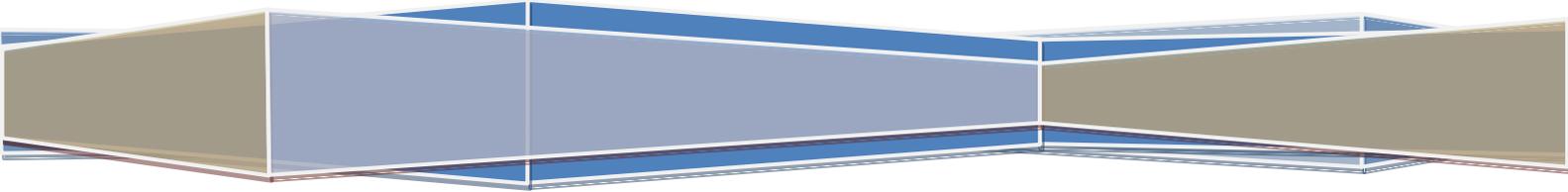


# Pennington County Rural Development Site Analysis

A Study by  
First District Association of Local Governments

Funded by the South Dakota Value Added Agriculture Subfund



**TABLE OF CONTENTS**

**SUMMARY.....2**

- Program History ..... 2
- Methodology..... 2
- Limiting Factors..... 3
- Results..... 4

**APPENDIX I – SITE ASSESSMENT CRITERIA.....9**

- Land Use Regulations..... 10
- Environmental..... 11
- Infrastructure..... 11

**APPENDIX II – RESEARCH AND METHODOLGY .....15**

**APPENDIX III - CONTACT INFORMATION .....19**

**LIST OF TABLES**

- Table 1 Site Characteristics Criteria..... 3
- Table 2 Pennington County CAFO Sites by Hierarchy Classification ..... 4
- Table 3 Pennington County AID Sites by Hierarchy Classification ..... 4
- Table A1 Site Characteristics Criteria ..... 15
- Table A2 CAFO Hierarchy Classification Requirements..... 16
- Table A3 AID Hierarchy Classification Requirements..... 17
- Table A4 Pennington County CAFO Sites by Hierarchy Classification ..... 18
- Table A5 Pennington County AID Sites by Hierarchy Classification ..... 18

**LIST OF MAPS**

- Potential High Water Use CAFO Development Sites Map (Township)..... 5
- Potential Low Water Use CAFO Development Sites Map (Township) ..... 6
- Potential High Water Use AID Development Sites Map (Township)..... 7
- Potential Low Water Use AID Development Sites Map (Township) ..... 8
- Pennington County Location Map..... 9

## Summary

### Program History

As part of the South Dakota Department of Agriculture's (SDDA) efforts to enhance economic development opportunities and better support local control of development, the County Site Analysis Program (Program) was developed in the summer of 2013. The Program assists participating counties in identifying potential rural properties with site development opportunities. The analysis and subsequent report will provide local leaders with information and research-based resources to foster well informed decisions regarding the future of their respective regions. It also helps identify and plan for potential challenges that may arise should those opportunities be pursued.

In implementing the Program, SDDA is working closely with South Dakota's Planning and Development Districts. The First District Association of Local Governments (First District) and Planning and Development District III (District III) developed a methodology for a feasibility analysis that focuses on identifying locations for rural economic development. The methodology addresses the feasibility of locations for the development of concentrated animal feeding operations, agricultural processing and storage facilities, and other agriculturally-related commercial/industrial development. The analysis takes into consideration local zoning and State permitting requirements along with the availability of infrastructure necessary to accommodate certain rural economic development projects.

The identification of each prospective site's relative advantages and constraints provides decision-makers with useful information for assessing the development potential of each site. The information contained herein has the potential to streamline the marketing process thereby reducing timelines, financial expenditures and labor costs. Local governments, landowners, economic development groups and state agencies such as the Department of Agriculture or Governor's Office of Economic Development all benefit from the rural site development analysis. These entities now have access to a marketing tool based on proactive planning efforts. In addition, the report may assist local governments in updating their comprehensive plans, zoning ordinances and permitting procedures while also increasing local awareness of potential development opportunities.

### Methodology

The analysis methodology developed for this study utilized an established set of criteria deemed critical to further development of the subject properties while specifically addressing the suitability of a site for either a concentrated animal feeding operation (CAFO) or an Agriculturally-related Industrial Development (AID). **Table 1** lists the site assessment criteria identified as being necessary in order to conduct analysis of the potential sites. Minimum thresholds for each criterion were utilized to establish a hierarchy classification of "Good", "Better" and "Best" sites. Those sites designated as "Best" sites were those not limited by any of the criteria considered. Sites not meeting the minimum criteria required of the "Best" sites were subsequently identified as "Good" or "Better".

Specific information regarding the Site Assessment Criteria and methodology utilized for developing the "Good", "Better", and "Best" hierarchy may be found in **Appendix I and II**, respectively.

**Table 1: Site Assessment Criteria**

<b>CAFO/AID Criteria</b>
Access to County and State Road Network
Proximity to Three-phase Electricity Supply
Proximity to Rural Water System
Capacity of Rural Water System
Location of Shallow Aquifer
Existing Zoning Districts/Land Use Plans
Buildable Parcel
County CAFO Zoning Setback Requirements (If applicable)*
Proximity to Rural Residences* & Communities
Proximity to Rail**

\*CAFO Assessment Criteria Only

\*\* AID Assessment Criteria Only

### **Limiting Factors**

While this report focuses on the specific sites matching the site assessment criteria standards, it became apparent that each site also possesses its own unique set of site characteristics which present both advantages and constraints. For example, Pennington County has adopted zoning regulations with few restrictions on CAFO development sites thereby increasing the potential for CAFO development. However, many of potential sites lack the necessary infrastructure to support development.

