AGRICULTURAL IMPACT STATEMENT

DATCP #4251

Plymouth to Chilton Natural Gas Pipeline

Calumet, Sheboygan, and Manitowoc Counties

PSC #6690-CG-174

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

PUBLISHED OCTOBER 31, 2018

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The Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has prepared this Agricultural Impact Statement (AIS) for the proposed Plymouth to Chilton Natural Gas Replacement Pipeline (DATCP #4251) in accordance with Wis. Stat. §32.035. Wisconsin Public Service Corporation (WPS) initially submitted project information to DATCP in May of 2018. WPS proposes to construct approximately 29 miles of 8-inch natural gas pipeline to replace aging 8-inch and 6-inch pipelines. The project route connects a regulator station in the town of Chilton, Calumet County and a station in the town of Sheboygan Falls, Sheboygan County. Much of the route parallels the existing cross-country pipeline with six potential alternate segments. Additionally, eight new aboveground facilities are proposed for the project and one existing aboveground facility would be slightly enlarged.

The Public Service Commission (PSC or Commission) is the authority that approves, denies, or makes modifications to this project and chooses the route that the project will follow.

As part of its review of the project, DATCP sent questionnaires to agricultural property owners who may have three or more acres of easement acquired, if the project is approved by the PSC. Of the property owners along the routes, 122 are agricultural property owners and 54 of those could have three or more acres of easement acquired. Thirty-nine landowners completed the DATCP questionnaire. Their comments and concerns are discussed in detail in Section VII, Agricultural Landowner Impacts.

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

Recommendations to the Public Service Commission

- **Route Modifications**
  - The proposed project main (Segment 4A) will cross steep embankments north and south of Thede Road, in the town of New Holstein. Additionally, WPS proposes to locate Valve Nest 1, south of Thede Road within a steeply sloping low spot owned by the Bonlander Trust. DATCP is concerned that WPS has not adequately considered the effect of constructing and operating these facilities in an area with significant elevation changes, in particular the issue of surface water management and how an increase in surface water may impact adjacent cropland and properties.

    DATCP recommends that prior to construction, WPS submit design specifics to PSC and DATCP for the Valve Nest 1 area showing the depth and width of trench construction across Thede Road, elevation diagrams for Valve Nest 1, and any

temporary and/or permanent surface water management facilities or strategies proposed to prevent water from affecting adjacent fields and crop yields.

- DATCP recommends that WPS work with Randolph and Hope Schmitt to modify the route along Segment 4A so as to minimize impacts to their farm and mature trees.

- **Aboveground Facilities**
  - DATCP recommends that WPS work with landowners to site all new aboveground facilities so as to minimize impacts to actively farmed lands.

- **Compensation to Farmers**
  - The majority of this project crosses diagonally through cropland. Construction activities may create off right-of-way (ROW) impacts that farmers should be properly compensated for. Some portions of fields may become inaccessible to farm equipment during the construction of the pipeline. Additionally, even if all portions of the field remain accessible, pipeline construction may create a smaller or odd-shaped field remnant that, due to the limited maneuverability of farm equipment, would be impractical to farm. DATCP recommends that WPS should properly compensate farmers if portions of crop fields become inaccessible or impractical to farm during construction.

- **Agricultural Inspector**
  - As much as 90 percent of project routes cross through agricultural properties. Many of these farm owners have invested in extensive drain tiling that, if damaged, would cause significant harm to the future productivity of their land. Due to these potential impacts, DATCP recommends the use of a dedicated Agricultural Inspector for this project.
  - The Agricultural Inspector should assist with pre-construction discussions between the utility and agricultural property owners, conduct inspections of construction activities through agricultural properties, and monitor the implementation of the project-specific Agricultural Mitigation Plan (AMP) and Best Management Practices (BMPs). The Agricultural Inspector should be familiar with agricultural operations and gas pipeline construction impacts and mitigation, as well as have knowledge in agronomy, soil conservation, and soil identification.
  - DATCP recommends that the Agricultural Inspector share periodic construction reports with DATCP staff.

- **Three-Lift Soil Handling**
  - DATCP recommends that the Agricultural Inspector conduct field reviews for the following three-lift soil candidates along the approved route where trenching would occur in cropland and pasture:
    - Barry silt loam
    - Boyer sandy loam, 2-6% slopes
    - Casco loam, 0-2%, 2-6% slopes, and 6-12% slopes eroded
    - Dodge silt loam 2-6% slopes
    - Fabius loam, 0-3% slopes
    - Fox silt loam, 2-6% slopes
    - Hochheim loam, 2-6% slopes
    - Hochheim silt loam and Hochheim loam, 6-12% slopes, eroded
    - Lamartine silt loam, 0-3% slopes
    - Matherton silt loam, 0-3% slopes
    - Mayville silt loam, 0-2% slopes
    - St. Charles silt loam, 2-6% slopes
  - DATCP recommends that WPS project-specific BMP 09 be adhered to for properties identified by the Agricultural Inspector as having one of the identified three-lift soil candidates and where it would be practicable to use three-lift soil handling.
  - DATCP recommends that WPS inform affected agricultural property owners who have potential three-lift soil candidates on their land and how three-lift soil handling could preserve the productivity of their fields.

- **Organic Farming Practices**
  - Two potentially affected farms use organic practices. The Deibele Trust farmland along Segment 5 stated that they use organic practices. Danes Fairyland Dairy Farms LLC (including land owned by All-Trades Farms LLC) owns and operates certified organic land along Segments 2A, 2B, 3, and 4A.

    DATCP recommends that, prior to the start of construction, WPS work with these property operators and their certifying entity (if any), to determine site-specific construction practices that would protect the organic practices used by these farmers and minimize the potential for decertification, if applicable. Issues that should be addressed include the application or potential release of any prohibited materials, soil management, erosion control, and weed control. WPS should not apply seed to organic land prior to consultation with the landowner or operator. Additionally, WPS should compensate the landowner for any damages, if decertification results from pipeline construction or restoration activities.

- **Land Enrolled in Conservation Programs**
  - Owners of the OMADD LLC property along Segment 5 and the Kleibers who own property along Segments 9 and 10A have stated that their land is enrolled in the NRCS's Conservation Stewardship Program. DATCP recommends that WPS work with these property owners to minimize impact to their participation in this program.

Recommendations to WPS

- If Segment 2A is chosen, DATCP recommends that WPS continue to work with the two property owners, Karls Living Trust and Gertrude Bonlander (Bonlander Family Trust) regarding WPS route modifications so as to minimize impacts to valuable drainage tiles and wooded areas.
- The AMP and BMPs submitted by WPS for this project are effective tools in mitigating potential impacts to farm properties. DATCP recommends that WPS implement appropriate training for all construction supervisors, inspectors, and crews to ensure that they understand the implementation of the AMP and BMPs so that the integrity of agricultural lands and operations are protected during project construction and restoration.
- Due to local ordinances, Valve Nest 1 and 2 both require substantially larger easements than the actual size of the proposed facilities. For this reason, DATCP recommends that the property owners, Bonlander Family Trust and Sarah's Farm LLC where Valve Nest 1 and 2 would be sited, respectively, be given the option to continue to farm the land not required for these facilities.
- When the proposed project will require the removal of trees that are not fully mature, WPS should hire appraisers who have expertise in valuing such trees that have not yet reached a marketable stage. Other characteristics that should be considered include damage to windbreaks due to the loss of trees, loss of shade for livestock or other needs, loss of fruit or nut bearing trees, and the aesthetic values of trees that are removed.
- DATCP recommends that WPS should attempt to ensure that any renters of agricultural land crossed by the proposed project are kept up-to-date and informed of construction schedules and potential impacts.
- WPS should work with property owners and renters to minimize construction impacts to farming operations and infrastructure.
- WPS should work with landowners to restore agricultural properties impacted by construction activities to pre-construction function and address concerns resulting from construction.

- Where construction activities have altered the natural stratification of the soils resulting in new wet areas, WPS should work with the landowner to determine the means to return the agricultural land either in the ROW or on adjoining lands to pre-construction function. New drainage tiles, regrading, or additional fill may be required to correct the problems that arise after construction is completed.

Recommendations to Agricultural Property Owners

- Landowners should examine the language of any easement contract carefully and verify that it contains all agreed-to terms. Landowners should be familiar with the utility's project-specific AMP and BMPs (Appendix G) so as to determine if additional conditions should be negotiated with the utility. Though landowners may choose to waive any or all of the practices and procedures described in the AMP and BMPs, DATCP recommends to only do so with careful consideration.
- Landowners/operators should keep records of the condition of their land within the 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, prior to the start of construction, where construction activities may interfere with farm operations and where farm facilities are located including, drainage tiles, wells, watering systems, fencing, farm access roads, or grain bins. Landowners should work with WPS on how agricultural operations will continue during the different phases of pipeline construction. If any infrastructure such as drainage tiles or fencing are damaged by construction activities, landowners should document and photograph the damage and any repair efforts conducted on behalf of WPS to ensure the repair is adequate.
- After construction is completed, landowners and the utility should carefully monitor for the emergence of drainage problems. If problems are observed that can be attributed to pipeline construction, the landowner and the utility should work together to develop a mutually agreeable solution.

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 five 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, as well as additional references to statutes that govern eminent domain and condemnation processes are included in Appendix B. Links to other sources of information can be found in Appendix C.

The proposed project requires a Certificate of Authority (CA) from the Public Service Commission of Wisconsin (PSC or Commission) before construction can begin. The PSC will analyze the need for the project and the potential environmental and community impacts in an Environmental Assessment. The Commission will approve, modify, or deny the utility's application. Additional information about this project and the PSC review process can be found on the PSC web site: http://psc.wi.gov under the PSC docket number 6690-CG-174.

Wisconsin Public Service Corporation (WPS) has developed an Agricultural Mitigation Plan (AMP) and Best Management Practices (BMPs) for this project. The AMP and BMPs describe the policies to be followed and methods to be used by 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 G of this report.

During construction, WPS may designate one or more individuals as the project Agricultural Inspector. The Agricultural Inspector would be familiar with agricultural operations, the AMP and BMPs, as well as gas pipeline construction. DATCP encourages the use of an Agricultural Inspector for this project.

II. PROJECT DESCRIPTION

Overview

WPS proposes to construct a new natural gas pipeline to replace an existing aging natural gas pipeline between the town of Chilton, Calumet County and the town of Sheboygan Falls, Sheboygan County. WPS has repaired a number of leaks on this pipeline since its original construction in the 1950s. This project includes the replacement of approximately 16.2 miles of 8-inch and 9.9 miles of 6-inch steel 250 psig maximum allowable operating pressure (MAOP) main with approximately 29 miles of 8-inch steel, 420 psig MAOP main.

The current gas main was sited many years ago with little consideration for impacts to existing land uses. It cuts diagonally through many parcels, fields, and natural resources. While new gas line construction is typically located so as to minimize impacts to land uses and natural resources, this replacement pipeline needs to connect to the existing regulator stations, laterals, and service feeds. For that reason, WPS determined that significant deviation from the existing main's alignment would be impractical. As such, the segment alternatives included in the WPS application are short deviations from the existing alignment for the purpose of reducing impacts to encroaching developments and environmental resources.

Much of the proposed route parallels the existing natural gas main with the proposed right-of-way (ROW) overlapping some portion of the existing natural gas ROW. WPS has divided the route into fifteen segments with 6 possible alternative segments. For segments 1, 3, 4A, 5, 7, 9, 11, 13, and 15 no alternative segments are proposed. The remaining segments 2, 6, 8, 10, 12, and 14 have the option of being routed along an "A" segment (WPS-preferred) or a "B" segment (alternate). WPS did not identify a "Segment 4B" in its application materials.

Table 1 lists the route segment locations and the degree to which they would overlap the ROW of the existing natural gas main. A map of the proposed project is presented in Figure 1.

Table 1: Route Segment Characteristics

Segment	New ROW or ROW that Would Overlap Existing Natural Gas ROW*	Shared ROW Width (ft.)	Location	County
1	New	0	Town of Chilton City of Chilton	Calumet
2A	New	0	Towns of Chilton, Charlestown, and Brothertown	Calumet
2B	Some sharing	0-25	City of Chilton Towns of Chilton and Charlestown	Calumet
3	Some sharing	0-25	Town of New Holstein	Calumet

Segment	New ROW or ROW that Would Overlap Existing Natural Gas ROW*	Shared ROW Width (ft.)	Location	County
4A	New	0	Town of New Holstein, City of New Holstein	Calumet
5	Some sharing	0-25	Towns of New Holstein, Schleswig, and Rhine, City of Keil	Calumet, Manitowoc, and Sheboygan
6A	New	0	Town of Rhine	Sheboygan
6B	Some sharing	0-25	Town of Rhine	Sheboygan
7	Some sharing	25	Town of Rhine	Sheboygan
8A	New	0	Town of Rhine	Sheboygan
8B	Some sharing	1-25	Town of Rhine	Sheboygan
9	Some sharing	25	Towns of Rhine and Plymouth	Sheboygan
10A	New	0	Towns of Plymouth and Sheboygan Falls	Sheboygan
10B	Some sharing	0-50	Towns of Plymouth and Sheboygan Falls,	Sheboygan
11	Some sharing	25	Town of Sheboygan Falls	Sheboygan
12A	New	0	Town of Sheboygan Falls	Sheboygan
12B	Some sharing	25	Town of Sheboygan Falls	Sheboygan
13	Some sharing	0-50	Town of Sheboygan Falls	Sheboygan
14A	New	0	Town of Sheboygan Falls	Sheboygan
14B	Some sharing	25	Town of Sheboygan Falls	Sheboygan
15	Some sharing	25	Town of Sheboygan Falls	Sheboygan

* The proposed ROW may overlap other types of existing easements such as highways and roads.

Project Purpose and Need

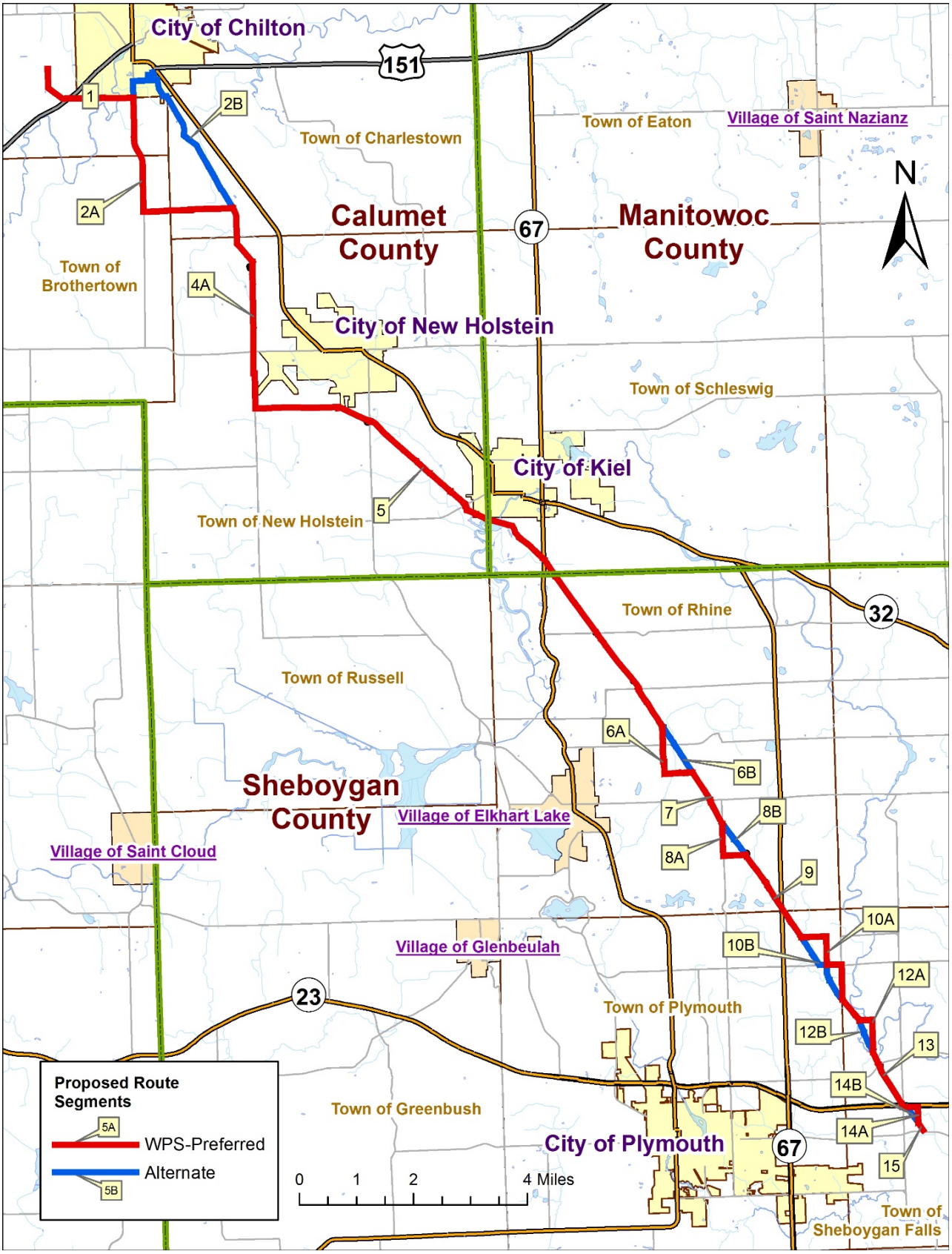
The primary purpose of the Plymouth to Chilton Natural Gas Pipeline Project is to replace an aging main and maintain service to WPS customers. The project would also increase capacity to accommodate future growth in the area.

Description of Potential Routes

Segment 1

There are no alternative segments to Segment 1. Segment 1 is 1.9 miles long and requires all new ROW. It does not parallel the existing natural gas main nor any road or highway. Starting at the West Chilton District Regulator Station in the town of Chilton, Segment 1 crosses Quinney Road, extending south, southeast, and east, cross-country. Most of the segment is routed along parcel boundaries. It crosses U.S. Highway (USH) 151 and Harlow Road, then enters the city of Chilton. Continuing east, it crosses Fox Street, the south branch of the Manitowoc River, and ends at County Trunk Highway (CTH) G.

Figure 1: Overview Map



Segment 2A or 2B

From Segment 1, Segment 2 may be routed along Segment 2A or 2B. Both are 2.6 miles long. Segment 2A is all new ROW. Segment 2B parallels the existing gas main.

Segment 2A travels south and east through the towns of Chilton, Brothertown, and Charlestown. From the end of Segment 1, Segment 2A turns south along the west side of CTH G. Approximately 2,400 feet south of Jefferson Road, it turns east for a distance of approximately 8,300 feet. The segment crosses CTH G and Irish Road and continues east along the north side of Redwood Road, ending at the start of Segment 3. WPS has proposed a slight route adjustment for this segment between CTH G and Irish Rd as recommended by two landowners. This route adjustment is described in Section VI, Agricultural Landowner Impacts, under "Property Owner Comments, Segment 2A" and in Appendix F.

Segment 2B travels north into the city of Chilton along the west side of CTH G and then zig-zags east and north before paralleling the existing natural gas main and then connecting to the existing Chilton District Regulator Station. From there the segment parallels the existing natural gas main out of the city of Chilton, primarily to the southeast. The new gas main would be constructed along the west side of the existing main.

South of the city of Chilton, in the town of Charleston, Segment 2B is entirely cross-country and follows no parcel boundaries. Where it is aligned with the existing main, the new ROW would overlap the existing gas main ROW anywhere between 0 and 25 feet. The southern 3,500 feet of the segment veers away from the existing gas main and does not overlap any of the existing natural gas ROW.

Segments 3, 4A, and 5

No alternative segments are proposed for Segments 3 (1 mile), 4A (4.1 miles), or 5 (8.2 miles) which together total 13.3 miles. Segment 3 and 5 parallel the existing natural gas main whereas Segment 4A departs from the existing main. WPS has routed Segment 4A along new ROW to avoid encroaching residential and commercial developments along the existing gas main.

Segment 3 continues from either Segment 2A or 2B southeast cross-country through the towns of Charlestown and New Holstein. The segment ends 410 feet north of the intersection of Thede and Orchard Roads. The new ROW would overlap the existing natural gas main ROW between 0 and 25 feet.

Segment 4A turns south and departs from the existing natural gas main alignment. It crosses Thede Road and connects to the proposed aboveground facility, Valve Nest 1, before continuing south along the west side of Orchard Road/CTH A. The segment crosses Tecumseh Road and CTH HH, then crosses to the east side of CTH A before continuing south. The segment then turns east along the north side of Fur Farm Road for approximately 7,600 feet and crosses Plymouth

Trail. Just prior to the end of Segment 4A, the segment crosses to the south side of Fur Farm Road.

Segment 5 again parallels the existing natural gas main, traveling primarily cross-country. The proposed ROW would overlap between 0 and 25 feet of the existing 50-foot-wide natural gas main ROW. Approximately 3,000 feet south of the start of the Segment 5, the new line would connect to the proposed aboveground facility, Valve Nest 2. The existing New Holstein District Regulator Station located east and across the road from proposed Valve Nest 2 would be connected to the new pipeline, as well.

The segment then continues southeast for another 2.25 miles, crossing CTH J, Foundry Road, Seven Corners Road, and City View Road. Prior to intersecting with CTH HH, Segment 5 connects to the existing Kiel Regulator Station. The Kiel Regulator Station would require some additional land from a private landowner. As Segment 5 approaches the city of Kiel and the Kiel Wildlife Marsh, it crosses CTH HH and deviates from the existing main so as to minimize impacts to natural resources and a subdivision development.

Segment 5 then continues southeast, cross-country through the southwestern corner of the city of Kiel, the town of New Holstein, and the town of Schleswig. It crosses under the Sheboygan River to again parallel the existing gas main. It crosses State Trunk Highway (STH) 67 and the Manitowoc-Sheboygan County Line Road. In Sheboygan County, Segment 5 enters the town of Rhine and connects to the proposed aboveground facility, Valve Nest 3. The segment continues southeast and prior to crossing CTH EH, the pipeline would connect to the proposed aboveground facility, Station 1. The segment then crosses CTH EH, Snake Road, and Jung Road, connecting to the proposed aboveground facility, Station 2. From there it crosses CTH MM and connects to the proposed aboveground facility, Valve Nest 4, adjacent to Little Elkhart Lake Road.

