

Public Service Commission
Avoidance/Exclusion Areas and Resources Analysis

CHS Minot Terminal Facility Upgrade

Minot, North Dakota

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1.0 BACKGROUND AND PROJECT DESCRIPTION

1.1 Description of the Proposed Project

The proposed CHS Minot Terminal Facility Upgrade includes construction of an electrical building, vapor combustor, office building and a new truck loading rack. The purpose of the proposed construction is to improve overall safety and product handling efficiency at the Minot Terminal located in Ward County at 5125 Highway 2 & 52 West, Minot, North Dakota. The existing Minot Terminal consists of 10 petroleum tanks with two more currently being constructed, a two bay truck load out facility, and an office building. The current truck load out facility is undersized and unable to support the current volume of trucks utilizing the terminal on a daily basis. The proposed upgrade includes the addition of a four bay truck load out facility and associated infrastructure designed to adequately handle current and future truck volumes. The proposed CHS Minot Terminal Facility Upgrade would take place within the boundaries of the current facility on previously disturbed ground. ***Please refer to the Project Location Map located in Appendix A.***

The following report is intended to provide documentation and clearance regarding avoidance and exclusion areas to fulfill CHS Inc. obligations under the PSC (Public Service Commission) regulatory authority for upgrading existing liquid transmission facilities. In addition, potential impacts to public services, infrastructure, demographics, land use, land based economics, recreational, cultural, archaeological, soils, geologic, groundwater, surface water, floodplain, wetlands, vegetation, wildlife, and rare and unique natural resources were analyzed and included as part of this report for PSC consideration for this project.

2.0 SITE ANALYSIS

2.1 Introduction

The purpose of this analysis is to identify potential avoidance and exclusion areas along with additional resources within the proposed study area of the CHS Minot Terminal Expansion that could preclude construction of the proposed improvements. Exclusion and avoidance areas have been identified, along with other potential environmental concerns that should be avoided, minimized, or mitigated. The baseline criteria used for the analysis was obtained from the North Dakota Public Service Commission Rules, Article 69-06, Energy Conversion and Transmission Facility Siting.

The PSC regulations include the following criteria as exclusion areas for transmission facility corridors and route criteria:

- Designated or registered national: parks; memorial parks; historic sites and landmarks; natural landmarks; monuments; and wilderness areas;
- Designated or registered state: parks; historic sites; monuments; historical markers; archeological sites; and nature preserves.
- County parks and recreation areas; municipal parks; and parks owned or administered by other governmental subdivisions;
- Areas critical to the life stages of threatened & endangered animal or plant species.
- Areas where animal or plant species that are unique or rare to this state would be irreversibly damaged.

The PSC regulations include the following criteria as avoidance areas for transmission facility corridors and route criteria:

- Designated or registered national: historic districts; wildlife areas; wild, scenic, or recreational rivers; wildlife refuges; and grasslands.
- Designated or registered state: wild, scenic, or recreational rivers; game refuges; game management areas; management areas; forests; forest management lands; and grasslands.
- Historical resources which are not specifically designated as exclusion or avoidance areas.
- Areas which are geologically unstable.
- Within five hundred feet (152.4 meters) of a residence, school, or place of business. This criterion shall not apply to a water pipeline transmission facility.
- Reservoirs and municipal water supplies.
- Water sources for organized rural water districts.
- Irrigated land. This criterion shall not apply to an underground transmission facility.
- Areas of recreational significance which are not designated as exclusion areas.

Avoidance and exclusion areas were identified through available data via coordination with resource agencies and through state and agency Geographical Information System (GIS) data hubs. Several resource agencies provided confidential information used to identify potential avoidance and exclusion areas. The purpose of the confidentiality of certain data is to protect the integrity of sensitive areas from intentional disturbance. Due to the confidential nature of this information, specific details regarding the nature and locations of these sensitive areas have been excluded from the document. In addition to GIS digital and agency provided data, environmental staff from KL&J completed a site visit and field inspection of the proposed project area on October 27, 2011.

3.0 AVOIDANCE/EXCLUSION AREAS AND RESOURCE ANALYSIS

3.1 Public Services and Infrastructure

Data was gathered and analyzed to determine potential impacts to public services and infrastructure, including residences, commercial properties, public facilities, transportation infrastructure and right-of-way, known transmission lines, and telecommunication facilities.

The study area is located just west of the city limits of Minot, North Dakota. Public services and infrastructure found within and around the study area is for the most part associated with urban sprawl from the city of Minot. Minot contains a medical center which offers major medical services, seven clinics, one eye care clinic and one nursing home. The city also has 13 elementary schools, three middle schools, and four high schools. Scattered throughout the 0.5 mile study area are seven residences/farmsteads, eight commercial properties, and one irrigation well. The nearest residential site is located approximately 750 feet northwest of the proposed project area, and the closest commercial building site, a trucking company, is approximately 500 feet northeast. ***Please refer to the Residential Distances Map in Appendix A.***

Burlington Northern Santa Fe (BNSF) railroad tracks are located south of the proposed project, and run in a northwest/southeast direction. US Highway 2/52 borders the northeast side of the study area and extends in a northwest/southeast direction as it passes the facility. Additional roadways include gravel surfaced county roadways, and two-track trails used for agricultural purposes. There are no transmission lines located within the 0.5 mile study area. In addition, an underground gas pipeline and oil pipeline traverse the study area. ***Please refer to the Public Services and Infrastructure Map in Appendix A.***

3.2 Demographics

The proposed project is located in Harrison Township in Ward County, North Dakota. The nearest incorporated city to the study area is Minot, North Dakota, which is approximately 1.5 miles east and has a population of 40,888 residents (2010 estimate).

3.3 Land Use and Land Based Economics

Zoning of the project area falls under the authority of the city of Minot's extraterritorial jurisdiction. The potential project area falls within land zoned Special Use designated for the CHS terminal.

The study area is located in a semi-rural part of North Dakota comprised primarily of grasslands with smaller portions of developed land and cropland intermixed. The proposed project would be located entirely within the current facility's boundaries and would not require any additional land acquisition or disturbance. The closest public land occurs as North Dakota State Land Department property approximately 0.5 miles north of the study area. ***Please refer to Land Use and Land Based Economics Map in Appendix A.***

A wetland easement is a perpetual agreement entered into by the landowner and the USFWS. In return for a single lump sum payment, the landowner agrees not to drain, burn, level, or fill wetlands covered by the easement. The boundaries of easement wetlands are defined by USFWS based on a high-water average using decades of aerial photographs. Wetland easements are considered part of the National Wildlife Refuge System and are administered for public benefit. There are no USFWS wetland easements located within the study area.

