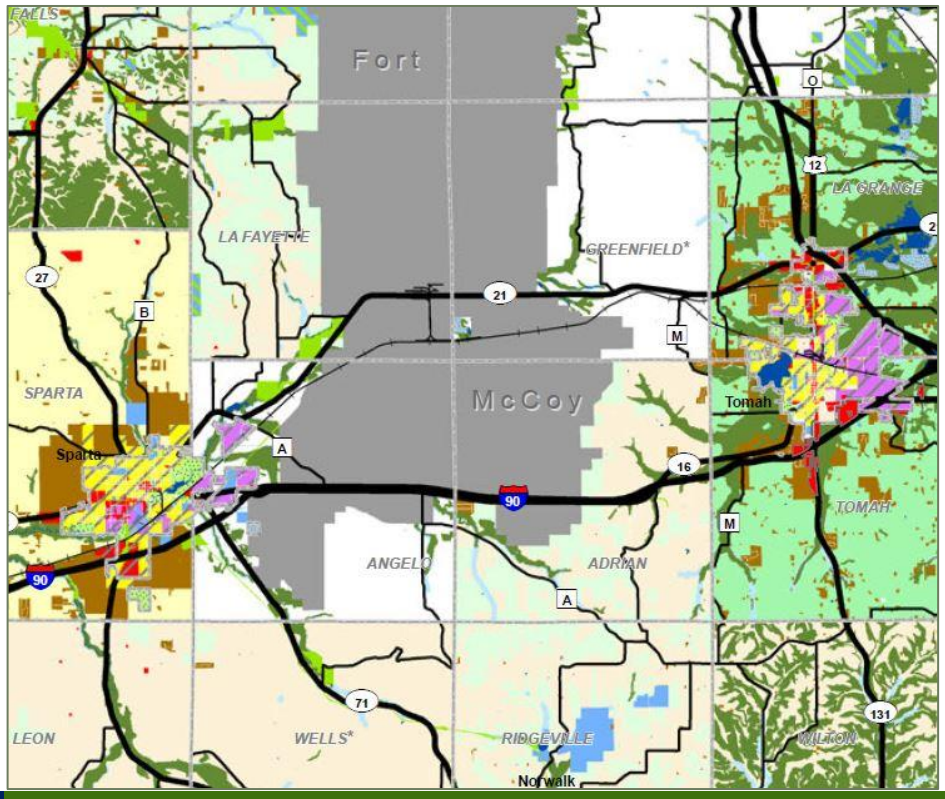
AGRICULTURAL IMPACT STATEMENT



DATCP #4186

Sparta Lateral Natural Gas Pipeline
Monroe County
PSC # 6650-CG-256

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

PUBLISHED JUNE 8, 2017

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Sparta Lateral Natural Gas Pipeline
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WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

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DATCP SUMMARY OF ANALYSIS AND RECOMMENDATIONS

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has prepared this Agricultural Impact Statement (AIS) for the proposed Sparta Lateral Natural Gas Pipeline (DATCP #4186) in accordance with Wis. Stat. §32.035. Wisconsin Gas LLC (Wisconsin Gas) submitted information about this project to DATCP in November 2016, December 2016, and January 2017. The 12-inch pipeline, if approved, would be constructed along one of two routes, Route A, which is 16.1 miles long or Route B, which is 15.4 miles long. The Public Service Commission of Wisconsin (PSC) is the authority that will approve, deny, or make modifications to this project. The project will also require federal approval for the portion of the project that is located within Fort McCoy property.

As part of its review of the project, DATCP sent a survey to agricultural property owners who may have three or more acres of easement acquired if the proposed project is approved by the PSC. Of the 85 property owners that might be affected by the proposed project, 24 owned agricultural properties and nine of those could have three or more acres acquired for this project. Four landowners responded to the survey.

Having reviewed all of the materials provided by Wisconsin Gas and the comments from property owners, DATCP recommends the following to the PSC, Wisconsin Gas, and to agricultural property owners to mitigate impacts to farmland and farmland operations.

Recommendations to the Public Service Commission

- Route B is shorter in length, impacts fewer acres of agricultural properties overall, disturbs fewer acres of agricultural soils identified as prime farmland than Route A. DATCP recommends that if the project is approved, PSC should choose Route B.
- In agricultural lands, Wisconsin Gas proposes to excavate a trench depth that would be sufficiently deep to allow a minimum of 3 feet of soil cover over the top of the pipeline. DATCP recommends that the trench depth be sufficiently deep to allow a minimum of 4 feet of soil cover over the top of the pipeline.
- DATCP recommends that in areas where weathered bedrock is encountered in the trench, the topsoil is well segregated from subsoils and Wisconsin Gas takes precautions so that the subsoils used for backfill do not have a rock content greater than the surrounding soils, as per the AMP.
- Jim Leverich with property on Route A has identified that some of his lands are in organic hay production, which might require additional precautions to maintain its organic status. DATCP recommends that Wisconsin Gas work with farm operators and their certifying entity to determine site-specific construction practices that would minimize the potential for decertification including the handling of prohibited

substances, soil management, erosion control, and weed control. Wisconsin Gas should not apply seed to certified organic farms prior to consultation with the landowner. Additionally, Wisconsin Gas should compensate the landowner for any damages if decertification results from pipeline construction or restoration activities.

- Property owned by William Wacker along Route A is enrolled in the Conservation Reserve Enhancement Program (CREP). DATCP recommends that Wisconsin Gas work with Mr. Wacker to minimize impacts to his participation in this program.
- DATCP recommends that Wisconsin Gas inform the landowners, Unimin Corporation, Timothy Liddane, William Wacker, Wellbrooks Properties LLC, and Steven Herrman of the potential triple-lift soil candidates on their land and how triple-lift soil management could preserve the productivity of their fields.
- DATCP recommends that the individual tasked with Agricultural Inspector duties, inspect the soils where trench excavations would cross agricultural fields with the soils: Bertrand silt loam, Hoop sandy loam, and Jackson silt loam, to determine if triple-lift soil management would be useful for preserving the productivity of the agricultural land.
- Four aboveground facilities may be constructed as part of this project. DATCP recommends that these facilities be located so as to minimize impacts to actively farmed lands and that Wisconsin Gas work with landowners to determine the location and size of the facilities on their property.
- The Agricultural Mitigation Plan (AMP) and Best Management Practices (BMPs) supplied by Wisconsin Gas are effective tools in mitigating potential impacts to farm properties. DATCP recommends that Wisconsin Gas implement appropriate training for all construction supervisors, inspectors, and crews to ensure that they understand the implementation of the AMP and BMPs so that the integrity of agricultural lands and operations during project construction and restoration are protected.

Recommendations to Wisconsin Gas

- A number of acres of farmland in this area are operated by renters. DATCP recommends that Wisconsin Gas ensure that renters of agricultural lands crossed by the proposed project are kept up-to-date and informed of construction schedules and potential impacts.
- DATCP recommends that Wisconsin Gas work with property owners and renters to minimize construction impacts to farming operations and infrastructure, including irrigation systems, manure/fertilizer applications, and grassed waterways.

- DATCP recommends that Wisconsin Gas work with the landowner to determine a means to effectively correct any surface seeps caused by construction activities either in the ROW or on adjoining lands.
- DATCP recommends that Wisconsin Gas work with property owners to determine methods to mitigate impacts to farming operations and infrastructure, including any manure/fertilizer applications, grassed waterways, irrigation systems, and from the temporary removal of field and pasture fences.
- DATCP recommends that Wisconsin Gas work closely with property owners to locate construction access roads so as to minimize disturbance to farm operations and prevent interference to existing drainage patterns. Wisconsin Gas should also verify that all impacted existing access roads to fields and driveways are restored to pre-construction function.
- DATCP recommends that, to the extent practicable, Wisconsin Gas should limit the amount of permanent tree clearing required from wood lots.

Recommendations to Agricultural Property Owners

- Wisconsin Gas may offer landowners compensation to sign an appraisal waiver form and an easement based on a market study. Landowners have a right to a free appraisal (Wis. Stat. §32.06). Landowners should examine the language of any waiver or easement contract carefully and verify that it contains all agreed-to terms.
- Landowners should examine the language of any easement contract carefully and verify that it contains all agreed-to terms. Landowners should be familiar with the company's project-specific AMP and BMPs (Appendix E) so as to determine if additional conditions should be negotiated with the utility. Though landowners may choose to waive any or all of the practices and procedures described in the AMP and BMPs, DATCP recommends to only do so with careful consideration.
- Landowners/operators should keep records of the condition of their land within the right-of way (ROW) before, during, and after construction to document any impacts or damage that occurs due to the proposed project. Documentation could include crop yield records and photographs taken every season.
- Landowners should identify to Wisconsin Gas where drainage tiles may be located in the vicinity of the ROW. If drainage tiles are damaged by construction activities, landowners should observe and photograph any drain tile repairs to ensure that they are adequately repaired.

- Landowners with conservation easements within the ROW should consult with the conservation program provider to determine if any effects will occur due to the land's alteration or removal from the contract. If the landowner is charged a fee for removing or altering the land within the conservation easement, Wisconsin Gas should compensate the landowner the amount of that fee.
- DATCP recommends that any affected farm operation that has a written bio-security plan, provide this plan to Wisconsin Gas.

I. INTRODUCTION

The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has prepared this agricultural impact statement (AIS) in accordance with Wis. Stat. §32.035. The AIS is an informational and advisory document that describes and analyzes the potential effects of the project on farm operations and agricultural resources, but it cannot stop a project. The DATCP is required to prepare an AIS when the actual or potential exercise of eminent domain powers involves an acquisition of interest in more than 5 acres of land from any farm operation. The term farm operation includes all owned and rented parcels of land, buildings, equipment, livestock, and personnel used by an individual, partnership, or corporation under single management to produce agricultural commodities.

The AIS reflects the general objectives of the DATCP in its recognition of the importance of conserving important agricultural resources and maintaining a healthy rural economy. DATCP is not involved in determining whether or not eminent domain powers will be used or the amount of compensation to be paid for the acquisition of any property. As stated in Wis. Stat. §32.035(4)(d):

> *Waiting period.* The condemnor may not negotiate with an owner or make a jurisdictional offer under this subchapter until 30 days after the impact statement is published.

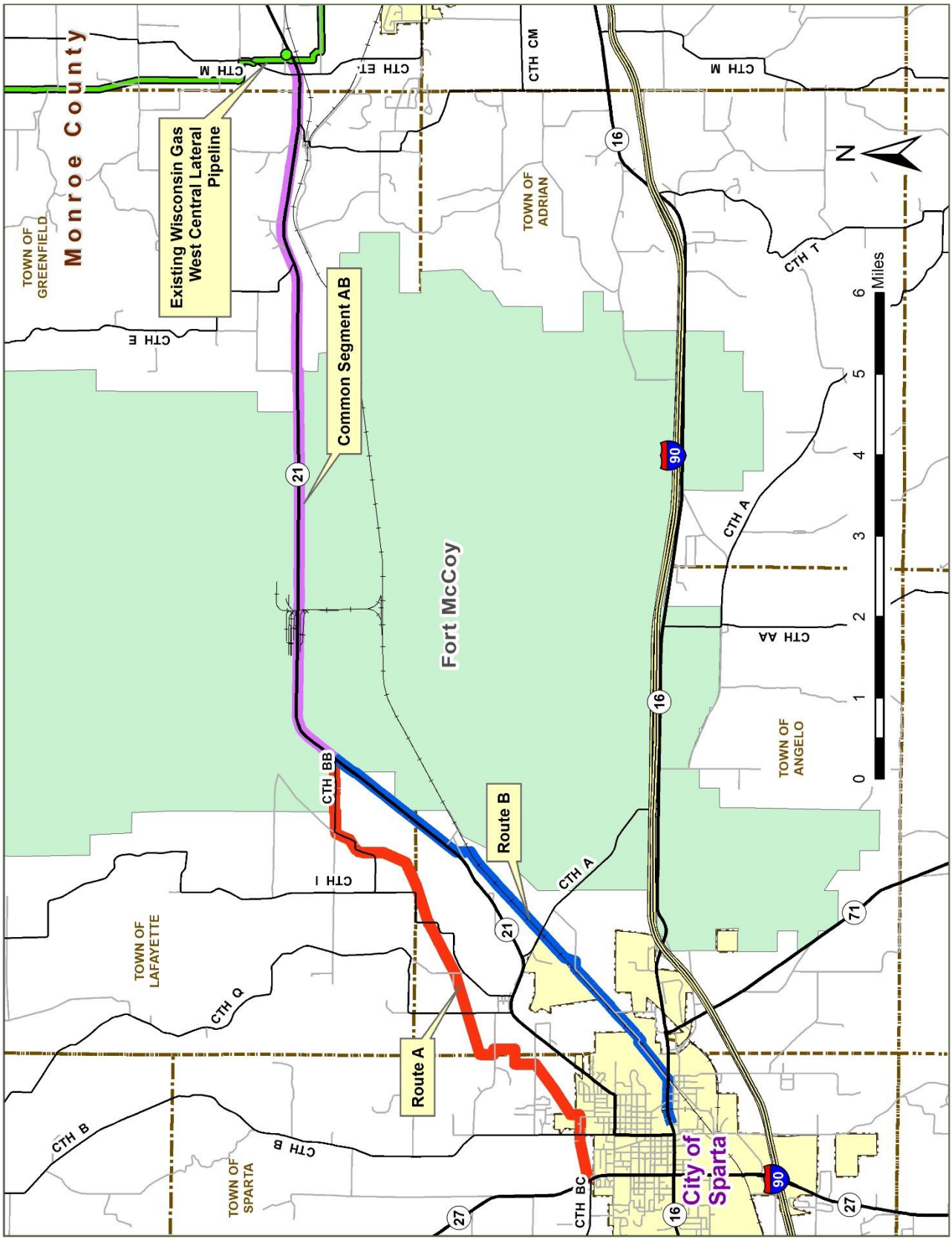
The full text of Wis. Stat. §32.035 is included in Appendix B. Additional references to statutes that govern eminent domain and condemnation processes are included in Appendix B. Links to other sources of information can be found in Appendix C.

The proposed project requires a Certificate of Authority (CA) from the Public Service Commission of Wisconsin (PSC or Commission) before construction can begin. The PSC will analyze the need for the project and the potential environmental and community impacts in an Environmental Assessment. The Commission will approve, modify, or deny the utility's application. Additional information about this project and the PSC review process can be found on the PSC web site: http://psc.wi.gov/ under the PSC docket number, 6650 CG-256

Wisconsin Gas has developed an Agricultural Mitigation Plan (AMP) and Best Management Practices (BMPs) for this project. The AMP and BMPs describe the policies to be followed and methods to be used by Wisconsin Gas to avoid or mitigate the potentially adverse impacts on agricultural productivity from the construction of this pipeline. The AMP and BMPs are included in Appendix E of this report.

During construction, Wisconsin Gas may employ an on-site Agricultural Inspector, in addition to a construction monitor and an environmental manager. The Agricultural Inspector would be familiar with agricultural operations as well as gas pipeline construction.

Figure 1: Project Overview Map



II. PROJECT DESCRIPTION

Overview

Wisconsin Gas proposes to construct a new 12-inch natural gas pipeline along one of two routes, Route A or Route B. Figure 1 shows the general location of this project. Both routes start in the east with a Common Segment AB, which is about 9 miles in length. In total, Route A (with Common Segment AB) is approximately 16.1 miles long and Route B (with Common Segment AB) is approximately 15.4 miles in length.

Common Segment AB starts in the town of La Grange, just east of County Trunk Highway (CTH) M and connects to the Wisconsin Gas West Central Lateral Natural Gas pipeline. The route travels west along State Trunk Highway (STH) 21 through the towns of Greenfield and Lafayette, and five miles of the Fort McCoy Army Installation. At the western edge of Fort McCoy, near the intersection of STH 21 and CTH BB, Routes A and B separate. Route A crosses through the towns of Lafayette, Angelo, and Sparta. It travels southwest along an existing Northern Natural Gas pipeline and some local roads. It also crosses a number of private properties before arriving at the proposed Route A Sparta Regulation Station site, northwest of the intersection of CTH BC and STH 27, in the town of Sparta. From the Sparta Regulation Station, Route A continues south and adjacent to STH 27 terminating at a connection to existing distribution facilities at the intersection of STH 27 and CTH BC, in the town of Sparta. Route B starts at the western end of Common Segment AB and runs adjacent to STH 21, the Chicago Milwaukee St. Paul and Pacific Railroad, and STH 16 until arriving at the Route B proposed Sparta Regulation Station site in the City of Sparta. Route B continues from the Sparta Regulation Station along Milwaukee Avenue and STH 16 until it terminates at a connection to existing distribution facilities at the intersection of Dike Road and STH 16, in the city of Sparta. Route B crosses through the town of Lafayette, the town of Angelo, and the city of Sparta.

An initial application for this project was submitted to the PSC on November 17, 2016. If the project is approved by the Commission, Wisconsin Gas anticipates acquiring easements beginning in October 2017 and construction starting in October 2018. The utility anticipates that the pipeline would be placed in service in November 2019.

Project Purpose and Need

The Sparta Lateral project is a planned extension of the West Central Lateral Pipeline, which Wisconsin Gas constructed and placed in-service in 2015. This project would provide incremental capacity to enable Wisconsin Gas to meet its obligations to its firm sales customers and the future needs of industrial and commercial customers in the Sparta area. The project would also provide Wisconsin Gas customers in the Sparta area with access to a second pipeline service provider (Viking) via the West Central Lateral pipelines in addition to the existing natural gas service provided by Northern Natural Gas. Wisconsin Gas maintains that a second source of

natural gas to the area could produce a competitive benefit to customers in the form of gas cost savings and increased natural gas reliability.

Property owners along the proposed Sparta Lateral pipeline that are either adjacent to the public right-of-way (ROW) or adjacent to the project's permanent easement can request natural gas service from the Sparta pipeline. The utility reviews all customer requests for service on a case-by-case basis. Interested property owners should contact Wisconsin Gas for further details.

Description of Potential Routes

The proposed routes, A and B, make use of a nine-mile common segment (Common Segment AB) at the eastern end of the routes. Figure 1 shows the proposed routes.

Common Segment AB (from east to west):

- Starts along the north side of STH 21, just east of CTH M with an aboveground connection (12-inch launcher and valve assembly) to the West Central Lateral pipeline in the town of La Grange
- Travels east across private properties along the north side of the STH 21 into the town of Greenfield across CTH M, Elder Road, Flagpole Road, Flavin Road, and CTH E
- Just east of Fireworks Avenue, an aboveground 12-inch valve assembly would be constructed
- Then crosses to the south side of STH 21 and continues west across the Fort McCoy Army Installation along STH 21
- Common Segment AB ends just north of the intersection of STH 21 and CTH BB in the town of Lafayette

Route A (from east to west):

- Extends west from the end of Common Segment AB, starting on Fort McCoy property, then crosses to the west side of STH 21
- Continues west for approximately 3,600 feet, paralleling along the north side of CTH BB
- At the western edge of Fort McCoy, the route crosses to the south side of CTH BB and continues west across private properties, paralleling the county road
- At the intersection of Firefly Road and CTH BB, the route crosses to the west side of CTH BB where the construction of an aboveground 12-inch valve assembly is proposed
- Continues south, along the west side of CTH BB, crossing private properties for approximately 2,400 feet
- Then crosses CTH BB and continues south and west diagonally across properties until approaching an existing Northern Natural Gas pipeline and crossing into the town of Angelo

- Continues southwest diagonally across private property for approximately 4.5 miles, and parallels the Northern Natural Gas ROW, crossing over CTH I, Grandview Road, and CTH Q
- Zig-zags south, west, and east, through the town of Sparta, crossing Gardener Avenue and General Avenue until reaching Meadowview Lane in the city of Sparta
- Runs west within Meadowview Lane road ROW until just west of N. Water Street where Route A turns southwest and runs diagonally through a farm field to the proposed aboveground Sparta Regulator Station site, approximately 200 feet northwest of the intersection of CTH BC and STH 27 in the town of Sparta
- Route A distribution main exits the Sparta Regulator Station site and follows the east side of STH 27 south through private properties until it crosses to the south side of Hart Road, turns west and crosses to the west side of STH 27 to tie into the existing distribution main located within the road ROW.

