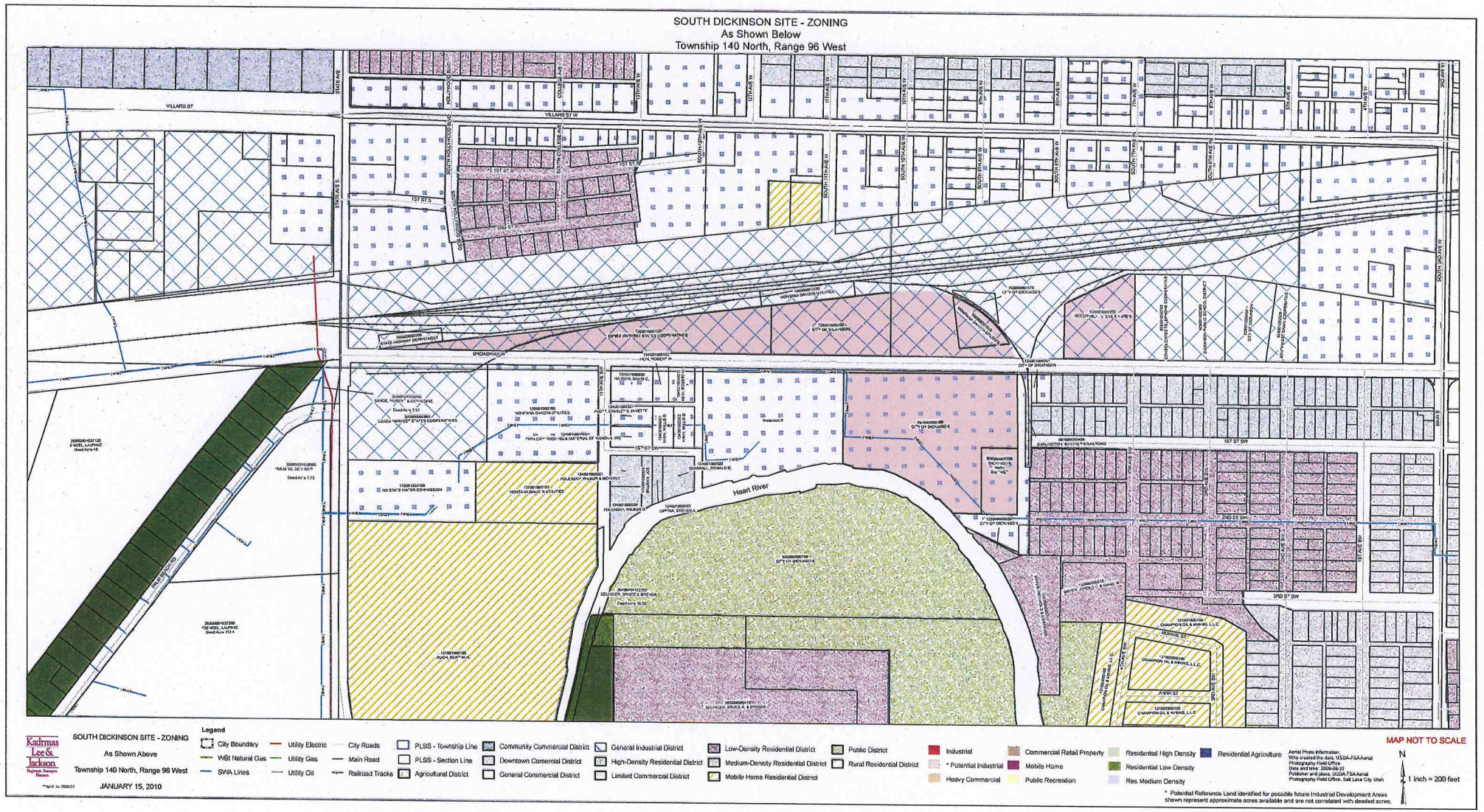
Legend

Gas Main (LP)

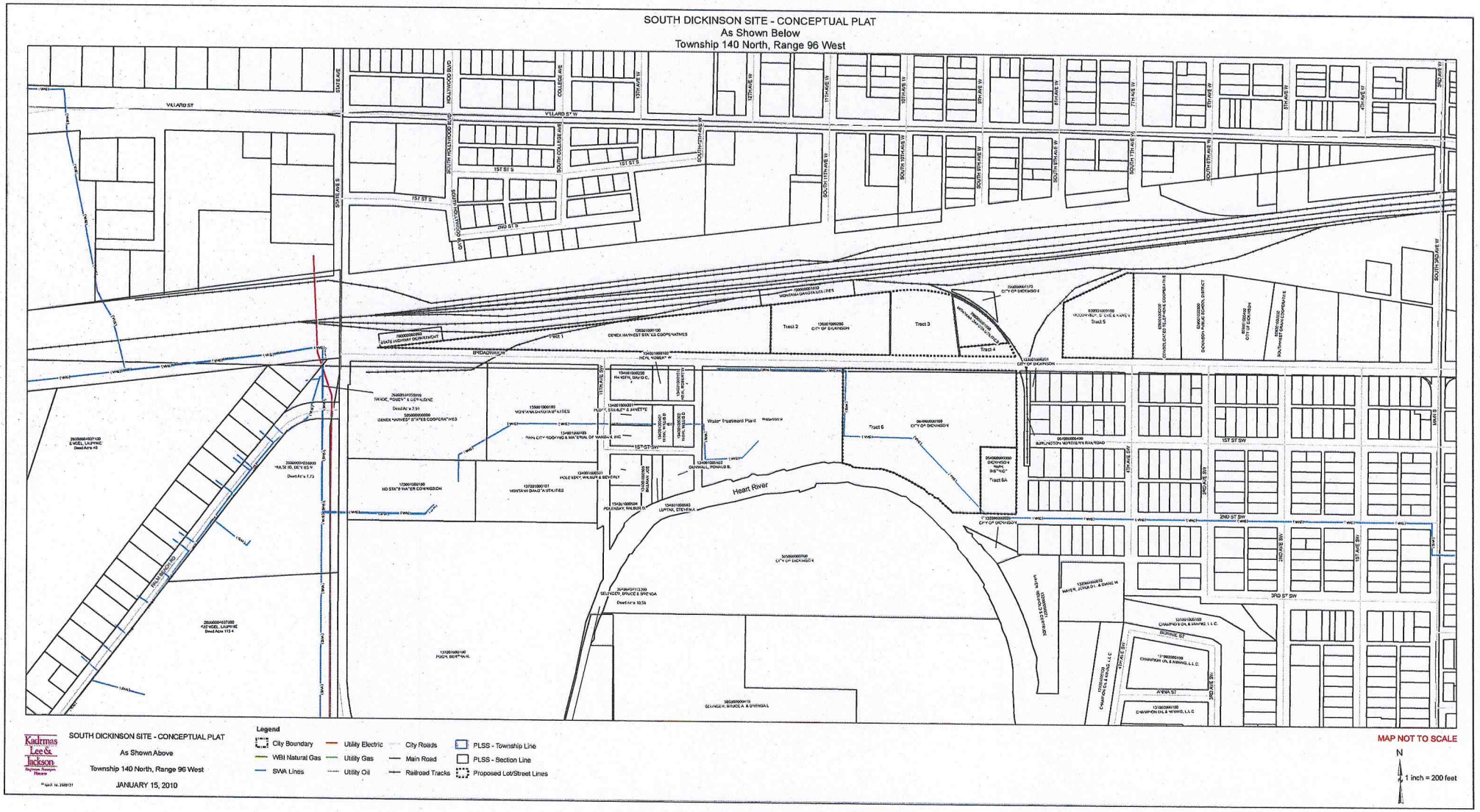
Gas Main (HP)