The analysis found that the primary limiting factor in reviewing the development potential of properties within Pennington County for a “Better” or “Best” CAFO site development is the availability of quality potable water. The same is true with AID developments which also require a reliable source of not only high quality but also large quantities. Access to a centralized water source such as rural water was a key criterion in the site analysis process. While access to rural water quality water was identified as an impediment, the rural water systems noted that if a significant water user would locate in the county; they would explore ways to provide water to the proposed development. Therefore, the analysis does not make the claim that the only sites for CAFO/AID development in Pennington County be relegated to the specific sites identified herein.

In addition to the availability of quality potable water, other limiting factors such as amount of federal lands, access to County and State road networks, 3-Phase power, and rail limited the number of potential AID and CAFO sites. There is the potential of additional limiting factors that are not taken into consideration under the scope of this analysis, one such factor encountered in Pennington is the potential for steep slope in the identified sites.

The site assessment process was limited in scope to include undeveloped parcels and did not consider expansion of existing CAFOs or commercial/industrial uses. In addition to this limited scope, minimum values were utilized in ranking each site with regards to infrastructure demands. No attempt was made to rank each site within the three identified classifications. The uniqueness of each criterion identified in Table 1 warrants a comprehensive review of the potential impact each may have upon a subject property. This study is intended as the first step of a multi-faceted development process potentially leading to more specific site evaluations such as Phase 1 Environmental Assessments, engineering plans, development cost analysis, etc.

## Results

Identifying and evaluating potential sites for development is the first step in planning for economic development in rural Pennington County. The findings of this report will assist in determining the potential role each site may play in supporting economic development and should be considered when planning for future projects within Pennington County.

Utilizing Geographic Information System (GIS) technology, the First District Association of Local Governments identified **1,245** sites within Pennington County that met the minimum site assessment standards of the CAFO analysis, **Table 2** and **431** sites that met the minimum standards of the AID analysis, **Table 3**. These sites were in close proximity to infrastructure necessary to support the previously identified economic development activities.

The CAFO and AID Analysis Maps further detail High Water Use (HWU) and Low Water Use (LWU) CAFO and AID sites. HWU CAFO sites are those locations which require 150,000 gallons of water per day. This amount of water is necessary to support, for example, a 3,000 head dairy. LWU CAFO sites are those locations which require 30,000 gallons of water per day, a volume necessary to support either a 600 head dairy or 5,000 head sow operation. HWU AID sites are those locations which require water at levels necessary to support high water uses such as food processing or ethanol production. The water requirement for a HWU AID site is 410,000 gallons of water per day. This high water use is currently unable to be supported by the rural water system. Therefore, no sites were found to be acceptable for HWU AID. LWU AID sites are those locations which require water at levels necessary to support most agriculturally-related commercial/industrial development, 30,000 gallons per day. The analysis identified **788** High Water Use and **1,245** Low Water Use CAFO sites; whereas, there were **0** High Water Use and **431** Low Water Use AID sites. The following maps provide information at a township level regarding the number of “Good”, “Better” and “Best” CAFO and AID sites.

**Table 2:  
Pennington County CAFO Sites by Hierarchy Classification**

<b>CAFO Site Classification</b>	<b>Good Sites</b>	<b>Better Sites</b>	<b>Best Sites</b>
Low Water CAFO	1,133	112	0
High Water CAFO	720	66	0

**Table 3:  
Pennington County AID Sites by Hierarchy Classification**

<b>AID Site Classification</b>	<b>Good Sites</b>	<b>Better Sites</b>	<b>Best Sites</b>
Low Water AID	431	0	0
High Water AID	0	0	0

