



# MN DNR Prescribed Burn Unit Plan

NA-01990-04

<b>Burn Unit Name and ID:</b>			<b>Christiania 31 Prairie Bank</b>				
County Name	Lat/Long DMS	Sec	Twncshp	Rng	Forty	Management Unit Name and Number	Administrator
Jackson	N 43 45 46 E 95 05 18	31	104N	35W	SW 1/4	Christiania 31	Eco Services - SNA

### Burn Unit Description

Fuel Model	ECS Type/Sub Type <sup>1</sup>	Size of Burn (acres) <sup>1</sup>	Fuel Loading (tons/acre) <sup>1</sup>
100% model 3	Upa13d	<b>33 acres</b>	3.01 T/acre (estimation from NFES 1574)

Additional Burn Unit Descriptors (e.g. land management goals, overstory/understory, ECS plant community, soil, water, other ownerships/administration within burn area, other descriptors (power lines, roads etc))

About 50% of the burn unit is native tall grass prairie, predominantly SW hill prairie sub-type. The remaining acreage is CRP land seeded to warm season natives. Landscape management goals are to maintain and restore the prairie to pre-settlement flora and fauna conditions. There are a few interior fences from previous pasturing and farming activities. This prairie provides habitat for various grassland dependant wildlife species. The burn unit is bounded by roads, mowed breaks, cropland, or cut hay fields on all sides. Fuels outside the unit to the north and east are largely fuel model 3.

### Objectives

**Site goals:** Maintain fire dependent prairie species and reduce exotic competitors.

**Purpose of burn (measurable treatment objectives):** Reduce fine dead fuels by 90% to stimulate prairie plant vigor and seed production, top kill 50% of woody material <0.5 inch in diameter.

**Long term resource objectives:** Eliminate siberian elm, box elder, and other invasives from upland prairie areas, and reduce the density of brush sps. (i.e. native plum) from 95% of the site. Reduce exotic grass cover by 75% by timing and sequence of burns, maintain historic burn regime of prairie ecosystems.

**Range of acceptable results:** Fine fuel reduction of 75%-100%, top kill on <0.5 inch woody of 20%-100%, 20%-100% reduction in exotic grass seed production, and any reduction in dominance of woody sps.

**Timing of treatment (in calendar terms and phenological terms):** For reduction in dominance of exotic cool-season grasses, late spring burning when cool-season grasses are actively growing. Once long term goals have been met, a more diverse burn regime will be implemented. Effective reduction of woody species will occur mid-spring after leaves have appeared.

<b>Burn Complexity:</b> Use NWCG Complexity Rating Guide (NFES 2474) to Determine Burn Complexity (keep on file)	Low	Moderate <b>X</b>	High
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### Burn Prescription Window

		Outputs Prescription Parameters				Guidance Prescription Parameters					
Wind Direction		Spread Rate		Flame Length		Wind Speed		Temp.	Relative Humidity	1 Hr Fuel Moisture	1000 Hr Fuel Moisture or Drought Code
		Head	Backing	Head	Backing	20'	Mid flame				
S, W, NW, N	Maximum Prescription	FM 3 483 ch/hr	FM 3 5 ch/hr	FM 3 25.7'	FM 3 3.3'	Max 20	Max * 15 mph	Max * 80 F	Min * 30%	6	NA
	Minimum Prescription	FM 3 75 ch/hr	FM 3 4 ch/hr	FM 3 10.1'	FM 3 2.7"	Min 5	Min 5 mph	Min 50 F	Max 60%	15	NA

\* Burns shall not be conducted when all *Guidance Prescription Parameters* are at their highest extremes.

### Additional Considerations

Consideration	Mitigation
Cultural site(s): unknown	
Natural Heritage Elements: no	Prairie habitat for obligate insects and grassland birds has been divided into units to avoid burning all habitat and refugia.
Adjacent Land Concerns: yes	Prescription keeps smoke from residences and nearby roads. Notify residents within a mile of unit prior to burn.
Peat Soils or Wet Soils: yes	Avoid driving in wet areas on unit and fire line. Rehab any ruts
Other: yes (difficult access points)	Crew will be prepared to use hose lays and ATV's to access unit

### Emergency Telephone Numbers

### Burn Activity Contacts

Fire Dept: Jackson	507-847-4420	DNR contact	XXX-XXX-XXXX
Sheriff: Jackson County	507-847-4420	PB landowner:	XXX-XXX-XXXX



