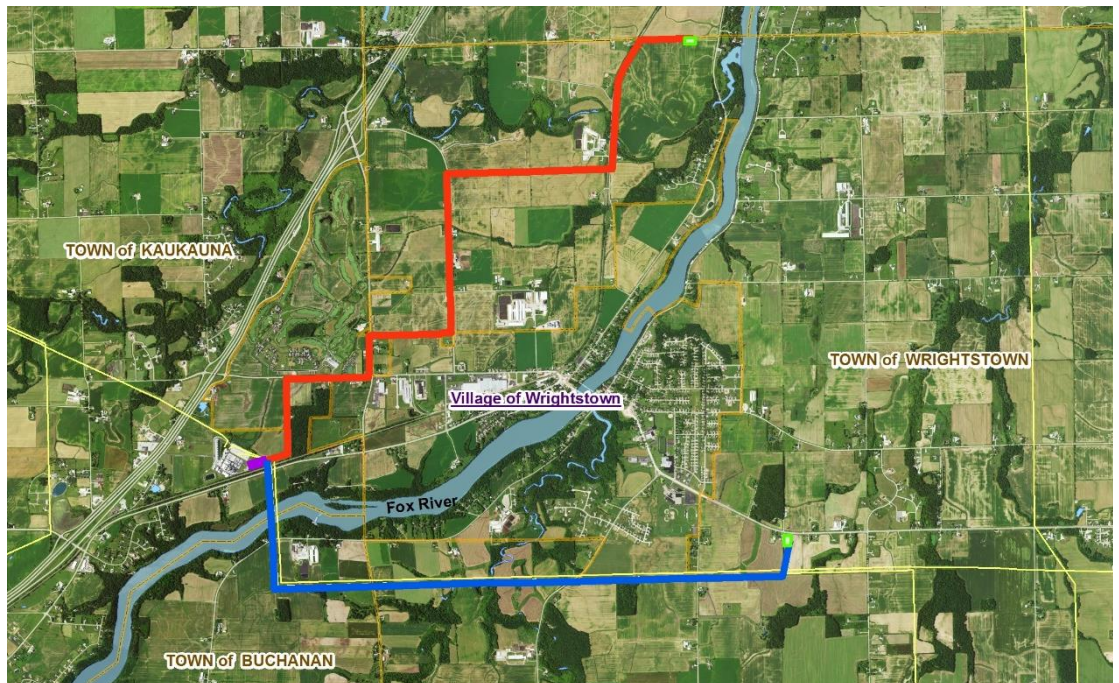


# AGRICULTURAL IMPACT STATEMENT



**DATCP  
#4195**

**Fox Energy Center Lateral Natural  
Gas Pipeline  
Outagamie and Brown Counties  
PSC # 6690-CG-172**



**WISCONSIN DEPARTMENT OF AGRICULTURE,  
TRADE AND CONSUMER PROTECTION  
*PUBLISHED JUNE 8, 2017***



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DATCP #4195

Fox Energy Center Lateral Natural Gas Pipeline  
Outagamie and Brown Counties

## **WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION**

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## DATCP SUMMARY OF ANALYSIS AND RECOMMENDATIONS

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The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has prepared this Agricultural Impact Statement (AIS) for the proposed Fox Energy Center Natural Gas Lateral project (DATCP #4195) in accordance with [Wis. Stat. §32.035](#). Wisconsin Public Service Corporation (WPS) submitted project information to DATCP in November 2016. The proposed project includes approximately four to five miles of 20-inch pipeline along one of two routes, the North Route or the South Route. The Public Service Commission of Wisconsin (PSC) is the authority that will approve, deny, or make modifications to this project.

As part of its review of the project, DATCP sent a questionnaire 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 property owners along the route, 24 were agricultural properties and 9 of those could have three or more acres of easement acquired. Eight landowners responded to the survey, which is discussed in further detail in Section VI, Agricultural Landowner Impacts.

Having reviewed all of the materials provided by WPS and comments from property owners, DATCP's summary of the project impacts to agricultural properties includes the following:

- The South Route is nearly one mile shorter in length, impacts fewer acres of agricultural properties overall, and disturbs fewer acres of agricultural soils identified as prime farmland or prime farmland if drained than the North Route.

If the project is approved, DATCP provides the following recommendations to the PSC, WPS, and to agricultural property owners to mitigate impacts to farmland and farmland operations.

### **Recommendations to the Public Service Commission**

- The Agricultural Mitigation Plan (AMP) and Best Management Practices (BMPs) supplied by WPS and included in the PSC application are effective tools in mitigating potential impacts to farm properties. DATCP recommends that WPS implement appropriate training for all construction supervisors, monitors, 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 is protected.
- In the project-specific AMP and BMPs, WPS agrees to work with each landowner prior to the start of construction to determine the location of known drain tiles and to repair any tiles damaged by construction activities. Furthermore, WPS agrees to consult with the landowner to determine whether the landowner would prefer repair/replacement services be provided by a local contractor.

Interference with the function of these drain tiles or the inadequate repair of these

tiles after construction is completed can cause a reduction in yields not only within the right-of-way (ROW), but to fields off of the ROW.

The DATCP questionnaire identified drain tile systems on properties owned by three different landowners that may be impacted by the construction of this project. The landowners along the North Route are Tinedale Farms (Carl Theunis) and Van De Hey Real Estate LLC (David Van De Hey). Along the South Route, the landowner is DPFF Property LLC (David Feldkamp). It is likely that additional property owners may have drain tiles within the potential routes.

Because of the known drainage issues of the area, the complexity of the existing drainage systems, and the significant investment property owners have put into these drainage systems, WPS should, in addition to their best management practices, determine from landowners with tiled land if they would prefer WPS to consult with a qualified drainage engineer or individual, prior to the start of construction, regarding how to minimize damage to the field's drainage system. Landowners may also want this same qualified individual to verify that any WPS repairs to the drainage system preserves the pre-construction function of the tile system. DATCP also recommends that WPS verify that drain tiles outside of the trenched area have not been damaged due to the movement of heavy construction equipment. If drainage tiles outside of the trench have been damaged, WPS should consult with the landowner, locate the damage, and conduct repairs so that the drainage tiles are restored to pre-construction function.

- DATCP recommends that, if the South Route is chosen, WPS work with the Pahls to determine if routing the pipeline along the western edge of the Pahl's field would minimize construction impacts to their property. Alternatively, WPS should consider additional compensation to the Pahls if construction activities restrict access to the northwest corner of their field during the growing season.
- One aboveground facility is proposed for this project. Both of the proposed sites for the North and South Route are located in agricultural areas currently used as cropland. DATCP recommends that, if the project is approved, the aboveground facility and connections to the facility 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.



### Recommendations to WPS

- Many acres of farmland in this area are operated by renters. DATCP recommends that WPS 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 WPS work with the landowner to determine a means to effectively correct surface seeps caused by construction activities either in the ROW or on adjoining lands.
- DATCP recommends that WPS work with property owners to minimize construction impacts to farming operations and infrastructure, including manure/fertilizer applications, grassed waterways, and irrigation systems.
- DATCP recommends that WPS work closely with property owners to verify that access to fields and residences are considered and impacts minimized as much as possible.
- DATCP recommends that WPS 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 pre-construction function, as per landowner requests.
- DATCP recommends that WPS work with property owners to determine methods to mitigate impacts to farming operations from the temporary removal of field and pasture fences.

### Recommendations to Agricultural Property Owners

- WPS 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. Furthermore, landowners should be familiar with the 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, DATCP recommends to only do so with careful consideration.
- Landowners should keep records of the condition of their land within the 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 WPS 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, WPS should compensate the landowner that fee.
- DATCP recommends that any affected farm operation that has a written bio-security plan, provide this plan to WPS.

## 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. The PSC docket number for this project is 6690-CG-172. 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, 6690-CG-172](#).

WPS proposes to use for this project an Agricultural Mitigation Plan (AMP) and Best Management Practices (BMPs). The AMP and BMPs describe the policies to be followed and methods to be used by WPS 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.

## II. PROJECT DESCRIPTION

### Overview

WPS proposes to construct a new 20-inch natural gas pipeline along one of two routes, the North Route or the South Route. Figure 1 shows the location and details of this project. The North Route is approximately 5.1 miles and the South Route is approximately 4.2 miles in length. The project would cross through the towns of Kaukauna, Wrightstown, and Buchanan, and the village of Wrightstown in Brown and Outagamie Counties. Both routes begin at the existing Fox Energy Center located in the town of Kaukauna. From west to east, both routes start with a short common segment that then splits into a North Route and a South Route. The North Route travels north and east through the town of Kaukauna and the town and village of Wrightstown, and ends near the intersection of Apple Creek Road and County Trunk Highway (CTH) D in the town of Wrightstown. The South Route extends south across the Fox River, then east through the towns of Buchanan and Kaukauna, ending along State Trunk Highway (STH) 96 in the town of Wrightstown. The design life of the proposed pipeline is approximately 80 years.

