



**NORTH DAKOTA PUBLIC SERVICE COMMISSION**

**APPLICATION OF  
ENBRIDGE PIPELINES (NORTH DAKOTA) LLC  
for  
CERTIFICATE OF CORRIDOR COMPATIBILITY**

**BAKKEN PIPELINE PROJECT US  
November 2010**

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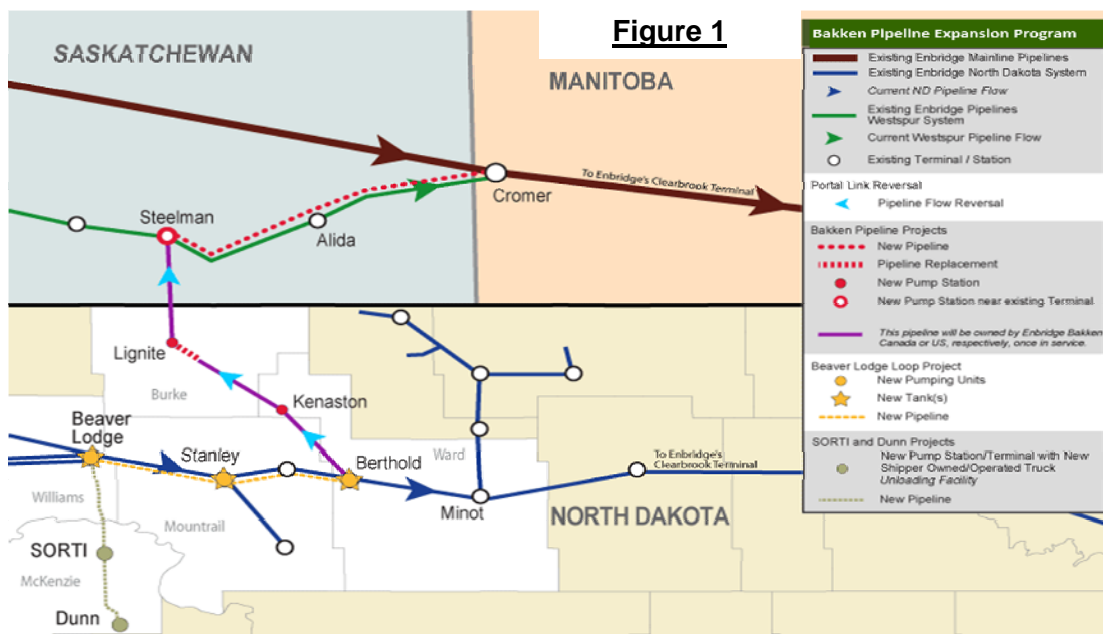
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**APPLICATION FOR CORRIDOR CERTIFICATE**  
**SECTION A**  
**DESCRIPTION OF PROPOSED FACILITY**

**A.1 DESCRIBE THE TYPE OF FACILITY ADDRESSED IN THIS APPLICATION. THE DESCRIPTION SHALL INCLUDE THE PURPOSE OF THE FACILITY AND THE TECHNOLOGY TO BE EMPLOYED.**

Background Information

Enbridge Pipelines (North Dakota) LLC<sup>1</sup> (“EPND”) is responding to the rising demand for additional export pipeline capacity in North Dakota, and has therefore developed a series of



independent, standalone projects to expand its existing pipeline systems to move the increasing volumes of crude oil production from the Bakken Play to market. These separate, yet complementary projects collectively referred to as the “Bakken Pipeline Expansion Program” or “Bakken-Program” will provide 145,800 barrels per day (bpd) of incremental export capacity from new and existing Bakken and Three Forks formation receipt locations in North Dakota to an interconnection with the Enbridge Mainline System<sup>2</sup>

<sup>1</sup> EPND is a wholly owned subsidiary of Enbridge Energy Partners, L.P. (Enbridge Partners), which is a Delaware master limited partnership headquartered at 1100 Louisiana, Suite 3300, Houston, Texas 77002 (ph. 713-821-2000; [www.enbridgepartners.com](http://www.enbridgepartners.com)).