North Dickinson Site - Gas
Identified Utilities

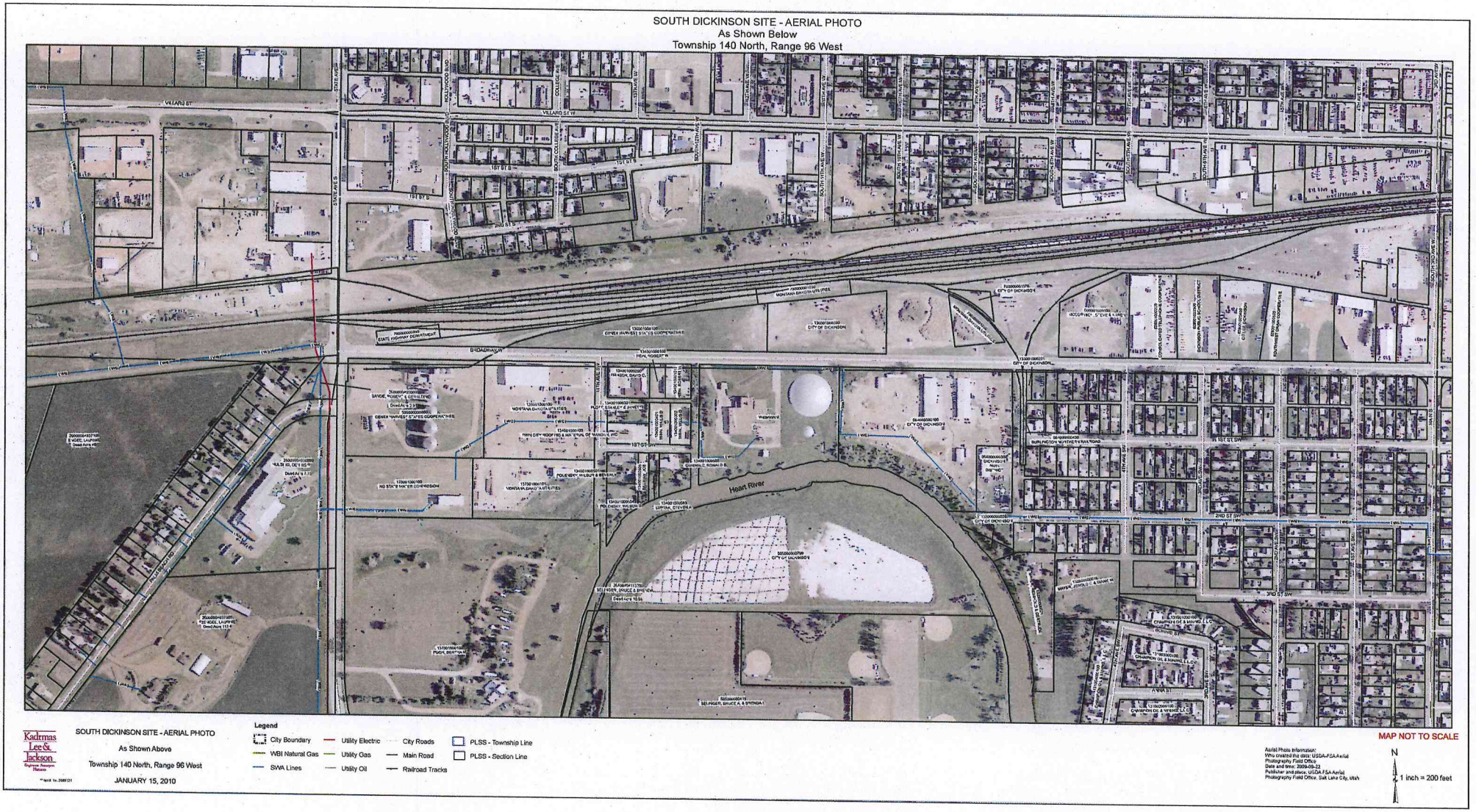
APPENDIX K



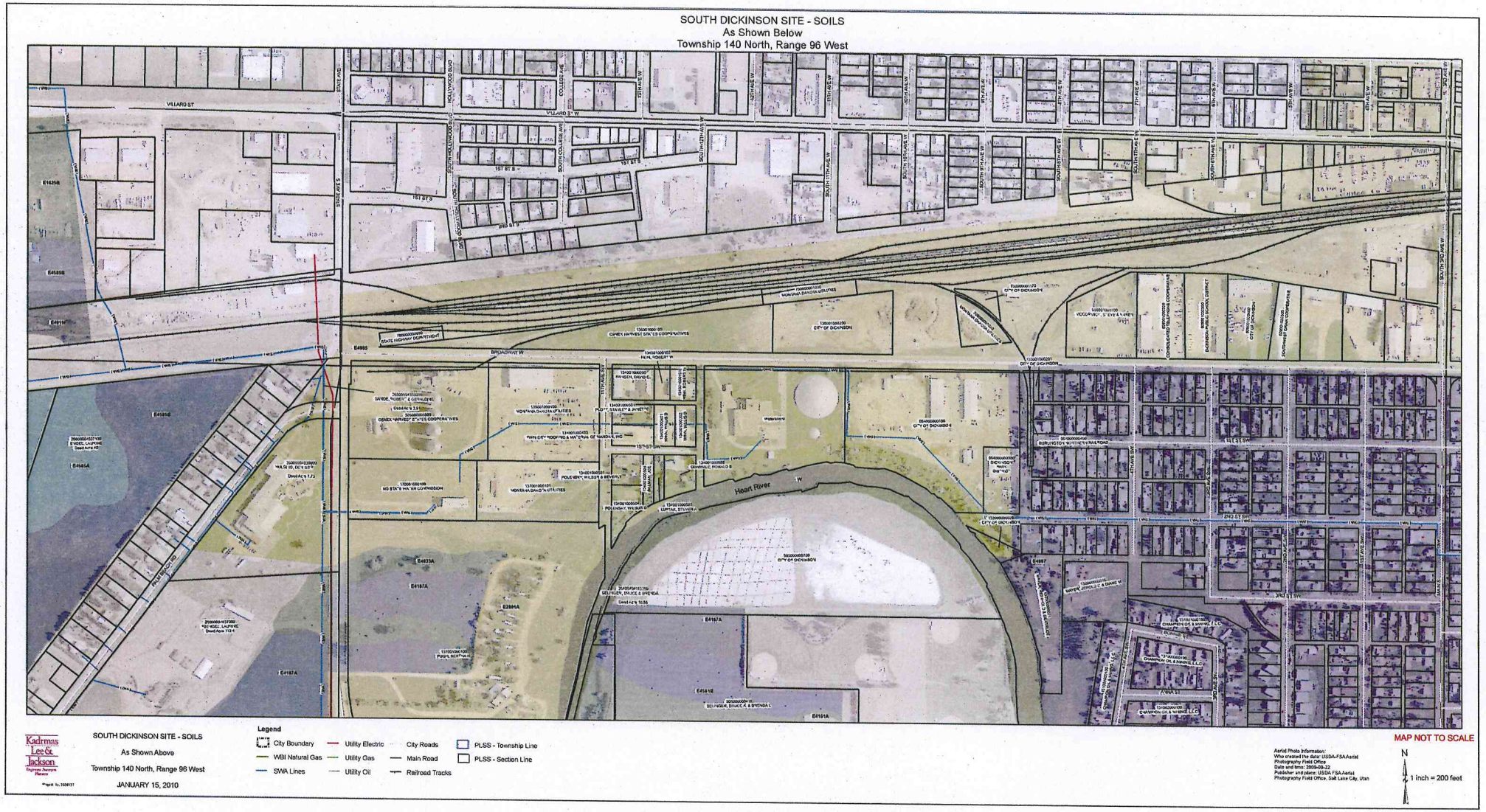
SOUTH DICKINSON SITE – ZONING
Township 140 North, Range 96 West
Section: 4 & 9



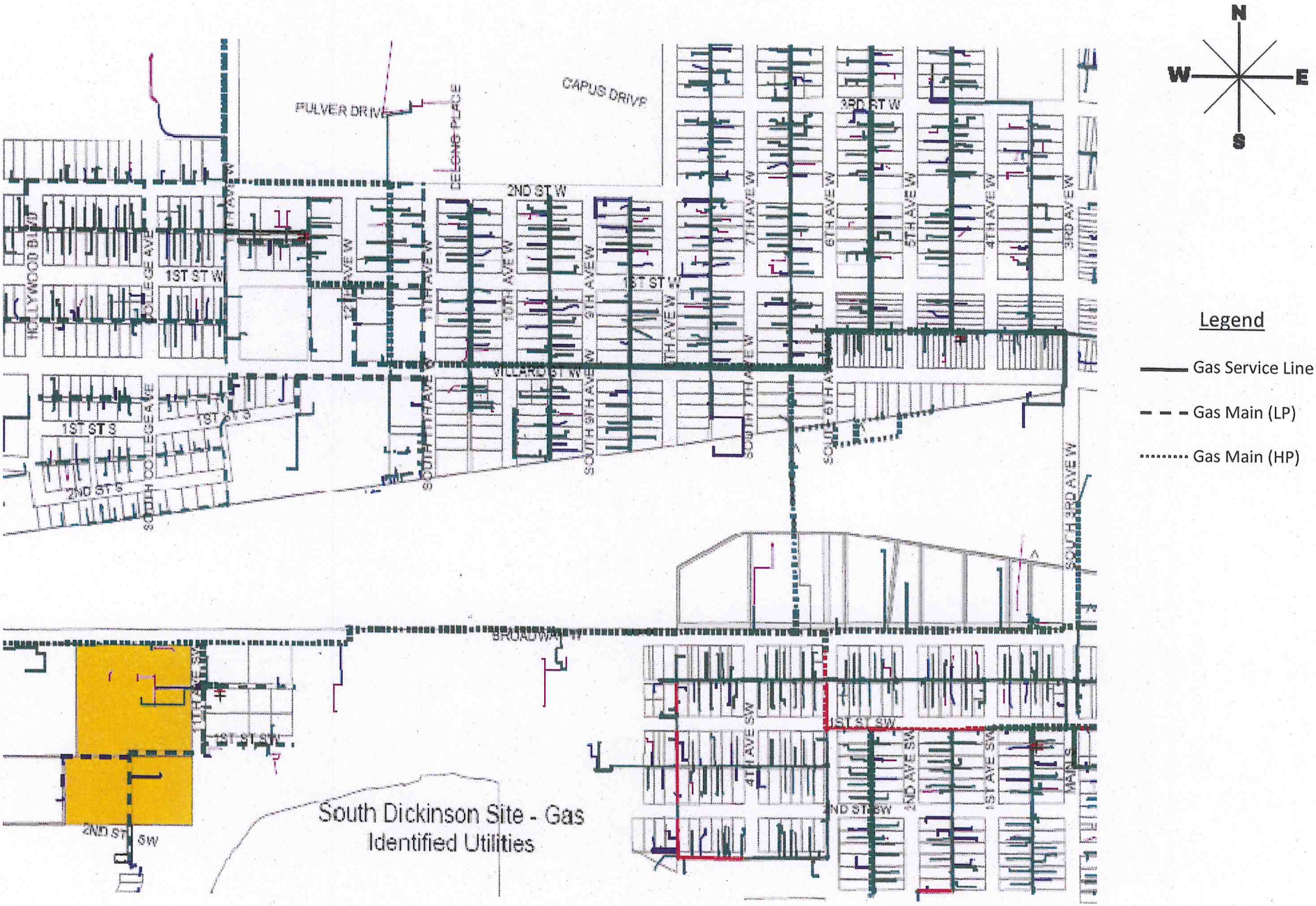
SOUTH DICKINSON SITE – CONCEPTUAL PLAT
Township 140 North, Range 96 West
Section: 4 & 9

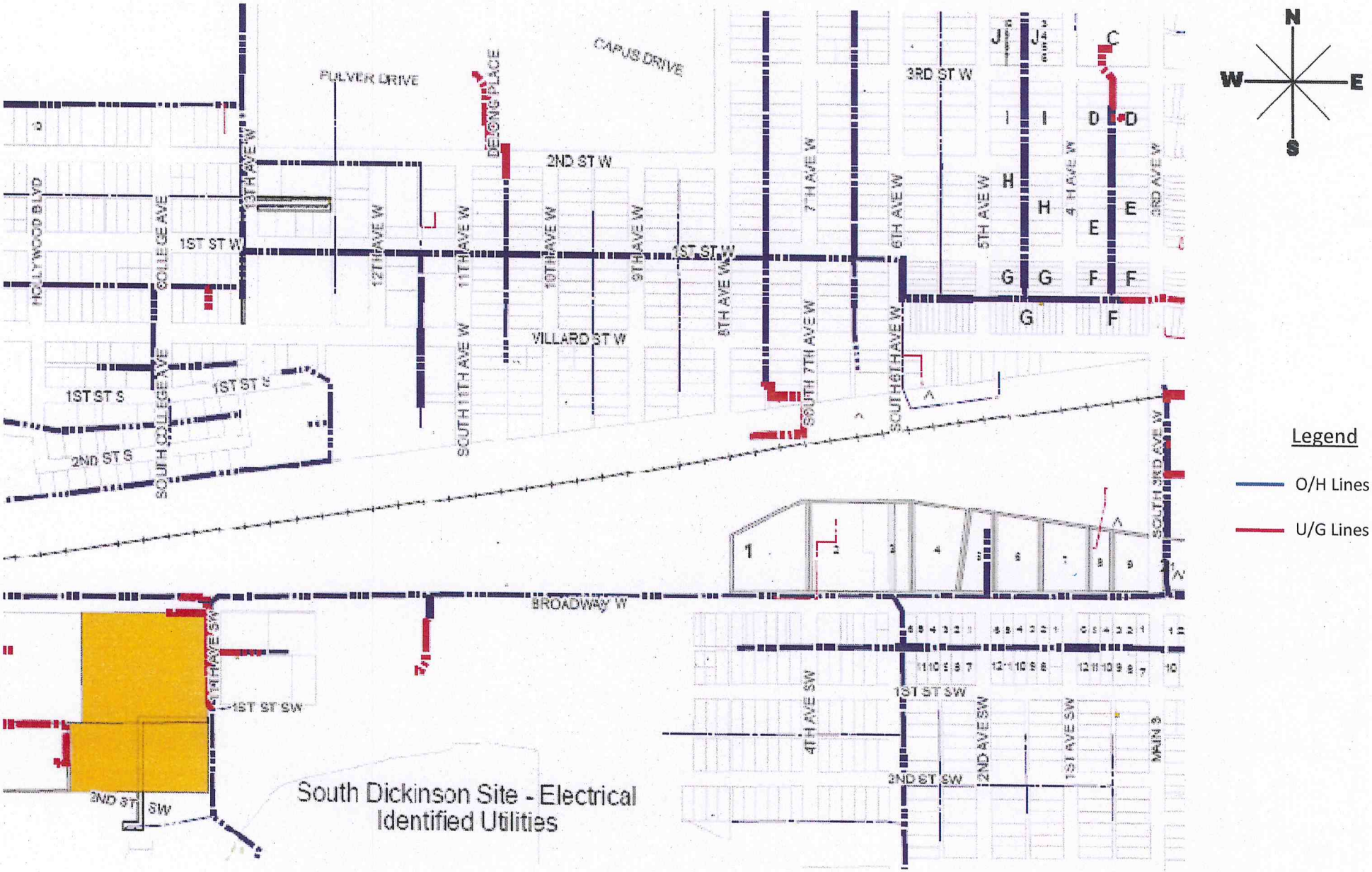


SOUTH DICKINSON SITE – AERIAL PHOTO
Township 140 North, Range 96 West
Section: 4 & 9