**Pennington County**

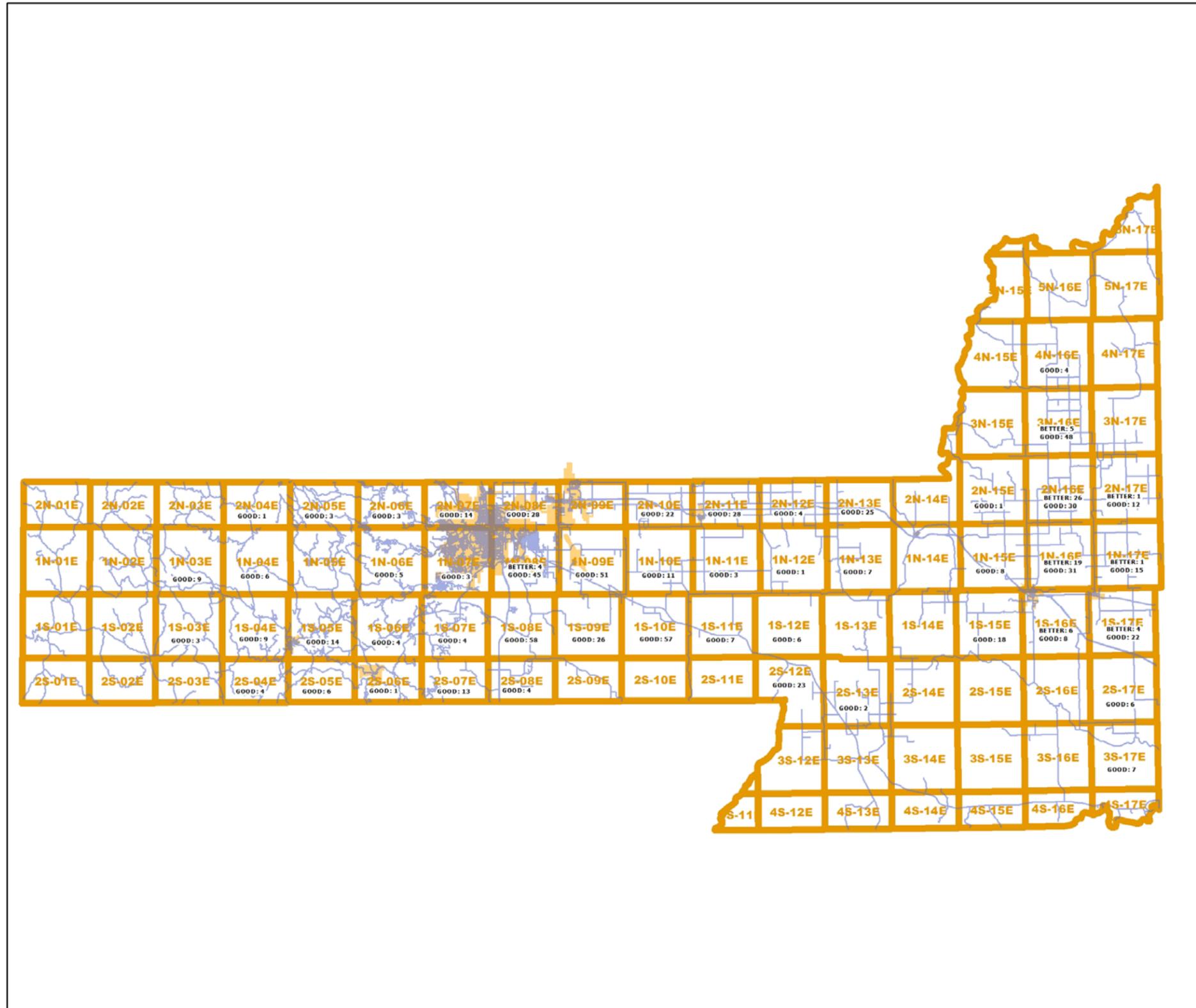
High Water Use  
CAFO Development Sites  
2016



**Legend**

- Townships
- City Limits

NAME	BEST	BETTER	GOOD
2N-04E	0	0	1
2S-06E	0	0	1
1N-12E	0	0	1
2N-15E	0	0	1
2S-13E	0	0	2
2N-05E	0	0	3
2N-06E	0	0	3
1S-03E	0	0	3
1N-07E	0	0	3
1N-11E	0	0	3
2N-12E	0	0	4
2S-08E	0	0	4
2S-04E	0	0	4
1S-06E	0	0	4
1S-07E	0	0	4
4N-16E	0	0	4
1N-06E	0	0	5
2S-17E	0	0	6
2S-05E	0	0	6
1N-04E	0	0	6
1S-12E	0	0	6
3S-17E	0	0	7
1S-11E	0	0	7
1N-13E	0	0	7
1S-16E	0	6	8
1N-15E	0	0	8
1N-03E	0	0	9
1S-04E	0	0	9
1N-10E	0	0	11
2N-17E	0	1	12
2S-07E	0	0	13
2N-07E	0	0	14
1S-05E	0	0	14
1N-17E	0	1	15
1S-15E	0	0	18
2N-10E	0	0	22
1S-17E	0	4	22
2S-12E	0	0	23
2N-13E	0	0	25
1S-09E	0	0	26
2N-08E	0	0	28
2N-11E	0	0	28
2N-16E	0	26	30
1N-16E	0	19	31
1N-08E	0	4	45
3N-16E	0	5	48
1N-09E	0	0	51
1S-10E	0	0	57
1S-08E	0	0	58



**Pennington County**

Low Water Use  
CAFO Development Sites  
2016



**Legend**

- Townships
- City Limits

NAME	BEST	BETTER	GOOD
2N-04E	0	0	1
2S-06E	0	0	1
1N-12E	0	0	1
2S-15E	0	0	1
2S-13E	0	0	2
2N-05E	0	0	3
2N-06E	0	0	3
1S-03E	0	0	3
1N-07E	0	0	3
1N-11E	0	0	3
2S-16E	0	0	3
2N-12E	0	0	4
2S-08E	0	0	4
2S-04E	0	0	4
1S-06E	0	0	4
1S-07E	0	0	4
1N-06E	0	0	5
2S-17E	0	0	6
2S-05E	0	0	6
1N-04E	0	0	6
1S-12E	0	0	6
3S-17E	0	0	7
1S-11E	0	0	7
1N-13E	0	0	7
1N-03E	0	0	9
1S-04E	0	0	9
1N-10E	0	0	11
2S-07E	0	0	13
2N-07E	0	0	14
5N-17E	0	0	14
1S-05E	0	0	14
1S-16E	0	13	14
1S-15E	0	0	19
2N-10E	0	0	22
2S-12E	0	0	23
2N-15E	0	13	24
2N-13E	0	0	25
1S-09E	0	0	26
2N-08E	0	0	28
2N-11E	0	0	28
1S-17E	0	4	29
2N-17E	0	3	38
2N-16E	0	32	41
1N-16E	0	25	41
1N-15E	0	8	43
1N-08E	0	4	45
5N-16E	0	0	46
4N-17E	0	0	51
1N-09E	0	0	51
3N-16E	0	5	55
1S-10E	0	0	57
3N-17E	0	0	58
1S-08E	0	0	58
4N-16E	0	0	62
1N-17E	0	5	71



