

***Raptor and Prairie Grouse  
Spring 2011 Survey  
BakkenLink Pipeline***

***Prepared for:***

***BakkenLink Pipeline LLC***

**May 2011**

***Raptor and Prairie Grouse  
Spring 2011 Survey***

***BakkenLink Pipeline  
BakkenLink Pipeline, LLC***

**TABLE OF CONTENTS**

1.0	INTRODUCTION .....	1
2.0	BACKGROUND INFORMATION .....	3
3.0	METHODS.....	5
4.0	RESULTS .....	6
4.1	RAPTOR NESTS .....	6
4.2	PRAIRIE GROUSE .....	6
4.3	OTHER OBSERVED MIGRATORY BIRD NEST SITES.....	6

**APPENDICES**

**Appendix A** Figures

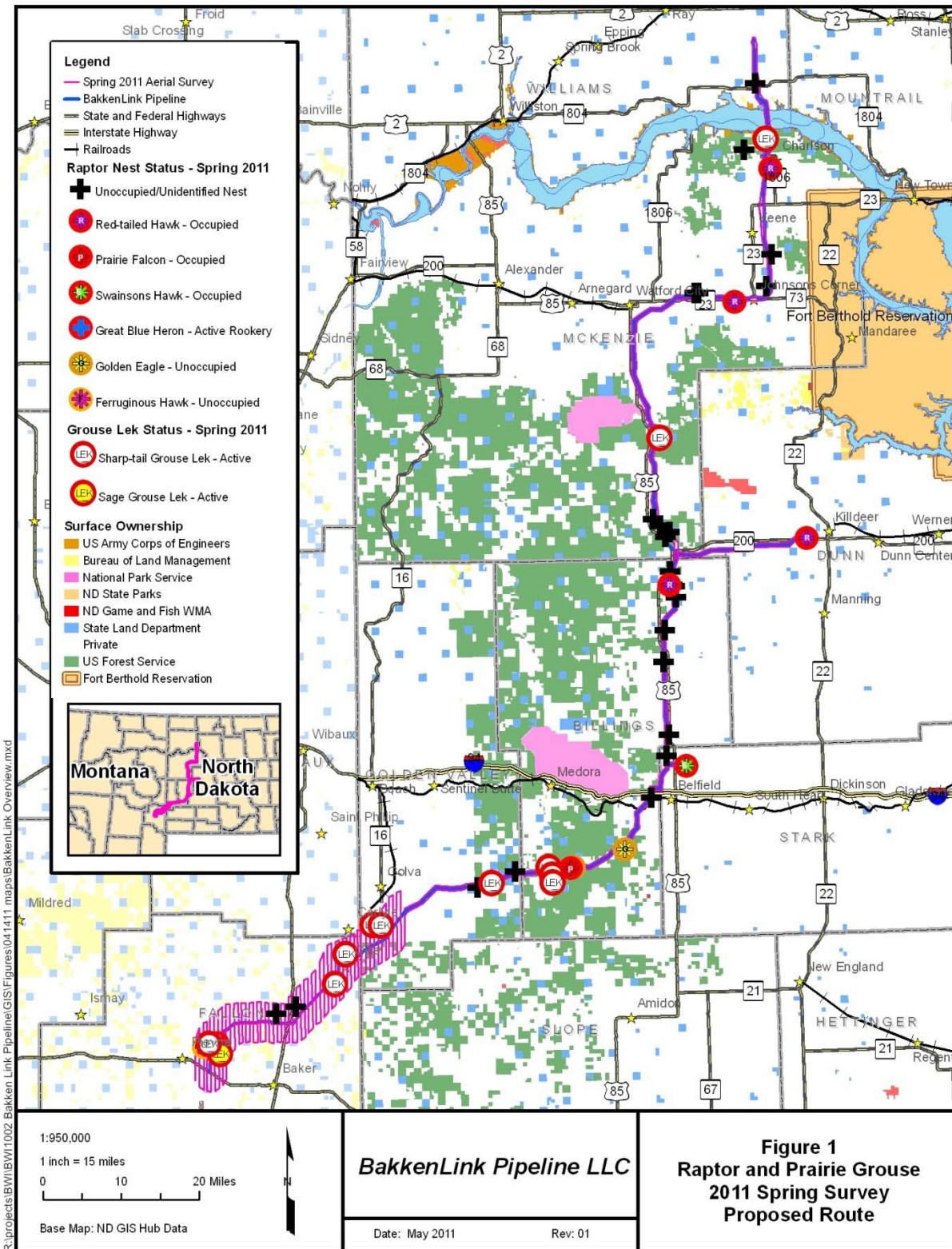
**Appendix B** Tables

**Appendix C** Photographs

## 1.0 Introduction

McCain and Associates, Inc. conducted a survey for raptor nests and prairie grouse leks (sharp-tail grouse and sage grouse) for BakkenLink Pipeline LLC (BakkenLink) along the proposed BakkenLink crude oil pipeline system (Figure 1) in April 2011. The proposed pipeline system consists of approximately 144 miles of 8- and 12-inch steel crude oil pipeline extending from Beaver Lodge Station near Tioga, North Dakota to a proposed rail facility located near Fryburg, North Dakota being developed by an affiliate of BakkenLink. Surveys were also conducted to assess wildlife resources along a possible pipeline extension from the rail facility to interconnect with the Keystone XL Pipeline System near Baker, Montana. This segment is not proposed to be constructed at this time. The survey area includes the following counties: Billings, Golden Valley, Dunn, McKenzie, Stark and Williams in North Dakota and Fallon County Montana.

**Figure 1. Raptor and Prairie Grouse Survey Route**



## 2.0 Background Information

Records from the North Dakota Game and Fish Department (NDGF), North Dakota Parks and Recreation Department Heritage Inventory (NDPRC), US Fish and Wildlife Service (USFWS), US Forest Service (USFS), Montana Fish, Wildlife and Parks (MTFWP) and Montana Bureau of Land Management (BLM) were reviewed to determine the locations and status of previously observed and recorded raptor nests and prairie grouse leks.

The majority of the proposed route is located on private land but also crosses State, US Army Corps of Engineers (USACOE), and USFS lands in North Dakota. In Montana the route traverses across private and State surface. The USFS and BLM require spring surveys to search for active raptor nests and prairie grouse leks on their managed lands. The NDGF, MTFWP, and USFWS recommend surveys be conducted along the entire route. Surface occupancy and construction timing restrictions may be recommended by these agencies in proximity to active raptor nests and lek locations.

The pipeline crosses varying topography including gently rolling hills, badland inclusions, steep wooded native draws, and level agricultural lands. Large trees and steep clay breaks located along the route provide suitable nesting habitat for migratory raptors. Green ash and American elm are the most common trees in grassland drainages. Cottonwood is common along river systems and streams. Shelterbelts in croplands and near farm residences include several tree species, native and introduced. In North Dakota and Montana, breeding and nest initiation begins in February and nesting continues through late July or August.

Sharp-tail grouse leks, or dancing grounds, are generally located on rolling to flat native grasslands, with short vegetative height but may also occur on cultivated agricultural lands. Males generally select hilltops, ridges, or flats with a good field of view. Lek locations may be used for several years, but may become abandoned if vegetation structure gets too high. Peak attendance on leks is April to early May.

Habitat for sage grouse is limited to the southwest portion of the survey area in Golden Valley County, North Dakota and Fallon County, Montana. Sage grouse leks are typically found on open areas within or near big sagebrush (*Artemisia tridentata*) habitats. Sage grouse attend these leks in April and May.

The proposed construction activities may affect raptor and migratory bird species through direct mortality, temporary habitat degradation, and/or temporary displacement of individual birds. These impacts are regulated in part through the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and USFWS Endangered Species Act of 1973.

Under the MBTA and BGEPA, the USFWS recommends avoiding disturbance to migratory bird nests. The USFWS may request to be consulted to determine mitigation measures to avoid disturbance of the nest. Mitigation measures may include applying an avoidance buffer to nest locations or delaying construction in that area until young of the year are fledged.

The USFS applies construction timing restrictions on their properties to active Golden eagle, ferruginous hawk, and merlin nests. These timing restrictions apply from February 1 through July 31 if the nest is active and construction is within ½-mile line-of-sight of the nest. Prairie falcon nests have timing restrictions from April 1 through July 31 if active and within ¼-mile line-

of-sight. Golden eagle nests need be unoccupied that year and during each of the previous seven years or the USFS may impose timing restrictions to nest locations.

The USFS applies construction timing restrictions between March 1 - June 15 within one-mile line-of-sight of an active sharp-tail grouse lek. The BLM applies construction timing restrictions of March 1- June 15 to sage grouse leks that are currently active, or have been known to be active, within the last two years.

### 3.0 Methods

An aerial survey for raptor nests was conducted April 11-13, 2011, in a Cessna 172 fixed-wing aircraft with two qualified observers and a pilot. Two transects were flown along the length of the proposed route, approximately 200-300 feet above the ground surface. Transects were generally spaced ¼-mile each side of the proposed centerline. Nests located from the air were revisited and observed from the ground on April 21 and April 27-28, 2011, to determine or confirm nesting activity.

Sage grouse and sharp-tail grouse surveys in Fallon and Golden Valley Counties were conducted April 11-13, 2011, in a Cessna 172 fixed-wing aircraft with two qualified observers and a pilot. Parallel transects spaced ¼-mile apart, and 200-300 feet above the ground surface, were flown in a north-south direction, extending two miles from the proposed centerline. The survey was conducted between ½-hour before sunrise to approximately two hours after sunrise.

Ground surveys of sharp-tail grouse leks on USFS lands within one-mile of the route were conducted on April 21 and April 27-28, 2011. Surveys were conducted between ½-hour before sunrise to approximately two hours after sunrise. Weather conditions at the time of the surveys were favorable for detection (i.e. partly cloudy with light winds of 5-10 mph).

## 4.0 Results

### 4.1 Raptor Nests

Occupied or active raptor nests within  $\frac{1}{2}$ -mile of the proposed route include three red-tailed hawk tree nests, one Swainson's hawk nest and one prairie falcon aerie. Active raptor nest and prairie grouse lek locations are depicted on the figures in Appendix A and summarized in the tables of Appendix B.

The red-tailed hawk nests are located on private lands and within line-of-sight with the proposed project (Table 1). The Swainson's hawk nest is located on private land in the NW $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 15, T140N R99W and is in direct line-of-sight, approximately 970 feet, from the proposed route (Figure 13). A nesting pair was observed at the nest site. If construction in this area commences between February 1 and July 31, a pre-construction survey may be warranted to determine if the young have fledged.

The occupied prairie falcon aerie is located on USFS land in the SESW of Section 18, T138N, R101W in Billings County (Figure 7). A single prairie falcon was observed perched on the butte cliff and whitewash was visible outside of the nest hole. The aerie is on a butte cliff, facing south, opposite of the direction of the proposed route; therefore, it is not within line-of-sight of the proposed project and should not be disturbed by construction activities.

No active golden or bald eagle nests were located during the survey. Two previously recorded golden eagle nest locations were observed, but no nesting activity was evident during the survey. All other previously recorded nest locations surveyed during this project were not found and are assumed to be destroyed.

### 4.2 Prairie Grouse

Eight active sharp-tail leks and one active sage grouse lek were found within the surveyed project area (Table 2). Two additional sage grouse leks have been active within the last two years within the surveyed project area but not found to be active during the aerial survey (Table 3).

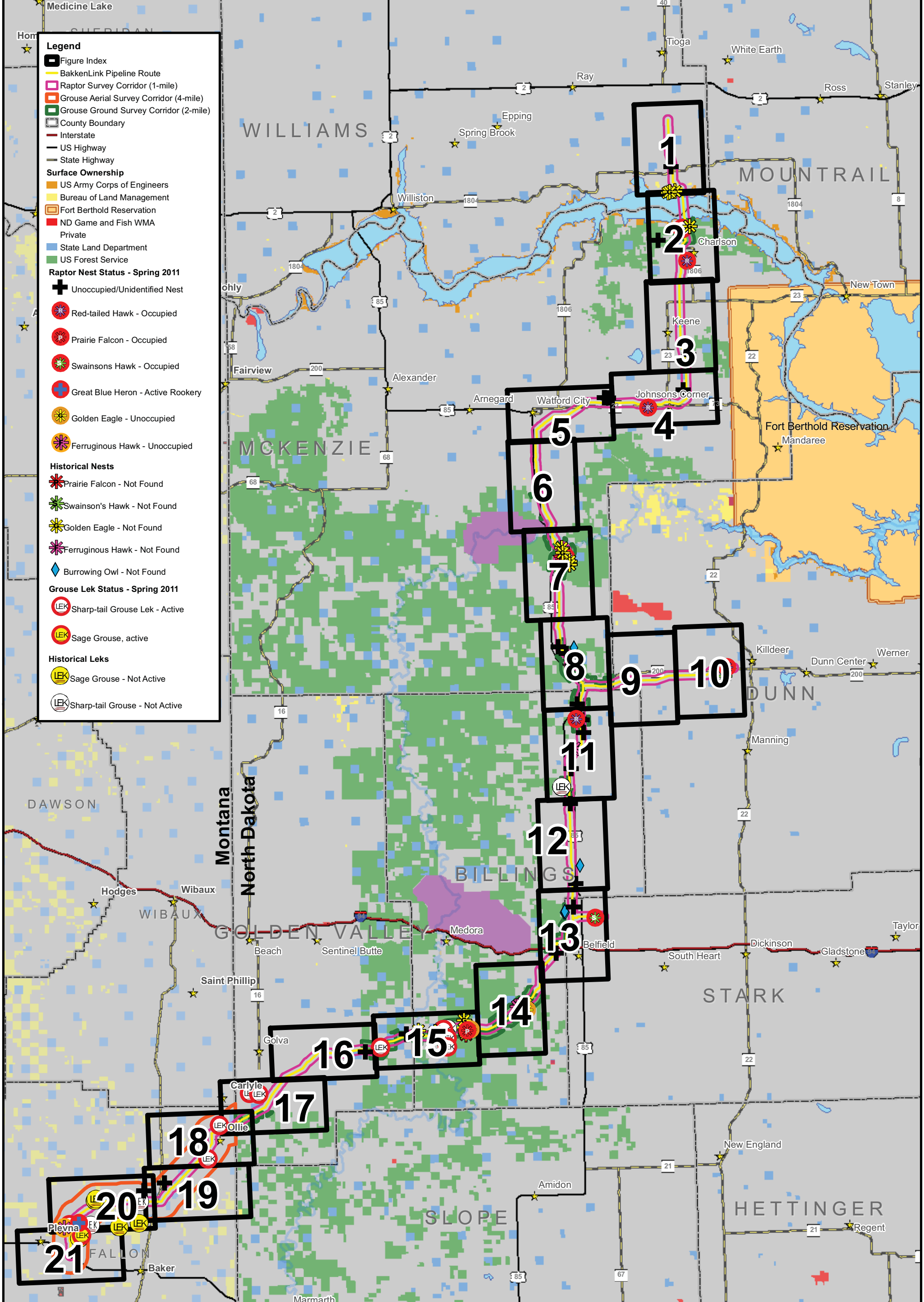
Five active sharp-tail grouse leks are located on USFS lands and within line-of-sight of the proposed route (Appendix A). Three active sharp-tail grouse leks are located on private surface within line-of-sight of the proposed project.