Route B (from east to west):

- Extends southwest from the end of Common Segment AB, starting on Fort McCoy property and continues along the east side of STH 21, crossing Ginger Road
- Turns south approximately 200 feet north of Gillette Avenue, in the town of Angelo where an aboveground 12-inch valve assembly is proposed
- Crosses the Chicago, Milwaukee, St. Paul, and Pacific Railroad and then turns southwest paralleling the south side of the railroad
- Crosses CTH A, travels around the perimeter of a residential property, crosses Hazelwood Road, and continues to parallel the railroad and Hazelwood Road into the city of Sparta
- Connects to the proposed aboveground Sparta Regulator Station site in the city of Sparta
- Route B distribution main exits the Sparta Regulator Station site and follows the east side of Hazelwood Avenue through private easements, then crosses to the west side of the railroad to the Milwaukee Avenue ROW. Continues west within Milwaukee Avenue road ROW and then west within STH 16 ROW to tie into the existing distribution main at Dike Road.

ROW Requirements

The project would require a permanent easement of up to 50 feet in width. An additional, 25 to 50 feet of temporary easement width would be acquired to accommodate construction needs, bringing the total work space ROW width that could be disturbed during construction to between 75 and 100 feet. The temporary easement would be restored and released when construction is completed.

The wider temporary easement of 50 feet would be used in agricultural areas to accommodate segregated soil storage. Larger areas of temporary easement would also be needed at both ends of the areas where the pipeline would be installed. At these locations, horizontal directional drilling (HDD) construction or jack and bore procedures would be used instead of open trenching.

The natural gas pipeline would be constructed in an open trench for much of the route, although HDD or jack and bore construction is proposed for the crossing of most rivers, creeks, waterbodies, natural resource areas, roads, and railroads.

The use of boring construction avoids many of the impacts typically caused by trench construction. In general, temporary easement would not be required along the lengths that are bored. Additional large areas of temporary easements would be needed at the ends of the segment bored to accommodate the boring equipment. In general, boring equipment at each end may require additional temporary construction ROW width of 25 feet adjacent to the typical 75-foot-wide construction corridor for a total workspace width of 100 feet that would extend for a distance of 200 feet in length for HDD construction and 100 feet for jack and bore equipment. For Common Segment AB, approximately 8.5 percent of the segment (3,897 feet) would be bored. More of Route B (6,489 feet, 20%) would be bored than Route A (1,677 feet, 4.5%).

In other areas of the proposed routes, Wisconsin Gas may acquire narrower temporary construction easements to minimize impacts to resources. For portions of the project adjacent to road ROW and in non-agricultural lands, the non-paved ROW may be utilized for temporary work space. Distribution mains would be mostly constructed within road ROW.

See Sections VII and VIII of this report for more information about potential construction impacts.

Trench Dimensions

The excavated trench would be approximately 6 feet deep and 4 feet wide. In some areas where there are obstacles, such as existing pipelines, the excavated trench may need to be deeper and wider. In agricultural lands, trench depth will be sufficiently deep to allow a minimum of 3 feet of soil cover over the top of the pipeline.

DATCP recommends that the trench depth be sufficiently deep to allow a minimum of 4 feet of soil cover over the top of the pipeline.

III. PROJECT IMPACTS TO AGRICULTURAL PROPERTIES

Easements

Agricultural properties will be impacted by Common Segment AB, as well as Route A and Route B. Both Route A and Route B use Common Segment AB. For total ROW impacts, as well as impacts to farm operations, Route B would impact significantly fewer acres than Route A.

Table 1 shows the breakdown of acres that would be required for this project from all properties and from farm operations. Additionally, it identifies the percentage of the proposed ROW (temporary and permanent) that would affect agricultural properties. Common Segment AB would require approximately 7.2 acres of permanent and temporary easements from farmland operations. Route A would require approximately 74 acres of farmland easements, whereas Route B would require only 16 acres of easements from farmland operations.

Table 1: Acres of Permanent and Temporary Easements Required from Farm Operations

Route/ Segment	Permanent Easements		Temporary Easements		Total ROW	Percentage of ROW in Agriculture
	All Properties	Farm Operations	All Properties	Farm Operations		
Common Segment AB	35.07	6.08	55.16	1.12	90.23	8.0 %
Route A	39.48	37.13	43.50	36.81	82.98	89.2 %
Route B	27.49	8.87	41.63	7.31	69.12	23.4 %

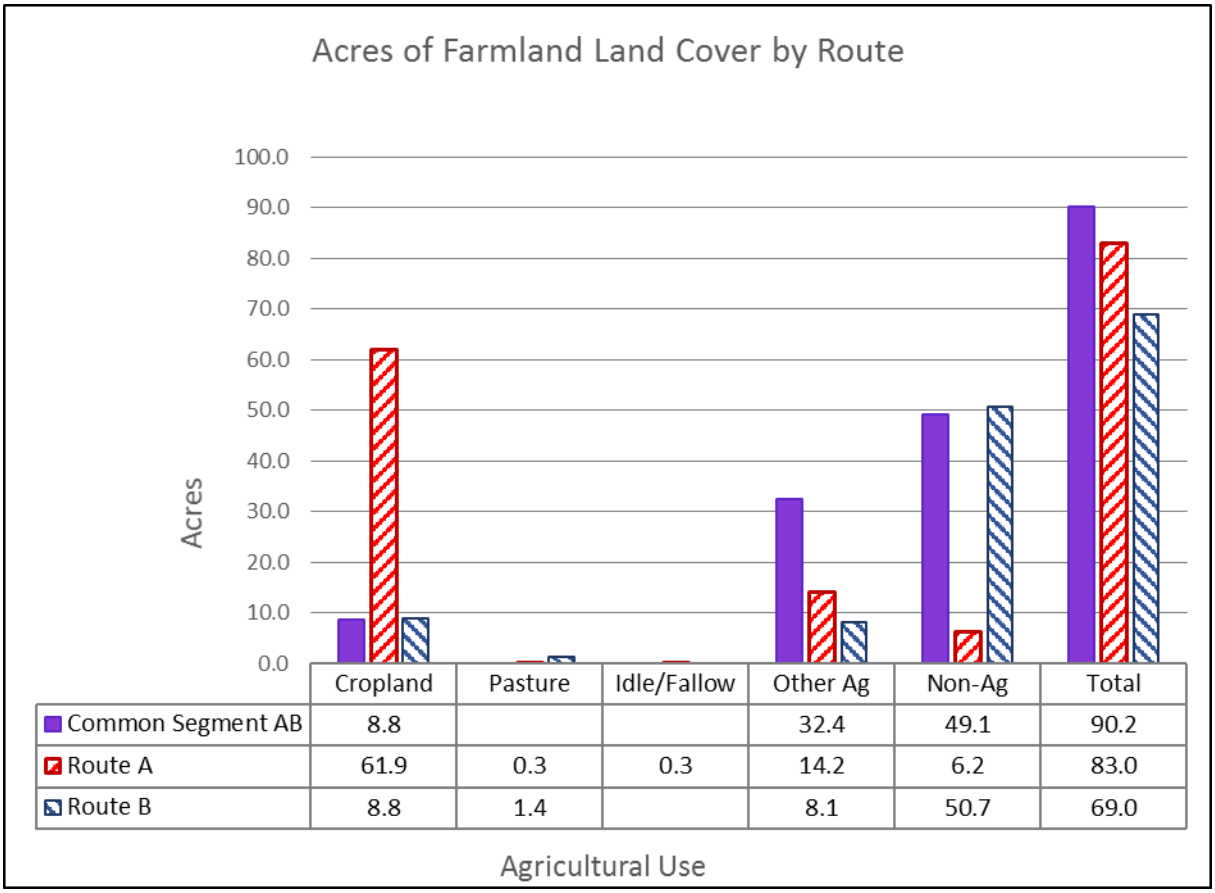
NOTE: This includes all identified proposed off-ROW access roads but excludes staging areas that are not route-specific.

Very few agricultural acres would be affected by both Common Segment AB and Route B. However, almost 83 percent of Route A is through agricultural properties and Route A would impact approximately 60 acres more farmland than Route B. Of the 74 agricultural acres required for Route A, half would be for permanent easements.

Figures 2 shows the acres of agricultural land that would be impacted by each route (excluding the staging areas). The project routes cross farmland that is primarily cropland and other agricultural land uses. Other agricultural land uses include farm residences, farm buildings, wooded areas, wetlands, and farm roads. Figure 2 shows that the majority of land crossed by Common Segment AB and Route B is other agricultural and non-agriculture land uses. This is in contrast to Route A where most of the land crossed by the proposed ROW is through agricultural cropland

No farm buildings or structures will be acquired for this project.

Figure 2: Types of Farmland Affected by Potential Routes



	Cropland	Pasture	Idle/Fallow	Other Ag	Non-Ag	Total
Common Segment AB	8.8			32.4	49.1	90.2
Route A	61.9	0.3	0.3	14.2	6.2	83.0
Route B	8.8	1.4		8.1	50.7	69.0

Aboveground Facilities

If the project is approved, a total of four aboveground facilities would be constructed. A summary of the potential aboveground facilities is presented in Table 2. Figures 3, 4, and 5 show examples of typical natural gas aboveground facilities.

At the eastern start of the project (Common Segment AB), the connection to the existing West Central Lateral pipeline would require aboveground facilities in a fenced area approximately one-third of an acre in size. The facilities would include a 12-inch valve assembly with blowdowns and launcher.

Along Common Segment AB and also along either Route A or Route B, the project would require one 12-inch valve assembly with blowdowns. These aboveground facilities would be small and require a 20-foot by 20-foot fenced area within the permanent ROW.

At the western end of either Route A or Route B, the project would require a regulator station (Sparta Regulator Station) that would connect to natural gas distribution pipelines. This site would be a fenced area of just under one acre and include a building, regulators, heater, valves, and a 12-inch receiver.

Table 2: Potential Aboveground Facilities by Route

Segment/ Route	Proposed Equipment	Location	Approximate Dimensions	Property Owner	Existing Land Use
Common Segment AB	12-inch Valve Assembly, with Blowdowns & Launcher	Eastern end of Common Segment AB, north side of STH 21 and east of CTH M	150 ft. x 100 ft. (includes existing 50 feet ROW)	Timothy E. Liddane	Cropland
Common Segment AB	12-inch Valve Assembly with blowdowns	Near the northeast corner of STH 21 and Fireworks Avenue	20 ft. x 20 ft.	Doris M. Hall	Other Agricultural Land
Route A	12-inch Valve Assembly with blowdowns	Near the southwest corner of CTH BB and Fillmore Avenue	20 ft. x 20 ft.	William E. Wacker	Cropland
Route A	Sparta Regulator Station & 12-inch Receiver	Western end of Route A, on the east side of STH 27 and north of CTH BC (Hart Rd.)	200 ft. x 200 ft.	Steven Herman	Cropland
Route B	12-inch Valve Assembly with blowdowns	On the north side of Gillette Ave. and east of STH 21	20 ft. x 20 ft.	Norbert Brown	Non-Agricultural Land
Route B	Sparta Regulator Station & 12-inch Receiver	Western end of Route B, northeast of Milwaukee Ave. (Hazelwood Ave.) and the Railroad	200 ft. x 200 ft.	Century Foods Land Development LLC	Non-Agricultural Land

Unlike the ROW required for this project, both temporary and permanent, the land required for aboveground facilities that is farmed would take agricultural land permanently out of production. Most of the proposed aboveground facilities for this project appear to be located on agricultural properties with the exception of the 12-inch valve assembly site for Route B and the Route B Sparta Regulator Station site.

DATCP recommends that the aboveground facilities be located so as to minimize impacts to actively farmed lands and to work with landowners to determine the location and size of the facilities on their property.

Figure 3: Example of a Regulator Station with Launcher

Courtesy: Wisconsin Gas

Figure 4: Examples of Launchers and Receivers

Courtesy: Wisconsin Gas

Figure 5: Example of a Blowdown Valve Assembly

Courtesy: Wisconsin Gas

Access Roads

Wisconsin Gas has identified four potential off-ROW construction access roads through private properties for this project. Access roads are necessary for construction access to the ROW. Table 3 lists the proposed access roads by route. Off-ROW access roads would be 30 feet wide. Where necessary, Wisconsin Gas would construct access ramps from the public and private roads to the project ROW so that existing drainage patterns are preserved.

One off-ROW access road is located between Elder (Fisher) Road and the proposed pipeline ROW on the north side of STH 21. It connects to Common Segment AB and is required due to steep slopes on each end of a farm field. It makes use of an existing farm field access path. Two more access roads are proposed to connect to Route A. These are located along field edges of cropped land. The access road for Route B utilizes paths established by Fort McCoy and a private landowner. It is necessary due to limited crossing opportunities of the railroad and a waterway. The access road would impact non-agricultural land.

DATCP recommends that Wisconsin Gas work with landowners to locate access roads so as to minimize disturbance to farming operations and prevent interference to existing drainage patterns. Additionally, agricultural properties impacted by construction activities should be restored to post-construction function, as per landowner requests.

Table 3: Proposed Off-ROW Access Roads by Route

Segment/ Route	Location	Approx. Length (feet)	Landowner	Land Use
Common Segment AB	Northeast corner of Elder (Fisher) Road/STH 21 in the town of Greenfield	950	Mark R. Adler	Existing farm field access path at the edge of cropland
Route A	Connection between CTH I and ROW in the town of Lafayette	330	Duane C & Janice M Johnson	Field edge between cropped land
Route A	Connection between CTH BB and ROW in the town of Lafayette	170	Wellbrooks Properties LLC William E. Wacker	Field edges of cropped fields affecting two landowners
Route B	Connection between Fort McCoy roads and the ROW along the railroad, in the town of Angelo	4,580	Fort McCoy Milwaukee Sparta and Northwestern Railway Company Carlisle Brothers Partnership	Non-agricultural land

Staging Areas

Wisconsin Gas has identified five potential staging sites that may be used to store equipment and materials during the construction of the project. Staging areas are typically established on property where the owner(s) voluntarily agrees. If the project is approved by the PSC, Wisconsin Gas anticipates requiring one or two of these staging sites. All staging areas proposed for this project are located on non-agricultural land. After the project is completed and conditioned upon agreements with individual property owners, land used for staging areas would be restored.

IV. AGRICULTURAL SETTING

The following information is intended to describe the existing agricultural sector of Monroe County in general terms and to aid agricultural property owners in their easement negotiations with the utility. Section VI, Agricultural Landowner Impacts discusses the specific potential impacts from this project and the concerns of agricultural property owners. The majority of the data provided in this section was obtained from the USDA, National Agricultural Statistic Service.

Agricultural Productivity

Monroe County agriculture is diverse. Dairy, cranberries, beef, and cash grain are the county's top revenue producers. Monroe County ranks second in the state in cranberry production and is in the top 20 for dairy, beef and forage production. The county also has a growing fresh-market fruit and vegetable sector.

Table 4 shows the acres harvested of selected crops in Monroe County for the years from 2011 to 2015. Over the five-year period, the acres of harvested corn for silage, soybeans, and alfalfa hay has had minor fluctuations. Though soybeans and alfalfa hay ended 2015 with a modest increase. The acres of harvested corn for grain hit a high in 2011. Additionally, Monroe County in 2015 had approximately 23,500 dairy cows and produced 486,450,000 pounds of milk.

Table 4: Acres of Selected Crops from 2011 to 2015

Crop	Harvested Acres				
	2011	2012	2013	2014	2015
Corn for Grain	44,400	42,400	39,500	41,000	42,900
Corn for Silage	15,400	23,000	NA	19,400	19,200
Soybeans	18,800	19,500	16,900	20,400	22,400
Alfalfa Hay	28,700	23,500	23,800	27,000	29,100

* NA = data not published

Land in Agriculture

Monroe County is classified as a rural county, which is defined as a county having less than 100 persons per square mile. Monroe County in 2016 had a population of 45,865 (Wisconsin DOA), with a density of approximately 51 persons per square mile. This is a population density of almost half the average density for the state as a whole (approx. 88 persons per square mile). According to the USDA NASS 2012 Census of Agriculture, the majority of Monroe County land (58.6 percent) is used for agriculture. Monroe County is more intensively farmed than the state-wide average of 42 percent of the land in farms (202,346 acres). Agricultural land uses include other uses such as woodland and wasteland not actually under cultivation or used for pasture or grazing.

In Monroe County from 2007 to 2012, the acres of land farmed decreased by almost 4 percent similar to the trend observed for the state as a whole (USDA NASS 2012 and 2007 Census of Agriculture). These changes in agricultural land use are likely the result of commercial and residential development forces on agricultural properties rather than because of idling of formerly productive farmland.

Number and Size of Farms

Similar to the state of Wisconsin between the years of 2007 and 2012, Monroe County lost 189 farms or a reduction of 8.9 percent. Though as shown in Tables 5 and 6, during the same period, the county farm numbers and size distribution have remained relatively stable. Even though the average size of a Monroe County farms has slightly decreased by 19 acres, the majority of farms are still between 50 to 179 acres in size with a lower percentage of larger and smaller farms than in the state as a whole.

Table 5: Change in the Number of Farms between 2007 and 2012

Location	Number of Farms 2012	Number of Farms 2007	Change in the Number of Farms	Percent Change
Monroe County	1,926	2,115	189	**-8.9**
Wisconsin	69,754	78,463	8,709	**-11.1**

Table 6: Farm Size Distribution in Monroe County and Wisconsin

Location	0 to 49 Acres		50 to 179 Acres		180 to 499 Acres		More than 500 Acres	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Monroe County, 2007	495	26	886	46	428	22	117	6
Monroe County, 2012	586	28	941	44	479	23	109	5
Wisconsin, 2012	22,428	32	25,502	37	15,688	22	6,136	9

Property Taxes and Values

Table 7 details the 2015 average property tax, assessed value, and sale price per acre of agricultural land in Monroe County, rural counties, and all Wisconsin counties. The assessed values and property taxes are based on the use value of "agricultural land". Agricultural land is defined by statute as, "…land, exclusive of buildings and improvements, and the land necessary for their location and convenience, that is devoted primarily to agricultural use." (Wis. Stat. §70.32(2)(c)1g) In addition to being used to compute easement values; property taxes, assessed values, and land sales data provide information on the demand for land in the county.

Land values are used as collateral for farm operation loans. High values make farm expansions more expensive.

Table 7: Farmland Taxes and Values

Location	2015 Dollars per Acre of Farmland		
	Average Tax	Assessed Value*	Sale Value
Monroe County	$2.44	$118	$3,347
Rural Counties	$3.02	$160	$4,106
Wisconsin	$3.15	$170	$5,131

Source: USDA, National Agricultural Statistic Service and Wisconsin Department of Revenue.
* The assessed value is an "equalized value" calculated by DOR to correct for variability in estimating the taxable value of real property across municipalities.

The 2015 average property taxes on Monroe County farmland were 19.2 percent lower than the average for rural counties and 22.5 percent lower than the average for Wisconsin. The average assessed value of farmland in Monroe County was 26.3 percent lower than the rural counties' average and 30.6 percent lower than the state of Wisconsin as a whole. The average sale price of farmland in Monroe County was lower than the average for rural counties (18.5 percent) and substationally lower than the average for the state as a whole (34.8 percent lower). Sale price data does not include farmland sold and converted to nonfarm use nor farmland with buildings or improvements.

Farmland Preservation

Wisconsin's Farmland Preservation Program (FPP) provides counties, towns, and landowners with tools to aid in protecting agricultural land for continued agricultural use and to promote activities that support the larger agricultural economy. Through this program, counties adopt state-certified farmland preservation plans, which map areas identified as important for farmland preservation and agricultural development based upon reasonable criteria. The plans identify farmland preservation areas in the county and local governments may choose to adopt an exclusive agricultural zoning ordinance to ensure that landowners covered by the ordinance are eligible to claim farmland preservation tax credits. Such an ordinance must also be certified by DATCP.