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Hospital: Windom Area Hospital	507-831-2400	Sioux Falls Weather Service:	605-330-4244
Air Ambulances: "Intensive Air / Trauma 1" - Sioux Falls Air Ambulance	911	DNR Forestry (permit validation)	XXX-XXX-XXXX
"Life Link" - St. Paul Air Ambulance	911		
"Careflight" - Sioux Falls Air Ambulance	911		
Nearest Burn units: McKennan Hospital - Sioux Falls, SD	911		
Hennepin County-Minneapolis, MN	911		

#### Personnel Needs

Burn Boss Level (Note: tied to the burn complexity level):		MN RXB2
Number Needed	Position	Names(Optional)
1	MN RXB2 (or NWCG RXB2)	
1	MN RXI2 (or NWCG RXI2)	
4	MN FFT2 (or NWCG FFT2)	

#### Equipment Needs

Number needed	Equipment Type	Source
2	Engine w/200 gal. slip-on unit (or 1 Engine and 1 equivalent capacity tender unit)	Contractor
1 (minimum)	ATV w/slip-on unit	
4	Drip torches	
6	Backpack sprayer	
6	Radios (for each person)	
1	Pulaski	
1	Shovel	
1	Fire rake	
1	Weather kit	
2	"Caution Smoke Ahead" road signs	
2	"Stop/Slow" two sided hand held paddles	
1	Chainsaw & safety gear	
6	PPE gear (for each person)	
1	First aid kit	
1	Cellular phone	



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## Operations Plans

**Pre-burn Site Preparation Plan:** Firebreaks mowed around adjacent fuels – DNR crew. Any hold-over hazards away from fire line – DNR crew.

**Ignition/Firing Plan:** (Include provisions for a test fire, firing pattern, firing device, preferred wind direction, hazards/special considerations):

Preferred wind direction: west

1. Lighting method: drip torches
  - a) radio communications between ignition specialist and ignitors
  - b) all ignitors know where escape routes and safety zones are throughout the fire
  - c) all ignition only by direction of ignition specialist.
  - d) ignitors need to watch for sudden wind shifts and flare ups in volatile fuels. Be especially watchful in areas of heavy fuel, such as cattail, next to firing line, may produce flare ups with 20' flame.
  - e) Because wind will change direction unexpectedly (counter to the prevailing winds) due to the topography, headfires can change direction unexpectedly for short duration. Igniters watch for this.
  - f) Igniters will keep sleeves buttoned and shrouds and goggles on to protect from flames and heat.
2. At a minimum, Burn Boss and Ignition Specialist will check burn unit perimeter for potential problem areas, fuel changes, weak line spots etc.
3. Anchor ignition in burn unit (usually corner) opposite current prevailing wind. Start test fire at this location and observe fire behavior to determine if in prescription parameters.
4. Burn out and secure control lines by igniting backing or flanking fires. Black lines need to hold against maximum prescribed head fire flame lengths. Typically 50-75' of black is necessary before allowing a head fire to run at control lines. Because this may be time consuming in some fuels, strip firing can be used to widen the black line. A general rule of thumb for grass models is to strip fire half the width of already established black next to the strip (if there is 4' of black, strip in 2' intervals).
5. With burn lines secure, interior of unit may be ignited by using backing, flanking, or head fires.
6. Cease lighting if spot fires occur and are under control. Cease lighting until burn boss gives the signal if escape.
7. Holding crews will pre-treat signs, power poles, etc (if present), before running fire through them.

**Holding Plan:** (Staging area, holding lines, resources and positions): Staging area is on the field road near point C (on project unit map). One engine will be needed on line B to G for holding and contingency plans. The second engine (or tender) will also be staged at point B for water supply until line B to G is secure. An ATV can be used for wetlining on line B to G, but the engine (or tender) will be needed for additional water supply. There is a stream that is not passable with an ATV splitting line H to G. This line will have to be worked with hand tools or a hose lay. Under normal conditions the same stream will support a portable pump for hose lay. Line E to F is a well-driven field road. Holding will be minimal on the remaining lines because of tilled fields. An ATV or hose lay will be used for wet lining firebreaks where an engine will not reach. Wet lines will be adjusted for changes in fuels. Resources may be adjusted in response to actual fire behavior.

**Patrol/Mop-up Plan:** (Mopup instructions, safety concerns, weather, contingency, rehab, patrol instructions): Mop up all flaming and smoldering materials within 100 feet of the fire line. Put out any flaming or smoldering wood above ground within 200 feet of fire line. Patrol until released by burn boss. Monitor weather and smoke conditions from fire line for smoke dispersal. Report any significant weather changes, smoke dispersal changes or fire behavior to burn boss.