Similar to the wetland easement, a grassland easement is also a perpetual agreement entered into by the landowner and the USFWS except the landowner is tasked with also protecting upland vegetation. This means that land under a grassland easement cannot be cultivated and mowing, haying, and grass seed harvesting cannot occur until after July 15. There are no USFWS grassland easements located within the study area.

The USFWS also administers the National Wildlife Refuge System which includes National Wildlife Refuges (NWR) and Waterfowl Production Areas (WPA). NWRs serve the purpose of preserving and protecting lands for fish and wildlife and their habitat. WPAs are lands protected and/or restored for the purpose of waterfowl production. There are no NWRs or WPAs within the study area. The nearest NWR, Upper Souris NWR complex, is approximately 11.8 miles north-northwest of the study area and the nearest WPA is approximately 19 miles west of the study area.

Land managed by the NDGF consists of Private Land Opened to Sportsmen (PLOTS). PLOTS are easements administered by the NDGF to allow public hunting access and for develop of habitat. These easements are placed on private lands that already provided ample habitat or as a way to enhance wildlife habitat for a variety of wildlife species. PLOTS easements do not exempt the parcel from development; however, compensation paid to the landowner may need to be refunded if the NDGF deem construction devalues the habitat they wish to protect. There are no NDGF managed lands located within the study area.

The Natural Resources Conservation Service (NRCS) administers the Conservation Reserve Program (CRP). Agricultural landowners may enroll their land into the CRP, essentially taking the land out of production for a given timeframe to protect wildlife and water resources, and receive annual payments. CHS indicated the potential project area does not include lands enrolled in the CRP Program.

3.4 Recreational Resources

Rangeland, cropland, wetlands, rivers, and streams are found near the study area. These areas may be used for hunting, bird watching, recreation and potentially fishing purposes. The potential project area is part of the existing CHS Facility and therefore would not alter recreational opportunities. No recreational resources exist within the potential project areas.

3.5 Cultural and Archaeological Resources

If the project would include any federal funding or require a federal approval, such as a permit, compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470), as amended, would be required. Section 106 requires that federally funded projects be evaluated for the effects¹ on historic and cultural properties included in, or eligible for listing on, the National Register of Historic Places (NRHP). Federal involvement would also require compliance with the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. 461 et seq., and 23 U.S.C. 305) which provides for the survey, recovery, and preservation of significant scientific, prehistoric, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a federally licensed or federally funded project.

Kadmas, Lee & Jackson conducted a Class I literature review of the State Historical Society of North Dakota's site and manuscript files on March 2 and 3, 2011. No known previously documented resources lie within the potential project area. Due to the proposed project being located entirely within the existing facility and on previously disturbed land, no further cultural resources surveys were completed.

3.6 Soils

The entire project area has been previously disturbed by construction of the current facilities. Natural Resources Conservation Service Soil Survey data for Mountrail County indicates soil in the proposed project area has a low to moderate susceptibility to sheet and rill erosion, and can tolerate high levels of erosion without loss of productivity. The soil is well drained with a typical water table depth greater than five feet.

If the project were to require federal involvement, then the Farmland Protection Policy Act would apply. The Farmland Protection Policy Act of 1981 (7 U.S.C. 4201 et seq.) provides protection to prime and

¹ Effect means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register (36 CFR § 800.16).

unique farmlands. Section 658.5 of the Farmland Protection Policy Act provides criteria for federal agencies to identify and take into account the adverse effects of federal programs on the protection of farmland. Federal agencies are to consider alternative actions, as appropriate, that could lessen adverse effects; and to assure that such federal programs, to the extent practicable, are compatible with state, unit of local government, and private programs and policies to protect farmland. The proposed project would have no impacts to farmland; therefore, no further actions regarding the Farmland Protection Policy Act would be required.

3.7 Geologic and Groundwater Resources

The study area is located in a region of North Dakota known as the Drift Prairie. The Drift Prairie consists of a mainly flat to undulating landscape of varying sand, silt and clay content. This area was formed by glaciers moving across the state that became stagnant, depositing rock debris, gravel, and fine grained sediments intermixed with large ice chunks. When buried ice chunks melted, wetlands were created. Due to these geologic sequences, the region in which the study area is located is commonly referred to as the prairie pothole region. Surface geology within the study area is considered part of the Oahe and Bullion Creek Formations. The Oahe Formation is comprised of dark clay and silt typically 30 feet thick with underlying cross-bedded sand, whereas the Bullion Creek Formation is comprised of yellow-brown silt, sand, clay, sandstone, and lignite approximately 600 feet thick.

Underlying the study area are deep sandstone aquifers within the Lower Tertiary. The Souris River Aquifer is located within the project area. ***Please refer to the Geologic and Groundwater Resources exhibit in Appendix A.***

3.8 Surface Water and Floodplain Resources

The study area occurs in the prairie pothole region of North Dakota. This region is dotted with wetland basins of various sizes and water regimes. In addition, the Souris River, smaller streams and drainages occur near the study area. These water complexes may be used for hunting, bird watching, and potentially fishing purposes; however, they are likely not utilized for boating activities other than occasional occurrences of smaller watercraft associated with hunting or fishing. The boundaries of the Souris River's 100-year and 500-year floodplains are mapped approximately 300 feet north of the potential project area. The Gassman Coulee and South Branch Coulee has 100-year floodplain boundaries mapped approximately 1,200 feet northwest of the potential project area. The potential project area would not impact the floodplain. ***Please refer to the Surface Water, Floodplains and Wildlife exhibit in Appendix A.***

3.9 Wetlands

Wetlands are defined both in the 1977 Executive Order 11990, Protection of Wetlands, and in Section 404 of the Clean Water Act of 1986, as those areas that are inundated by surface or groundwater with a frequency to support and, under normal circumstances, do or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Three parameters that define a wetland, as outlined in the Federal Manual for Delineating Jurisdictional Wetlands (United States Army Corps of Engineers, 1987), are hydric soils, hydrophytic vegetation, and hydrology. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands are important natural resources that often serve many functions, such as providing habitat for wildlife, storing floodwaters, recharging groundwater, and improving water quality through purification.