Segment 6A or 6B

From Valve Nest 4, Segment 6 may be routed along Segment 6A or 6B. Segment 6A (1.3 miles) is slightly longer than Segment 6B (1 mile). Segment 6B travels southeast cross-country and parallels the existing natural gas main. Segment 6A travels south then east paralleling the roads, Little Elkhart Lake and Keystone. Segment 6A avoids impacts to natural resources.

Segment 6A runs south along the west side of Little Elkhart Lake Road, crossing Maple Drive and CTH FF. It then crosses to the east side of Little Elkhart Lake Road and continues south, crossing to the south side of Keystone Road and then turning east. The segment crosses LaBudde Creek and ends at the start of Segment 7.

Segment 6B travels southeast, cross-country, paralleling the east side of the existing natural gas main. The proposed ROW would overlap approximately 25 feet of the existing natural gas ROW. The segment crosses the LaBudde Creek, CTH FF, and ends just south of Keystone Road.

Segment 7

Segment 7 is a short one mile segment in the town of Rhine with no alternative. It would parallel the existing main. The proposed ROW would overlap 25 feet of the existing natural gas ROW. The segment is cross-country and follows no parcel boundaries. It crosses CTH A and ends prior to crossing CTH E.

Segment 8A or 8B

Segment 8 may be routed along Segment 8A or 8B. Segment 8A (1.0 mile) is slightly longer than Segment 8B (0.7 miles).

Segment 8A travels south along the west side of CTH E and then east along the north side of Garton Road. The segment ends at a proposed station and valve nest. Segment 8A was proposed to avoid impacts to new urban developments and natural resources.

Segment 8B travels southeast cross-country and parallel to the existing natural gas main. It ends at a connection to a proposed station and valve nest. The new ROW for Segment 8B would overlap between 1 and 25 feet of the existing natural gas ROW.

Segment 9

Segment 9, a short 1.7 mile segment in the towns of Rhine and Plymouth, starts at the proposed station and valve nest and runs parallel to the existing natural gas main. No alternative segments were proposed for Segment 9. The proposed new ROW would overlap 25 feet of the existing natural gas ROW. The segment is cross-country and follows no parcel boundaries. It crosses Garton Road, Gerber Lake Road, STH 57, and multiple tributaries of Otter Creek.

Segment 10A or 10B

Segment 10 may be routed along Segment 10A or 10B through the towns of Plymouth and Sheboygan Falls. Segments 10A and 10B cross near the existing Johnsonville Regulator Station along CTH J, approximately 1,330 feet west of CTH JM. Segment 10A (1.8 miles) is slightly longer than Segment 10B (1.4 miles). Segment 10B travels southeast cross-country and for the most part, parallels the existing natural gas main. Segment 10A would be all new ROW, traveling east and south along roads and parcel boundaries. Segment 10A was proposed to avoid natural resource impacts.

Segment 10A, from the end of Segment 9, turns east along a parcel boundary for about 2,300 feet, and crosses a tributary of Otter Creek. It then turns south for about 2,600 feet along parcel boundaries until connecting with the existing Johnsonville Regulator Station and approaching CTH J. Segment 10A then turns east along the north side of CTH J, crosses Willow Road/CTH JM into the town of Sheboygan Falls and continues south 3,250 feet along the east side of Willow Road. Lastly, it crosses Otter Creek and ends at the start of Segment 11.

Segment 10B runs southeast cross-country, just west of the existing natural gas main. The proposed ROW would overlap between 0 and 50 feet of the existing natural gas ROW. At CTH J, the segment deviates from the existing natural gas ROW and turns east, paralleling the north side of CTH J for approximately 660 feet. The segment would connect to the existing Johnsonville Regulator Station and then turn south, crossing CTH J, and running along a parcel boundary for about 830 feet. This deviation from the existing gas main minimizes impacts to one property. From there, Segment 10B continues southeast paralleling the existing natural gas main and crossing under Otter Creek. The segment enters the town of Sheboygan Falls and ends at the start of Segment 11.

Segment 11

Segment 11 is a short one-half mile segment in the town of Sheboygan Falls with no alternative. It parallels the existing natural gas main. The proposed new ROW would overlap 25 feet of the existing ROW. The segment is cross-country and follows no parcel boundaries.

Segment 12A or 12B

Segment 12, located within the town of Sheboygan Falls may be routed along Segment 12A or 12B. Both Segment 12A and 12B are 0.7 miles long. Segment 12B travels southeast cross-country along the existing natural gas main. Segment 12A travels east and south, paralleling local roads for much of the segment. Both segments cross under the Sheboygan River. Segment 12A avoids impacts to forested wetlands.

From the end of Segment 11, **Segment 12A** turns east for about 1,200 feet along the north side of Woodland Road and crosses under the Sheboygan River. It crosses Rio Road and then turns south along the east side of Rio Road. It continues south for a distance of about 2,700 feet, approximately 400 feet past the point where Rio Road curves east.

Segment 12B would be located approximately 15 feet east of the existing natural gas main. The required easement would overlap the existing natural gas ROW by 25 feet. The segment travels southeast and cross-country and under the Sheboygan River.

Segment 13

Segment 13 has no alternate segment proposed. It is located within the town of Sheboygan Falls, continuing southeast for about 1.2 miles. For the first 2,100 feet, it deviates from the existing natural gas main ROW, approximately 200-250 feet to the west. It crosses CTH O and connects to the proposed aboveground facility, Station 3. Approximately 600 feet south of Station 3, the segment crosses to the east side of the existing natural gas ROW and again parallels the existing main until reaching the end of the segment. The ROW for this portion of the segment would mostly overlap the existing natural gas ROW width by 25 feet. At the intersection of CTH M and STH 23, the segment briefly deviates from the existing gas ROW, first turning south and crossing STH 23

and then turning east a short distance along the south side of STH 23. It crosses CTH M and ends at the start of Segment 14.

Segment 14A or 14B

Within the town of Sheboygan Falls, Segment 14 may be routed along Segment 14A or 14B. Segment 14A (0.5 miles) is slightly longer than Segment 14B (0.3 miles).

Segment 14A travels east along the south side of STH 23 and then south along parcel boundaries, cross-country. Segment 14A was proposed to avoid commercial developments.

Segment 14B travels southeast cross-country along the existing natural gas main. The ROW for Segment 14B would overlap the width of the existing natural gas ROW by about 25 feet.

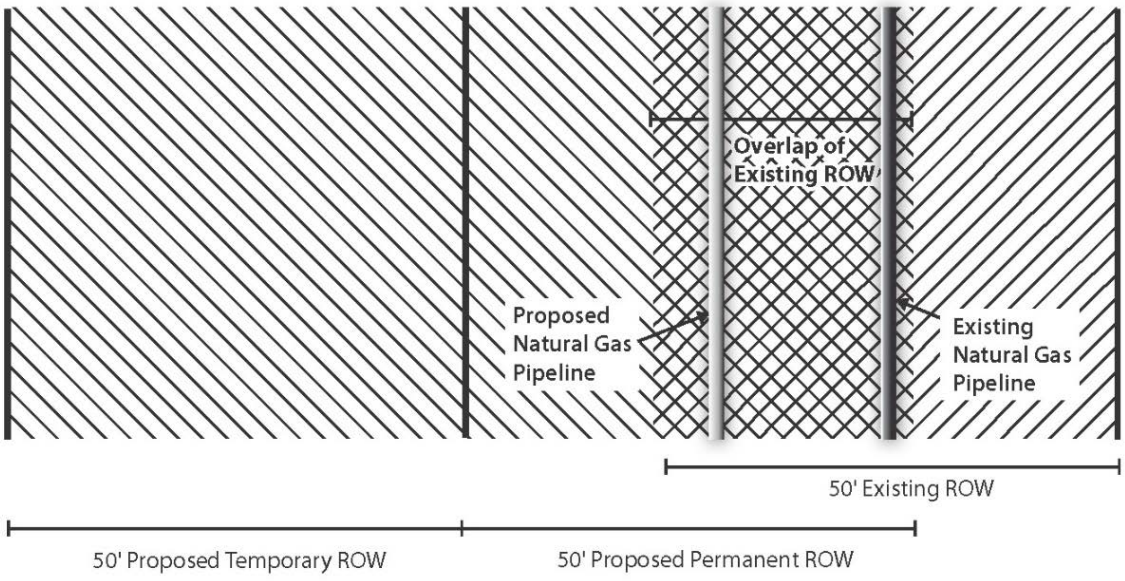
Segment 15

Segment 15 is a very short segment (0.1 mile) and ends at the existing Plymouth District Regulator Station in the town of Sheboygan Falls. There is no alternative segment proposed. It parallels the existing natural gas main. The proposed new ROW would overlap 25 feet of width of the existing natural gas ROW. The segment is cross-country and follows no parcel boundaries.

Shared ROW

This project is a replacement pipeline that could be routed along much of the existing pipeline. The existing pipeline is located within a 50-foot-wide ROW. For a majority of Segments 2B, 3, 5, 6B, 7, 8B, 9, 10B, 11, 12B, 13, 14B and 15, the new pipeline would be located 15 feet from the existing pipeline and require an easement that would overlap the existing ROW width by 25 feet. An additional 25 feet of new permanent ROW would be required in these areas. Figure 2 shows a typical ROW for where this project would overlap the existing pipeline ROW by 25 feet.

Figure 2: Proposed Pipeline ROW Overlap of Existing ROW



Much of the existing natural gas ROW is covered by older "blanket-type" easements, which may encumber an entire parcel instead of describing a specific 50-foot wide easement. WPS has stated that they would attempt to negotiate a new easement with these landowners, which will include adequate easement for both the new and the abandoned pipeline but limit the permanent easement width to 100 feet or less of combined width. If WPS is able to obtain a new easement, any existing easements that are no longer needed would be released. Additionally, if the new pipeline is approved along segments that do not parallel the existing pipeline, WPS would release the existing easements with the pipeline abandoned in place.

ROW Requirements

This new natural gas pipeline would require a 50-foot wide permanent easement for much of the route. An additional 25 to 50 feet of temporary easement width would be acquired to accommodate construction activities. The wider temporary easement of 50 feet would be used in agricultural areas to accommodate the storage of segregated excavated soils. The total typical ROW width that could be disturbed by this project's construction activities would be between 75 and 100 feet.

After construction is completed, the temporary easement would be restored and then terminated.

The natural gas pipeline would be constructed in an open trench for much of the route, although horizontal directional drilling (HDD) or jack and bore construction is proposed to avoid impacts to man-made and natural resources including highways, roads, residential and commercial developments, rivers, wetlands, and woodlands.

In areas where horizontal directional drilling (HDD) or jack and bore construction would be used instead of open trenching, narrower ROW widths may be allowable. However, often other areas of off-ROW temporary easement are required. For example on this project, the 1,682 feet of boring under the Sheboygan River requires 1.7 acres of additional temporary easement, southeast of the river, for pipe stringing.

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

Trench Dimensions

The excavated trench would be approximately 5 feet deep and 4 feet wide. In some areas where there are obstacles, such as existing pipelines, steep topography, or shallow bedrock, the excavated trench may need to be deeper and 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.

Pipeline Abandonment

If the PSC approves the construction of this project, the existing 8- and 6-inch natural gas pipelines would be disconnected from the gas supply, purged of gas to the atmosphere, capped, and abandoned in place. WPS does not anticipate any additional impacts from the abandonment process and does not propose removing the existing pipelines.

Service Connections

All of the current natural gas customers serviced by the existing pipeline will continue to be served by the new pipeline, if approved. No new customers would be serviced by the approval and construction of this project. Landowners in the project area interested in a new connection to the WPS natural gas system should contact WPS. These types of requests are handled by WPS on a case-by-case basis and are outside of the scope of this project.

III. PROJECT IMPACTS TO AGRICULTURAL PROPERTIES

Easements

The majority of this project is routed through agricultural properties.

For segments 1, 3, 4A, 5, 7, 9, 11, 13, and 15 no alternative segments are proposed. The remaining segments of 2, 6, 8, 10, 12, and 14 have the option of being routed along an "A" segment (WPS-preferred route) or a "B" segment (alternate segment).

If the Commission approves the project, the Commission has the option to choose either "A" or "B" segments for any portion of the route. This means that the Commission is not restricted to choosing all WPS-preferred segments ("A" segments) or alternate segments ("B" segments) for the approved route.

Table 2 identifies the potential acres required (temporary and permanent easements) for the WPS-preferred route (Segments 1, 2A, 3, 4A, 5, 6A, 7, 8A, 9, 10A, 11, 12A, 13, 14A, and 15) and the Alternate Route (Segments 1, 2B, 3, 4A, 5, 6B, 7, 8B, 9, 10B, 11, 12B, 13, 14B, and 15). These totals include all proposed aboveground facilities and staging areas.

Table 2: Easement Requirements for Project Routes

Route	Length (mi)	Segments	Easements (acres)			Agricultural Property Easements (acres)		
			Perm.	Temp.	Total	Perm.	Temp.	Total
WPS-preferred	28.8	1,2A,3,4A,5,6A, 7,8A,9,10A,11, 12A,13,14A,15	176.3	175.0	351.3	152.4	162.3	314.7
Alternate	27.3	1,2B,3,4A,5,6B,7, 8B,9,10B,11,12B, 13,14B,15	168.7	159.7	328.4	135.2	136.9	272.0

The WPS-preferred route affects 42.7 more acres in agriculture than the alternate route. For the WPS-preferred route, 90 percent of the affected acres are agricultural properties and for the alternate route, 83 percent of the affected acres are agricultural properties.

Tables 3 through 8 compare the easements required for the portions of the route where alternate segments are available (Segments 2, 5, 8, 10, 12, and 14). These segments are relatively short and often affect the same landowners, though in different ways.

Table 3: Easement Requirements for Segment 2A versus 2B

Segment	Length (mi)	Total Easements (acres)			Agricultural Property Easements (acres)		
		Permanent	Temporary	Total	Permanent	Temporary	Total
2A	3.6	21.4	24.3	45.7	21.1	24.3	45.4
2B	3.6	21.9	22.8	44.7	15.1	15.8	30.9

Table 4: Easement Requirements for Segment 6A versus 6B

Segment	Length (mi)	Total Easements (acres)			Agricultural Property Easements (acres)		
		Permanent	Temporary	Total	Permanent	Temporary	Total
6A	1.3	7.9	6.8	14.7	4.6	5.3	9.9
6B	1.0	5.8	4.0	9.8	1.3	1.4	2.6

Table 5: Easement Requirements for Segment 8A versus 8B

Segment	Length (mi)	Total Easements (acres)			Agricultural Property Easements (acres)		
		Permanent	Temporary	Total	Permanent	Temporary	Total
8A	1.0	6.4	4.9	11.3	5.7	4.5	10.2
8B	0.7	4.9	2.4	7.3	4.3	2.1	6.4

Note: The acres required for the Station and Valve Nest was included in both Segments 8A and 8B.

Table 6: Easement Requirements for Segment 10A versus 10B

Segment	Length (mi)	Total Easements (acres)			Agricultural Property Easements (acres)		
		Permanent	Temporary	Total	Permanent	Temporary	Total
10A	1.8	11.0	12.2	23.2	10.6	12.0	22.5
10B	1.4	8.5	7.5	16.1	7.3	6.9	14.2

Table 7: Easement Requirements for Segment 12A versus 12B

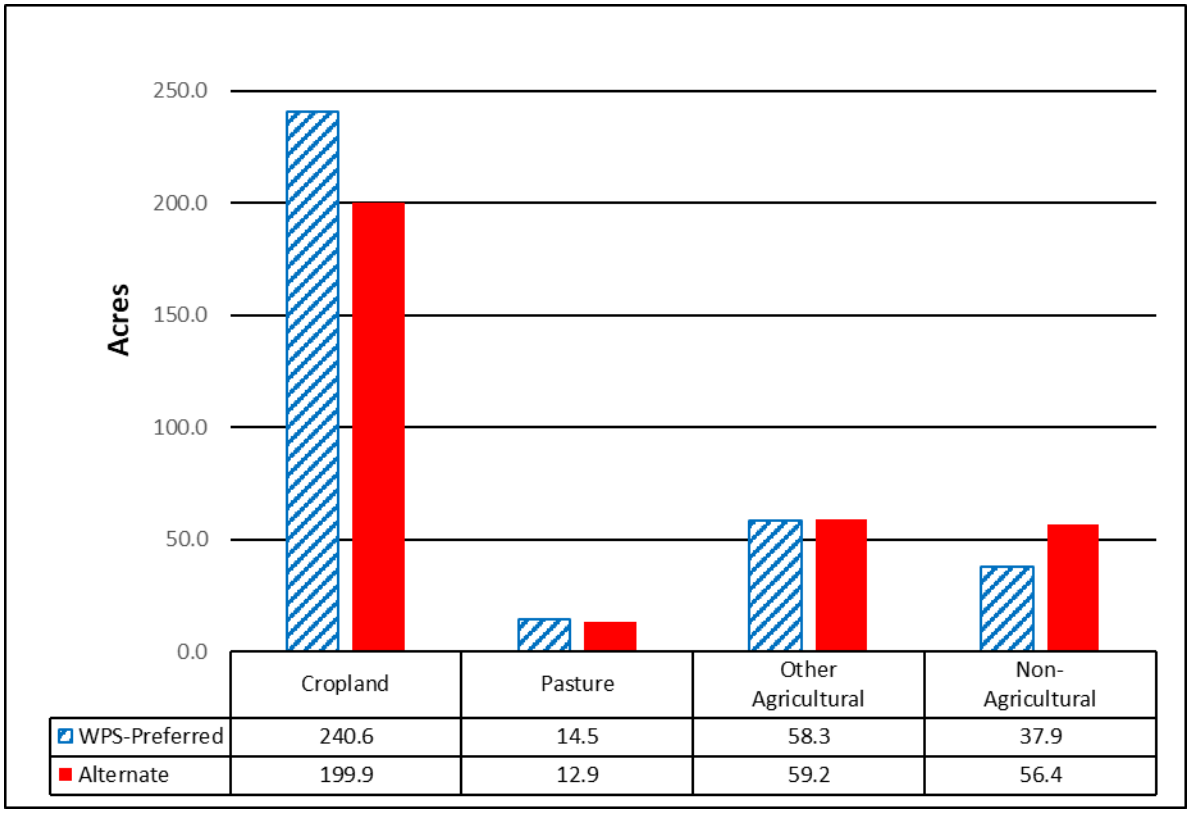
Segment	Length (mi)	Total Easements (acres)			Agricultural Property Easements (acres)		
		Permanent	Temporary	Total	Permanent	Temporary	Total
12A	0.7	4.5	5.4	9.9	3.7	5.4	9.1
12B	0.6	3.3	1.8	5.0	2.1	1.8	3.9

Table 8: Easement Requirements for Segment 14A versus 14B

Segment	Length (mi)	Total Easements (acres)			Agricultural Property Easements (acres)		
		Permanent	Temporary	Total	Permanent	Temporary	Total
14A	0.5	2.9	2.4	5.3	1.7	2.1	3.8
14B	0.3	2.1	2.2	4.3	0.1	0.1	0.2

While the distance of the "A" and "B" segment pairs are very similar, the "A" segments consistently affect more acres of agricultural properties than the "B" segments. A majority of the agricultural land crossed by either route is cropland, with fewer acres of pasture and other types of agricultural land uses.

Figure 3: Types of Potentially Affected Farmland by Route



	Cropland	Pasture	Other Agricultural	Non-Agricultural
WPS-Preferred	240.6	14.5	58.3	37.9
Alternate	199.9	12.9	59.2	56.4

WPS does not anticipate impacting any farm buildings or structures for this project.

Aboveground Facilities

Eight new aboveground facilities would require land acquisition for this project. One aboveground facility, the existing Kiel District Regulator Station, would require a minor expansion from an agricultural property owner. Additionally, the project starts and ends at existing district regulator stations (West Chilton and Plymouth) as well as require connections to two other existing Regulator Stations (New Holstein and Johnsonville). If Segment 2B is selected, the new pipeline would also connect to the existing Chilton District Regulator Station. None of the existing five stations would require additional easement acquisitions.

All aboveground facilities constructed for this project would be surrounded by a fence. Table 9 lists the proposed and existing aboveground facilities and their locations from north to south.

For Valve Nest 1 and 2, Calumet County land setback and zoning ordinances required WPS to purchase a minimum of 1 acre of land for each facility. The actual footprint of the permanent facilities would be 0.03 acres for Valve Nest 1 and 0.05 acres for Valve Nest 2.

Table 9: Aboveground Permanent Facilities

Facility	Segment	Acquisition (acres)	Agricultural Property	FPP* Parcel	Location	Property Owner
West Chilton District Reg. Station	Northern end of project	None (Existing Facility)	No	Non-Ag	Town of Chilton	WPS
Chilton District Reg. Station	2B	None (Existing Facility)	No	Non-Ag	City of Chilton	WPS
Valve Nest 1	4A	1.03	Yes	Yes	Town of New Holstein	Bonlander Family Trust
Valve Nest 2	5	1.04	Yes	Yes	Town of New Holstein	Sarah's Farm LLC
New Holstein District Reg. Station	5	None (Existing Facility)	No	Non-Ag	Town of New Holstein	WPS
Kiel District Reg. Station Expansion	5	0.1	Yes	Yes	Town of New Holstein	Alfred Keuler
Valve Nest 3	5	0.09	Yes	Yes	Town of Rhine	Deible Trusts
Station 1	5	0.10	Yes	Yes	Town of Rhine	Robin & Becky Schmahl
Station 2	5	0.09	Yes	No	Town of Rhine	Kuhn Farm LLC
Valve Nest 4	5	0.06	Yes	No	Town of Rhine	Steven Hiebing
Station & Valve Nest	8A/8B	0.92	Yes	Yes	Town of Rhine	Michael DeMaster
Johnsonville Reg. Station	10A/10B	None (Existing Facility)	Yes	Zoned FP	Town of Plymouth	Prange Trust
Station 3	13	0.15	No	Non-Ag	Town of Sheboygan Falls	Marvin Zimmermann, Theobald Trust
Plymouth District Reg. Station	Southern end of project	None (Existing Facility)	No	Non-Ag	Town of Sheboygan Falls	WPS

* Farmland Preservation Plan (FPP) and Farmland Preservation (FP) zoning is described in detail on page 28 under "Farmland Preservation".