Active prairie grouse leks in Montana were found on private and BLM surface. The active sage grouse lek was found on BLM land in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  of Section 25, T8N, R58E.

### 4.3 Other Observed Migratory Bird Nest Sites

A active great blue heron rookery was observed on BLM lands in Fallon County, Montana in the NE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 14, T8N, R58E (Table 4, Figure 20). The BLM applies a NSO of 1,000 feet in proximity to great blue heron rookeries and recommends a  $\frac{1}{2}$ -mile line-of-sight surface use timing limitation of February 1 - July 15.

## Appendix A Figures



**Legend**

- Figure Index
- BakkenLink Pipeline Route
- Raptor Survey Corridor (1-mile)
- Grouse Aerial Survey Corridor (4-mile)
- Grouse Ground Survey Corridor (2-mile)
- County Boundary
- Interstate
- US Highway
- State Highway

**Surface Ownership**

- US Army Corps of Engineers
- Bureau of Land Management
- Fort Berthold Reservation
- ND Game and Fish WMA
- Private
- State Land Department
- US Forest Service

**Raptor Nest Status - Spring 2011**

- Unoccupied/Unidentified Nest
- Red-tailed Hawk - Occupied
- Prairie Falcon - Occupied
- Swainsons Hawk - Occupied
- Great Blue Heron - Active Rookery
- Golden Eagle - Unoccupied
- Ferruginous Hawk - Unoccupied

**Historical Nests**

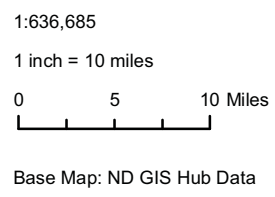
- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Ferruginous Hawk - Not Found
- Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- Sharp-tail Grouse Lek - Active
- Sage Grouse, active

**Historical Leks**

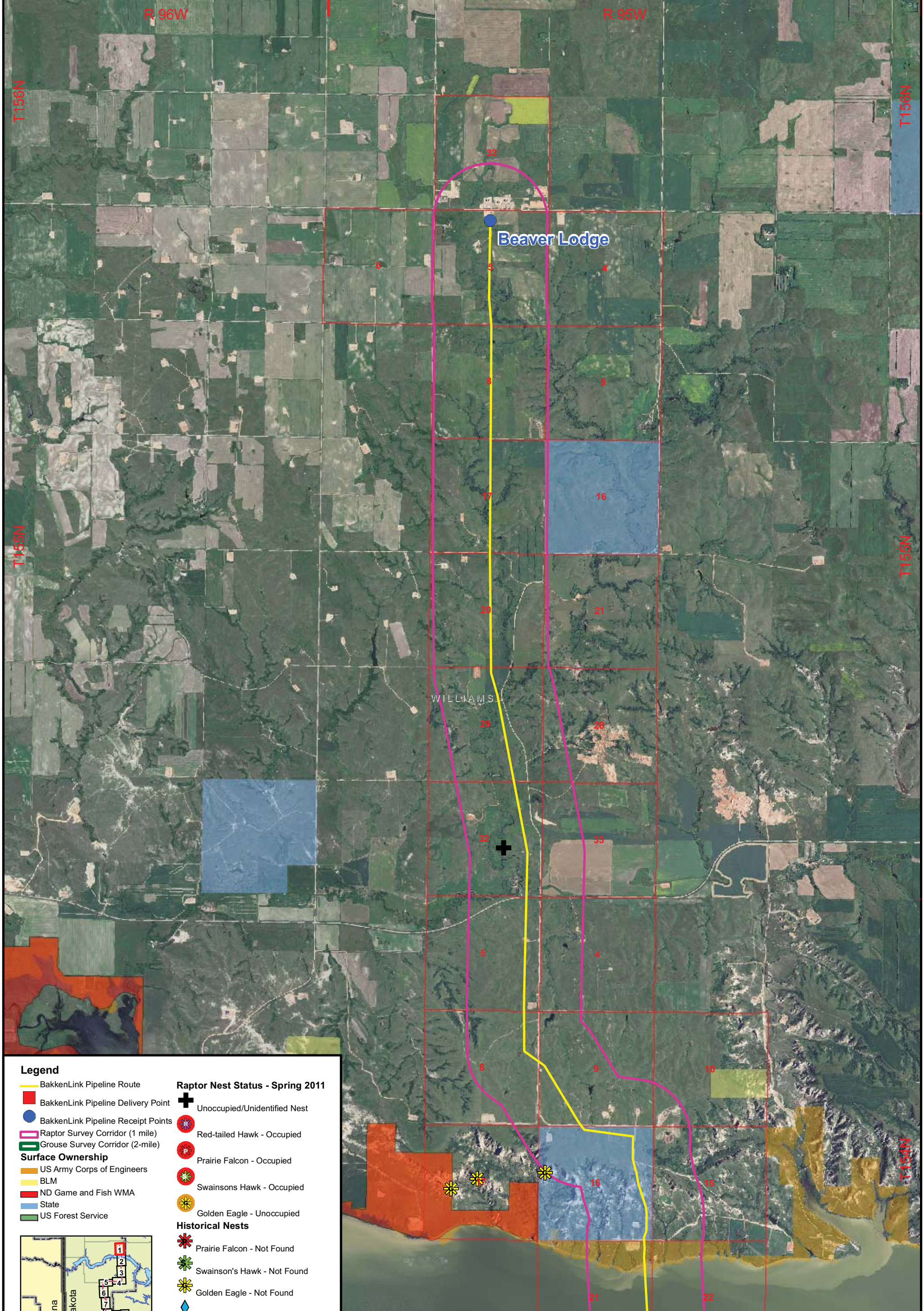
- Sage Grouse - Not Active
- Sharp-tail Grouse - Not Active



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**Index Sheet  
 Raptor and Prairie Grouse  
 2011 Spring Survey  
 Proposed Route**



**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)

**Surface Ownership**

- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

- Unoccupied/Unidentified Nest
- Red-tailed Hawk - Occupied
- Prairie Falcon - Occupied
- Swainson's Hawk - Occupied
- Golden Eagle - Unoccupied
- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- Sharp-tail Grouse Lek - Active
- Sharp-tail Grouse - Not Active

**Historical Nests**

- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found

**Historical Lek**

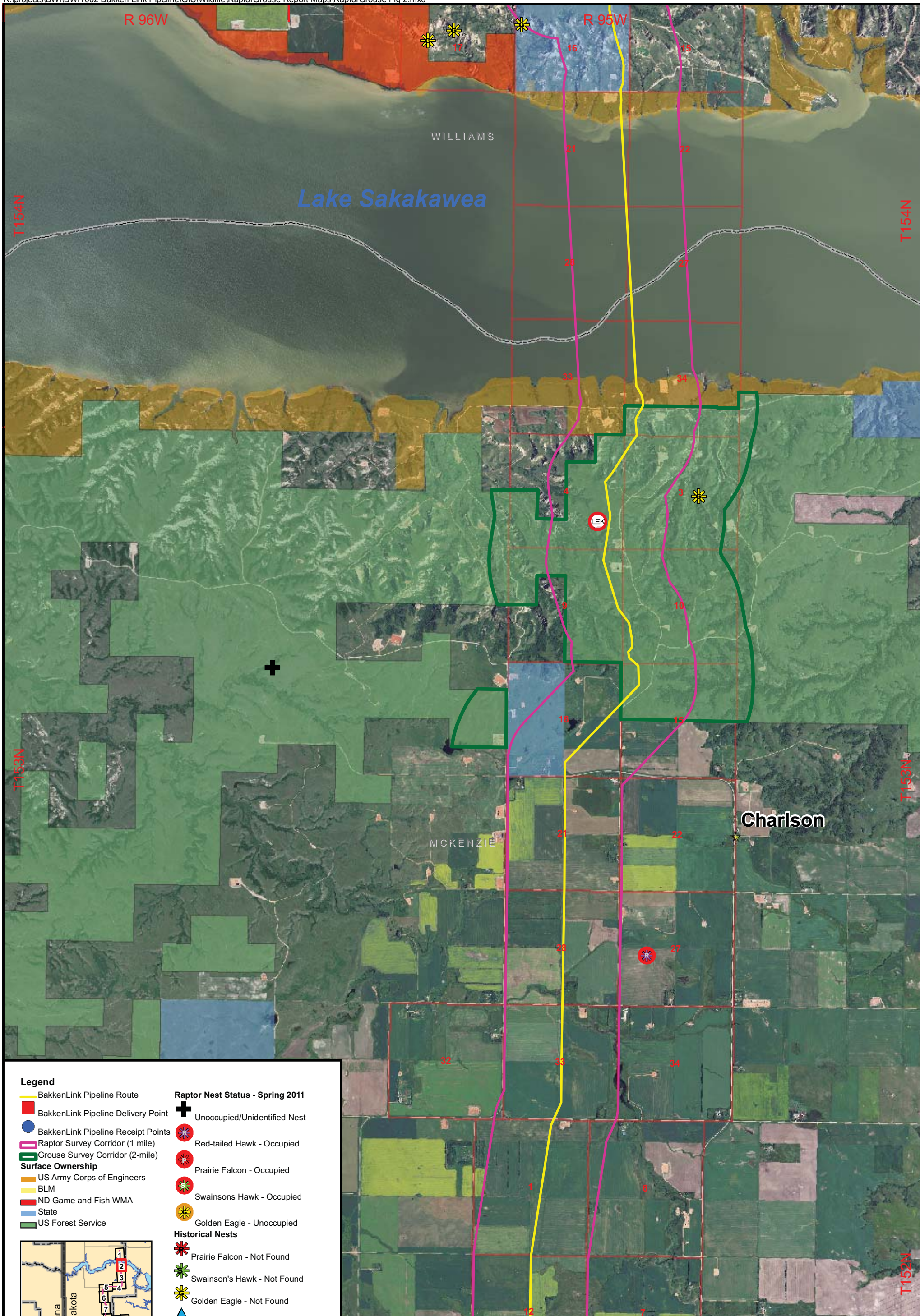
- Sharp-tail Grouse - Not Active

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 Base Map: Aerial Imagery NAIP 2010

**BakkenLink Pipeline LLC**

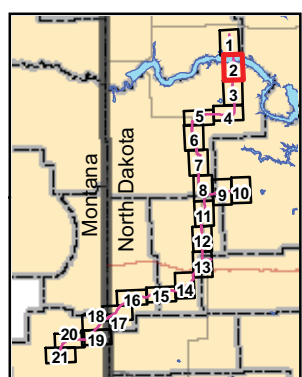
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**Figure 1**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**

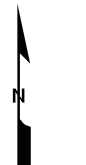


**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)
- Surface Ownership**
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service
- Raptor Nest Status - Spring 2011**
- + Unoccupied/Unidentified Nest
- ⊗ Red-tailed Hawk - Occupied
- ⊗ Prairie Falcon - Occupied
- ⊗ Swainsons Hawk - Occupied
- ⊗ Golden Eagle - Unoccupied
- ⊗ Prairie Falcon - Not Found
- ⊗ Swainson's Hawk - Not Found
- ⊗ Golden Eagle - Not Found
- ◆ Burrowing Owl - Not Found
- Grouse Lek Status - Spring 2011**
- LEK Sharp-tail Grouse Lek - Active
- LEK Sharp-tail Grouse - Not Active



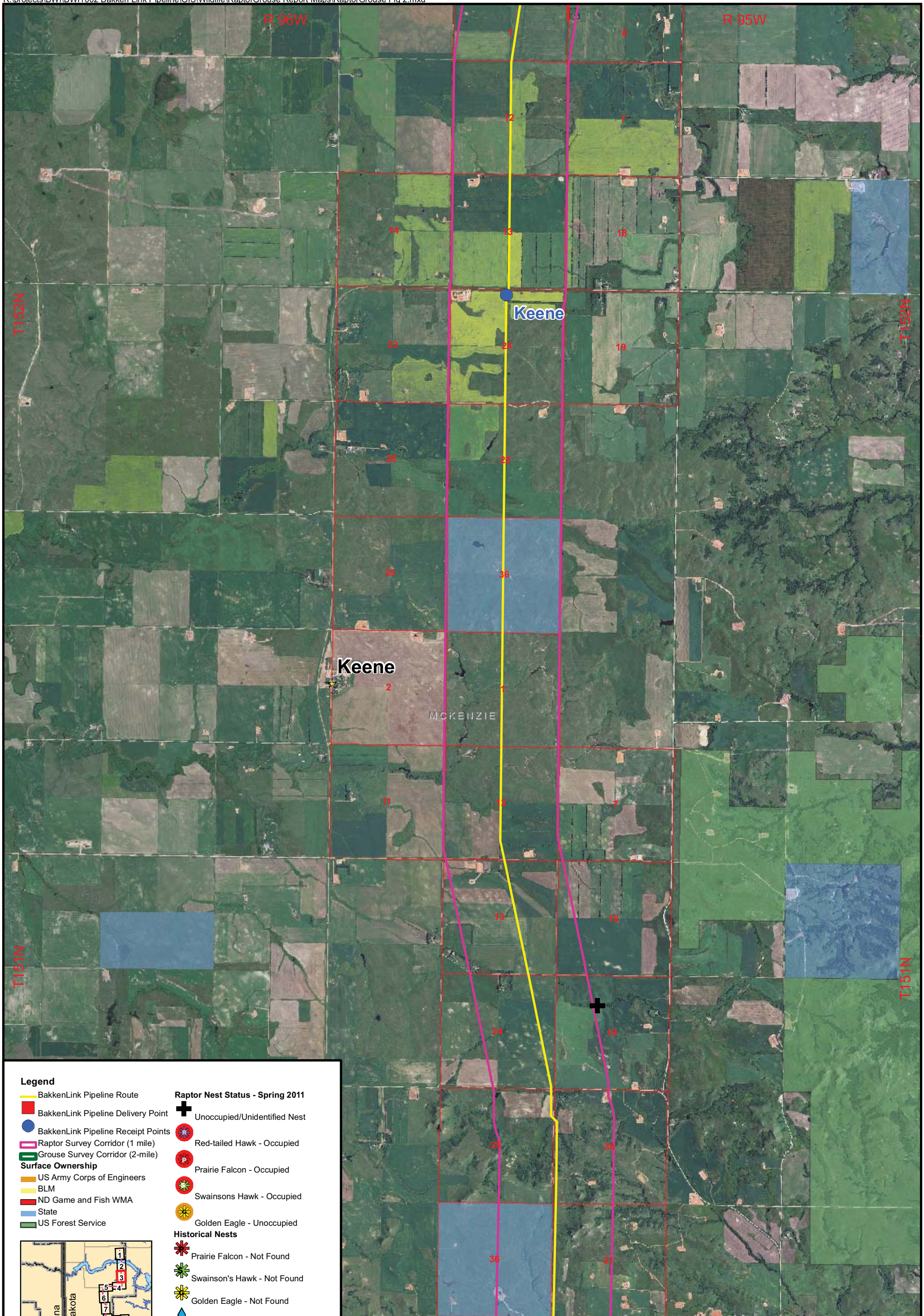
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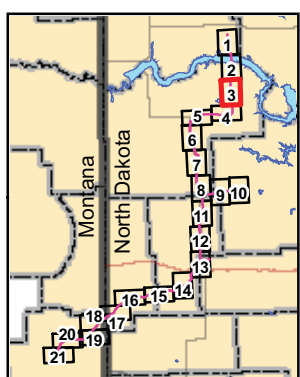
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**Figure 2  
 Raptor and Prairie Grouse  
 2011 Spring Survey  
 Proposed Route**