## Contingency Plans

(Include secondary control lines, termination of ignition procedures, list of contingency resources and approximate response times, trigger points, backup plan for equipment failure etc.): Secondary control lines are tilled fields, river body, ponds, and roads on surrounding sides. The areas of greatest concern are to the north and east (adjacent FM3). If fire goes across the line, ignition will end, holding forces will take action under direction of burn boss to anchor, flank and pinch escape while containing existing burn unit. Fuels around the building site immediately north are heavily grazed. Access to an escape north is through the building site, which has a driveway from the west. Contingency resources may be drawn from: Windom Rural Fire (15 min.) and Jackson Fire Dept. (20 min). If conditions trigger continuing spot fires over the fire line, prescribed fire will be put out and mopped up. If fire line equipment fails, rotate out with engine and ATV in staging area and have one person work on the failing equipment if repairable in the field.

## Smoke Management Plan – REQUIRED BY MNPCA<sup>1</sup>

**Smoke Dispersion Category:** should be FAIR or better to burn<sup>1</sup> NOTE: In using the Dispersion Index, exercise caution with high transport wind and low mixing height or low transport wind and high mixing height which, although they combine to give an acceptable Category, can cause smoke dispersion problems as well as potential control problems!

**Distance and Direction from Smoke Sensitive Area(s)<sup>1</sup>:** Several residences within a mile. Also a paved County road on the

<sup>1</sup> Required for MN Pollution Control Agency reporting requirements



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west (County Rd 17) and gravel on the east (County Rd 79).

**Smoke Management Plan** (Describe how you intend to mitigate the effects of smoke on roads, firefighters, neighbors and other sensitive receptors. Include safety considerations)<sup>1</sup>: Avoid smoke downwind to receptors by using prescribed wind direction. Rotate firefighters out of smoke, have good firebreaks and wet line so firefighters do not have to be in heavy smoke to hold. Igniters will use goggles and neck shrouds when igniting. Monitor smoke over county road and put “smoke over road” signs out or road control personnel if unexpected conditions occur. Burning under good dispersion conditions will minimize potential problems for neighboring residences and roads. Duration of smoke is estimated at 3 hours.

#### Safety Plan

(Identify safety zones, escape routes, communications plan): Safety zones and escape routes will change as the burn progresses, this will be monitored and communicated during the burn. In general, the 12’ wide mowed green breaks provide good escape routes. Black areas and tilled fields are safety zones. Lights on for all engines, and watch for traffic when operating near roads. ATV’s will not be used on steep terrain. Monitor and communicate any irregular fire behavior such as whirlwind or fire devil activity. All personal on the fire will have access to radio communication.

#### Medical Plan

(In addition to notification of 9-1-1 dispatcher, identify nearest ground and air ambulance service, availability of paramedics, location of nearest hospital, phone number of Minnesota Poison Control Center and list what first aid supplies are available at the burn site and what person or equipment they are assigned to): Nearest air ambulances are located in Sioux Falls, SD and Minneapolis, MN. Nearest hospital and ground ambulance is located in Windom, MN (numbers is on contact list). First aid kits should be located on all Engines. At least one cell phone should be available on the burn. At least one member of the crew should be trained in Advanced First Aid/CPR and Outdoor Emergency Care.

#### List of Attachments

Project Unit Map	X	Permission to Burn on non-DNR Land	X		
Surrounding Fuels Map	X	Fire Behavior Calculations (optional)			
Wind Direction Map	X	Risk/Safety Assessment (optional)			
Neighborhood contact Map	X	Road Control Plan (optional)			
Location Map	X	Organization Chart (optional)			

#### Signatures

Prepared by:	Title: Prairie Specialist	Date:
Reviewed by <sup>2</sup> :	Title: State Prairie Biologist	Date:
Reviewed by <sup>3</sup> :	Title:	Date:
Approved by <sup>3</sup> :	Title: State Prairie Biologist	Date:

<sup>2</sup> All burn plans must be reviewed and signed by a qualified Burn Boss 1 or 2 as specified by Commissioner’s Operational Order 47

<sup>3</sup> As per Division policy



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Burn Unit Name and ID:

## Go/No Go Checklist

ALL burn prescription elements met.	ALL personnel have the required PPE with them.
ALL smoke management specifications met.	ALL pre-burn considerations (line preparation) identified in the plan addressed.
ALL current and projected fire weather forecasts have been obtained and are favorable.	ALL the required notifications been made. (landowners, media, cooperators, sheriff etc)
ALL planned operations personnel and equipment on-site, available and operational.	ALL permits and approvals been obtained. (open burning permit, Non-DNR land permission)
APPROPRIATE contingency resources have been confirmed and are available	ALL on-site holding forces adequate for containment under the expected conditions.
ALL personnel briefed on the burn objectives, their assignment, safety hazards, escape routes and contingency plan.	Burn Boss believes the burn can be carried out according to the Prescribed Burn Unit Plan and will meet the planned objectives.