**No High Water AID Map – Page Left Blank Intentionally**

**Pennington County**

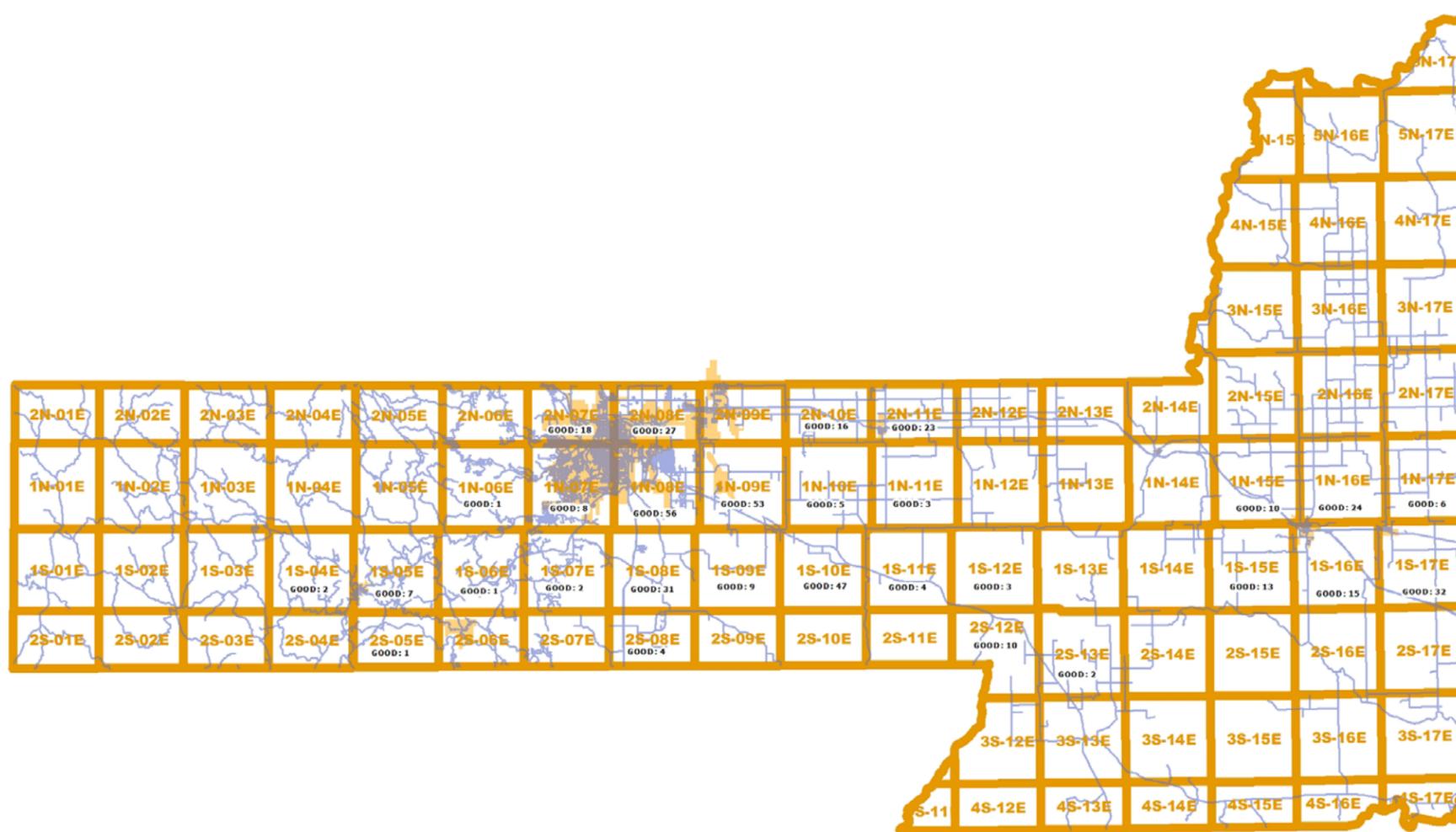
Low Water Use  
AID Development Sites  
2016