According to the United States Fish & Wildlife Service (USFWS) National Wetland Inventory, there are three freshwater emergent wetlands scattered throughout the study area and riverine wetland in the form of the Souris River. The site visit revealed no wetlands within the potential project areas. ***Please refer to the Surface Water, Floodplains and Wildlife exhibit in Appendix A.***

3.10 Vegetation

The proposed Facility Upgrade would take place entirely within the boundaries of the current facility and on areas that have all been previously disturbed by operations of the facility. Therefore, there will be no vegetation impacts associated with the proposed project.

3.11 Wildlife

The study area lies in the prairie pothole region of North Dakota and the Central Flyway of North America. As such, this area is used as resting grounds for many birds on their spring and fall migrations, as well as nesting and breeding grounds for many waterfowl species. Other non-game bird species are known to fly through and inhabit this region. The Migratory Bird Treaty Act protects 836 species of migratory birds and, at this time, 58 of these species are legally hunted. The area is also inhabited by numerous mammals including white tail deer, rabbits, fox, coyote, beaver, and muskrat. In addition, game birds such as ducks and geese, as well as raptors can be found near the study area.

Protection is provided for the bald and golden eagle, as well as other migratory birds, through the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act of 1940, 16 U.S.C. 668–668d, as amended, was written with the intent to protect and preserve bald and golden eagles, both of which are treated as species of concern within the Department of the Interior. In addition, the Migratory Bird Treaty Act (916 U.S.C. 703–711) regulates impacts to these species such as direct mortality, habitat degradation, and/or displacement of individual birds. Additionally, the Migratory Bird Treaty Act prohibits the taking, among other things, of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. Taking is defined as hunt, capture, kill, possess, sell, purchase, ship, transport, carry, or export any part, nest, or egg of a migratory bird. No bald or golden eagle nests were identified within the study area. There are no documented bald or golden eagle nests within 20 miles of the study area.

During a previous field survey two large raptor nests were observed south of the potential project site. Neither raptor nest appeared to be active at the time of the survey. The proposed project would occur entirely within the existing facility and would have no impacts to wildlife or associated habitats. ***Please refer to the Surface Water, Floodplain and Wildlife Map in Appendix A.***

3.12 Rare and Unique Natural Resources

In accordance with Section 7 of the Endangered Species Act of 1973, 50 CFR Part 402 as amended, any proposed action must not be likely to jeopardize the continued existence of any federally-listed endangered or threatened species or species proposed to be listed. In addition, no such action can result in the destruction or adverse modification of habitat of such species that is determined to be critical by the Secretary. An endangered species is one which is in danger of extinction throughout all or a significant portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. A candidate species is one which is being considered for listing as an endangered or threatened species, but no proposed rule for listing has been made. While candidate species are not legally protected under the Endangered Species Act, it is within the spirit of the Endangered Species Act to consider these species as having significant value and worth protecting.

According to the United States Fish & Wildlife Service North Dakota County List (October 2010), two endangered species (gray wolf and whooping crane), one threatened species (piping plover), and designated critical habitat for the piping plover occur within Ward County. In addition, two Candidate Species (Dakota skipper and Sprague's pipit), also occur within Ward County.

Gray Wolf (*Canis lupus*)

The gray wolf is the largest wild canine species in North America. It is found throughout northern Canada, Alaska, and the forested areas of Northern Michigan, Minnesota, and Wisconsin and has been re-introduced to Yellowstone National Park in Wyoming. While the gray wolf is not common in North Dakota, occasionally individual wolves do pass through the state. Historically, its preferred habitat includes biomes such as boreal forest, temperate deciduous forest, and temperate grassland. Gray wolves live in packs of up to 21 members, although some individuals will roam alone. The study area is located far from other known wolf populations. Because of the lack of preferred habitat in the potential project area, the proposed project will not affect the gray wolf.

Whooping Crane (*Grus americana*)

The whooping crane is the tallest bird in North America. In the United States, this species ranges through the Midwest and Rocky Mountain regions from North Dakota south to Texas and east into Colorado. Whooping cranes migrate through North Dakota along a band running from the south central to the northwest parts of the state. They use shallow, seasonally and semi-permanently flooded palustrine (marshy) wetlands for roosting and various cropland and emergent wetlands for feeding. During migration, whooping cranes are often recorded in riverine habitats, including the Missouri River. Currently there are three wild populations of whooping cranes, yielding a total species population of about 365. Of these flocks, only one is self-sustaining. The study area is located within the area of the Central Flyway where 95 percent of all whooping crane sightings have occurred. In addition, various emergent wetlands and cropland occur near the study area. **Please refer to the North Dakota and Montana Whooping Crane Migration Corridor exhibit in Appendix A.** Due to the potential project occurring entirely on previously disturbed land with no anticipated impacts to wetlands or cropland as well as the presence of large amounts of developed land within the study area, it was determined that the proposed project would not affect the whooping crane.

Piping Plover (*Charadrius meoldus*)

The piping plover is a small migratory shorebird. Historically, piping plovers could be found throughout the Atlantic Coast, Northern Great Plains, and the Great Lakes. Drastically reduced, sparse populations presently occur throughout this historic range. In North Dakota, breeding and nesting sites can be found along the Missouri River. Preferred habitat for the piping plover includes riverine sandbars, gravel beaches, alkali areas of wetlands, and flat, sandy beaches with little vegetation. The USFWS has identified critical habitat for the piping plover in Ward County. Critical habitat includes sparsely vegetated shoreline beaches, peninsulas, islands composed of sand, gravel, or shale, and alkali wetlands. Potential habitat in the form of the sandy/gravelly Lake Darling shoreline exists approximately 19 miles away at the closest point. Due to the lack of potential habitat, the proposed project would not affect the piping plover.

Dakota Skipper (*Hesperia dacotae*)

The Dakota skipper is a small butterfly with a one-inch wing span. These butterflies historically ranged from southern Saskatchewan, across the Dakotas and Minnesota, to Iowa and Illinois. The preferred habitat for the Dakota skipper consists of flat, moist bluestem prairies and upland prairies with an

abundance of wildflowers. Dakota skippers are visible in their butterfly stage from mid-June to early July. Due to the proposed project occurring entirely within the boundaries of the current facility with no associated impacts to vegetation, it was determined the proposed project would not affect the Dakota skipper

Sprague's Pipit (*Anthus spragueii*)

The Sprague's pipit is a small songbird found in prairie areas throughout the Northern Great Plains. Preferred habitat includes rolling, upland mixed-grass prairie habitat with high plant species diversity. The Sprague's pipit breeds in habitat with minimal human disturbance. Due to the location of the potential project being located on previously disturbed land and adjacent to highly developed land, it was determined the proposed project would not affect the Sprague's pipit.