## Prescribed Burn Unit Report

### Weather

	Time	Wind Direction	Wind Speed	Temperature	Relative Humidity	Comment
Forecasted Fire Weather						
Spot weather forecast						
Observed weather						

### Observed Fire Behavior

Time	Spread Rate	Flame Lengths	Scorch Height

### Acres Burned by Cover Type

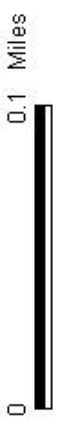
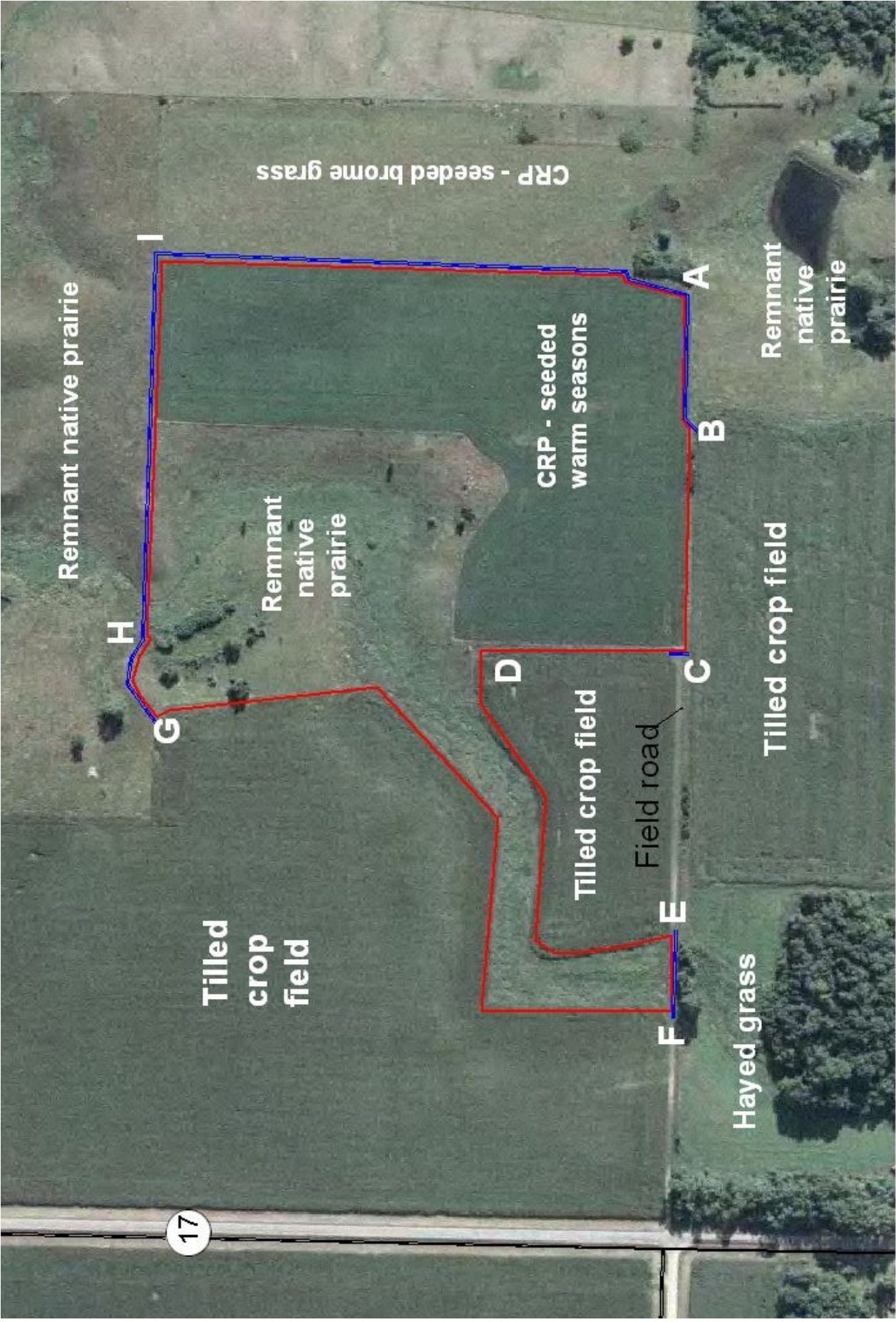
Fuel Model	Completed Acres	ECS Type Sub Type	Completed Acres