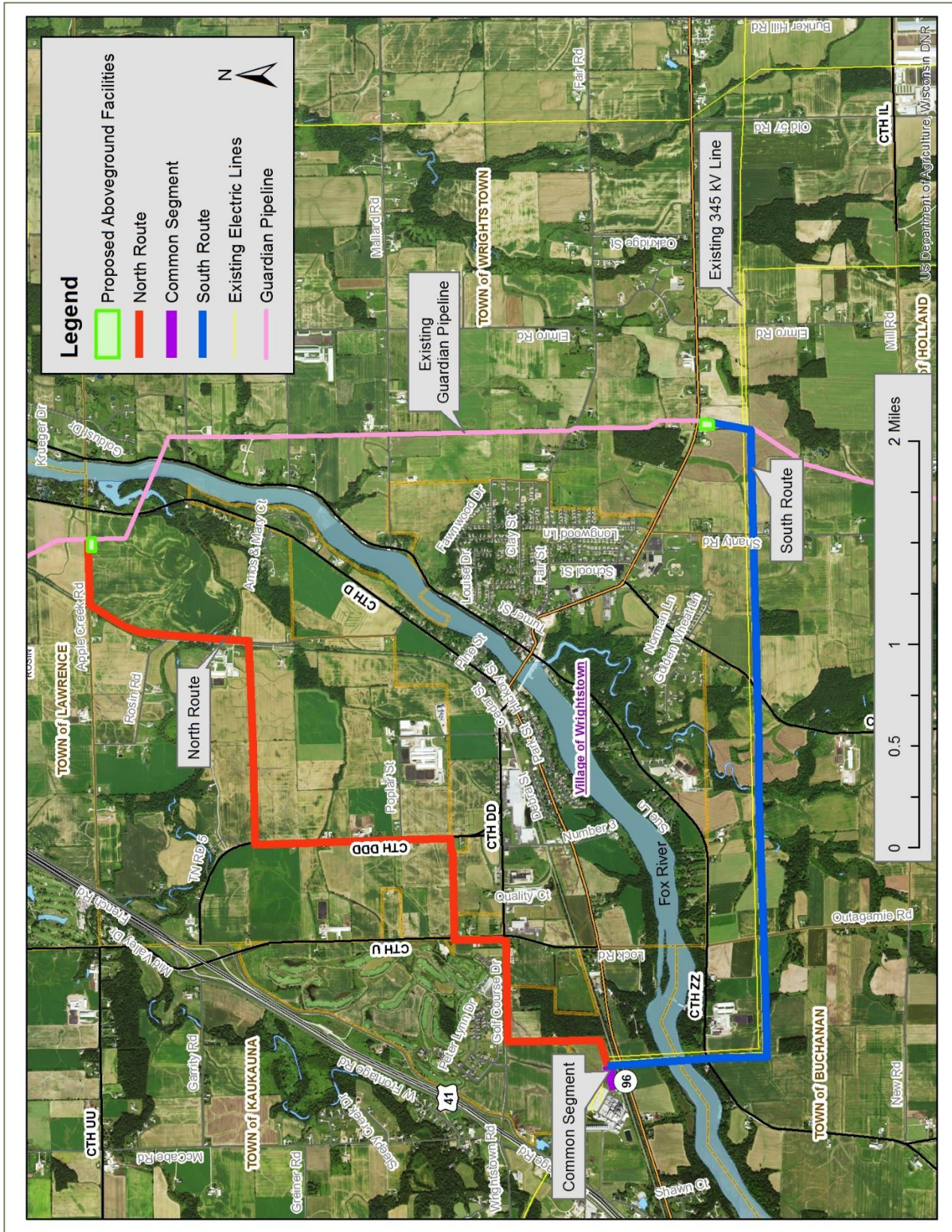
The proposed pipeline would be a high pressure transmission line and would not feed into the local distribution system. Because of this, affected landowners are not able to request natural gas service from the proposed pipeline. WPS has natural gas distribution facilities in the general area and interested property owners can contact WPS to discuss potential expansion of the system outside of this project.

An application for this project was submitted to the Public Service Commission (PSC) on December 16, 2016. If the project is approved by the PSC, WPS anticipates acquiring easements beginning in November 2017 and construction starting in April 2018. WPS anticipates a project in-service date of November 2018.

### Project Purpose and Need

The purpose of the proposed Fox Energy Center Lateral natural gas pipeline is to provide the Fox Energy Center (FEC) power plant with access to a second interstate natural gas pipeline supply in order to fully benefit from competition and expanded choices that would be available if multiple pipelines served the power plant facility. FEC is currently solely served by the ANR Pipeline Company and is seeking to provide a second source of supply via the Guardian Pipeline. WPS states that the project would increase physical pipeline capacity and reliability, expand access to competitive supplies and services for the benefit of WPS's customers, and secure firm interstate pipeline capacity.

Figure 1: Project Location Map



## Description of Potential Routes

Both of the proposed routes begin at the existing Fox Energy Center power plant and terminate by tying into the existing 20-inch Guardian natural gas pipeline. Both the North Route and the South Route require the construction of one gate station, an approximately 1.5-acre aboveground facility at the eastern end of the routes. The gate station will tie this new pipeline into the Guardian Pipeline. The routes start in the west with a short common segment which has been included in the route descriptions below.

### *North Route (from west to east)*

- Starts at the existing Fox Energy Center power plant located in the town of Kaukauna in Outagamie County
- Extends east within WPS property for approximately 1,300 feet, parallel to the north side of STH 96 and the railroad
- Turns north, staying within the WPS property until reaching Golf Course Drive
- Turns east along the south side of Golf Course Drive, passing through WPS and private properties until reaching CTH U
- Turns north, crossing Golf Course Drive and continues on private property for about 0.25 miles along the west side of CTH U
- Turns east, crossing CTH U and travels cross-country along parcel boundaries until reaching CTH DDD, though it avoids a small property at the intersection with CTH DDD
- Turns north along the west side of CTH DDD for about 1 mile across private properties
- Turns east and crosses CTH DDD, travels cross-country through private properties for about 1 mile until crossing the railroad and Rosin Road
- Turns north on private property along the east side of Rosin Road
- Then turns north and west, along the east side of Rosin Road and the railroad crossing private properties until reaching Apple Creek Road
- Turns east along the south side of Apple Creek Road through private properties until reaching the proposed Gate Station site, about 730 feet before CTH D
- Ends by tying into the existing Guardian Pipeline in the town of Wrightstown

### *South Route (from west to east)*

- Starts at the existing Fox Energy Center power plant located in the town of Kaukauna in Outagamie County
- Extends east within WPS property, for approximately 640 feet, parallel to the north side of STH 96 and the railroad
- Turns south and crosses STH 96 and continues through private properties paralleling but not overlapping along the west side the existing 345 kilovolt (kV) electric transmission line ROW

- Continues following the existing transmission line south under the Fox River, CTH ZZ, and through private properties
- Turns east across private properties to parallel the south side of the existing electric transmission line cross-country for about 3 miles, with little to no overlap with the existing electric ROW
- Upon reaching the existing Guardian Pipeline, the route follows the pipeline north northeast diagonally through private property, along the west side of the existing pipeline. The proposed temporary easement for the new pipeline partially overlaps the existing Guardian pipeline permanent ROW
- Ends by tying into the existing Guardian Pipeline just south of STH 96, in the town of Wrightstown

**ROW Requirements**

The pipeline 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 activities, for a total potential ROW width that could be disturbed during construction to between 75 and 100 feet.

The wider 50 feet of temporary easement is needed in agricultural areas to accommodate segregated soil storage. In areas where horizontal directional drilling (HDD) or jack and bore construction would be used instead of open trenching, larger areas of temporary easement would also be required. The natural gas pipeline would be constructed in an open trench for much of the route. HDD or jack and bore construction is proposed for the crossing of rivers, creeks, drainage features, and wooded areas. Table 1 identifies the agricultural property owners where boring construction is proposed to avoid impacts to specific features.

Table 1: Agricultural Properties Where Boring is Proposed Instead of Open Trenching

<b>Route</b>	<b>Property Owner</b>	<b>Avoided Feature</b>
North Route	Nackers, Martin and Linda	Waterway
North Route	Sprangers, Nathan and Janelle	Waterway
North Route	Van De Hey, David	Apple Creek; Waterway
South Route	Biese, Marvin Jr. and Patricia	Waterways; Plum Creek; Cropland; Idle or Fallow Field
South Route	Bowers, Bernard	Cropland; Wooded area
South Route	Feldkamp, Howard and Joseph	Idle or Fallow Field
South Route	Gerrits, Ione	Waterway; Wooded area
South Route	Heart of Valley Metro Sewage District	Waterway

Additionally, HDD or jack and bore construction is proposed to avoid impacts to the Fox River, two residential properties, and the crossings of CTH U, CTH DDD, Rosin Road, STH 96, CTH D, and the two railroad crossings.

The use of boring construction avoids many of the impacts typically caused by trench construction. In general, a temporary easement would not be required along the lengths that are bored. Boring equipment at each end may fit within the proposed 100-foot-wide construction corridor, although the dimensions may be altered depending on the site conditions. Additional areas of temporary easements will be needed at each end of the bored segments to accommodate equipment and pipe assembly. This is especially true for the crossing of the Fox River which will require approximately 1,750 feet of additional ROW for pipe stringing, if the South Route is approved for construction. Table 2 shows the agricultural properties that would be impacted by additional temporary easements due to boring construction methods.

**Table 2: HDD or Jack and Bore Construction Impacts to Agricultural Properties**

<b>Route</b>	<b>Property Owner</b>	<b>Reason</b>
North Route	Ostrom, James	The crossing of CTH U
North Route	Meulemans, Linda	The crossing of CTH DDD
North Route	Rosin, Betty	The crossing of Rosin Road and Railroad The crossing of Apple Creek and residential property
South Route	DPFF Property LLC	The crossing of the Fox River

More HDD or jack and bore construction is proposed for the South Route (39% percent or 8,680 feet) than for the North Route (11% percent or 3,029 feet). Similarly, more agricultural land would be constructed with HDD or jack and bore techniques for the South Route (7,694 feet) than the North Route (1,523 feet).