<sup>2</sup> Enbridge Energy, Limited Partnership, a wholly owned subsidiary of Enbridge Energy Partners, L.P. and an affiliate of Enbridge Inc., owns and operates the US portion of the existing Enbridge Mainline System known as the “Lakehead System”. Enbridge Pipelines Inc. a wholly owned subsidiary of Enbridge Inc., owns and operates the Canadian portion of the existing Enbridge Mainline System. These operationally integrated pipeline systems which interconnect at the US/Canadian International Border Line form the longest liquid petroleum pipeline in the

at Cromer, Manitoba as more fully described below. (See Exhibit A.3 for a larger overview map of Bakken Pipeline Expansion Program.)

The proposed program also requires new pipeline construction in Saskatchewan, Canada by EPND's Canadian counterpart, and has targeted January 2013 as the in-service date, pending receipt of all appropriate Canadian regulatory approvals and project construction.

The first project in the Bakken-Program is the Line 26 Reversal Project. EPND will reactivate and reverse the flow of its existing Line 26. EPND will place Line 26 into service thereby transporting an incremental 25,000 bpd of crude oil production from Berthold, North Dakota to the international boundary between the US and Canada. At the international border, such volumes will be delivered into interconnected facilities of EPND's



Canadian counterpart in Saskatchewan, where such production will continue to be transported via affiliated pipelines to the Enbridge Mainline System in Cromer, Manitoba. From Cromer, such volumes will be transported back into the US via the Enbridge Mainline System for ultimate delivery to refineries and marketing hubs in the Midwest and beyond through the Enbridge Mainline System or other interconnecting third-party pipelines.

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world. Together, these two systems are referred to as the "Enbridge Mainline System." Collectively these affiliated entities are referred to as "Enbridge."

EPND received notice to proceed with its Line 26 reactivation and flow reversal from the North Dakota Public Service Commission (“ND-PSC”) by letter dated August 23, 2010<sup>3</sup>. By letter dated September 17, 2010<sup>4</sup> the US Department of State confirmed that the existing Presidential Border Crossing Permit authorizes flow in either direction, ergo, no new permit was required (see Footnotes 4 & 5 below for more details). EPND has commenced work activities relative to its Line 26 Reversal Project with a target in-service date of January 2011 as this project requires minor upgrades, and allows EPND to immediately respond to the demands of the Williston Basin Bakken and Three Forks producers for export pipeline capacity in the region.

The Canadian portion of Line 26, which is designated as Line EX-02, is owned and operated by Enbridge Pipelines (Westspur) Inc. (“Westspur”)<sup>5</sup>. On July 16, 2010 in the National Energy Board of Canada (NEB) File No. *OF-Fac-Oil-E103-2010-02-01*, Westspur filed its application seeking authority for the reactivation and reversal of its Line EX-02. (See Figure 2 for an overview map of Line 26/Line EX-02 and the arrows indicating direction of flow from Berthold to Cromer).

#### **A.1.a Type of Facility**

EPND owns and operates a 968-mile existing underground petroleum gathering and mainline pipeline system that extends from eastern Montana through North Dakota to Clearbrook, Minnesota and also extends northward to the US-Canadian International Boundary where EPND’s transmission line (Line 26) ties to its Canadian counterpart’s pipeline system near the town of Lignite in Burke County, North Dakota. (See Exhibit A.1, EPND System Map).

In this application, EPND is planning to increase the export pipeline capacity of its existing Line 26, which extends in a northerly direction from Berthold, North Dakota to the international boundary between the US and Canada. This expansion, referred to hereinafter as the “Bakken Pipeline Project US” or “Project”, will require EPND to replace approximately 11 miles of existing 12-inch diameter pipeline (Line 26) and install two new, greenfield pumping stations. One pump station will be located near the town of Kenaston, Ward County, North Dakota and the other station will be

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<sup>3</sup> On August 23, 2010 in PU-10-564, the North Dakota Public Service Commission (“ND-PSC”) gave notice of EPND’s Certification Letter, pursuant to North Dakota Century Codes Section 49-22-03(3) in Case No. PU-10-130, to proceed with the Line 26 reactivation and reversal under Corridor Certificate No. 114 and Route Permit No. 124. A copy of the ND-PSC’s notice letter is attached hereto as Exhibit L.