**Legend**

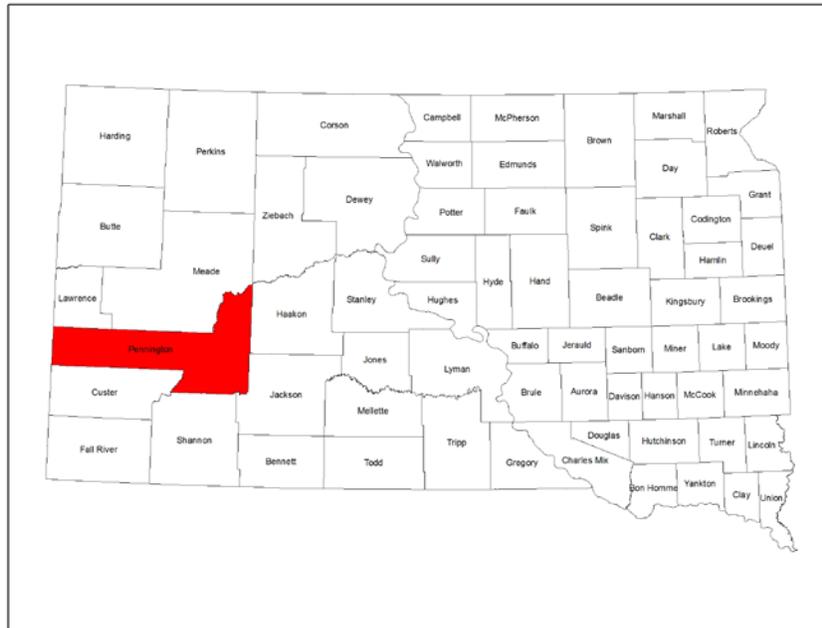
- Townships
- City Limits

NAME	BEST	BETTER	GOOD
2S-05E	0	0	1
1N-06E	0	0	1
1S-06E	0	0	1
1S-04E	0	0	2
1S-07E	0	0	2
1N-11E	0	0	3
1S-12E	0	0	3
2S-08E	0	0	4
1S-11E	0	0	4
1N-10E	0	0	5
1N-17E	0	0	6
1S-05E	0	0	7
1N-07E	0	0	8
1S-09E	0	0	9
2S-12E	0	0	10
1N-15E	0	0	10
1S-15E	0	0	13
1S-16E	0	0	15
2N-10E	0	0	16
2N-07E	0	0	18
2N-11E	0	0	23
1N-16E	0	0	24
2N-08E	0	0	27
1S-08E	0	0	31
1S-17E	0	0	32
1S-10E	0	0	47
1N-09E	0	0	53
1N-08E	0	0	56



## APPENDIX I: SITE ASSESSMENT CRITERIA

### Pennington County Location Map



The methodology developed for this study utilized an established set of criteria deemed critical to further the development of the subject properties while specifically addressing the suitability of a site for either a CAFO or an AID.

Sites possessing all of the criteria identified as critical within the analysis will be those most sought by potential developers. However, the occurrence of these sites may be somewhat rare. Therefore, sites under consideration for either a CAFO or AID may meet the majority of criteria, but could be lacking in several specific areas. Any sites not meeting all the criteria may be burdened with a limitation thus requiring more specific analysis. In these cases, the feasibility of developing the site is highly dependent upon the identified limitation(s).

A limiting condition could be the availability of water volume at an identified potential CAFO site. For example, the water demand for a 3,000 head dairy is approximately five times greater than the needs of a 5,000 head sow operation even though each operation could generally be subject to similar zoning regulations. In this situation, the lack of water at a volume necessary for a dairy may lend the site to be more likely identified as a possible location for a swine facility.

It should be noted that neither this example nor the analysis explores potential alternatives to the absence of adequate rural water volume such as upsizing water distribution infrastructure or securing an alternative water source, all of which hold the potential to mitigate this constraint thereby facilitating the proposed development. Rather, the analysis recognizes upgrading infrastructure identified as necessary to support rural economic development projects may increase the number of developable sites within the County. In other cases, failure to meet certain criteria, such as access to a quality road network, may result in a situation where development of the site becomes economically unfeasible.

The site assessment criteria, depending upon whether the site is for a CAFO or AID project, have been divided into the three major categories of **Land Use Regulations; Environmental Constraints;** and **Infrastructure.**

## **LAND USE REGULATIONS**

Economic development planning in Pennington County must be conducted in concert with its overall economic development goals. All development activities, including those specifically related to agriculture need to be accomplished within the parameters set forth in local and regional planning documents. Land use or development guidance is traditionally provided via local documents such as **Comprehensive Plans, Zoning and Subdivision Ordinances, Policies, Mission Statements,** and other local economic development plans and initiatives. If available, the analysis reviewed said documents in order to determine compliance with proposed CAFO and AID development. The following is a synopsis of County policies regarding CAFO and AID development.

### Comprehensive Land Use Plan/Zoning Regulations

Ideally, economic developers seek sites that are zoned and eligible for specific uses. Most areas of rural Pennington County are reserved for forestry, rural residential and agricultural uses. Currently Pennington County utilizes a comprehensive land use plan, zoning and subdivision regulations to manage the development of land within the county. However the County has not adopted a comprehensive land use plan or associated zoning regulations which provide guiding policies regarding the promotion or restriction of specific land use activities such as concentrated animal feeding operations. Without specific zoning regulations, which may restrict the location of CAFO or AID sites, the analysis focused its efforts on identifying those sites that met other necessary criteria.

### Commercial/Industrial Development

There is very limited concentrated or clustered commercial/industrial activity at the county level. Pennington County's commercial and industrial zoning districts are generally singular and adjacent to County and State hard surface roads and/or within the Pennington County/Rapid City Joint Jurisdiction Area. Commercial and industrial activities located in rural areas are generally not conducive to municipal or populated locales.

### Joint Jurisdiction

Pennington County shares zoning authority with the City of Rapid City. It is possible that with cooperation of a participating municipality, AID sites could be located within these areas.