There are existing aboveground facilities associated with the current gas main that would be removed and replaced with new aboveground facilities, if this project is approved. They include:

- Existing regulation equipment on CTH EH, in the town of Rhine would be removed and replaced with Station 1 on Segment 5
- Existing regulation equipment on Jung Road in the town of Rhine, just north of CTH MM would be removed and replaced with Station 2 on Segment 5
- Existing valve nest on Little Elkhart Lake Road in the town of Rhine would be removed and replaced with Valve Nest 4 on Segment 5
- A new Garton Road Regulation Station and Valve Nest to be constructed in the town of Rhine, north of Garton Road, approximately 1,100 feet east of CTH E at the southern end of Segments 8A/8B. The existing station that is located in the town of Rhine, east of STH 67, will be retired in the future
- Three existing farm tap services located along Segment 9 in the town of Rhine, will be removed and replaced on Gerber Lake Road (2) and STH 57 (1)

An existing Altoona Avenue valve nest/blowdown assembly located along the existing main on the west side of STH 57, on WPS-owned property would be retired with the abandonment of the existing line. Additionally a number of farm tap services located near Segment 5, in the city of Kiel, town of Schleswig, and the town of Rhine would be retired and connected with a distribution main extension. Another farm tap service along Segment 8B in the town of Rhine would also be retired and reconnected with a distribution main extension project.

West Chilton Regulator Station

This station is located at the northern end of Segment 1 on WPS-owned property. No additional easements would be required for this station, if this project is approved. Inside the station, modifications to the outlet of the station are proposed including the installation of valve and blowdown assemblies and connections to the new gas pipeline.

Chilton District Regulator Station

If Segment 2B is selected, this existing station would have additional facilities constructed within WPS-owned property to connect the new main to the station. This facility is located near the southeast corner of Calumet and Park Streets, in the city of Chilton. No additional land would be required for this station.

Valve Nest 1

The site for Valve Nest 1 is located near the northern end of Segment 4A, southwest of the intersection of Thede Road and Orchard Road, in the town of New Holstein. Due to the town of New Holstein's minimum parcel size requirement, WPS must acquire 1 acre for this facility. The actual footprint of the permanent facility would be 0.03 acres. The one acre would be acquired from cropland owned by the Bonlander Family Trust within a Farmland Preservation Area. Valve

and blowdown assemblies would be constructed at this facility. The Bonlander Trust cropland drains to the northeast with a steep embankment up to Thede and Orchard Roads. DATCP has surface water management concerns regarding the location of the valve nest platform. The addition of fill could potentially create increased water ponding during construction and afterwards, affecting crop yields on the Bonlander Trust fields.

DATCP recommends that prior to construction, WPS submit design specifics and elevations for Valve Nest 1 and identify any temporary and/or permanent surface water management facilities or strategies proposed to prevent water from affecting adjacent fields.

Additionally, DATCP recommends WPS provide the operators of the Bonlander Family Trust the option to continue to farm the land not required for Valve Nest 1.

Valve Nest 2

The site for Valve Nest 2 is located on Segment 5 along the west side of CTH J, in the town of New Holstein. It would be across the road from the existing New Holstein District Regulator Station. Due to the town of New Holstein's minimum parcel size requirement, WPS must acquire 1 acre for the facility. The actual footprint of the permanent facilities would be 0.05 acres. The one acre of primarily cropland would be acquired from Sarah's Farm LLC within a Farmland Preservation Area.

DATCP recommends WPS provide the operators of Sarah's Farm LLC the option to continue to farm the land not required for Valve Nest 2.

New Holstein District Regulator Station

This existing station is located east of CTH J, in the town of New Holstein along Segment 5. It sits on WPS-owned land across the road from proposed Valve Nest 2. The station will require no additional easement. Valve assemblies, taps and an inlet main would be constructed at the Valve Nest 2 location to connect this station to the new gas pipeline.

Kiel District Regulator Station Expansion

The existing Kiel Regulator Station is located on WPS-owned property along Segment 5, in the town of New Holstein. The regulator station would require a minor expansion of less than 0.1 acre from agricultural property owner, Alfred Keuler. The parcel is within a Farmland Preservation Area. Valve assemblies, taps and an inlet main would be constructed to connect this station to the new gas pipeline.

Valve Nest 3

Valve Nest 3 would be a small aboveground new facility with dimensions of about 50 x 80 feet. The facility would be located south of County Line Road and east of STH 67, in the town of Rhine along Segment 5. It would require about 0.1 acres of pasture from the Deibele Trusts. The parcel is within a Farmland Preservation Area. Valve and blowdown assemblies would be constructed at this site.

Figure 4: Example of Proposed Valve Nest and Kiel Regulator Expansion

Stations 1 and 2

Along Segment 5, two new district regulator stations would be required for the project. Both are located within the town of Rhine. They would be approximately 0.1 acres in size. Station 1 would be 70 feet x 65 feet and Station 2 would be about 65 feet x 60 feet. For this project, the proposed stations would be mounted to a free standing wall and fenced in (see Figure 4). The new stations would serve a number of customers currently served by high pressure farm tap services.

Figure 5: Example of Typical Station

Station 1 would be located just north of CTH EH on pasture land owned by Robin and Becky Schmahl. The Schmall property is within a Farmland Preservation Area. Station 2 would be located along the east side of Jung Road on cropland owned by the Kuhn Farm LLC.

Valve Nest 4

Valve Nest 4 would be a small new aboveground facility about 50 x 50 feet in size. It would be located at the southern end of Segment 5, along the west side of Little Elkhart Lake Road, in the town of Rhine. It would require about 0.06 acres of pasture from Steven Hiebing. Valve and blowdown assemblies would be constructed at this site.

Station & Valve Nest (new District Regulator Station)

At the end of Segment 8, a Station and Valve Nest is proposed to be located in the town of Rhine, just north of Garton Road (see Figure 5). It would require just under 1 acre of cropland from Michael DeMaster. This property is within a Farmland Preservation Area. This new station would replace two current district regulator stations, one located on CTH A, west of Rhine Road and the second on Garton Road, east of STH 67.

Figure 6: An Example of the Station & Valve Nest proposed for Segment 8

Johnsonville Regulator Station

This is an existing station that was recently rebuilt near where Segments 10A and 10B cross mid-segment. It is located along the north side of CTH J, in the town of Plymouth. The facility is located within cropland owned by the Prange Trust. The Prange Trust property is zoned A-1 Prime Ag Land District. Additional easements would not be required for this project. Valve assemblies, taps and an inlet main would be constructed to connect this station to the new gas pipeline.

District Regulator Station 3

Proposed District Regulator Station 3 would be located along Segment 13, just south of CTH O in the town of Sheboygan Falls. This new station would be 65 x 100 feet or about 0.15 acres in size. The station would require easements from two non-agricultural property owners, Marvin Zimmermann and the Theobald Trust. The proposed station would be mounted to a free standing wall and surrounded by a fence, similar to Stations 1 and 2. The new station would serve a number of customers currently served by high pressure farm tap services.

Plymouth Regulator Station

The project ends at the existing Plymouth Regulator Station in the town of Sheboygan Falls. The property is owned by WPS and no expansions are proposed.

IV. AGRICULTURAL SETTING

The following information is intended to describe the existing agricultural sector of Calumet, Manitowoc, and Sheboygan 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.

Agricultural Productivity

Dairy is the largest agricultural sector for Calumet, Manitowoc, and Sheboygan Counties. Of Wisconsin's 72 counties, Manitowoc County ranked fourth, Calumet County ranked eleventh, and Sheboygan County ranked twelfth in the amount of milk produced in 2016. In addition, Manitowoc County had the highest per-cow milk production in that year at 27,700 pounds. Calumet County had the fifth highest at 27,300 pounds and Sheboygan County had the seventh highest at 26,600 pounds of milk production per cow in Wisconsin. Growing corn for silage is often a strong component of milk production. In 2016, Manitowoc County ranked first among all 72 Wisconsin counties in the amount of corn for silage harvested while Calumet County ranked eleventh. Additionally winter wheat is a significant crop for this area; Manitowoc County ranked first, Sheboygan County ranked fifth, and Calumet County ranked ninth in acres harvested of winter wheat, during that same year.

Table 10 shows the acres harvested annually from 2012 through 2016 for selected crops in the project area. For this five-year period, the acreages for these crops remained relatively stable.

Table 10: Acres of Selected Crops Harvested

Year	County	Corn for Grain	Corn for Silage	Soybeans	Winter Wheat	Alfalfa Hay
2012	Calumet	29,500	21,200	22,600	5,800	19,200
	Manitowoc	43,500	33,500	23,700	16,700	23,500
	Sheboygan	34,500	19,600	26,700	12,400	15,000
2013	Calumet	27,700	25,400	22,100	8,450	14,800
	Manitowoc	33,800	47,400	24,200	14,000	19,500
	Sheboygan	26,900	19,500	25,000	9,940	18,100
2014	Calumet	20,300	25,100	24,400	10,400	NA
	Manitowoc	32,000	42,800	27,600	13,500	23,600
	Sheboygan	38,800	22,300	28,200	10,600	22,700
2015	Calumet	29,700	18,800	23,600	6,350	NA
	Manitowoc	38,200	35,200	26,800	12,100	17,500
	Sheboygan	NA	NA	29,400	8,720	22,900
2016	Calumet	NA	19,000	25,000	7,420	NA
	Manitowoc	35,000	33,900	27,100	17,000	19,300
	Sheboygan	36,200	NA	28,100	11,700	NA

* NA = data not published

Land in Agriculture

All three of these counties, Calumet, Manitowoc, and Sheboygan, are currently classified as urban counties. Urban counties have more than 100 residents per square mile. The population densities and acres of farmland for the project counties are shown in Table 11. Population densities were taken from data published by the Wisconsin Department of Administration. The most recent data for acres in farms for the counties was published in the 2012 Census of Agriculture. Land in farms consists primarily of land used for crops, pasture, or grazing; however, it also includes woodland and undeveloped land not cropped or grazed, providing it is part of the overall farm operation.

Table 11: Population and Acres in Farmland

Area	Population Density (2017)	Acres of Land in Farms (2012)*	Percentage in Farmland
Calumet County	164.41	142,374	69.9
Manitowoc County	137.58	230,735	61.2
Sheboygan County	224.25	190,155	58.1
Wisconsin Urban Counties	361.54	4,254,046	57.7
Wisconsin	106.78	14,568,926	42.0

* 2012 is the most recent data from the Census of Agriculture.

From 1997 to 2012, the amount of land in farms declined in most counties and the state as a whole (Table 12). Sheboygan County is unusual in that it added acres of land in farms over the same period. Where farmland is declining, it is likely due to development and where it is increasing, it is possibly due to the conversion of marginal land into agricultural production.

Table 12: Acres of Land in Farms

Location	1997	2012	Percentage Change
Calumet County	143,579	142,374	**(0.8)**
Manitowoc County	244,864	230,735	**(5.8)**
Sheboygan County	182,460	190,155	4.2
Wisconsin	14,900,205	14,568,926	**(2.2)**

Number and Size of Farms

Table 13 shows the change in the number of farms and the average size of farms for 1997 and 2012. During that time period, the number of farms increased by 2.3 percent in Calumet County, by 1.9 percent in Sheboygan County, and by 6.3 percent in Wisconsin as a whole. During the same period, the number of Manitowoc County farms decreased slightly by 0.2 percent (2012 Census of Agriculture). The decline in the average size of farms was greatest for Wisconsin as a whole (18 acres) compared to 6 acres for Calumet County and 11 acres for Manitowoc County. Sheboygan County experienced an increase of 5 acres in the average size of the farms.

Changes in the size of farms can indicate a change in commodities produced on farms. Small farms tend to grow specialty and organic produce while larger farms tend to grow cash crops and raise large numbers of livestock.

Table 13: Change in the Number of Farms and Average Size of Farms

Location	1997		2012	
	Number of Farms	Average Size of Farms (acres)	Number of Farms	Average Size of Farms (acres)
Calumet County	703	204	719	198
Manitowoc County	1,227	200	1,224	189
Sheboygan County	968	188	986	193
Wisconsin	65,602	227	69,754	209

Property Taxes and Values

Table 14 details the 2017 average property tax, assessed value, and sale price per acre of agricultural land for the counties in the project area, urban counties, and Wisconsin. 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 2017, the average property taxes on farmland for all three counties were lower than the average for urban counties and the state as a whole. For Calumet County, the average property taxes on farmland was 6.9 percent lower than the average for urban counties and 5.2 percent lower than the average for Wisconsin. Manitowoc County's average tax on farmland was 10.6 percent lower than the average for urban counties and 9.0 percent lower than the statewide average. Sheboygan County's average farmland tax was 22.1 percent lower than the urban county average and 20.7 percent lower than the average for all of Wisconsin.

Table 14: 2017 Farmland Taxes and Values

Location	Dollars per Acre of Farmland		
	2017 Average Tax*	2017 Assessed Value*	2017 Sale Value for Continued Ag Use
Calumet County	$3.25	$184	$10,918
Manitowoc County	$3.12	$182	$6,738
Sheboygan County	$2.72	$165	$6,588
Urban Counties	$3.49	$207	$7,046
Wisconsin	$3.43	$175	$4,960

Source: USDA, National Agricultural Statistic Service (NASS) 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.

Based on 2017 data, the average sale price of agricultural land in Calumet County was 55.0 percent higher than the average for urban counties and 120.0 percent higher than the average for Wisconsin (NASS Wisconsin 2018 Agricultural Statistics). This shows that the market for

agricultural land is very strong in Calumet County and therefore replacement land may be very costly to acquire. The average sale price on Manitowoc County farmland was 4.4 percent lower than the average for urban counties and 35.8 percent higher than the average for all Wisconsin farmland. The Sheboygan County average was 6.5 percent lower than the average for urban counties and 32.8 percent higher than the statewide average. These values do not include farmland sold and converted to nonfarm use and do not include farmland with buildings or improvements.

Farmland Preservation

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

Almost all of the rural land that is crossed by the potential routes of this project are part of areas designated for farmland protection and covered by FPPs. Portions of Segments 1, 2A, 2B, 3, 9, 10A, and 10B cross through agricultural properties that are part of Farmland Preservation Zoning Districts. While, impacts from this project would be mostly temporary. The proposed aboveground facilities would represent a permanent impact, though small. See Table 9 on page 20 for a list of aboveground permanent facilities.

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. None of the land that could be impacted by this project is part of an AEA

Conservation Reserve Program

The USDA, Natural Resources Conservation Services (NRCS) offers farmers financial incentives to convert highly erodible or environmentally sensitive cropland to permanent vegetative cover by planting species that will enhance the environment. This is called the Conservation Reserve Program or CRP. None of the easements for this project appears to cross properties enrolled in the CRP.

Landowners can also participate in the NRCS Conservations Stewardship Program (CSP). This program works with landowners to increase the productivity and value of agricultural land by helping farmers meet their conservation goals. Two property owners, OMAD LLC and the Kleibers

have stated that they have land enrolled in CSP. OMAD LLC CSP property is located along Segment 5. Nicholas and Amanda Kleiber, along Segments 9, 10A, and 10B have all their land enrolled in CSP.

Conservation Reserve Enhancement Program

The Conservation Reserve Enhancement Program (CREP) pays landowners to install filter strips along waterways or to return continually flooded fields to wetlands while leaving the remainder of the adjacent land in agricultural production. CREP is a joint effort between the federal, state, and county governments.

DATCP is not aware that any land crossed by the project is enrolled in the CREP.

Drainage Districts

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

V. FARMLAND SOILS

Farmland Soil Definitions

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

Prime Farmland

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

Prime Farmland if Drained

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

Farmland of Statewide Importance

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

Non-prime soils

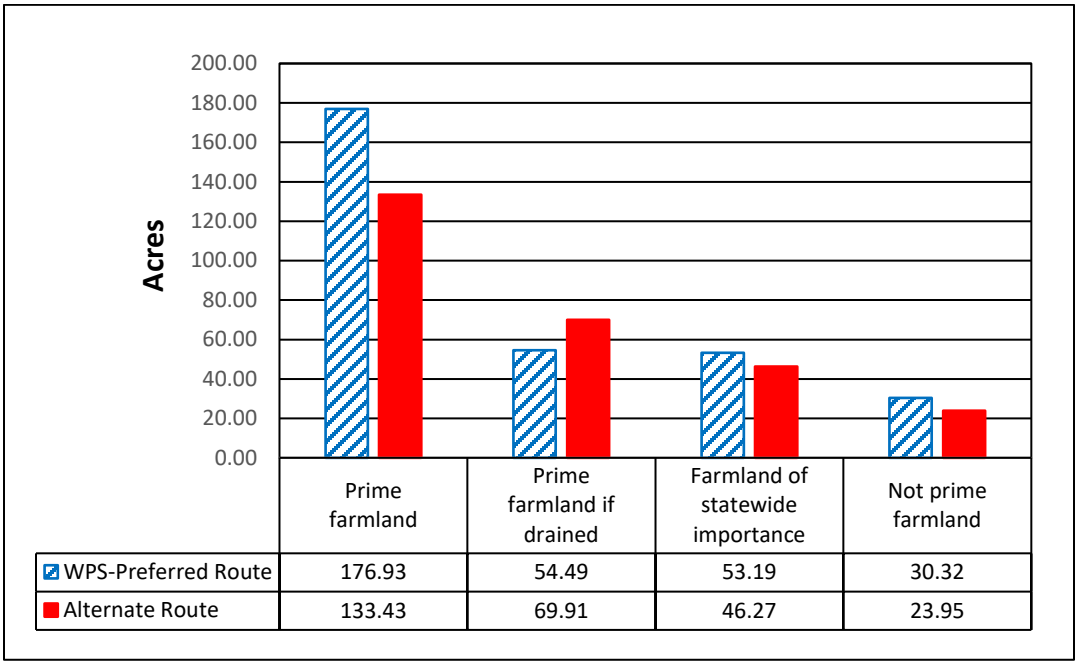
Non-prime soils have limitations in terms of agricultural production and may be more susceptible to damage from pipeline construction.

Farmland Soils Affected by the Proposed Project

If the project is approved by the PSC, the project could impact between 272 and 315 acres of agricultural land. Cropland and pasture account for approximately three-quarters of the potentially affected agricultural land.

Figure 6 shows that for either the WPS-Preferred Route or the Alternate Route, approximately 74 percent of the affected agricultural land is prime and prime farmland if drained.

Figure 7: Soil Classification for Potential Routes



The soils of the project area are, for the most part, well-drained, silt loam soils. The majority of the project would affect the following prime farmland soils:

- Hochheim loam, 2 to 6 percent slopes
- Theresa silt loam, 2 to 6 percent slopes
- Mayville Silt loam, 0 to 2 percent slopes
- Kewaunee silt loam, 2 to 6 percent slopes
- Lamartine silt loam, 0 to 3 percent slopes

A list of the agricultural soils that could be affected by the proposed project are listed below in Table 15.

Table 15: Soil Classifications of Potentially Affected Farmland

Symbol	Soil Name	Soil Classification	Route (Acres)	
			WPS-preferred	Alternate
An	Alluvial land, wet	N	1.51	1.44
Ba	Barry silt loam	P-D	0.01	1.47
Bf	Bellevue fine sandy loam, sandy subsoil variant	S	1.00	1.00
BrB	Boyer sandy loam, 2 to 6 percent slopes	P	2.51	2.51
Bu	Brookston silt loam, 0 to 2 percent slopes	P-D	1.86	0.00
CeA	Casco loam, 0 to 2 percent slopes	S	1.66	0.92

Symbol	Soil Name	Soil Classification	Route (Acres)	
			WPS-preferred	Alternate
CeB	Casco loam, 2 to 6 percent slopes	S	7.86	3.91
CeC2	Casco loam, 6 to 12 percent slopes, eroded	N	4.20	3.99
CnB	Channahon loam, 2 to 6 percent slopes	S	4.91	0.00
CnC	Channahon loam, 6 to 12 percent slopes	N	1.47	0.18
CrD2	Casco-Rodman complex, 12 to 20 percent slopes, eroded	N	3.98	1.13
CrE	Casco-Rodman complex, 20 to 30 percent slopes	N	0.56	0.56
CrF	Casco-Rodman complex, 30 to 45 percent slopes	N	0.32	0.00
Cw	Colwood silt loam, 0 to 2 percent slopes	P-D	0.14	0.14
DoB	Dodge silt loam, 2 to 6 percent slopes	P	12.20	11.55
FaA	Fabius loam, 0 to 3 percent slopes	S	1.57	0.68
FsB	Fox silt loam, 2 to 6 percent slopes	P	0.86	0.00
Fu	Fluvaquents	N	0.36	0.00
HeA	Hebron loam, 0 to 2 percent slopes	P	0.00	0.08
HeB	Hebron loam, 2 to 6 percent slopes	P	0.25	0.24
HmB	Hochheim loam, 2 to 6 percent slopes	P	38.25	40.46
HmB2	Hochheim silt loam, 2 to 6 percent slopes, eroded	P	2.35	0.55
HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	S	11.88	13.10
HmC2	Hochheim silt loam, 6 to 12 percent slopes, eroded	S	6.80	6.82
HmD2	Hochheim silt loam, 12 to 20 percent slopes, eroded	N	0.78	0.00
HsC2	Hochheim-Casco-Sisson complex, 6 to 12 percent slopes, eroded	S	4.25	4.25
HsD2	Hochheim-Casco-Sisson complex, 12 to 20 percent slopes, eroded	N	3.62	3.13
HsE	Hochheim-Casco-Sisson complex, 20 to 30 percent slopes	N	6.02	6.04
Hu	Houghton muck, 0 to 2 percent slopes	S	0.68	0.68
KlA	Kendall silt loam, 0 to 3 percent slopes	P-D	1.78	1.78
KnA	Kewaunee silt loam, 0 to 2 percent slopes	P	1.49	1.49
KnB	Kewaunee silt loam, 2 to 6 percent slopes	P	27.46	17.74
KpB2	Kewaunee silty clay loam, 2 to 6 percent slopes, eroded	P	12.49	6.42
KpC2	Kewaunee silty clay loam, 6 to 12 percent slopes, eroded	S	9.61	11.39
LmA	Lamartine silt loam, 0 to 3 percent slopes	P-D	20.41	21.98
LuB	Lutzke sandy loam, 2 to 6 percent slopes	S	0.24	0.24
LuC2	Lutzke sandy loam, 6 to 12 percent slopes, eroded	N	4.42	4.42
LuD	Lutzke sandy loam, 12 to 20 percent slopes	N	2.76	2.76
MbA	Manawa silt loam, 0 to 3 percent slopes	P-D	12.03	12.09
MkA	Matherton silt loam, 0 to 3 percent slopes	P-D	3.27	3.78
MlA	Mayville silt loam, 0 to 2 percent slopes	P	30.28	18.13
MuA	Mundelein silt loam, 0 to 3 percent slopes	P-D	0.57	0.57

Symbol	Soil Name	Soil Classification	Route (Acres)	
			WPS-preferred	Alternate
Mz	Muskego muck	N	0.30	0.30
NnB	Nenno silt loam, 2 to 6 percent slopes	P-D	1.77	1.77
NsB	Nichols very fine sandy loam, 2 to 6 percent slopes	P	0.14	0.14
Pa	Palms muck, 0 to 2 percent slopes	S	0.03	1.33
Pe	Pella silt loam, 0 to 2 percent slopes	P-D	8.88	19.34
Ph	Pella silt loam, 0 to 2 percent slopes	P-D	1.83	1.83
Po	Poygan silty clay loam, 0 to 2 percent slopes, drained	P-D	1.92	1.92
ScB	St. Charles silt loam, 2 to 6 percent slopes	P	2.20	2.20
ShA	Saylesville silt loam, 0 to 2 percent slopes	P	0.74	0.74
Sm	Sebewa silt loam, 0 to 2 percent slopes	P-D	0.02	0.00
SrA	Sisson very fine sandy loam, 0 to 2 percent slopes	P	0.02	0.02
SrB	Sisson very fine sandy loam, 2 to 6 percent slopes	P	2.27	2.31
SrC2	Sisson very fine sandy loam, 6 to 12 percent slopes, eroded	S	1.64	0.89
SyA	Symco silt loam, 0 to 3 percent slopes	P-D	0.00	3.24
ThB	Theresa silt loam, 2 to 6 percent slopes	P	31.84	25.39
ThC2	Theresa silt loam, 6 to 12 percent slopes, eroded	S	0.56	0.56
WpB	Whalan silt loam, 2 to 6 percent slopes	P	8.43	0.46
Wt	Willette muck, 0 to 2 percent slopes	S	0.50	0.50
ZuA	Zurich silt loam, 0 to 2 percent slopes	P	0.15	0.00
ZuB	Zurich silt loam, 2 to 6 percent slopes	P	3.00	3.00

Soil Classification Abbreviations: P = Prime farmland, P-D = Prime farmland if drained, S = Farmland of statewide importance, N = Not prime farmland.