<sup>4</sup> By letter dated September 17, 2010, EPND received notice from the US Department of State that its current Presidential Permit for Line 26 allows for the flow reversal and that no amended or new Presidential Permit is necessary for the reversal of flow in the existing pipeline. A copy of the DOS letter is attached hereto as Exhibit K.

<sup>5</sup> Westspur is a wholly owned subsidiary of Enbridge Income Partners, LP, with approximately 58% publicly traded as “ENF” on the Toronto Stock Exchange and the remainder owned by a subsidiary of Enbridge Inc. The Westspur System is part of an integrated crude oil gathering and feeder system (“Enbridge Saskatchewan System”) that interconnects to the Enbridge Mainline System at Cromer, Manitoba.

located near the town of Lignite, Burke County, North Dakota. Finally, EPND will also make certain station modifications at the existing Berthold Pump Station and Terminal in Ward County as part of the Project. As proposed, this Project will add an incremental 120,800 bpd of export pipeline capacity to the existing 25,000 bpd capacity of the reversed Line 26, thus enabling EPND to provide its shippers with another incremental, timely and cost effective solution for long-haul transportation to move (when combined with the reversal of Line 26) up to 145,800 bpd of Bakken production to the refinery and marketing hubs in the Midwest and beyond via the Enbridge Mainline system, as described more fully herein.

#### **A.1.b Purpose of Proposed Facilities**

The purpose of the proposed facilities is to address the current demand for pipeline capacity out of the Bakken and Three Forks production areas, as well as provide the foundation for timely future expansions, as needed and supported by shippers, to meet the transportation needs of this region. As proposed, the Project will provide the additional export capacity necessary to move 120,800 bpd of Bakken production from Berthold, North Dakota to the US/CDN international border and from that point access to Enbridge pipelines in Canada for further transportation to the 2 Million barrel per day Enbridge Mainline System at Cromer, Manitoba. From Enbridge's Mainline System, shippers will have access to the refinery markets throughout the Upper Midwest and the Midcontinent including those connected to the Cushing, Oklahoma hub. Moreover, this expansion Project, which ultimately results in a total of 145,800 bpd of export capacity to Line 26, provides shippers with timely, cost-effective, long-haul and long-term transportation solutions for moving Bakken and Three Forks production, while at the same time providing the best options and greatest connectivity into North American refinery and marketing hubs.

In December 2009, EPND conducted a successful non-binding open season receiving requests for pipeline capacity out of North Dakota's Bakken region in the range of 100,000 – 130,000 bpd. Since that time, EPND has received sufficient binding commitments to proceed with its Bakken Pipeline (US and Canada) and Beaver Lodge Loop Projects, as discussed in more detail in Section C. EPND has conducted a binding open season since August 26, 2010. The binding open season was extended to November 30, 2010, to solicit additional shipper commitment for additional capacity on these two projects, as well as capacity on the SORTI and Dunn Projects (see Section C.1.b for a brief project description of these separate projects to be proposed in separate proceedings before the ND-PSC).

As previously stated, new pipeline construction will be required in Canada by EPND's Canadian counterpart in Saskatchewan, to facilitate the further transportation of 120,800 bpd of Bakken production from the international border to Enbridge's Mainline System at Cromer, Manitoba. The target date for placing this

additional pipeline capacity in service, subject to separate proceedings before the Canadian National Energy Board and other federal and provincial permits, is January 2013.