The NDGF has also developed a *North Dakota Comprehensive Wildlife Conservation Strategy* (2005). As part of the strategy, the NDGF have identified species of conservation priority for the purposes of developing a management strategy; however, these species are provided no legal protection. There are three conservation priority levels (I, II, and III). Species of all three conservation priority levels are listed within the Drift Prairie region. ***Please refer to Table 2, Drift Prairie Species of Conservation Priority.*** Level I species are those that have a high conservation need because of declining population within North Dakota or are declining over the species' range and the core of their breeding population occurs in North Dakota. Level II species have a moderate conservation need or are high priority species without available funding for protection. Level III species are have a moderate need of conservation, but are believed to be on the edge of their range in North Dakota.

Table 1. Drift Prairie Species of Conservation Priority

Birds	
Name	Priority Level
American bittern	I
Northern pintail	II
Northern harrier	II
Swainson's hawk	I
Ferruginous hawk	I
Sharp-tailed grouse	II
Willet	I
Upland sandpiper	I
Marbled godwit	I
Wilson's phalarope	I
Short-eared owl	II
Loggerhead shrike	II
Sedge wren	II
Sprague's pipit	I
Lark bunting	I
Grasshopper sparrow	I
Baird's sparrow	I
Le Conte's sparrow	II
Nelson's sharp-tailed sparrow	I
Chestnut-collared longspur	I
Dickcissel	II
Bobolink	II
Mammals	
Name	Priority Level
Arctic Shrew	III
Pygmy Shrew	II
Richardson's ground squirrel	II
Reptiles/Amphibians	
Name	Priority Level
Plains spadefoot	I
Canadian toad	I
Smooth green snake	I
Western hognose snake	I

Source: North Dakota Comprehensive Wildlife Strategy (NDGF, December 2005)

In addition to the threatened and endangered species and conservation priority species discussed above, the North Dakota Natural Heritage biological conservation database identifies state sensitive species. No known state sensitive species are located within or adjacent to the CHS property.

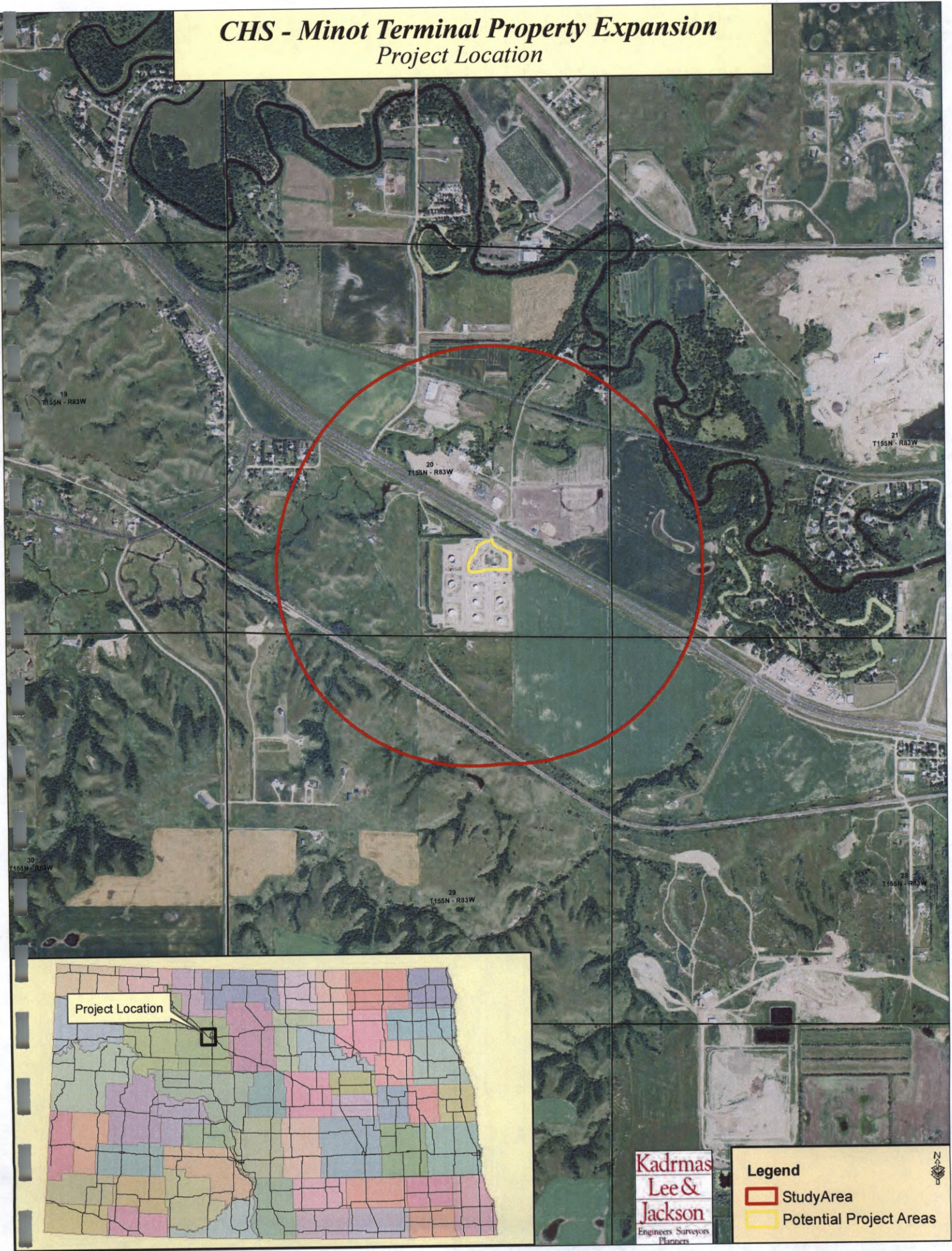
3.13 Avoidance/Exclusion Area and Resources Analysis Conclusions

Results of the data analysis from GIS desktop review, agency coordination and field surveys reveal no avoidance or exclusion areas occurring within the potential project area. The potential project area has been previously disturbed and construction would not impact pristine natural areas. The proposed project is anticipated to have no impact on public services, infrastructure, demographics, land use, land based economics, recreational, cultural, archaeological, soils, geologic, groundwater, surface water, floodplain, wetlands, vegetation, wildlife, or rare and unique natural resources.