For portions of the project adjacent to road ROW and in non-agricultural lands, the non-paved portions of the road ROW may be utilized for temporary work space. In other areas of the proposed route, WPS may require narrower temporary construction easements to minimize impacts to resources.

See Section VII for details about the construction process and potential impacts from pipeline construction.

**Trench Dimensions**

The excavated trench would be approximately 6.5 feet deep and 6 feet wide. In some areas where there are obstacles, such as existing pipelines, or where the soil has limited cohesion, the excavated trench may need to be deeper and/or wider.

In agricultural lands, trench depth will be sufficiently deep to allow a minimum of 4 feet of soil cover over the top of the pipeline to avoid possible interference with farming equipment.



### III. PROJECT IMPACTS TO AGRICULTURAL PROPERTIES

In this section of the AIS, the short common segment is included as part of both the North Route and the South Route, so that the impacts from each route can be easily compared.

#### Easements

Agricultural properties will be impacted by both the North Route and the South Route, although the South Route would impact fewer acres of farmland than the North Route. The North Route requires a total of 62.32 acres of both permanent and temporary ROW from agricultural properties, while the South Route requires a total of 55.53 acres from agricultural properties. Even though much of the South Route follows the existing electric transmission line, there would be little to no overlap of the two ROWs so that additional permanent and temporary easements would still be required beyond the existing electric ROW.

Table 3: Acres of Permanent and Temporary Easements Required from Farm Operations

Route	Permanent Easements		Temporary Easements		Total ROW	Percentage of ROW in Agriculture
	All Properties	Farm Operations	All Properties	Farm Operations		
North Route	31.55	28.57	35.76	33.75	67.31	92.59%
South Route	26.79	25.89	30.31	29.64	57.10	97.25%

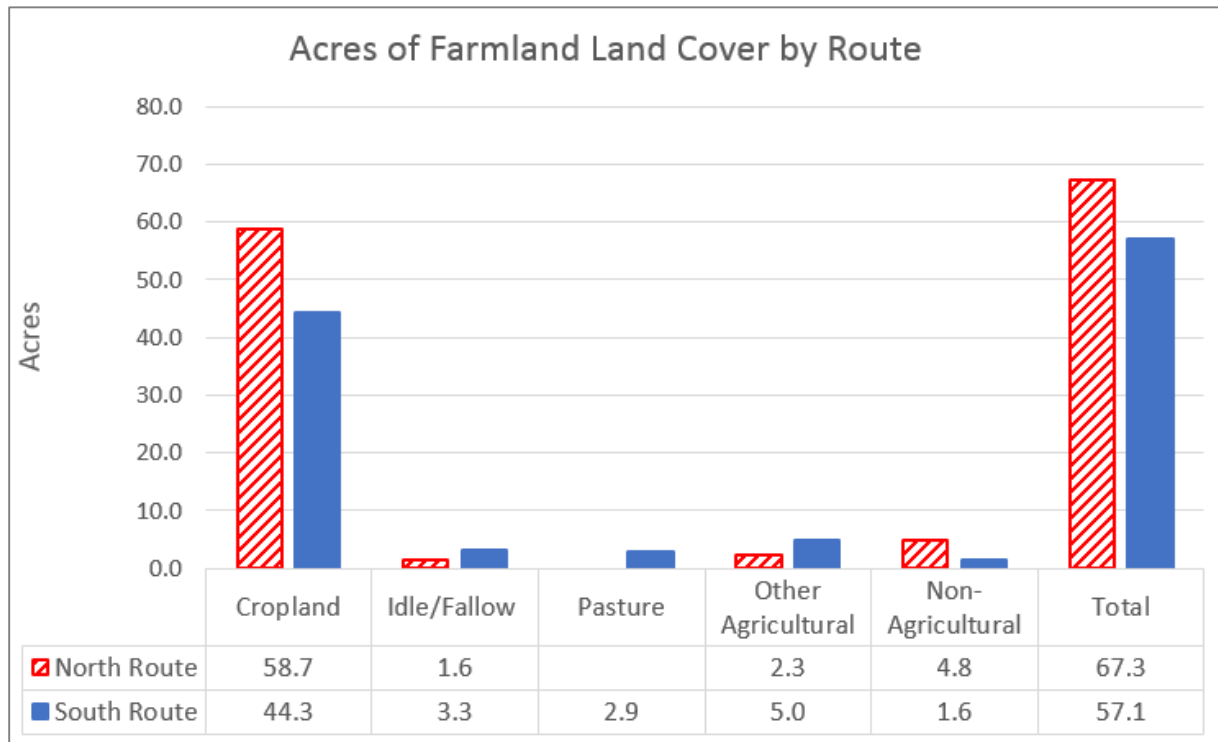
NOTE: Includes all identified access roads, aboveground facilities, and staging areas on agricultural land.

Over 90 percent of both routes is through agricultural properties, although the North Route would impact approximately 6.8 more acres of farmland than the South Route.

Figure 2 shows the acres of agricultural land that would be impacted by each route. Both project routes cross farmland that is primarily cropland.

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

Figure 2: Types of Farmland Affected by Potential Routes



**Aboveground Facilities**

An aboveground gate station combined with an interconnect facility is proposed for each of the two routes where they would connect to the existing Guardian Pipeline. Both proposed gate stations are located in agricultural areas currently used as cropland. The North Route gate station would be approximately 1.6 acres and the South Route gate station would be approximately 1.8 acres.

Both gate stations would be in a fenced area and would include odorization, pig launcher, blowdown, building, actuator, and a permanent 40-foot-wide driveway. The driveway would be located between the road and gravel pad and would not directly impact additional agricultural land. While the permanent driveway’s exact dimensions will not be finalized until after a route is selected by the PSC, the driveway may be as wide as 40 feet at the road but may taper down to approximately 20 feet at the station fence.

Summaries of the potential aboveground facilities are presented in Table 4. Figure 3 shows an example of a typical natural gas aboveground facility similar in size and type to what is proposed. Figures 4 and 5 show diagrams of the proposed facilities for each route.

Table 4: Proposed Aboveground Facilities by Route

Route	Proposed Equipment	Location	Approximate Dimensions	Property Owner	Existing Land Use
North Route	Odorization, pig launcher, blowdown, building, remote operating actuator, fence, coalescing filter, meter	Eastern end of North Route, along south side of Apple Creek Rd. and 730 ft. west of CTH D	350 ft. x 200 ft.	David Van De Hey	Cropland
South Route		Eastern end of South Route, on the south side of STH 96 between Shanty Rd. and Elmro Rd.	350 ft. x 230 ft.	Darrell and Jane Pahl	Cropland

It is not anticipated that there will be significant impacts to landowners located adjacent to the gate station. WPS personnel will access the station during the day, a few times each month and once or twice per year. The station would generate noise levels of less than 60 decibels (dB) inside the fenced area, with lower levels at the property boundary. As a comparison, refrigerators typically operate at 50 dB and normal conversation is around 50 to 60 dB.

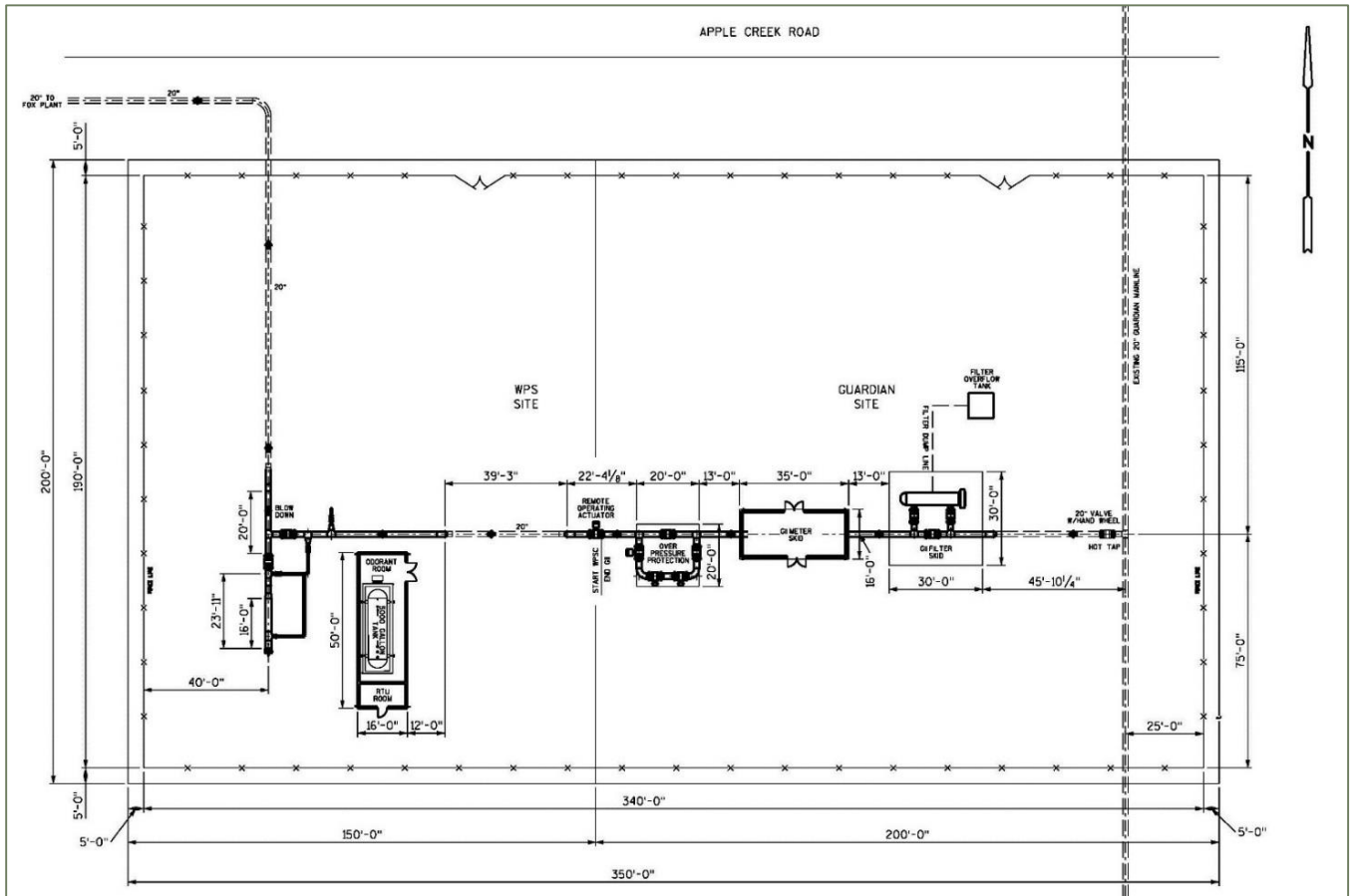
Unlike the ROW required for this project, both temporary and permanent, the land required for aboveground facilities will take agricultural land permanently out of production. DATCP recommends that the aboveground facility be located so as to minimize impacts to actively farmed lands and to work with landowners to determine the location and size of the facilities on their property.