Upon placing Line 26 into service, it is anticipated that EPND will transfer the US portion of Line 26 to a new company affiliate, Enbridge Pipelines (Bakken) L.P. (“EPB”), a wholly owned subsidiary of Enbridge Energy, Limited Partnership. At that time, EPND will make the appropriate ND-PSC filing to transfer Line 26 to EPB, who will then own and operate such asset as a firm service pipeline distinct and separate from its non-firm service offered shippers for monthly nominations on its existing transmission pipelines in North Dakota. EPB will be seeking Federal Energy Regulatory Commission’s (“FERC”) approval of a new tariff and rate structure to place Line 26 in firm service (80% committed volumes and 20% uncommitted common-carrier volumes). However, until such time, Line 26 will continue to be owned and operated as an integral part of EPND’s North Dakota Pipeline System and in accordance with its existing FERC-approved tariff and rate structure.

**A.2 DESCRIBE THE TYPE, SOURCE AND FINAL DESTINATION OF THE PRODUCT TO BE TRANSMITTED BY THE PROPOSED FACILITY.**

**Type**

Upon placing Line 26 in service to transport its annual design capacity of 145,800 bpd, EPND plans to dedicate this pipeline to the movement of light sweet domestic crude production as defined in its FERC Tariff on Rules and Regulations.

**Source**

The primary source of supply for the Line 26 is production from the Williston Basin spanning Montana, North Dakota, South Dakota, and Wyoming. The primary geographical sources for North Dakota Sweet production are those regions of Montana and North Dakota that comprise the western and central portion of the Williston Basin.

**Final Destination**

These supply volumes will have the ability to reach a wide number of refineries and marketing hubs through interconnects with Enbridge affiliated pipelines, and other third-party pipelines at Clearbrook, Minnesota, as described in more detail in Section C of this Application.

As shown on Table 1 below, the proposed Project creates incremental capacity on EPND’s North Dakota pipeline system, allowing additional volumes of crude oil to move from Berthold, North Dakota to the US-Canadian International border. At the international border, such volumes will be delivered into interconnected facilities of EPND’s Canadian counterpart in Saskatchewan, where such production will continue to be transported via affiliated pipelines to the Enbridge Mainline System in Cromer, Manitoba. From Cromer, such volumes will be transported back into the US via the Enbridge Mainline System for ultimate delivery to refineries and marketing hubs in the Midwest and beyond through the Enbridge Mainline System or other interconnecting third-party pipelines.

<b>Table 1</b> Annual Capacity (bpd)			
<b>Line</b>	<b>Reactivation and Reversal of Line 26</b>	<b>Capacity Additions</b>	<b>Total Pipeline Capacity of Line 26</b>
		<b>Bakken Pipeline Project US Capacities (bpd)</b>	
<b>Line 26</b>	<b>25,000</b>	<b>120,800</b>	<b>145,800</b>

Generally, liquid pipelines are designed at a specified capacity for a known liquid. Most liquid pipelines transport a variety of liquids. The change in fluid characteristics (density, viscosity, etc.) of the transported liquids will affect the capacity of the pipeline. Liquids are also batched in a pipeline in a repeatable sequence. Both the fluid characteristics and batch sequence will affect the capacity of the pipeline.

**Design and Annual Capacity**

Two definitions are used to describe pipeline capacity: Design Capacity and Annual Capacity.

- Design Capacity is the theoretical capacity of the pipeline for given types of liquids and their batch sequence. Design Capacity is calculated assuming theoretically ideal operating conditions.
- Annual Capacity is the average sustainable throughput rate over a year. Annual Capacity is calculated assuming historic average annual and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating problems and crude supply rateability. Annual Capacity of a pipeline is typically 90% of Design Capacity (see Table 2 below).