Three-Lift Soil Handling

The three-lift soil handling procedure is recommended for cropland and pasture where the mixing of the subsoil layers may result in persistent crop yield reductions. For agricultural soils, the typical pipeline construction practice is to remove and stockpile the topsoil (usually the top 12 inches) from the entire ROW. Then, all of the soils from the trench are excavated and stockpiled separately from the topsoil. The three-lift method also requires stripping of the top soil from the full width of the ROW but then the next two layers of subsoil are excavated from the trench and stored in separate piles. The standard method of pipeline construction creates two stockpiles of soil, whereas, the three-lift method creates three stockpiles of soil. Finally, after the pipe is constructed, the trench is backfilled with the different layers of soil. The last material removed from the trench is the first material backfilled into the trench.

The three-lift soil handling method 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 the three-lift method could be beneficial for protection of crop yields. A key for identifying soil candidates for three-lift soil handling is provided in Appendix D.

DATCP used the soil characteristics and descriptions compiled by the USDA NRCS Web Soil Survey, to conduct a desktop review of the project area and identify potential soils and areas that could benefit from this type of soil handling. For a final determination of three-lift soils, the characteristics of the soils must be verified in the field by an Agricultural Inspector. WPS best management practice for three-lift soil handling is included in Appendix G (BMP 09).

The project's potential permanent easements cross the following agricultural soils that might benefit from three-lift soil handling:

- Barry silt loam
- Boyer sandy loam, 2-6% slopes
- Casco loam, 0-2%, 2-6% slopes, and 6-12% slopes eroded
- Dodge silt loam 2-6% slopes
- Fabius loam, 0-3% slopes
- Fox silt loam, 2-6% slopes
- Hochheim loam, 2-6% slopes
- Hochheim silt loam and Hochheim loam, 6-12% slopes, eroded
- Lamartine silt loam, 0-3% slopes
- Matherton silt loam, 0-3% slopes
- Mayville silt loam, 0-2% slopes
- St. Charles silt loam, 2-6% slopes

Tables 16 and 17 show the segments and acres of the project's permanent easements that might cross three-lift candidate soils within cropland and pasture.

Table 16: Potential Three-Lift Soil Candidates along WPS-Preferred Route

Segment	Soil Symbol	Three-Lift Soil Candidate	Acres	Acres / Segment
1	DoB	Dodge silt loam, 2 to 6 percent slopes	1.81	3.61
	HmB	Hochheim loam, 2 to 6 percent slopes	0.57	
	LmA	Lamartine silt loam, 0 to 3 percent slopes	0.76	
	MlA	Mayville silt loam, 0 to 2 percent slopes	0.47	
2A	DoB	Dodge silt loam, 2 to 6 percent slopes	0.40	9.59
	HmB	Hochheim loam, 2 to 6 percent slopes	1.79	
	LmA	Lamartine silt loam, 0 to 3 percent slopes	1.02	
	MlA	Mayville silt loam, 0 to 2 percent slopes	6.38	

Segment	Soil Symbol	Three-Lift Soil Candidate	Acres	Acres / Segment
3	DoB	Dodge silt loam, 2 to 6 percent slopes	0.84	3.14
	HmB	Hochheim loam, 2 to 6 percent slopes	0.93	
	LmA	Lamartine silt loam, 0 to 3 percent slopes	1.37	
4A	DoB	Dodge silt loam, 2 to 6 percent slopes	3.19	13.23
	HmB	Hochheim loam, 2 to 6 percent slopes	5.69	
	LmA	Lamartine silt loam, 0 to 3 percent slopes	0.38	
	MlA	Mayville silt loam, 0 to 2 percent slopes	3.97	
5	BrB	Boyer sandy loam, 2 to 6 percent slopes	0.86	13.22
	CeB	Casco loam, 2 to 6 percent slopes	0.12	
	CeC2	Casco loam, 6 to 12 percent slopes, eroded	0.70	
	DoB	Dodge silt loam, 2 to 6 percent slopes	0.10	
	HmB	Hochheim loam, 2 to 6 percent slopes	5.42	
	LmA	Lamartine silt loam, 0 to 3 percent slopes	3.72	
	MlA	Mayville silt loam, 0 to 2 percent slopes	1.25	
	ScB	St. Charles silt loam, 2 to 6 percent slopes	1.05	
6A	CeB	Casco loam, 2 to 6 percent slopes	1.09	1.66
	CeC2	Casco loam, 6 to 12 percent slopes, eroded	0.49	
	FsB	Fox silt loam, 2 to 6 percent slopes	0.08	
8A	HmB2	Hochheim silt loam, 2 to 6 percent slopes, eroded	1.11	1.11
11	MkA	Matherton silt loam, 0 to 3 percent slopes	1.11	1.11
12A	CeA	Casco loam, 0 to 2 percent slopes	0.84	2.36
	CeB	Casco loam, 2 to 6 percent slopes	0.74	
	FaA	Fabius loam, 0 to 3 percent slopes	0.55	
	MkA	Matherton silt loam, 0 to 3 percent slopes	0.23	
13	CeB	Casco loam, 2 to 6 percent slopes	0.07	0.07
	FaA	Fabius loam, 0 to 3 percent slopes	0.00	
Total			**49.10**	

Table 17: Potential Three-Lift Soil Candidates along Alternate Segments

Segment	Soil Symbol	Three-Lift Soil Candidate	Acres	Acres / Segment
2B	HmB	Hochheim loam, 2 to 6 percent slopes	2.78	7.11
	HmC2	Hochheim loam, 6 to 12 percent slopes, eroded	0.97	
	LmA	Lamartine silt loam, 0 to 3 percent slopes	2.24	
	MlA	Mayville silt loam, 0 to 2 percent slopes	1.12	
	MlA	Mayville silt loam, 0 to 2 percent slopes	1.25	
	ScB	St. Charles silt loam, 2 to 6 percent slopes	1.05	

Segment	Soil Symbol	Three-Lift Soil Candidate	Acres	Acres / Segment
6B	CeC2	Casco loam, 6 to 12 percent slopes, eroded	0.63	1.05
	MkA	Matherton silt loam, 0 to 3 percent slopes	0.42	
8B	Ba	Barry silt loam	0.36	1.23
	HmC2	Hochheim silt loam, 6 to 12 percent slopes, eroded	0.87	
10B	CeB	Casco loam, 2 to 6 percent slopes	0.17	0.17
12B	CeA	Casco loam, 0 to 2 percent slopes	0.43	1.75
	CeB	Casco loam, 2 to 6 percent slopes	1.08	
	FaA	Fabius loam, 0 to 3 percent slopes	0.14	
	MkA	Matherton silt loam, 0 to 3 percent slopes	0.10	

The permanent ROW for the WPS-preferred route might cross 49 acres of agricultural fields with potential three-lift soil candidates as opposed to 46 acres if all the alternate segments were chosen. As such, a significant portion of either route would require field reviews for potential three-lift soil candidates.

Figure 7 shows the location of the agricultural properties where DATCP has identified three-lift soil candidates within the permanent easements of this project. They include parcels crossed by Segments 1, 2, 3, 4, 5, 6, 7, 8, 10, 11, 12, and 13. Segments 9, 14, and 15 do not appear to have soils that can be categorized as three-lift soil candidates. However, there are limitations to a desktop review and the existence and extent of these soils must be confirmed in the field by an individual with knowledge in identifying soils such as an Agricultural Inspector.

Figure 8: Agricultural Parcels with Potential Three-Lift Soil Candidates

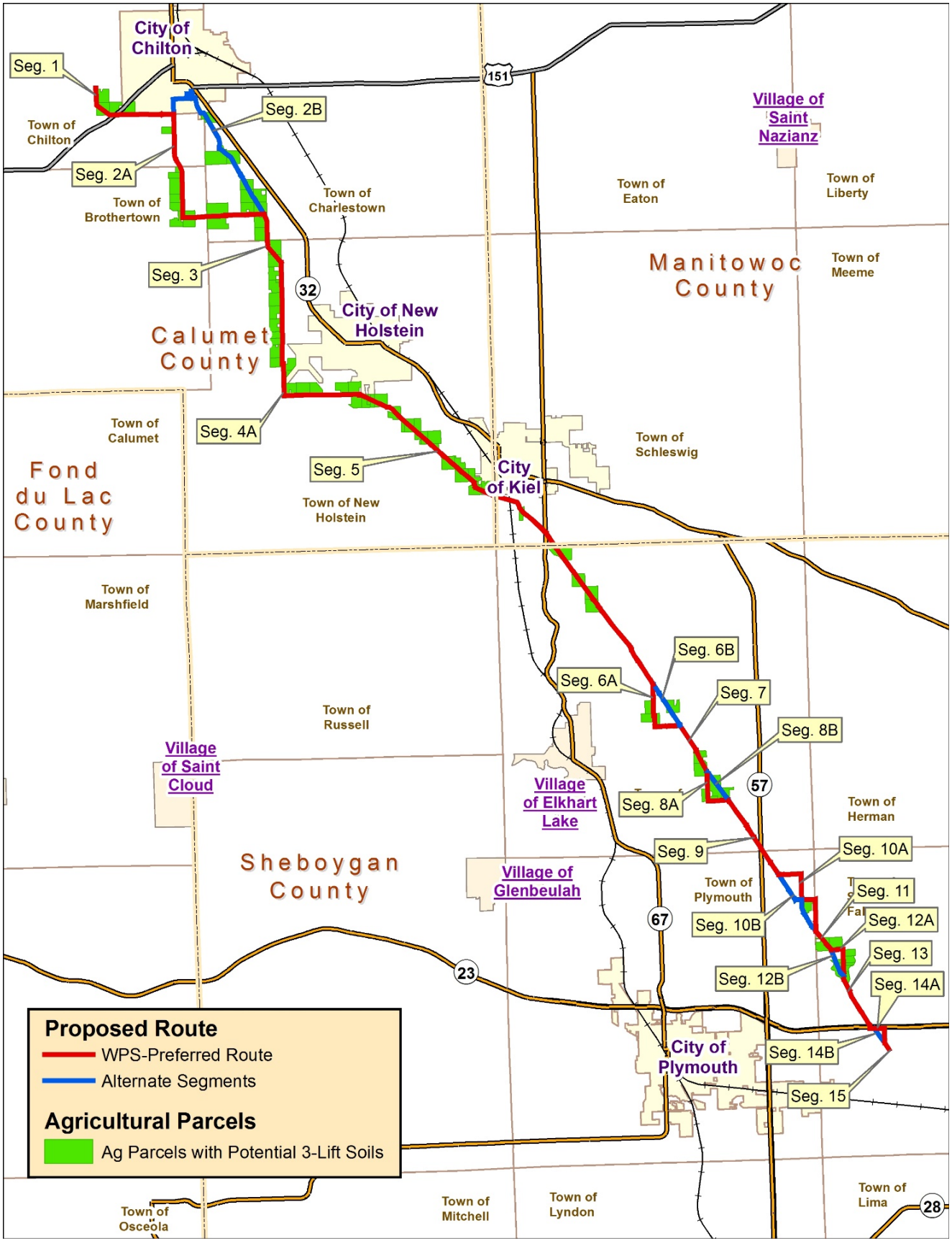


Table 18 identifies the property owners of agricultural fields where the project may trench through soils that may benefit from three-lift soil handling.

Table 18: Agricultural Landowners with Potential Three-Lift Soil Candidates

Agricultural Landowner	Segment	Acres
ALL-TRADES FARMS LLC	2A	1.07
ALL-TRADES FARMS LLC	2B	4.05
BEECK, KEITH J. and TRACY M	10B	0.17
BENDER, THOMAS & LUELLA	4A	2.17
BITTNER REAL ESTATE LLC	2A	0.76
BITTNER REAL ESTATE LLC	2B	0.34
BLUM LIVING TRUST, ALAN & CATHERINE	5	0.91
BOLL, FRANKLYN	2A	2.58
BONLANDER FAMILY TRUST	2A	0.02
BONLANDER FAMILY TRUST	4A	0.28
BONLANDER, DONALD E. and JOHANNA K.	5	0.51
BONLANDER, DONALD J. and DONALD E. & JOHANNA K. BONLANDER	5	0.85
BRANDT, JEREMY ETAL.	12A	0.23
BRECKHEIMER, RANDY S. & KRISTIN N.	2A	0.75
BROWNRIGG, BROCK L.& LYNN M.	8A	0.40
BROWNRIGG, BROCK L. & LYNN M.	8B	0.49
DANES FAIRYLANE DAIRY FARMS INC.	3	1.83
DANES FAIRYLANE DAIRY FARMS INC.	4A	1.28
DEMASTER, MICHAEL & TERRI	8A	0.51
DEMASTER, MICHAEL & TERRI	8B	0.74
DORNER, MATTHEW L. & SMITH DORNER HEIDI M.	5	0.60
FAUST, MATTHEW A. & STACEY A.	5	0.00
GAJDOSTIK, ANTHONY J.	5	1.05
GERANT FARMS LLC.	1	0.71
GOLLHARDT, JOEL D. & PATT JAMES E.	4A	0.01
HAACK, THOMAS W. & HEIDI L.	11	0.43
HAACK, THOMAS W. & HEIDI L.	12A	0.23
HAACK, THOMAS W. & HEIDI L.	12B	0.00
HANKE FARMS INC.	11	0.68
HANKE FARMS INC.	13	0.07
HANKE FARMS INC.	12A	0.43
HECK, DENNIS J	6A	0.73
HERTEL LIVING TRUST, JOHN & ROMILDA	2A	0.06
HILLCREST KIEL WEST LLC.	5	0.28
KARLS REV LIVING TRUST, GERALD	2A	0.58
KD PROPERTY HOLDINGS LLC.	4A	1.68
KEULER, ALFRED	5	2.10
KLEINHANS FAMILY LLC	4A	0.73
KOEHLER, MICHAEL L. & PATRICIA J.	2B	0.97
KOEPPEL, BRENDA L. & FRYAN J. HOFFMANN	4A	1.89

Agricultural Landowner	Segment	Acres
KUHN FARM LLC.	5	0.29
KURSCHEIDT, PAUL & MARGARET REINECK	5	0.32
LECHER, DANIEL O. & SHIRLEY R.	5	0.45
MATHES, HARVEY H. JR & SALLY A. HOEFT	4A	0.68
MEYER BROTHERS CROP FARMS	1	0.67
MEYER L & ASSOC LLC.	2A	1.01
MEYER, DENNIS L.	5	0.03
MEYER, DENNIS L.	4A	1.05
MEYER, GERALD A. SR. ETUX	1	2.21
MEYER, JOSEPH H. & MARY A.	5	0.03
MEYERS, ROGER & ROBERT G.	2A	2.51
MJWJ LLC	6A	0.93
MORGEN, ROBERT L. ETUX	4A	1.58
OMAD LLP	5	0.34
PAGEL REV LIVING TRUST, WAYNE & SANDRA	2B	0.34
PAGEL, JEFFREY M.	2B	0.27
PAGEL, TIMOTHY L. & PAMELA J.	2B	0.44
PLATZ, EMERY	5	0.88
REICHERT, RUSSELL	12A	1.47
REICHERT, RUSSELL	12B	1.58
RICK, VERNON J.	4A	0.64
ROLLMANN, JOHN A. & ELISABETH A.	2A	0.25
SCHMAHL, ROBIN & BECKY and RODNEY & CYNTHIA SCHMAHL	5	0.70
SCHMITT, RANDOLPH J. & HOPE	3	1.31
SCHMITT, RANDOLPH J. & HOPE	4A	0.18
SCHNEIDER, RANDY G. & VIDA R.	5	0.06
SCHNEIDER, WALTER JR.	5	1.21
SCHWARZ, JOHN E.	4A	1.04
SIPPEL, THOMAS J. & KAY M.	8A	0.20
STEGER, DAVID C.	2B	0.70
SUTTNER, PAUL ETUX	5	0.30
TENPAS, JAMES L. & SANDRA K.	6B	1.05
TOEPEL, TIMOTHY J. & FRANCIS H.	5	1.55
WEIDENSEE, JOSEPH R. & VALERIE L.	5	0.76

VI. AGRICULTURAL LANDOWNER IMPACTS

DATCP Survey of Agricultural Property Owners

A list of the property owners that could be affected by this project and the acres of easement required for each segment is listed below in Table 19. Landowners with an asterisk before their name may have an aboveground facility constructed on their property. Additional non-agricultural acres would be required for this project.