Within these farmland preservation areas, local governments and owners of farmland can petition for designation by the state as an Agricultural Enterprise Area (AEA). This designation highlights the importance of the area for agriculture and further supports local farmland preservation and agricultural development goals. Designation as an AEA also enables eligible landowners to enter into farmland preservation agreements. Through an agreement, a landowner agrees to voluntarily restrict the use of their land for agriculture for fifteen years.

Both AEAs and FPP zoning areas are required to follow the state soil and water conservation standards to protect water quality and soil health.

None of the land that could be acquired for this project is part of an AEA.

Conservation Reserve Program

The Conservation Reserve Program (CRP) offers farmers financial incentives to convert highly erodible or environmentally sensitive cropland to permanent vegetative cover by planting species that will enhance the environment. None of the easements for this project appear to cross properties enrolled in the CRP.

Conservation Reserve Enhancement Program

The Conservation Reserve Enhancement Program (CREP) pays landowners to install filter strips along waterways or to return continually flooded fields to wetlands while leaving the remainder of the adjacent land in agricultural production. CREP is a joint effort between the federal, state, and county governments. One landowner along Route A has property enrolled in the CREP program, which may be impacted by the proposed project:

- William E Wacker, 8.6 acres enrolled, Segment A.2, town of Lafayette

DATCP recommends that Wisconsin Gas work with Mr. Wacker to minimize impacts to his participation in the CREP.

Drainage Districts

Drainage districts are formed to manage excess water from participating lands. The project does not cross any drainage districts.

V. FARMLAND SOILS

Farmland Soil Definitions

Farmland soil is classified by the USDA based on its ability to produce crops. Protecting prime farmland, prime farmland, if drained, and farmland of statewide importance should be a priority for construction projects.

Prime Farmland

Land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the soil quality, growing season, and moisture supply needed to produce economically sustained high yields of crops when treated and managed according to acceptable farming methods, including water management. In general, prime farmlands have an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, acceptable salt and sodium content, and few or no rocks. They are permeable to water and air. Prime farmlands are not excessively erodible or saturated with water for a long period of time, and they either do not flood frequently or are protected from flooding.

Prime Farmland if Drained

This farmland is prime farmland but requires draining in order to have the best combination of physical and chemical characteristic for producing food, feed, forage, fiber, and oilseed crops.

Farmland of Statewide Importance

The criteria for defining and delineating this soil are to be determined by the appropriate state agency or agencies. Generally, additional farmlands of statewide importance include those that are nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some may produce as high a yield as prime farmlands if conditions are favorable. In some states, additional farmlands of statewide importance may include tracts of land that have been designated for agriculture by state law.

Non-prime soils

Non-prime soils have limitations in terms of agricultural production and may be more susceptible to damage from pipeline construction.

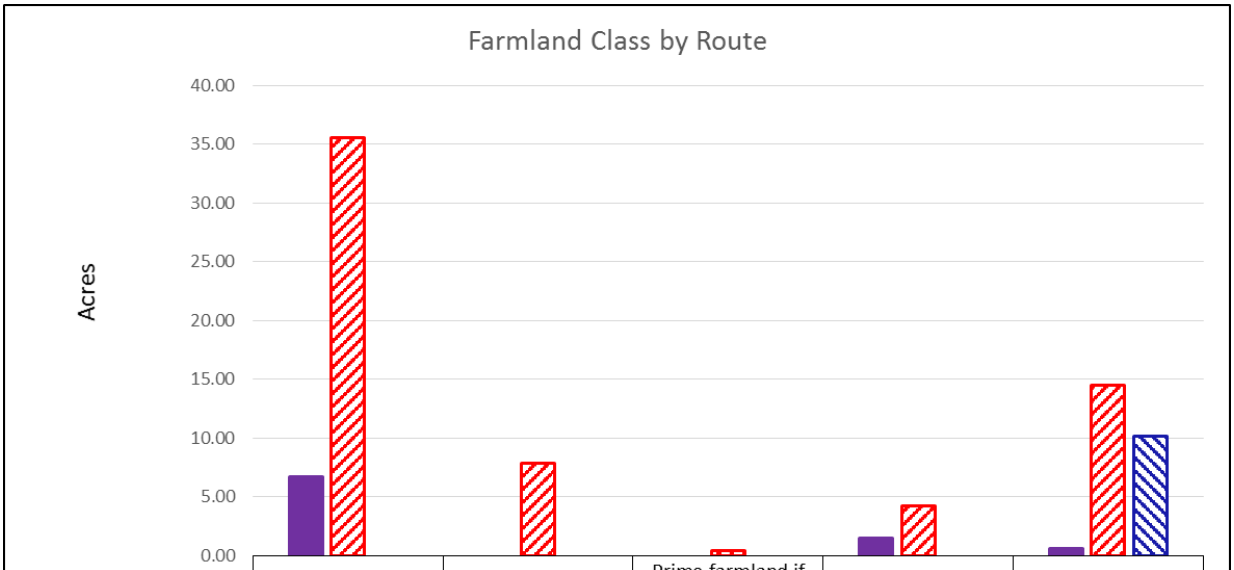
Farmland Soils Affected by the Proposed Project

If one of the routes is approved by the PSC, the project routes could impact between 159 and 173 acres of land. Of the land identified as agricultural properties, working farmland including cropland, pasture, and idle farmland accounts for a smaller percentage of the project ROW. Potentially impacted working farmland acres for the two routes are:

- Route A - 71.3 acres (Common Segment AB: 8.8 acres plus Route A: 62.5 acres)
- Route B – 19.0 acres (Common Segment AB: 8.8 acres plus Route B: 10.2 acres)

Working farmland can be further broken down into prime and not prime farmland. Figure 6 details the acres of prime farmland, prime farmland if drained, prime farmland if protected from flooding or not frequently flooded, and farmland of statewide importance that would be potentially impacted by the project routes.

Figure 6: Soils Classification



	Prime farmland	Prime farmland if drained	Prime farmland if protected from or not frequently flooded	Farmland of statewide importance	Not prime farmland
Common Segment AB	6.67			1.51	0.58
Route A	35.55	7.86	0.41	4.21	14.51
Route B					10.19

Figure 6 shows that of the land in the project ROW that is currently cropland, pasture, or idle, Route A would impact approximately 48 acres of prime farmland, whereas Route B does not cross any prime farmland.

A list of the working farmland soils that may be affected by the project is presented in Table 8.

Table 8: Working Agricultural Soils Affected by the Project Routes

Shaded cells identify soils that are prime farmland, prime farmland if drained, and prime farmland if protected from and not frequently flooded.

Soil	Farmland Class	Acres		
		Common Segment AB	Route A	Route B
Bertrand silt loam, 1 to 6 percent slopes	P		0.29	
Bilmod sandy loam, 0 to 3 percent slopes	P		5.05	
Bilson sandy loam, 1 to 6 percent slopes	P		20.46	
Bilson sandy loam, 6 to 12 percent slopes, moderately eroded	S	0.45	1.95	
Boone sand, 6 to 15 percent slopes	P		0.35	
Curran silt loam, 0 to 3 percent slopes, rarely flooded	P-D		0.48	
Dawsil mucky peat, 0 to 1 percent slopes	X			0.17
Elevasil sandy loam, 6 to 12 percent slopes, moderately eroded	S		2.26	
Elevasil sandy loam, 20 to 30 percent slopes, moderately eroded	X		0.08	
Hoop sandy loam, 0 to 3 percent slopes	P-D		1.06	
Impact sand, 2 to 6 percent slopes	X		2.40	
Jackson silt loam, 0 to 2 percent slopes	P		1.55	
Jackson silt loam, 2 to 6 percent slopes	P	3.54		
Kickapoo fine sandy loam, 0 to 3 percent slopes, occasionally flooded	P		0.57	
Lambeau silt loam, 6 to 12 percent slopes, moderately eroded	S	1.06		
Lambeau silt loam, 12 to 20 percent slopes, moderately eroded	X	0.58		
Majik loamy fine sand, 0 to 3 percent slopes	X		0.22	0.25
Merimod silt loam, 0 to 3 percent slopes	P		7.62	
Mindoro sand, 0 to 3 percent slopes	X		2.53	8.53
Orion silt loam, 0 to 3 percent slopes, occasionally flooded	P-D-F		0.41	
Sechler loam, 0 to 3 percent slopes, occasionally flooded	P-D		0.28	
Sooner silt loam, 0 to 3 percent slopes	P-D		6.05	
Tint sand, 0 to 3 percent slopes	X		0.08	
Tarr sand, 1 to 6 percent slopes	X		7.67	1.23
Tarr sand, 6 to 15 percent slopes	X		1.18	
Toddville silt loam, 0 to 3 percent slopes	P	3.13		
Total		**8.76**	**62.54**	**10.19**

Farmland Class Key: P = Prime farmland / P-D = Prime if drained / P-D-F = Prime if protected from and not frequently flooded / S = Farmland of statewide importance / X = Not prime farmland

The majority of the soils crossed by the routes are silty and sandy loam soils. However, primarily in the towns of Lafayette and Angelo, both Routes A and B cross areas dominated by sandy soils. These are soil units that have little to no top soil and are sand to a depth of 5 or more feet below grade. These soils are productive farmland and are used for pasture and crops including soybeans and corn.

In other agricultural fields there are areas where the trench will encounter weathered bedrock. This is primarily in areas with slopes greater than 6 percent near the eastern end of Common Segment AB, and along Route A in the town of Angelo and include:

- Lambeau silt loam, 6 to 12 percent slopes and 12 to 20 percent slopes
- Elavasil sandy loam, 6 to 12 percent slopes and 20 to 30 percent slopes
- Boone sand, 6 to 15 percent slopes

Through the fractured bedrock, rock trenchers are typically used to create a trench of adequate depth. If there is insufficient stockpiled subsoils to refill the trench, sand may be brought in to supplement the fill. Post-construction, productivity over the former trench can be affected if the subsoil in the trench contains significantly more inorganic material and/or has a rock content and rock size greater than the surrounding soils. This project would most likely encounter weathered bedrock when excavating in the fields of the following property owners:

- Common Segment AB: Unimin Corporation, Timothy Liddane
- Route A: James B. Leverich, Janice Yourell

DATCP recommends that in areas where weathered bedrock is encountered in the trench, the topsoil is well segregated from subsoils and the subsoils used for backfill do not have a rock content greater than the surrounding soils.

Triple-Lift Soils

The triple-lift soil segregation procedure (also known as three-lift soil handling) is recommended for lands intended for crop or pasture and where the mixing of the subsoil layers may result in persistent crop yield reductions. For agricultural soils, the typical pipeline construction practice is to segregate the topsoil (typically the top 12 inches) from the remainder of the excavated subsoils. In contrast, triple-lift requires the stockpiling of the topsoil, subsoil, and substratum in three separate piles. The last material removed from the trench is the first material backfilled into the trench.

Triple-lift soil management is useful when the proposed trench will intersect both the B and C horizons of a soil profile and the C horizon is of poorer quality (gravel, rock, and/or sand) than the B horizon (silt, clay, and/or loam). Alternatively this practice may be applicable to soil profiles with a distinct upper and lower B horizon, as opposed to a B and C horizon. Additional factors such as slope, soil drainage, thickness of the soil horizons, and acres of soil units crossed

by the project are important in determining soil candidates for which triple-lift may be beneficial for protection of crop yields. A key for identifying soil candidates for triple-lift is provided in Appendix D. Using the soil characteristics and descriptions compiled by the USDA, Natural Resources Conservation Service's (NRCS) Web Soil Survey, a desktop review of the project area identified a few soils and potential areas that would benefit from this type of soil management. For a final determination of triple-lift soils, the characteristics of the soils must be verified in the field by the Agricultural Inspector. (See Appendix E, BMP 09: Three-lift Soil Handling for additional information.)

The farm soils that might be trenched for this project and might benefit from triple-lift soil management are:

- Bertrand silt loam, 1 to 6 percent
- Hoop sandy loam, 0 to 3 percent
- Jackson silt loam, 0 to 2 percent and 2 to 6 percent

From a review of the NRCS Web Soil Survey, four locations along the project routes were identified as potentially having these triple-lift soil candidates. One is at the eastern end of Common Segment AB, the second is near the eastern end of Route A, and the last two are small areas near the western end of Route A. There were no triple-lift soil candidates identified along Route B.

At the eastern end of Common Segment AB, on both sides of Flagstaff Road in the towns of Greenfield and La Grange, there is a 2,400-foot length of cropland with Jackson silt loam soils interspersed with areas of shallow weathered bedrock. The land is owned by two property owners, Unimin Corporation and Timothy Liddane.

Near the eastern end of Route A on both sides of CTH BB in the town of Lafayette, there is approximately 930 feet of ROW with Bertrand silt loam and Jackson silt loam. The fields are owned by William Wacker and Wellbrooks Properties LLC.

At the western end of Route A in the town of Sparta, there are two smaller areas where the triple-lift soil candidates were noted in cropland. One area is approximately 180 feet in length, just north of General Avenue and is owned by James Leverich. The second area is approximately 290 feet in length and owned by Steven Herrman.

DATCP recommends that the Agricultural Inspector inspect the soils where trench excavations would cross agricultural fields with the soils: Bertrand silt loam, Hoop sandy loam, and Jackson silt loam, to determine if triple-lift soil management would be useful for preserving the productivity of the agricultural land. In particular the landowners: Unimin Corporation, Timothy Liddane, William Wacker, Wellbrooks Properties LLC, and Steven Herrman should be informed of the triple-lift soil candidates on their land and how this soil management technique could preserve the productivity of their fields.

VI. AGRICULTURAL LANDOWNER IMPACTS

DATCP Survey of Agricultural Property Owners

DATCP sent a survey to agricultural property owners who could have easement acquisitions of three acres or more. Of the 85 property owners along the routes, 24 were agricultural properties and nine could have three or more acres acquired for the proposed project. Four property owners responded with comments.

Table 9: Acres of Potential Farmland Easements from Affected Farmland Owners

Property Owner	Common Segment AB Easement		Route A Easements		Route B Easements		Total Easement Acres
	Perm	Temp	Perm	Temp	Perm	Temp	
ADLER, MARK	0.66	1.12					1.78
BARTLE, JOHN			0.54	0.69			1.23
CARLISLE, DWIGHT			5.21	5.25	2.02	1.20	13.68
EBERT, JOSEPH					3.49	3.40	6.89
GLANZER, GEORGE			0.50	0.22			0.72
HERRMAN, STEVEN			4.17	3.02			7.19
JOHNSON, DUANE & JANICE			3.90	4.08			7.98
LEVERICH, JAMES			10.52	10.75			21.27
LIDDANE, TIMOTHY	2.73	2.28					5.01
LOUMAR LLC			0.00				0.00
NEILLAND, ROBERT & DOROTHY			0.70	0.65			1.35
RFPI PROPERTIES LLC			0.01				0.01
RICHARDSON, MAUREEN			0.03				0.03
SANDERS, VERNON					1.50	0.86	2.36
SCHMIDT, DOUGLAS			0.45	0.28			0.74
SCHNEIDER, KAY & JEROME					1.86	1.86	3.72
STEINHOFF, RICKY			0.00				0.00
TUCKER, THOMAS			0.26	0.26			0.52
UNIMIN CORPORATION	2.69	2.41					5.10
WACKER, WILLIAM			8.53	9.61			18.14
WELLBROOKS PROPERTIES LLC			0.65	0.64			1.28
YOURELL, JANICE			1.66	1.11			2.77

Required Easements

Table 9, on the previous page lists the acres of agricultural easements that would be acquired for each of the potential routes. Additional non-agricultural acres would be required for the construction of this project.

Property Owner Comments

Farmland Owner: William E. Wacker
Route: Route A
Proposed Acquisition: Temporary Easement: 8.53 acres / Permanent Easement: 9.61 acres

Route A would cross fields that are cropped, as well as land that William Wacker has enrolled in the CREP program. Some of the cropped land crossed by Route A is rented and farmed by James Leverich. Mr. Wacker indicated that he is most concerned about the project impacting a grassed waterway, line fencing, farm buildings, and farm access roads, and driveways. The route would cross a strip that is cropped with trout stream improvements.

Farmland Owner: Jim B. Leverich
Route: Route A
Proposed Acquisition: Temporary Easement: 10.52 acres
Permanent Easement: 10.75 acres

Jim Leverich farms his own land as well as rents land from Mr. Wacker. Route A would cross a number of his fences, as well as those used to contain livestock and he is concerned about his ability to pasture livestock during construction. Mr. Leverich also stated that some of his lands are in organic hay production, which might require additional precautions to maintain its organic certification. Where the route crosses his woodlands, Mr. Leverich stated that he uses the wood for income and/or firewood. He believes that this project is not needed and would cause an unnecessary burden to his property, which is already crossed by the Northern Natural Gas pipeline. This second pipeline, would increase the impacts to his property and the cleared ROW. Mr. Leverich expressed a preference for a dropped route segment, R-4 or along the high-power electric line that exists along STH 16, from Tomah to Sparta.

Farmland Owner: Duane C. and Janice M. Johnson
Route: Route A
Proposed Acquisition: Temporary Easement: 3.90 acres / Permanent Easement: 4.08 acres

The Johnsons own 160 acres that would be crossed by Route A. 120 of the acres are rented and farmed by Joe Ruedy. Most of the land is planted in corn and soybean. The Johnsons did not identify any specific concerns they may have about the project.

Farmland Owner: Steven Herrman
Route: Route A
Proposed Acquisition: Temporary Easement: 4.17 acres / Permanent Easement: 3.02 acres

Steven Herrmann is most concerned about construction impacts to a grassed water, fencing, agricultural field access, driveways, and manure/fertilizer application and/or storage. He has one

fence along STH 27 and another near the creek at the eastern end of his property. Mr. Herrman is considering developing his land for housing and is concerned about how the location of the pipeline could affect future plans.

Managed Forest Law Enrolled Parcels

Natural gas line construction through wooded parcels requires the complete removal of all trees within the ROW. This could negatively impact properties enrolled in the Managed Forest Law (MFL) program. The program requires that not more than 20 percent of the land be in a non-productive state (not growing trees). If the amount of productive woodland falls below 80 percent, the property might be dropped from the program when the contract expires, and the property owner may suffer a monetary loss. Table 10 identifies the property owners that could lose woodlands enrolled in the MFL program.

To the extent practicable, DATCP recommends that Wisconsin Gas in consultation with the landowner and WDNR, limit the amount of permanent tree clearing required from wood blocks and properties enrolled in the MFL program.

Table 10: Managed Forest Law Properties Potentially Impacted by Project

Common Segment AB	Route A	Route B
Unimin Corporation	Duane C. & Janice M. Johnson	Bradley J. Biscobing
Ray & Ruth Eirschele	Janice Yourell	Dwight K. & Mary Carlisle
Flora Dell Association		Carlisle Brothers Partnership
		Century Foods Land Development LLC

AMP and BMPs and the Role of the Agricultural Inspector

Wisconsin Gas will employ a construction manager and an environmental manager to provide oversight and enforcement of permits, approvals, and the AMP and BMPs. Wisconsin Gas may also retain one or more individuals designated as the project Agricultural Inspector. If retained, the Agricultural Inspector will be thoroughly familiar with the project and pipeline construction processes as well as issues regarding agricultural operations and soil conservation. DATCP recommends that the project have at least one individual designated as the Agricultural Inspector for this project and that he/she submit weekly reports during the construction of the project to DATCP for review.

Contractors will be required to structure their construction activities to be consistent with the AMP and the BMPs. Refer to Appendix E for the full text of these documents. Wisconsin Gas will work with landowners to ascertain existing agricultural operations that may require special attention during construction and restoration. Topics that are covered by the AMP and BMPs include restoration of any damaged conservation practices, tiling, and fences.