### Buildable Parcel

One criterion deemed necessary to facilitate development of either a CAFO or an AID was land area. A parcel of 40 buildable acres was set as the minimum for consideration within the analysis. In order to be considered, the property must have consisted of 40 contiguous acres and be able to support development upon all 40 acres. Parcels without 40 buildable acres were not considered in the final analysis.

## Proximity to Communities

The AID analysis also considered sites within one mile of a community or at specific locations identified by the County. This was done because many communities and counties have established growth plans for economic development within certain proximities of communities or at locations with existing infrastructure such as paved roads. Also since the parameters of the original AID analysis excluded all AID sites within counties without access to rail, the criterion of “proximity to a community” was determined to be an adequate alternative for counties without rail facilities to identify potential AID sites.

## **ENVIRONMENTAL**

If available, the location of shallow aquifers in relation to potential development sites was included in the analysis. In reviewing shallow aquifers it is critical to note that they are included in the analysis for two distinct and very different reasons. Shallow aquifers may be utilized as a potential water source to support development. These same aquifers are also vulnerable to pollution due to their proximity to the surface and may be required to be protected via setbacks and development limitations.

At present there is no information regarding the occurrence and/or location of shallow aquifer in Pennington County. Further, Pennington County has not enacted nor currently enforces aquifer protection or surface water regulations more restrictive than the State of South Dakota. Therefore, all sites within the County were considered eligible for development.

While the location of the floodplain was not taken into consideration, it is recommended that an analysis of the potential flood risk be done before any sight is developed.

Prior to or contingent upon acquiring a parcel for development, it is assumed other environmental factors potentially affecting the property would be addressed via a Phase I Environmental Assessment or similar process. It is recommended that developers consider undertaking such an inquiry prior to executing a major commitment to a particular location.

## **INFRASTRUCTURE**

The term infrastructure is broad though in the context of property development the term includes essential services such as water, sewer, electrical, telecommunications, and roads. With regards to the rural site analysis process; access to quality roads, electrical capacity and water supply were deemed essential and indentified as site selection criteria.

## Transportation

Access to quality roads was identified as critical to determining the development potential of a parcel. The proximity of a potential development site to either a state or county road was established as one of the parameters in conducting the rural site analysis. In addition to utilizing the South Dakota Department of Transportation’s road layer to identify roads and surface types, local experts were consulted to assist in identifying the road network. The First District Association of Governments requested the Pennington County Highway Superintendent to identify segments of the county road system inadequate to support a CAFO or an AID. Sites accessed only by township roads that were located further than one mile from the intersection of a County or State hard surface road network were eliminated from the analysis.

A potential development site's proximity to certain road types impacted its designation. Those parcels abutting hard surface roads were consistently ranked higher than those served by gravel roads. In reviewing CAFO and AID sites, parcels adjacent to a county or state hard surface road were designated "Better" or "Best" for transportation resources. Parcels adjacent to county gravel roads or within one mile of an intersection with a county/state road network were designated "Good" for CAFO sites. Parcels within one mile of an intersection with a county/state hard surface road network were designated "Good" for AID sites.

Access to rail was also considered to be an important factor in locating an AID site. Parcels adjacent to rail facilities were designated "Best". Parcels within one-half mile of rail were designated "Better" and those parcels within one mile of rail were designated "Good". In addition, the analysis also considered sites within one mile of a community or at locations identified by the County, with or without rail. Those parcels within one mile of a municipality or at locations identified by the County that met necessary requirements, except access to rail, were designated as "Good" and "Better".

### Electric Supply

Access to 3-phase power was designated as a site characteristics criterion for both CAFO and AID development. The First District Association of Local Governments contacted Black Hills Electric Cooperative and the West River Electric Association to obtain the location and capacity of the 3-Phase infrastructure within the county. All parcels whether for CAFO or AID development adjacent to a 3-phase power line were designated "Best" for electricity resources. Whereas, parcels within one mile of a three-phase power line were designated "Better" and those within two miles of a three-phase power line were designated "Good".

### Water Supply

The ability to secure specific information regarding a rural water system's operations to include storage, distribution, and capacities proved to be the most complex and difficult component of the infrastructure analysis. Due to this, water resources were evaluated differently than transportation and electric infrastructure. While transportation and electric infrastructure were classified based primarily upon location and availability of three-phase power, the analysis of rural water systems first required the evaluation of the water system, specifically, each system's supply and distribution capacities.

Development sites were then selected upon the proximity to water service. The classifications with regards to water supply and their respective criteria are as follows:

#### 1. "Best" Classification

##### a. CAFO

- i. High Water Use CAFO Site- If the site was adjacent to or within an area where a rural water system had sufficient supply **and** distribution capacity to provide 150,000 gallons per day, the site area was designated as "Best" for water resources.
- ii. Low Water Use CAFO Site - If the site was adjacent to or within an area where a rural water system had sufficient supply **and** distribution capacity to provide 30,000 gallons per day, the site area was designated as "Best" for water resources.

b. AID

- i. High Water Use AID Site- If the site was adjacent to or within an area where a rural water system had sufficient supply and distribution capacity to provide 410,000 gallons per day, the site area was designated as “Best” for water resources.
- ii. Low Water Use AID Site- If the site was adjacent to or within an area where a rural water system had sufficient supply and distribution capacity to capacity to provide 30,000 gallons per day, the site area was designated as “Best” for water resources.