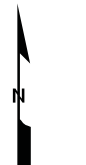


**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)
- Surface Ownership**
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service
- Raptor Nest Status - Spring 2011**
- + Unoccupied/Unidentified Nest
- ⊗ Red-tailed Hawk - Occupied
- ⊗ Prairie Falcon - Occupied
- ⊗ Swainsons Hawk - Occupied
- ⊗ Golden Eagle - Unoccupied
- Historical Nests**
- ⊗ Prairie Falcon - Not Found
- ⊗ Swainson's Hawk - Not Found
- ⊗ Golden Eagle - Not Found
- ◆ Burrowing Owl - Not Found
- Grouse Lek Status - Spring 2011**
- LEK Sharp-tail Grouse Lek - Active
- LEK Sharp-tail Grouse - Not Active



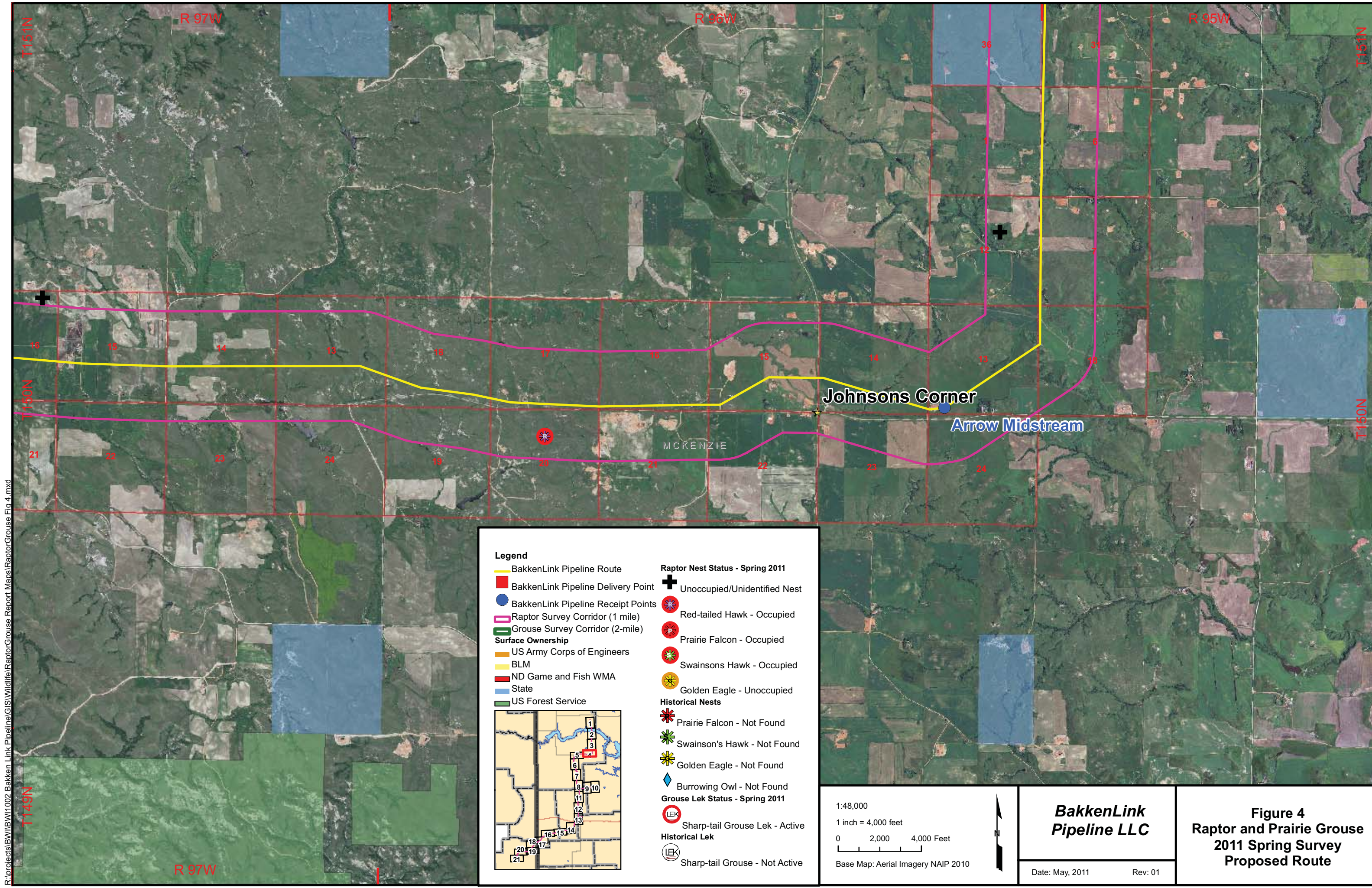
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 Base Map: Aerial Imagery NAIP 2010



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Date: May, 2011 Rev: 01

**Figure 3  
 Raptor and Prairie Grouse  
 2011 Spring Survey  
 Proposed Route**



R:\projects\BWB\1002 Bakken Link Pipeline\GIS\Wildlife\Raptor\Crouse Report Maps\Raptor\Crouse Fig 4.mxd

**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)

**Surface Ownership**

- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

- + Unoccupied/Unidentified Nest
- ⊗ Red-tailed Hawk - Occupied
- ⊗ Prairie Falcon - Occupied
- ⊗ Swainsons Hawk - Occupied
- ⊗ Golden Eagle - Unoccupied
- ⊗ Prairie Falcon - Not Found
- ⊗ Swainson's Hawk - Not Found
- ⊗ Golden Eagle - Not Found
- ◆ Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

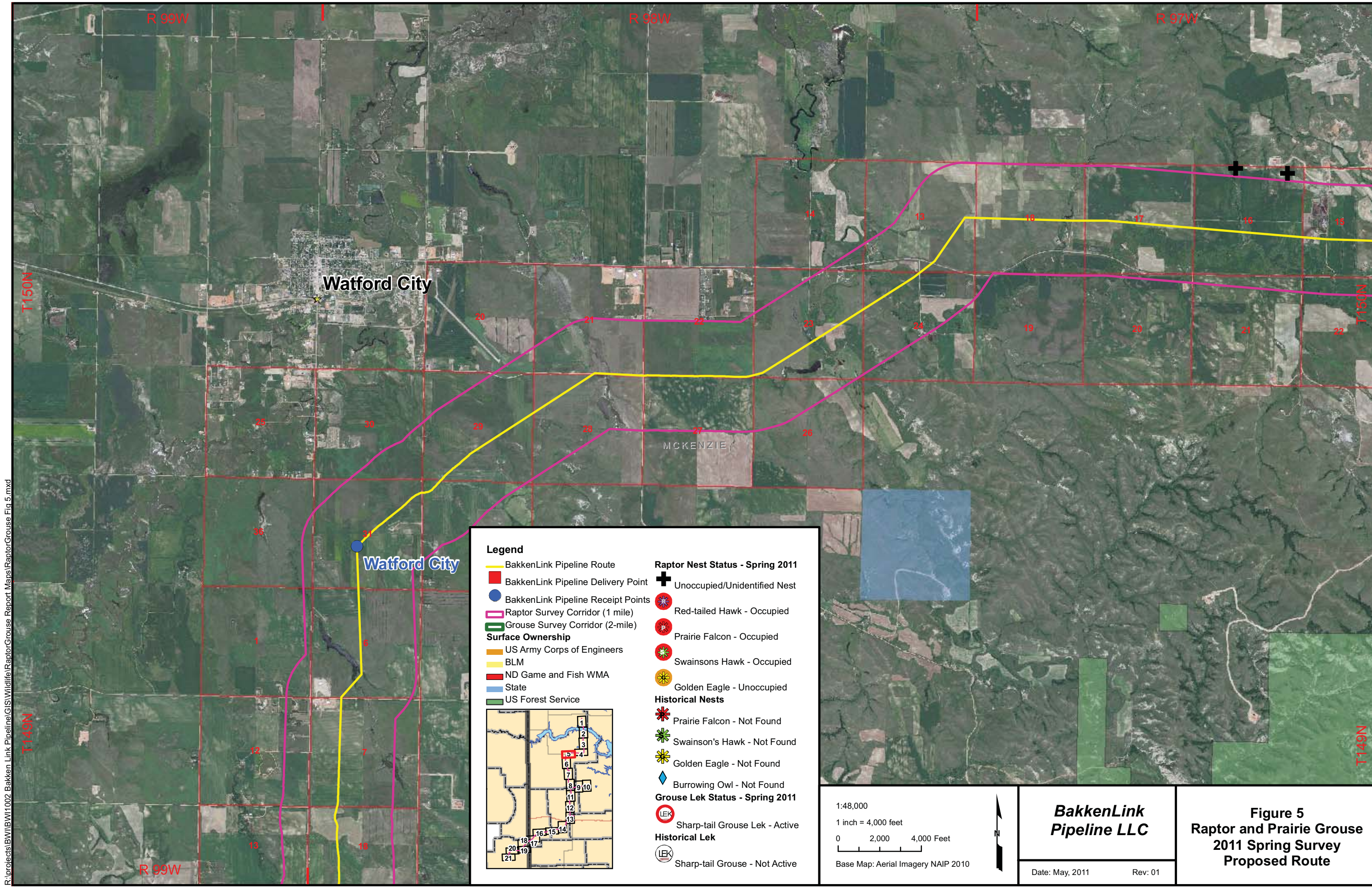
- LEK Sharp-tail Grouse Lek - Active
- LEK Sharp-tail Grouse - Not Active

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 0 2,000 4,000 Feet  
 Base Map: Aerial Imagery NAIP 2010

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**Figure 4  
Raptor and Prairie Grouse  
2011 Spring Survey  
Proposed Route**



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**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)

**Surface Ownership**

- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

- + Unoccupied/Unidentified Nest
- ⊗ Red-tailed Hawk - Occupied
- ⊗ Prairie Falcon - Occupied
- ⊗ Swainsons Hawk - Occupied
- ⊗ Golden Eagle - Unoccupied
- ⊗ Prairie Falcon - Not Found
- ⊗ Swainson's Hawk - Not Found
- ⊗ Golden Eagle - Not Found
- ◆ Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

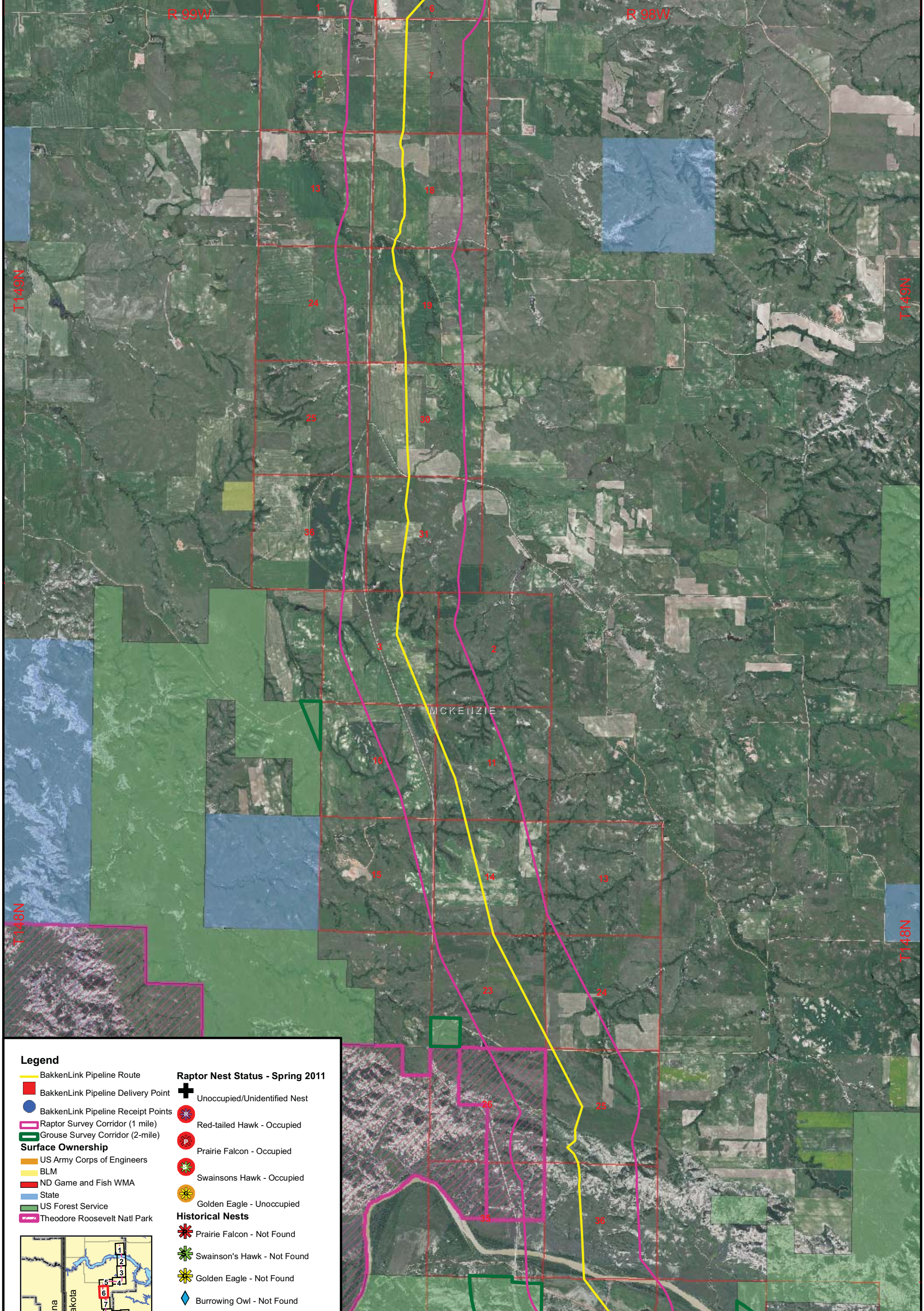
- LEK Sharp-tail Grouse Lek - Active
- LEK Sharp-tail Grouse - Not Active

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 Base Map: Aerial Imagery NAIP 2010

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**Figure 5  
Raptor and Prairie Grouse  
2011 Spring Survey  
Proposed Route**



**Legend**

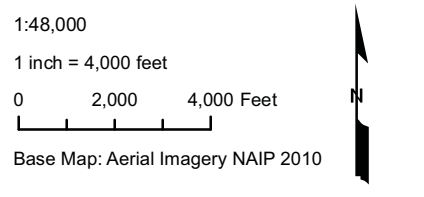
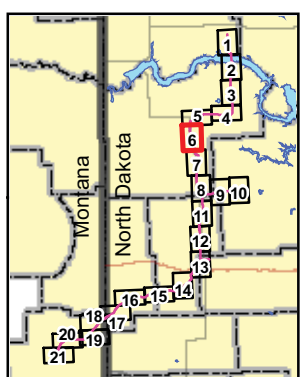
- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)
- Surface Ownership**
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service
- Theodore Roosevelt Natl Park

**Raptor Nest Status - Spring 2011**

- Unoccupied/Unidentified Nest
- Red-tailed Hawk - Occupied
- Prairie Falcon - Occupied
- Swainsons Hawk - Occupied
- Golden Eagle - Unoccupied
- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