Appraisal and Compensation

Wisconsin Gas may conduct a market study to determine current area property values of affected property. If the landowner signs an appraisal waiver form, the market study will be the basis for the utility's offer of compensation and no individual property appraisal will be conducted. Wisconsin Gas may also offer additional compensation to landowners who choose to sign the appraisal waiver form.

Landowners have the right to obtain an appraisal of their property under Wisconsin's eminent domain laws (Wis. Stat. §32.06). An appraisal is an estimate of fair market value. Additionally, landowners have the right to obtain their own appraisal of their property. They will be compensated for the cost of this appraisal by the utility if the following conditions are met:

- The appraisal must be submitted to Wisconsin Gas within 60 days after the landowner receives the company's appraisal.
- The appraisal fee must be reasonable.
- The appraisal must be a full, narrative appraisal
- The appraisal must be completed by a qualified appraiser.

If appraisals of the property are conducted, the amount of compensation will be based on these appraisals and is established during the negotiation process between the utility and the individual landowners.

Wisconsin Gas is required to provide landowners with information about their rights in this process before negotiations begin. No easement negotiations may begin and Wisconsin Gas may not make a jurisdictional offer to a property owner until 30 days after this AIS is published. Additional information about the appraisal process and landowners rights can be found on the DOA website at: http://doa.wi.gov/Divisions/Energy-Housing-and-Community-Resources/Relocation-Assistance.

Landowners should keep in mind that any easement they sign with a utility is an individual contract. When considering whether or not to sign an easement, landowners should examine the language carefully and verify that it contains all agreed-to terms. Landowners should be familiar with the company's project-specific AMP and BMPs (Appendix E) so as to determine if additional conditions should be negotiated with the utility. Though they can choose to waive any or all of the practices and procedures described in the AMP and BMPs, DATCP recommends to only do so with careful consideration. Landowners may want to seek legal advice if they have any questions about this process, and should make sure that any attorneys hired have expertise and experience in eminent domain law and procedures. More reference information can be found in Appendix B.

VII. CONSTRUCTION PROCESS

If a project is approved by the PSC, construction on the new gas pipeline will begin after the utility has secured all necessary permits and ROW easements. Typical natural gas pipeline construction sequence proceeds in the manner of an outdoor assembly line; comprised of specific activities that make up the linear construction sequence. These operations include surveying and staking the ROW, clearing and grubbing (digging up roots and stumps), grading, pipe stringing, welding and bending, trenching, lowering-in, backfilling, re-grading, cleanup, hydrostatic testing, and restoration (Figure 7). While most of this project would use open trench construction, in some locations, horizontal directional drilling (HDD) is used in order to avoid impacts to features such as roads, driveways, and natural resources.

Typical construction equipment used on pipeline projects includes: dozers, graders, excavators, trenchers, dump trucks, backhoes, side booms, ATV's, road bore rigs, horizontal directional drill rigs, pickup trucks, rock trenchers, vacuum excavators, rippers, tillers, rock picking machines, welding rigs and trucks, and x-ray trucks.

Surveying and Staking

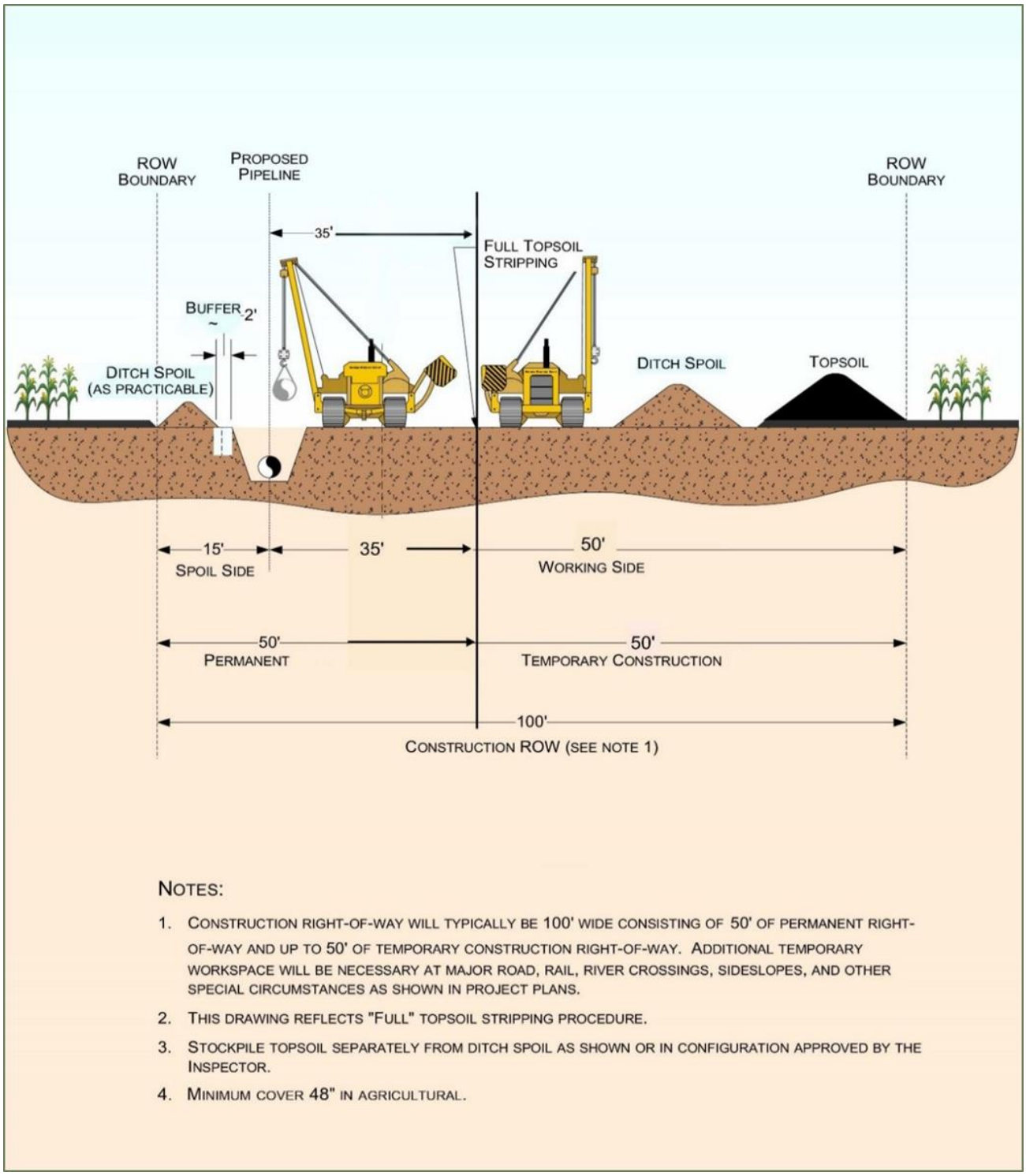
The first construction step involves surveying and staking the pipeline centerline, construction ROW limits, temporary workspace areas, and known underground facilities that cross or parallel the proposed pipeline. Construction activities and equipment travel requires the use of temporary work space in addition to the permanent easement.

Access roads to the pipeline ROW are typically along existing ROWs, including public roads and farm roads, though, additional temporary access roads may be necessary and some of these may cross agricultural lands. Temporary work space needed for access roads across private lands will be negotiated with the landowner and their construction will follow practices detailed in the utility's AMP and BMPs including where appropriate, soil segregation, proper maintenance of existing surface drainage patterns, and restoration of the land. Upon approval from the property owner, access roads may be left in place.

Clearing, Grubbing, and Grading

The construction ROW (easement and areas secured for temporary work space) is cleared, grubbed, and graded to provide a level area for pipe-laying operations and the transport of construction equipment. Clearing involves the removal of all trees and brush from the work area. Grubbing or the removal of stumps and roots, occurs over the area where the trench will be excavated. Some non-woody vegetation is removed by mowing. However, crops such as small grains with a limited amount of biomass may be left in place to minimize soil erosion. A fence crew operates with the clearing crew to cut and brace existing fencing and install temporary gates along the ROW. This crew also installs necessary fencing near identified sensitive areas as required by agencies and at pastures that contain livestock.

Figure 7: Typical Pipeline Construction Cross-Section on Agricultural Land



Source: We Energies

The utility will work with each landowner regarding the cutting of merchantable timber necessary for construction of the pipeline. Timber may be cut and left along the edge of the ROW for the landowner's use. If the landowner does not want to retain ownership of the material, it will be properly disposed. The disposal of trees, brush and stumps may include burning, burying, or chipping at a landowner-approved location, or removal to another authorized location.

Vegetation from wild black cherry and black walnut trees can be toxic to livestock. All debris from these trees are to be removed from actively pastured areas to prevent its contact with livestock. This material will not be stockpiled on-site.

The utility strips the topsoil (typically the top 12 inches) from the full width of the ROW in agricultural areas. The topsoil is stockpiled along the edge of the easement to minimize damage to the productivity of the topsoil. In some locations, maintaining pre-construction soil productivity requires that the subsoil be segregated not only from the topsoil but also from the underlying parent material. This is known as triple-lift soil managing (also referred to as three-lift soil handling).

Erosion control methods and materials vary depending on the specific construction activities, time of year, and site soil and slope conditions at the time of construction. A general description of construction phases will be outlined in the utility's Erosion Control Plan and the project-specific AMP and BMPs. These documents include details about clearing and grubbing (digging up roots and stumps), pipe and associated facility installation, and restoration.

Pipe Stringing

After clearing, grubbing, and grading, sections of pipe are transported by truck from pipe storage areas to the construction ROW and positioned along the pipeline route. This is called pipe stringing. Pipe stringing can be conducted either before or after trenching.

Bending and Welding

After pipe stringing, the sections of pipe are bent, as necessary, to fit the contours of the terrain. The pipe is then placed on temporary supports along the edge of the trench, aligned, and welded together. A qualified inspector visually and radiographically inspects the completed welds. Following inspection, a coating is field-applied to each weld joint. An external coating, applied at the mill protects the rest of the pipe. This pre-applied coating is also inspected and repaired as necessary.

Trenching

Open trenching is the primary method for new gas pipeline construction. Alternatively, in some locations, the utility will use HDD to avoid impacts to features such as roads, driveways, and natural resources. HDD is discussed in more detail later in this section. Trenches are typically excavated using a backhoe, or in some cases a trackhoe, or a trenching machine. Topsoil and

subsoil excavated during trenching of agricultural land is segregated and temporarily stored within the construction ROW for use during restoration. Any material not suitable for backfill, or in excess, is hauled to a suitable location. Proper erosion control practices are employed to minimize erosion during trenching and construction activities. The trench bottom is inspected to ensure it is free of rock and debris. If required, sand or soil bedding material is placed in the trench bottom. Any necessary dewatering of the trench is done in accordance with applicable permits and regulations.

Lowering-In

The pipeline is then lowered into the trench using side-boom tractors. A final inspection ensures the pipeline is properly placed on the trench bottom, that all bends conform to trench alignment, and that the pipe coating is not damaged.

Trench Breakers and Tile Repairs

Upon completion of lowering-in activities, trench breakers (plugs) are installed as needed in sloped areas to prevent subsurface water from moving along the pipe. Permanent tile repairs are also completed during this phase.

Backfilling

After the pipeline is installed in the trench, the trench is first backfilled with the subsoils and then the topsoil is redistributed over the trench and working area. To minimize the potential for soil compaction in agricultural areas, certain construction techniques may be suspended due to wet weather conditions or post-construction soil decompaction techniques may be required to return the soil to productivity.

Rocks removed from the trench but not suitable for backfill are properly disposed of. Rock content of the ROW is managed so that the size and distribution are similar to the adjacent land. The ROW is graded as near as practicable to preconstruction contours, except as needed for soil stability purposes and the installation of erosion control measures.

Horizontal Directional Drilling (HDD) and Jack and Boring

Both jack and boring and HDD construction are alternatives to open trench construction.

Jack and bore may be used to cross under roadways or railways with minimal disruption to traffic. Typically the construction area is first stripped of topsoil that is set aside. Bore pits are then excavated on each side of the obstruction. The bore pits are typically 20 feet x 30 feet and 6 to 12 feet deep. Any groundwater is pumped into a dewatering structure. The auger boring machine and a casing pipe are jacked under the obstruction while the earth is removed by an auger inside a casing pipe. The new carrier pipe is attached to the casing pipe and is either pushed or pulled under the road or railway. After the new carrier pipe is installed and tied into the rest of the pipeline, the bore pits are backfilled and restored.

HDD is often used to avoid disturbance to environmentally sensitive areas such as wetlands and waterways. HDD construction through wooded areas requires fewer trees to be removed than for open trench construction. An entry and exit bore pit are typically excavated on either side of the feature to be avoided. Typically, additional ROW is needed to accommodate these entry and exit bore pits. First, a drill machine is set up and a small diameter pilot hole is drilled under the obstacle. The pilot hole is then enlarged using reaming tools. During this process, drilling mud composed of clean water, bentonite clay, and synthetic polymers are pumped into the hole to lubricate the reaming tool, remove soil cuttings, and maintain the integrity of the hole. When the hole is the appropriate size, the welded pipe is pulled through the hole. Used drilling mud is taken to an approved upland area or disposed of in accordance with applicable permits and regulations. Exit and entrance bore pits are restored.

Cleanup and Initial Restoration

Following the completion of construction activities, the area is restored to preconstruction conditions. Surface grading is done to reestablish natural contours. Disturbed areas are revegetated to be compatible with preconstruction conditions and adjacent vegetation patterns.

Where necessary, soil compaction is alleviated and any segregated topsoil replaced. Additional detail and information about soil compaction and restoration is included in Section VIII. Trash and debris are removed and disposed of in approved areas in accordance with federal, state, and local regulations.

Fences cut or removed during construction are repaired or replaced. Pipeline markers are installed along the length of the pipeline in accordance with Department of Transportation (DOT) specifications. If drain tiles were damaged by construction activities, they are repaired.

Hydrostatic Testing

The completed pipeline is then hydrostatically tested and caliper-pigged prior to service. A pig is a mechanical device that is sent through the pipeline to perform tests on the pipeline. After backfilling is completed, sections of the pipeline are filled with water and tested to pressure levels greater than the maximum design operating pressure of the pipeline in accordance with DOT standards. These procedures are repeated along the entire length of the new pipeline. After completion of testing, the test water is disposed of in accordance with permit requirements.

Final Restoration

Revegetation is completed in areas where vegetation was disturbed by construction activities. Typically active or rotated croplands are not seeded unless specifically requested to do so in writing by the landowner or land management agency.

Erosion and sediment controls are implemented as needed and maintained until final restoration and stabilization are achieved.

VIII. POTENTIAL ADVERSE IMPACTS OF PIPELINE CONSTRUCTION ON AGRICULTURE

Agricultural operations and productivity can be adversely affected by pipeline construction. These impacts include but are not limited to:

- Interference with farm operations in the ROW and adjacent areas
- Soil erosion and runoff
- Interruption of or damage to irrigation systems
- Alteration of surface and subsurface drainage systems
- Impacts to grazing areas, row crops, and existing fencing
- Flooding due to dewatering activities during construction

After construction is completed, some impacts may affect agricultural productivity years afterwards, not only in the ROW but in the adjacent fields as well. These long-term potential impacts include but are not limited to:

- Topsoil inversion and mixing of the subsoil with spoil materials
- Soil subsidence
- Erosion
- Deep compaction of subsoils
- Ponding and drainage seeps from altered surface and subsurface drainage profiles
- Inadequate restoration resulting in increased rock content or alteration to the original land contours

Topsoil Mixing

Potential Adverse Impact

Good agricultural topsoil is an invaluable resource that should be preserved. Mixing of topsoil with the underlying subsoil and/or parent material will reduce tilth, organic matter content and cation exchange capacity, and alter soil structure and distribution of particle sizes (particularly water stable aggregates). The mixing of soil layers can also increase the number of rocks and increase the concentrations of harmful salts near the surface. Rocks larger than three inches can damage farm equipment and reduce soil productivity. Once mixed, full restoration may require transporting new topsoil of similar quality from an off-site location. This will add costs to the project and may still not fully return the agricultural field to pre-construction productivity.

Topsoil mixing can occur under wet or dry conditions during the grading and re-grading of the pipeline ROW. Significant long-term agricultural productivity impacts can occur as a result of soil mixing if deep ruts are created during construction and the topsoil layer is shallow. To avoid these types of impacts, topsoil is typically stripped to a depth of at least 12 inches.

Soil mixing is a greater danger when soils are wet. The moisture and precipitation pattern expected during construction must be taken into account in planning adequate mitigation measures to protect topsoil from mixing. In some soils, one inch of summer rainfall over five of ten days can cause significant rutting with normal construction equipment traffic.

Measures to Avoid Topsoil Mixing/Inversion

To prevent the mixing of topsoils with subsoil layers, the topsoil is stripped from the full width of the ROW to a depth of 12 inches across agricultural lands (Appendix E, AMP 10a and BMP 02). This is done prior to grading and any construction activities. Topsoil does not need to be removed from the topsoil storage area on the edge of the working side of the trench or areas where construction mats are laid on the surface for material storage and equipment travel. The stripped topsoil is then stored separately from the subsoil material until construction is complete and the topsoil can be replaced during restoration of the ROW. With the topsoil removed, work may continue under wetter conditions; however subsoils may still be at risk for compaction and rutting. If compaction occurs or is suspected, subsoils should be de-compacted during the restoration process.

Fertile Subsoil Mixing with Underlying Parent Material

Potential Adverse Impact

Long-term crop productivity losses may result from mixing lower soil layers of glacial till/outwash or sandy soil with upper layers of better quality subsoils. The subsoil layer in many parts of Wisconsin is often of relatively high quality. Estimates for yield loss may be as significant immediately after construction for areas where poorer quality subsoils are mixed with better quality upper soil horizons.

Measures to Avoid Mixing of Fertile Subsoils Mixed with Underlying Parent Material

To avoid mixing the fertile subsoil with underlying gravelly material triple-lift soil management (also referred to as three-lift soil handling) can be used to greatly mitigate construction impacts to agricultural soils. Details about the triple-lift soils on this project can be found in Section V, under "Triple-Lift Soils". In this method the subsoil is not only segregated from the topsoil but also from the underlying parent material. Three separate storage piles are required: one for the topsoil to a depth of 12 inches; a second for the subsoil to its depth of up about to 2 or 3 feet; and a third for the underlying soil horizons. All three soil layers are stored separately for reuse during backfilling of the trench and restoration. In order for this method to be of value, there must be a significant difference between the upper subsoil layer and the lower subsoil layer or parent material. Candidate soils are identified through desktop soil analysis and verified by subsequent on-site sampling. This type of soil segregation would only be used over the trench and through lands that are and will be returned to crop and pasture use (Appendix E, BMP 09).

Increased Rock Content of Soil

Potential Adverse Impacts

Large stones at the surface can damage farm machinery and lead to added costs to landowners for removal. Many subsoil layers have a greater rock content than the topsoil. Trench excavations may bring up lower soil horizons with rocky subsoil, which might be mixed with upper soil layers. Even where the triple-lift method is used, additional rocks may be spread through the subsoil layer during backfilling.

Pipeline companies typically pad the area around the pipe with sand or stone-free subsoil to avoid damage to the pipe. Due to the subsurface soil volume displaced by the pipe and by the padded stone-free area, the restored upper subsoil profile may end up containing a higher rock content than was present before excavation. Through frost heave dynamics, these rocks may eventually end up near the soil surface.

Mitigation Measures

To avoid increasing the rock content of the subsoil, Wisconsin Gas will ensure that the size, density, and distribution of rock in the restored construction work areas will be similar to the adjacent areas not disturbed by construction. Excess rocks should not be spread across the ROW, or added to the topsoil pile, or to other farm fields.