2. **“Better” Classification**

a. CAFO

- i. High Water Use CAFO Site- If the site was within an area where a rural water system had either a sufficient supply or distribution capacity to provide 150,000 gallons per day, the site area was designated as “Better” for water resources.
- ii. Low Water Use CAFO Site- If the site was within an area where a rural water system had either a sufficient supply or distribution capacity to provide thirty thousand 30,000 gallons per day, the site area was designated as “Better” for water resources.

b. AID

- i. High Water Use AID Site- If the site was within an area where a rural water system had sufficient supply or distribution capacity to provide 410,000 gallons per day, the site area was designated as “Better” for water resources.
- ii. Low Water Use AID Site- If the site was within an area where a rural water system had sufficient supply or distribution capacity to provide 30,000 gallons per day, the site area was designated as “Better” for water resources.

3. **“Good” Classification**

- a. In the event the Rural Water System has neither supply nor distribution capacity to serve either a Low or High Water Use CAFO or Low Water Use AID as defined above, the site area was designated as “Good” for water resources if it was located within 2 miles of a river, stream or lake designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 which assigns the following uses to rivers streams and lakes – domestic water supply, stock watering waters, irrigation waters, commerce and industry waters, cold water and warm water permanent fish life propagation waters. The analysis does not make any conclusions regarding the quantity or quality of the water source identified in SD DENR Administrative Rule 74:51:02 and 74:51:03. Only that the potential for a water source may exist. The designation as “Good” for water resources was not applied to High Water Use AID sites due to the water volume requirements of High Water Use AID sites and the lack of available data regarding the capacity of shallow aquifers. Therefore, High Water Use AID sites without a water resource designation of “Better” or “Best” were deemed unusable for the purpose of the analysis.

The site analysis sought to address whether or not the Rural Water Systems serving the region had excess water treatment capacity (supply) and their ability to serve potential properties (distribution). In order to address the issue of supply and distribution, the First District Association of Local Governments contacted and requested location and capacity information from the rural water providers within Pennington County. West River Lyman Jones Water Systems (WRLC) provides water to portions of western Pennington County. Rapid Valley Water Service provides water to areas south and east of Rapid City. Each system was asked to provide information regarding their available treated water capacity and to notate on maps those geographic areas where distribution capacity existed which could provide water volumes at 30,000, 150,000, and 410,000 gallons per day, respectively.

Both water systems provided an initial response to requested information regarding supply and distribution capacity. Rapid Valley stated that while there was available supply and distribution capacity within their system to meet the low and high water AID/CAFO sites, they noted that there was a need to reserve capacity for residential development until additional capacity could be acquired.

In regard to WRLC, The First District Association of Local of Governments conducted the analysis by indentifying all sites that meet the minimum "Good" site requirements relating to roads, electricity, and minimum buildable lot area. Maps were generated and redistributed to the WLRC for their review. WLRC was confident that it could provide water to Low and High Water Use CAFO sites and Low Water AID sites along some of its lines. However due to the fact that on any given day over 90% of its reserves are currently being utilized, necessary upgrades to wells, mains and storage facilities prior to being able to support sites requiring 30,000 to 150,000 gallons per day.

Due to Rapid Valley's need to reserve capacity for residential development and WLRC limited water supply neither system could accommodate the High Water Use AID "Best" requirement of 150,000 gallons or 410,000 gallons per day, respectively.

## APPENDIX 2: RESEARCH AND METHODOLOGY

This section describes the methodology utilized to evaluate the suitability of potential CAFO or AID development sites.

### Step 1: Identification of Site Assessment Criteria

**Table A1** lists the site assessment criteria identified as being necessary to conduct an analysis of potential sites. Utilizing these criteria as a guide, a variety of research methods were employed to compile the GIS data sets utilized within the analysis. Research efforts included the examination of local, regional, and state planning documents along with existing GIS data layers.

**Table A1: Site Assessment Criteria**

CAFO Criteria	AID Criteria
Access to County and State Road Network	Access to County and State Road Network
Proximity to Three-Phase Electricity Supply	Proximity to Three-Phase Electricity Supply
Proximity to Rural Water System	Proximity to Rural Water System
Capacity of Rural Water System	Capacity of Rural Water System
Buildable Parcel	Buildable Parcel
	Proximity to Communities
	Proximity to Rail

### Step 2: Evaluation of Site Assessment Criteria

After developing the data sets in **Table A1**, the analysis identified those site locations that were in close proximity to infrastructure necessary to support either CAFO or AID development.

#### **Concentrated Animal Feeding Operation (CAFO) Analysis**

The GIS analysis removed all parcels within the County from consideration that:

1. Were not within one mile of a County or State road;
2. Were not within two miles of three-phase electric power;
3. Did not meet the minimum standards for available water;
4. Did not contain a buildable footprint of at least 40 acres.

After applying the buildable footprint requirement to each site, the availability of necessary infrastructure was incorporated into the analysis. The general location of available water, electric, and road infrastructure was applied to the remaining sites to establish the “Good”, “Better” and “Best” hierarchy of potential development sites. **Table A2** exhibits the minimum requirements necessary for a site to be classified as “Good”, “Better” or “Best” for **CAFO development**.