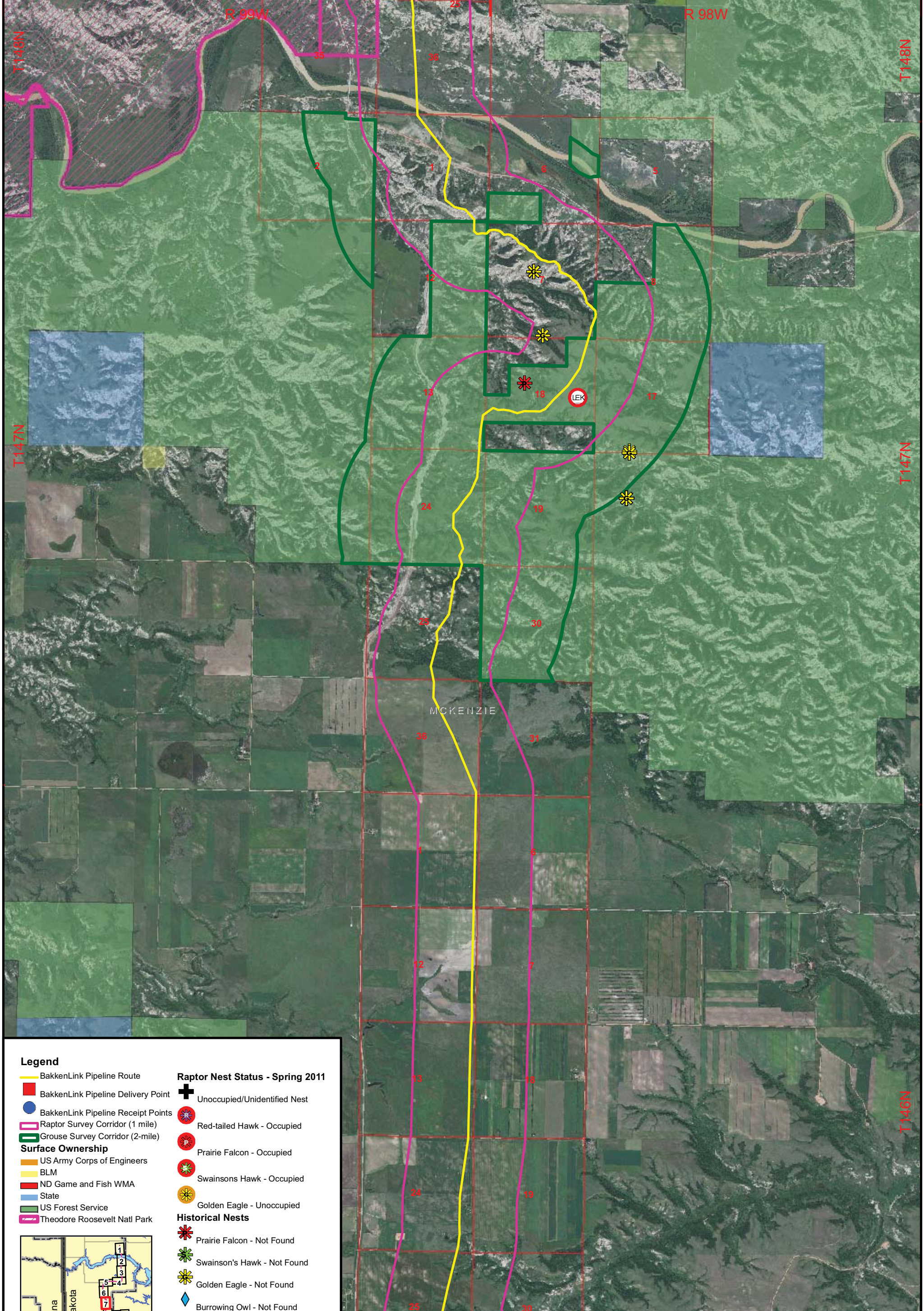
- Sharp-tail Grouse Lek - Active
- Sharp-tail Grouse - Not Active



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**Figure 6  
Raptor and Prairie Grouse  
2011 Spring Survey  
Proposed Route**



**Legend**

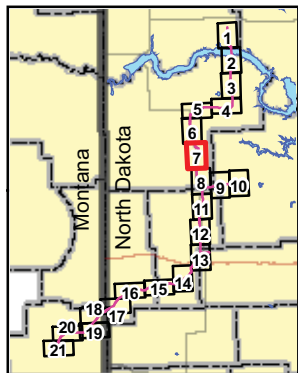
- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)
- Surface Ownership**
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service
- Theodore Roosevelt Natl Park

**Raptor Nest Status - Spring 2011**

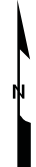
- Unoccupied/Unidentified Nest
- Red-tailed Hawk - Occupied
- Prairie Falcon - Occupied
- Swainsons Hawk - Occupied
- Golden Eagle - Unoccupied
- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- Sharp-tail Grouse Lek - Active
- Sharp-tail Grouse - Not Active



1:48,000  
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 0 2,000 4,000 Feet  
 Base Map: Aerial Imagery NAIP 2010