### Post Burn Observations

### Recommendations

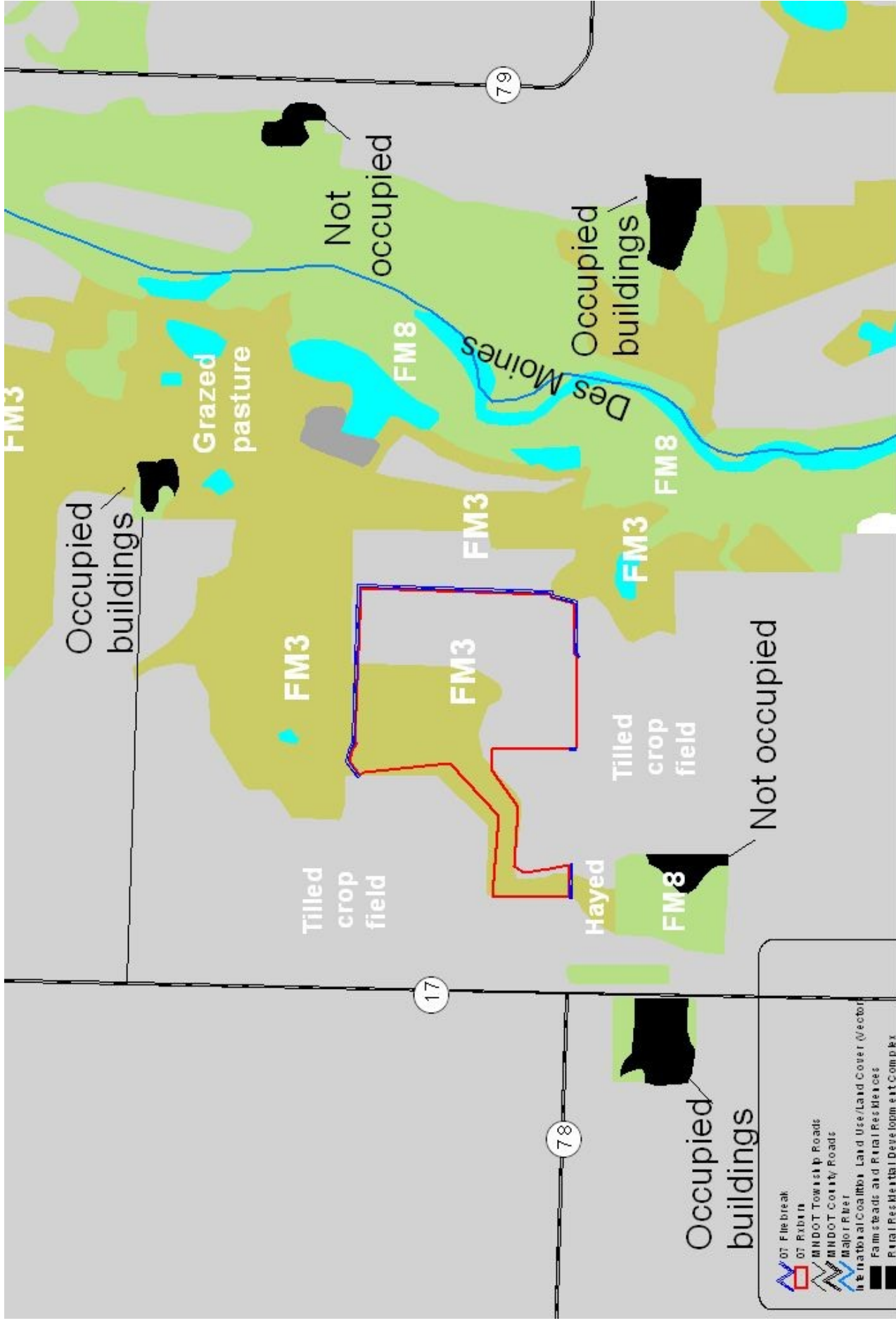
### Burn Boss Signature

Name:	Title:	Date:
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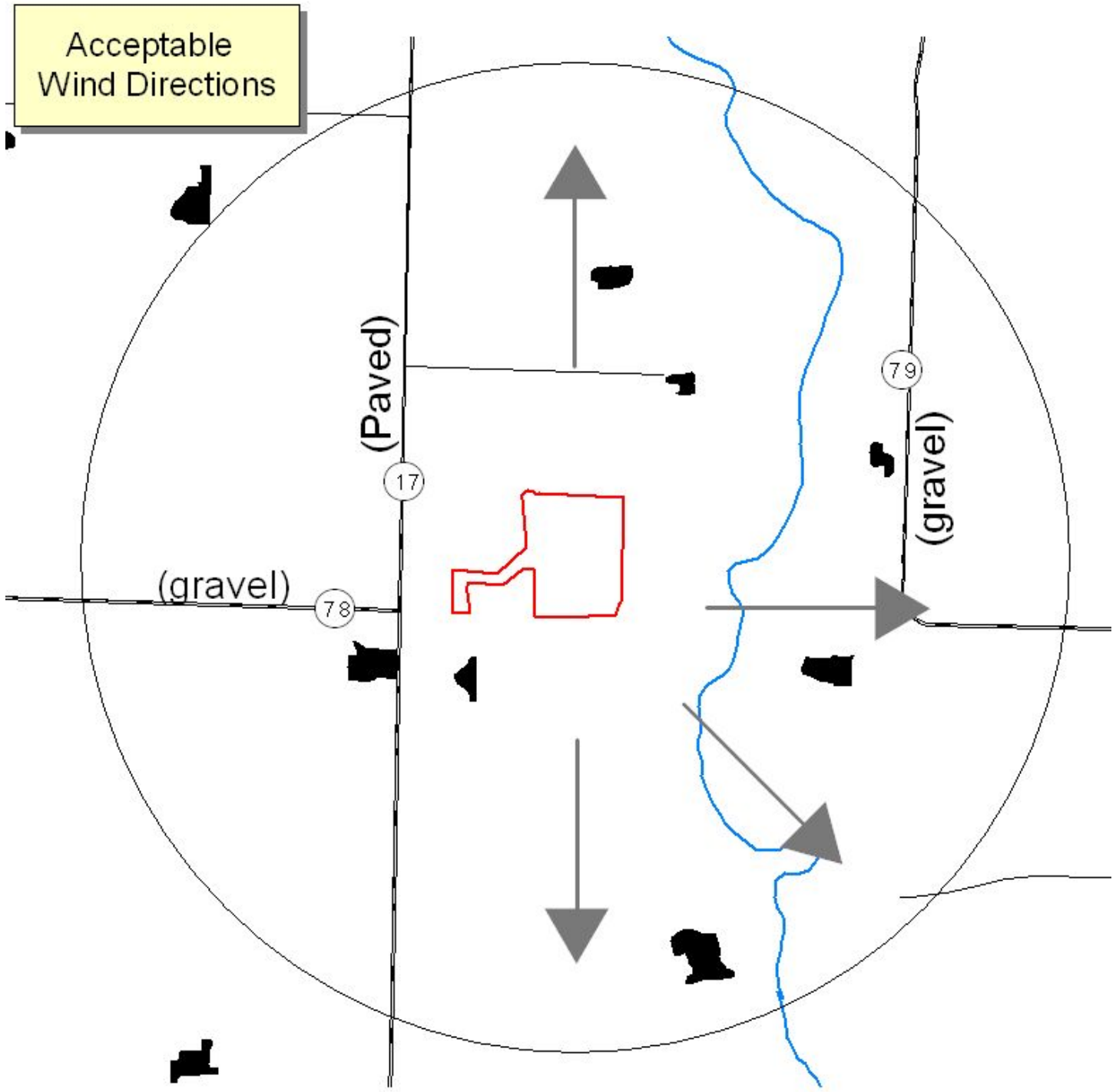
**Christiana 31 - Amundson**  
 Christiana twnshp  
 T104 R35W Sec31  
 Section 31




07 Firebreak  
 07 Rxburn  
 MNDOT County Roads



**Christiana 31 - Amundson**  
 Christiana township  
 T104 R35W Sec31  
 Section 31

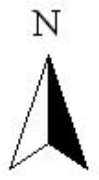
	07 File break
	07 Urban
	MNDOT Township Roads
	MNDOT County Roads
	Major River
	International/Coastal Land Use/Land Cover (Vector)
	Farmsteads and Rural Residences
	Rural Residential Development Complex
	Other Rural Developments
	Cultivated Land
	Grassland
	Deciduous Forest
	Water
	Gravel Pits and Open Mines