APPENDIX A



Maps

CHS - Minot Terminal Property Expansion Project Location

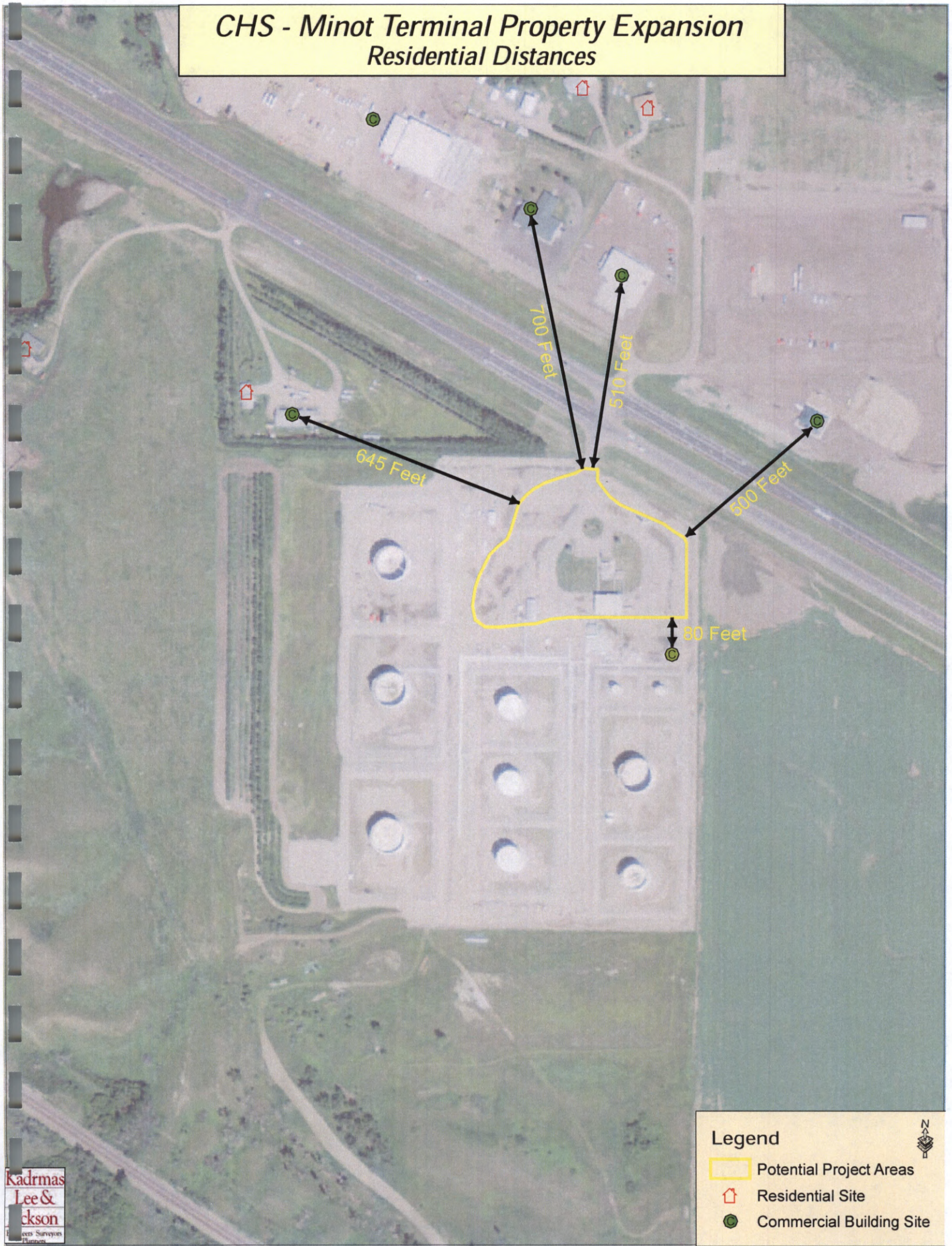


Project Location

**Kadmas
Lee &
Jackson**
Engineers Surveyors
Planners

- Legend**
-  Study Area
 -  Potential Project Areas

CHS - Minot Terminal Property Expansion Residential Distances

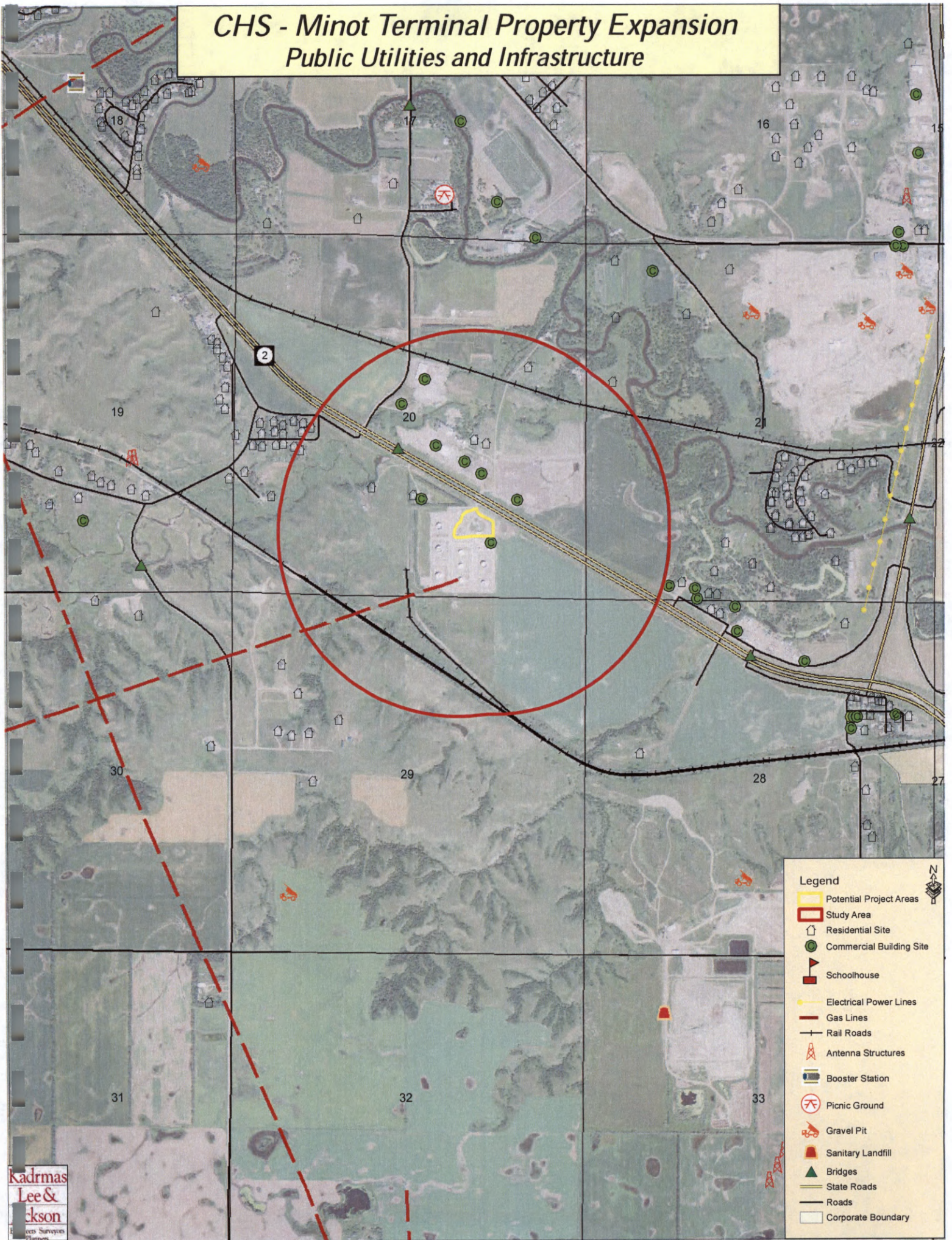


Legend

- Potential Project Areas
- Residential Site
- Commercial Building Site