Soil Compaction

Potential Adverse Impact

Compaction of subsoil and topsoil is another major adverse impact that can result from pipeline construction. Compaction reduces the uptake of water and nutrients by crops, restricts rooting depth, decreases soil temperature, increases the proportion of water-filled pore space at field moisture capacity, decreases the rate of decomposition of organic matter, decreases pore size and water infiltration, and increases surface runoff. The greater the depth at which soil compaction occurs, the more persistent it is. Yield loss caused by soil compaction may range between 10 and 50 percent for a variety of crops (Wolkowski, R. & Lowery, B., (2008), Soil Compaction: Causes, Concerns, and Cures, University of Wisconsin Extension, publication A3367). The magnitude of yield loss is dependent on a number of factors including, soil type, degree of compaction, and water availability. Heavy machinery with axle loads that exceed 10 tons increase the risk of compaction extending into the subsoil, compacting soils to a depth that cannot be removed by conventional tillage. Since wet soils are more susceptible to compaction, potential damage from compaction may be greater in areas with hydric soils. Often, the plow layer may appear dry, but the subsoil may still be saturated resulting in compaction potential during construction.

Soil Restoration: Removing Compaction in Subsoil and Topsoil

Pipeline construction can cause long-term damage to agricultural productivity from deep soil compaction if proper decompaction is not performed. However, with the proper techniques, timing, and equipment, there are few subsoils that cannot be adequately decompacted. Deep tillage devices are typically used on the exposed subsoil of the construction ROW, after the trench has been backfilled and time has been allowed for trench settling.

One common option for deep ripping is an industrial V-ripper, which should have 4 to 5 heavy-duty shanks, spaced 30 to 36 inches apart and pulled with 40 to 50 horsepower per shank. It is recommended to use this with an articulated, 4-wheel drive tractor with the bulk of the weight in front. Such rippers are often not readily available to typical farm operators. Other types of equipment such as chisel plows or paraplows may also be effective under some conditions. Multiple passes with the deep decompaction device are essential over the compacted subsoil in the ROW until sampled penetrometer readings in the ROW match those in adjoining fields that were not disturbed by construction. The typical depth of ripping is 18 to 24 inches below the exposed subsoil. Multiple straight and zigzag patterns of ripping need to be used on different passes. The type of equipment used and the depth of rip may be adjusted as appropriate for different soil types or for a deeply and severely compacted soil.

In lacustrine soils with intensive tile drain systems, deep ripping may be limited to the top 6 to 8 inches of the subsoil layer because soil compaction from pipeline construction is usually undetectable below 8 inches and deeper ripping could destroy the load-bearing capacity of the subsoil. However, the presence of tile lines is no reason to avoid completing the deep ripping phase of the soil restoration process. Any damage to tiles during the deep ripping process must be repaired/replaced by the utility at the utility's expense. Deep ripping and other subsequent restoration steps must only be done during low soil moisture conditions to prevent irreparable damage to soils from mixing or additional compaction.

Following decompaction, penetrometer measurements are taken as per a sampling protocol to ensure proper decompaction has occurred at representative sites throughout the topsoil and subsoil profile. Moisture conditions should be comparable on and off the construction ROW and throughout the soil horizon at the time of sampling since the same bulk density will result in a much lower penetrometer resistance reading when the soil is wet as opposed to when it is dry.

Once effective deep decompaction of subsoil has been accomplished as indicated by penetrometer readings, rocks have been removed and topsoil replaced, a final subsoil shattering may be necessary to correct the compaction caused by the heavy decompaction equipment. This is done using an angled 3- or 4-leg tool bar, with leg spacing set no greater than 2 feet. Equipment commonly used for this includes a four-legged paratill or paraplow with the depth wheels disengaged to allow for maximum adjustment of depth of penetration. The angled legs are pulled slowly at an 18-inch depth (up to a maximum of 24 inches) using 50 horsepower per

leg by a 4-wheel drive articulated tractor with the bulk of the weight in front traveling at a rate of 2.5 to 3 mph. This must be done only in conditions of low moisture to prevent damage to the soil profile and sloughing or mixing. Disking should not be used for subsoil shattering because it can mix and re-compact the subsoil and topsoil.

In most cases, DATCP does not recommend the delegation of decompaction to farm operators. Farm operators generally lack the proper equipment to correctly restore productivity after pipeline construction. The necessary scope and depth for successful decompaction of agricultural lands typically exceeds standard farming equipment and practices.

Drainage

Potential Adverse Impacts

In addition to damaging drainage tile, pipeline construction can permanently alter the soil profile, thereby affecting drainage patterns. The resulting de-stratification or alteration of soil horizons from trenching may cause ponding or seeps that reduce crop yields. There should be careful monitoring for the emergence of these problems and once observed, remediation steps should be taken as soon as possible. The pipeline may alter subsurface drainage patterns and exacerbate existing drainage problems in fields by increasing surface flows. Additionally, adjacent fields may be affected by the change in the drainage profile due to the nearby presence of a pipeline. It may take several years for these problems to become apparent, or even longer if there is a dry year.

The location of significant seeps along the trench walls must be carefully monitored during the open construction phase of the project. In some cases, seeps may be present prior to construction, but may be made more serious by construction. It is important to document the existing drainage patterns and any drainage problems as part of pre-construction documentation. It is also possible for pipeline construction to interfere with future plans for drainage systems in a field.

Mitigation Measures

The AMP and BMP 04 (Appendix E) requires that the excavated pipeline trench be a minimum of 12 inches from the drainage tile, where practicable. All damaged tiles will be permanently repaired prior to backfilling. Repaired tiles on or adjacent to the ROW must be equivalent to its prior condition. Local tile contractors should be used wherever possible.

Temporary ditch plugs and permanent trench breakers are used to help deter the pipeline corridor from acting as a channel for underground water flows.

Where construction activities has altered the natural stratification of the soils resulting in new wet areas, DATCP recommends Wisconsin Gas work with the landowner to determine the means to return the agricultural land either in the ROW or on adjoining lands to pre-construction function.

New drainage tiles, regrading, or additional fill may be required to correct the problems that arise after construction is completed.

If a landowner is planning the installation of drainage tile within the next three years and drainage locations have been documented in writing, these documents should be provided to Wisconsin Gas, prior to construction.

Trench Dewatering

Potential Adverse Impacts

Before lowering the pipe into the trench, dewatering of the trench may be necessary so that the bottom of the trench can be inspected for rocks. Any combination of weather, topography and/or hydric soils (i.e. land with a shallow water table) can result in conditions of wet trenching. Extra care must be taken when wet trenching to avoid mixing, compacting, and erosion of subsoil. Trench dewatering is typically done in such cases. Improper trench dewatering can result in soil erosion; sedimentation and deposition of gravel, sand, or silt onto adjacent agricultural lands; and inundation of crops.

Mitigation Measures

The BMPs (Appendix E, BMP 05: Trench Dewatering) requires Wisconsin Gas to identify low areas and hydric soils that are likely to collect water during construction, as well as suitable areas for the discharge of water accumulated within the pipe trench or other excavated areas. The utility must ensure that work is structured to minimize the accumulation of water within the trench and create discharge locations that are in compliance with current drainage laws, local ordinance, DNR permit conditions, and the provisions of the Clean Water Act. Discharge locations must be well-vegetated areas that prevent the water from returning to the ROW; be as far from backfilling activities as possible; and not deposit gravel or sediment onto fields, pastures, or watercourses. If deposition of trench water onto cropland is unavoidable, crops should not be inundated for more than 24 hours. Crops inundated for more than 24 hours may incur severe damage. Discharge of water from non-organic farms or from hydrostatic testing should never be allowed to flow onto organic farm operations.

Silt or sediment extraction from the trench is required to be minimized by preventing the intake from touching the bottom or sides of the trench, and by ensuring that the intake is supported by a flotation device. Dewatering will be monitored and stopped whenever necessary to correct conditions and practices inconsistent with BMP 05. When construction in hydric soils creates wet trenching and dewatering activities that cause unavoidable damage, Wisconsin Gas will reasonably compensate the landowner for damages and restore the land and crops to pre-construction conditions.

Erosion and Conservation Practices

Potential Adverse Impacts

There is the potential for soil erosion due to the destabilization of soil horizons, the piling of loose soils, and the extensive use of machinery and wheeled vehicles. During wet conditions, risks to soil from erosion are increased. However, in parcels with a shallow water table, wet conditions may be the normal soil condition. In these areas wet trenching may be necessary. Trench dewatering can also result in flooding, erosion, and sedimentation on farm fields off the ROW unless appropriate measures are applied.

As described in an earlier section, both topsoil and subsoil along the project routes are valuable resources. Significant erosion of either layer could have an adverse effect on long-term productivity of agricultural lands. Where a pipeline ROW runs up and down gently sloping soils, the collection of surface runoff in the tracks left by construction equipment can erode significant amounts of soil in fields.

Mitigation Measures

To avoid erosion, construction and restoration should not proceed if conditions are excessively wet. The Wisconsin Gas AMP, Section 10f (Appendix E), requires that the construction contractor meet or exceed DNR standards for erosion control on construction sites. These standards are described on the DNR's website at: http://dnr.wi.gov/topic/stormwater/standards/index.html.

Section 8 of the AMP (Appendix E) allows the Agricultural Inspector to temporarily halt construction or restoration activities when work activities do not appear to meet the AMP requirements. This authority may be used when the soil conditions are unfavorable due to weather conditions.

Existing erosion control practices such as diversion terraces, grassed or lined waterways, outlet ditches, water and sediment control basins, vegetated filter strips, etc. damaged by construction activities must be restored to pre-construction condition.

Temporary erosion controls must be properly maintained on agricultural lands on a daily basis throughout construction and restoration. Whenever necessary, they must be reinstalled until permanent erosion controls are installed or restoration is completed. The details of erosion controls are described in AMP Sections 10f and 10i, and in BMP 03 (Appendix E).

Wisconsin Gas must structure work in a manner consistent with the requirements of the AMP and BMPs and maintain an adequate supply of approved erosion control materials on hand.

Temporary Access Roads

Potential Adverse Impacts

Temporary access roads may need to be created during the construction process to allow ingress and egress of personnel and equipment where access from public or private roads are not available or suitable.

Temporary access roads may cross agricultural fields. The potential negative effects of building access roads over soils are much the same as those suffered by soils in pipeline construction areas. These impacts include the potential mixing of topsoil with subsoil, compaction of topsoil and subsoil, disturbance of drainage, tiling, and erosion. Any of these impacts can result in the loss of agricultural productivity on affected soils.

Mitigation Measures

Wisconsin Gas will use existing public roads and farm roads to access the ROW whenever possible. The utility must consult with landowners before siting temporary access roads on their property. (Appendix E, AMP, Section 10b) Where new access roads are constructed on agricultural land, the utility will strip the topsoil and temporarily stockpile it. Access roads will be designed to allow proper drainage and minimize soil erosion. Geotextile construction fabric may be placed below any imported rock used to build the road, in order to protect the subsoil. If desired by the landowner, temporary roads will be left in place after construction. If removed, the same soil restoration practices will be used on the temporary access road area as are used for the pipeline ROW to mitigate impacts. Any disturbance to drainage tiles or drainage patterns should be remediated by the utility or its contractors. During the restoration phase, temporary and existing access roads will be restored to preconstruction conditions. New temporary access roads will be removed unless there is an agreement in writing between the landowner and Wisconsin Gas for them to remain.

Trees and Other Woody Vegetation

Adverse Impacts

All trees will be removed from the full width of the ROW (temporary and permanent ROW) prior to the start of construction. Trees may be permitted to regrow or be replanted in the temporary easement areas. However, the permanent easement (between 20 to 50 feet of ROW width) must remain clear of trees for pipeline safety and access purposes. If they are within the ROW, trees and brush will be removed along property boundaries and landscaped areas, land planted with tree crops (nurseries, Christmas tree farms, orchards, etc.), and woodlots.

The utility may elect to minimize the "tree-free" corridor to 20 feet so that impacts to tree crops are minimized. Landowners are compensated for the loss of trees that must be removed and may also be compensated for the future loss of tree crop within the permanent easement. If

these properties are removed from agricultural use in the future, the utility may decide to remove all trees within the 50 foot permanent easement corridor, as those trees would no longer be an agricultural crop.

Where the ROW crosses through wooded areas, the landowners may choose to keep the cut timber, which will be cut and stacked at the edge of the construction corridor. If they decline, the cut wood will be removed from the site.

Typically, tree stumps are only excavated and removed from the trench area. Stumps in other parts of the ROW are usually cut at or near ground level. Wild black cherry and black walnut trees must be stockpiled or disposed so that the wood is not accessible to livestock. The utility will dispose of any trees or brush that the landowner doesn't want by burying, burning, or removing the woody vegetation off-site. Refer to Section 10c of the AMP (Appendix E) for additional details about vegetation removal.

Mitigation Measures

Before an easement is signed, landowners should determine from the utility where trees will and will not be permitted to re-grow within the ROW. The utility should consult with landowners before disposing of any trees or stumps that need to be removed from the pipeline ROW.

Irrigation

Potential Adverse Impacts

Pipeline construction can interfere with the operation of field irrigation systems. Crops outside of the proposed pipeline ROW could also be negatively affected when irrigation is interrupted.

Mitigation Measures

The utility has the right to temporarily disrupt irrigation systems that intersect the pipeline during construction. However, the landowner must be notified beforehand and establish a mutually acceptable amount of time that the system will be taken out-of-service. The maximum period of time that irrigation systems can be taken out-of-service without reducing yields on field corn is 5 to 7 days during the period from silking - tasseling to the finished crop. Earlier delays in meeting irrigation requirements may result in smaller plants, but should not reduce grain production significantly. Vegetable crops will have a shorter period between irrigations.

DATCP recommends that all irrigators along the pipeline route document irrigation information for their fields, including amount and irrigation frequency; and weather conditions such as rainfall and temperature for the growing season prior to the start of pipeline construction. Pre- and post-construction records will assist the landowner in identifying stressed crops caused by the utility's disruption of the irrigation system. Stressed crops could potentially result in reduced yields.

Any damages to the system (well, pumping plant, irrigation system – center pivot, traveling large volume sprinkler, buried supply lines, electrical supply lines) caused by pipeline construction will be repaired by Wisconsin Gas, as soon as possible (Appendix E, AMP, Section 10e).

Fencing

Potential Adverse Impacts

The construction process may necessitate severing fences that are located across pipeline construction areas. Changes to existing fence lines can interfere with grazing activities, particularly for rotational grazing operations which depend on precise, scheduled grazing in particular areas.

Mitigation Measures

Prior to construction, the utility will identify grazing operations adjacent to the pipeline route, including rotational grazing. The utility has stated that they will work with landowners to determine if fences may be in the way of construction activities. Severe disruption of grazing operations should be avoided as much as possible by modifying routes or by consultation with the landowner regarding timing of construction activities.

Permanent fences severed by the utility will be restored as close as possible to their previous condition. Temporary fences and gates will also be installed where necessary at landowner request to allow continued grazing by livestock across the ROW. Tension on such fences must be adequate to prevent sagging. Bracing of fences to trees or vegetation is prohibited. Temporary fences will be removed following construction, unless the landowner approves otherwise. These measures are described in the Appendix E, AMP, Section 10d.

Weed Control

Potential Adverse Impacts

Disturbance of the land by construction activities may allow opportunistic weeds to take root where none existed prior to the construction activities. Noxious weeds may be spread from parcel to parcel by construction equipment and activities. From the pipeline ROW, weeds may spread to adjacent uninfested farm fields. Stockpiled soils can become an opportunistic place for weeds to flourish because they remain undisturbed for most of the construction period.

Mitigation Methods

Weed growth on stockpiled topsoil could present a problem to adjacent cultivated fields. Wisconsin Gas will remove or kill weeds observed on the stockpile. If herbicide is used on the topsoil pile, the landowner will be consulted in regard to the choice of herbicide. All herbicide application will be done by a state-licensed applicator (Appendix E, AMP, Section 10h).

Seeding and Seedbed Preparation

Potential Adverse Impacts

Seeding over the ROW without consulting the landowner may interfere with cropping plans, or may result in a cover crop that is not consistent with the landowner's plans.

Mitigation Measures

As described in BMP 07: Seeding and Seedbed Preparation, Wisconsin Gas would reseed areas disturbed by construction activities following final clean-up. Seed mixes will be determined in consultation with the landowner, if appropriate. Any seedbed preparation and seeding done by the utility must be done at the correct time and at the proper depth to promote adequate seed-soil contact on cropland or pasture requiring seeding. Seeding is to be completed immediately after seedbed preparation, if weather permits. Temporary erosion controls will be used if weather does not permit immediate seeding. If seeding is done outside of recommended windows, temporary erosion control methods such as mulching or temporary cover will be used.

Bio-security on All Farms and Special Considerations for Organic Farms

Potential Adverse Impacts

Construction activities can spread weeds, diseases, chemicals, and genetically-modified organisms (GMO's) that can cause significant economic losses to farms, and may have greater negative impacts on certified organic farms. Wisconsin Gas' personnel and contractors should follow all posted directives regarding bio-security on farms. For example, all personnel and contractors should wear protective footwear whenever they are requested to do so.

For certified organic farms and farms working towards certification, contamination concerns can involve a broad range of substances. Prohibited substances may be spread to organic farms directly via construction machinery or carried indirectly by water flowing onto fields. Pesticides can also drift onto adjacent organic farm properties if wind direction and speed are not appropriately monitored.

Mitigation Measures

DATCP recommends that any affected farm operation that has a written bio-security plan, provide this plan to Wisconsin Gas. Wisconsin Gas' employees and contractors should become familiar with these plans and develop appropriate procedures to comply with these plans.

DATCP recommends that landowners with organic certifications and those working towards organic certification discuss the range and type of substances that are and are not permitted on their land by their certifying entity. This list should be shared with Wisconsin Gas and their subcontractors. Any substances that are not approved for use in organic production should not be used on these properties. Additionally, prior to the start of construction, appropriate methods

should be agreed-to between the landowner and the utility to avoid the potential for any unintentional contacts including herbicide applications from adjacent ROW acreage to drift onto the organic farm. Also, Wisconsin Gas should not apply seed to certified organic farms prior to consultation with the landowner.

Induced Current on the Pipe

A small direct (DC) current is applied to pipelines for cathodic protection to prevent corrosion of the pipe material. Because pipelines, particularly if located in transmission line corridors, can be carriers of induced alternating (AC) current, the pipeline industry takes precautions to discharge AC current along the pipe into the ground. This is necessary to both protect the integrity of the DC cathodic protection system as well as prevent continued flow of AC current in the pipe. If induced AC current is not adequately grounded, it can cause long-term serious metal loss from the pipe wall, potentially resulting in gas leaks.

IX. CONCLUSIONS

Construction of the proposed pipeline project has the potential to affect agricultural lands along one of two proposed routes. Route A (combined with Common Segment AB) would affect approximately 118 acres of farmland and Route B (combined with Common Segment AB) would affect approximately 60 acres of farmland. On agricultural land, the proposed ROW would be up to 100 feet wide consisting of up to 50 feet of permanent easement and up to 50 feet of temporary easement. Pipeline construction has the potential to adversely impact farmland in many ways including but not limited to the following:

- Several years of yield reductions;
- Mixing of topsoil and subsoil;
- Compaction of topsoil and subsoil;
- Excess rocks brought to the surface interfering with farm machinery
- Changes in field drainage due to the introduction of the underground pipeline channels;
- Interference with surface and subsurface drainage, irrigation, fencing, and grazing; as well as flooding of fields to discharge excess trench water;
- Soil erosion;
- Interference with field operations from temporary access roads;
- Removal of trees and other woody vegetation leaving stumps and debris
- Migration of weeds along the pipeline ROW during construction;
- ROW restoration that is inconsistent with landowners cropping plans;
- Use of prohibited substances on farms with organic practices; and
- Spread of diseases from parcel to parcel unless proper protocols are observed.

To avoid or minimize agricultural impacts, Wisconsin Gas has prepared an AMP and BMPs. These documents identify technical and performance standards for construction and restoration, and are essential to the protection of agricultural land. However, their value can be realized only to the extent that they are faithfully implemented during the construction and restoration process. The goal of the AMP and BMPs is to protect the agricultural resources and farmland owners along the route. However, nothing in the AMP or BMPs prevents landowners from negotiating stronger measures in their individual negotiations with Wisconsin Gas. In addition, there may be areas of concern to landowners that are not addressed by the AMP or BMPs.