<b>Table 2</b> Capacity Definitions		
<b>BAKKEN PIPELINE PROJECT US</b>		<b>Project Capacities (bpd)</b>
<b>Ultimate Annual Capacity</b>	<b>Maximum economic expansion capacity of individual pipeline that is sustainable average daily rate per day over a year</b>	<b>145,800</b>
<b>Ultimate Design Capacity</b>	<b>Maximum economic expansion capacity of individual pipeline. Requires additional pumping horsepower over current design to meet this capacity</b>	<b>162,000</b>
<b>Design Capacity</b>	<b>Theoretical capacity</b>	<b>162,000</b>
<b>Annual Capacity 90%</b>	<b>Average sustainable rate average barrels per day over a year (90% of design)</b>	<b>145,800</b>

**A.3 SIZE AND DESIGN**

**A.3.a Electric Facility**

Not Applicable.

**A.3.b Provide a description of the size and design of the PIPELINE facility including, but not limited to, the following:**

**A.3.b.(1) Width of the Right-of-Way**

Pipeline: New pipeline right-of-way easements will be required to replace approximately 11 miles of Line 26’s 12-inch diameter pipeline in Burke County. As shown on the Table 3 below, the Project will have the following typical right-of-way requirements and construction footprint.

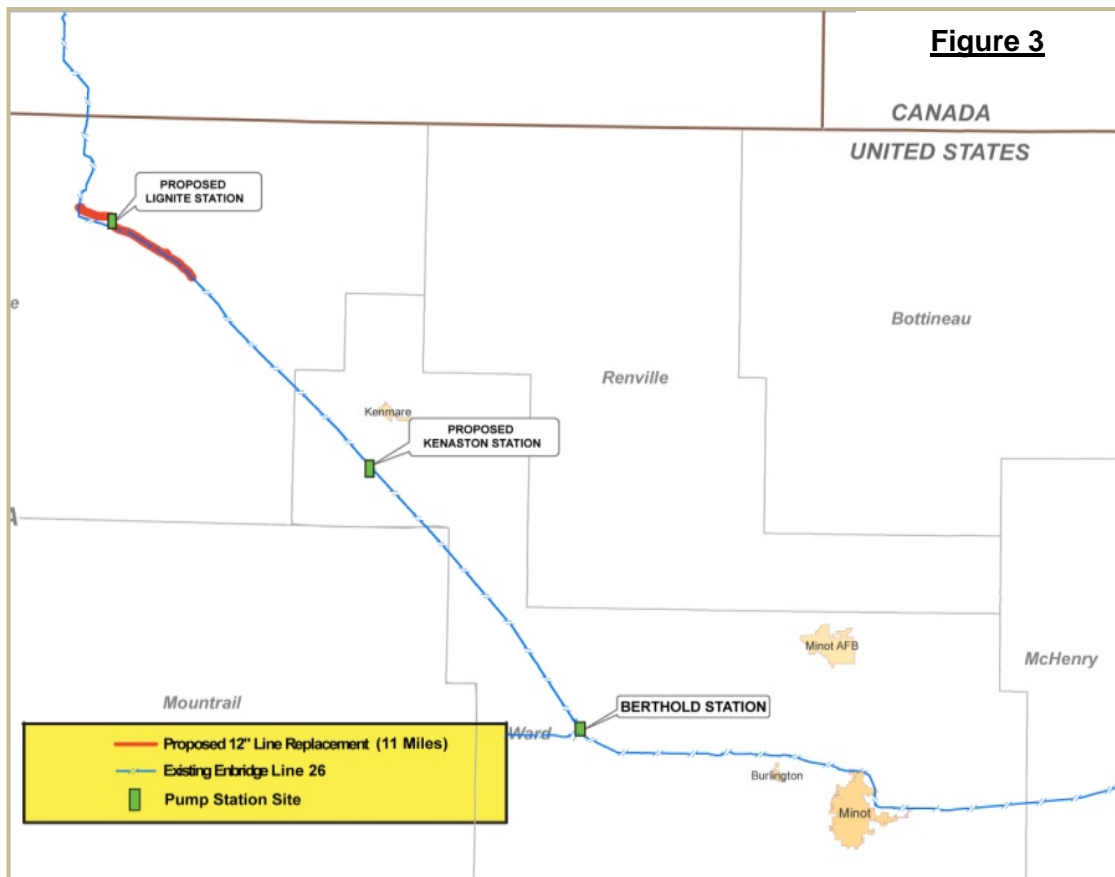
<b>Table 3</b> Typical Right-of-Way Requirements and Construction Footprint						
<b>Land Type</b>	<b>Study Area</b>	<b>Survey Corridor</b>	<b>Typical Construction Footprint</b>	<b>Typical Temporary Work Space</b>	<b>Extra Temporary Work Space at Crossing</b>	<b>New Permanent ROW</b>
Upland	1-mile	250 feet	110 feet	60 feet	75 feet	50 feet
Wetland	1-mile	250 feet	85 feet	35 feet	75 feet	50 feet