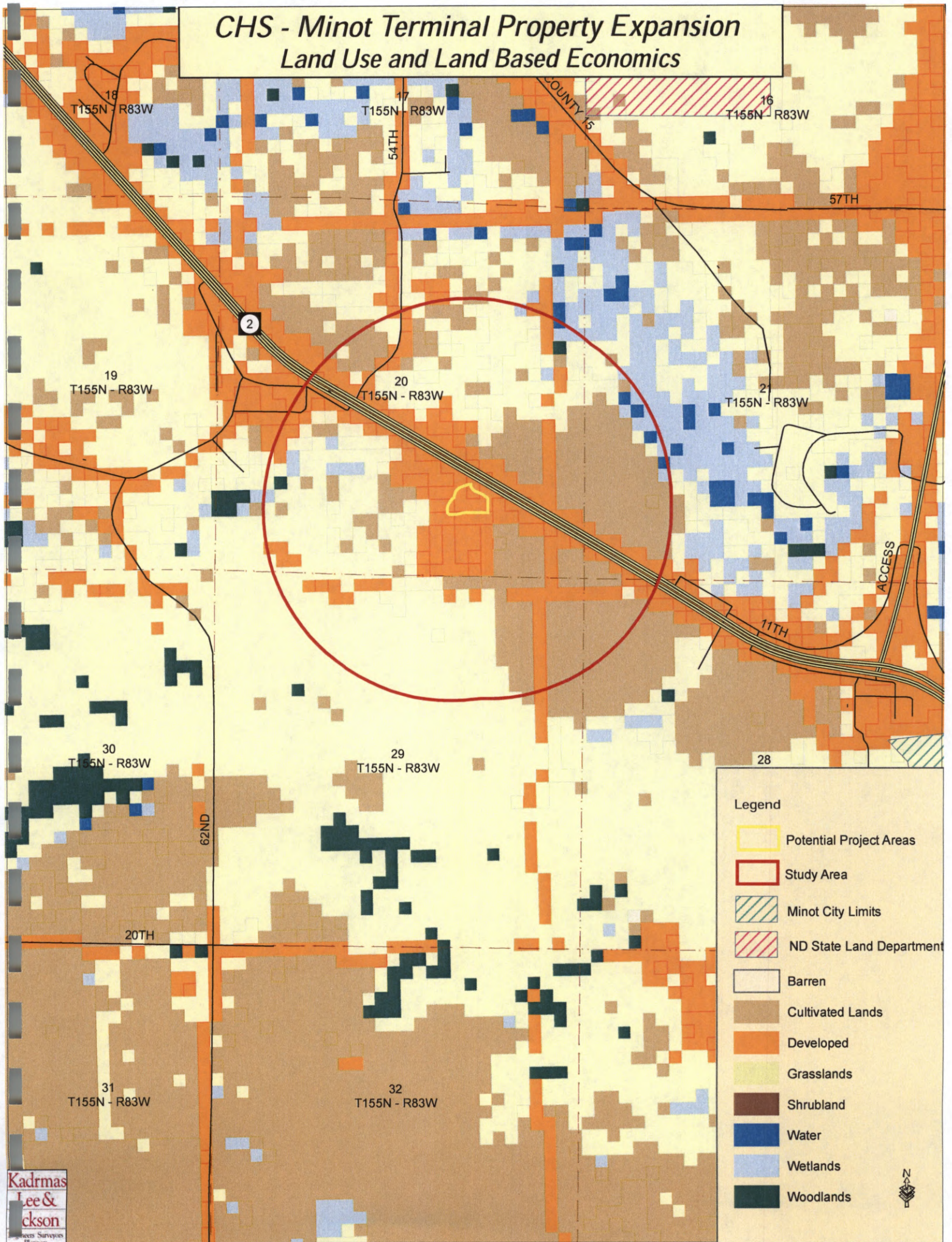


CHS - Minot Terminal Property Expansion Public Utilities and Infrastructure



- Legend**
- Potential Project Areas
 - Study Area
 - Residential Site
 - Commercial Building Site
 - Schoolhouse
 - Electrical Power Lines
 - Gas Lines
 - Rail Roads
 - Antenna Structures
 - Booster Station
 - Picnic Ground
 - Gravel Pit
 - Sanitary Landfill
 - Bridges
 - Roads
 - Corporate Boundary