The role of the Agricultural Inspector is crucial in enforcing the AMP and BMPs; reporting incidents of noncompliance; recommending corrections when processes are being carried out in ways that violate the AMP or BMPs; and stopping the construction task when serious violations occur.

DATCP supports the use of individuals with knowledge of agricultural issues be used during all phases of the construction process.

Many construction impacts can be minimized or avoided when utilities, prior to the start of construction consult with landowners. DATCP supports consultations with the landowners to ensure that impacts to agricultural lands as a result of the proposed project is avoided, minimized, or mitigated.

Following the completion of initial restoration, Wisconsin Gas should respond to landowner concerns and take steps to mitigate observed problems in the field caused by the pipeline project, as soon as practicable.

X. MAILING LIST

GOVERNOR SCOTT WALKER 115 E CAPITOL	SEN TERRY MOULTON AGRICULTURE COMMITTEE 310 S CAPITOL
REP LEE NERISON AGRICULTURE COMMITTEE 310 N CAPITOL	RESOURCES FOR LIBRARIES (15) DOCUMENT DEPOSITORY PROGRAM 2109 SOUTH STOUGHTON ROAD
STATE DOCUMENTS SECTION THE LIBRARY OF CONGRESS 10 FIRST ST S E WASHINGTON DC 20540-0001	SHELLEY BOHL MONROE COUNTY CLERK 202 SOUTH K ST, RM 1 SPARTA WI 54656
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PAT MULVANEY MONROE COUNTY HERALD PO BOX 252 SPARTA WI 54656-0252	STEVEN HERRMAN 8674 W DIVISION STREET SPARTA WI 54656
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Copies of the final AIS will be emailed to the following:

- Newspapers - Agri-View and Country Today.
- James Leverich

APPENDIX A: ACRONYMS

AIS	Agricultural Impact Statement
AEA	Agricultural Enterprise Area
AMP	Agricultural Mitigation Plan
BMPs	Best Management Practices
CA	Certificate of Authority
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CTH	County Trunk Highway
DATCP	Department of Agriculture, Trade, and Consumer Protection
DNR	Department of Natural Resources
FPP	Farmland Preservation Program
HDD	Horizontal Directional Drilling
MFL	Managed Forest Law
NASS	National Agricultural Statistics Service
NRCS	Natural Resources Conservation Service
NSP	Northern States Power
PSC	Public Service Commission of Wisconsin
PSIG	Pounds per Square Inch
ROW	Right-of-Way
STH	State Trunk Highway
USDA	U.S. Department of Agriculture

APPENDIX B: DATCP STATUTES FOR AGRICULTURAL IMPACT STATEMENTS

DATCP is required to prepare an AIS whenever more than five acres of land from at least one farm operation will be acquired for a public project if the agency/company acquiring the land has the authority to use eminent domain for property acquisitions. DATCP has the option to prepare an AIS for projects affecting five or fewer acres from each farm if the proposed project would have significant effects on a farm operation. The entity proposing a construction project is required to provide DATCP with the necessary details of the project so that the potential impacts and effects of the project on farm operations can be analyzed. DATCP has 60 days to make recommendations, and publish the AIS. DATCP provides the AIS to affected farmland owners, various state and local officials, local media and libraries, and any other individual or group who requests a copy. Thirty days after the date of publication, the project initiator may begin negotiating with the landowner(s) for the property.

Wisconsin Statute § 32.035 is provided below and describes the Wisconsin Agricultural Impact Statement procedure and content.

(1) DEFINITIONS. In this section:

(a) "Department" means department of agriculture, trade, and consumer protection.

(b) "Farm operation" means any activity conducted solely or primarily for the production of one or more agricultural commodities resulting from an agricultural use, as defined in s. 91.01 (2), for sale and home use, and customarily producing the commodities in sufficient quantity to be capable of contributing materially to the operator's support.

(2) EXCEPTION. This section shall not apply if an environmental impact statement under s. 1.11 is prepared for the proposed project and if the department submits the information required under this section as part of such statement or if the condemnation is for an easement for the purpose of constructing or operating an electric transmission line, except a high voltage transmission line as defined in s. 196.491(1) (f).

(3) PROCEDURE. The condemnor shall notify the department of any project involving the actual or potential exercise of the powers of eminent domain affecting a farm operation. If the condemnor is the department of natural resources, the notice required by this subsection shall be given at the time that permission of the senate and assembly committees on natural resources is

sought under s. 23.09(2)(d) or 27.01(2)(a). To prepare an agricultural impact statement under this section, the department may require the condemnor to compile and submit information about an affected farm operation. The department shall charge the condemnor a fee approximating the actual costs of preparing the statement. The department may not publish the statement if the fee is not paid.

(4) IMPACT STATEMENT.

(a) *When an impact statement is required*; *permitted*. The department shall prepare an agricultural impact statement for each project, except a project under Ch. 82 or a project located entirely within the boundaries of a city or village, if the project involves the actual or potential exercise of the powers of eminent domain and if any interest in more than 5 acres from any farm operation may be taken. The department may prepare an agricultural impact statement on a project located entirely within the boundaries of a city or village or involving any interest in 5 or fewer acres of any farm operation if the condemnation would have a significant effect on any farm operation as a whole.

(b) *Contents*. The agricultural impact statement shall include:

1. A list of the acreage and description of all land lost to agricultural production and all other land with reduced productive capacity, whether or not the land is taken.

2. The department's analyses, conclusions, and recommendations concerning the agricultural impact of the project.

(c) *Preparation time; publicatio*n. The department shall prepare the impact statement within 60 days of receiving the information requested from the condemnor under sub. (3). The department shall publish the statement upon receipt of the fee required under sub. (3).

(d) *Waiting period*. The condemnor may not negotiate with an owner or make a jurisdictional offer under this subchapter until 30 days after the impact statement is published.

(5) PUBLICATION. Upon completing the impact statement, the department shall distribute the impact statement to the following:

(a) The governor's office.

(b) The senate and assembly committees on agriculture and transportation.

(c) All local and regional units of government that have jurisdiction over the area affected by the project. The department shall request that each unit post the statement at the place normally used for public notice.

(d) Local and regional news media in the area affected.

(e) Public libraries in the area affected.

(f) Any individual, group, club, or committee that has demonstrated an interest and has requested receipt of such information.

(g) The condemnor.

STATUTES GOVERNING EMINENT DOMAIN

The details governing eminent domain as it relates to utility projects are included in Wis. Stat. ch. 32 (http://docs.legis.wisconsin.gov/statutes/statutes/32.pdf).

DATCP recommends that farmland owners concerned about eminent domain powers and the acquisition of land should review this statute in its entirety. Additionally, landowners may wish to consult with an attorney who should have expertise in eminent domain proceedings. Any Wisconsin licensed appraiser should be knowledgeable in partial takings.

APPENDIX C: INFORMATION SOURCES

DATCP (datcp.wi.gov)

- Farmland Preservation
- Agricultural Impact Statements
- Wisconsin Farm Center: provides services to Wisconsin farmers including financial mediation, stray voltage, legal, vocational, and farm transfers

Department of Administration (doa.wi.gov)

Relocation Assistance includes several publication on landowner rights under Wisconsin eminent domain law

- Wisconsin Relocation Rights Residential
- Wisconsin Relocation Rights for Businesses, Farm and Nonprofit Organizations
- The Rights of Landowners under Wisconsin Eminent Domain Law, Procedures under sec. 32.06 Wis. Stats. (Condemnation procedures in matters other than highways, streets, storm & sanitary sewers, watercourses, alleys, airports and mass transit facilities)

Public Service Commission of Wisconsin (psc.wi.gov)

- PSC project webpage for docket #6650-CG-256

Department of Natural Resources (dnr.wi.gov)

- Energy and utility projects
- Managed Forest Law

U.S. Department of Agriculture (www.usda.gov)

- National Agricultural Statistics Service
- Web Soil Survey
- Soil Quality – Urban Technical Note No. 1, Erosion and Sedimentation on Construction Sites

We-Energies (www.we-energies.com)

- We Energies Agricultural services
- Natural gas pipeline replacement project

Wisconsin Department of Safety and Professional Services (dsps.wi.gov)

- Look-up for state certification status of different types of real estate appraisers

State Bar of Wisconsin (www.wisbar.org)

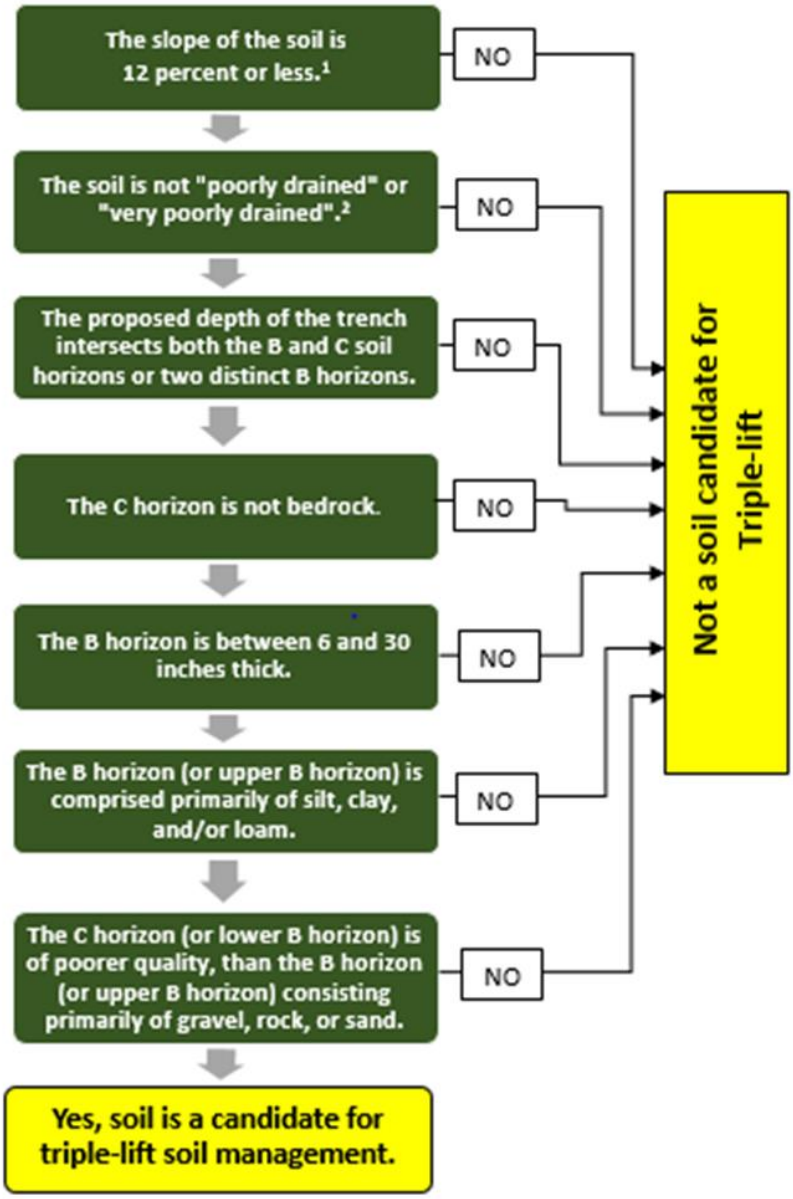
For general legal information and assistance in finding a lawyer

Background Resources

- Wolkowski, R., Soil Compaction: Causes, concerns and cures
  University of Wisconsin-Extension, A3367, 2008.
- Hughes, Jodi D., Tires, traction and compaction, University of Minnesota Extension, website (http://www.extension.umn.edu/agriculture/tillage/tires-traction-and-compaction/)

APPENDIX D: TRIPLE-LIFT SOIL CANDIDATE KEY

This key is applicable to soil profiles with distinct B and C horizons or alternatively to soil profiles with distinct upper and lower B horizons.



1. Soils with a slope greater than 12 percent are Class IV soils, likely to be eroded with shallow topsoil, and marginally suited for crop production. As such, they are unlikely to meet the criteria for soils that would benefit from triple-lift soil management.
2. Poorly drained soils tend to be too wet to use triple-lift soil management successfully. They are also likely to be deep soils.

APPENDIX E: WISCONSIN GAS PROJECT-SPECIFIC AMP AND BMPS

SPARTA LATERAL AGRICULTURAL MITIGATION PLAN

INTRODUCTION

Wisconsin Gas LLC, doing business under the name of We Energies ("the Company"), proposes to construct a new gas lateral in Monroe County. The Sparta Lateral Project ("Project") would extend a new 12-inch steel natural gas main approximately 16 miles from the Company's existing 12-inch lateral, located in the town of La Grange, west to the city of Sparta. Construction is expected to begin in late 2018.

The Company has a longstanding commitment to working with landowners who may be affected by construction of various utility projects throughout the State of Wisconsin. The Company has a vested interest in working with landowners within the project to ensure their satisfaction with utility project construction and post-construction restoration.

The Company continues to be committed to restoring construction areas to pre-construction conditions with all our construction projects. We believe this Agricultural Mitigation Plan (AMP) will help to assure this outcome within agricultural areas in the proposed gas main replacement corridor. The Company has prepared this AMP specifically to prevent or mitigate potential adverse impacts of the project on agricultural productivity, using construction and restoration procedures from other Company projects and modifying them as necessary.

PURPOSE

The purpose of this AMP is to:

- provide a description of effective agricultural construction mitigation and restoration methods to be used on the project;
- establish personalized communication with agricultural landowners to ensure their unique concerns are addressed;
- provide agricultural landowners and tenants with a hotline for convenient contact access to the Company Representative; and
- describe the job duties of the Company Agricultural Inspector (AI).

SCOPE OF AGRICULTURAL MITIGATION

This AMP applies to those activities occurring on agricultural lands (tilled land row crops). "Agricultural land" as used here is understood to include rotated pastureland (except permanent pasture), all presently cultivated land including cropland, haylands, truck gardens, specialty crops, and land in government agricultural set-aside programs.

"Permanent pasture" as used here includes land devoted exclusively to pasture use, and not suited to tillage or crop rotation, as determined by the lack of any sustained crop history. "Construction area(s)" as used here includes all permanent or temporary workspace areas to be used by the Company for the

purpose of constructing and operating the project, as well as lands on which aboveground facilities or other appurtenances related to the project will be located.

AGRICULTURAL INSPECTOR ROLE AND QUALIFICATIONS

The Company will have a project Construction Manager (CM) and an Environmental Manager (EM) for the project. To assist with on-site inspection and monitoring, the Company may also have one or more individuals designated as the project Agricultural Inspector (AI).

The person designated as the AI will be a qualified individual who will monitor the implementation of the AMP. The AI will have familiarity with agricultural operations and general construction, as well as knowledge of agronomy and soil conservation.

The AI will be thoroughly familiar with the following:

- Agricultural Mitigation Plan; and
- gas lateral construction sequences and processes.

They also will:

- be familiar with techniques of soil conservation;
- be familiar with agricultural operations;
- possess good oral and written communication skills; and
- be able to work closely with the agricultural landowners, tenants and applicable agencies.

Contractors will be required to structure their construction activities to be consistent with the AMP.

AGRICULTURAL MITIGATION: PLANNING AND PRE CONSTRUCTION PHASE

The Company will communicate as needed with affected landowners and tenants of agricultural land to keep them informed of overall progress, explain mitigation actions, and to learn of any additional problems noted by landowners. No later than 30 days prior to the start of construction, the Company will provide landowners with a telephone number and address that can be used to contact the Company (also known as the Hotline Number). The phone number will include provisions for taking calls on evenings and weekends by use of an answering machine or voicemail system. The Company will respond promptly to calls or correspondence from landowners or tenants along the utility easement and/or right-of-way. Where the Company needs to consult or obtain concurrence from both the landowner and tenant of a property, they will make a good faith effort to do so. In the event, there is a disagreement between landowner and tenant with regards to a decision, the Company's obligation will be satisfied by securing an agreement with the landowner.

The Company will provide notice of any permanent changes in the status or use of agricultural lands to WDATCP at least 60 days prior to the beginning of construction.

The Company will develop training and implementation plans prior to construction.

At least 90 days prior to construction, the Company will provide WDATCP with available information collected for the project Corridor on:

- Areas of cropland, pasture and specialty crops, including orchards, and fields with irrigation systems;
- Location of valve sites, meter and regulating stations, and other aboveground facilities, if any;
- Location of any known temporary access roads and laydown/storage areas. If additional areas are required for temporary construction use to the extent practicable, the Company will identify suitable areas and provide this information to WDATCP prior to construction; and
- This information will be provided with the understanding that locations of some facilities or their locations may be adjusted at a later date based on site specific conditions used at the site.

The Company will work with landowners to ascertain existing agricultural operations that may require special attention, such as conservation practices, location of above and below ground structures or obstructions, such as drain tile, irrigation systems, fencing, livestock, certified organic lands, proposed new drainage systems or other farm technology.
During the pre-construction phase, the Company will:

- Contact each landowner to obtain property specific information (such as drain tiles, conservation practices, etc.) to ensure these structures/ operation practices are noted on construction documents;
- Review agricultural related project documents such as descriptions or maps of leased lands, permits, draft construction alignment sheets, and relevant plans prior to construction;
- Review information supplied by affected farm operators, conservation districts, agricultural extension agents, and others;
- Educate construction crews through an environmental training session, to ensure they are familiar with AMP, agricultural concerns and issues that may occur; and
- Negotiate with the farmland owner/operators to avoid the spreading manure over all areas within the proposed construction area prior to construction.

If any construction activities occur on a Certified Organic Farm, the Company will work with the landowner or tenant, the landowner and/or tenant's certifying agent to identify site-specific construction practices that will minimize the potential for decertification as a result of construction activities. Possible practices may include: surveying/staking methods prior to construction (specifically non paint methods), equipment cleaning, use of drop cloths during welding and coating activities; removal and storage of additional topsoil; planting a deep-rooted cover crop in lieu of mechanical decompaction; applications of composted manure; or similar measures. The Company recognizes that Organic System Plans are proprietary in nature and will respect the need for confidentiality.

AGRICULTURAL MITIGATION: CONSTRUCTION AND RESTORATION PHASE

During construction and restoration, the AI's role is to monitor the implementation of the Company AMP to avoid negative impacts to agricultural lands by advising the appropriate Company representative, either the EM or the CM, in the event incorrect construction methods are being used. The AI will generally be present on-site during construction, and will have access to all work areas in agricultural lands. The AI will travel between various construction activities in agricultural lands and spot check construction operations. If the AI discovers actions that do not appear to meet the AMP requirements, he may stop-work at that location if necessary and will immediately contact the EM or the CM who will determine if site-specific restoration action is necessary. They will also ensure that the erring contractors are trained in the appropriate construction methods.

In the event adverse weather conditions cause soil conditions to become unfavorable for construction or restoration activities at a given site, the AI will consult with the EM or the CM to temporarily halt activity at that location and will confer with them as to when activities should be resumed at the site.

AGRICULTURAL MITIGATION: CROP COMPENSATION

The Company will compensate the landowner for crop loss; compensation will be based on crop prices and yields for the County at the time of construction. Crop loss will occur during the construction of the project, which, depending on the timing of construction activities, may include one or two growing seasons. Payments will be made to landowners as soon as possible after construction is completed.

If the landowner rents or leases out the land to a tenant farmer (renter), then the renter will be compensated in lieu of the landowner.

BEST CONSTRUCTION MANAGEMENT PRACTICES

The Company requires those working on the project to research, plan, implement, monitor, and assure the proposed results are obtained. The Company relies on these methods to identify agricultural concerns and implement measures to maintain agricultural productivity throughout construction and restoration. Appropriate use of these measures are assured by key field personnel such as the AI and the Company EM, CM, and Construction Inspector (CI). Additionally, the Company seeks to only use contractors with a consistent favorable history of installing and maintaining measures according to the best management practices (BMPs). Thus, permit conditions, landowner satisfaction, and natural resources are preserved. The Company will incorporate the applicable provisions of this AMP and accompanying BMPs into all bid documents and contracts with each contractor retained on this Project by the Company for construction, restoration, mitigation or post-restoration monitoring. Each contractor retained by the Company for the Project must also incorporate the applicable provisions of the AMP into their contracts with each subcontractor.