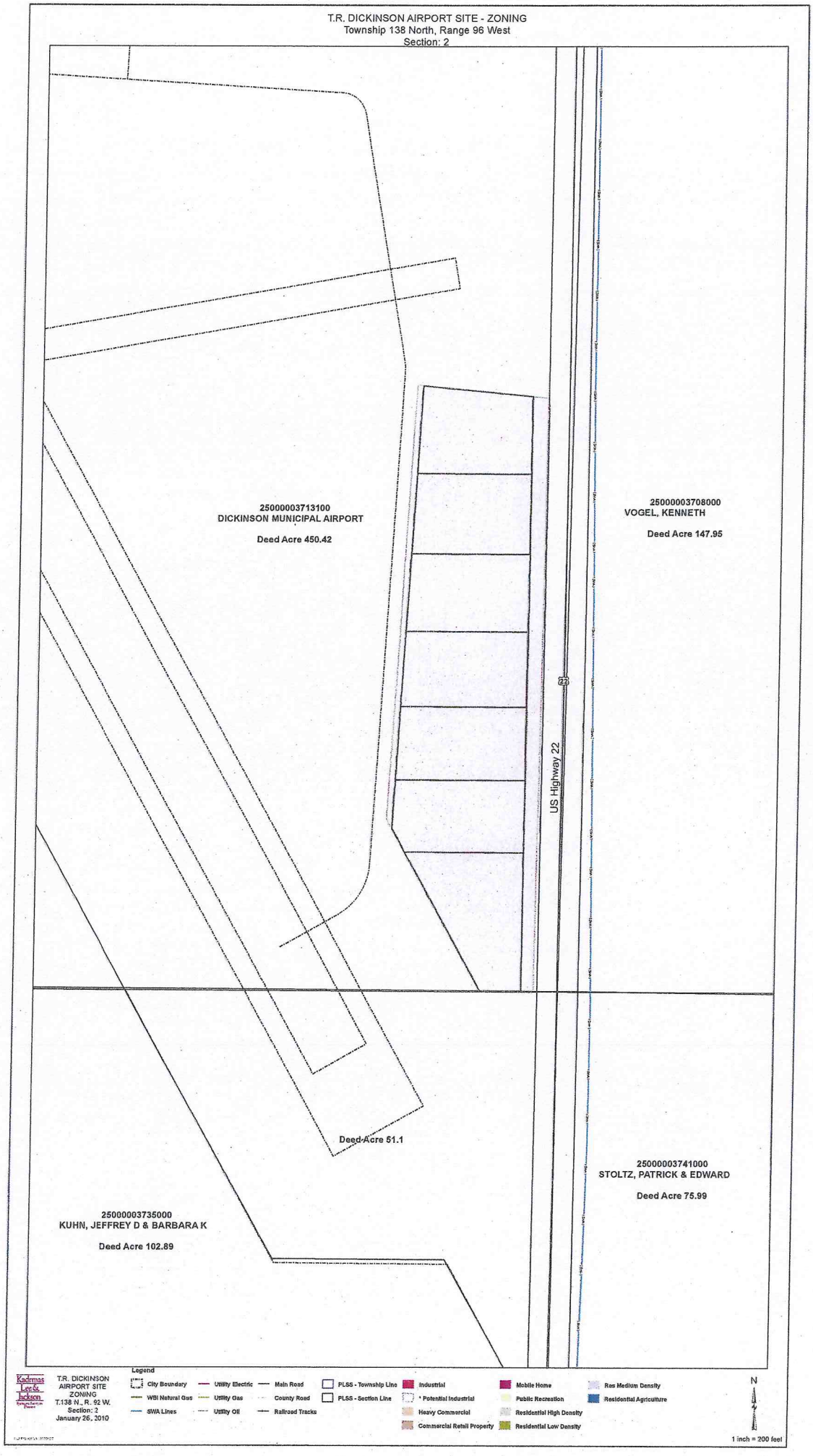


SOUTH DICKINSON SITE – SOILS
Township 140 North, Range 96 West
Section: 4 & 9

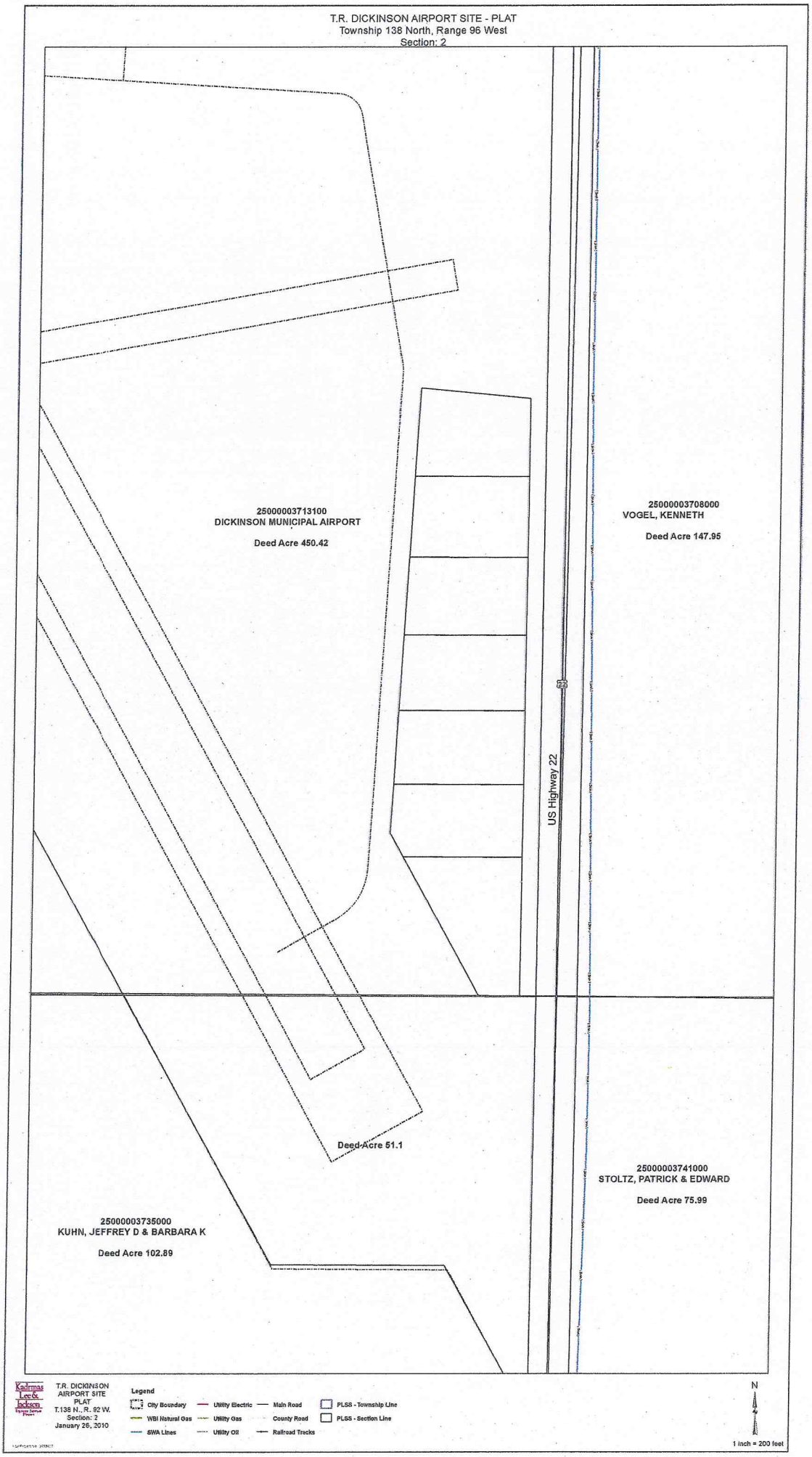

N
W
E
S
Legend
Gas Service Line
Gas Main (LP)
Gas Main (HP)
FULVER DRIVE
DELONG PLACE
CAPUS DRIVE
2ND ST W
1ST ST W
3RD ST W
HOLLYWOOD BLVD
COLLEGE AVE
1ST AVE W
2ND AVE W
3RD AVE W
4TH AVE W
5TH AVE W
6TH AVE W
7TH AVE W
8TH AVE W
9TH AVE W
10TH AVE W
VILLARD ST W
1ST ST S
2ND ST S
SOUTH COLLEGE AVE
SOUTH 1ST AVE W
SOUTH 3RD AVE W
SOUTH 6TH AVE W
SOUTH 7TH AVE W
SOUTH 9TH AVE W
BROADWAY
1ST ST SW
2ND ST SW
1ST AVE SW
2ND AVE SW
4TH AVE SW
WATER ST
South Dickinson Site - Gas
Identified Utilities


N
W
E
S
Legend
O/H Lines
U/G Lines
PULVER DRIVE
CAPUS DRIVE
DELONG PLACE
2ND ST W
1ST ST W
3RD ST W
HOLLYWOOD BLVD
COLLEGE AVE
13TH AVE W
12TH AVE W
11TH AVE W
10TH AVE W
9TH AVE W
8TH AVE W
7TH AVE W
6TH AVE W
5TH AVE W
4TH AVE W
3RD AVE W
SOUTH 11TH AVE W
SOUTH 7TH AVE W
SOUTH 6TH AVE W
SOUTH 3RD AVE W
VILLARD ST W
1ST ST S
2ND ST S
SOUTH COLLEGE AVE
BROADWAY W
13TH AVE SW
1ST ST SW
2ND ST SW
4TH AVE SW
2ND AVE SW
1ST AVE SW
MAIN S
South Dickinson Site - Electrical
Identified Utilities

APPENDIX L



T.R. DICKINSON AIRPORT SITE – ZONING
Township 138 North, Range 96 West
Section: 2



T.R. DICKINSON AIRPORT SITE – CONCEPTUAL PLAT
Township 138 North, Range 96 West
Section: 2

T.R. DICKINSON AIRPORT SITE - AERIAL PHOTO
Township 138 North, Range 96 West
Section: 2