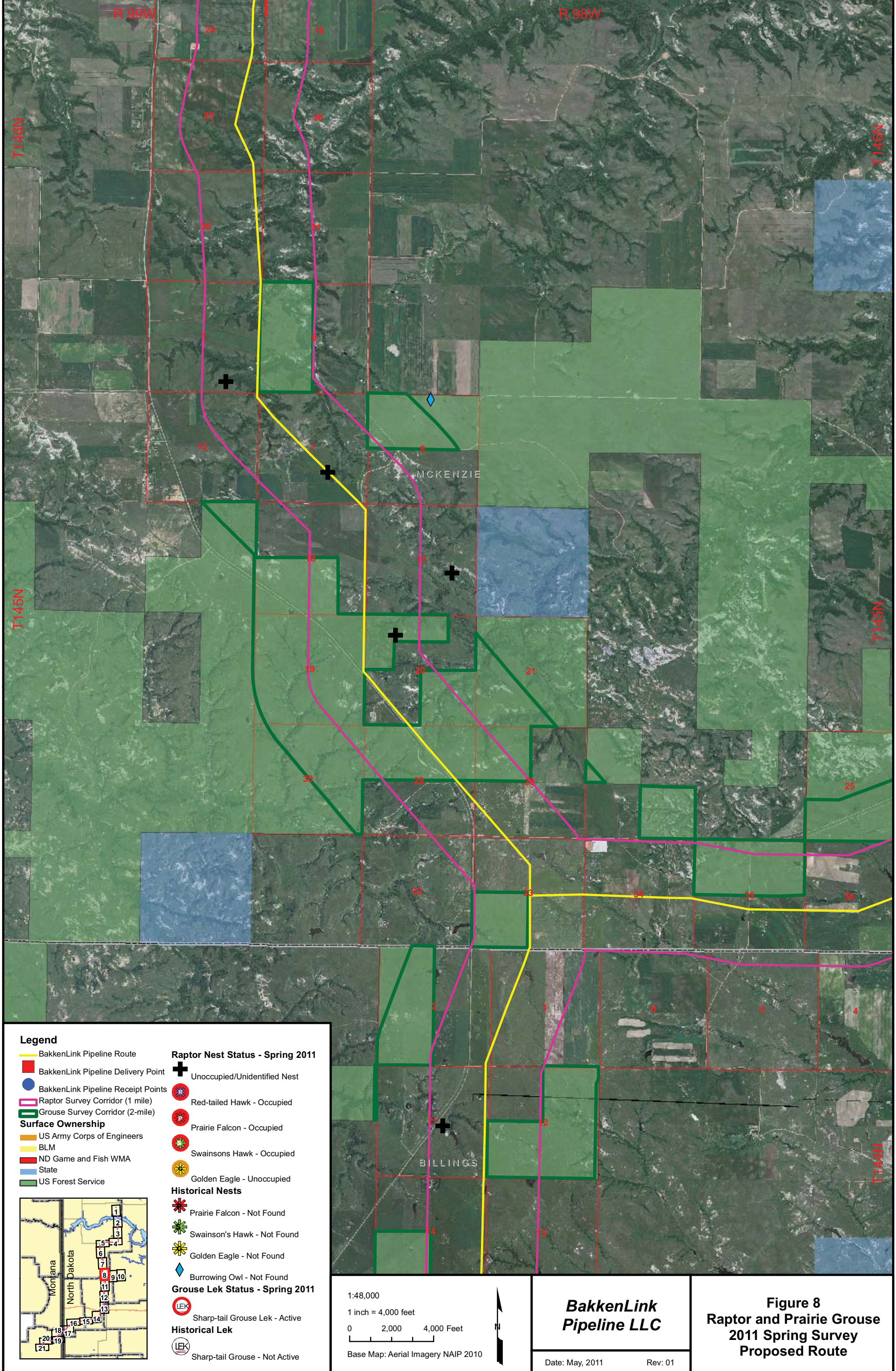


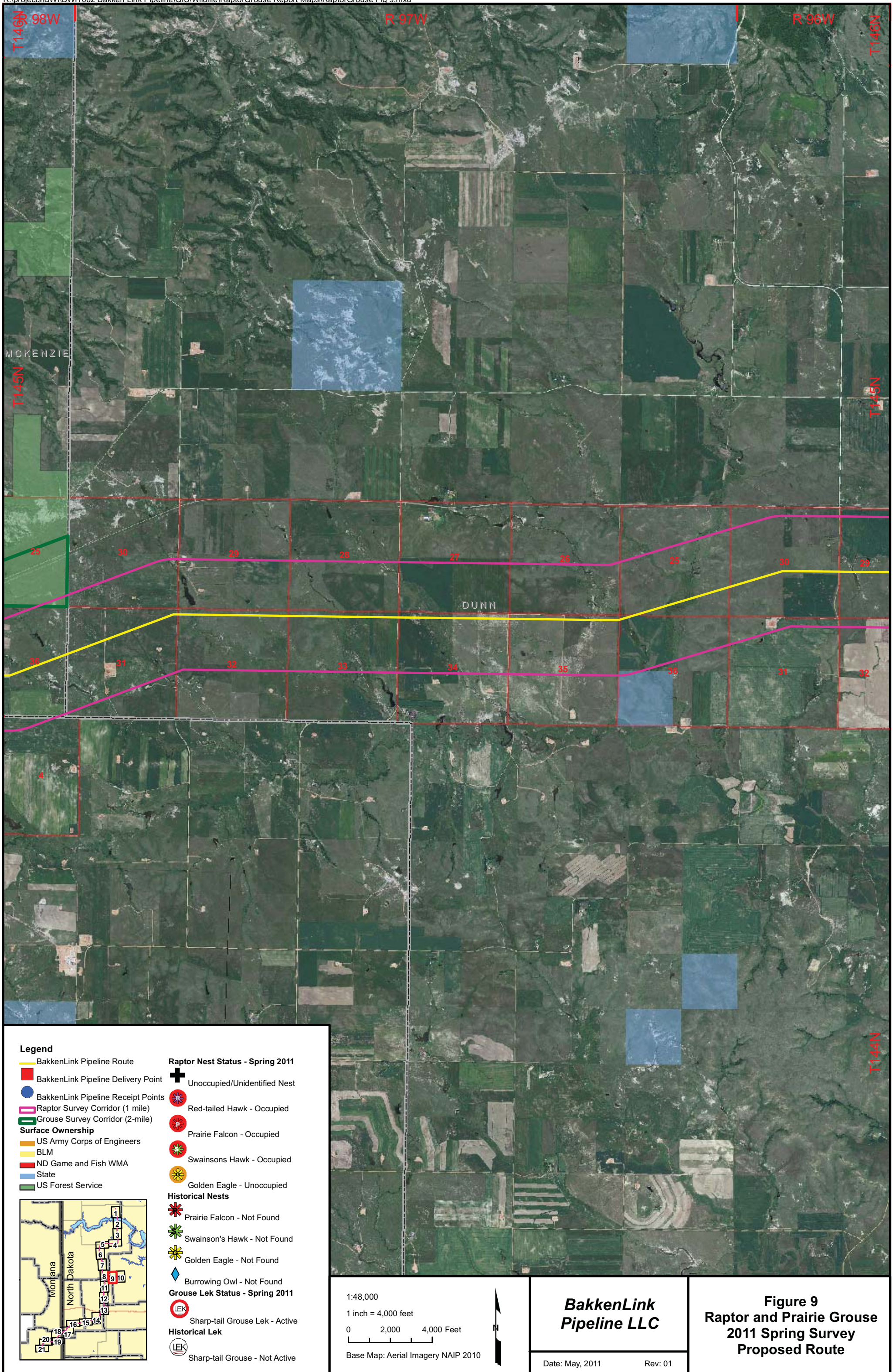
**BakkenLink Pipeline LLC**

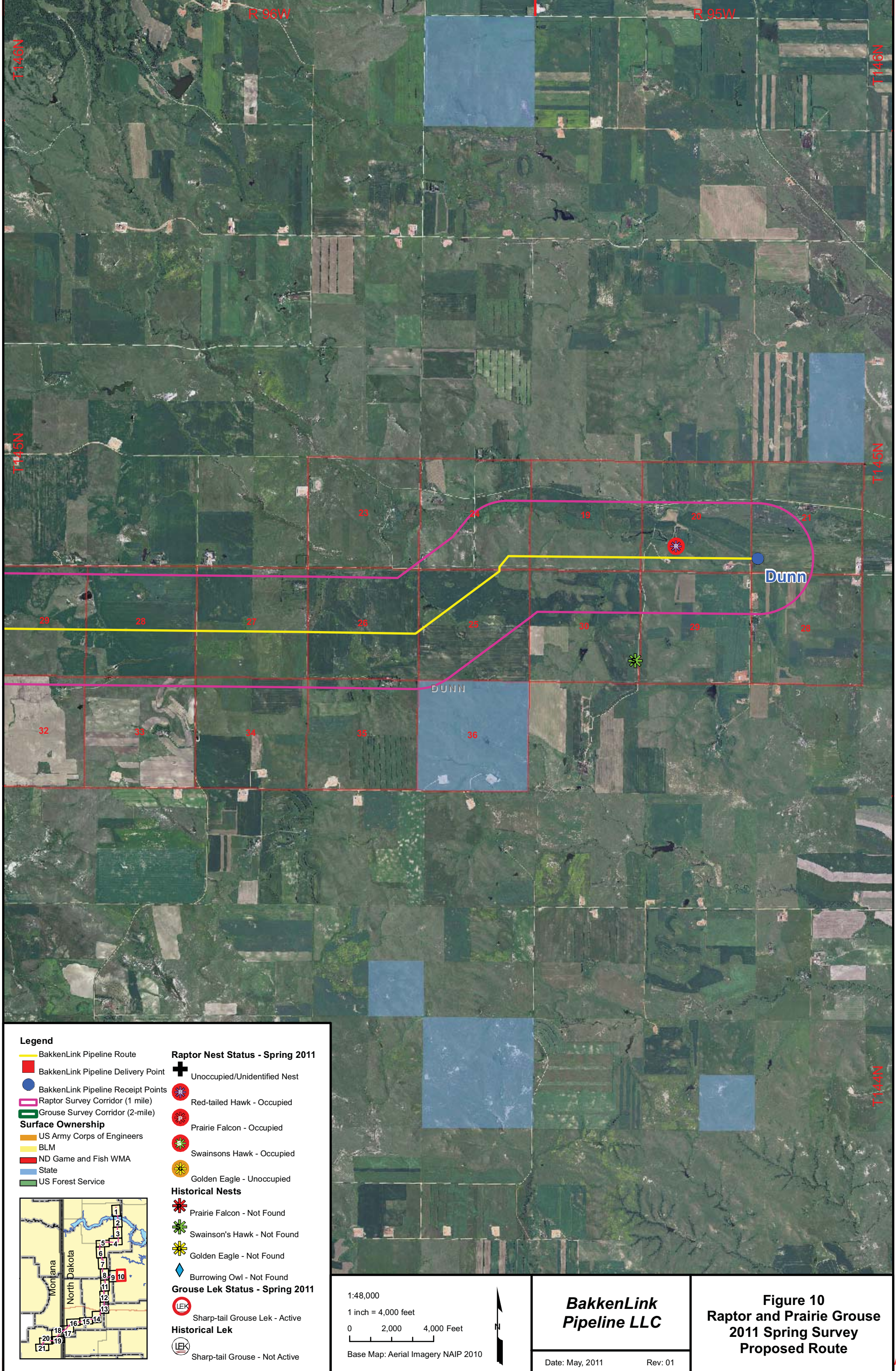
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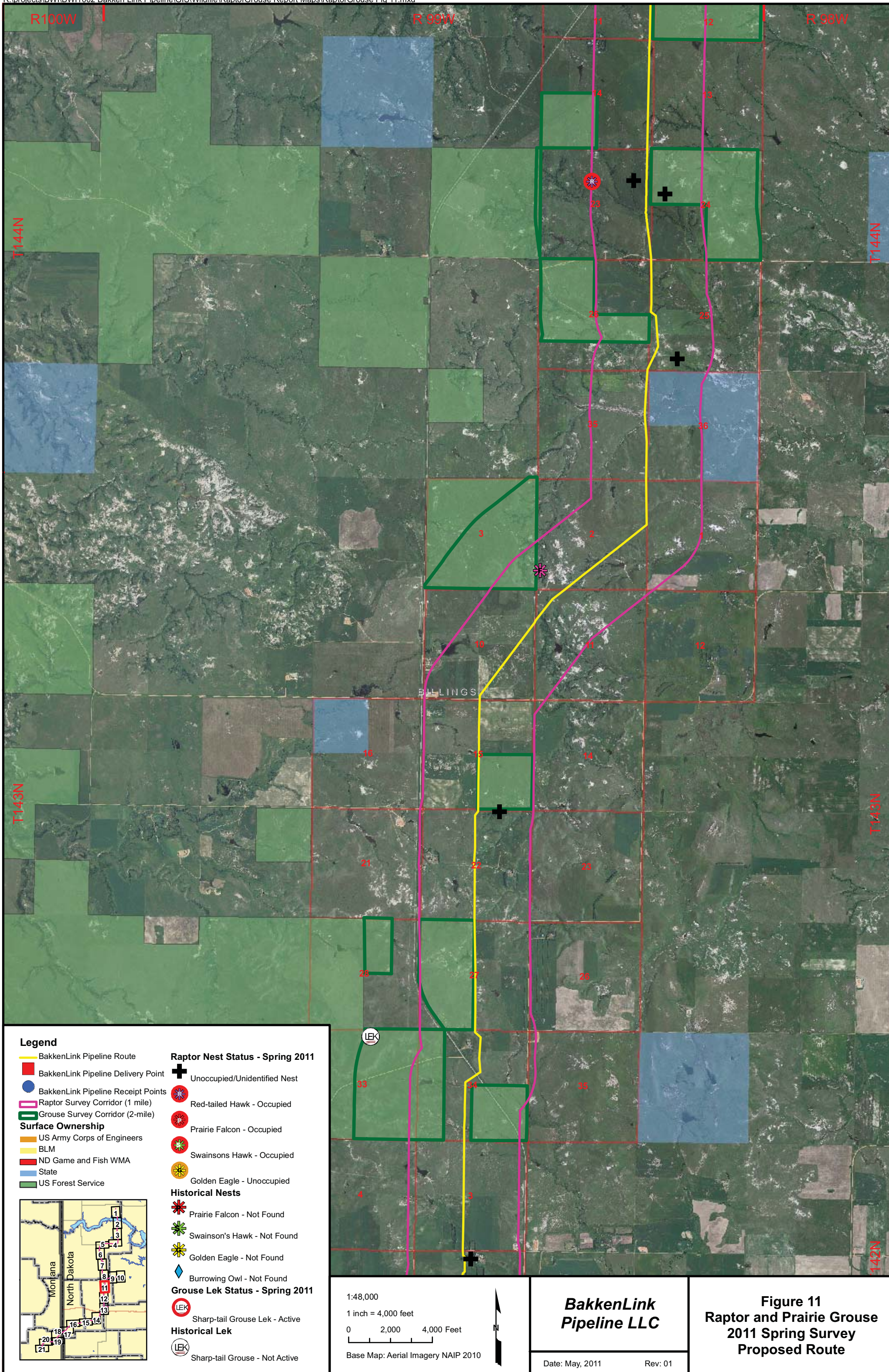
Rev: 01

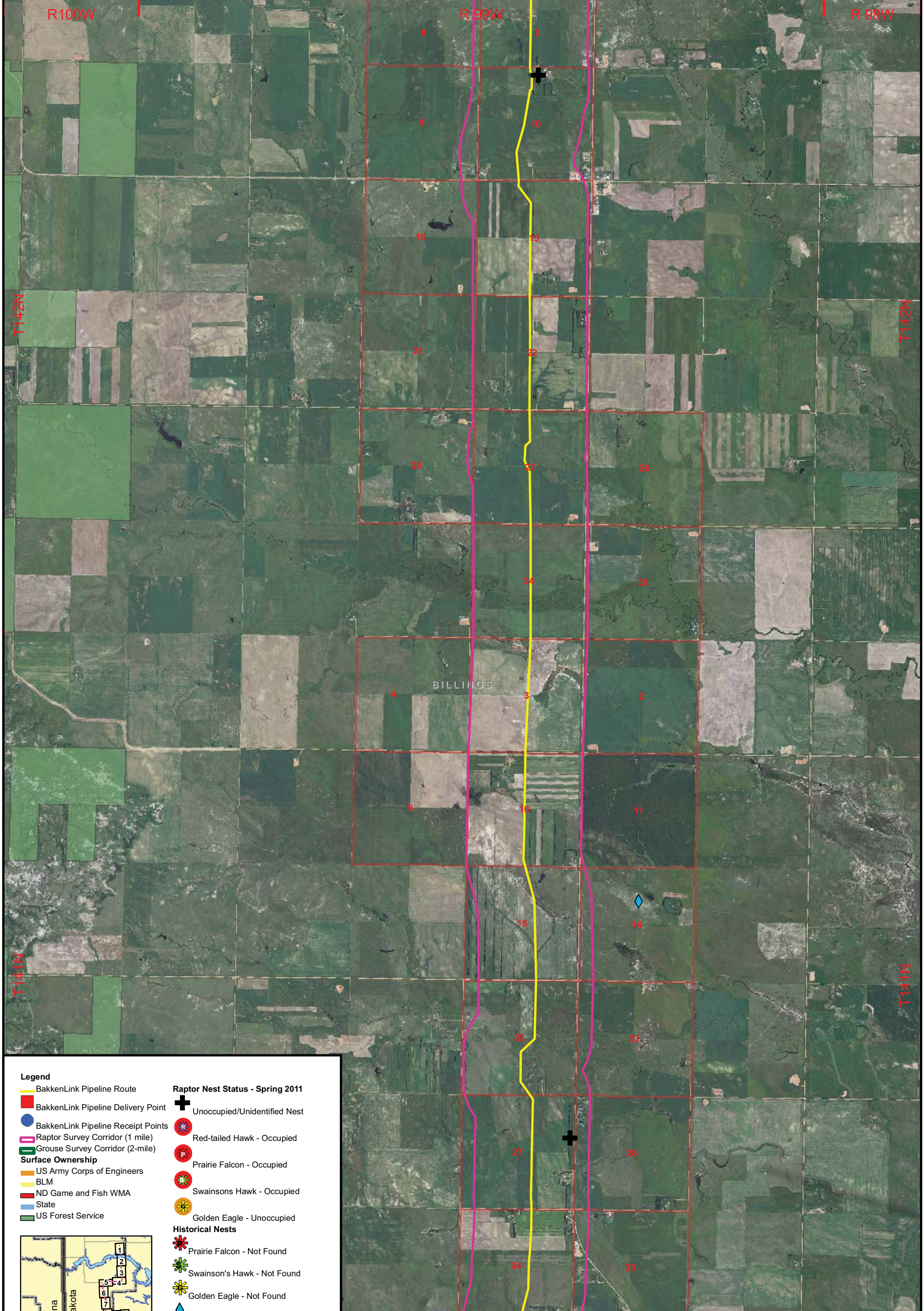
**Figure 7  
 Raptor and Prairie Grouse  
 2011 Spring Survey  
 Proposed Route**



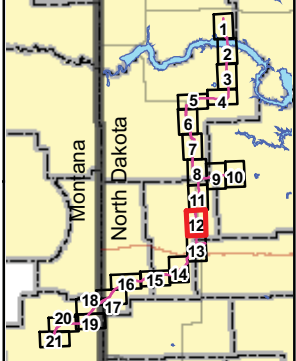




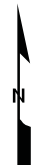




- Legend**
- BakkenLink Pipeline Route
  - BakkenLink Pipeline Delivery Point
  - BakkenLink Pipeline Receipt Points
  - Raptor Survey Corridor (1 mile)
  - Grouse Survey Corridor (2-mile)
- Surface Ownership**
- US Army Corps of Engineers
  - BLM
  - ND Game and Fish WMA
  - State
  - US Forest Service
- Raptor Nest Status - Spring 2011**
- + Unoccupied/Unidentified Nest
  - ⊗ Red-tailed Hawk - Occupied
  - ⊗ Prairie Falcon - Occupied
  - ⊗ Swainsons Hawk - Occupied
  - ⊗ Golden Eagle - Unoccupied
- Historical Nests**
- ⊗ Prairie Falcon - Not Found
  - ⊗ Swainson's Hawk - Not Found
  - ⊗ Golden Eagle - Not Found
  - ◆ Burrowing Owl - Not Found
- Grouse Lek Status - Spring 2011**
- ⊗ Sharp-tail Grouse Lek - Active
- Historical Lek**
- ⊗ Sharp-tail Grouse - Not Active



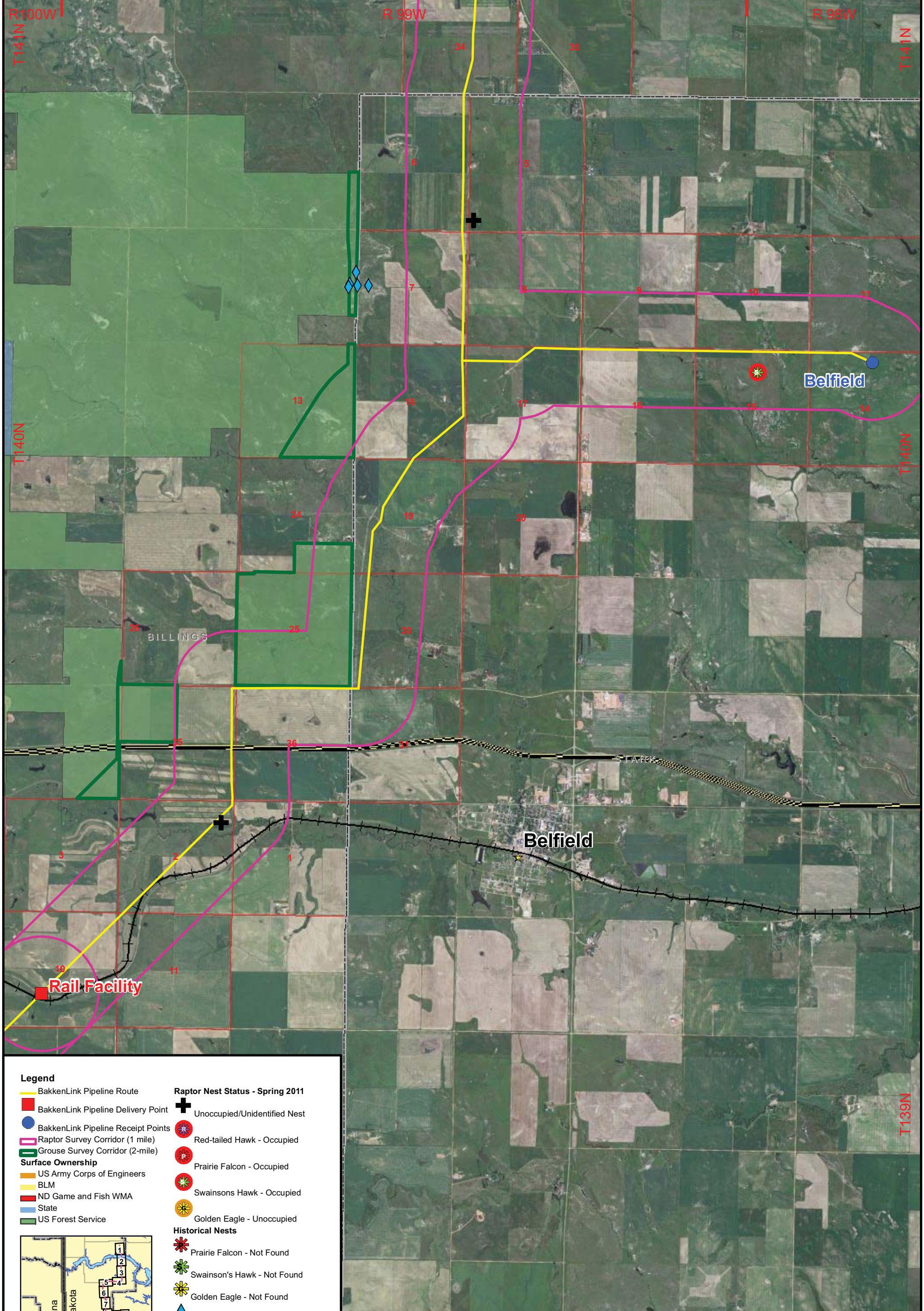
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 Base Map: Aerial Imagery NAIP 2010



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**Figure 12**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**



**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)

**Surface Ownership**

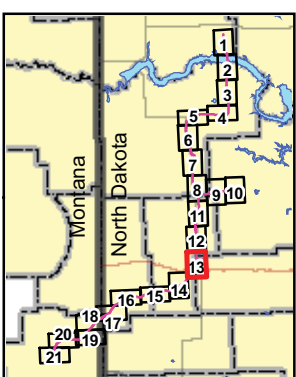
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

- + Unoccupied/Unidentified Nest
- ★ Red-tailed Hawk - Occupied
- ★ Prairie Falcon - Occupied
- ★ Swainson's Hawk - Occupied
- ★ Golden Eagle - Unoccupied
- ★ Prairie Falcon - Not Found
- ★ Swainson's Hawk - Not Found
- ★ Golden Eagle - Not Found
- ◆ Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- Sharp-tail Grouse Lek - Active
- Historical Lek
- Sharp-tail Grouse - Not Active