Figure 3: Example of an Aboveground Gate Station



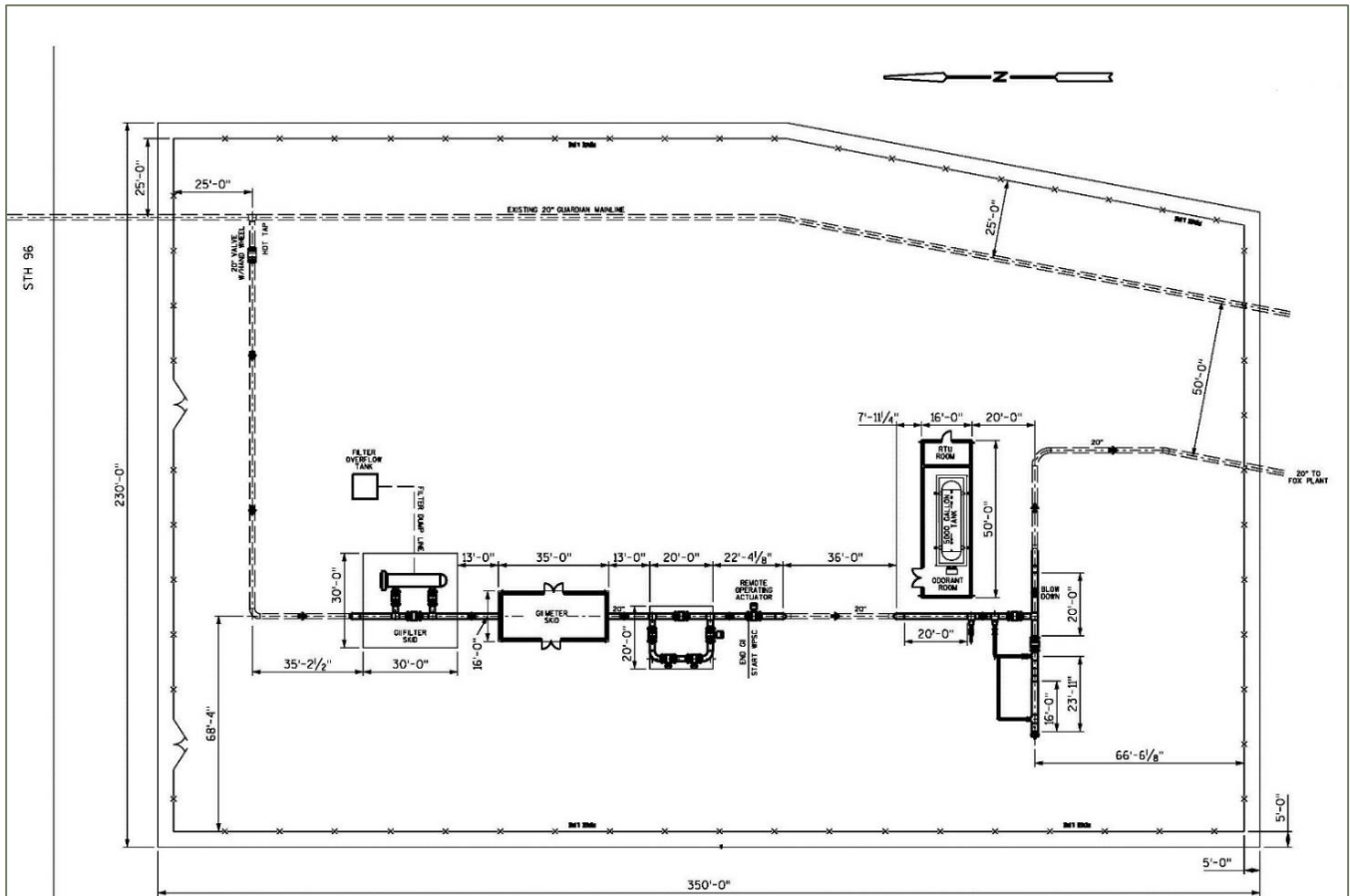
Courtesy: WPS

Figure 4: North Route Proposed Gate Station



Courtesy: WPS

Figure 5: South Route Proposed Gate Station



Courtesy: WPS

**Access Roads**

A total of four off-ROW construction access roads through private properties are proposed for this project. Two additional access roads are proposed within WPS property. The access roads will be between 25 and 100 feet in width. Access roads are necessary for construction access to the proposed ROW. Table 5 lists the proposed off-ROW access roads by route that pass through private agricultural properties.

The North Route off-ROW access road is located between Rosin Road and the proposed pipeline ROW, just east of Rosin Road and the railroad. It is on cropland and makes partial use of an existing access path. Three off-ROW access roads are proposed for the South Route. These are mainly located within and along the edges of cropped land, as well as natural areas and across waterways. They also make use of some existing access paths.

DATCP recommends that WPS 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 5: Proposed Off-ROW Access Roads by Route through Agricultural Land

Route	Location	Length x Width	Landowner	Land Use
North Route	<u>Access Road 1</u> From Rosin Rd. to ROW, at the intersection of Rosin Rd. and the railroad, in the town of Wrightstown	100 ft. x 80 ft.	Van De Hey, David	Cropland
South Route	<u>Access Road 4</u> From CTH D to just west of where proposed route crosses CTH D, in the town of Wrightstown	330 ft. X 25 ft.	Biese, Marvin Jr. and Patricia	Edge of cropland and grassed waterway
South Route	<u>Access Road 5</u> Cross-county, along the existing electric line ROW and south of the proposed ROW, in the Town of Wrightstown	1,700 ft. x 25 ft.	Biese, Marvin Jr. and Patricia	Repeated crossing of tributaries to Plum Creek, cropland, and wooded natural areas
South Route	<u>Access Road 6</u> From CTH D just north of Plum Creek, curving northwest until intersects with proposed ROW, in the town of Wrightstown	1,920 ft. x 25 ft.	Biese, Marvin Jr. and Patricia; Plum Pride Holsteins LLC	Cropland and edge of fields and wooded area

**Staging Areas**

WPS has identified one potential staging area for both of the proposed routes. The potential staging area is located on WPS property just west of the existing Fox Energy Center power plant, at the western end of the project. It appears that this land is currently in crop production. The staging area would be used for the storage of equipment and materials during the project construction.

## IV. AGRICULTURAL SETTING

The following information is intended to describe the existing agricultural sector of Outagamie and Brown Counties 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, Quick Stats Tool on the web page: <https://quickstats.Nass.usda.gov> (accessed in March of 2017).

### Agricultural Productivity

The project is located along the Fox River between the urban centers of Green Bay and Appleton. Steady population growth in both Brown and Outagamie County has made farmland preservation a difficult and challenging issue due to the economic realities faced by farmers. From the year 2000 to 2016, the population of Brown County grew 14 percent, while the population of Outagamie County grew 13 percent during that same timeframe. This is approximately twice as fast as the population growth for the state, as a whole. Brown County has a population density of approximately 488 residents per square mile, while Outagamie County has a population density of 285 residents per square mile. As such, both counties are classified as urban counties (more than 100 residents per square mile) and have higher population densities than the state average (approximately 107 residents per square mile). However, farming is still an integral part of their economies.

Table 6 shows the acres harvested for selected crops in Brown and Outagamie Counties for the years 2011 to 2015. The harvested acres of corn for grain and soybeans have fluctuated for both counties over the five-year period. In addition, Brown County ranks sixth in the state and Outagamie County ranks eighth in the state for cow milk production by pounds.

Table 6: Acres of Selected Crops from 2011 to 2015

Crops	Acres Harvested				
	2011	2012	2013	2014	2015
<b>Brown County</b>					
Corn for Grain	24,300	26,700	18,500	31,300	25,200
Soybeans	19,300	19,200	17,400	20,800	20,200
<b>Outagamie County</b>					
Corn for Grain	59,300	64,800	62,700	48,300	60,300
Soybeans	50,500	51,500	44,500	54,300	52,200

### Land in Agriculture

According to the 2012 Census of Agriculture, Brown County has a little over half of its land in farms (181,197 out of 338,355 acres), while Outagamie County has just over 60 percent of its

land in farms (250,748 out of 409,818 acres). The farmland is primarily used for crops, pasture, or grazing. It also includes other uses such as woodland and wasteland not actually under cultivation or used for pasture or grazing.