Table 19: Acres of Potentially Affected Farmland

Agricultural Landowner	Segment ID	Potential Acquisition (acres)	Subtotal (acres)
ALL-TRADES FARMS LLC	2A	2.38	12.13
ALL-TRADES FARMS LLC	2B	9.66	
ALL-TRADES FARMS LLC	3	0.09	
ANHALT KEENAN J and ANHALT CASEY L.	2A	2.36	2.36
BACHMANN, DANNY R. & BACHMANN, KATHLEEN E.	5	0.66	0.66
BEECK KEITH J. and TRACY M.	10B	5.28	5.28
BENDER, THOMAS and LUELLA	4A	5.34	5.34
BITTNER REAL ESTATE LLC	1	3.44	12.19
BITTNER REAL ESTATE LLC	2A	7.19	
BITTNER REAL ESTATE LLC	2B	1.56	
BLUM LIVING TRUST, ALAN A. and CATHERINE B.	5	3.07	3.07
BOLL, FRANKLYN	2A	8.04	8.04
BONLANDER FAMILY TRUST	2A	1.39	4.33
*BONLANDER FAMILY TRUST	4A	2.94	
BONLANDER, DONALD E. and JOHANNA K.	5	1.02	1.02
BONLANDER, DONALD J. and DONALD E. & JOHANNA K.BONLANDER,	5	3.01	3.01
BRANDT, JEREMY ETAL.	12A	3.18	3.18
BRECKHEIMER, RANDY S. and KRISTIN N.	2A	1.78	1.78
BRISSETTE, VERONICA	5	3.16	3.16
BROWNRIGG, BROCK L. and LYNN M.	8A	0.84	4.05
BROWNRIGG, BROCK L. and LYNN M.	8B	3.21	
DAHM, CHERYL H.	9	1.80	1.80
DANES FAIRYLANE DAIRY FARMS INC.	3	6.34	11.79
DANES FAIRYLANE DAIRY FARMS INC.	4A	5.45	
*DEIBELE TRUSTS and DEIBELE, STEVEN & MARIE D.	5	3.54	3.54
*DEMASTER, MICHAEL and TERRI	8A	2.41	5.63
*DEMASTER, MICHAEL and TERRI	8B	3.13	
DEMASTER, MICHAEL and TERRI	9	0.09	
DENZIN, JAMES P.	8A	3.08	3.08

Agricultural Landowner	Segment ID	Potential Acquisition (acres)	Subtotal (acres)
DIRKS LE, RUSSELL F. & SHARON N. and MILBRATH ETAL., VICKY L.	7	5.91	6.96
DIRKS LE, RUSSELL F. & SHARON N. and MILBRATH ETAL., VICKY L.	8A	1.02	
DIRKS LE, RUSSELL F. & SHARON N. and MILBRATH ETAL., VICKY L.	8B	0.03	
DIRKS, JOHN D. and NICHOLE L.	7	2.86	2.86
DONALD L. PETRIE REVOC LIV TR	5	3.12	3.12
DORNER MATTHEW L. and SMITH DORNER HEIDI M.	5	2.46	2.46
ELMVIEW FARMS LLC	9	1.56	1.56
FAUST, MATTHEW A. and STACEY A.	5	3.55	3.55
FELDMANN FAMILY LIMITED	10B	3.44	3.44
FELDMANN FAMILY LIMITED	9	0.00	
FRITZ, DANIEL D.	10B	0.86	0.86
GAJDOSTIK, ANTHONY J.	5	2.10	2.10
GERANT FARMS LLC.	1	1.89	1.89
GOLLHARDT JOEL D. and PATT JAMES E.	4A	1.23	1.23
HAACK, THOMAS W. and HEIDI L.	11	1.29	2.12
HAACK, THOMAS W. and HEIDI L.	12A	0.77	
HAACK, THOMAS W. and HEIDI L.	12B	0.06	
HANKE FARMS INC.	10A	3.76	9.22
HANKE FARMS INC.	11	2.66	
HANKE FARMS INC.	12A	1.39	
HANKE FARMS INC.	12B	0.27	
HANKE FARMS INC.	13	1.14	
HANKE TRUST and HANKE, GARRET J. & JANE L.	6A	0.83	4.01
HANKE TRUST and HANKE, GARRET J. & JANE L.	6B	0.09	
HANKE TRUST and HANKE, GARRET J. & JANE L.	7	3.09	
HECK, DENNIS J.	6A	3.25	3.25
HERTEL, JOHN & ROMILDA LVG TRUST and HERTEL JOHN T. & ROMILDA	2A	1.51	1.51
*HIEBING, STEVEN F. and LISA K.	5	1.92	2.72
HIEBING, STEVEN F. and LISA K.	6A	0.74	
HIEBING, STEVEN F. and LISA K.	6B	0.06	
HILLCREST KIEL WEST LLC	5	0.81	0.81
IRWIN, DANIEL S. and JANELLE D.	10B	0.99	0.99
KARLS, GERALD REV LIVING TRUST	2A	4.37	4.37
KD PROPERTY HOLDINGS LLC	4A	3.38	3.38
*KEULER, ALFRED	5	7.42	7.42
KIRCHHOFF, KAREN R.	9	1.48	1.48

Agricultural Landowner	Segment ID	Potential Acquisition (acres)	Subtotal (acres)
KLEIBER, NICHOLAS WILLIAM and AMANDA NICHOLE	9	7.38	9.67
KLEIBER, NICHOLAS WILLIAM and AMANDA NICHOLE	10A	2.25	
KLEIBER, NICHOLAS WILLIAM and AMANDA NICHOLE	10B	0.04	
KLEINHANS FAMILY LLC	4A	3.12	3.12
KLEINHANS, REED and MONICA J.	13	2.79	2.79
KOEHLER MICHAEL L. and PATRICIA J.	2B	3.18	3.18
KOEPPEL, BRENDA L and HOFFMANN BRYAN J. c/o GEORGE HOFFMANN	4A	3.79	3.79
*KUHN FARM LLC	5	2.53	2.53
KURSCHEIDT, PAUL and REINECK MARGARET	5	0.64	0.64
LECHER, DANIEL O. and SHIRLEY R.	5	0.79	0.79
MAJESTIC MEADOWS DAIRY LLC	13	5.51	5.51
MANI, ROBERT J. and HINZ, LAVONNE	10B	1.32	1.32
MANTHEY, JOHN P. and MANTHEY, JUDITH M.	8A	1.42	1.42
MATHES HARVEY H., JR and HOEFT SALLY A.	4A	1.99	1.99
MEYER BROTHERS CROP FARMS	1	6.37	6.37
MEYER L. & ASSOC LLC	2A	5.87	5.87
MEYER, DENNIS L.	4A	4.82	4.94
MEYER, DENNIS L.	5	0.12	
MEYER, JOSEPH H. and MARY A.	5	3.24	3.24
MEYER, GERALD A. SR., ETUX.	1	8.23	8.23
MEYERS, ROGER and ROBERT G.	2A	5.55	5.55
MJWJ LLC	6A	4.37	4.37
MORGEN, ROBERT L ETUX.	4A	5.77	5.77
MORTIMER, GRANT J. and BONNIE SUE	1	2.70	2.70
NEILS, ETAL., STEVEN A. and WM J. & THERESA	5	3.32	3.32
OMAD LLP - c/o DOUG FRISCH	5	5.24	5.24
O'NEIL, PATRICK D. and JUDITH E.	9	1.80	1.80
P&Q EAST OF WINNEBAGO LLC	2A	2.80	2.80
PAGEL, ERIC A. and CATHERINE M.	2B	4.14	4.14
PAGEL, JEFFREY M.	2B	4.29	4.29
PAGEL, TIMOTHY L. and PAMELA J.	2B	3.38	3.38
PAGEL, WAYNE and SANDRA REV LIV TRUST and PAGEL, WAYNE N. & SANDRA C.	2B	1.73	1.73
PLATZ, EMERY	5	5.94	5.94
PRANGE TRUST and PRANGE, LOUIS A.	10A	9.07	10.78
PRANGE TRUST and PRANGE, LOUIS A.	10B	1.71	
REICHERT, CHRIS	10A	3.96	3.96
REICHERT, RUSSELL	12A	3.73	6.89
REICHERT, RUSSELL	12B	3.16	

Agricultural Landowner	Segment ID	Potential Acquisition (acres)	Subtotal (acres)
REICHERT, SCOTT C. and DEBORAH L.	10A	1.19	3.49
REICHERT, SCOTT C. and DEBORAH L.	10B	0.28	
REICHERT, SCOTT C. and DEBORAH L.	11	2.02	
RICK, VERNON J.	4A	3.35	3.35
ROHDE, MICHAEL E. and LARSON, CHRISTINE L.	9	2.28	2.28
ROLLMANN, JOHN A. & ELISABETH A.	2A	1.73	1.73
RUH, ROBERT L. and RUH, MARLENE E.	6B	0.03	1.78
RUH, ROBERT L. and RUH, MARLENE E.	7	1.75	
* SARAHS FARM LLC	5	1.20	1.20
* SCHMAHL, ROBIN & BECKY and SCHMAHL, RODNEY & CYNTHIA	5	6.38	6.38
SCHMITT, RANDOLPH J and HOPE	3	6.25	7.58
SCHMITT, RANDOLPH J and HOPE	4A	1.33	
SCHNEIDER, RANDY G and VIDA R.	5	1.46	1.46
SCHNEIDER, WALTER JR.	5	4.30	4.30
SCHOBERT III, FRANK	9	1.69	1.69
SCHOENBORN REVOC LIV TRUST, LYLE M. and JACKLYN J.	5	2.23	2.23
SCHWARZ, JOHN E.	4A	2.58	2.58
SEEHAVER, DAVID A. and CARRIE L.	14A	3.84	5.00
SEEHAVER, DAVID A. and CARRIE L.	14B	0.19	
SEEHAVER, DAVID A. and CARRIE L.	15	0.97	
SIPPEL, THOMAS J. and KAY M.	8A	1.44	1.44
STEGER, DAVID C.	2B	2.99	2.99
STEVENS, JOEL A.	9	3.69	3.69
SUTTNER, PAUL ETUX.	5	0.96	0.96
TENPAS, JAMES L. and SANDRA K.	6B	2.46	2.46
TISCH, ZACHARY and RICHARDSON, JENNIFER	10A	2.28	2.28
TOEPEL, TIMOTHY J. and FRANCIS H.	5	3.19	3.19
WEIDENSEE, JOSEPH R. and VALERIE L.	5	1.91	1.91
WIETING, DANIEL W. and JAMIE L.	1	0.51	0.51
Acquisitions from 22 landowners, each less than 0.5 acres		3.59	3.59

* Agricultural property owners which could have new aboveground permanent facilities located on their land.

DATCP attempted to contact by phone and letter all affected agricultural property owners who could have easement acquisitions and/or impacts of three acres or more.

Owners of 39 properties responded with comments.

Property Owner Comments

Segment 1

Farm Owners/Operators: Mr. and Mrs. Gerald A. Meyer, Sr.

Mr. and Mrs. Meyers own 166 acres of land and rent additional cropland. They grow corn, soybeans, hay, and oats on a total of 1,500 acres of cropland. They also run a 550-cow dairy operation with 350 head of replacement dairy cattle.

The affected cropland owned by the Meyers is located at the beginning of Segment 1 in the town of Chilton. The owners are most concerned about the project affecting their primary water well and drain tiles.

Farm Owner/Operator: Bittner Real Estate

Segments 1, 2A, and 2B

Bittner Real Estate owns 360 acres of land consisting of 260 acres of cropland, 80 acres of wetland, 15 acres of woodland, and 5 acres for buildings. The owner grows corn and soybeans on the cropland. The land that could be affected by the project includes the eastern end of Segment 1 and the beginning of Segments 2A or 2B. Along Segments 2A and 2B Bittner Real Estate has installed drain tiles that may be affected by the project. Additionally all three segments would cross driveways that could be impacted during construction. The owners stated that the affected cropland is some of the most productive land that they own.

Segment 2A

Farm Owner/Operator: Bittner Real Estate

Comments provided under Segment 1.

Farmland Owner: Franklyn Boll (former owners: Dennis & Franklin Boll)
Operators: Roger Meyers, Grace Meyers, and Mike Thiel

Franklyn Boll owns 35.58 acres of land. Roger Meyers rents 5.98 acres of cropland, Grace Meyers rents 19.6 acres of cropland, and Mike Thiel rents 8 acres of pasture. The remaining 2 acres is for the home and buildings. The cropland is used to grow corn, soybeans, and peas in rotation. The pasture is used for beef cattle.

The proposed project would affect cropland and pasture on this property. Mr. Boll stated that there is a grassed ledge outcrop near the top of the hill that helps with erosion control during heavy rains and he is concerned about impacts to this ledge. The project may also affect barn yard fencing and lane fencing that is maintained for cattle. Mr. Boll noted that the pipeline would cross his field east of CTH G, which is prone to flooding every spring and during heavy downpours. He would prefer to see the new pipeline follow Segment 2B instead of Segment 2A.

Additionally Mr. Boll is concerned that blasting at a rock quarry, located east of the Boll property, could damage the new natural gas pipeline when in operation and result in harm to his neighbors and their property.

Farm Owner: Gerald Karls Rev. Living Trust / Operator: Gerald A. and Lorraine Karls

This property is 152 acres. It is located southwest of the intersection of Redwood and Irish Roads. The Karls are concerned about potential damage to their drain tiles and hickory trees. They propose a minor modification of the route involving their neighbor, Gertrude Bonlander to minimize impacts to their drain tiles.

The property has 160,000 feet of drain tiles installed. Since 1990, the Karls have invested over $83,000 in drain tiles. Maps of these tiled fields were submitted to DATCP and are included in Appendix E. These drain tiles serve not only fields owned by the Karls, but they also remove excess water from seven neighboring farms. In the past, heavy vehicles have crushed tile lines. To prevent this from occurring again, the Karls do not allow semi-trucks on their cropland. Construction of Segment 2A, could potentially damage ten tile lines, which would affect the crops in the Karls' fields as well as neighboring fields that depend on these drain tiles.

Because damage to numerous existing drain tiles could have significant and long-term financial effect to several property owners, the Karls and Gertrude Bonlander have proposed a modification to the pipeline route. Traveling from west to east and starting at the western property boundary of the Karls land, Segment 2A would continue in its current alignment for about 290 feet. Where the Bonlander woods end, the route would shift northward so that the permanent easement or both the permanent and temporary easements would be located on the Gertrude Bonlander field. It would then continue east across the Bonlander fields to Irish Road. In this alignment, construction would only trench through one drain tile on the Bonlander property. Protection from crushing the existing drain tiles on the Karls property would still be required.

On October 4, 2018, WPS reported that they spoke to both landowners and verified that there was no issue with this modification of the route. Furthermore, WPS stated that there would be no major costs increases to the project due to this change. This change is documented in Appendix F of this report. DATCP supports this minor route adjustment, provided both landowners agree to the modification.

The Karls are also concerned about potential damage to about ten fifty-year-old hickory trees located along the fence line separating the Karls and Bonlander properties. The trees have only recently begun to produce nuts. There are another 30 trees in the fence line and in the woods that would also be affected by the pipeline.

Farm Owner/Operator: Bonlander Family Trust (Gertrude Bonlander)

Segments 2A and 4A

This project would affect two properties owned by the Bonlander Family Trust, one located along Segment 2A and another along Segment 4A. In total, the Bonlanders own 585 acres of land consisting of 525 acres of cropland, 45 acres of woodland, and 15 acres for buildings. In an average year, they grow 150 acres of corn, 100 acres of hay, 100 acres of rye, and 175 acres of milo. They also raise 850 head of beef cattle.

Segment 2A crosses this Bonlander cropland northwest of the intersection of Irish and Redwood Roads. Part of the proposed temporary easement would be used for a 0.5-acre staging area. Gertrude Bonlander is concerned that drain tiles located within the proposed easement might be affected by the construction. See Appendix F for documentation regarding changes to the proposed route along Segment 2A. Ms. Bonlander is also concerned about restoring the productivity of the temporary staging area, after the construction is completed.

More comments about the potential impacts of Segment 4A on other agricultural land owned by the Bonlander Trust are described under "Segment 4A."

Farm Owners/Operators: All Trades Farms LLC and Danes Fairylane Dairy Farms, Inc.
(both owned by the same entity)
Segments 2A, 2B, 3, and 4A

All Trades Farms LLC and Danes Fairylane Dairy Farms, Inc. own 500 acres of land and rent additional farmland. In an average year, the fields are used to grow 200 acres of corn, 100 acres of soybeans, 50 acres of hay, 200 acres of rye seed, and 50 acres of canning crops. All of the cropland is very productive, producing yields of 200 to 250 bushels of corn and 60 to 70 bushels of soybeans per acre. Segments 2A, 2B, and 3 could affect six contiguous parcels owned by these companies, within the town of Charlestown. Two additional parcels owned by the companies would be crossed by Segment 4A in the town of New Holstein.

There are grassed waterways and drain tiling on all of the affected cropland. The owners are specifically concerned about the drain tiles and grassed waterways along Redwood Road that could be affected by Segment 2A and along East Orchard Road that could be affected by Segment 4A. The owners also indicate that some of the land that may be affected by the project is certified for organic production but did not identify a specific field.

The owners also have 60 acres of woodland. The owners indicate that the woodland is logged every 10 to 14 years and firewood is also cut for personal use and to sell.

Segment 2B

Farm Owner/Operator: Bittner Real Estate
Comments provided under Segment 1

Farmland Owner: Jeffrey Pagel / Operator: Eric Pagel

Jeffrey Pagel owns almost 70 acres of cropland and wetland in the town of Charlestown. All 32 acres of cropland is rented to Eric Pagel. The cropland is used to grow corn, soybeans, snap beans, and peas in rotation. A description of the land Eric Pagel owns and rents for farming is described below.

Farmland Owners: Timothy L. and Pamela J. Pagel / Operator: Eric Pagel

Timothy and Pamela Pagel own 66 acres of land consisting of 32 acres of cropland that is rented to Eric Pagel, 28 acres of woodland, and 6 acres for buildings. Hay is grown on the cropland. The

Pagels are concerned about a grassed waterway potentially crossed by the project that moves water from west of the shed to west of the existing pipeline. Additionally, the woodland on the Pagels property is enrolled in the DNR's Managed Forest program, so any loss of trees from this woodland by the pipeline could mean the loss of some income.

Farm Owners/Operators: Eric A. and Catherine M. Pagel
Eric and Catherine Pagel own 110 acres of land as well as rent cropland from Jeffrey Pagel and Timothy and Pamela Pagel (see 2 previous landowners). Eric and Catherine Pagel indicated that the proposed project would affect cropland, woodland, and idle farmland on their property. The cropland contains drain tiles that may be affected by the project. The Pagels are considering installing an irrigation system in the field. Additionally some trees were planted in 2018, which if affected by the proposed construction, should be properly valued by an individual with knowledge of appraising immature trees.

Farm Owners/Operators: All Trades Farms LLC and Danes Fairylane Dairy Farms, Inc.
Comments provided under Segment 2A.

Segment 3

Farm Owners/Operators: All Trades Farms LLC and Danes Fairylane Dairy Farms, Inc.
Comment provided under Segment 2A.

Farmland Owners: Randolph J. and Hope Schmitt / Operator: Matthew Freund
Segments 3 and 4A
The Schmitts' property is located at the southern end of Segment 3 and the northern tip of Segment 4A. They own 133 acres of land including 75 acres of cropland and 35 acres of woodland. Mr. Freund grows 52 acres of wheat and the Schmitts grow 23 acres of hay on this land. The woodland includes 24 acres enrolled in the DNR's Managed Forest program.

The owners stated that there are significant issues with the route as proposed. By following the existing line, it would cross through their fields as well as have to negotiate a steep ravine located north and south of Thede Road that may be as much as 25 feet deep. Staging Area 19 appears to be located on top of this ravine. DATCP has spoken with Mr. Schmitt.

The Schmitts have submitted to WPS a proposed route alternative that would involve installing the main along the west and southern boundaries of their property instead of following the existing gas main corridor. WPS responses indicated that the reroute would cost an additional $140,000 for the following:

- additional 900 feet of gas main
- additional 300 feet of directional bore along Thede Road due to the proximity of the Schmitt residence
- tree clearing/grubbing along the western property line (cost: $20,000)

Appendix F contains the Schmitt route modification information and comments.

DATCP encourages WPS to continue to pursue route modifications discussions with the Schmitts. Alternatives might include routing the line along the eastern edge of the Schmitt fields but west and south of the forested areas, avoiding significant amounts of tree clearing.

The Schmitts are also concerned about a grassed waterway south of the existing gas main just before the woodland. They also do not want the driveway to their residence used during construction or gas main maintenance. Alternatively they suggest the use of a field road located to the west of the residence.

The project may also affect woodland that could be cut for timber or firewood.

Segment 4A

Farmland Owners: Randolph J. and Hope Schmitt / Operator: Matthew Freund
Comments provided under Segment 3.

Farm Owner/Operator: Gertrude Bonlander Trust
The Bonlanders farm two separate parcels of land that would be affected by two different segments, 2A and 4A.

On Segment 4A the one-acre, Valve Nest 1 appears to be located over a valley with steep slopes that rise up to Thede Road. This Bonlander field drains northeast towards the valley created by the intersection of Thede and Orchard Roads. The Bonlanders are concerned that the creation of a platform for the valve nest in the northeast corner of their property would increase the amount of water that drains towards that corner of their property. This could cause ponding and perhaps flooding of parts of the Bonlander cropland and their neighbors, such as the Carey property. They are also concerned that the location of Valve Nest 1 might make the northeast corner of their field too narrow to maneuver farm machinery.

DATCP recommends that WPS assess the existing surface water flows and verify that Valve Nest 1 would not cause surface water impacts to the adjacent cropland either temporarily or permanently.

Because the actual footprint of Valve Nest 1 would be 0.03 acres, DATCP recommends that WPS provide the operators of the Bonlander Family Trust farm the option to continue to farm the land not required for the aboveground facility.

Farm Owner/Operator: Vernon Rick
Mr. Rick owns 37 acres of land consisting of 16 acres of cropland, 5 acres for buildings, and 17 acres of wetland. His property is in the northwest corner of Tecumseh and Orchard Roads. Mr. Rick stated that the project could affect grassed waterways on his land.

Farm Owners/Operators: All Trades Farms LLC and Danes Fairylane Dairy Farms, Inc.
Comments provided under Segment 2A.

Farmland Owners: KD Property Holdings LLC / Operator: Danes Fairylane Dairy Farm, Inc.
The landowners responded to the DATCP questionnaire but did not offer any comments or concerns about how the proposed project might affect their property.

Farm Owners/Operators: Brenda L. and Bryan J. Koeppel, c/o George Hoffmann
The Koeppels own 40 acres of land and rent additional farmland from the city of New Holstein. They grow green beans and hay. The project could also affect cropland rented from the new Holstein Municipal Airport. The owners did not identify any other concerns that they have about the proposed project.

Farm Owners/Operators: Mr. and Mrs. Robert L. Morgen
Land Buyer: Matthew Mayer
Mathew Mayer is buying land from Mr. and Mrs. Robert Morgen on a land contract, but Mr. Morgen is continuing to farm this land, for now. DATCP spoke with the Morgens and Matthew Mayer. The affected parcel is located in the northeast corner of CTH A and Fur Farm Road.

The Morgens own 134 acres of farmland consisting of 110 acres of cropland, 20 acres of pasture, 4 acres of woodland, and 2 acres for homes and farm buildings. He grows corn, soybeans, and wheat in rotation. Mr. Mayer's primary concerns about the project are the loss of at least one growing season and potential damage to the productivity of his cropland.

Farmland Owners: Kleinhans Family LLC
The Kleinhans family owns 80 acre of land consisting of 76 acres of cropland, 3 acres for buildings, 0.5 acres of woodland, and 0.5 acres of idle farmland. Their cropland is rented to a farmer who grows corn and soybeans in rotation. The affected parcel is cropland located in the town of New Holstein, along Fur Farm Road.

The landowners stated that the farm has over 20,000 feet of drain tile installed, including tile installed in the proposed project ROW. Furthermore, the southeast area of the farm is lower in grade compared to the rest of the property. They are very concerned that if the pipeline is installed in this area, the natural movement of surface and subsurface water will be interrupted and ponding will occur. If the project is approved, the owners want to meet with WPS before construction starts to discuss issues related to the drain tiles and potential ponding.

Farm Owner/Operator: Dennis L. Meyer
The affected cropland is located at the eastern end of Segment 4A with minor amounts of easement required for Segment 5, along Fur Farm Road. Mr. Meyer owns 1,300 acres of land including cropland, pasture, woodland, wetland, and land for buildings. He grows corn, soybeans, hay, wheat, and peas. Mr. Meyer stated that he is most concerned about how the project would

affect his drain tiles, grassed waterways, and springs. The current natural gas main is located diagonally across his field and he has questions about what would happen to the old easement.

Segment 5

Farmland Owners: Donald J. Bonlander and Donald E. and Johanna K. Bonlander

The affected properties are located at the beginning of Segment 5 and along the south side of Fur Farm Road. The owners indicated that the project will affect cropland on their property. They are concerned that construction of the proposed project will bring additional stones into the plow layer of the cropland crossed by the pipeline.