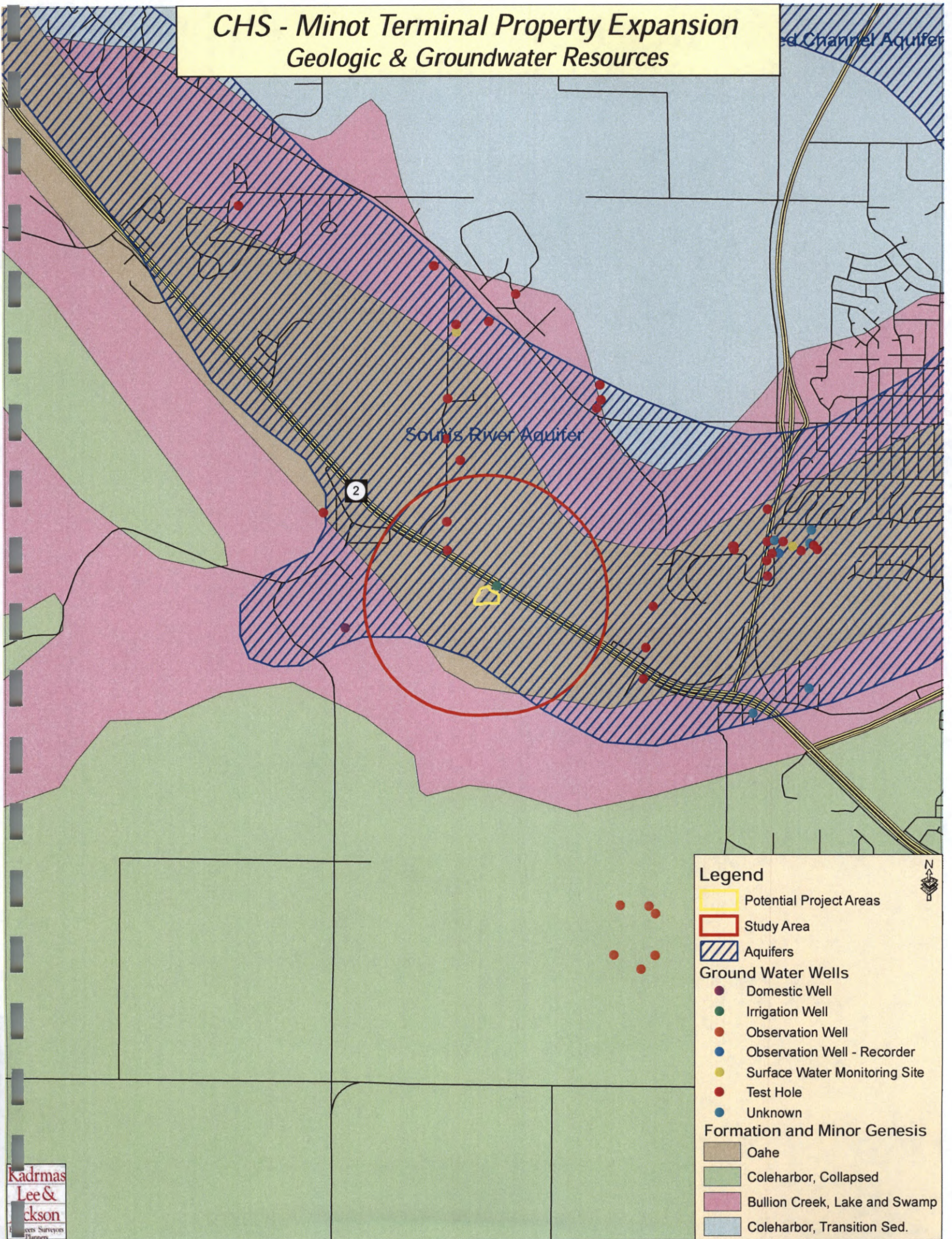
CHS - Minot Terminal Property Expansion Land Use and Land Based Economics



Legend

- Potential Project Areas
- Study Area
- Minot City Limits
- ND State Land Department
- Barren
- Cultivated Lands
- Developed
- Grasslands
- Shrubland
- Water
- Wetlands
- Woodlands