According to the 2012 Census of Agriculture, from 2007 to 2012 the amount of land in farms in both Brown and Outagamie Counties did not significantly change. Brown County saw a 3 percent decrease, while Outagamie County saw a 1 percent increase (Table 7). Similarly, the statewide loss of agricultural land over the same 5-year period was 4 percent. These slight changes in land use are likely the result of farmland converted to commercial and residential uses rather than because of idling of formerly productive farmland.

Table 7: Change in the Acres of Farmland, 2007 to 2012

Location	2012 Farmland (acres)	2007 Farmland (acres)	Change in Acres	Percentage Change
Brown County	181,197	187,167	-5,970	-3%
Outagamie	250,748	247,482	3,266	1%
Wisconsin	14,568,926	15,190,804	- 621,878	-4%

### Number and Size of Farms

According to the 2012 Census of Agriculture, Brown County gained 58 farms between the years of 2007 and 2012, while Outagamie County lost 192 farms. As shown in Table 8, the state of Wisconsin as a whole lost farms but at a lower percentage than Outagamie County, over the same period. During the same five-year period, the average Brown County farm decreased in size which contrasts with Outagamie County and the statewide averages, which both showed an increase in average farm size (Table 9).

Table 8: Change in the Number of Farms between 2007 and 2012

Location	Number of Farms, 2012	Number of Farms, 2007	Difference in the Number of Farms	Percent Change in Number of Farms
Brown County	1,111	1,053	58	5%
Outagamie County	1,170	1,362	-192	-16%
Wisconsin	69,754	78,463	- 8,709	-12%

Table 9: Farm Size Distributions

Location	Average Farm Size (acres)		
	2012	2007	Change in Size
Brown County	163	178	-9%
Outagamie County	214	182	15%
Wisconsin	209	194	15%



Table 10 shows the distribution of farm sizes in 2012 for Brown and Outagamie Counties and all Wisconsin counties. Proportionately, both Brown and Outagamie Counties have a greater percentage of small farms (less than 50 acres) when compared to the state as a whole. Conversely, both counties have a smaller percentage of medium-sized (between 50 and 499 acres) farms compared to the state as a whole. Notably, over half of the farms in Brown County are small farms.

Table 10: Number of Farms per Size Category in 2012

Location	0 to 49 Acres		50 to 179 Acres		180 to 499 Acres		More than 500 Acres	
	Number	%	Number	%	Number	%	Number	%
Brown County	586	53%	269	24%	189	17%	67	6%
Outagamie	453	39%	351	30%	241	21%	125	11%
Wisconsin	22,428	32%	25,502	37%	15,688	22%	6,136	9%

**Property Taxes and Values**

Table 11 details the 2015 average property tax, assessed value, and the sale price per acre of agricultural land in Brown and Outagamie Counties, urban 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 11: Farmland Taxes and Values

Location	Dollars per Acre of Farmland		
	2015 Average Tax	2015 Assessed Value*	2015 Sale Value
Brown County	\$3.13	\$167	\$11,570
Outagamie County	\$2.90	\$174	\$8,426
Urban Counties	\$3.53	\$199	\$7,432
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.

In 2015, average property taxes on Brown County agricultural land were 11 percent lower than the average for urban counties and similar to the average for Wisconsin. Similarly, the average assessed value of farmland in Brown County was 16 percent lower than the average for urban counties and similar to the average for Wisconsin. Average property taxes on Outagamie County

agricultural land were 18 percent lower than the average for urban counties and 8 percent lower than the average for Wisconsin. The average assessed value of farmland in Outagamie County was 13 percent lower than the average for urban counties and two percent higher than the average for Wisconsin (Wisconsin Department of Revenue).

The average sale price of farmland in Brown County was 36 percent higher than the average for urban counties and 56 percent higher than the average for Wisconsin. The average sale price of farmland in Outagamie was 12 percent higher than the average for urban counties and 39 percent higher than the average for Wisconsin. These values do not include farmland sold and converted to nonfarm use and do not include agricultural land 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. DATCP first certified the Brown County Farmland Preservation Plan in 1985 and recertified it in 2012. DATCP first certified the Outagamie County Farmland Preservation Plan in 1982 and recertified it in 2015. The plan identifies 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. Both proposed routes for this project are within an area zoned for exclusive agriculture use.

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

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

### **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. The goals of the program are to reduce soil erosion, improve

water quality, and increase wildlife habitat. The USDA oversees the program through its county Farm Services Agency offices with consultation assistance from the NRCS and the Forest Service. Farmers participate through 10 to 15 year agreements and receive annual rental payments on the converted land for the period of the agreement.

Marvin B. Jr. and Patricia T. Biese have indicated that they own land enrolled in the CRP program. WPS should consult with landowners to determine if potentially impacted land is enrolled in the program.

### **Conservation Reserve Enhancement Program**

The Conservation Reserve Enhancement Program (CREP) pays landowners to install conservation practices such as 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 federal, state, and county governments. None of the easements for this project appear to include land enrolled in CREP.

### **Drainage Districts**

Drainage districts are formed to manage excess water from participating lands. The proposed 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. Protection of 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*

Prime farmland that 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*

In addition to prime farmland, this farmland is of statewide importance for the production of food, feed, fiber, forage, and oilseed crops. Criteria for defining and delineating this land 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 57 and 67 acres of land. Of the land identified as agricultural properties, working farmland, including cropland and idle or fallow farmland, accounts for a smaller percentage of the project ROW. Potentially impacted working farmland acres for both routes are:

- North Route – 61.7 acres (including 6.4 acres for the common segment)
- South Route – 50.7 acres (including 6.4 acres for the common segment)

Working farmland can be further broken down into prime and not prime farmland. Figure 6 compares 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 proposed routes. The majority of the farmland crossed by both routes are high quality farm soils.

Figure 6: Working Farmland Soils Classification

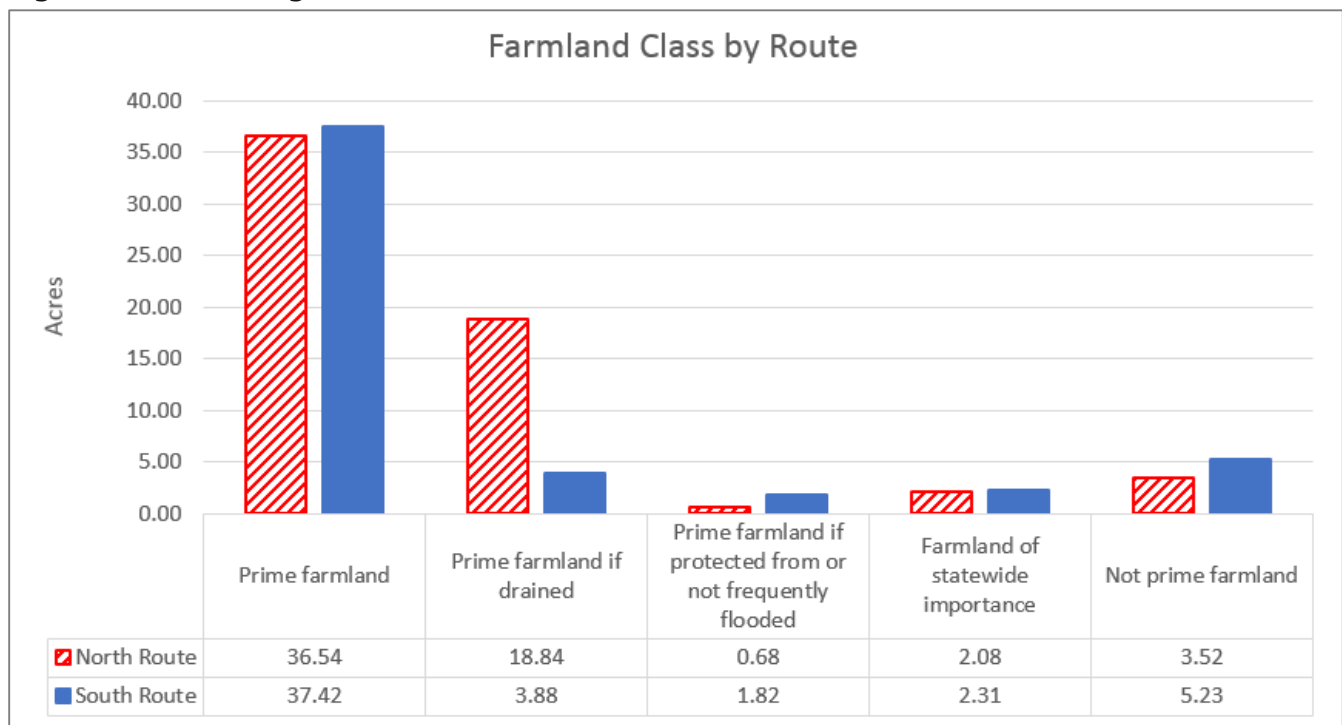


Figure 6 shows that of the potentially affected cropped and idle land, both the North Route and the South Route would impact approximately 37 acres of prime farmland. The North Route would impact approximately 18 acres of prime farmland if drained, whereas the South Route would impact less than 4 acres of prime farmland if drained.