Farm Owner/Operator: OMAD LLC (Doug Frisch)

Mr. Frisch responded on behalf of OMAD LLC. The corporation owns 490 acres of land and rents additional farmland from the city of New Holstein. Most of this land is cropland in addition to 30 acres of wetland and 4 acres for buildings. In an average year, he grows 200 acres of corn, 200 acres of soybeans, 100 acres of wheat, 60 acres of sweet corn, and 60 acres of lima beans. This farm is enrolled in the Conservation Stewardship Program (CSP). The CSP is offered by NRCS to work with landowners to increase the productivity and value of their land by helping them meet their conservation goals. In addition, there are bee hives on the property north of the pipeline.

The proposed project would affect cropland and fallow land on this farm. Mr. Frisch indicates that there are at least two 6-inch main drain tile lines, possibly a 4-inch lateral, and three grassed waterways that would be crossed by the proposed project. On the city of New Holstein land that he has rented for the past 20 years, Mr. Frisch has installed tiling along Fur Farm Road that would also be affected by the project. Mr. Frisch is concerned that the grain bin, storage building, and field immediately east of the existing New Holstein Regulator Station would be made inaccessible during the construction phase of the project. He is also concerned about how access will be provided to the OMAD property, north of the pipeline during construction.

Farm Owners/Operators: Timothy J. and Francis H. Toepel

Mr. and Mrs. Toepel own 145 acres of land and rent additional cropland. They rent cropland from Wally Schneider and this land would also be affected by the proposed project. The Toepels grow hay, corn, and wheat, and also have a 125-cow dairy operation with 45 replacement dairy cattle. The proposed project would cross cropland that they own and cropland that they rent. The owners did not identify any concerns regarding the proposed project.

Farmland Owners: Alan A. & Catherine B. Blum Liv. Tr. / Operators: Joe & Dan Meyer

The trust owns 50 acres of land consisting of 13 acres of cropland rented to Joe and Dan Meyer, 9 acres for buildings, and 28 acres of wetland. The proposed easements would affect cropland. The owners did not identify any concerns they have about the project.

Farmland Owners: Joseph H. and Mary A. Meyer / Operator: Daniel R. Meyer

Mr. and Mrs. Meyer own 340 acres of land. The proposed String Area 4 would affect cropland whereas the ROW would affect woodland on their property. They are very concerned that the project will remove immature trees that have not reached their full value for timber, and the project will reduce the amount of land where they can grow trees for timber.

DATCP recommends that WPS make sure to hire appraisers who have expertise in valuing such trees, especially those that have not yet reached a marketable stage.

Farmland Owners: Matthew A. and Stacey A. Faust / Operator: Kissinger Family Farms

Matthew and Stacey Faust own 48 acres of land and rent 15 acres to the Kissinger Family Farms. The project would affect trees as well as cropland. The owners did not identify any concerns about the proposed project.

Farm Owner/Operator: Donald L. Petrie Revocable Living Trust

The trust owns 60 acres of land consisting of 30 acres of idle farmland, 20 acres of woodland, and 10 acres of wetland. Mr. Petrie indicates that the project would affect both idle farmland and woodland on this property. The project may affect drainage ditches on the northern portion of this property. The owner also indicates that the project would affect trees that are currently used for firewood, wildlife habitat, and as a sound barrier that minimizes noise from the road. The property is also used for deer hunting. The owner's primary concern about the project is the loss of trees.

Farm Owners/Operators: Deibele Trusts and Steven and Marie D. Deibele

The owners have 210 acres of property consisting of 120 acres of pasture, 15 acres of cropland, 53 acres of woodland, 20 acres of wetland, and 2 acres for buildings. They grow oats for grain and other crops for forage. They also raise beef cattle, pigs, poultry, and horses.

The proposed project will cross pasture and land used for buildings on this property. Additionally, the permanent facility, Valve Nest 3, is proposed on the south side of County Line Road. The owners are concerned that the project could affect their pump house and a shed. The project also appears to run through high-tensile electric fencing used to hold a 50-head beef cattle herd. The owners indicated that this fence is well maintained. The project may also affect their watering system that provides water to the livestock. The owners are concerned that pipeline construction will interfere with their grazing rotation and lead to additional labor and other costs.

This farm was certified for organic production by Global Organic Alliance. However, in 2017, the owners allowed their certification to lapse, but they still follow organic practices.

Farmland Owner: Veronica Brissette (Veronica Gilsdorf) / Operator: Joe Mertens

Ms. Brissette owns 40 acres of land consisting of 17 acres of cropland 20 acres of woodland, and 3 acres of idle farmland. Mr. Mertens rents the cropland for hay. The project would affect woodlands and cropland. The owner is concerned about the potential for disruption of her renter's ability to harvest his crops.

Farm Owner: William Neils (Steven Neils *etal.*)

Mr. Neils rents his land out. He is concerned that the project would cross a farm road that his renter uses for access to his field.

Segment 6A

Farmland Owner: Hanke Trust (Garret J. and Jane L. Hanke)
Segments 6A, 6B, and 7

The Hanke Trust owns 86 acres of land consisting of 80 acres of cropland, 2 acres of woodland, and 4 acres of wetland. The cropland is rented out. The property is located at the eastern end of Segment 6A and the northern beginning of Segment 7. A small amount of land might be acquired for Segment 6B. The owners indicate that the project would cross cropland on their property but did not identify any concerns about the proposed project.

Segment 7

Farmland Owner: Hanke Trust (Garret J. and Jane L. Hanke)
Comments provided under Segment 6A.

Farm Owners/Operators: Russell F. and Sharon N. Dirks and Vicky L. Milbrath *et al.*
Segments 7, 8A, and 8B

The Dirks *et al.* property is 116 acres including 70 acres of cropland and 6.5 acres of woodland. They grow corn, soybeans, hay, and wheat. The property would be primarily impacted by the southern end of Segment 7 and the northern end of Segment 8A. A very small amount of property might be acquired for Segment 8B. The owners did not identify any concerns about the proposed project.

Segment 8A

Farm Owners/Operators: Russell F. and Sharon N. Dirks and Vicky L. Milbrath *et al.*
Comments provided under Segment 7.

Farm Owner/Operator: James Denzin

Mr. Denzin owns about 20 acres of land including 18 acres of woodland and 0.5 acres of gardens. The project might require ROW easements along CTH E and land along Garton Road for Stringing Area 5. Mr. Denzin indicates that the project may affect woodlands and specifically, windbreaks.

Farmland Owners: Brock L. and Lynn M. Brownrigg
Segments 8A and 8B

The Brownriggs own 64 acres of land consisting of 6 acres of cropland, 40 acres of pasture, 4 acres of woodland, 10 acres of idle farmland, 2 acres for buildings, 1 acre of wetland, and 1 acre for a pond. The cropland is used to grow corn and soybeans in rotation, and the pasture is used to grow hay.

Segment 8A would affect less than one acre along Garton Road. Additionally Segment 8B would require a total of 3.2 acres parallel to the existing main. The owners' only concern was that gas service to their property be maintained.

Farmland Owners: Michael and Terri DeMaster / Operator: Jeff Miller
Segments 8A, 8B, and 9
Mr. and Mrs. DeMaster own 68 acres of land consisting of 30 acres of cropland, 30 acres of woodland, 4 acres of wetland, and 4 acres for the buildings. The cropland is used to grow hay. Project impacts to the DeMaster property would be located at the southern end of Segments 8A or 8B. Regardless of which segment is approved, 0.92 acres of the DeMaster cropland would be required for a Station and Valve Nest. Both Segment 8A and 8B may affect a culvert under the DeMasters' driveway. The DeMasters' primary concern is maintaining natural gas service after the project is constructed.

Segment 8B

Farmland Owners: Brock L. and Lynn M. Brownrigg
Comments provided under Segment 8A.

Farmland Owners: Michael and Terri DeMaster
Comments provided under Segment 8A.

Segment 9

Farmland Owner: Joel A. Stevens / Operator: Max Prange
Mr. Stevens owns 45 acres of land consisting of 30 acres of cropland, 10 acres of pasture, and 5 acres for buildings. The cropland is used to grow soybeans and the pasture is used for hay. Mr. Stevens indicates that the project will affect cropland on his property. He is concerned that the project will affect drain tiles on his cropland as well as trees he planted that provide a windbreak and noise barrier.

Farm Owners/Operators: Nicholas W. and Amanda N. Kleiber
Segments 9, 10A, and 10B
The Kleibers own 900 acres of land that is mostly cropland, but also includes woodland, wetland, and land for buildings. They grow corn, soybeans, and wheat. All of their land is enrolled in the Conservation Stewardship Program (CSP). The CSP is offered by NRCS to work with landowners to increase the productivity and value of their land by helping them meet their conservation goals.

The project may require a very small amount of land for Segment 10B. Segments 9 and 10A could affect more than 9.6 acres of the Kleiber properties. The Kleibers are very concerned about damage to the numerous drain tiles installed in their fields. The project would affect some of the most productive soils of their farm. The Kleibers report that they regularly get yields of 220 bushels of corn and 65 bushels of soybeans per acre.

Segment 10A

Farm Owners/Operators: Nicholas W. and Amanda N. Kleiber
Comments provided under Segment 9.

Farm Owner/Operator: Prange Trust and Louis A. Prange
Segments 10A and 10B

The Prange Trust owns 506 acres of land consisting of 385 acres of cropland, 25 acres of pasture, 45 acres of woodland, 6 acres for buildings, and 45 acres of wetland. The crops grown are corn, soybeans, hay, and wheat. Mr. Prange also raises 300 head of replacement dairy cattle.

Farm Owner/Operator: Chris Reichert

Mr. Reichert currently owns 40 acres of land and rents additional land. He typically grows corn, soybeans, and hay, and raises 75 head of beef cattle. The proposed project would affect cropland and pasture on the Reichert land along Segments 10A. Segment 10 A may cross multiple drain tiles that run out by CTH J. Mr. Reichert indicated that the potentially affected cropland is very productive, producing about 200 bushels of corn per acre or 60 bushels of soybeans per acre annually.

Farm Owners/Operators: Scott C. and Deborah L. Reichert
Segments 10A, 10B, and 11

Mr. and Mrs. Reichert own 31 acres of land consisting of 14 acres of cropland, 4 acres of pasture, 7 acres of woodland, 7 acres of wetland, and 3 acres for buildings. They grow soybeans and hay on their cropland. Segments 10A and 11 could affect cropland on the Reichert property with installed drain tiles. A very small amount of property might be acquired for Segment 10B.

Segment 10B

Farm Owner/Operator: Prange Trust and Louis A. Prange
Comments provided under Segment 10A

Segment 11

Farm Owners/Operators: Scott C. and Deborah L. Reichert
Comments provided under Segment 10A

Segment 12A

Farmland Owners: Jeremy Brandt et al. / Operator: Jeff Meinnert

The owners rent land to Jeff Meinnert. They did not identify any concerns they have about the proposed project.

Farm Owner/Operator: Russell Reichert
Segments 12A and 12B

Russell Reichert owns 130 acres of land. Both Segment 12A and 12B would affect his cropland and installed drainage tiles.

Summary of Agricultural Property Owner Comments

This project overwhelmingly affects agricultural properties used for crops and pasture. Regardless of the final approved route, many agricultural operations may be affected. Construction impacts can be minimized or avoided when utilities, prior to the start of construction, consult with landowners. The DATCP questionnaires provide a first step to understanding the many concerns of the potentially affected agricultural landowners.

This project will affect agricultural land that is highly productive and contains significant investments in drain tiles; has numerous grassed waterways and drainage ditches; has infrastructure installed to manage cattle such as fencing and watering systems; and has woodlands used for timber, firewood, and fence lines/noise barriers.

The management of surface water is a big concern to farmers of this area. Many landowners identified drain tiles, grassed waterways, drainage ditches, surface water flows, low spots and wet areas within their fields. Some farm owners have installed tens of thousands of feet of drain tiles. One landowner has 160,000 feet installed on their land at a cost of $83,000 (Karls Trust). These farm operators are appropriately concerned that the project could alter established water management structures and flows that allow their fields to have good crop yields. Drain tile maps from property owners who submitted them to DATCP are included in Appendix E of this document.

It is critical that the facilities and topography that currently directs water away from fields are identified by WPS prior to the start of construction, so that they are changed as little as possible by this project's construction activities. Furthermore, any damage or alteration to facilities that manage surface and subsurface water flows should be adequately mitigated or repaired following the completion of project construction. Where water is not effectively managed, it will most likely pond and backup, significantly reducing crop yields and hampering remediation efforts. If not corrected, yields will not return to pre-construction amounts within a reasonable time period.

DATCP urges WPS to work with landowners to understand how excess surface water is managed in each field and to plan how quantity and intensity of water flows will be maintained during construction and what mitigation or repairs will be required after construction is completed.

Much of the proposed route cuts diagonally through land used for crops and grazing. As such, it is essential that WPS coordinate construction activities with farm operators so as to interfere as little as possible with farm operations. Pasture and cropland can easily become inaccessible by linear construction projects that do not follow field boundaries. Sensitivity to farmers' needs to access remote fields, grain bins, and farm buildings; maintain electrified fencing around pastures and yards; and for rotational grazing, should be a priority for WPS. Additionally, even if all portions of the field remain accessible, pipeline construction may create a smaller or odd-shaped field remnants that, due to the limited maneuverability of farm equipment, become impractical to farm. DATCP recommends that WPS should minimize impacts to farm operations. If operations are

impacted, WPS should properly compensate farmers for portions of fields that become inaccessible or impractical to farm, or for alterations in operations that add additional cost to the farmer, during construction.

In the project area, a significant number of affected fields are rented to others. Thus it is critical to not only communicate with the owners of agricultural properties but attempt to reach out to the renters of fields, as well. WPS should communicate the type and timing of construction activities to all agricultural operators. As such, DATCP strongly encourages WPS to work with farm operators (renters and owners), well in advance of the start of construction, in order to understand how to minimize interference with farming operations through timing of construction activities and sufficient notice of construction activities to farm operators.

WPS should be prepared to encounter two properties that follow organic practices. Another two properties are enrolled in the NRCS Conservation Stewardship Program (CSP). DATCP recommends that WPS work with these landowners to minimize impacts to their farming operations and program enrollments.

A number of property owners have woodland and trees that they value for firewood, timber, nuts, or wind or noise barriers. It is appropriate to limit tree clearing where possible. Furthermore, DATCP recommends that WPS make sure to hire appraisers who have expertise in valuing trees, especially those that have not yet reached a marketable stage.

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 one or more individuals designated as the project Agricultural Inspector. If retained, the Agricultural Inspector will be thoroughly familiar with the project and pipeline construction processes as well as issues regarding agricultural operations and soil conservation. The role of the Agricultural Inspector is crucial in enforcing the AMP and BMPs; reporting incidents of noncompliance; and recommending methods to limit or mitigate agricultural impacts. DATCP recommends that the project have at least one individual designated as the Agricultural Inspector for this project and that periodic construction reports are shared with DATCP for review.

Contractors will be required to structure their construction activities to be consistent with the AMP and the BMPs. Refer to Appendix G 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

The acquisition of easements by utilities with eminent domain authority in Wisconsin is stipulated under Wis. Stat. § 32.06. Additional information about the appraisal process and landowners rights

can be found in a Wisconsin Department of Administration publication, "The Rights of Landowners under Wisconsin Eminent Domain Law," at the website: https://doa.wi.gov/Pages/AboutDOA/RelocationAssistance.aspx.

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). A jurisdictional offer will include an appraisal of the fair market value for the easement and any anticipated damages to the property. The fair market value means the price that a willing buyer would pay to a willing seller in the market. This will be based on at least one full narrative appraisal for each property the utility intends to acquire. The appraisal must be presented to the landowner.

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 the utility or its designated real estate contractor within 60 days after the landowner receives the initial utility appraisal.
- The appraisal fee must be reasonable.
- The appraisal must be a full, narrative appraisal
- The appraisal must be completed by a qualified appraiser.

The amount of compensation for the easement is established during the negotiation process between the utility and the individual landowner. Landowners may also attempt to negotiate additional stipulations from the utility and additional payments.

The utility is required to provide landowners with information about their rights in this process before negotiations begin. Wis. Stat. § 32.035(4)(d) additionally requires that the utility not negotiate with a landowner or make a jurisdictional offer until 30 days after the AIS is published. More information about the appraisal process and landowners rights can be found on the DOA website at: https://doa.wi.gov/Pages/AboutDOA/RelocationAssistance.aspx.

Landowners should keep in mind that any easement they sign with a utility is an individual contract. The easement contract is binding to the landowner and any future owners of the land, until the contract is dissolved. 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 utility's project-specific AMP and BMPs (Appendix G) so as to determine if additional conditions should be negotiated with the utility. Though they can choose to waive any or all of the practices and procedures described in the AMP and BMPs, DATCP recommends to only do so with careful consideration. Landowners may want to seek legal advice if they have any

questions about this process, and should make sure that any attorneys hired have expertise and experience in eminent domain law and procedures. More reference information can be found in Appendix B.

VII. CONSTRUCTION PROCESS

If the project is approved by the PSC, construction on the gas pipeline will likely begin after the utility has secured all necessary permits and ROW easements. Typical natural gas pipeline construction sequence proceeds in the manner of an outdoor assembly line; comprised of specific activities that make up the linear construction sequence. These operations include surveying and staking the ROW, clearing and grubbing (digging up roots and stumps), grading, pipe stringing, welding and bending, trenching, lowering-in, backfilling, re-grading, cleanup, hydrostatic testing, and restoration (Figure 4). While most of this project would use open trench construction, horizontal directional drilling (HDD) will be used in some locations to avoid impacts to features such as roads, driveways, and natural resources.

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

Surveying and Staking

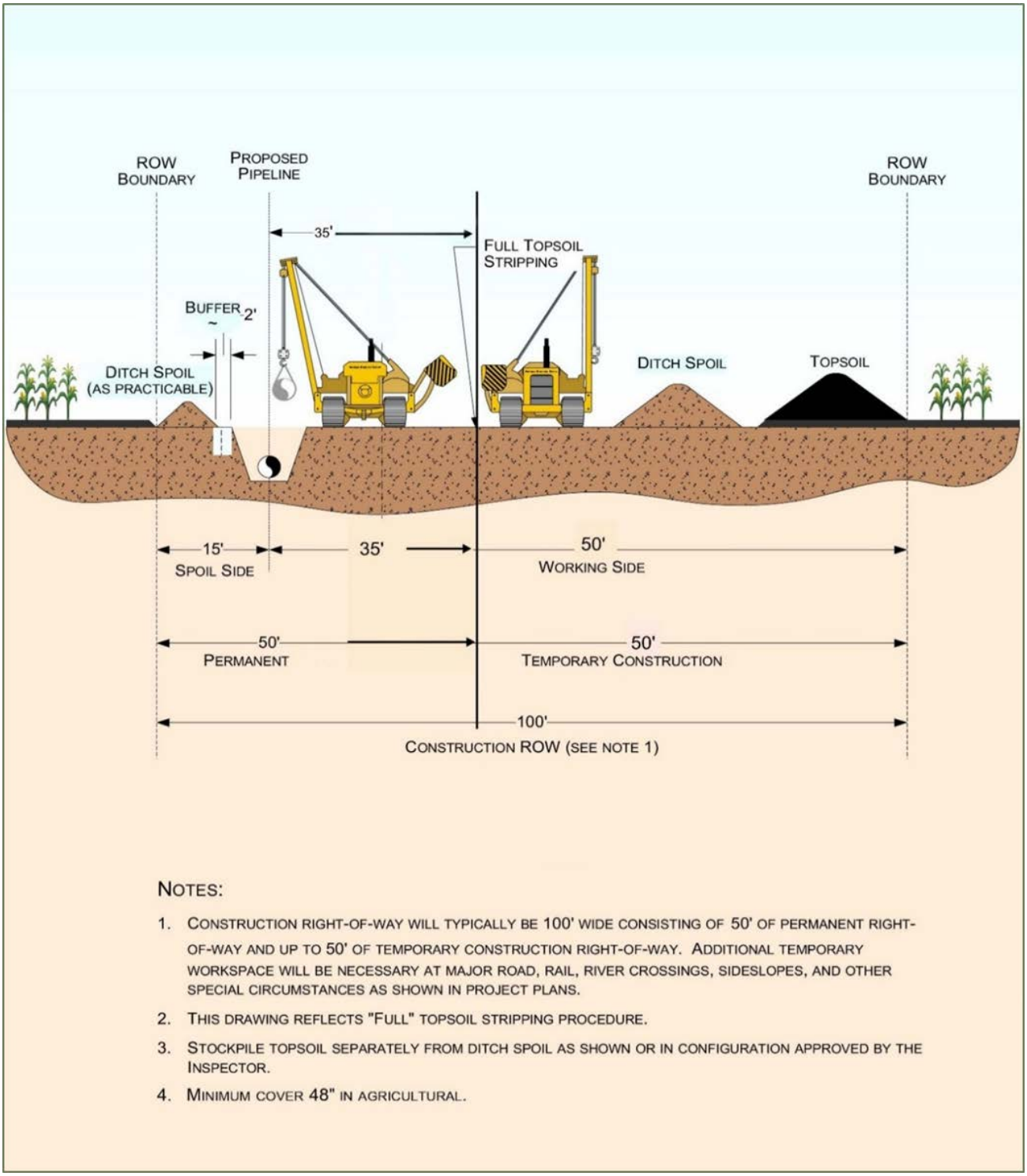
The first construction step involves surveying and staking the pipeline centerline, construction ROW limits, temporary workspace areas, and known underground facilities that cross or parallel the proposed pipeline. Construction activities and equipment travel requires the use of temporary work space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

Access roads to the pipeline ROW are typically along existing ROWs such as public roads and farm roads. Additional temporary access roads may be necessary, and some of these may cross agricultural lands. Temporary work space needed for access roads on private lands will be negotiated with the landowner. Construction of these roads 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. If the property owner approves, access roads will 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, the removal of stumps and roots, occurs over the area where the trench will be excavated. Non-woody vegetation is removed by mowing. However, crops such as small grains with a limited amount of biomass may be left in place to minimize soil erosion. A fence crew operates with the clearing crew to cut and brace existing fencing and install temporary gates along the ROW. This crew also installs necessary fencing along identified sensitive areas as required by agencies and along pastures that contain livestock.