Kadrmas Lee & Jackson

T.R. DICKINSON AIRPORT SITE AERIAL PHOTO
T.138 N., R. 92 W.
Section: 2
January 26, 2010

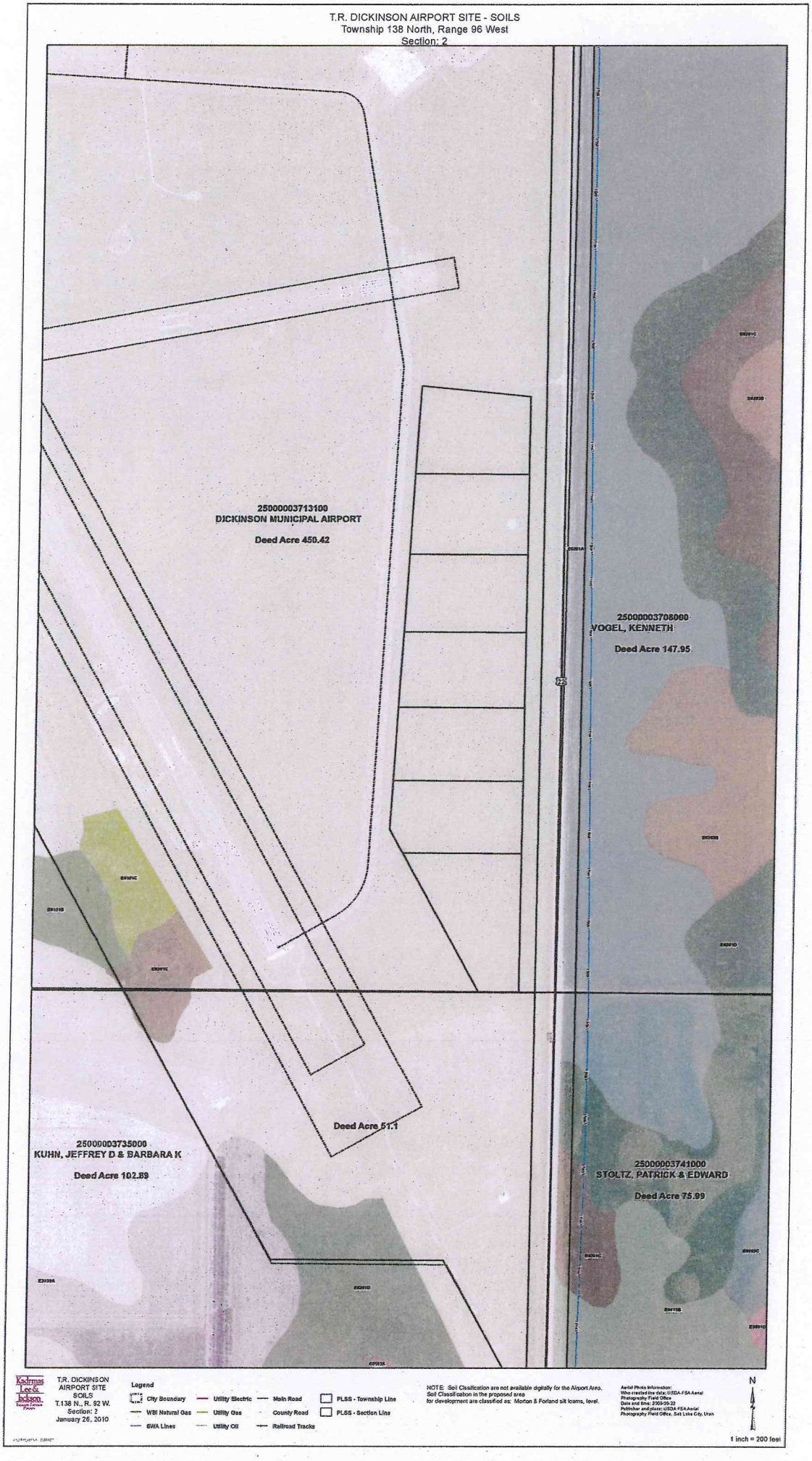
Legend
City Boundary
WBI Natural Gas
SWA Lines
Utility Electric
Utility Gas
Utility Oil
Main Road
County Road
Railroad Tracks
PLSS - Township Line
PLSS - Section Line

Aerial Photo Information:
Who created the data: USDA FSA Aerial Photography Field Office
Date and time: 2009-09-22
Publisher and place: USDA FSA Aerial Photography Field Office, Salt Lake City, Utah

N

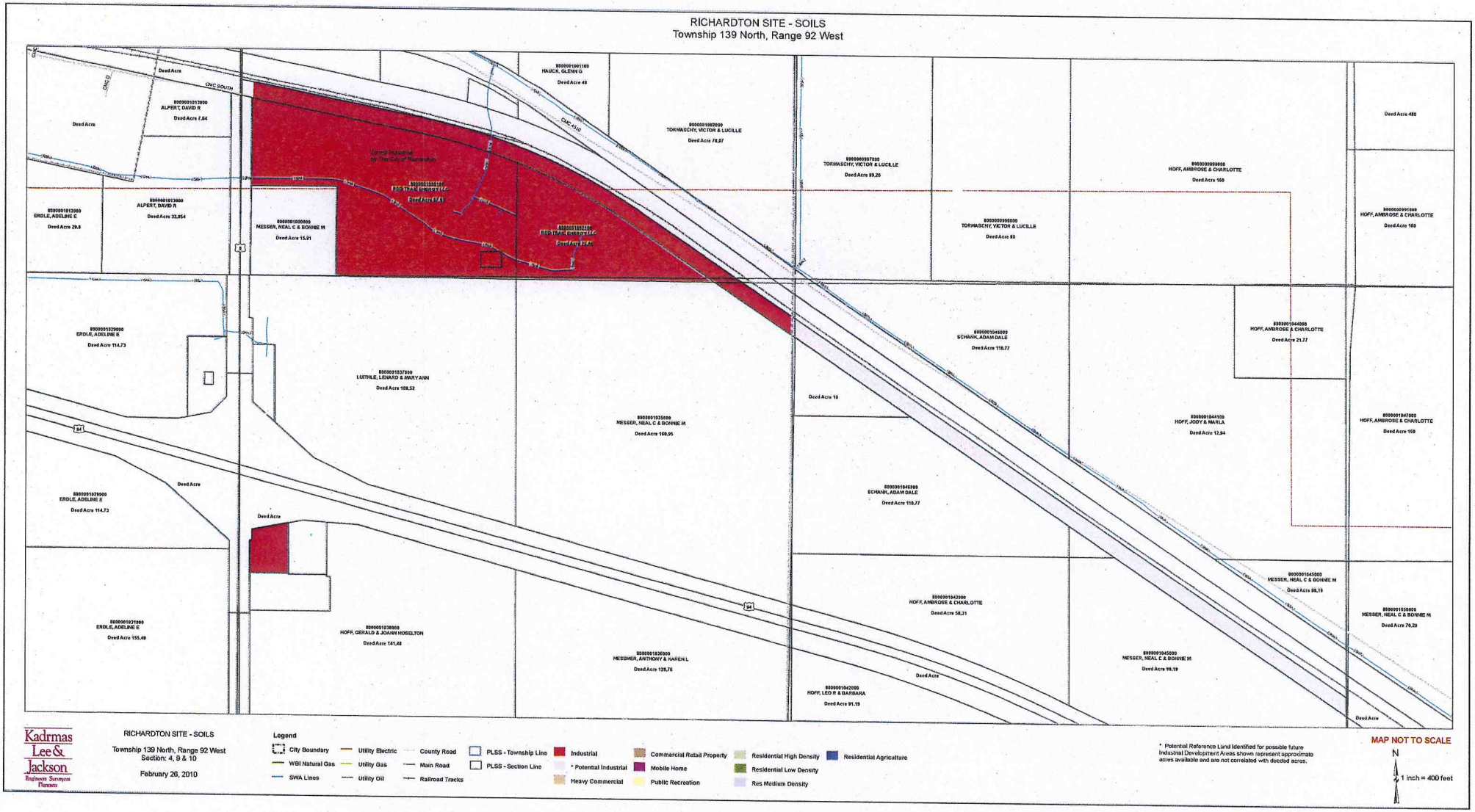
1 inch = 200 feet

T.R. DICKINSON AIRPORT SITE – AERIAL PHOTO
Township 138 North, Range 96 West
Section: 2