Table 12 identifies the soil types on working agricultural land that may be affected by the proposed project. The majority of the soils crossed by the routes are silty and clay loam soils that are classified as prime farmland or prime farmland if drained. Shaded cells identify soils that

are prime farmland, prime farmland if drained, or prime farmland if protected from and not frequently flooded.

Table 12: Working Agricultural Soils Affected by the Project Routes

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

Soil	Farmland Class	Acres	
		North Route	South Route
Bellevue silt loam	P-D-F	0.5	1.7
Kewaunee silt loam, 2 to 6 percent slopes	P		0.5
Kewaunee soils, 12 to 20 percent slopes, severely eroded	X	0.3	
Kewaunee soils, 20 to 45 percent slopes, severely eroded	X		0.3
Manawa silty clay loam, 0 to 3 percent slopes	P-D	5.2	
Oshkosh silt loam, 0 to 2 percent slopes	P		2.6
Oshkosh silt loam, 2 to 6 percent slopes	P	4.9	8.4
Oshkosh silt loam, 20 to 30 percent slopes, eroded	X		1.5
Oshkosh silt loam, 6 to 12 percent slopes, eroded	S		0.3
Oshkosh silty clay loam, 0 to 2 percent slopes	P	7.4	1.1
Oshkosh silty clay loam, 2 to 6 percent slopes	P	3.7	
Shiocton silt loam, 0 to 3 percent slopes	P-D	4.1	1.5
Winneconne silty clay loam, 0 to 2 percent slopes	P	1.3	2.4
Winneconne silty clay loam, 2 to 6 percent slopes	P		3.9
<b>TOTAL</b>		<b>27.4</b>	<b>24.2</b>

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

### 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. Additional ROW width may be required for the additional stockpiles.

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 did not identify any soils or potential areas that would benefit from triple-lift soil management. For a final determination of triple-lift soils, the characteristics of the soils should be verified in the field by an Agricultural Inspector. (See Appendix E, BMP 09: Three-lift Soil Handling for additional information.)

## VI. AGRICULTURAL LANDOWNER IMPACTS

### DATCP Questionnaire of Agricultural Property Owners

DATCP sent a questionnaire to nine agricultural property owners who could have acquisitions of three acres or more. The purpose of the questionnaire was to gather information about the agricultural operations along the route and to identify general and specific concerns that farmers have on how the utility project may affect their farming operation in and near the ROW. The questionnaire asked how the land in the ROW was being used; potentially impacted agricultural facilities (e.g. fencing, drain tiles, irrigation systems); and any additional concerns of the landowner. Eight property owners responded.

From the survey, several property owners indicated that they have concerns about the project impacting drainage tiles, grassed waterways, and erosion control. Other concerns include fertilizer application and storage, access, farm buildings, land depreciating in value, erosion, and drainage in general. DATCP recommends that WPS work with property owners to minimize construction impacts to farming operations and infrastructure.

A number of property owners have residences and agricultural buildings within 300 feet of the route. This is not unexpected since much of the route parallels roads. DATCP recommends that WPS work closely with property owners to verify that access to fields and residences are considered and impacts minimized as much as practicable.

### Required Easements

Table 13 lists the acreages of agricultural easements (permanent and temporary) that would be acquired from private agricultural property owners for each route if the project is approved by the PSC. Utility-owned agricultural properties are excluded from the table. Additional non-agricultural acres would be required for the construction of this project.

Table 13: Acres of Potential Private Agricultural Land to be Acquired

<b>Farmland Owners</b>	<b>North Route</b>	<b>South Route</b>
Biese, Marvin Jr. & Patricia		7.88
Diedrick, Dean & Sharon	5.45	
DFFF Property LLC		7.33
Feldkamp, Howard & Joseph		8.09
Gerrits, Ione		4.84
Jackson Living Trust, Thomas & Gaela		4.56
Pahl, Darrell & Jane		4.02
Tinedale Farms	11.79	
Van De Hey Real Estate LLC	12.13	
Acquisitions of less than 3 acres per landowner from multiple landowners	14.99	6.05
<b>TOTAL</b>	<b>44.36</b>	<b>42.77</b>



### Rented Acres

Many acres in the project area are rented to others. Based on responses to the DATCP questionnaire, Table 14 identifies the landowners who rent their farmland to others. DATCP recommends that WPS ensure that renters of agricultural lands crossed by the proposed project are kept up-to-date and informed of construction schedules and potential impacts.

Table 14: Landowners Who Rent Their Land to Others

Landowner	Renter	Approximate Acres
Diedrick, Dean & Sharon	New Horizons Dairy	Unknown
DFFF Property LLC	Country Aire Farm	Unknown
Jackson Living Trust, Thomas & Gaela	Bruce Van De Hey	37
Pahl, Darrell & Jane	Wiese Brothers Farm	24

### Property Owner Comments

Below is a summary of landowner comments and concerns received from the survey. Eight property owners completed and returned questionnaires.

**Farmland Owner:** Dean G. and Sharon L. Diedrick  
**Route:** North Route  
**Proposed Acquisition:** 5.45 acres (permanent and temporary)

The Diedricks rent some or all of their land to New Horizons Dairy. Most of the land is cropped. They are most concerned about damage to grassed waterways.

**Farmland Owner:** Tinedale Farms (Carl Theunis)  
**Route:** North Route  
**Proposed Acquisition:** 11.79 acres (permanent and temporary)

The North Route crosses drainage tiles and fields that are cropped. Mr. Theunis indicated that he is most concerned about the project impacting the drainage tiles and the productivity of the tiled field. Tinedale Farms invested a significant amount to tile the complete field in 2016, and they are concerned that the system will be compromised. Specifically, they indicated concern about the tiles being properly compacted, the future settling of tiles impacting drainage, and if damaged tiles would be repaired. The proposed pipeline would cross approximately 60 to 70 tile lines. Additionally, Mr. Theunis is also concerned about parcel severance and manure/fertilizer application and/or storage.

**Farmland Owner:** Van De Hey Real Estate LLC (David Van De Hey)  
**Route:** North Route  
**Proposed Acquisition:** 12.13 acres (permanent and temporary)

Van De Hey Real Estate operates 1,500 acres of agricultural land and rents 58 acres of land from Dean and Sharon Diedrick. The North Route crosses cropped land, grassed waterways, and drainage tiles. Mr. Van De Hey stated that several grassed waterways are tiled and are necessary for erosion control. He is most concerned about losing cropping acres for feeding his

cattle and the potential depreciation in value of his 200-acre field. He would prefer that the South Route be approved. A gate station is proposed on his field.

**Farmland Owner:** Marvin B. Jr. and Patricia T. Biese  
**Route:** South Route  
**Proposed Acquisition:** 7.88 acres (permanent and temporary)

The Bieses operate over 1,000 acres of cropland used for corn, soybeans, hay and wheat, as well as manage 540 head of dairy cows and 430 replacement dairy cows. They have indicated that they have land enrolled in CRP and the Farmland Preservation Program. They are also concerned about issues of manure/fertilizer application and/or storage.

**Farmland Owner:** Darrell and Jane Pahl  
**Route:** South Route  
**Proposed Acquisition:** 4.02 acres (permanent and temporary)

The Pahl's rent out about 24 acres of land to Wiese Brothers Farm that is used as cropland. They indicated that drainage and erosion may be affected by the proposed project, and that they are concerned about the field draining properly post-construction. A gate station is proposed on the Pahl's agricultural field.

**Farmland Owner:** DPFF Property LLC  
**Route:** South Route  
**Proposed Acquisition:** 7.33 acres (permanent and temporary)

DPFF Property LLC owns 120 acres of cropland, of which some or all is rented to Country Aire Farm. They are most concerned about the 4-inch, 6-inch, and 12-inch concrete drain tiles located on their land. They are also concerned about issues of erosion control, preservation of the grassed waterways, and access.

**Farmland Owner:** Thomas A. and Gaela E. Jackson Living Trust  
**Route:** South Route  
**Proposed Acquisition:** 4.56 acres (permanent and temporary)

The managers of the Jackson Living Trust own approximately 40 acres, of which most is rented to Bruce Van De Hey for crops. They are most concerned about issues of drainage, grassed waterways, and maintaining their farm buildings.

### Drainage and Erosion Control

Carl Theunis, David Van De Hey, the Pahl's, Thomas and Gaela Jackson, and David Feldkamp all are concerned the project may affect drainage, drainage tiles, or erosion on their agricultural properties. Several property owners have significant investment in drainage tiles that would be impacted by the proposed construction. In particular, Mr. Theunis of Tinedale Farms has recently invested approximately \$400,000 dollars on his drainage system. The North Route crosses through the middle of this field.

While WPS met with Mr. Van De Hey and Mr. Feldkamp in June 2016, drainage tiles were not discussed during these meetings. During a WPS meeting with Mr. Theunis, Mr. Theunis stated that he would share GPS information on the location of the tiles with the utility.

In the project-specific AMP and BMP 4 (Appendix E), WPS has identified its drainage tile best management practices. These documents state that WPS agrees to work with each landowner to determine the location of known drain tiles and repair any tiles damaged by construction activities. Furthermore, WPS agrees to consult with the landowner to determine whether the landowner would prefer repair/replacement services be provided by a local contractor.

Construction activities would require the cutting of drain tiles during the excavation of the trench. Drain tiles may also be crushed by the movement of heavy equipment alongside the trench if there is insufficient soil cover over the tile. Wet conditions during construction can increase the likelihood of crushing drain tiles.