Figure 9: Typical Pipeline Construction Cross-Section on Agricultural Land



Source: We Energies

The utility will work with affected landowners when the cutting of merchantable timber on their property is 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 three-lift soil managing.

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

Pipe Stringing

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

Bending and Welding

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

Trenching

Open trenching is the primary method for new gas pipeline construction. Alternatively, in some locations, the utility will use HDD to avoid impacts to features such as roads, driveways, and natural resources. HDD is discussed in more detail later in this section. Trenches are typically excavated using a backhoe, or in some cases a track hoe, 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 30 feet and 6 to 12 feet deep. Any groundwater is pumped into a dewatering structure. The auger boring machine and a casing pipe are jacked under the obstruction while the earth is removed by an auger inside a casing pipe. The new carrier pipe is attached to the casing pipe and is either pushed or pulled under the road or railway. After the new carrier pipe is installed and tied into the rest of the pipeline, the bore pits are backfilled and restored.

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

Cleanup and Initial Restoration

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

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

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

Hydrostatic Testing

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

Final Restoration

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

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

VIII. POTENTIAL ADVERSE IMPACTS OF PIPELINE CONSTRUCTION ON AGRICULTURE

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

- Interference with farm operations in the ROW and adjacent areas
- Changes in field drainage
- 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
- ROW restoration that is inconsistent with landowners cropping plans
- Use of prohibited substances on farms with organic practices

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
- Spread of weed seeds and diseases from parcel to parcel unless proper protocols are observed.

To avoid or minimize agricultural impacts, WPS has prepared project-specific AMP and BMPs (see Appendix G). These documents identify technical and performance standards for construction and restoration, and are essential to the protection of agricultural land. However, their value can be realized only to the extent that they are faithfully implemented during the construction and restoration process. The goal of the AMP and BMPs is to protect the agricultural resources and farmland owners along the route. However, nothing in the AMP or BMPs prevents landowners from negotiating stronger measures to address property-specific concerns.

The following sections discuss the potential agricultural impacts from a natural gas construction project and the measures that would minimize or mitigate the impacts. Additionally, it references the appropriate sections of the project AMP and BMPs that address these issues.

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 out of ten days can cause significant rutting with normal construction equipment traffic.

Measures to Avoid Topsoil Mixing/Inversion

To prevent the mixing of topsoils with subsoil layers, the topsoil is stripped from the full width of the ROW to a depth of 12 inches across agricultural lands (Appendix G, AMP Section a 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 Soils (Three-Lift Soil Handling)

Potential Adverse Impact

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

immediately after construction for areas where poorer quality subsoils are mixed with better quality upper soil horizons.

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

To avoid mixing the fertile subsoil with underlying gravelly material, three-lift soil handling can be used to greatly mitigate construction impacts to agricultural soils. Details about three-lift soil handling for this project can be found in Section V of this report, under "Three-Lift Soil Handling." For 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 soil horizons. All three soil layers are stored separately for reuse during backfilling of the trench and restoration. In order for this method to be of value, there must be a significant difference between the upper subsoil layer and the lower subsoil layer or parent material. Candidate soils are identified through desktop soil analysis and verified by subsequent on-site sampling. This type of soil segregation would only be used over the trench and through lands that are and will be returned to crop and pasture use (Appendix G, 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 three-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 added to other farm fields.

Soil Compaction

Potential Adverse Impact

Compaction of subsoil and topsoil is a 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. Compaction is most evident when the crop is under additional stress such as drought or excessively wet conditions.

The factors that influence whether a soil becomes compacted include the weight of the construction equipment traveling over the soil, soil moisture, and soil texture. As axle load increases, the depth of compaction can increase. When traffic loads are relatively lightweight, less than 10 tons per axle, the soil generally does not compact below the 8-10 inch range. Compaction at this depth can usually be decompacted with typical farm tillage equipment. Heavier construction equipment can compact soils to a depth that cannot be removed by conventional tillage. Wet soils can also increase the risk for compaction. Sometimes, the plow layer may appear dry, but the subsoil can still be saturated resulting in the potential for significant compaction during construction. Also, soil texture may be a good indicator of potentially sensitive soils. Fine soils, such as clay or silty clay loams have a greater risk of becoming compacted.

Soil Restoration: Removing Compaction in Subsoil and Topsoil

Pipeline construction can cause long-term damage to agricultural productivity from deep soil compaction if proper construction methods are not implemented or proper decompaction is not performed. However, with the proper techniques, timing, and equipment, there are few subsoils that cannot be adequately decompacted.

Prevention of rutting and compaction is easier than restoring the soil structure after it has been damaged. The most effective method to reduce compaction and rutting in construction ROWs is to avoid the use of heavy construction equipment when the soils are wet.

After construction is completed, the ROW will be compacted to some degree. Deep tillage equipment are typically used on the exposed subsoil of the construction ROW, after the trench has been backfilled and time has been allowed for trench settling.

One common option for deep ripping is an industrial V-ripper, which should have 4 to 5 heavy-duty shanks, spaced 30 to 36 inches apart and be 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

Proper field drainage is vital to a successful farm operation. Pipeline construction can permanently disrupt improvements such as drainage tiles, grassed waterways, and drainage ditches, which regulate the flow of water on farm fields. Compaction can also alter the soil profile, and cause ponding or seeps, where none existed prior to construction. The pipeline may exacerbate existing drainage problems in fields by increasing surface flows within the construction area and in adjacent fields.

If drainage is impaired, water can settle in fields and cause substantial damage such as retarding the growth of crops and other vegetation, concentrating mineral salts, flooding farm buildings, or causing hoof rot and other diseases that affect livestock.

It may take several years for these problems to become apparent, or even longer if there is a dry year. It is also possible for pipeline construction to interfere with future plans for drainage systems in a field.

Mitigation Measures

DATCP recommends that landowners work with the utility about the existence and location of drainage systems or planned drainage systems that could be affected. Field conditions should be documented by the landowner prior to the start of construction so it can be compared with post-construction conditions.

The utility should note and monitor the location of significant seeps along the trench walls during the open construction phase of the project. Temporary ditch plugs and permanent trench breakers can be used to help deter the pipeline corridor from acting as a channel for underground water flows.

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

After construction is completed, landowners and the utility should carefully monitor for the emergence of drainage problems. If problems are observed that can be attributed to pipeline construction, the landowner and utility should work together to develop a mutually agreeable solution.

Where construction activities have altered the natural stratification of the soils resulting in new wet areas, DATCP recommends WPS work with the landowner to determine the means to return the agricultural land either in the ROW or on adjoining lands to pre-construction function. New drainage tiles, regrading, or additional fill may be required to correct the problems that arise after construction is completed.

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 the 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 G, BMP 05: Trench Dewatering) 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 ordinances, 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

Both topsoil and subsoil along the project routes are valuable resources. Construction activities can destabilize soil horizons and cause top soil to erode and potentially migrate off of the ROW. 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 as exposed soils form rills and the soil travels downslope. In these areas wet trenching may be necessary. Areas with steeper slopes can be subject to greater soil loss from erosion by water. Silt and very fine sand, and certain clay textured soils tend to be more susceptible to erosion. Trench dewatering can also result in flooding, erosion, and sedimentation on farm fields off the ROW unless appropriate measures are applied.

Significant erosion can 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.

Many agricultural fields have existing erosion control practices such as diversion terraces, grassed or lined waterways, outlet ditches, water and sediment control basins, vegetated filter strips, etc. These can be damaged by construction activities.

Soil erosion can affect crop yields through the loss of natural nutrients and applied fertilizers. Seeds and plants can be disturbed or completely removed from the eroded site. Organic matter, manure, and crop residue can be transported off the field through erosion. Pesticides can also be carried off the site with eroded soil.

Mitigation Measures

To avoid erosion, construction and restoration should not proceed if conditions are excessively wet. The AMP, Section f (Appendix G), 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. Erosion control practices must be carefully followed to minimize construction-related impacts.

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

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

Temporary erosion controls must be properly maintained on agricultural lands on a daily basis throughout construction and restoration. Whenever necessary, they must be reinstalled until

permanent erosion controls are installed or restoration is completed. The details of erosion controls are described in AMP Sections f and i, and in BMP 03 (Appendix G).

The best method to control erosion is the growth of a vegetative cover. As soon as practicable the land should be returned to cropland or seeded with the appropriate species mix.

The utility 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.

Crop Rotation and Dairy Operations

Potential Adverse Impacts

A common dairy rotation may include 2 to 3 years of field corn, followed by soybeans, and then 3 years of alfalfa. Construction activities across fields may affect the yield and/or quality of the alfalfa crop that the farming operation needs to feed its herd. If construction activities cause a delay in alfalfa seeding, it may cause a shortage of alfalfa forage or the field may contain an increase percentage of grass. Some operators may choose to alter their crop rotation schedule and plant extra years of row crops to avoid the likelihood of an alfalfa crop that doesn't meet the operation's quantity or quality forage needs. If any of these occur, the operator will be negatively impacted due to a shortage of alfalfa forage and the operator would need to adjust the herd's diet by doing any or all of the following: buy haylage or hay, obtain more corn silage, and/or provide protein supplements such as soybean oil meal. All these activities would increase costs to the dairy operator.

Mitigation Measures

Dairy operators need to know the construction schedule well in advance in order to make adjustments to their crop rotation schedule. Due to the high cost of seeding alfalfa, some operators may decide to plant a row crop during the year of construction and maybe even the year following construction to have an additional opportunity for tillage to further decompact the soils. Other operators may choose to keep a field in alfalfa but may have decreased quality or quantity of yields from construction impacts. Fertilization (top-dress) of the forage field with potassium (K20) may enhance alfalfa plant density. With advance knowledge of the construction schedule, dairy operators can determine how best to provide forage for the herd and the associated costs for these adjustments.

The utility should provide dairy operations with as much advance information as possible about the construction schedule on individual properties and compensate the landowner for any increased costs associated with construction impacts to forage requirements.

Temporary Access Roads

Potential Adverse Impacts

Temporary access roads may need to be created during the construction process to allow personnel and equipment to access the construction corridor. Where possible, existing public or private roads are used. However, in some locations these are not available or suitable.

Temporary access roads may cross agricultural fields. The potential negative effects of building access roads across agricultural lands include the potential mixing of topsoil with subsoil, soil compaction, erosion, and interference with existing drainage, irrigation, and farming operations. Any of these impacts can result in the loss of agricultural productivity on affected soils after construction is completed.

Mitigation Measures

The utility 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 G, AMP, Section b) In places where temporary access roads are constructed over agricultural land, the utility will work with the landowner to determine if the topsoil needs to be stripped and temporarily stockpiled. Access roads should 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 access roads are removed, adequate soil restoration practices should be used to return the agricultural field to pre-construction function. 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 should be restored to preconstruction conditions. If additional top soil is necessary to restore the farmland, top soil should be of similar quality to adjacent soils. All construction temporary access roads will be removed unless there is an agreement in writing between the landowner and the utility 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. Agricultural property owners have trees on their property for many uses. They may have:

- a woodlot for income, firewood, or recreational use
- tree crops (nurseries, orchards, Christmas tree farms)
- a fencerow used as a windbreak to reduce erosion
- trees to shade livestock
- trees planted as a visual and/or sound barrier from a highway or other land uses

- ornamental, shade, fruit and nut trees for personal use, or other landscaping around the residence and other buildings for aesthetic purposes

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.

Both the existence of a woodlot or tree crops provide financial benefit to the landowner. Windbreaks in the form of a single row of trees may protect for a distance downwind for approximately 10 to 12 times the height of the windbreak. Therefore, taller trees in a windbreak will protect a larger area of cropland than shorter trees. Tree lines can serve as a herbicide barrier between organic farm parcels and farm operations not under organic management. Removal of this barrier may allow herbicide drift to affect an organic farm operation. Shade trees in pastures benefit livestock. Heat above 75 degrees Fahrenheit can negatively affect livestock by inhibiting feed intake, which can result in lower milk production in dairy animals and lower weight gain in meat animals. Planted trees can have sentimental value or add aesthetic enjoyment to the property. Removal of any trees from a property can decrease overall market value of the property.

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. The utility may elect to minimize the "tree-free" corridor to a width of 20 feet so that impacts to tree crops are minimized.

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.

Some parts of trees contain compounds that are toxic if eaten by livestock. Cornell University identifies these potential risks to livestock (http://poisonousplants.ansci.cornell.edu/php/plants.php?action=display&ispecies=cattle):

- Seeds, leaves, and bark from wild cherries, black cherry, bitter cherry, choke cherry, and pin cherry trees (*Prunus spp*.) to all grazing animals
- Acorns and young leaves from oak trees (*Quercus spp.*) for all grazing animals
- Bark, leaves, and seeds from a black locus trees (*Robinia pseudoacacia*) to horses and cattle
- Leaves, twigs, roots, unripe fruit from elderberry bushes (*Sambucus canadensis*) to cattle and goats
- Fruit from horse chestnut, buckeye trees (Aesculus spp.) to cattle and goats
- Needles and young shoots from Ponderosa pine (Pinus ponderosa) to cattle

Chipped wood from these trees or other tree parts may present a danger to livestock when the ROW is returned to pasture after construction is completed.

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 the AMP, Section c (Appendix G) for additional details about vegetation removal.

Mitigation Measures

Landowners are compensated for the loss of trees 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. 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.

Additionally, WDNR guidelines should be strictly adhered to for preventing the spread of exotic invasive plant species and diseases such as oak wilt and Heterobasidion root disease.

Where trees serve an agricultural function such as livestock shade or windbreaks, or if they provide an aesthetic value, landowners should be adequately compensated for the full loss of the function of the trees. An appraiser who has experience and expertise in valuing trees should be consulted to ensure that landowners receive fair compensation that includes all of the value those trees provide.

If some of the trees might be considered toxic to livestock and the ROW would be returned to pasture use, the utility should work with the landowner to identify potential risks. If the landowners has specific livestock concerns, trees such as wild cherry and black walnut must not be stockpiled or disposed so that the wood or wood parts could be accessible to livestock.

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 of water and frequency of irrigation; 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 construction activities will be repaired by the utility as soon as possible (Appendix G, AMP, Section e).

Fencing

Potential Adverse Impacts

The construction process may necessitate severing fences that are located across pipeline construction areas. Changes to existing fences 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 other vegetation is prohibited. Temporary fences will be removed following construction, unless the landowner approves otherwise. These measures are described in the Appendix G, AMP, Section d.

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. The introduction of weeds and invasive species may reduce crop yields as they compete with the crop for the same resources. They can interfere with harvesting or harbor problem insects and crop diseases. Weeds, once established, tend to spread if they are not managed through mechanical or chemical actions. Weed management can be especially troubling for organic farms for which the use of most herbicides is not an option.

Stockpiled soils can become an opportunistic place for weeds to flourish because they remain undisturbed for most of the construction period.

Mitigation Methods

Agricultural property owners should be aware that construction activities may cause weed growth where none existed prior to construction. The utility should, based on the wishes of the landowner, re-establish vegetation in the ROW as soon as possible after construction is completed and the mats are removed. Vegetated ROWs will reduce the likelihood of weeds establishing themselves in the newly disturbed area. Weed growth on stockpiled topsoil could present a problem to adjacent cultivated fields. The utility will remove or kill weeds observed on the stockpile. If herbicide is used on the topsoil pile, the landowner will be consulted in regard to the choice of herbicide. All herbicide application will be done by a state-licensed applicator (Appendix G, AMP, Section h).

Seeding and Seedbed Preparation

Potential Adverse Impacts

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

Mitigation Measures

As described in BMP 07: Seeding and Seedbed Preparation, the utility will 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

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.

Mitigation Measures

The utility should actively work toward avoiding contact with livestock and manure during the construction process to reduce the risk of biosecurity issues occurring. If avoidance is not possible the utility should work with the farmers to develop protocols specific to the landowner's farm

operation. The utility's personnel and contractors should follow all posted directives regarding bio-security on farms.

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

Organic Farms

Potential Adverse Impacts

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 organic fields. Pesticides can also drift onto adjacent organic farm properties, if wind direction and speed are not appropriately monitored.

Mitigation Measures

Care must be taken by the utility and its contractors where construction crosses farmland with organic practices. Organic top soil is difficult to replace. Where soil is excavated on these farms in particular, the topsoil should be segregated from subsoils and set aside to be used during restoration activities. No herbicide should be used on organic farms without the operator's written consent. Additional precautions must be taken with herbicide use on adjacent land in order to prevent herbicide drift or to prevent herbicide-dissolved water from flowing onto organic fields. Wis. Admin. Code § ATCP 29.50(2) states that no pesticides may be used in a manner that results in pesticide overspray or significant pesticide drift. Any oil or fuel spill on these farms could also jeopardize organic certification, so care must be taken to avoid such spills or clean them up immediately and thoroughly if they happen.

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 the utility and its contractors. 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 by the landowner and the utility to avoid the potential for any unintentional contacts. This could include herbicide applications from adjacent ROW acreage drifting onto the organic farm. Also, the utility should not apply seed to certified organic farms without approval of the operator.

Induced Current on the Pipe

A small direct current (DC) is applied to pipelines for cathodic protection to prevent corrosion of the pipe material. Because pipelines, particularly if located in electric transmission line corridors, can be carriers of induced alternating current (AC), 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 to 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.

Construction Noise and Dust

Potential Adverse Impacts

During each phase of construction, noise and dust is generated. Noise may cause cattle to stampede, break through fences, and escape from the farm property. Fur animals and poultry are particularly sensitive to noise.

Mitigation Measures

The utility should work with farmers to determine if they have any potentially sensitive animals. Where sensitive animals exist, the utility should provide appropriate advance warning of construction activities so that farmers can take the necessary steps to safeguard their animals. Dust should be kept at a minimum when practicable.

IX. 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	DAUN CONNIE CALUMET COUNTY CLERK 206 COURT ST CHILTON WI 53014
LOIS KIEL MANITOWOC COUNTY CLERK 1010 S 8TH ST 1ST FLOOR ROOM 115 MANITOWOC WI 54220	JON DOLSON SHEBOYGAN COUNTY CLERK ADMINISTRATIVE BLDG RM 129 508 NEW YORK AVE SHEBOYGAN WI 53081
JOHN SCHWARZ TOWN OF CHILTON CHAIR N4695 COUNTY BB CHILTON WI 53014	DOUG KOFFARNUS TOWN OF CHILTON CLERK N4695 COUNTY BB CHILTON WI 53014
CHUCK SCHNEIDER TOWN OF BROTHERTOWN CHAIR N2289 COUNTY RD C CHILTON WI 53014	LEANNE KARLS TOWN OF BROTHERTOWN CLERK N2445 S TOWER RD CHILTON WI 53014
GARY WINKLER TOWN OF NEW HOLSTEIN CHAIR N1339 COUNTY RD A NEW HOLSTEIN WI 53061	CHERYL HELLER TOWN OF NEW HOLSTEIN CLERK N1556 SEVEN CORNERS RD NEW HOLSTEIN WI 53061
WILMER GEISER TOWN OF CHARLESTOWN CHAIR N3576 CTH T CHILTON WI 53014	SHARON ALLEN TOWN OF CHARLESTOWN CLERK N5403 IRISH RD CHILTON WI 53014
HELEN SCHMIDLKOFER CITY OF CHILTON CLERK CHILTON CITY HALL 42 SCHOOL ST CHILTON WI 53014	CASSANDRA LANGENFELD CITY OF NEW HOLSTEIN ADMINISTRATOR 2110 WASHINGTON ST NEW HOLSTEIN WI 53061
DEB HOEPPNER TOWN OF SCHIESWIG CLERK 21720 ROCKVILLE ROAD KIEL WI 53042	JAMIE J AULIK CITY OF KIEL ADMINISTRATOR KIEL CITY HALL 621 SIXTH ST KIEL WI 53042
RON PLATZ TOWN OF RHINE CHAIR W5250 CTH FF PO BOX 117 ELKHART LAKE WI 53020	LEXANN HOOGSTRA TOWN OF RHINE CLERK W5250 CTH FF PO BOX 117 ELKHART LAKE WI 53020
STEVEN H BAUER TOWN OF SHEBOYGAN FALLS CHAIR W3860 CTH O SHEBOYGAN FALLS WI 53085	JEANETTE MEYER TOWN OF SHEBOYGAN FALLS CLERK W3860 CTH O SHEBOYGAN FALLS WI 53085

WARREN LUEDKE TOWN OF PLYMOUTH CHAIR N6045 CTH E PLYMOUTH WI 53073	LAURA RAEDER TOWN OF PLYMOUTH CLERK N6152 RIVERVIEW RD PLYMOUTH WI 53073
ANTHONY REALI CALUMET COUNTY CONSERVATIONIST 206 COURT ST CHILTON WI 53014-1198	JERRY HALVERSON MANITOWOC COUNTY CONSERV DIR PO BOX 935 MANITOWOC WI 54221-0935
SCOTT GUNDERSON UW-EXTENSION PO BOX 935 MANITOWOC WI 54221-0945	ERIC FEHLHABER SHEBOYGAN COUNTY CONSERV MGR 508 NEW YORK AVE RM 319 SHEBOYGAN WI 53081-4126
MICHAEL BALLWEG UW-EXTENSION 5 UNIVERSITY AVE SHEBOYGAN WI 53081	CHILTON PUBLIC LIBRARY 221 PARK ST CHILTON WI 53014
KIEL PUBLIC LIBRARY 511 THIRD ST KIEL WI 53042	PLYMOUTH PUBLIC LIBRARY 130 DIVISION ST PLYMOUTH WI 53073
FOND DU LAC REPORTER N6637 ROLLING MEADOWS DRIVE FOND DU LAC WI 54936	SHEBOYGAN PRESS 632 CENTER AVENUE SHEBOYGAN WI 53081
CHILTON TIMES JOURNAL 19 E MAIN ST CHILTON WI 53014	TRI-COUNTY NEWS 606 FREMONT ST KIEL WI 53042
PLYMOUTH REVIEW 113 E MILL ST PLYMOUTH WI 53073	JANET SOSNOSKY WISCONSIN PUBLIC SERVICE CORPORATION 700 N ADAMS ST GREEN BAY WI 54301
BRENDA AND BRYAN KOEPPEL C/O GEORGE HOFFMANN W2060 COUNTY H NEW HOLSTEIN WI 53061	DENNIS L MEYER N1882 COUNTY G CHILTON WI 53014
DONALD J AND DONALD E AND JOHANNA K BONLANDER N3742 N MILL RD CHILTON WI 53014	DONALD L PETRIE REVOC LIVING TRUST 130 HIGHWAY 67 KIEL WI 53042
ERIC A AND CATHERINE M PAGEL W3098 HIGHWAY 57 NEW HOLSTEIN WI 53061	GERALD A MEYER SR ETUX W3069 QUINNEY RD CHILTON WI 53014
HANKE TRUST GARRET J AND JANE L HANKE W4021 N COUNTY ROAD A PLYMOUTH WI 53073	JAMES P DENZIN 732 SHELLY DR SHEBOYGAN FALLS WI 53085
JOSEPH H AND MARY A MEYER 22511 MUELLER RD KIEL WI 53042	GERALD KARLS REV LIVING TRUST GERALD A KARLS TRUSTEE W2180 PETHAN RD CHILTON WI 53014
CHRIS REICHERT N6972 COUNTY ROAD JM SHEBOYGAN FALLS WI 53085	KLEINHANS FAMILY LLC 390 #A AUBURN MEADOWS CT CAMBELLSPORT WI 53010

MATTHEW A AND STACEY A FAUST 16802 HIGHWAY 67 KIEL WI 53042	NICHOLAS WILLIAM AND AMANDA NICHOLE KLEIBER N7811 LITTLE ELKHART LAKE RD ELKHART LAKE WI 53020
PRANGE TRUST AND LOUIS A PRANGE N24 WILLOW RD SHEBOYGAN FALLS WI 53085	RANDOLPH J AND HOPE SCHMITT W1738 THEDE RD NEW HOLSTEIN WI 53061
ROBERT L MORGEN ETUX W1549 FUR FARM RD NEW HOLSTEIN WI 53061	RUSSELL F AND SHARON N DIRKS AND VICKY L MILBRATH ETAL N8043 COUNTY RD E ELKHART LAKE WI 53020
RUSSELL REICHERT N6648 RIO RD SHEBOYGAN FALLS WI 53085	SCOTT C AND DEBORAH L REICHERT N6675 WILLOW RD SHEBOYGAN FALLS WI 53085
VERNON J RICK N2191 ORCHARD RD NEW HOLSTEIN WI 53061	VERONICA BRISSETTE 1601 35TH ST KENOSHA WI 53140
MATTHEW MAYER 6442 HERITAGE AVE MOUNT PLEASANT WI 53406	

Copies of the final AIS will be emailed to the following property owners:

- Bittner Real Estate
- Franklyn Boll
- Bonlander Family Trust
- Deibele Trusts and Steven & Marie D. Deibele
- Michael and Terri DeMaster
- Gerald Karls Rev Living Trust and Gerald A. Karls
- Kleinhans Family LLC
- OMAD LLP, c/o Doug Frisch
- Eric A. and Catherine M. Pagel
- Jeffrey M. Pagel

Newspapers: Agri-View and Country Today.