CHS - Minot Terminal Property Expansion Geologic & Groundwater Resources



Legend

- Potential Project Areas
- Study Area
- Aquifers

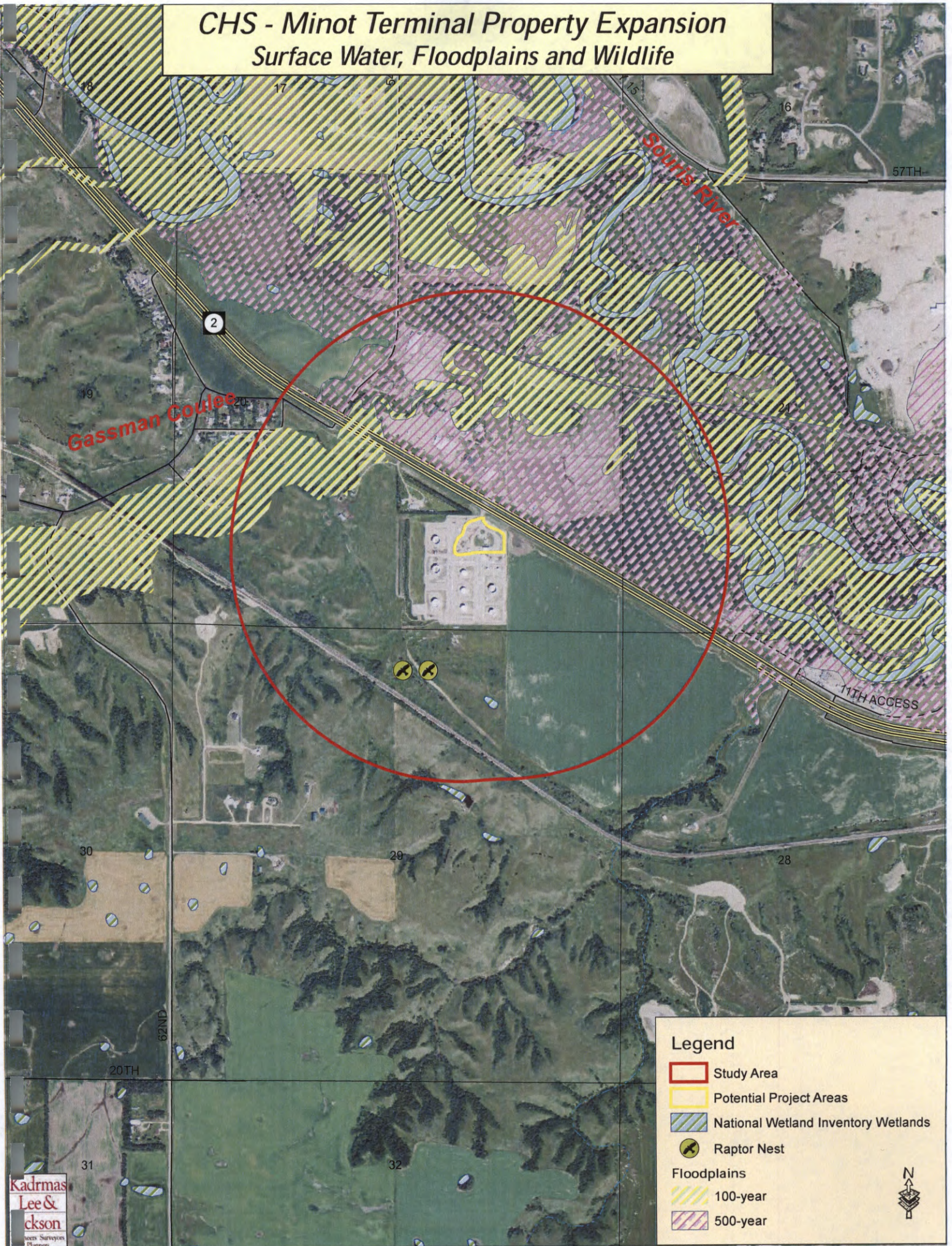
Ground Water Wells

- Domestic Well
- Irrigation Well
- Observation Well
- Observation Well - Recorder
- Surface Water Monitoring Site
- Test Hole
- Unknown

Formation and Minor Genesis

- Oahe
- Coleharbor, Collapsed
- Bullion Creek, Lake and Swamp
- Coleharbor, Transition Sed.

CHS - Minot Terminal Property Expansion Surface Water, Floodplains and Wildlife

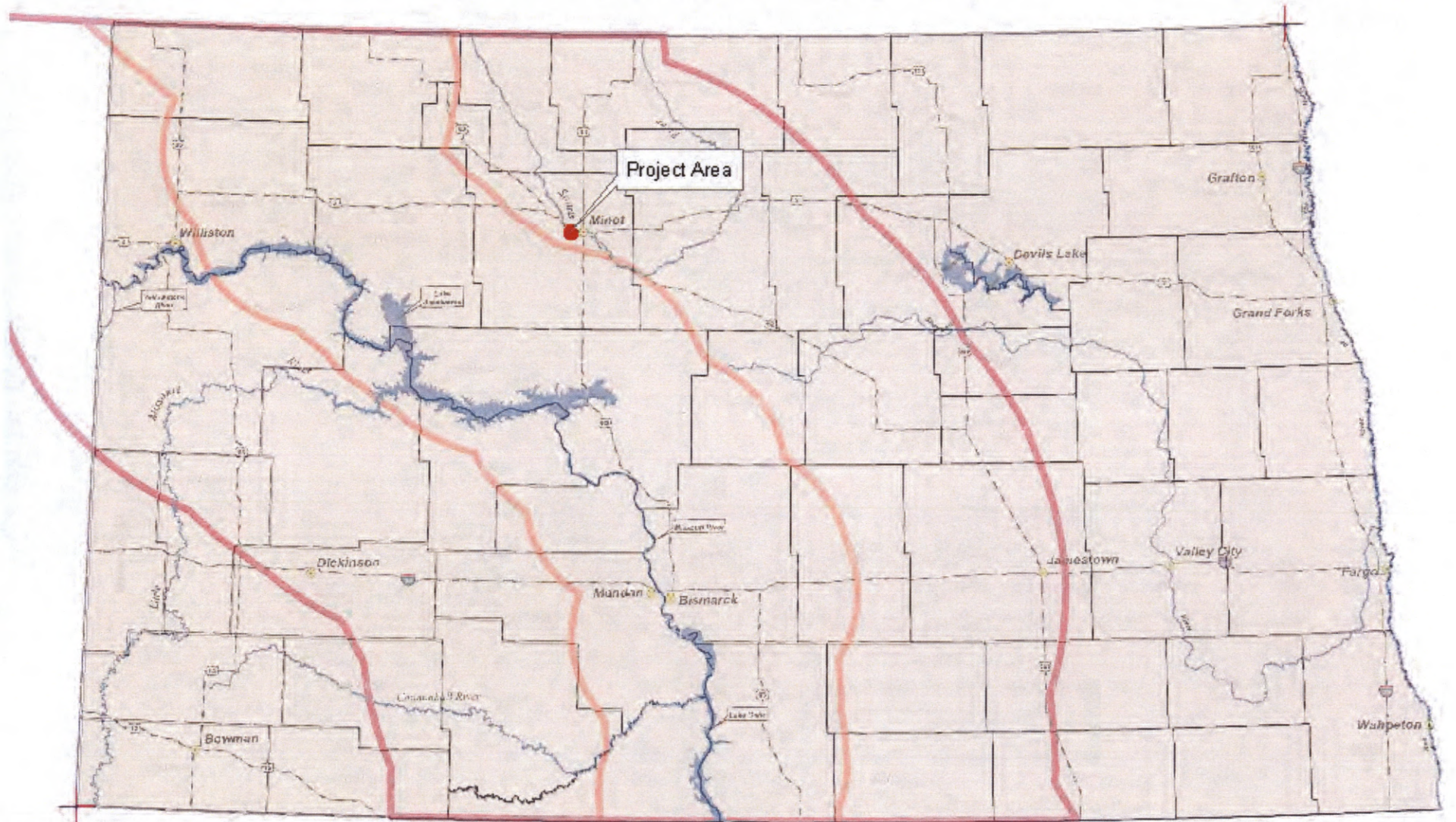




Legend

- Study Area
- Potential Project Areas
- National Wetland Inventory Wetlands
- Raptor Nest
- Floodplains**
 - 100-year
 - 500-year



CHS Minot Terminal Expansion Whooping Crane Migration Corridor Map



-  75% Whooping Crane Migration Corridor
-  95% Whooping Crane Migration Corridor