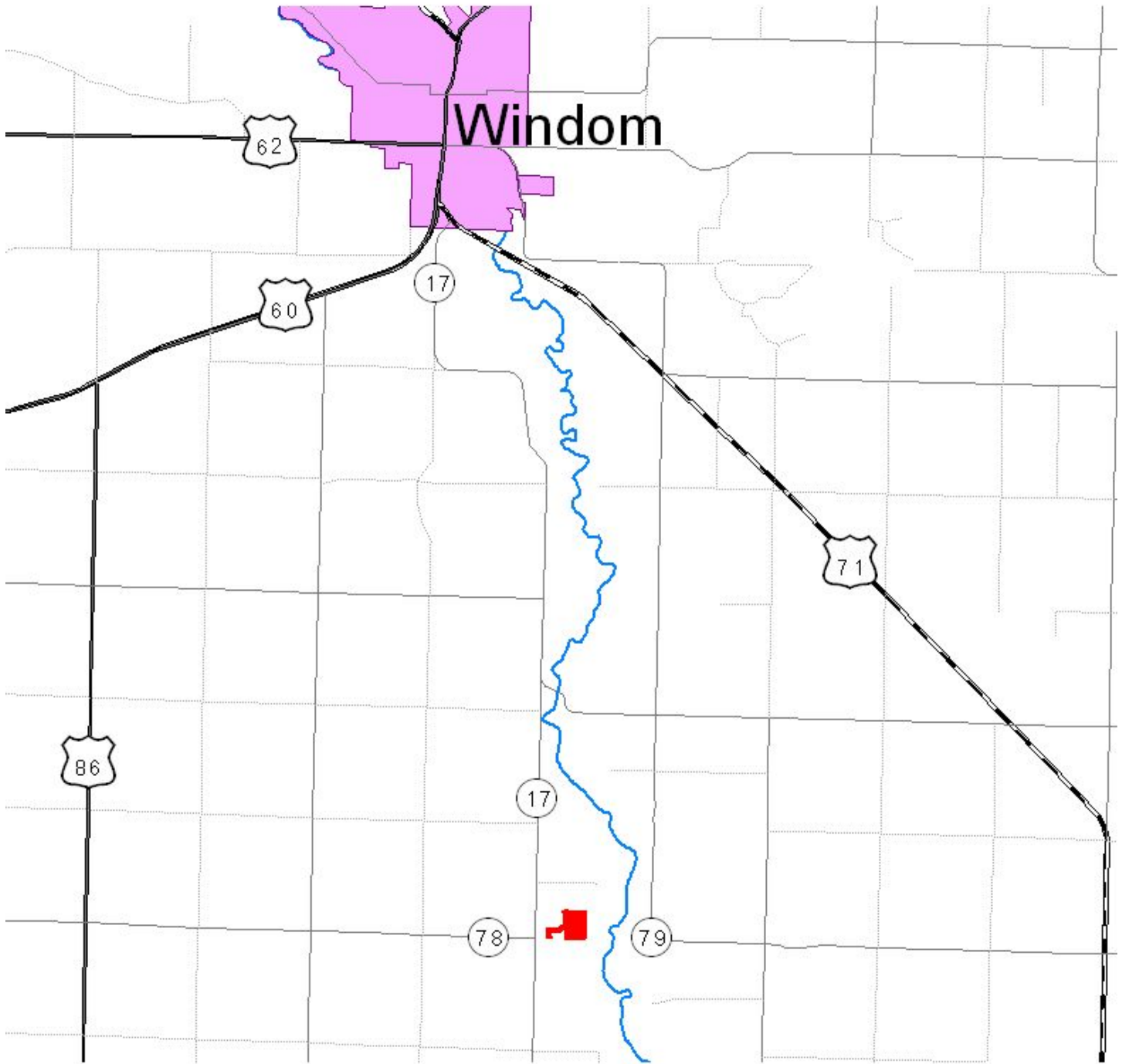
-  07 Rxburn
-  MNDOT Township Roads
-  MNDOT County Roads
-  Major River