**Table A2: CAFO Hierarchy Classification Requirements**

Location Criteria	Description	Good	Better	Best
Roads	Site is <u>adjacent</u> to County/State hard surface road		X	X
	Site is within <u>one (1) mile</u> of a County/State road	X		
Water	Site is <u>adjacent</u> to rural water system area that has both supply <u>and</u> distribution capacity to provide 150,000 gallons per day or 30,000 gallons per day			X
	Site is <u>adjacent</u> to or within rural water system area that has either supply <u>or</u> distribution capacity to serve either 150,000 gallons per day or 30,000 gallons per day		X	
	Site is within <u>two (2) miles</u> of a river, stream or lake designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 which assigns the following uses to rivers streams and lakes – domestic water supply, stock watering waters, irrigation waters, commerce and industry waters, cold water and warm water permanent fish life propagation waters	X		
Electricity	Site is <u>adjacent</u> to three-phase power			X
	Site is within <u>one (1) mile</u> of three-phase power		X	
	Site is within <u>two (2) miles</u> of three-phase power	X		
<b>Buildable Parcel</b>	Site contains buildable area of at least forty <u>(40) acres</u>	X	X	X

**Agriculturally-related Industrial Development (AID)**

The GIS analysis removed all parcels within the County from consideration that:

1. Were not within one mile of a County or State hard surface road;
2. Were not within two miles of three-phase electric power;
3. Were not within one mile of rail, if applicable;
4. Were not within one mile of a community or at locations identified by the county;
5. Did not meet the minimum standards for available water;
6. Did not contain a buildable footprint of at least 40 acres.

After applying the required location based site assessment criteria to each site, the availability of necessary infrastructure was incorporated into the analysis. The general location of available water, electric, rail and road infrastructure was applied to the remaining sites to establish the “Good”, “Better” and “Best” hierarchy of potential development sites. **Table A3** exhibits the minimum requirements necessary for a site to be classified as “Good”, “Better” or “Best” for **AID development**.

**Table A3: AID Hierarchy Classification Requirements**

Location Criteria	Description	Good	Better	Best
<b>Roads</b>	Site is <u>adjacent</u> to County/State hard surface road		X	X
	Site is within <u>one (1) mile</u> of a County/State hard surface road	X		
<b>Rail</b>	Site is <u>adjacent</u> to rail facility			X
	Site is within <u>one half (½) mile</u> of rail facility		X	
	Site is within <u>one (1) mile</u> of rail facility	X		
<b>Water</b>	Site is <u>adjacent</u> to rural water system area that has both supply <u>and</u> distribution capacity to provide 410,000 gallons per day or 30,000 gallons per day			X
	Site is <u>adjacent</u> to or within rural water system area that has either supply <u>or</u> distribution capacity to serve either 410,000 gallons per day or 30,000 gallons per day		X	
	Site is within <u>two (2) miles</u> of a river, stream or lake designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 which assigns the following uses to rivers streams and lakes – domestic water supply, stock watering waters, irrigation waters, commerce and industry waters, cold water and warm water permanent fish life propagation waters *	X		
<b>Electricity</b>	Site is <u>adjacent</u> to three-phase power			X
	Site is within <u>one (1) mile</u> of three-phase power		X	
	Site is within <u>two (2) miles</u> of three-phase power	X		
<b>Proximity to Community</b>	Site is within <u>one (1) mile</u> of community	X	X	
<b>Buildable Parcel</b>	Site contains buildable area of at least <u>forty (40) acres</u>	X	X	X

\* Rivers, streams, and lakes designated by SD DENR Administrative Rule 74:51:02 and 74:51:03 are not used for High Water Use AID site analysis as they require specific Rural Water System Supply and Distribution Capacities

### Step 3: Site Development Recommendations

Based on the analysis, **1,245** Low Water and **788** High Water sites were classified as Good, Better, or Best for CAFO development (**Table A4**) and **431** sites were classified as Good, Better, or Best for Low Water Use AID development (**Table A5**).

While this study only identifies those sites that met the required criteria for the analysis, it should be noted that other sites within the county may be satisfactory for CAFO and AID development. A site not within the specified distance of a hard surfaced County or State road or that does not have desired infrastructure (rail, water, power) within close proximity does not necessarily negate its development potential.

**Table A4:  
Pennington County CAFO Sites by Hierarchy Classification**

<b>CAFO Site Classification</b>	<b>Good Sites</b>	<b>Better Sites</b>	<b>Best Sites</b>
Low Water CAFO	1,133	112	0
High Water CAFO	720	66	0

**Table A5:  
Pennington County AID Sites by Hierarchy Classification**

<b>AID Site Classification</b>	<b>Good Sites</b>	<b>Better Sites</b>	<b>Best Sites</b>
Low Water AID	431	0	0
High Water AID	0	0	0

## **APPENDIX 3: CONTACT INFORMATION**

### **First District Association of Local Governments**

Executive Director: Todd Kays  
GIS Coordinator: Ryan Hartley  
Phone: 605-882-5115

### **Pennington County**

Highway Superintendent: Tom Wilsey  
Phone: (605) 394-2166

### **Rapid City**

Geographic Information Division  
Don Jarvinen  
605-716-3672

### **Rural Water Systems**

West River/Lyman Jones Rural Water Systems  
Jake Fitzgerald  
605-669-2931

Rapid Valley Sanitary District  
Rusty Schmidt  
605-393-1050

Don Peterson  
Southern Black Hills Water System  
605-745-4669

### **Electric Providers**

Black Hills Electric Coop  
Walker Witt, General Manager  
605-673-4461

West River Electric Association  
Dick Johnson  
605-393-1500