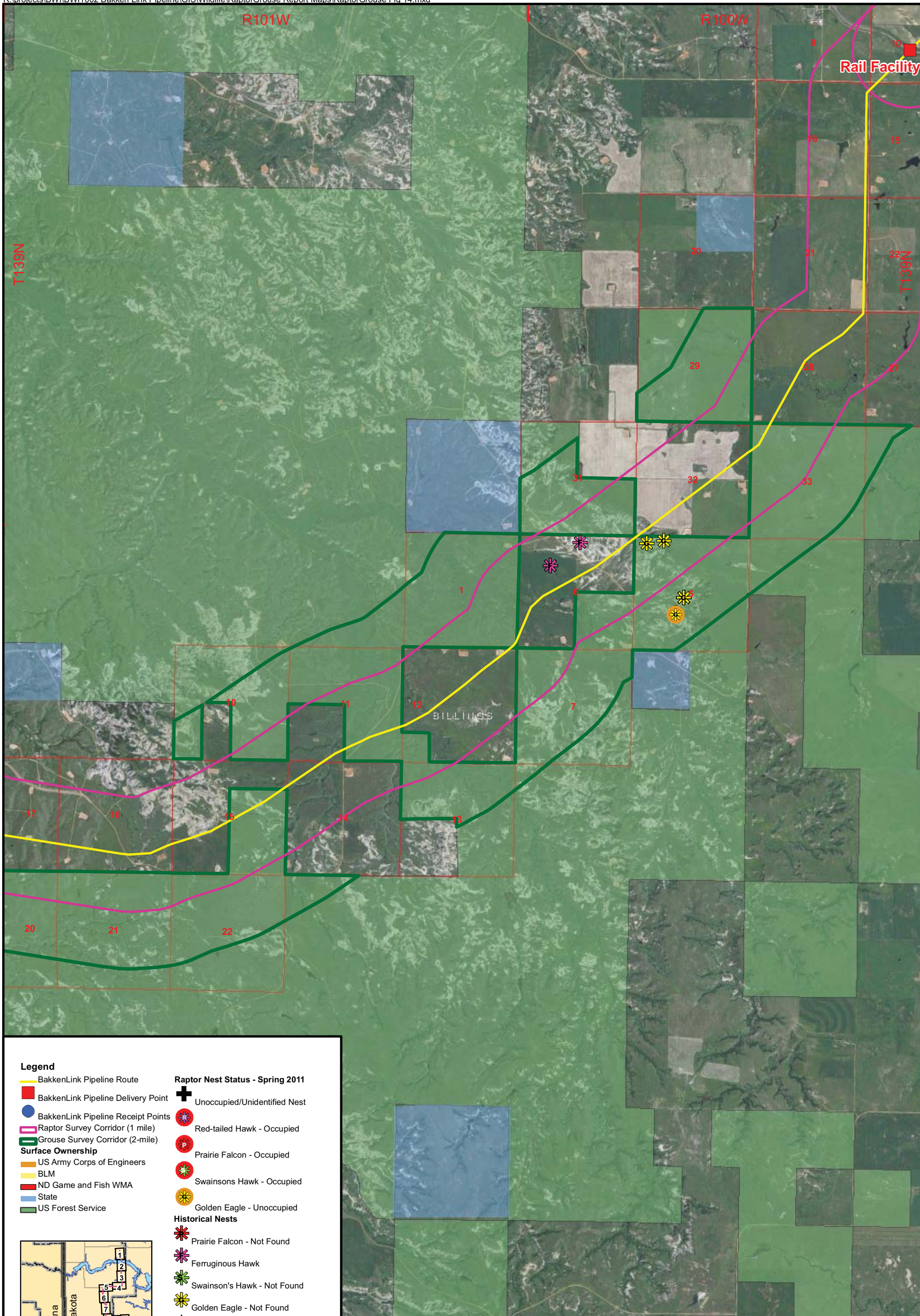


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 1 inch = 4,000 feet  
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 Base Map: Aerial Imagery NAIP 2010

**BakkenLink Pipeline LLC**

Date: May, 2011      Rev: 01

**Figure 13**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**



**Legend**

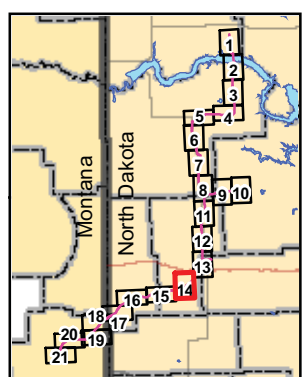
- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)
- Surface Ownership**
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

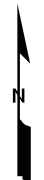
- Unoccupied/Unidentified Nest
- Red-tailed Hawk - Occupied
- Prairie Falcon - Occupied
- Swainsons Hawk - Occupied
- Golden Eagle - Unoccupied
- Prairie Falcon - Not Found
- Ferruginous Hawk
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- Sharp-tail Grouse Lek - Active
- Sharp-tail Grouse - Not Active

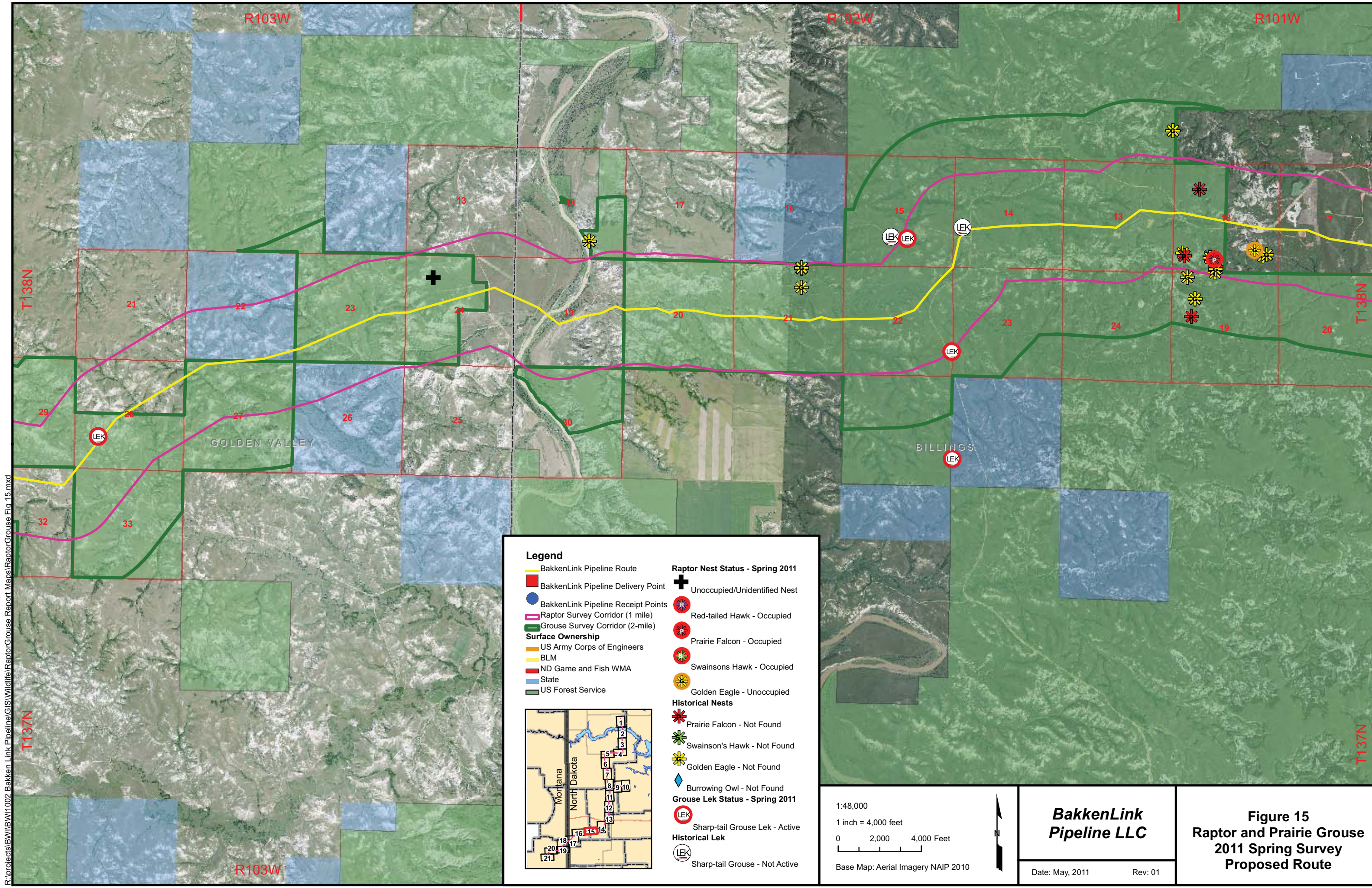


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 Base Map: Aerial Imagery NAIP 2010

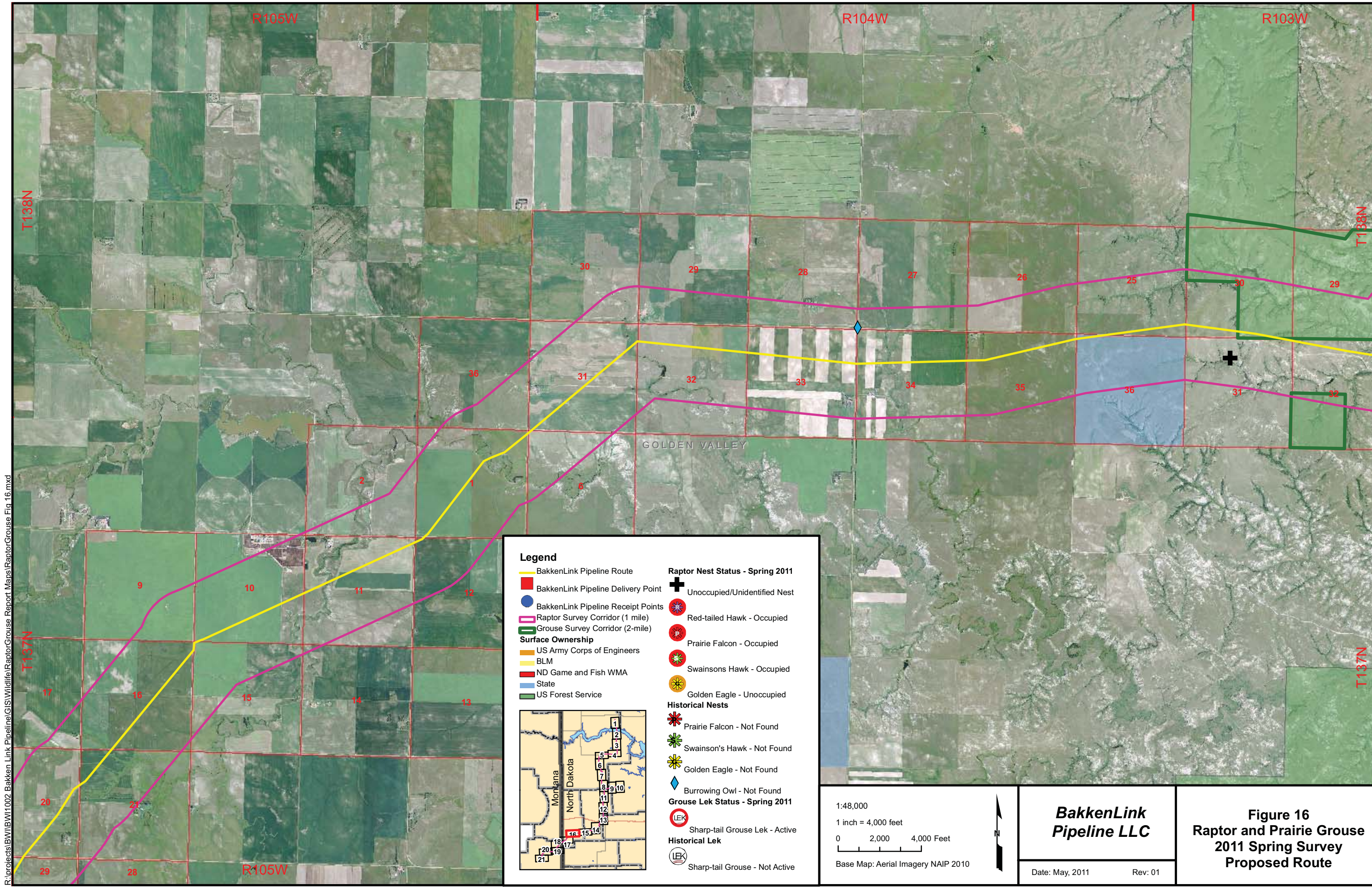


**BakkenLink Pipeline LLC**  
 Date: May, 2011 Rev: 01

**Figure 14  
 Raptor and Prairie Grouse  
 2011 Spring Survey  
 Proposed Route**



R:\projects\BWBIBW1002 Bakken Link Pipeline\GIS\Wildlife\Raptor\Grouse Report Maps\Raptor\Grouse Fig 15.mxd



R:\projects\BWB\1002\_Bakken\_Link\_Pipeline\GIS\Wildlife\Raptor\Crouse\_Report\_Maps\Raptor\Crouse\_Fig\_16.mxd

**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Survey Corridor (2-mile)

**Surface Ownership**

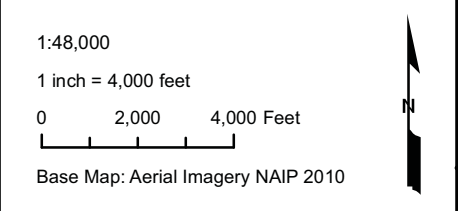
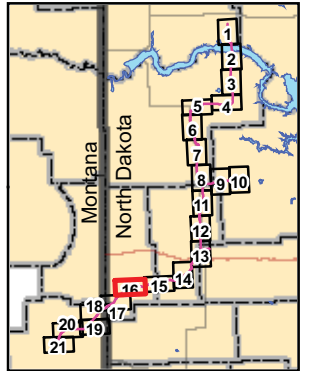
- US Army Corps of Engineers
- BLM
- ND Game and Fish WMA
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

- + Unoccupied/Unidentified Nest
- Red-tailed Hawk - Occupied
- Prairie Falcon - Occupied
- Swainsons Hawk - Occupied
- Golden Eagle - Unoccupied
- ✱ Prairie Falcon - Not Found
- ✱ Swainson's Hawk - Not Found
- ✱ Golden Eagle - Not Found
- ◆ Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- LEK Sharp-tail Grouse Lek - Active
- LEK Sharp-tail Grouse - Not Active