**Christiana 31 - Amundson**

Christiana twnshp  
 T104 R35W Sec31  
 Section 31







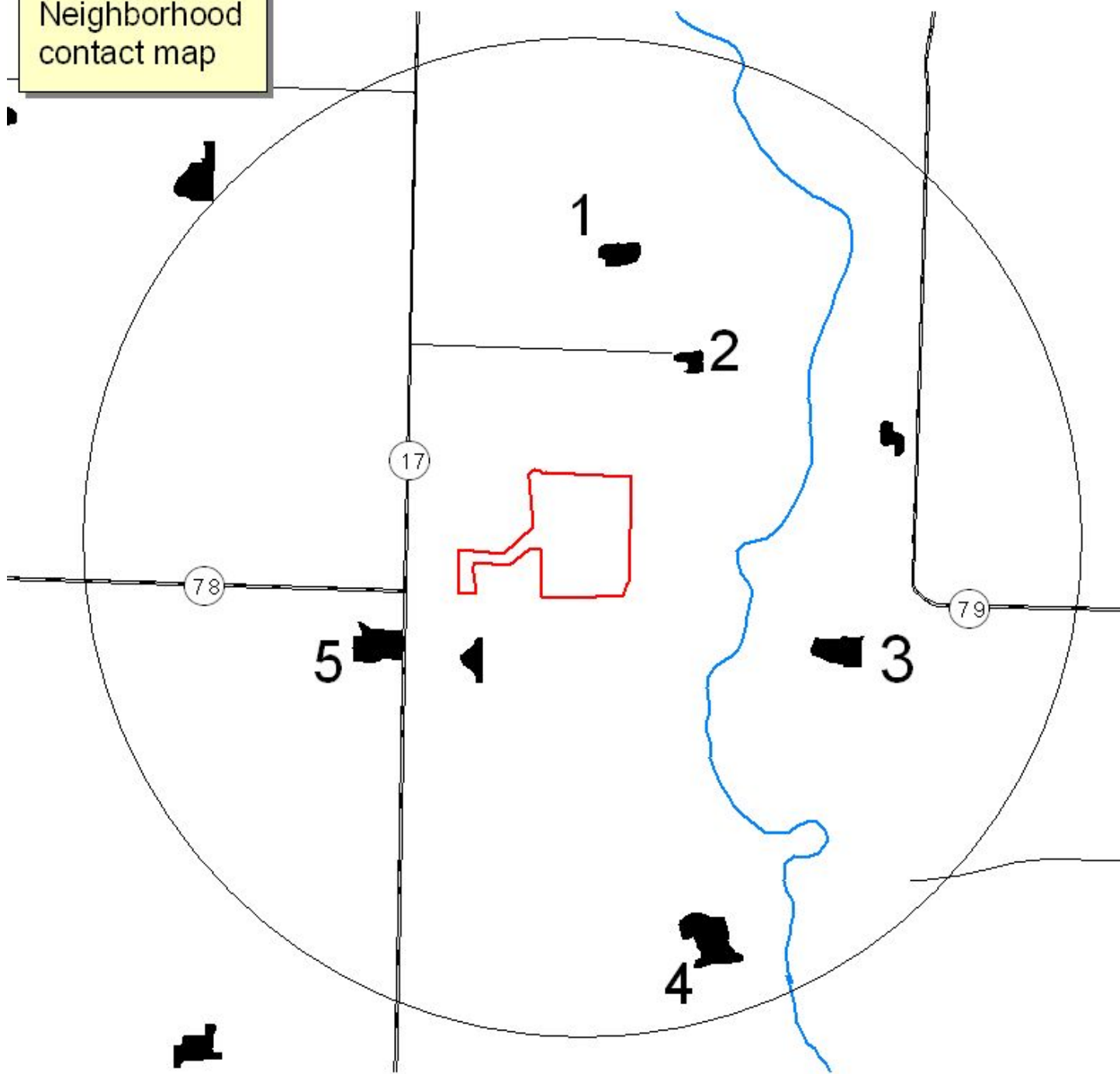
- 07 Rxburn
- MNDOT Township Roads
- MNDOT County Roads
- MNDOT Interstate and Trunk Highways
- Interstate
- Federal Trunk
- State Trunk
- Major River

**Christiana 31 - Amundson**

Christiana twndshp  
 T104 R35W Sec31  
 Section 31



Neighborhood  
contact map



- 07 Rxburn
- MNDOT Township Roads
- MNDOT County Roads
- Major River

### Christiania 31 - Amundson

Christiania twndshp  
T104 R35W Sec31  
Section 31

0 0.25 Miles





Department of Natural Resources  
NA- 01990-03

Site Name: Christiania 31 Prairie Bank

Date: \_\_\_\_\_

Public Relations

List individually neighbors to be contacted.

Map#	Name	Phone #	DNR Letter <input checked="" type="checkbox"/>	Contacted <input checked="" type="checkbox"/>	Response
1					
2					
3					
4					
5					
6					
7					
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