The Company utilizes construction techniques within agricultural areas that will insure future agricultural productivity. The following construction methods are to be utilized in agricultural areas:

a. Topsoil Segregation

During construction of the gas main, topsoil will be removed from the construction area and stockpiled separately from any other excavated soils. This will preserve the topsoil resource by eliminating the potential for topsoil/subsoil mixing. Topsoil is defined to include the upper most portion of the soil commonly referred to as the plow layer, the A horizon, or its equivalent in uncultivated soils. It is the surface layer of the soil that has the darkest color or the highest content of organic matter. All of the topsoil to a depth of 12 inches, or the entire original topsoil depth if it is less than 12 inches, will be removed from excavated areas; however, topsoil will not be removed from under the topsoil storage piles. The Company has the option to remove amounts of topsoil in excess of 12 inches at its discretion.

The gas main will be installed via open cut trench, "plow" method and directional boring. The plow method of installation consists of using a vibratory plow which slices the soil open, allows installation of the pipe into the trench, and then replaces the soil into its original location. The horizontal directional bore method consists of pipe installation using an auger to drill an underground tunnel, into which the pipe is drawing. The plow and bore method do not disturb the soil horizons. Open cut trenching will require separation of top and subsoils during excavation. For all excavations, top and subsoils will be replaced in their original soil horizons when backfilling. Landowners will be asked to refrain from manure spreading prior to topsoil removal. Erosion control measures will be used as necessary.

b. Temporary Access Road

The Company will attempt to utilize existing farm roads for access to and from the right-of-way where possible. In places where temporary access roads are constructed over agricultural land, topsoil will be stripped and temporarily stockpiled. If the temporary roads in agricultural lands require gravel stabilization, geotextile construction fabric will be placed below imported rock material for additional stability and to provide a distinct barrier between imported rock material and the subsoil surface.

Temporary roads will be designed to accommodate existing surface drainage patterns and to minimize soil erosion. During the restoration phase, both temporary and pre-existing access roads will be removed and the areas will be restored as close as reasonably possible to its pre-construction conditions. In the event the landowner wants the road left intact, a written mutual agreement between the Landowner and the Company will be established.

c. Clearing of Brush and Trees from the Easement

The Company will work with each landowner for the cutting of merchantable timber necessary for construction of the gas distribution system. Timber may be cut and left along the edge of the utility right-of-way for the landowner's use or disposed of in various methods. Methods of disposal of trees, brush, and stumps may include off-site burning, burial, chipping, or removal. Vegetation from cherry and walnut trees can be toxic to livestock. All debris from these trees

will be removed from areas that are actively pastured such that it will not be allowed to come into contact with livestock and may not be stockpiled on site.

d. Fencing

Prior to construction, the Company will work with landowners to determine if fences may be in the way of access for construction equipment. If necessary, existing fences may be removed and temporary fencing will be installed. Wire tension on temporary fences must be adequate to prevent sagging. Bracing of fences to trees or vegetation is prohibited. Fence materials, such as paint, must not be used as it is toxic to livestock.

Where livestock graze adjacent lands to construction areas, arrangements will be made with the landowner prior to construction to determine if temporary fences are necessary. The Company's contractors will be responsible to close any gates as used throughout the workday.

Existing fence crossings removed due to construction activities will be repaired. Following construction, any temporary gates and fences installed for use by construction crews must be removed, unless the landowner approves otherwise. Permanent fences will be restored as closely as reasonably possible to their pre-construction condition.

e. Irrigation Systems

If project construction intersects an operational irrigation system on agricultural land, the Company and the landowner will establish a mutually acceptable amount of time that the affected irrigation systems may be taken out of service during construction. Water flow in irrigation systems on agricultural land is not to be disrupted by construction without first notifying affected landowners. Any damage to an irrigation system caused by construction will be repaired as soon as reasonably possible.

f. Erosion Control and Dewatering

Erosion controls such as silt fence, staked hay bales, and erosion matting will be used to prevent surface runoff from carrying sediment laden water onto adjacent lands. Dewatering may be required to remove standing water from trench or bore pit areas. Erosion control and dewatering technical standards are described on the Wisconsin Department of Natural Resources website (http://dnr.wi.gov/topic/stormwater/standards/). These standards will be met or exceeded at all times. It is not permissible to allow soil or water runoff to occur from non-organically farmed fields onto organically farmed fields at any time even if both fields are owned by the same landowner.

g. Drain Tile

The Company will work with each Landowner through the pre-construction process to determine location of known drain tiles. If a drain tile is damaged or severed in the course of construction, the tile will be repaired. A temporary repair with solid tubing to allow drainage

while construction activities are completed may be used, or a permanent repair immediately installed.

Prior to backfilling soils at that location, the drain tile will be permanently repaired. Repairs may include support of the tile to maintain proper drainage gradient, replacement of tile and placement of subsoils free of large rocks and clumps around the tile to cushion it, and/or placement of filter cloths. Each repair will be documented to show proper actions have been taken to ensure future drainage and GPS coordinates of the repair location recorded.

h. Weed Control

Where the AI sees evidence that weed growth on stockpiled topsoil could present a problem to adjacent cultivated fields the AI will consult with the Company Representative to have the weeds removed or killed prior to topsoil replacement. If the Company chooses to spray the topsoil pile with herbicide, the landowner will be consulted in regard to the choice of herbicide to be used, taking into account their preference for cover crop and plans for the next year's crop. If any herbicide spraying is completed, it will be done by a state licensed applicator.

i. Repair of Existing Agricultural Erosion Control Facilities

Existing agricultural facilities, such as diversion terraces, grassed or lined waterways, outlet ditches, water and sediment control basins, vegetated filter strips, etc., damaged due to construction activities will be restored to pre-construction conditions. Photographs and elevation surveys may be taken as necessary prior to construction activities at the site to ensure final restoration is satisfactory.

j. Soil Restoration

The purpose of soil restoration is to ensure that soil strata are replaced in the proper order, decompacted, and that rock content of the upper 24 inches of soil is not increased. The Company will discuss rock and excess soil disposal with the landowner to determine acceptable disposal location(s) on the property. Heavy equipment will not be allowed to cross those agricultural areas that have been decompacted and restored.

<u>De-compacting the Subsoil:</u>

De-compaction of the subsoil will only be done when the subsoil condition is friable/tillable in the top 18 inches of the subsoil profile, using the Atterbeg Field Test as guidance (Attachment A). The AI may recommend to the Company specific locations for the decompaction of the subsoil in locations where soils appear to be either predominantly wet or in low lying areas where water ponding has occurred due to the "trench effect" as a result of topsoil removal. In these cases, the Company may consult with the landowner to determine the appropriate decompaction needs.

Equipment that can be used for soil decompaction may include a v-ripper, chisel plow, paraplow, or equivalent. Typical spacing of the shanks varies with equipment but is typically in

the 8 to 24 inch range. The normal depth of tillage is 18 inches. The type of equipment used and the depth of rip may be adjusted as appropriate for different soil types or for a deeply and severely compacted area.

Subsoil compaction will normally be alleviated with three passes of the decompaction equipment. Multiple passes refers to the implement passing over the same soil band. That is, three passes of a 10 foot wide implement will treat a 10 foot wide band of soil, not a 30 foot wide band. Passes must be made in multiple directions. This can be achieved in the narrow areas by having the implement weave back and forth across the area being ripped.

Topsoil Replacement:

The topsoil will be replaced to its original depth across the spoil storage, trench, work, and traffic areas. The layer of replaced topsoil should be uniform across the right-of-way width, including any crowning. Topsoil should be replaced with wide tracked machinery or equivalent light loaded equipment to avoid compaction of the topsoil and subsoil layers. Rubber tired motor graders may be used to spread and level topsoil to address unevenness in the field. In areas where minimal tillage, no-till, or level land farming practices are employed, a tracked machine will be required to establish final grades.

De-compacting Through the Topsoil:

De-compaction through the topsoil may be necessary, if the subsoil and/or topsoil are compacted during topsoil replacement activities. A penetrometer will be used to determine if additional decompaction is necessary through the topsoil.

Final Rock Removal:

Replacing the topsoil (or de-compacting through the topsoil) may free some rocks and bring them to the surface. The size, density and distribution of rock remaining on the construction work area should be the same as adjacent areas not disturbed by construction.

Final Cleanup:

All previously restored construction area should not be traversed by unnecessary equipment traffic. All construction related debris, including litter generated by the construction crews, will be removed from the landowner's property and disposed of appropriately. Final clean-up begins immediately after all the other above-mentioned sequence of restoration activities operations are completed, and not before. Final clean-up includes installation of permanent erosion control measures if necessary and disposal of construction debris and will be completed as soon as practicably possible (weather permitting), or as soon as possible thereafter. If final clean-up is delayed, temporary erosion controls will be installed as necessary.

ATTACHMENT A

Purpose: To determine when soil is suitable for tillage operations.

Process: The Agricultural Inspector will determine the soil's consistency using the following:

1. Pull a sample soil plug at the maximum depth to be tilled, or from within the topsoil pile.

2. Roll a portion of the sample between the palms of the hands to form a wire with a diameter of one-eighth inch.

3. The soil consistency is:
    a. Tillable if the soil wire breaks into segments not exceeding 3/8 of an inch in length.
    b. Plastic (not tillable) if the segments are longer than 3/8 of an inch before breaking.

4. This procedure is to be used prior to decompacting the subsoil; on the topsoil pile prior to stripping and stockpiling; on the topsoil prior to replacement; and prior to decompacting through the topsoil.

5. One determination of soil consistency is adequate until the next rain event.

Best Management Practices for Construction within Agricultural Lands
BMP 01 - Right-of-Way Width

Purpose: To define the locations and limits of rights-of-way and additional temporary workspaces, in order to minimize the impacts to agricultural lands.

Organization: WISCONSIN GAS onsite construction inspection personnel will monitor and enforce the measures described, in concert with the Agricultural Inspector (AI), for pipeline construction operations within agricultural lands.

Installation Planning

1. WISCONSIN GAS will determine the required right-of-way widths over the length of lands traversed by the pipeline, including extra workspaces.
2. WISCONSIN GAS will show the specific limits of rights-of-way on alignment sheet drawings which will be provided to the construction contractor, environmental consultants and inspection personnel.
3. WISCONSIN GAS will provide the construction contractor, environmental consultants and inspection personnel with the right-of-way configuration drawings and other figures referred to by the BMPs developed for the project.
4. WISCONSIN GAS will obtain the appropriate environmental and right-of-way clearances prior to entry on any land affected by construction of the pipeline, or notify all parties of areas of special concern or areas for which clearance is withheld.

Construction

1. The limits of the right-of-way and all additional temporary workspaces will be staked prior to work commencing at that location.
2. For Construction Easements in Agriculture Lands a right-of-way width of 100 foot is required and topsoil stripping will be the complete right-of-way width excluding the topsoil stockpile area. This consists of a 50 foot temporary construction easement and a 50 foot permanent easement. The running centerline of the pipeline will generally be 15' from one side of the 50 foot permanent easement. See Construction Figures, Detail 27.

3. For Construction Easements in non-cultivated Wooded Lands or Wetlands a right-of-way width of 75 feet is required. This consists of a 25 foot temporary construction easement and a 50 foot permanent easement. Where feasible existing corridors are being utilized to reduce the impact of tree clearing. In areas where the gas main will be installed by horizontal directional drilling a 50 foot permanent easement will be required but the 25 foot temporary easement will not be necessary.

4. Additional temporary workspace will be required for stream crossings, road bore crossing areas, uplands on either side of wetlands, and equipment turnaround areas. WISCONSIN GAS will determine the amount of additional right-of-way needed for construction and restoration on agricultural land as per these BMPs.
5. Should a situation arise where the approved workspace is not adequate to implement the agricultural BMPs, work will be stopped at the respective location until WISCONSIN GAS determines an appropriate course of action. For example, triple lift soil segregation may require an additional 25 feet in the temporary construction easement as necessary to allow separation of the three stockpile areas.

Best Management Practices for Construction within Agricultural Lands
BMP 02 - Topsoil Segregation

Purpose: To preserve the topsoil resources by eliminating the potential for topsoil / subsoil mixing in agricultural lands.

Installation Planning

1. During right-of-way negotiations for easements on agricultural lands, WISCONSIN GAS will identify full topsoil removal as the only alternative.

2. The topsoil is defined to include the upper most portion of the soil commonly referred to as the plow layer, the A horizon, or its equivalent in uncultivated soils. It is the surface layer of the soil that has the darkest color or the highest content of organic matter.

Construction

Full Topsoil Removal

1. The WISCONSIN GAS operator or construction contractor will oversee determination of the topsoil depth. This will be completed as construction progresses.
2. All of the topsoil to a depth of 12 inches, or the entire original topsoil depth if it is less than 12 inches, will be removed from the subsoil storage area, the trench area, and the rest of the temporary right-of-way (work and traffic areas); however, topsoil will not be removed from under the topsoil storage piles or areas where construction mats are laid on the surface for material storage or equipment travel. WISCONSIN GAS has the option to remove amounts of topsoil in excess of 12" at its discretion.
3. All subsoil material removed from the pipeline trench will be stockpiled separate from the topsoil stockpile. The subsoil material will be stockpiled in the subsoil storage area.
4. Additionally, all topsoil to a depth of 12-inches will be stripped from newly constructed temporary access roads, temporary storage areas, and temporary construction areas associated with stations, mainline valves, and pig launchers located on agricultural land. It is intended that existing field access roads will not be stripped of any existing cover.
5. Topsoil will be removed prior to cut/fill grading operations.

Partial Topsoil Removal

1. There will be no Partial Topsoil Removal on agricultural lands.

Purpose: To minimize the effects of erosion to lands affected by construction, and adjacent properties, and to prevent silts and sediments from being transported off the right-of-way or into natural resources.

Installation Planning

1. WISCONSIN GAS will conduct training of inspection personnel and contractors to ensure all parties have a thorough understanding of the erosion control requirements to be utilized on the project. The training will include a review of the requirements of WISCONSIN GAS Sparta Lateral Project Construction Diagrams AMP, and BMPs. Such training will identify the authorities of the inspection personnel, the criteria for placement of the particular erosion structures, and the procedure to be followed in the event that a violation of these practices appears to have occurred.

2. WISCONSIN GAS will advise the construction contractor of all known areas of special concern.

3. WISCONSIN GAS will require its construction contractor to structure its work in a manner that is consistent with the requirements of the documents listed in Paragraph 1 above, and to maintain an adequate supply of approved erosion control materials necessary for providing an appropriate level of control.

Construction

Temporary Erosion Control

1. Temporary erosion controls will be constructed after initial disturbance of the soil, and will be properly maintained throughout construction. The erosion control structures will be inspected as described below and reinstalled as necessary (such as after backfilling of the trench) until they are either replaced by permanent erosion controls or restoration is complete.

2. Temporary slope breakers will be constructed where necessary to reduce runoff velocity and divert water off of the construction right-of-way. Temporary slope breakers may be constructed of materials such as soil, silt fence, staked hay or straw bales, sand bags, or wattles.

3. Unless otherwise specified as a permit condition, temporary slope breakers will generally be installed using the following spacing:

Slope %	**Spacing (feet)**
5 - 15	300
>15 - 30	200
>30	100

4. The outfall of each temporary slope breaker will be directed off the construction right-of-way to a stable, well-vegetated area or energy-dissipating device at the end of the slope breaker and off the construction right-of-way. Discharge of water shall not be made in a way that can runoff from non-organic farm operations onto adjacent organic farm operations.

5. The integrity of slope breakers will be confirmed, during active construction on a daily basis and during inactive construction on a weekly basis. In areas with no construction or equipment operation, integrity of slope breakers will be confirmed within 24 hours of each 0.5-inch of rainfall. Slope breakers found to be ineffective will be repaired within 24 hours of identification.

6. The placement of temporary slope breakers will be coordinated with the placement of trench/ditch plugs. Trench/ditch plugs will be installed at the boundaries of certified organic farming to ensure that the pipeline does not provide a surface or subsurface drainage path from the surrounding area to the certified organic farm during construction.

7. Slope breakers will be of adequate height and width to contain and divert a significant rain event. Additionally, slope breakers will be constructed with a two to eight percent outslope to a stable area. In the absence of a stable area, appropriate energy-dissipating devices will be used to direct the flow off of the construction right-of-way. The slope breaker will be compacted during its construction to prevent the water from eroding through the berm. The inlet end of the berm will be located to prevent water from traveling around the berm.

8. The outlet of the slope breaker will be stable enough to filter sediment from the water and retain the sediment within the existing vegetation.

Sediment Barriers

1. Sediment barriers will be installed to stop the flow of sediment. They may be constructed of materials such as silt fence, staked hay or straw bales, sand bags, wattles, or equivalent.

2. Temporary sediment barriers will be installed at the base of slopes adjacent to road crossings until disturbed vegetation has been reestablished and at appropriate locations to prevent siltation into water bodies or wetlands crossed by, or near, the construction work area.

3. Temporary sediment barriers will be maintained until permanent revegetation measures are successful or the upland areas adjacent to wetlands, water bodies, or roads are stabilized. Temporary sediment barriers will be removed from an area when that area is successfully restored

Mulch

1. In general, mulch will not be used as an erosion control measure in agricultural lands. In the event mulch is required by WISCONSIN GAS in consultation with the landowner in agricultural lands, the mulch will be applied according to We-Energies Erosion Control Standards and Procedures.

Permanent Erosion Control Devices

1. To prevent subsurface flow of water through the pipe trench, trench breakers will be installed.

2. The following reference table can be used to locate trench breaker spacing on areas with slopes greater than 5%.

Slope (%)	**Spacing Recommendations (feet)**
5 – 15	300
>15 - 30	200
> 30	100

3. When permanent trench breakers are installed in the trench prior to backfilling, they will consist of sandbags, earth-filled sacks or other approved material. Topsoil will not be used for trench breakers. Trench breakers are required to have a minimum bottom width of two sacks wide.

4. Trench breakers will be installed to a minimum elevation of one-foot above the top of the pipe. The top of the trench breaker must be two feet or more below the restored surface on agricultural land.

Best Management Practices for Construction within Agricultural Lands
BMP 04 - Drain Tile

Purpose: To ensure that any tile line damaged during construction is repaired to a condition that is functionally equivalent to its condition prior to construction and to avoid adverse impacts to planned or proposed drainage systems.

Installation Planning

1. Identify fields containing drain tiles through contact with landowners, the local Land Conservation District, and the USDA-Natural Resources Conservation Service staff. All drain tiles will be photographed and GPS documented pre-construction and post-construction.

2. Flag all identified drain tiles within the right-of-way after clearing and grading, and prior to trenching.

3. WISCONSIN GAS will document proposed drain tile plans that the landowner may plan to install within the three years following construction.

4. WISCONSIN GAS will identify local drain tile installation contractors and consult with the landowner to determine whether the landowner would prefer repair/replacement services (if necessary) be provided by a local contractor.

5. WISCONSIN GAS will document existing moisture content.

Construction

1. The excavated pipeline trench shall provide a minimum of 12 inches clearance, where practicable, between the pipe and the drainage tile.

<u>General Conditions</u>

1. WISCONSIN GAS will use the construction contractor or their sub-contractor to replace, relocate or reconfigure existing tile lines as may be required.

2. WISCONSIN GAS will take the necessary actions to ensure the functioning of the tile lines will be equivalent to its prior condition where tile lines adjacent to the pipeline's right-of-way are adversely affected by the construction of the pipeline. This may include the relocation, reconfiguration, and replacement of the existing tile lines within the construction corridor. The repaired drain tile will be verified that it was installed correctly and WISCONSIN GAS will make an effort to understand the existing conditions within the limited pipeline ROW.