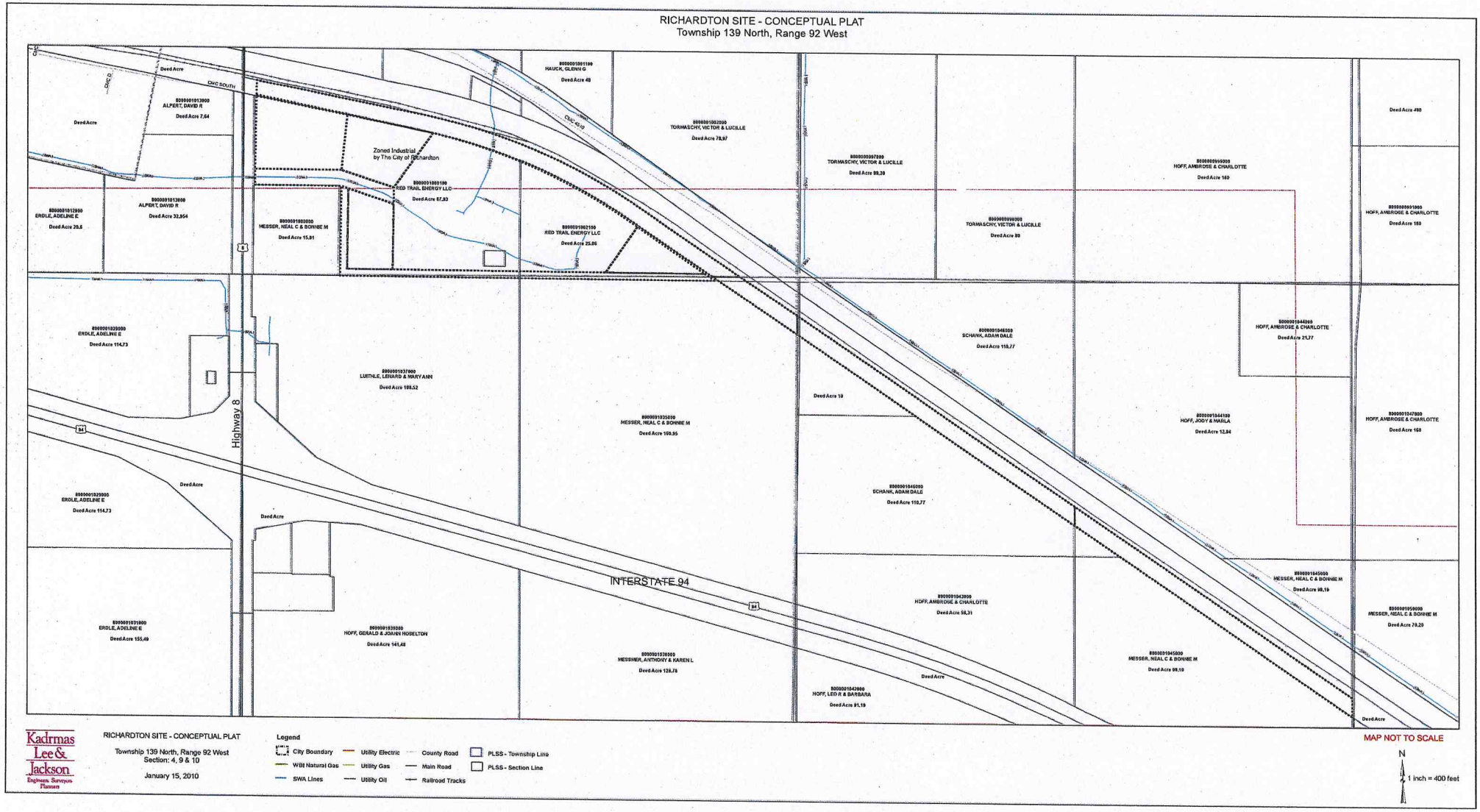


T.R. DICKINSON AIRPORT SITE – SOILS
Township 138 North, Range 96 West
Section: 2

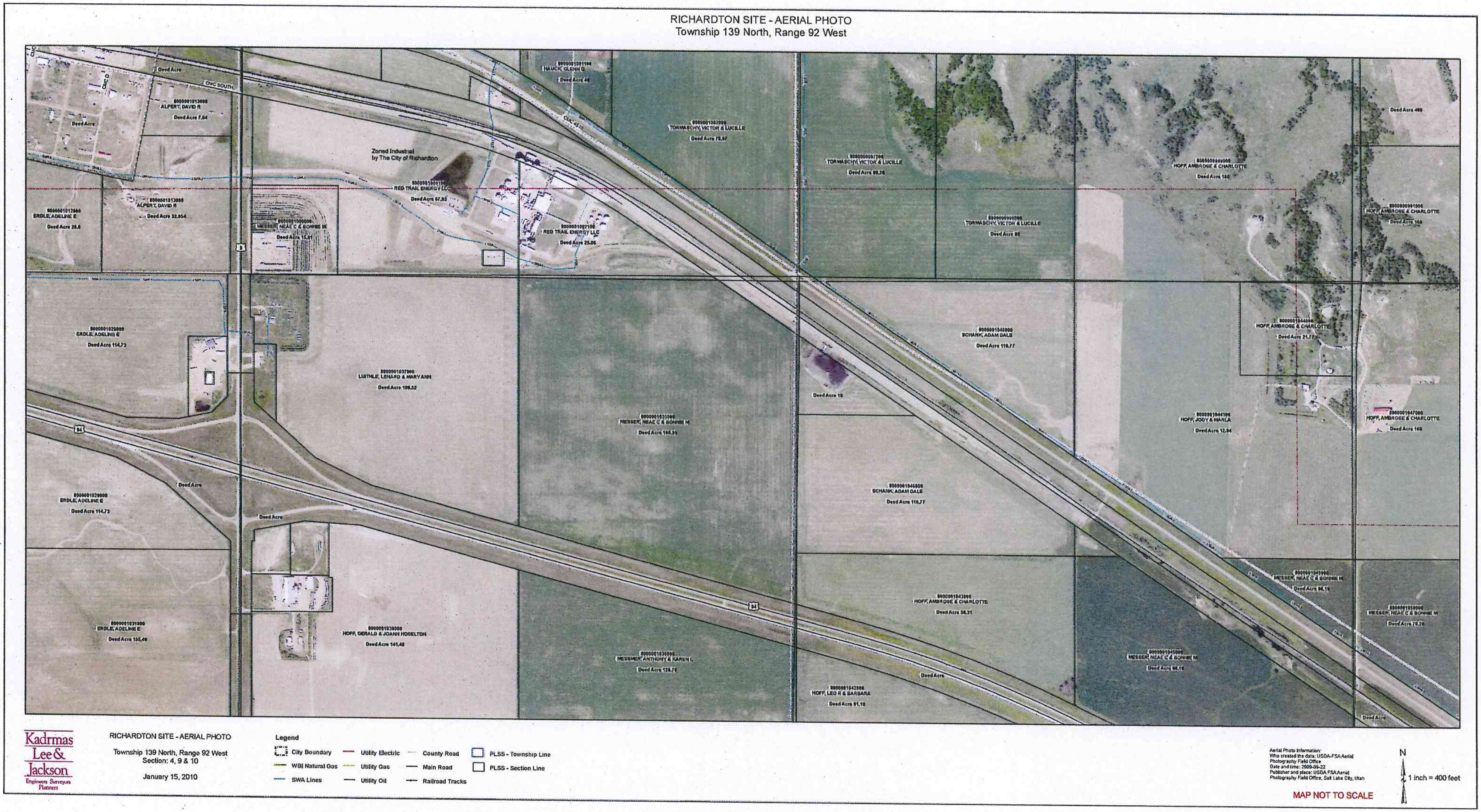
APPENDIX M



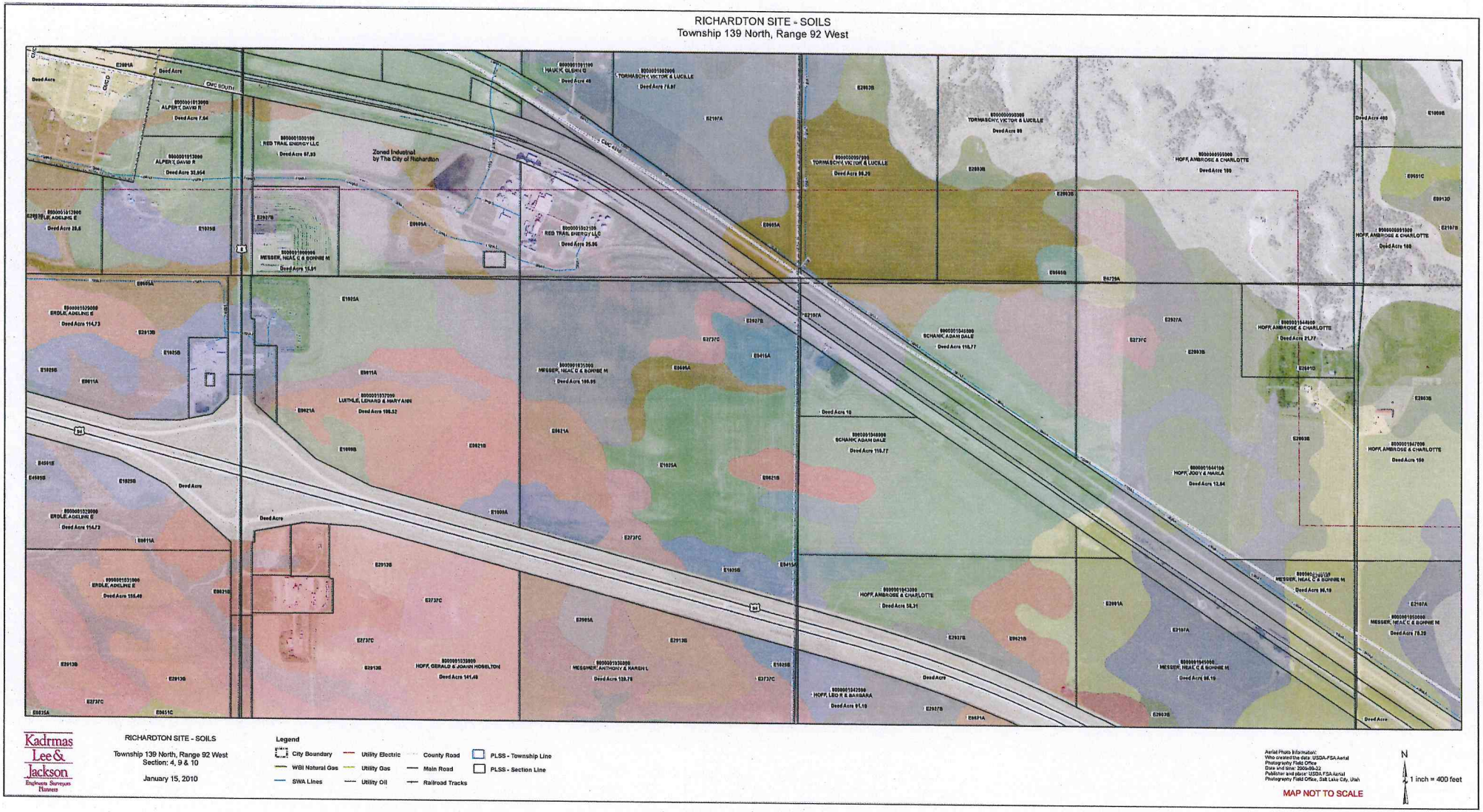
RICHARDTON SITE – ZONING
Township 139 North, Range 92 West
Section: 4



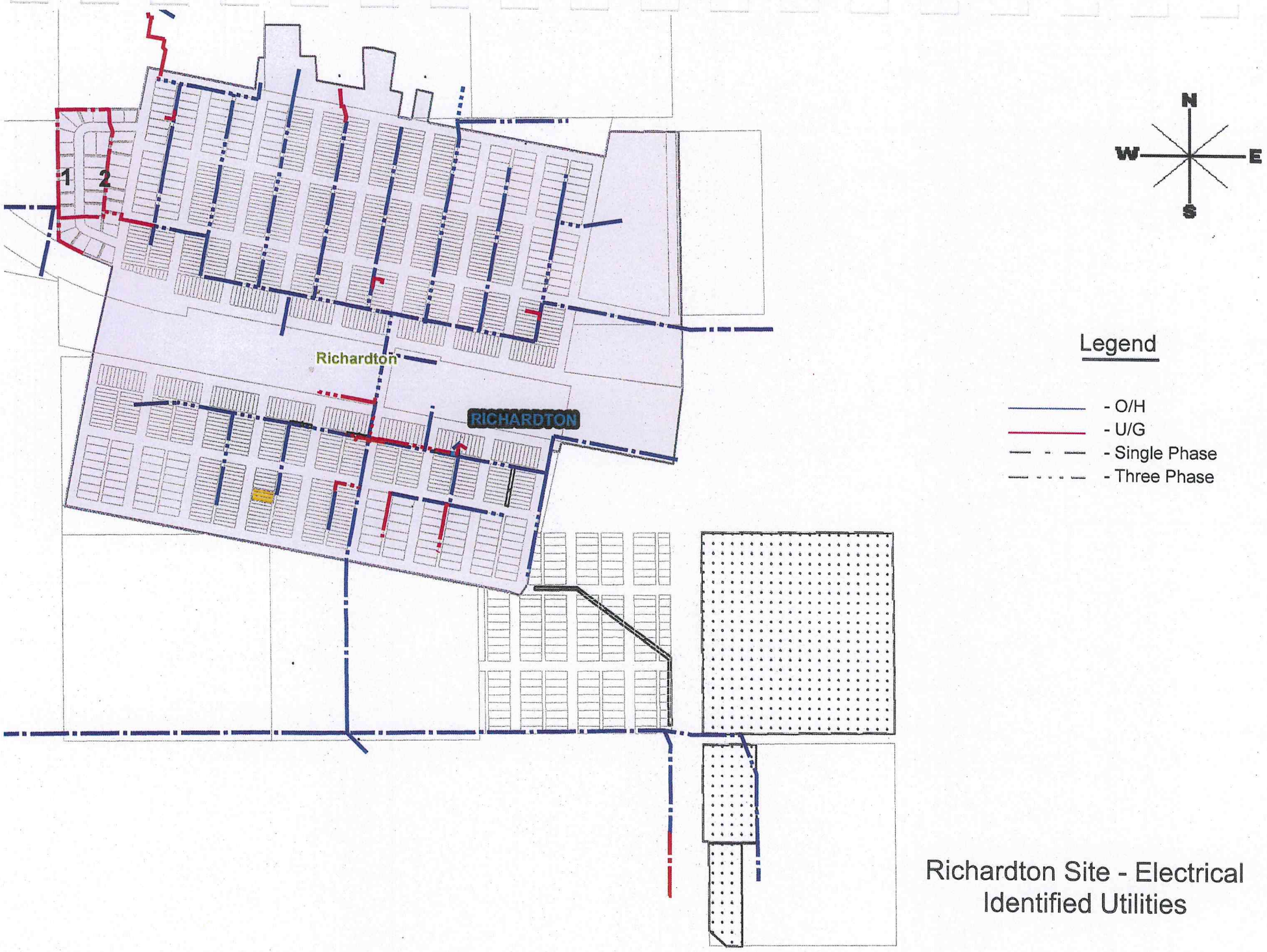
RICHARDTON SITE – CONCEPTUAL PLAT
Township 139 North, Range 92 West
Section: 4