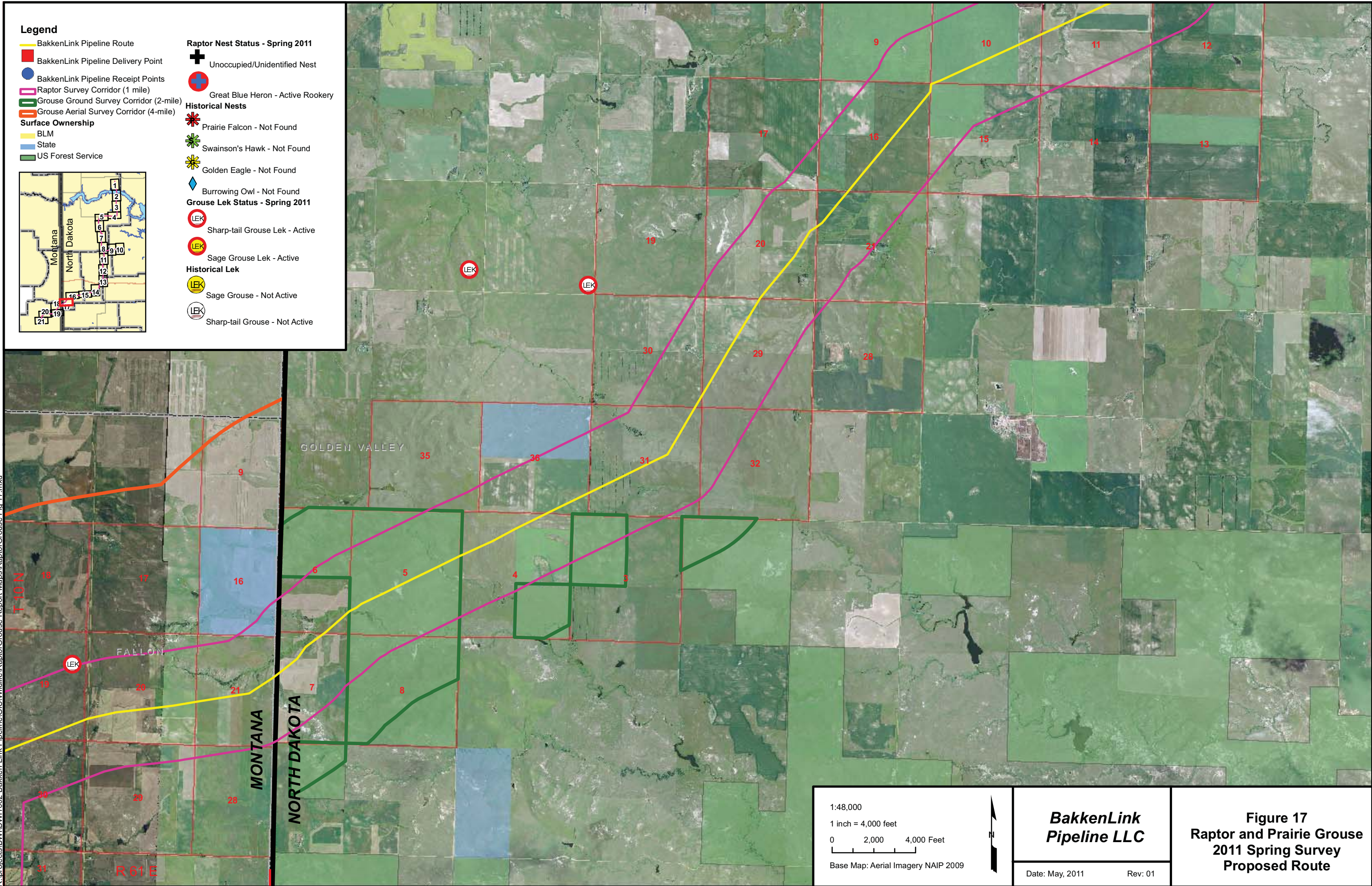
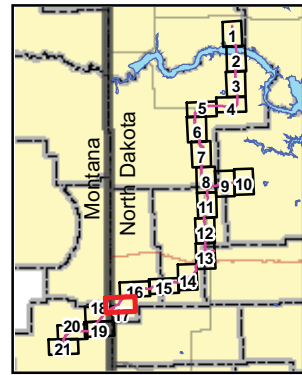
**BakkenLink  
Pipeline LLC**

Date: May, 2011      Rev: 01

**Figure 16  
Raptor and Prairie Grouse  
2011 Spring Survey  
Proposed Route**

**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1 mile)
- Grouse Ground Survey Corridor (2-mile)
- Grouse Aerial Survey Corridor (4-mile)
- Surface Ownership**
- BLM
- State
- US Forest Service
- Raptor Nest Status - Spring 2011**
- Unoccupied/Unidentified Nest
- Great Blue Heron - Active Rookery
- Historical Nests**
- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found
- Grouse Lek Status - Spring 2011**
- Sharp-tail Grouse Lek - Active
- Sage Grouse Lek - Active
- Historical Lek**
- Sage Grouse - Not Active
- Sharp-tail Grouse - Not Active

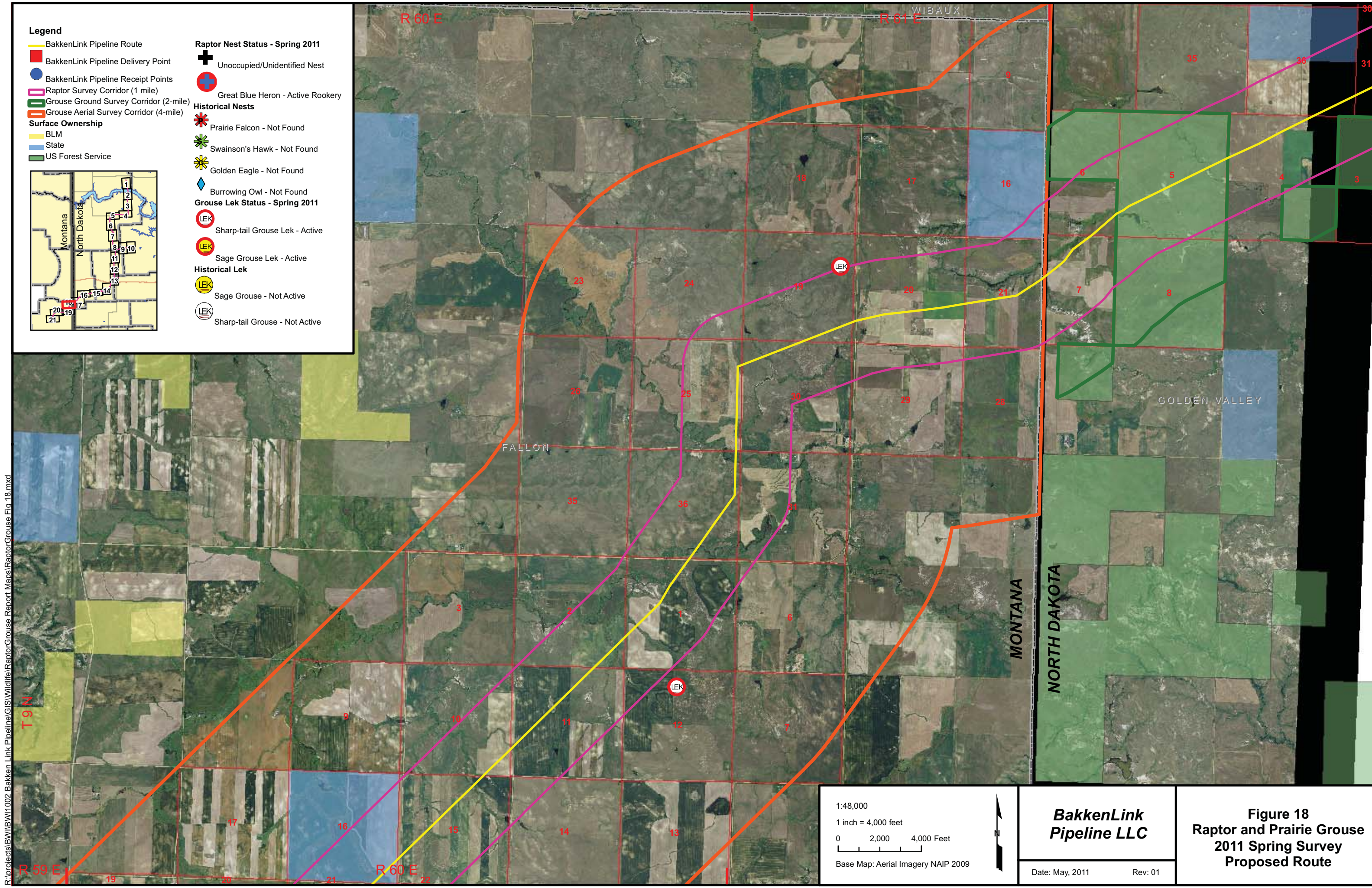


R:\projects\BWI\BWI1002\_Bakken\_Link\_Pipeline\GIS\Wildlife\Raptor\Grouse\_Report\_Maps\Raptor\Grouse\_Fig\_17.mxd

1:48,000  
 1 inch = 4,000 feet  
 0 2,000 4,000 Feet  
 Base Map: Aerial Imagery NAIP 2009

**BakkenLink Pipeline LLC**  
 Date: May, 2011 Rev: 01

**Figure 17**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**



R:\projects\BWB\1002 Bakken Link Pipeline\GIS\Wildlife\Raptor\Crouse Report Maps\Raptor\Crouse Fig 18.mxd

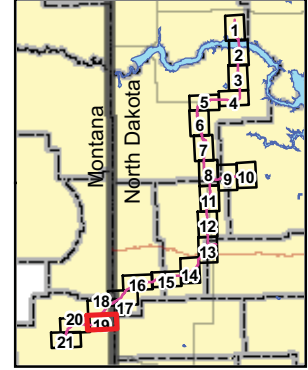
1:48,000  
 1 inch = 4,000 feet  
 0 2,000 4,000 Feet  
 Base Map: Aerial Imagery NAIP 2009

**BakkenLink Pipeline LLC**  
 Date: May, 2011 Rev: 01

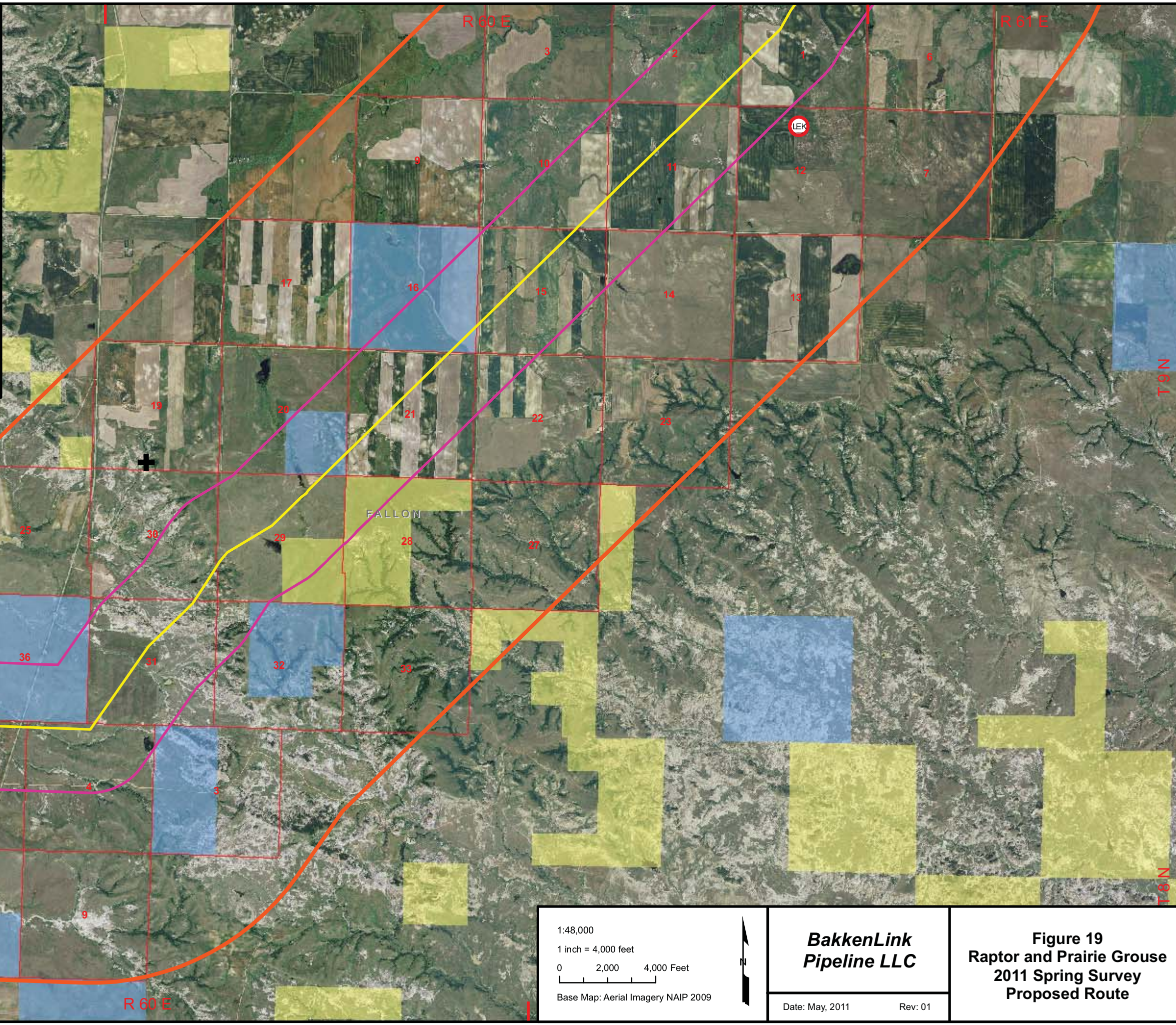
**Figure 18**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**

- Legend**
- BakkenLink Pipeline Route
  - BakkenLink Pipeline Delivery Point
  - BakkenLink Pipeline Receipt Points
  - Raptor Survey Corridor (1 mile)
  - Grouse Ground Survey Corridor (2-mile)
  - Grouse Aerial Survey Corridor (4-mile)

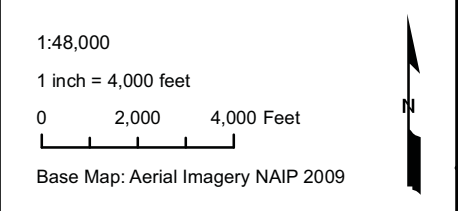
- Surface Ownership**
- BLM
  - State
  - US Forest Service



- Raptor Nest Status - Spring 2011**
- Unoccupied/Unidentified Nest
  - Great Blue Heron - Active Rookery
- Historical Nests**
- Prairie Falcon - Not Found
  - Swainson's Hawk - Not Found
  - Golden Eagle - Not Found
  - Burrowing Owl - Not Found
- Grouse Lek Status - Spring 2011**
- Sharp-tail Grouse Lek - Active
  - Sage Grouse Lek - Active
- Historical Lek**
- Sage Grouse - Not Active
  - Sharp-tail Grouse - Not Active



R:\projects\BWI\BWI1002 Bakken Link Pipeline\GIS\Wildlife\Raptor\Grouse Report Maps\Raptor\Grouse Fig 19.mxd






