Interference with the function of these drain tiles or the inadequate repair of these tiles after construction is completed can cause a reduction in yields not only within the ROW, but to fields off of the ROW.

Because of the known drainage issues of the area, the complexity of the existing drainage systems, and the significant investment property owners have put into these drainage systems, WPS should, in addition to their best management practices, determine from landowners with tiled land if they would prefer WPS consult with a specific qualified drainage engineer or individual, prior to the start of construction, regarding how to minimize damage to the field's drainage system. Landowners may also want this same qualified individual to verify that any WPS repairs to the drainage system preserves the original function of the tiles.

DATCP recommends that landowners share sufficient information with WPS about the location and condition of their existing drain tiles to minimize damage to the system. DATCP also recommends that landowners observe and photograph any drain tile repairs to ensure that they are adequately restored to pre-construction function.

DATCP recommends that WPS locate and repair any damaged drain tiles that may have been damaged due to the movement of heavy construction equipment alongside the trench.

### **Corridor Sharing**

New utilities are often sited along an existing utility corridor in an effort to lessen the impacts caused by new ROW. If the new ROW can overlap a portion of an existing ROW, the width of the new ROW is reduced. The more a ROW overlaps an existing ROW, the more benefits are possible. Side by side placement of ROWs with no overlap has fewer benefits than true corridor sharing. However, a drawback to corridor sharing is that landowners who have agreed to an

easement for one facility may be unfairly burdened by the addition of more facilities. Additional utility easements may further limit their rights and the use of their property.

Of concern is the multiple utility impacts to the property owned by Darrell and Jane Pahl on the eastern end of the South Route. Currently, the Guardian pipeline diagonally crosses the northwest corner of the Pahl's field. Because of the location of the Guardian pipeline, 1.8 acres of the Pahl's cropland would be taken permanently out of production for the proposed gate station, and another 2.4 acres would be temporarily impacted by new pipeline construction. The new pipeline would be located parallel to the Guardian Pipeline and the required ROW would partially overlap the existing pipeline easement. While this does require fewer acres of new easement, this pipeline route again isolates and would most likely temporarily render the northwestern 1.4 acres of the Pahl's field not farmable during construction.

DATCP recommends that, if the South Route is chosen, WPS work with the Pahls to determine if routing the pipeline along the western edge of the Pahl field would minimize construction impacts to their property. Alternatively, WPS should consider additional compensation to the Pahls if construction activities restrict access to the northwest corner of their field during the growing season.

### **AMP and BMPs and the Role of the Agricultural Inspector**

WPS will employ a construction manager and an environmental manager to provide oversight and enforcement of permits, approvals, and the AMP and BMPs. WPS may also retain an Agricultural Inspector for the project. The individual tasked with monitoring the implementation of the project-specific AMPs and BMPs to avoid negative impacts to agricultural lands should be thoroughly familiar with the project and pipeline construction processes as well as issues regarding agricultural operations and soil conservation.

Contractors will be required to conform their construction activities to be consistent with the AMP and the BMPs. Refer to Appendix E for the full text of these documents. WPS 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**

WPS 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. WPS 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 WPS 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.

WPS is required to provide landowners with information about their rights in this process before negotiations begin. Under Wis. Stat. §32.035(4)(d), no easement negotiations may begin nor may WPS make a jurisdictional offer 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 (see 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 C.

## 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 (see 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 include: 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.

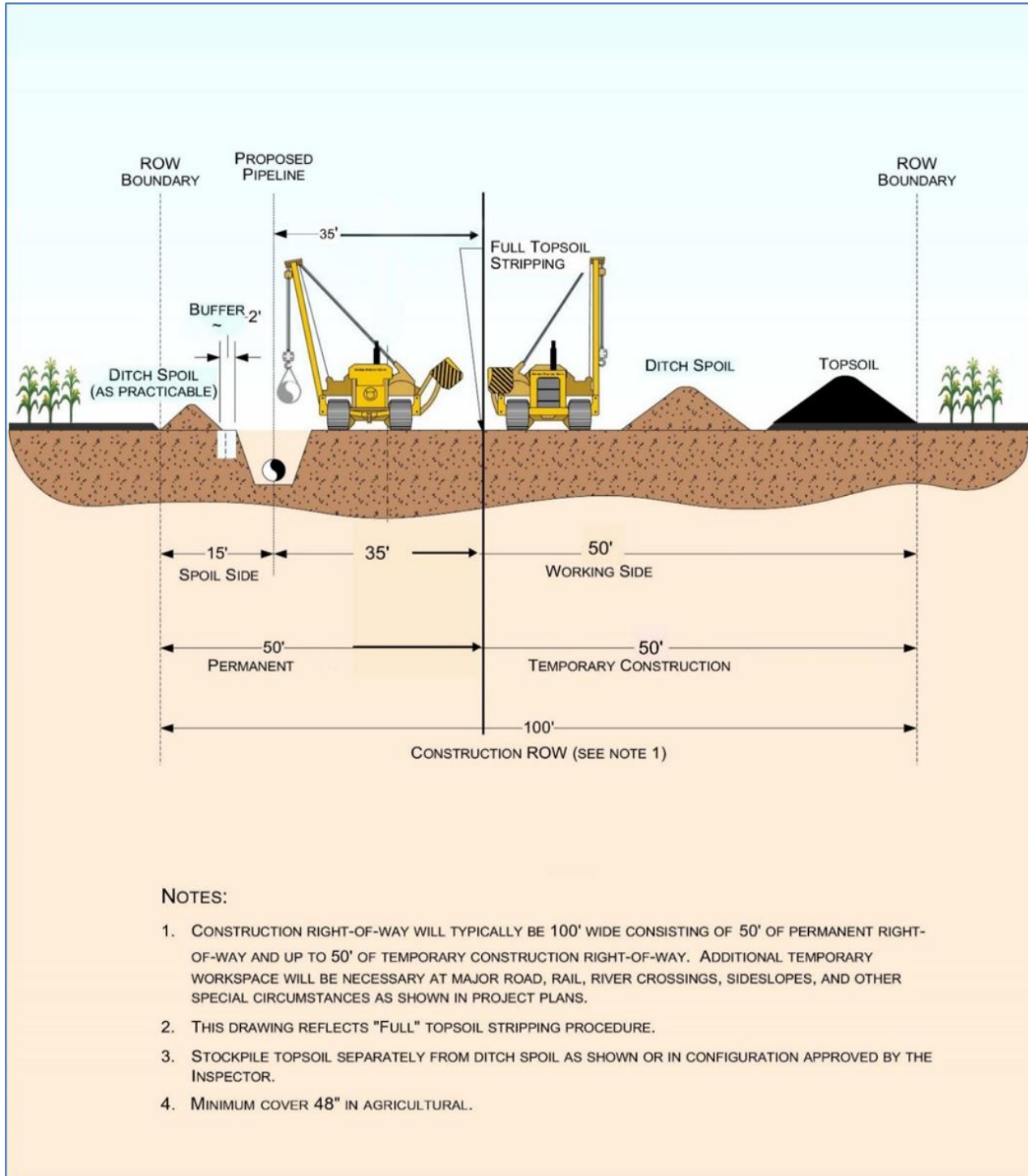
Access roads to the pipeline ROW are typically along existing ROWs, including public roads and farm roads, though additional temporary access roads may be necessary and some of these may cross agricultural lands. Temporary work space needed for access roads across private lands will be negotiated with 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 to 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). Triple-lift soil management for this project is detailed in Section V, Farmland Soils of this report.

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, 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 by 40 feet and 12 to 15 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 excavated on either side of the feature to be avoided. Typically, additional ROW of approximately 100 feet by 200 feet is needed to accommodate the drilling machine and associated equipment. The extra ROW is also required to weld the sections of pipe together before pulling it through the bore hole.

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 is 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 of perennial vegetation 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 (See Appendix E, AMP 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 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 soil horizons. 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 parent material. 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. See 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, WPS 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, added to the topsoil pile, or to 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 elapsed to allow 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, approved by the landowner, 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 have altered the natural stratification of the soils resulting in new wet areas, DATCP recommends that WPS work with the landowner to determine the means to return agricultural land either in the ROW or on adjoining lands to preconstruction function. New drainage tiles, re-grading, or additional fill may be required to correct 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 WPS 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) requires WPS 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, WPS 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 WPS AMP 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>.

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 Appendix E, BMP 03.

WPS 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*

WPS 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) 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 WPS 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 Appendix E, AMP 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 WPS, as soon as possible (see Appendix E, AMP).

## 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.

## 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. WPS may 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).

## 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, WPS 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. WPS's 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 WPS. WPS's 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 WPS 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, WPS 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 the proposed routes. The North Route would affect approximately 62.3 acres of farmland and the South Route would affect approximately 55.5 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;
- The rise of excess rocks 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, WPS 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 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 WPS. In addition, there may be areas of concern to landowners that are not addressed by the AMP or BMPs.

DATCP supports the creation and use of the AMP and BMPs for this project.

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 using individuals with knowledge of agricultural issues 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 are avoided, minimized, or mitigated.