APPENDIX A: ACRONYMS

AI	Agricultural Inspector
AIS	Agricultural Impact Statement
AEA	Agricultural Enterprise Area
AMP	Agricultural Mitigation Plan
BMPs	Best Management Practices
CA	Certificate of Authority
CREP	Conservation Reserve Enhancement Program
CRP	Conservation Reserve Program
CSP	Conservation Reserve Program
CTH	County Trunk Highway
DATCP	Department of Agriculture, Trade, and Consumer Protection
EITM	Electronics and Information Technology Manufacturing Zone
FPP	Farmland Preservation Program
HDD	Horizontal Directional Drilling
MAOP	Maximum Allowable Operating Pressure
NASS	National Agricultural Statistics Service
NRCS	Natural Resources Conservation Service
PSC	Public Service Commission of Wisconsin
PSIG	Pounds per Square Inch Gauge
ROW	Right-of-Way
STH	State Trunk Highway
USDA	U.S. Department of Agriculture
WDNR	Department of Natural Resources
WisDOT	Wisconsin Department of Transportation
WPS	Wisconsin Public Service Corporation

APPENDIX B: STATUTES FOR AGRICULTURAL IMPACT STATEMENTS

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

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

(1) DEFINITIONS. In this section:

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

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

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

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

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

(4) IMPACT STATEMENT.

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

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

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

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

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

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

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

(a) The governor's office.

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

(c) All local and regional units of government that have jurisdiction over the area

affected by the project. The department shall request that each unit post the statement at the place normally used for public notice.

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

(e) Public libraries in the area affected.

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

(g) The condemnor.

STATUTES GOVERNING EMINENT DOMAIN

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

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

APPENDIX C: INFORMATION SOURCES

DATCP (datcp.wi.gov)

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

Department of Administration (doa.wi.gov)

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

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

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

- PSC project webpage for docket #6690-CG-174

Department of Natural Resources (dnr.wi.gov)

- Energy and utility projects
- Managed Forest Law

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

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

Wisconsin Public Service (https://accel.wisconsinpublicservice.com)

- WPS Agricultural Information Webpage

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

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

State Bar of Wisconsin (www.wisbar.org)

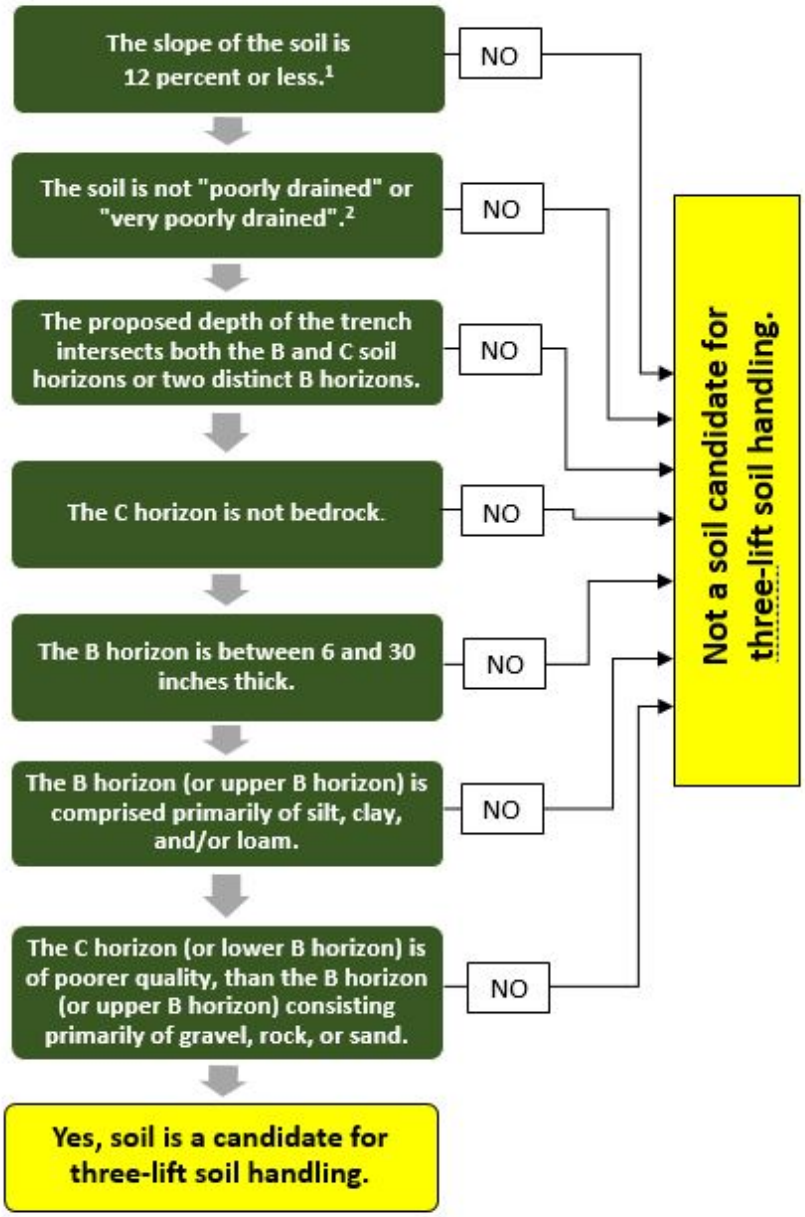
For general legal information and assistance in finding a lawyer

Background Resources

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

APPENDIX D: THREE-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 three-lift soil handling.
2. Poorly drained soils tend to be too wet to use three-lift soil handling successfully. They are also likely to be deep soils.

APPENDIX E: PROPERTY–OWNER SUBMITTED MAPS

Maps of Karls Property On Segment 2A Showing Drain Tile Locations


Gerry Karls
Gerald and Lorraine Karls
W2180 Pethan Rd.
Chilton, WI. 53014
Redwood Rd
Irish Rd
Karls Dairy Farm
Pethan Rd
190ft
N
7/3/2018 6:31:44 AM
Ag Leader Technology SMS Basic
Page 1 of 1

Map from Chris Reichert Showing Drain Tile Outlets

APPENDIX F: ROUTE MODIFICATIONS

Karls and Bonlander Properties Route Modification. PSC Data Request Response

PSC REF#:351205

Wisconsin Public Service Corporation
Docket 6690-CG-174
Plymouth to Chilton Gas Construction

TT-04 Data Request

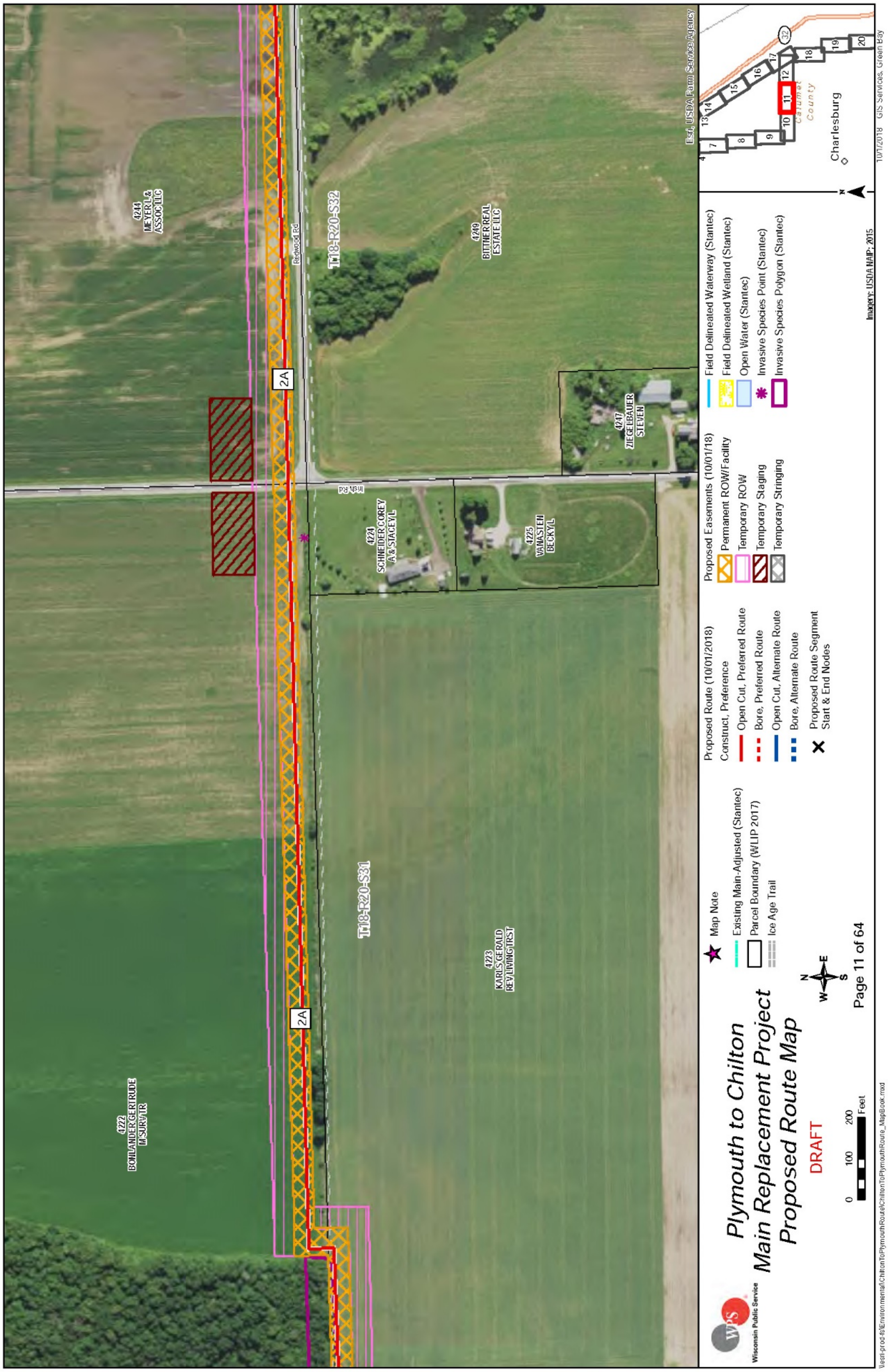
04-TT-09: Describe any issues or additional costs associated with shifting the permanent easement of Segment 2A north onto the Bonlander property, just east of the wooded area so as to minimize impacts to the extensive drain tile system located on the Karls' property.

Response: No issues or major cost additions are anticipated with shifting the proposed running line from the Karls property north into the Bonlander property, west of the intersection of Irish Rd and Redwood Rd.

Phone conversations with both landowners on 9/20/28 verified that there were no issues with this change. Since both landowners were in agreement, the proposed route modification will be pursued upon project approval.

An updated map with the proposed route modification (04-TT-Bonlander Karls Route Modification) is attached.

Answered by: Marty Schaub


Plymouth to Chilton
Main Replacement Project
Proposed Route Map
DRAFT
Page 11 of 64
Wisconsin Public Service
Map Note
Existing Main-Adjusted (Stantec)
Parcel Boundary (WLIP 2017)
Ice Age Trail
Proposed Route (10/01/2018)
Construct, Preference
Open Cut, Preferred Route
Bore, Preferred Route
Open Cut, Alternate Route
Bore, Alternate Route
Proposed Route Segment Start & End Nodes
Proposed Easements (10/01/18)
Permanent ROW/Facility
Temporary ROW
Temporary Staging
Temporary Stringing
Field Delineated Waterway (Stantec)
Field Delineated Wetland (Stantec)
Open Water (Stantec)
Invasive Species Point (Stantec)
Invasive Species Polygon (Stantec)
Imagery: USDA NAIP; 2015
Charlesburg
Calumet County
2A
T18-R20-S32
T18-R20-S31
Redwood Rd
Irish Rd
4244 MEYER L & ASSOC LLC
4249 BITTNER REAL ESTATE LLC
4247 ZIEGELBAUER STEVEN
4224 SCHNEIDER COREY A & STACEY L
4225 VANASTEN BECKY L
4223 KARLS GERALD REV LIVING TRST
4222 BOHLANDER GERTRUDE M SURV TR

Randolph and Hope Schmitt Route Modification Documentation.

PSC REF#:346988

Public Service Commission of Wisconsin
RECEIVED: 07/25/2018 11:37:44 AM

Docket 6690 CG 174 Comments
Public Service Commission
P.O. Box 7854
Madison, Wi 53707-7854

JUL 25 A 9:

July 23, 2018

Commission:

The high pressure gas line from Plymouth to Chilton crosses our property, it currenty runs diagonly across a 80 acre section of land. We have asked W.P.S. to consider a alternate route, which would run west of the intersection of Orchard Rd. and Thede Rd. to the west side of our property line.

IN January 2018, we send a posposal to the Public Service Comm. with this change. Public Service sent a map with cost estimate of this change at $140,000.00 One hundred forty thousand more then exinting route, they show 300' ft. of rock in front of our house and 2000' ft. of tress to be cut on west property line. This estimate is not entirely true, there are two new houses across the road from ours, both have full basements and ours has a full basement; and no rock. As for the tree line, they could move out far enough to clear.

with this change, the gas comp any would have better access to the right of way than off of intesection of Thede Rd. & Orchard Rd., because there is a steep incline at north side of intersection; which makes it hard to access with a vehicle.

over

We would appreciate for the Public Service Commission to view this situation at the ~~site~~ to ~~understand~~ understand the conditions. Thank You.

Randolph + Hope Schmitt
W1738 Thelc Rd
New Holstein WI
53061

Phone 920-898-5500

PSC REF#:351198

Wisconsin Public Service Corporation
Docket 6690-CG-174
Plymouth to Chilton Gas Construction

TT-04 Data Request

04-TT-02: In regards to the alignment modifications proposed by Randolph and Hope Schmitt in January 2018, provide the response letter WPSC sent to the Schmitt's and an itemized list of the potential additional costs.

Response: A formal letter was not sent in response to the route modification proposed by Randolph and Hope Schmitt. All conversations on the matter were conducted by phone with Renee Bowerman, a public affairs representative from The Broydrick Group.

The alternate route proposed by Mr. Schmitt, the landowner of W1738 Thede Rd, New Holstein, WI 53061, involved installing the proposed main along his western and southern property lines instead of following the existing corridor through his property. The justification for not pursuing Mr. Schmitt's reroute can be found in section 2.9.3 of the application (page 15).

Mr. Schmitt also questioned the potential for encountering rock when installing this section of gas main. The soil borings conducted in the area indicate the presence of rock. WPS may not encounter rock when installing, but the worst case scenario was planned for since the potential is there.

Mr. Schmitt also expressed concerns with the ability to access the gas main from Thede Rd on future leak surveys. The area of our proposed easement was evaluated by local WPS operations and it was deemed accessible from the north side of Thede Rd.

The additional $140,000 cost associated with the installation of the proposed reroute can be attributed to the additional 900' of gas main, the 300' directional bore in front of the landowners home (bore due to close proximity to building) and the tree clearing/grubbing along the west property line.

Answered by: Marty Schaub

PSC REF#:351199

Wisconsin Public Service Corporation
Docket 6690-CG-174
Plymouth to Chilton Gas Construction

TT-04 Data Request

04-TT-03: Describe how the costs for the alignment modification proposed by the Schmitts would change if it were adjusted slightly to minimize tree-clearing.

Response: Shifting the proposed running line farther east along the Schmitt's western property line would significantly reduce the amount of tree clearing required for installation. This would result in a cost savings of approximately $20,000. While the tree clearing contributed to the added cost associated with the proposed reroute, the installation of an additional 900' of main is by far the largest factor.

Answered by: Marty Schaub

APPENDIX G: WPS PROJECT-SPECIFIC AMP AND BMPS

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 corridor. 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 develop training and implementation plans prior to construction.

At least 60 days prior to construction, the Company will provide WDATCP with notice of the proposed construction start date.

Prior to the start of construction, the Company will provide the Wisconsin Department of Agriculture, Trade, and Consumer Protection (WDATCP) with any information about the project corridor or the location of project facilities that is substantially different from the information submitted as part of the Agricultural Impact Notice (AIN), including:

- Different agricultural land uses (cropland, pasture, specialty crops);
- Previously unknown locations of fields with irrigation or drainage systems that could be impacted by the project;
- New impacts to agricultural buildings or field access; and
- Different or new temporary access roads and laydown/storage areas.

This information will be provided to WDATCP in a timely manner with the understanding that additional changes to project facilities and/or impacts may become necessary during construction due to site-specific conditions.

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-specificrestoration action is necessary. They will also ensure that the 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 average crop prices and yields 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 prior to construction, whenever possible.

If the landowner rents or leases out the land to a tenant farmer (renter), landowner and tenant will decide who will be compensated for crop loss.

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, the company will work with the landowner to determine if the topsoil needs to 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 Area

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

g. Drain Tile

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

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

h. Weed Control

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

i. Repair of Existing Agricultural Erosion Control Facilities

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

j. Soil Restoration

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

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

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

Equipment that can be used for soil decompaction may include a v-ripper, chisel plow, paraplow, or equivalent. Typical spacing of the shanks varies with equipment but is typically in the 8 to 24 inch range. The normal depth of tillage is 18 inches. The type of equipment used and the depth of rip may be adjusted as appropriate for different soil types or for a deeply and severely compacted area.

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

Topsoil Replacement:

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

De-compacting Through the Topsoil:

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

Final Rock Removal:

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

Final Cleanup:

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

ATTACHMENT A

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

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

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

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

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

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

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

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

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

Organization: WISCONSIN 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 easements in agricultural 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 utility easement. The running centerline of the pipeline will generally be 15' from one side of the 50 foot permanent easement.
3. For 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 utility 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 of temporary construction easement area 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, WISCONSIN PUBLIC SERVICE will work the landowners to determine if the topsoil to a depth of 12-inches needs to be stripped from newly constructed temporary access roads, temporary storage areas, and temporary construction areas associated with stations, mainline valves, and pig launchers located on agricultural land. It is intended that existing field access roads will not be stripped of any existing cover.
5. Topsoil will be removed prior to cut/fill grading operations.

Partial Topsoil Removal

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

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

Installation Planning

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

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

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

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

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

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

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

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

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

Sediment Barriers

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

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

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

Mulch

1. In general, mulch will not be used as an erosion control measure in agricultural lands. In the event mulch is required by WISCONSIN 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%.

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

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

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

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

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

Installation Planning

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

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

3. WISCONSIN 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

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.

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.

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 seed the right-of-way following final clean-up as appropriate to conform to conditions at the time of construction. 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 as necessary 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, as agreed upon by both parties. 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 included in the Payment Worksheet as part of the Easement Package. Compensation will be based on local average yields and will be adjusted upward if proof of above-average yield is supplied by landowner and/or tenant farmer.

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.

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3. After topsoil has been removed (first lift) and trenching begins, a backhoe will remove the upper portion of the subsoil (second lift) and place this layer as far from the trench as the reach of the equipment permits on side of the construction ROW.
4. Where the subsoil material changes the backhoe operator will place this underlying material (third lift) between the trench and the second-lift pile on the side of the right-of-way. Since the depth at which the underlying material is encountered will vary from location to location, the boundary between the upper subsoil and the underlying material will be determined visually by the construction and inspection team, with the advice of the AI when necessary.
5. WISCONSIN 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.

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.

WISCONSIN DEPARTMENT OF AGRICULTURE, TRADE AND CONSUMER PROTECTION

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