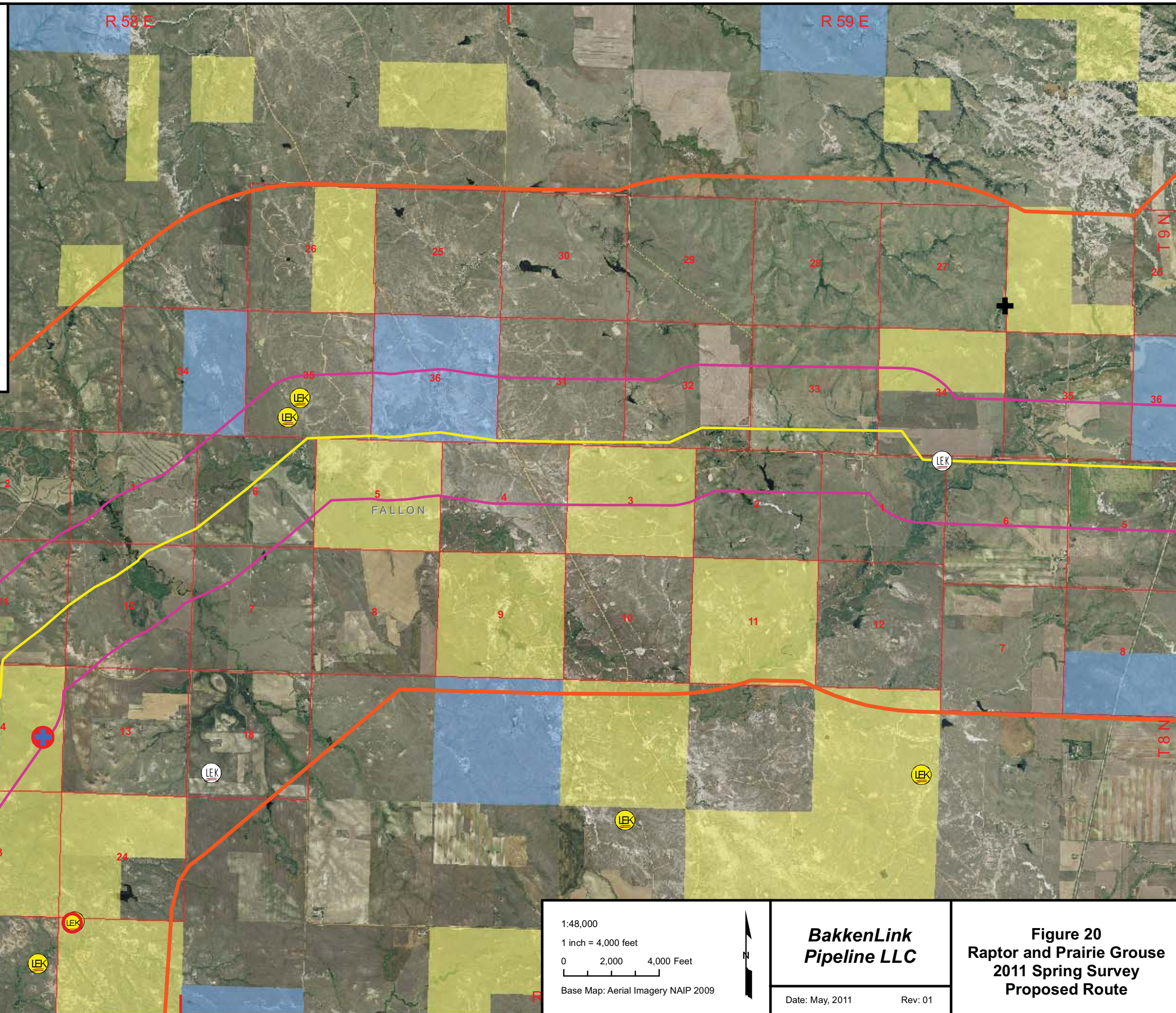
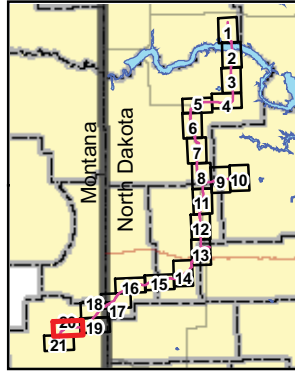
**BakkenLink Pipeline LLC**

Date: May, 2011      Rev: 01

**Figure 19**  
Raptor and Prairie Grouse  
2011 Spring Survey  
Proposed Route

**Legend**

-  BakkenLink Pipeline Route
-  BakkenLink Pipeline Delivery Point
-  BakkenLink Pipeline Receipt Points
-  Raptor Survey Corridor (1 mile)
-  Grouse Ground Survey Corridor (2-mile)
-  Grouse Aerial Survey Corridor (4-mile)
- Surface Ownership**
-  BLM
-  State
-  US Forest Service
- Raptor Nest Status - Spring 2011**
-  Unoccupied/Unidentified Nest
-  Great Blue Heron - Active Rookery
- Historical Nests**
-  Prairie Falcon - Not Found
-  Swainson's Hawk - Not Found
-  Golden Eagle - Not Found
-  Burrowing Owl - Not Found
- Grouse Lek Status - Spring 2011**
-  Sharp-tail Grouse Lek - Active
-  Sage Grouse Lek - Active
- Historical Lek**
-  Sage Grouse - Not Active
-  Sharp-tail Grouse - Not Active



R:\projects\BWB\1002 Bakken Link Pipeline\GIS\Wildlife\Raptor\Crouse Report Maps\Raptor\Crouse Fig 20.mxd

1:48,000  
 1 inch = 4,000 feet  
 0 2,000 4,000 Feet  
 Base Map: Aerial Imagery NAIP 2009

**BakkenLink Pipeline LLC**  
 Date: May, 2011 Rev: 01

**Figure 20**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**

R:\projects\BWB\1002 Bakken Link Pipeline\GIS\Wildlife\Raptor\Crouse Report Maps\Raptor\Crouse Fig 21.mxd

**Legend**

- BakkenLink Pipeline Route
- BakkenLink Pipeline Delivery Point
- BakkenLink Pipeline Receipt Points
- Raptor Survey Corridor (1-mile)
- Grouse Ground Survey Corridor (2-mile)
- Grouse Aerial Survey Corridor (4-mile)

**Surface Ownership**

- BLM
- State
- US Forest Service

**Raptor Nest Status - Spring 2011**

- Unoccupied/Unidentified Nest
- Great Blue Heron - Active Rookery

**Historical Nests**

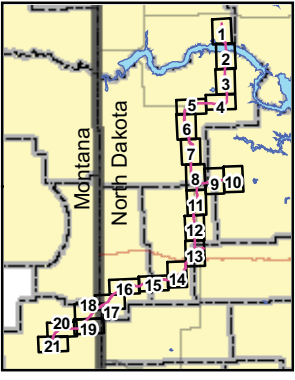
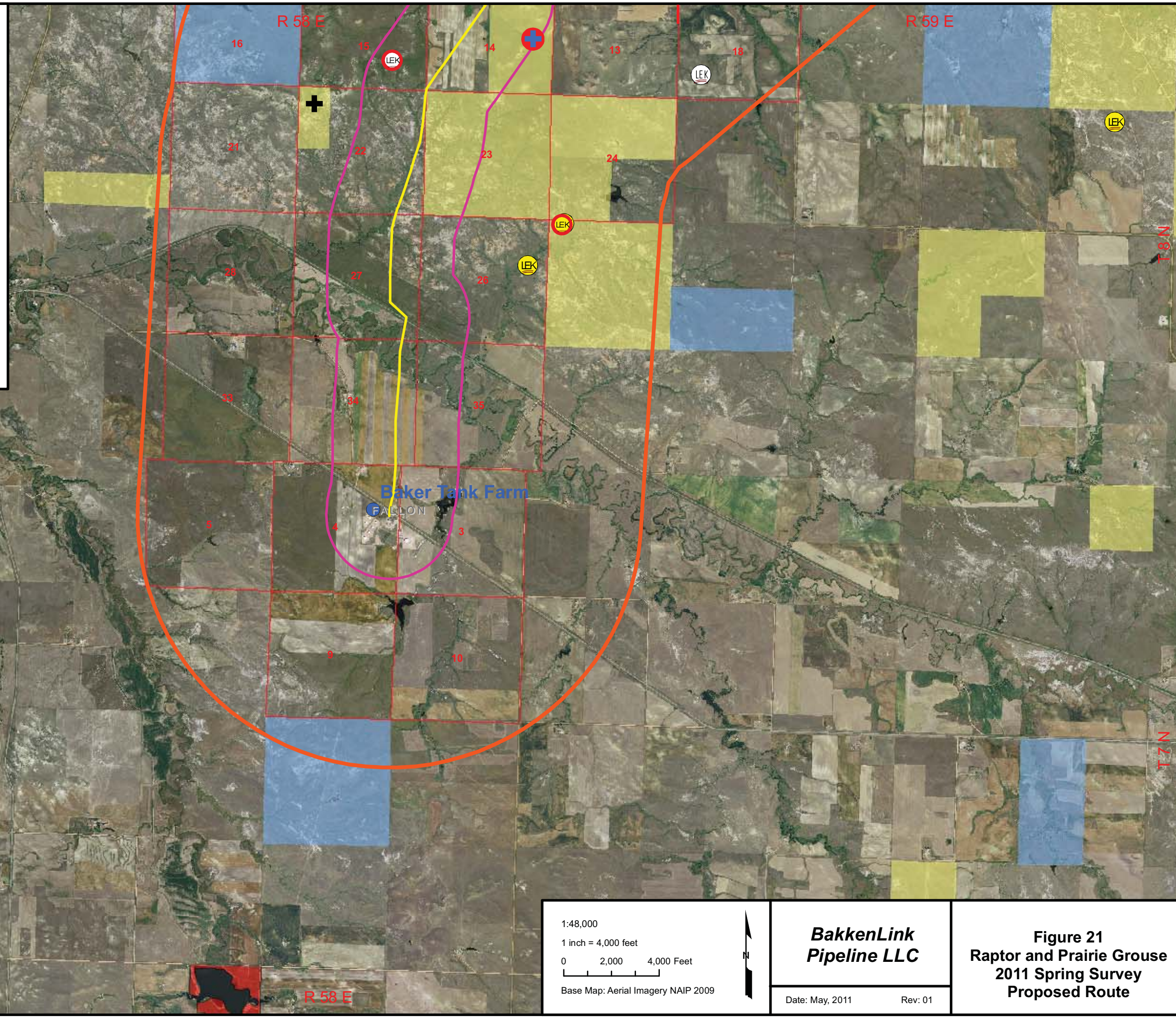
- Prairie Falcon - Not Found
- Swainson's Hawk - Not Found
- Golden Eagle - Not Found
- Burrowing Owl - Not Found

**Grouse Lek Status - Spring 2011**

- Sharp-tail Grouse Lek - Active
- Sage Grouse Lek - Active

**Historical Lek**

- Sage Grouse - Not Active
- Sharp-tail Grouse - Not Active

1:48,000  
 1 inch = 4,000 feet  
 0 2,000 4,000 Feet  
 Base Map: Aerial Imagery NAIP 2009

**BakkenLink Pipeline LLC**  
 Date: May, 2011 Rev: 01

**Figure 21**  
**Raptor and Prairie Grouse**  
**2011 Spring Survey**  
**Proposed Route**

## Appendix B Tables

**Table 1. Active raptor nests**

Species	2011 Status	Surface Owner	Survey		Comments	Location						Distance (ft) from Route
			Date	Method		County	SEC	QQ	TWP	RNG	Latitude Longitude	
Red-tailed Hawk	Active	Private	Apr 13 2011	Aerial	Tree nest, red-tail in flight	McKenzie	20	SW NE	150	96	47.800425 -102.994877	1,550
Red-tailed Hawk	Active	Private	Apr 27 2011	Ground	Tree nest, large stick nest	Dunn	20	SE SW	145	95	47.360941 -102.815627	550
Prairie Falcon	Active	USFS	Apr 21 2011	Ground	Cliff nest (not line-of-sight)	Billings	18	SE SW	138	101	46.761432 -103.475299	1,875
Red-tailed Hawk	Active	Private	Apr 11 2011	Aerial	Tree nest	Billings	23	SE NW	144	99	47.279852 -103.191872	2,620
Swainson's Hawk	Active	Private	Apr 28 2011	Ground	Large tree nest, Pair seen in tree	Stark	15	NW NE	140	99	46.945739 -103.156734	970

**Table 2. Active prairie grouse leks**

Grouse Species	2011 Status	Owner	Survey		Number of Grouse Verified				Location						Distance (ft) from Route
			Date	Type	Males	Fe-males	Un-known Sex	Total	County	SEC	QQ	TWP	RNG	Latitude Longitude	
Sharp-tail Grouse	Active	USFS	Apr 21 2011	Ground	15	0	5	20	McKenzie	4	SE SE	153	95	48.09941 -102.898	550
Sharp-tail Grouse	Active	USFS	Apr 27 2011	Ground	0	0	10	10	McKenzie	18	NE SE	147	98	47.55222 -103.209	720
Sharp-tail Grouse	Active	USFS	Apr 21 2011	Ground	6	0	0	6	Billings	15	SW SE	138	102	46.76334 -103.534	2,470
Sharp-tail Grouse	Active	USFS	Apr 21 2011	Ground	0	0	8	8	Billings	22	SE SE	138	102	46.74858 -103.525	2,675
Sharp-tail Grouse	Active	USFS	Apr 21 2011	Ground	0	0	5	5	Golden Valley	28	NW SW	138	103	46.73512 -103.689	150
Sharp-tail Grouse	Active	Private	Apr 11 2011	Aerial	0	0	12	12	Fallon	19	SE NE	10	61	46.6083 -103.689	2,750
Sharp-tail Grouse	Active	Private	Apr 11 2011	Aerial	0	0	0	0	Fallon	12	NE NW	9	60	46.55232 -104.084	3,450
Sharp-tail Grouse	Active	Private	Apr 13 2011	Aerial	12	0	0	12	Fallon	15	SE SE	8	58	46.44365 -104.452	1,860
Sage-Grouse	Active	BLM	Apr 13 2011	Aerial	6	3	3	12	Fallon	25	NW NW	8	58	46.42537 -104.423	6,725

**Table 3. Inactive sage grouse lek (active within past 2 years)**

Grouse Species	2011 Status	Owner	Last Active		Number of Grouse Verified				Location						Distance (ft) from Route
			Date	Type	Males	Female	Unknown Sex	Total	County	SEC	QQ	TWP	RNG	Latitude Longitude	
Sage Grouse <sup>1</sup>	Not active, unconfirmed	Private	2010	Ground	12			NA <sup>2</sup>	Fallon	35	SE SW	9	58	46.48421 -104.39	1,200
Sag-Grouse <sup>1</sup>	Not active, unconfirmed	Private	2010	Ground	NA	NA	NA	NA	Fallon	26	SE NE	8	58	46.42056 -104.429	5,770

<sup>1</sup> 2010 MTFWP Survey data

**Table 4. Active Great Blue Heron rookery**

Species	2011 Status	Owner	Survey		Comments	Location						Distance (ft) from Route
			Date	Method		County	SEC	QQ	TWP	RNG	Latitude Longitude	
Great Blue Heron	Active	BLM	Apr 13 2011	Aerial	Tree Rookery	Fallon	14	NE SW	8	58	46.44661 -104.42899	2,430

## **Appendix C Photographs**



**Photo 1. Occupied Swainson's hawk nest in the NW $\frac{1}{4}$ NE $\frac{1}{4}$  of Section 15, T140N, R99W**



**Photo 2. Photo of active sharp-tail grouse lek. Three males dancing in photo.**



**Photo 3. Big sagebrush habitat with active sage grouse lek. This lek is located on BLM lands in Fallon County, Montana in the NW $\frac{1}{4}$ NW $\frac{1}{4}$  of Section 25, T8N, R58E.**



**Photo 4. Small stock dam surrounded by cottonwood trees with active Great Blue Heron rookery. Located on BLM lands in Fallon County, Montana in NE $\frac{1}{4}$ SW $\frac{1}{4}$  of Section 14, T8N, R58E.**