Following the completion of initial restoration, WPS 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	MIKE MUSHINSKI BROWN COUNTY CONSERVATIONIST 1150 BELLEVUE ST GREEN BAY WI 54302
SANDY JUNO BROWN COUNTY CLERK PO BOX 23600 GREEN BAY WI 54305	GREG BANECK OUTAGAMIE COUNTY CONSERVATIONIST 3365 W BREWSTER ST APPLETON WI 54914
LORI J O'BRIGHT OUTAGAMIE COUNTY CLERK 410 S WALNUT ST APPLETON WI 54911	ERICA BREWSTER OUTAGAMIE COUNTY UW-EXTENSION AGENT 3375 AIRPORT ROAD #10 RHINELANDER WI 54501
DEBRA VANDERHEIDEN TOWN OF KAUKAUNA CLERK W780 GREINER RD KAUKAUNA WI 54130	BROWN COUNTY LIBRARY 615 MAIN STREET WRIGHTSTOWN WI 54180
DONNA MARTZ AHL TOWN OF WRIGHTSTOWN CLERK PO BOX 175 GREENLEAF WI 54126	RICK MOSER WISCONSIN PUBLIC SERVICE 700 NORTH ADAMS ST GREEN BAY WI 54301
MICHELLE SEIDL VILLAGE OF WRIGHTSTOWN CLERK 352 HIGH ST WRIGHTSTOWN WI 54180	CYNTHIA SIERACKI TOWN OF BUCHANAN CLERK N178 COUNTY RD N APPLETON WI 54915
TINEDALE FARMS 2768 POPLAR ST WRIGHTSTOWN WI 54180	THOMAS AND GAELA JACKSON LIVING TRUST 6905 SHANTY RD GREENLEAF WI 54126
DEAN AND SHARON DIEDRICK 4314 ROSIN RD DE PERE WI 54115	DARRELL AND JANE PAHL 990 DAY ST GREENLEAF WI 54126
DPFF PROPERTY LLC W509 COUNTY HWY ZZ KAUKAUNA WI 54130	IONE GERRITS 7610 ST PATS CHURCH RD GREENLEAF WI 54126

Copies of the final AIS will be emailed to the following individuals and entities:

- Newspapers: Country Today, Agri-View
- Property Owners: Van De Hey Real Estate LLC

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## APPENDIX A: ACRONYMS

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AIS	Agricultural Impact Statement
AEA	Agricultural Enterprise Area
AMP	Agricultural Mitigation Plan
BMPs	Best Management Practices
CA	Certificate of Authority
CRP	Conservation Reserve Program
CREP	Conservation Reserve Enhancement Program
CTH	County Trunk Highway
DATCP	Department of Agriculture, Trade, and Consumer Protection
dB	Decibels
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

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## APPENDIX B: DATCP STATUTES FOR AGRICULTURAL IMPACT STATEMENTS

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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; publication.* 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.

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## APPENDIX C: INFORMATION SOURCES

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### [DATCP \(datcp.wi.gov\)](http://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 \(doa.wi.gov\)](http://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 \(psc.wi.gov\)](http://psc.wi.gov)

- PSC project webpage for docket [#6690-CG-172](#)

### [Department of Natural Resources \(dnr.wi.gov\)](http://dnr.wi.gov)

- [Energy and utility projects](#)
- [Managed Forest Law](#)

### [U.S. Department of Agriculture \(www.usda.gov\)](http://www.usda.gov)

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

### [Wisconsin Public Service Corporation \(www.wisconsinpublicservice.com\)](http://www.wisconsinpublicservice.com)

- [WPS Agricultural services](#)
- [Natural gas pipeline replacement project](#)

### [Wisconsin Department of Safety and Professional Services \(dsps.wi.gov\)](http://dsps.wi.gov)

- Look-up for state certification status of three types of [real estate appraisers](#)

[State Bar of Wisconsin \(www.wisbar.org\)](http://www.wisbar.org)

For general legal information and assistance in finding a lawyer

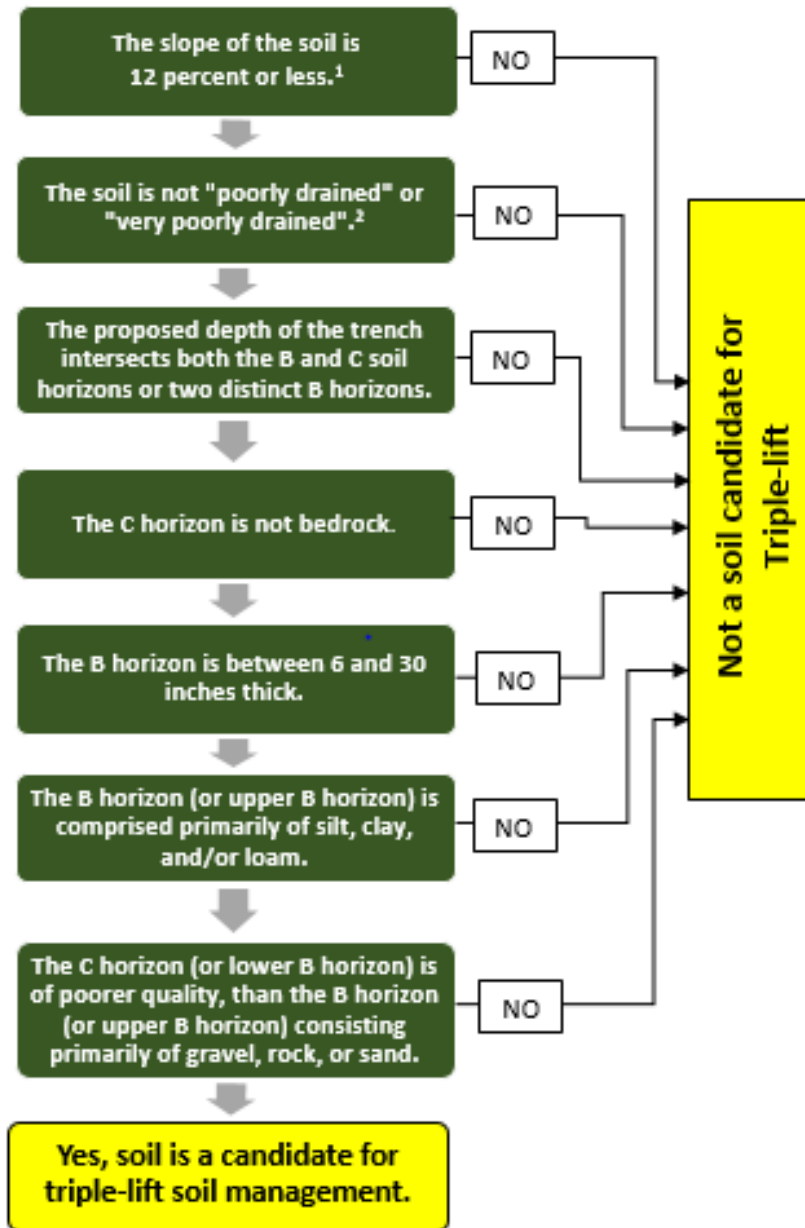
**Background Resources**

- [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: WPS AMP AND BMPS**

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## **AGRICULTURAL MITIGATION PLAN**

### **INTRODUCTION**

Wisconsin Public Service (“WPS or “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**

If it is determined that an Agricultural Inspector (AI) will assist with on-site inspection and monitoring, 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 Environmental Monitor (EM) or the Construction Manager (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.

##### De-compacting the Subsoil:

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  $\frac{3}{8}$  of an inch in length.
  - b. Plastic (not tillable) if the segments are longer than  $\frac{3}{8}$  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 PUBLIC SERVICE 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 PUBLIC SERVICE will determine the required right-of-way widths over the length of lands traversed by the pipeline, including extra workspaces.
2. WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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.

**Best Management Practices for Construction within Agricultural Lands**  
**BMP 03 - Erosion Control**

**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 PUBLIC SERVICE 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 PUBLIC SERVICE Blair 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 PUBLIC SERVICE will advise the construction contractor of all known areas of special concern.
3. WISCONSIN PUBLIC SERVICE 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:

<u>Slope %</u>	<u>Spacing (feet)</u>
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.

### **BMP 03 - Erosion Control - continued**

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 PUBLIC SERVICE in consultation with the landowner in agricultural lands, the mulch will be applied according to WPS 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%.

<u>Slope (%)</u>	<u>Spacing Recommendations (feet)</u>
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 PUBLIC SERVICE will document proposed drain tile plans that the landowner may plan to install within the three years following construction.
4. WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE 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.

General Conditions

1. WISCONSIN PUBLIC SERVICE will use the construction contractor or their sub-contractor to replace, relocate or reconfigure existing tile lines as may be required.
2. WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE will repair or correct tile or drainage problems caused by construction of the pipeline immediately, upon written notice from the landowner to WISCONSIN PUBLIC SERVICE of such a problem, unless WISCONSIN PUBLIC SERVICE can demonstrate that the problem identified by the landowner was not caused by actions performed during such construction or restoration. WISCONSIN PUBLIC SERVICE may arrange a pay settlement to the landowner.

Locating Damaged Drains



## **BMP 04 - Drain Tile - continued**

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 PUBLIC SERVICE 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 PUBLIC SERVICE will require its construction contractors to obtain:
  - WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE may obtain voluntary permissions with landowners
4. WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE 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.

**BMP 05 - Trench Dewatering**

## **BMP 05 - Trench Dewatering - continued**

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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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.

## **BMP 06 - Soil Restoration - continued**

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

1. WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE will include in the construction bid documents explanation of the three-lift soil handling procedure along with the potential locations. WISCONSIN PUBLIC SERVICE 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 PUBLIC SERVICE 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 PUBLIC SERVICE's environmental training sessions required for all field personnel prior to working on the construction right-of-way.

#### **Construction:**

1. WISCONSIN PUBLIC SERVICE 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.
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 PUBLIC SERVICE 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.

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7. WISCONSIN PUBLIC SERVICE 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.







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**WISCONSIN DEPARTMENT OF AGRICULTURE,  
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