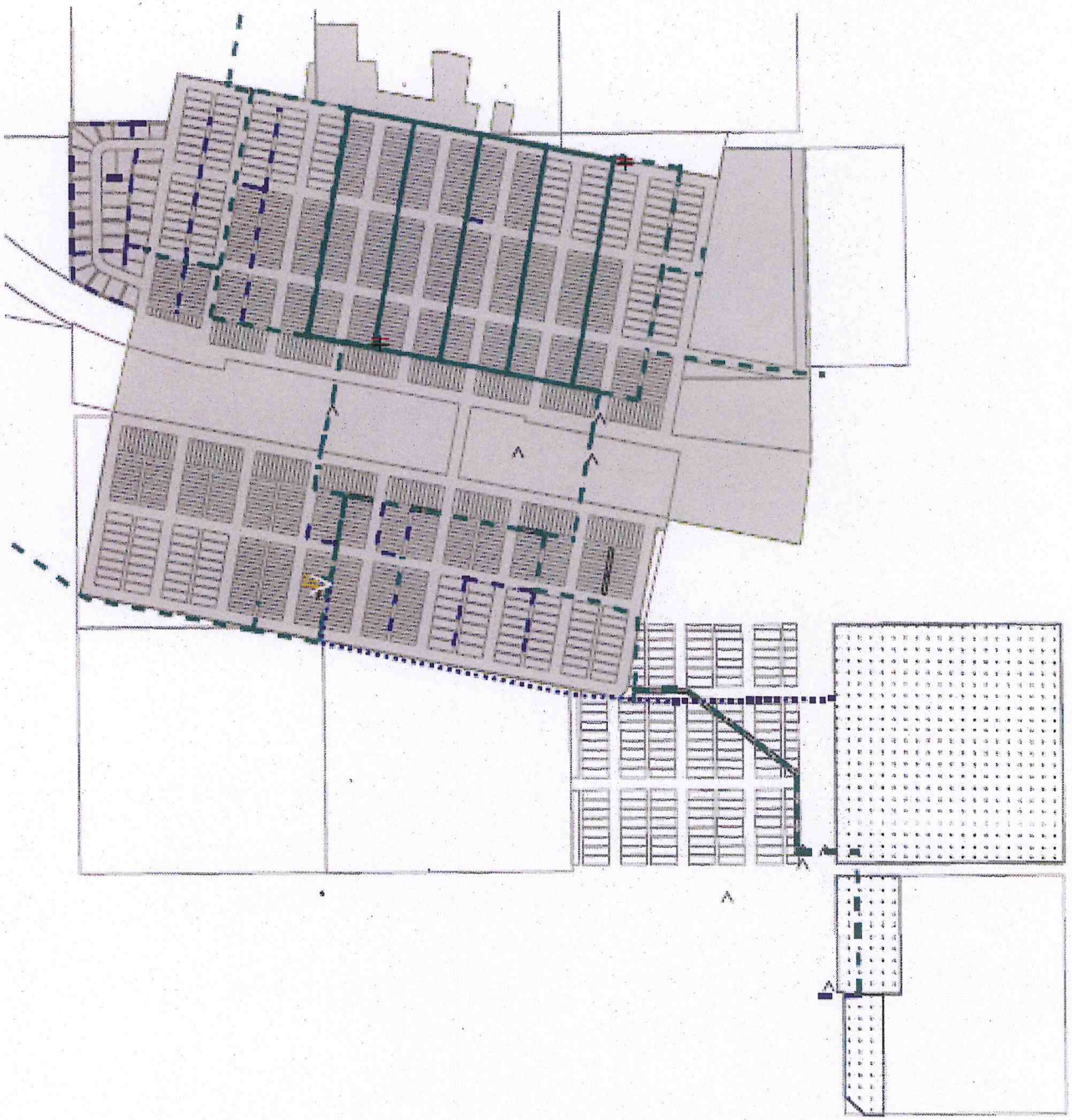
RICHARDTON SITE – AERIAL PHOTO
Township 139 North, Range 92 West
Section: 4

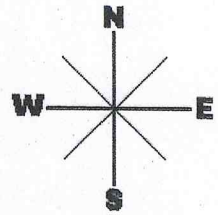


RICHARDTON SITE – SOILS
Township 139 North, Range 92 West
Section: 4



Richardton Site - Electrical
Identified Utilities





Legend

- Gas Main (LP)
- Gas main (HP)
- Gas Service Line

Richardton Site - Gas
Identified Utilities

APPENDIX N

Numbering Scale

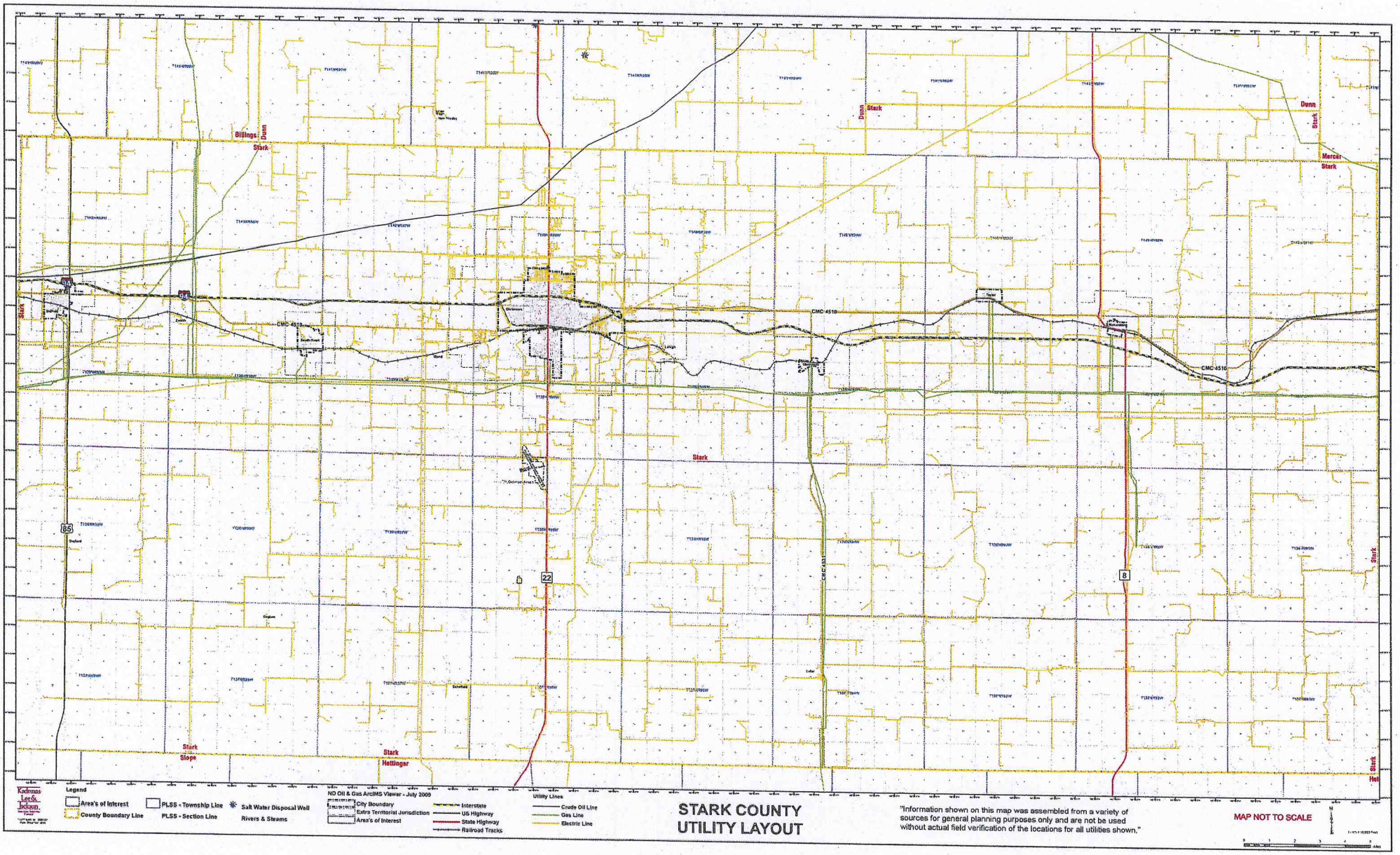
8 - 10 Good to Excellent
6 - 8 Fair to Good
4 - 6 Average
2 - 4 Poor to Fair
1 - 2 Not suitable to marginal (use as last resort)

	Items / Issues to Consider in Site Selection																
	Access to State or US Highway	Access to Rail	Access to Airport	Access to Power Utility	Access to Natural Gas	New Existing Industrial Activity	Current Zoning	Distance from Existing Residential	Access to Potable Water	Access to Municipal Type Fire Protection	Soil Conditions / Types	Type of Topography	Land Costs/Value	Development Costs	Access to Sanitary Waste Treatment and Disposal	Environmental Issues (i.e. Storm Water Containment)	**Total Points**
Recommended Sites for Development																	
Belfield Site																	
North Dickinson Site																	
South Dickinson Site																	
Theodore Roosevelt AP Site																	
East Dickinson Site																	
Richardton Site																	