3. The quality of all clay and concrete drain tile and corrugated polyethylene tubing to be installed shall be appropriate for the work as determined by the AI and/or qualified drain tile repair contractor. Material to be installed will meet American Society of Testing Materials (ASTM) standards.

4. Any drain tile removed from the pipeline trench will not be reused.

5. WISCONSIN GAS will repair or correct tile or drainage problems caused by construction of the pipeline immediately, upon written notice from the landowner to WISCONSIN GAS of such a problem, unless WISCONSIN GAS can demonstrate that the problem identified by the landowner was not caused by actions performed during such construction or restoration. WISCONSIN GAS may arrange a pay settlement to the landowner.

<u>Locating Damaged Drains</u>

1. All drains found during trenching will be flagged.

2. Drains that are located within the right-of-way, but are not located within the trench, will be probed (examined) for damage.

Temporary Repairs

1. All exposed tiles will be capped or screened with window screen or equivalent to protect against soil intrusion when the trench is dug, whether repaired immediately or later.

2. Any flowing tile line will be repaired as soon as practicable with solid tubing, until permanent repairs can be made.

3. Temporary repairs are needed if a flowing drain will be stopped for longer than 24 hours.

Permanent Repairs

1. All permanent tile line damaged within the trench area will be repaired prior to backfilling at the respective location.

2. Where tile lines are severed by construction of the pipeline trench, angle iron, three-sided steel channel iron, I-beams, full round slotted pipe, perforated plastic pipe or half pipe will be used to support the repaired tile line. The support members must extend a minimum of 2-feet into previously undisturbed soil. If the tile repairs involve clay tile, the support member will extend to the first tile joint beyond the minimum 2-foot distance.

3. Each tile drain's slope (gradient) will be maintained by providing sufficient support to prevent the drain line from sagging. Sandbags, bags of concrete, Sakrete, or equivalent can be used as support under repaired tile lines. The grade of the tile line should remain unchanged.

4. If the tile is clay, ceramic or concrete, any connection with new material must be made with commercially available connectors, or wrapped with plastic or effectively sealed to prevent soil intrusion.

5. To avoid the risk of damaging (crushing) the tile lines with large soil clumps or stones during backfilling loosened native subsoil free of large soil clumps and stones should be placed on top of, and to the sides of, the tile line. Where appropriate native subsoil is not available, imported subsoil free of clumps and stones, or pea gravel, can be used to cushion the tile line.

6. Filter-covered drain tiles will be used where the existing tile line is covered with a filter.

Best Management Practices for Construction within Agricultural Lands
BMP 05 - Trench Dewatering

Purpose: Pump water from an open trench or other excavated area while controlling the rate of discharge to avoid:

- Permanent or temporary erosion and scour;
- Damage to adjacent agricultural land, crops, or pastureland;
- Inundating crops for more than 24 hours, including rainfall;
- Depositing sand, silt, or sediment in or near a wetland or waterbody;
- Depositing gravel in fields, pastures, or watercourses; and
- Damaging cultural resources sites, locations of sensitive plant species and organic farming operations.

Typically, the trench will need to be dewatered for purposes of, but not limited to, tie-ins, measuring the trench for bends, lowering-in pipe, trench inspection, and back-filling the trench. Water discharge from hydrostatic testing following backfilling shall follow the same protocols described here when applicable.

Installation Planning

1. Water will be discharged in an upland area so any sediment, stones, and silt-laden water will not deposit material in a sensitive area adversely impacting the hydrology or plant communities. The contractor should have sufficient intake or outlet hose (250 - 350 feet) to reach the nearest appropriate upland area.

2. WISCONSIN GAS and their construction contractors will identify during construction activities:

    - Low areas along the pipeline route that are likely to collect water during construction, and
    - Suitable areas for the discharge of water accumulated within the pipe trench or other excavated area
    - Identify accumulated water that needs to be discharged as construction progresses

3. WISCONSIN GAS will require its construction contractors to obtain:

    - WISCONSIN GAS approval of all off-right-of-way and on-right-of-way discharge locations and techniques, and all trench dewatering discharge locations and techniques
    - WISCONSIN GAS may obtain voluntary permissions with landowners

4. WISCONSIN GAS will require its construction contractors to structure the work to minimize the accumulation of water within the trench.

5. In the event it is not possible to avoid water-related damages as described above, WISCONSIN GAS will:

    - Reasonably compensate the landowner for the damages, and
    - Restore the cropland and crops, pastureland, water courses, and any other damaged lands to their pre-construction condition.

Construction

1. All dewatering activities will be conducted in compliance with current drainage laws, local ordinances relating to such activities, WDNR permit conditions, and the provisions of the Clean Water Act.

2. Rainwater or groundwater that collects in the trench will be pumped:

    - Onto a well-vegetated area that will prevent the water from returning to the right-of-way, or
    - Into a filter bag or a settling basin constructed of straw bales when adequate vegetation is absent or when in the vicinity of a wetland or waterbody.

    Additionally, sediment barriers or similar erosion control measures may be used as necessary to divert the flow of pumped water.

3. To minimize the extraction of silt or sediment from the trench the intake will be prevented from touching the bottom or side of the trench. A flotation device or a support will be attached to the intake of the suction line to prevent sucking up soil and other debris from the trench.

4. All structures will be located in a stabilized and vegetated area with a minimum buffer width of 100 feet between it and any adjacent water body or wetland area. Sediment barriers or similar erosion control measure will be installed if an adequate buffer is not available.

5. Preferably, dewatering efforts will not deliver water onto cropland. If it is absolutely necessary to do so, the crops will be inundated (flooded) less than 24 hours.

6. The dewatering activities will not deposit gravel, sediment (mud) or other debris in fields, pastures, or watercourses.

7. Dewatering sites will be selected, and structures and slope breakers will be installed, to ensure that water is not directed into known cultural resources sites or locations of sensitive plant communities.

8. Backfill activities will begin as soon as possible after pipe installation to prevent the trench from refilling with water in high water table conditions. Attempts to dewater as far from the back-filling activity as possible will be made.

9. Dewatering will be monitored and stopped, if necessary, to correct conditions and practices that do not comply with this best management practice.

10. Discharge of water from the trench of non-organic farm operations and hydrostatic testing shall not be made in a way that can runoff onto adjacent organic farm operations.

Best Management Practices for Construction within Agricultural Lands
BMP 06 - Soil Restoration

Purpose: To restore the contour and to ensure the quality and agricultural productivity of the soil by:

- Avoiding the mixing of the topsoil with the subsoil, and
- Eliminating compaction from the subsoil and topsoil layers, and
- Assuring the rock content of the upper 12-inches of topsoil and subsoil is not increased after completion of the construction and restoration process.

Installation Planning

1. WISCONSIN GAS will identify, through consultation with the landowner, all rock disposal location(s) on the ROW or adjacent to the ROW. This location can be on the construction right-of-way of the landowner's property. Written permission from the landowner is required for disposal at another site on the farm.

2. WISCONSIN GAS will consult the landowner about properly disposing of excess excavated material to maintain agricultural productivity.

3. Successful restoration of the soil requires that the proper equipment be used, in the proper sequence, under the correct soil moisture content conditions. Each step in the restoration process is completed before moving to the next step. De-compaction will occur as determined necessary by the Agricultural Inspector (AI) and in consultation with the contractor and landowner.

4. Heavy equipment will not be allowed to cross those agricultural areas that have been de-compacted. In the event any area of previously restored right-of-way that is traversed by equipment for any reason (e.g. to reach a hydrostatic test location) which results in further compaction, the area will be appropriately restored.

Construction:

Backfilling

1. After installation of the pipeline is complete, the trench materials will be backfilled in the order in which they were removed.

Crowning the Trench

1. Crowning the trench area will compensate for ground settling or subsidence. The crown shall be constructed with native topsoil material. Topsoil from adjacent ROW areas will be used (if needed) for crowning to avoid the potential for mixing of subsoil and topsoil in the event settling is overestimated. The AI will determine the height of the crown based on soil type and moisture content. Breaks will be left in the crown to accommodate existing surface drainage systems while the crown settles over the first year post construction.

2. Crowning the trench will be used when necessary and performed per WISCONSIN GAS standards.

3. If in the first growing season post-construction the landowner determines that the crown area may have settled too much or too little and is causing a problem with agricultural activity, WISCONSIN GAS will consult with the landowner to determine what corrective action may be needed to restore the crown area to its pre-construction topography and productivity.

De-compacting the Subsoil

1. Deep subsoil ripping shall be carried out on all traffic and work areas of agricultural right-of-way where full corridor stripping of topsoil occurred. This includes the pipeline workspaces, temporary workspaces, and temporary access roads. It does not include the area over the trench.

2. De-compaction of the subsoil will only be done when the subsoil condition is friable/tillable in the top 18-inches of the subsoil profile as determined by the AI. The AI, using their best judgment, may need to allow the de-compaction of the subsoil in areas where soils appear to be either predominantly wet or in low lying areas where water ponding has occurred due to the "trench effect" as a result of topsoil removal. In these cases the AI will consult with, and receive approval from, the landowner or tenant.

3. Ripping equipment to be used will be selected based on successful use on previous pipeline projects such as the v-ripper, chisel plow, paraplow, or an equivalent. WISCONSIN GAS may, at their discretion, choose to compensate the landowner to chisel plow his impacted land(s).

4. The normal depth of tillage is 18-inches. The AI will provide guidance on the appropriate depth of rip in special situations or soil types. For example, a depth of 6 to 8-inches may be appropriate on intensively drained mineral (lacustrine/alluvial) soils. A depth of 22-inches may be appropriate for a deeply and severely compacted area.

5. The optimal spacing of the shanks will depend on the ripping equipment, soil type and moisture content, but will typically be in the range of 8 to 24-inches. Shanks are at their optimum spacing when the implement shatters the soil area between the shanks. Shatter is evidenced by the soil lifting between the shanks as the implement passes. The AI can assist the contractor in selecting the appropriate shank spacing.

6. Subsoil compaction will normally be alleviated with three passes of the de-compaction equipment. Multiple passes refers to the implement passing over the same soil band. That is, three passes of a 10-foot wide implement will treat a 10-foot wide band of soil, not a 30-foot wide band.

7. Passes must be made in multiple directions. This can be achieved in the narrow pipeline right-of-way by weaving the implement back and forth across the area being ripped.

8. If de-compaction was not successful, the de-compaction effort will continue. The contractor is required to make as many passes as necessary to alleviate compaction. If the de-compaction effort is not successful after additional passes, a change in the de-compaction equipment used would be appropriate, and determined with guidance from the AI.

Topsoil Replacement

1. The topsoil will be replaced to its original depth across the spoil storage, trench, work, and traffic areas. The layer of replaced topsoil should be uniform across the right-of-way width, including the crown over the trench.
2. Topsoil should be replaced with small tracked machinery or equivalent light loaded equipment to avoid compaction of the topsoil and subsoil layers. Rubber tired motor graders may be used to spread and level topsoil to address unevenness in the field due to pipeline construction. In areas where minimal tillage, no-till, or level land farming practices are employed, a motor grader will be required to establish final ROW grades.

De-compacting Through the Topsoil

1. De-compaction through the topsoil may be necessary if the subsoil and/or topsoil are compacted during topsoil replacement activities.

Final Rock Removal

1. Replacing the topsoil (or de-compacting through the topsoil) may free some rocks and bring them to the surface.
2. The size, density and distribution of rock remaining on the construction work area should be the same as adjacent areas not disturbed by construction

Final Cleanup

BMP 06 - Soil Restoration - continued

1. Any area of previously restored right-of-way should not be traversed by unnecessary equipment traffic. All construction-related debris, including litter generated by the construction crews, will be removed from the landowner's property and disposed of appropriately.
2. Final clean-up begins immediately after all the other above-mentioned sequence of restoration activities operations are completed, and not before. Final clean-up includes installation of permanent erosion control measures and disposal of construction debris and will be completed within 14 days after backfilling in the area, weather permitting, or as soon as possible thereafter. Final clean-up shall not be delayed until the end of the next seeding season. If final clean-up is not completed within the 14-day time period, temporary erosion controls will be installed.

Best Management Practices for Construction within Agricultural Lands
BMP 07 - Seeding and Seed Bed Preparation

Purpose:

1. To place the seed into the soil at the correct time and proper depth to promote sufficient seed-soil contact on cropland or pasture requiring seeding.
2. To prepare the soil surface of an exposed area by natural or artificial means, such as tilling and fertilizing.
3. To minimize topsoil erosion on disturbed agricultural areas.

Installation Planning

WISCONSIN GAS will reseed over the entire right-of-way following final clean-up. WISCONSIN GAS will not apply seed to certified organic farms, prior to consulting with the landowner regarding how reseeding will be accomplished.

1. WISCONSIN GAS will attempt to identify properties during the pre-construction phase where cropland seeding procedures or pasture seeding procedures will be used.
2. During recommended seeding periods, seedbed preparation should immediately follow soil restoration as soon as weather conditions and individual right-of-way requirements permit.
3. Seeding will be completed immediately after finishing seedbed preparation, weather permitting. Temporary erosion control measures will be used if this timeframe cannot be met.
4. For seeding outside of the recommended seeding periods, temporary erosion control methods will be used.
5. WISCONSIN GAS will consult with the landowner to determine the seed mix, if appropriate.

Construction

Seed Selection

1. An annual oat, wheat, or similar grain will be used for erosion control on crop land and a special pasture seeding mix will be used for all pastures.

Seedbed Preparation for Conventional, Broadcast and Hydroseeding

1. The ideal condition for conventional seeding is a smooth, firm, clod-free soil for optimum seed placement with drills or cultipacker seeders, if appropriate for that type of seed. The soil should be firm enough at planting for an adult footprint to sink no deeper than 3/8-inch. Avoid overworking the soil because rainfall following seeding may crust the surface, preventing seedling emergence.
2. If the area to be seeded has been recently loosened, and will provide an adequate seedbed, no additional tillage will be required.
3. If the area to be seeded has been compacted or crusted, the top layer of soil will be tilled.
4. Spike–toothed harrows may also be used during seedbed preparation. The spikes of the harrow will dig lightly into the soil to break up soil masses. Harrows may also be used to cover broadcast seed.
5. The seedbed will be scarified to create sites for seed to lodge and germinate where broadcasting the seed or hydroseeding will be used.

Seeding

1. Seeding of permanent cover will be done, whenever possible, during the recommended seeding date ranges for west central Wisconsin.
2. If seeding cannot be accomplished before the recommended October 15 seeding deadline, it will be done in conformity with the Critical Area Planting conservation practice standard of the NRCS, or temporary erosion controls will be implemented and the seeding of permanent cover done at the beginning of the next seeding season.

BMP 07 – Seeding and Seed Bed Preparation – continued

3. Any soil disturbance occurring outside of the recommended October 15 seeding deadline date, or any bare soil left unstabilized by vegetation, will be treated as a winter construction condition and appropriate erosion controls will be installed to minimize erosion over winter and spring thaw.
4. After seedbed preparation, the seed mixes of all the permanent grasses or legume plantings will be applied at the rate determined from the , Agricultural Inspector, landowner or recommended by the USDA-Natural Resources Conservation Service (NRCS).
5. In areas where a different seed mix is proposed, seeding will conform to the Critical Area Planting conservation practice standard of the NRCS, Conservation Reserve Program or any other similar federal program.
6. Grass waterways and terraces will be seeded to reestablish grass cover similar to preconstruction conditions. Erosion control measures, such as mulch or erosion control fabric, will be used in conjunction with seeding.
7. If a Certified Organic Farm will be impacted by construction, WISCONSIN GAS will coordinate with the affected landowner to ensure that an appropriate seed mix and planting methods are used as required by the farm's Certification Plan.

Best Management Practices for Construction within Agricultural Lands
BMP 08 - Crop Compensation

Purpose: To ensure that agricultural landowners are fairly compensated for loss of crop production due to the pipeline project.

Planning:

1. WISCONSIN GAS will compensate the landowner for crop loss once at the beginning or the end of the project. If the landowner rents or leases out the land to a renter, then the renter may be compensated in lieu of the landowner. There will be an attempt to communicate the agreement of compensation to both the renter as well as the landowner.

2. The value of the crop will be determined by the Payment Worksheet in the Easement Agreement Package. Crop compensation will be based on September/October 2016 futures and will be adjusted upward in year of construction if crop prices increase, but will not change if crop prices decline.

3. The landowner/renter will be compensated a total of 200% of the value of the crop based on the calculation in Item 2 above. 100% of the value of the crop during the year of construction, 60% the first year after construction, and 40% the second year after construction.

4. The landowner/renter would signify agreement by signing a damage release form.

Best Management Practices for Construction within Agricultural Lands
BMP 09 - Three-Lift Soil Handling

Purpose: To maintain the root zone over the trench area to the extent practicable through management of the topsoil, and subsoil layers in areas where the subsoil qualifies for this three-lift protocol.

Organization: The contractor will be responsible for implementing the three-lift soil-handling method. The Agricultural Inspectors (AI) will be available to assist in making “field calls” such as identifying boundaries between soil layers and to monitor compliance with this BMP.

Installation Planning:

1. In areas where the AI determines the need to apply the triple-lift soil handling practice during trenching operations, an attempt will be made in preconstruction planning to ensure that adequate construction right-of-way space is made available. WISCONSIN GAS will compile a list of potentially affected farmland owners whose land is eligible for triple lift soil handling during excavation of the trench. This will be obtained from NRSC Soil Maps and/or original soil maps for each county. This list of qualifying "candidate" soils and parcels will be provided to the Wisconsin Department of Agriculture, Trade, & Consumer Protection (WDATCP) and to the Agricultural Inspectors (AIs).
2. The criteria for soils qualifying as "candidates" for the three-lift soil handling procedure are determined by WDATCP on lands that involve cultivated croplands, rotated pastureland, or government set-aside program land. Locations of tree-lift soil handling will be confirmed by the AI.
3. Where applicable, WISCONSIN GAS will inform landowners possessing lands containing soils within the construction right-of-way (ROW) that meet the three-lift soil handling criteria and offer landowners the option of implementing the three-lift soil trenching procedure on their property during construction.
4. WISCONSIN GAS will include in the construction bid documents explanation of the three-lift soil handling procedure along with the potential locations. WISCONSIN GAS will also review the process and the potential locations with the bidders during the pre-bid job showing to ensure the potential contractor is well acquainted with the expectations. WISCONSIN GAS will also review this process and the potential locations with the selected construction contractor during the construction “kick-off” meeting. The three-lift soil handling process will also be included in WISCONSIN GAS’s environmental training sessions required for all field personnel prior to working on the construction right-of-way.

Construction:

1. WISCONSIN GAS may perform additional soil sampling to confirm the depth and extent of soil layers.
2. All topsoil up to a depth of at least 12 inches of will be stripped and stockpiled along the edge of the working side of the construction ROW.

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3. After topsoil has been removed (first lift) and trenching begins, a backhoe will remove the upper portion of the subsoil (second lift) and place this layer as far from the trench as the reach of the equipment permits on side of the construction ROW.
4. Where the subsoil material changes the backhoe operator will place this underlying material (third lift) between the trench and the second-lift pile on the side of the right-of-way. Since the depth at which the underlying material is encountered will vary from location to location, the boundary between the upper subsoil and the underlying material will be determined visually by the construction and inspection team, with the advice of the AI when necessary.
5. WISCONSIN GAS will attempt to maintain separation between the two piles. Depending on the available workspace and the volume of soil involved, maintaining complete separation between these two piles may not be possible.
6. During backfilling, the operator will make every effort to place the lower subsoil pile material (third layer) of the spoil material in the trench first, and will only then replace the upper subsoil layer (second layer) of the spoil material in the trench.
7. WISCONSIN GAS will perform field adjustments as necessary in conjunction with the contractor and AI to ensure lower subsoil or parent material does not become mixed with the upper subsoil by the proper placement of the spoil piles to the extent practicable.

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

DIVISION OF

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https://datcp.wi.gov/Pages/Programs_Services/AgriculturalImpactStatements.aspx