Site Selection Matrix

Appendix N

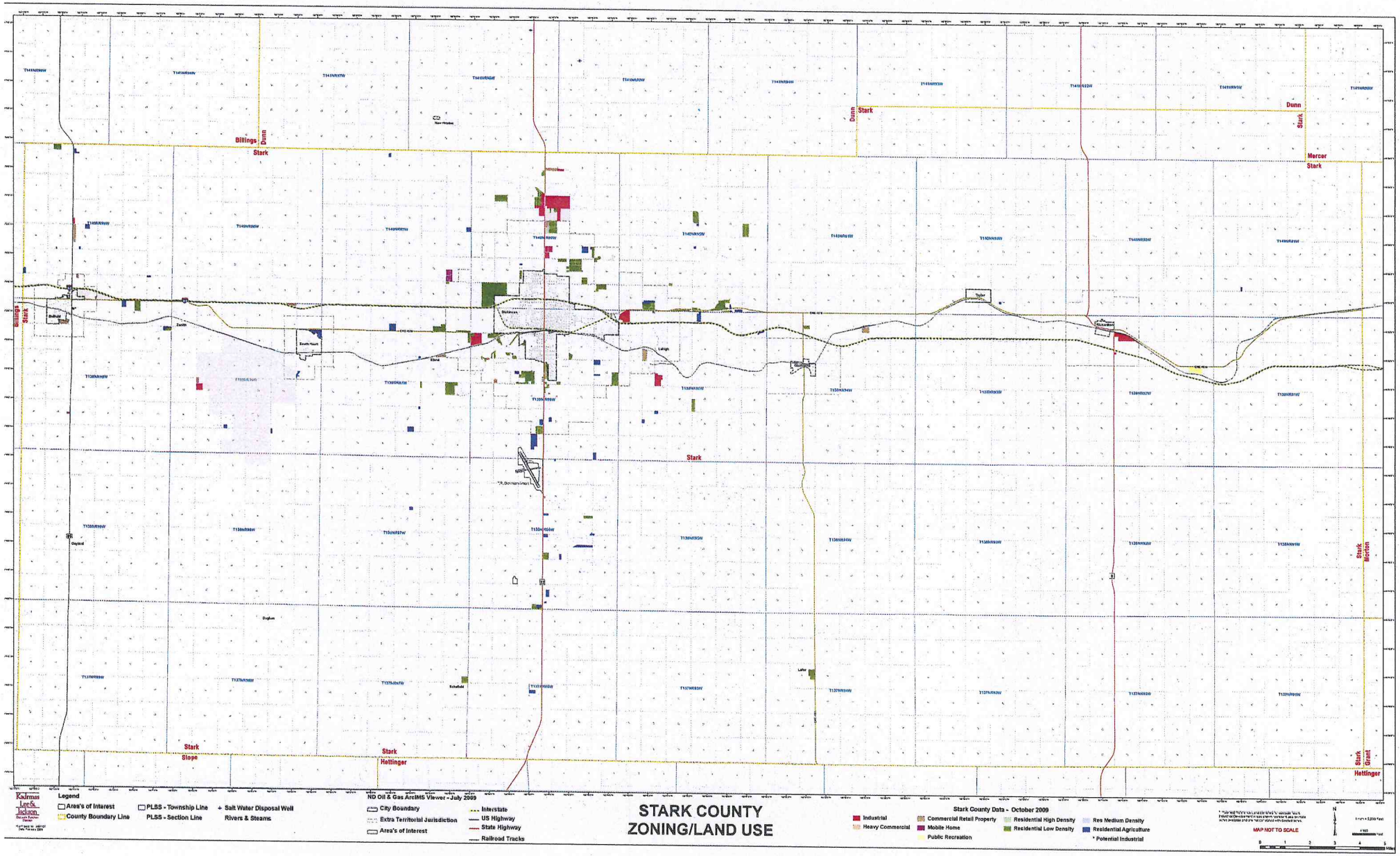
APPENDIX O



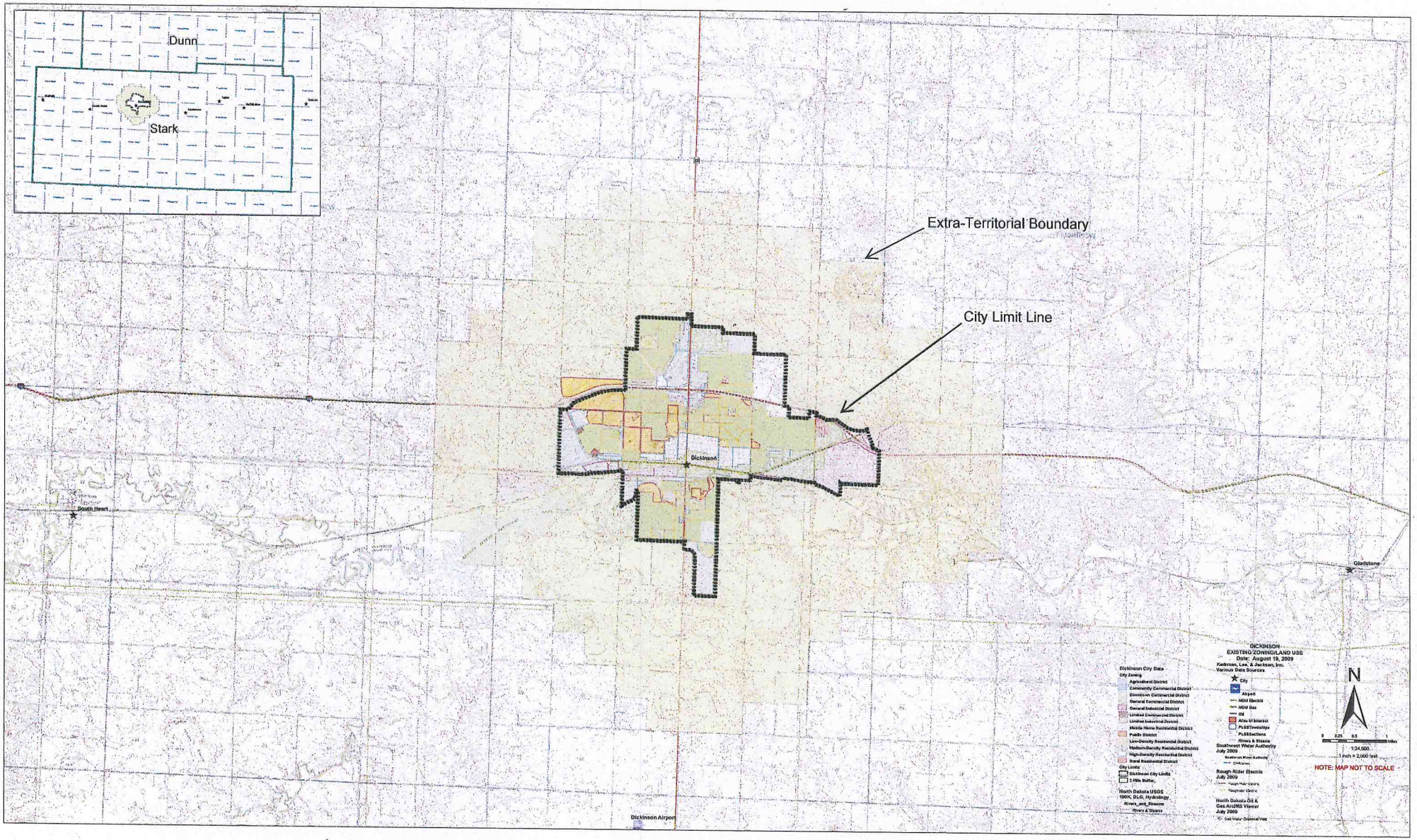
STARK COUNTY – UTILITY LAYOUT

Appendix O

APPENDIX P


Billings
Dunn
Stark
Mercer
Stark
Dunn
Stark
Dunn
Stark
Billings
Stark
Stark
Stark
Morton
Stark
Slope
Stark
Hettinger
Stark
Grant
Hettinger
Legend
Area's of Interest
County Boundary Line
PLSS - Township Line
PLSS - Section Line
Salt Water Disposal Well
Rivers & Steams
ND Oil & Gas ArcIMS Viewer - July 2009
City Boundary
Extra Territorial Jurisdiction
Area's of Interest
Interstate
US Highway
State Highway
Railroad Tracks
STARK COUNTY
ZONING/LAND USE
Stark County Data - October 2009
Industrial
Heavy Commercial
Commercial Retail Property
Mobile Home
Public Recreation
Residential High Density
Residential Low Density
Res Medium Density
Residential Agriculture
* Potential Industrial
MAP NOT TO SCALE

APPENDIX Q



CITY OF DICKINSON
Zoning/Land Use

APPENDIX R

Soil Type Descriptions
(For Identification on Soils Maps)

Code	Description
E0415A	Belfield-Daglum silt loams, 0 to 2 percent slopes
E0443A	Belfield-Daglum silt loams, saline, 0 to 2 percent slopes
E0453A	Daglum-Rhoades complex, 0 to 2 percent slopes
E0453B	Daglum-Rhoades complex, 2 to 6 percent slopes
E0515A	Rhoades-Daglum complex, 0 to 2 percent slopes
E0515B	Rhoades-Daglum complex, 2 to 6 percent slopes
E0557B	Dogtooth-Janesburg silt loams, saline, 0 to 6 percent slopes
E0559A	Dogtooth-Janesburg silt loams, 0 to 3 percent slopes
E0559B	Dogtooth-Janesburg silt loams, 3 to 6 percent slopes
E0561D	Dogtooth-Janesburg complex, 6 to 15 percent slopes
E0563A	Janesburg-Dogtooth silt loams, 0 to 3 percent slopes
E0563B	Janesburg-Dogtooth silt loams, 3 to 6 percent slopes
E0565B	Janesburg fine sandy loam, 0 to 6 percent slopes
E0605A	Belfield-Grail silty clay loams, 0 to 2 percent slopes
E0605A	Belfield-Grail silty clay loams, 0 to 2 percent slopes
E0611B	Belfield-Savage silty clay loams, 2 to 6 percent slopes
E0625A	Belfield-Grail silty clay loams, saline, 0 to 2 percent slopes
E0634A	Lawther-Daglum complex, 0 to 2 percent slopes
E0634B	Lawther-Daglum complex, 2 to 6 percent slopes
E0651A	Regent-Janesburg complex, 0 to 3 percent slopes
E0651B	Regent-Janesburg complex, 3 to 6 percent slopes
E0651C	Regent-Janesburg complex, 6 to 9 percent slopes
E0679A	Savage-Daglum silt loams, 0 to 2 percent slopes
E0679B	Savage-Daglum silt loams, 2 to 6 percent slopes
E0701F	Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes
E0727A	Moreau-Janesburg complex, 0 to 3 percent slopes
E0727B	Moreau-Janesburg complex, 3 to 6 percent slopes
E0727C	Moreau-Janesburg complex, 6 to 9 percent slopes
E0803A	Grail silty clay loam, saline, 0 to 2 percent slopes
E0811A	Grail silty clay loam, 0 to 2 percent slopes
E0811B	Grail silty clay loam, 2 to 6 percent slopes
E0821A	Lawther silty clay, 0 to 2 percent slopes
E0835A	Savage silty clay loam, 0 to 2 percent slopes
E0841A	Savage silty clay loam, saline, 0 to 2 percent slopes
E0913D	Moreau-Wayden silty clays, 9 to 15 percent slopes
E1009A	Moreau silty clay, 0 to 3 percent slopes
E1009B	Moreau silty clay, 3 to 6 percent slopes
E1009C	Moreau silty clay, 6 to 9 percent slopes
E1023B	Moreau silty clay, saline, 0 to 6 percent slopes
E1025A	Regent-Savage silty clay loams, 0 to 3 percent slopes
E1025B	Regent-Savage silty clay loams, 3 to 6 percent slopes
E1247B	Ekalaka-Parshall-Desart fine sandy loams, 0 to 6 percent slopes
E1351C	Vebar-Flasher complex, 6 to 9 percent slopes
E1355D	Vebar-Flasher-Tally complex, 9 to 15 percent slopes

Soil Type Descriptions
(For Identification on Soils Maps)

Code	Description
E1403D	Beisigl-Flasher-Telfer loamy fine sands, 6 to 15 percent slopes
E1423F	Flasher-Vebar-Parshall complex, 9 to 35 percent slopes
E1475F	Flasher-Rock outcrop-Vebar complex, 9 to 70 percent slopes
E1625A	Vebar-Parshall fine sandy loams, 0 to 3 percent slopes
E1625B	Vebar-Parshall fine sandy loams, 3 to 6 percent slopes
E1635C	Vebar-Tally fine sandy loams, 6 to 9 percent slopes
E1805B	Lihen-Parshall complex, 0 to 6 percent slopes
E1823A	Parshall fine sandy loam, 0 to 2 percent slopes
E1823B	Parshall fine sandy loam, 2 to 6 percent slopes
E1845A	Peta loam, 0 to 2 percent slopes
E2101A	Arnegard loam, saline, 0 to 2 percent slopes
E2107B	Arnegard loam, 2 to 6 percent slopes
E2120A	Farnuf loam, 0 to 2 percent slopes
E2120B	Farnuf loam, 2 to 6 percent slopes
E2145A	Shambo loam, 0 to 2 percent slopes
E2145B	Shambo loam, 2 to 6 percent slopes
E2203B	Farland silt loam, 2 to 6 percent slopes
E2439A	Sen-Janesburg silt loams, 0 to 3 percent slopes
E2439B	Sen-Janesburg silt loams, 3 to 6 percent slopes
E2439C	Sen-Janesburg silt loams, 6 to 9 percent slopes
E2439D	Sen-Janesburg silt loams, 3 to 15 percent slopes
E2601C	Amor-Cabba loams, 6 to 9 percent slopes
E2601D	Amor-Cabba loams, 9 to 15 percent slopes
E2617F	Cabba-Amor loams, 15 to 50 percent slopes
E2719F	Cabba-Sen-Chama silt loams, 15 to 70 percent slopes
E2725F	Arikara-Shambo-Cabba loams, 9 to 70 percent slopes
E2729F	Cabba-Chama-Cherry silt loams, 3 to 70 percent slopes
E2737C	Chama-Cabba-Sen silt loams, 6 to 9 percent slopes
E2741D	Cabba-Chama-Sen silt loams, 9 to 15 percent slopes
E2801A	Amor-Arnegard loams, 0 to 3 percent slopes
E2803B	Amor-Shambo loams, 3 to 6 percent slopes
E2819B	Reeder-Farnuf loams, 3 to 6 percent slopes
E2913B	Chama-Sen-Cabba silt loams, 3 to 6 percent slopes
E2927A	Morton-Farland silt loams, 0 to 3 percent slopes
E2927B	Morton-Farland silt loams, 3 to 6 percent slopes
E2985A	Sen-Golva silt loams, 0 to 3 percent slopes
E3015D	Brandenburg-Dogtooth-Janesburg complex, 1 to 15 percent slopes
E3021F	Dogtooth-Janesburg-Brandenburg complex, 9 to 35 percent slopes
E3107F	Cabba-Badland outcrop complex, 6 to 70 percent slopes
E3185F	Lambert-Badland outcrop-Cabba complex, 6 to 45 percent slopes
E3203B	Cherry silt loam, 0 to 6 percent slopes
E4005A	Harriet silt loam, 0 to 2 percent slopes
E4007A	Harriet-Lallie complex, 0 to 2 percent slopes
E4031A	Lallie silty clay, ponded, 0 to 1 percent slopes

Soil Type Descriptions
(For Identification on Soils Maps)

Code	Description
E4033A	Lallie silty clay, 0 to 1 percent slopes
E4121A	Havrelon silt loam, 0 to 2 percent slopes
E4161A	Straw loam, 0 to 2 percent slopes
E4173A	Straw loam, channeled, 0 to 2 percent slopes
E4175A	Straw loam, channeled, wooded,0 to 2 percent slopes
E4180A	Straw-Daglum complex, channeled, 0 to 2 percent slopes
E4181A	Straw-Rhoades-Daglum silt loams, 0 to 2 percent slopes
E4187A	Trembles fine sandy loam, 0 to 2 percent slopes
E4195A	Velva fine sandy loam, 0 to 2 percent slopes
E4209B	Banks fine sandy loam, 0 to 6 precent slopes
E4221A	Banks-Trembles fine sandy loams, channeled, 0 to 2 percent slopes
E4537A	Stady loam, 0 to 2 percent slopes
E4537B	Stady loam, 2 to 6 percent slopes
E4561E	Manning-Schaller-Wabek complex, 6 to 25 percent slopes
E4585A	Manning fine sandy loam, 0 to 2 percent slopes
E4711A	Dimmick silty clay, 0 to 1 percent slopes
E4729A	Heil silt loam, 0 to 1 percent slopes
E4907B	Haplustolls-Ustorthents complex, 0 to 6 percent slopes
E4909D	Ustorthents, sandy, 6 to 15 percent slopes
E4915F	Dumps, mine-Ustorthents complex, 0 to 75 percent slopes
E4985	Urban land
E4987	Urban land-Ustorthents complex
E6031B	Farfeld-Cedarpan loams, golden valley, 2 to 6 percent slopes
E6045A	Belfield-Daglum silt loams, golden valley, 0 to 2 percent slopes
E6045B	Belfield-Daglum silt loams, golden valley, 2 to 6 percent slopes
E6047A	Daglum-Rhoades complex, golden valley, 0 to 2 percent slopes
E6053A	Janesburg-Dogtooth silt loams, golden valley, 0 to 3 percent slopes
E6055B	Rhoades-Daglum complex, golden valley, 2 to 6 percent slopes
E6056B	Janesburg fine sandy loam, golden valley, 0 to 6 percent slopes
E6059A	Dogtooth-Janesburg silt loams, golden valley, 0 to 3 percent slopes
E6060A	Belfield-Grail silty clay loams, golden valley, 0 to 2 percent slopes
E6065B	Regent-Janesburg complex, golden valley, 3 to 6 percent slopes
E6065C	Regent-Janesburg complex, golden valley, 6 to 9 percent slopes
E6077A	Moreau-Janesburg complex, golden valley, 0 to 3 percent slopes
E6077B	Moreau-Janesburg complex, golden valley, 3 to 6 percent slopes
E6081A	Grail silty clay loam, golden valley, 0 to 2 percent slopes
E6081B	Grail silty clay loam, golden valley, 2 to 6 percent slopes
E6083A	Grail silty clay loam, saline, golden valley, 0 to 2 percent slopes
E6085C	Savage silty clay loam, golden valley, 6 to 9 percent slopes
E6087A	Lawther silty clay, golden valley, 0 to 2 percent slopes
E6093C	Moreau-Wayden silty clays, golden valley, 6 to 9 percent slopes
E6101C	Moreau silty clay, very stony, golden valley, 3 to 9 percent slopes
E6105A	Regent-Savage silty clay loams, golden valley, 0 to 3 percent slopes
E6105B	Regent-Savage silty clay loams, golden valley, 3 to 6 percent slopes

Soil Type Descriptions
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Code	Description
E6105C	Regent-Savage silty clay loams, golden valley, 6 to 9 percent slopes
E6131C	Vebar-Cohagen fine sandy loams, golden valley, 3 to 9 percent slopes
E6135D	Vebar-Flasher-Tally complex, golden valley, 9 to 15 percent slopes
E6141D	Beisigl-Flasher-Telfer loamy fine sands, golden valley, 6 to 15 percent slopes
E6143F	Flasher-Vebar-Parshall complex, golden valley, 9 to 35 percent slopes
E6151B	Lefor fine sandy loam, golden valley, 3 to 6 percent slopes
E6153D	Lefor-Cohagen fine sandy loam, golden valley, 6 to 15 slopes
E6163A	Vebar-Parshall fine sandy loams, golden valley, 0 to 3 percent slopes
E6163B	Vebar-Parshall fine sandy loams, golden valley, 3 to 6 percent slopes
E6165C	Vebar-Tally fine sandy loams, golden valley, 6 to 9 percent slopes
E6181B	Lihen-Parshall complex, golden valley, 0 to 6 percent slopes
E6183A	Parshall fine sandy loam, golden valley, 0 to 2 percent slopes
E6189D	Tally-Lefor-Beisigl fine sandy loams, golden valley, 3 to 15 percent slopes
E6210A	Farnuf loam, golden valley, 0 to 2 percent slopes
E6210B	Farnuf loam, golden valley, 2 to 6 percent slopes
E6210C	Farnuf loam, golden valley, 6 to 9 percent slopes
E6215A	Shambo loam, golden valley, 0 to 2 percent slopes
E6215B	Shambo loam, golden valley, 2 to 6 percent slopes
E6217A	Arnegard loam, golden valley, 0 to 2 percent slopes
E6217B	Arnegard loam, golden valley, 2 to 6 percent slopes
E6249A	Sen-Janesburg silt loams, golden valley, 0 to 3 percent slopes
E6249B	Sen-Janesburg silt loams, golden valley, 3 to 6 percent slopes
E6261C	Amor-Cabba loams, golden valley, 6 to 9 percent slopes
E6261D	Amor-Cabba loams, golden valley, 9 to 15 percent slopes
E6267F	Cabba-Amor loams, golden valley, 15 to 50 percent slopes
E6271D	Cabba-Chama-Sen silt loams, golden valley, 9 to 15 percent slopes
E6277C	Chama-Cabba-Sen silt loams, golden valley, 6 to 9 percent slopes
E6281A	Amor-Arnegard loams, golden valley, 0 to 3 percent slopes
E6281A	Amor-Arnegard loams, golden valley, 0 to 3 percent slopes
E6283B	Amor-Shambo loams, golden valley, 3 to 6 percent slopes
E6289A	Reeder-Farnuf loams, golden valley, 0 to 3 percent slopes
E6289B	Reeder-Farnuf loams, golden valley, 3 to 6 percent slopes
E6293B	Chama-Sen-Cabba silt loams, golden valley, 3 to 6 percent slopes
E6295A	Sen-Golva silt loams, golden valley, 0 to 3 percent slopes
E6317F	Cabba-Badland, outcrop complex, golden valley, 6 to 70 percent slopes
E6410A	Straw-Daglum complex, channeled, golden valley, 0 to 2 percent slopes
E6479A	Heil silt loam, golden valley, 0 to 1 percent slopes
EGP	Pits, gravel and sand
M-W	Miscellaneous water
W	Water