For more detailed information regarding the right-of-way requirements and typical right-of-way configuration drawings, see Section B.4.c.(9) of the Route Permit Application and Exhibit P, which are being filed as part of this combined application

**A.3.b.(2) Estimated Distances Between Surface Structures**

The estimated distance between pumping stations is shown on Table 4. (See Figure 3 which provides an overall pictorial view showing the general location of the new pump stations and the existing Berthold Station. For detailed information on the individual pumping stations see Section A.3.b.(7) of this application.)

<b>Table 4</b>		
<b>Distance Between Surface Structures</b>		
<b>Originating Point</b>	<b>Ending Point</b>	<b>Distance Miles</b>
Existing Berthold Pump Station & Terminal in Ward County	New Proposed Kenaston Pump Station in Ward County	25.7 miles
New Proposed Kenaston Pump Station in Ward County	New Proposed Lignite Pump Station in Burke County	27.8 miles



**A.3.b.(3) Pipe Size**

Cross Country Pipe	Crossing Pipe
12.75-inch outside diameter (12-inch nominal)	12.75-inch outside diameter (12-inch nominal)
.219-inch wall thickness	.281-inch wall thickness
Grade X-60 API <sup>6</sup> 5L	Grade X-60 API 5L
Steel Pipe	Steel Pipe

**A.3.b.(4) Approximate Length of Facility**

EPND proposes to reroute approximately 11 miles of 12-inch diameter pipeline (Line 26) to the northeast of Lignite, North Dakota. The replacement of Line 26 will begin in Section 31, Township 162 North, Range 90 West and end in Section 34 Township 163 North, Range 92 West, all being located in Burke County. The ending tie-in point is located approximately 7.9 miles south of the US-Canadian international boundary at the location of the existing mainline sectionalizing block valve.

**A.3.b.(5) Maximum Design Operating Pressure and Temperature**

The design pressure for the station piping is 1480 psig; normal operating pressures are anticipated to be less than 1440 psig. Operating temperatures will range from 41° to 65° F.

**A.3.b.(6) Maximum Design Flow Rate**

The maximum design flow rate for Line 26 including the 11-mile replacement segment is approximately 162,000 bpd.

**A.3.b.(7) The General Location**

See Exhibit A.2 for general overview map of the proposed Project.

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<sup>6</sup> American Petroleum Institute Standard API-5L

## Location of the Proposed Pump Stations and Terminals

### New Kenaston Pump Station:

#### Location

The new Kenaston Pump Station is located at the intersection of the Burlington Northern Santa Fe railroad and 520<sup>th</sup> Street Northwest, on the northeasterly side of the tracks in Ward County, North Dakota. This intersection is roughly 2,640 feet south of County Road 4 (366<sup>th</sup> Avenue Northwest) and roughly 2,640 feet north of 352<sup>nd</sup> Avenue Northwest.

#### Legal Description

The new Kenaston Pump Station will be located in Lot 2 of the NW ¼ of Section 7, Township 159 North, Range 88 West of the Fifth Principal Meridian, situated in Ward County, North Dakota.

#### Facilities

2 new 5000 horsepower pump assemblies and variable frequency drives (VFD's)  
New drag reducing agent (DRA) skid and associated equipment  
2 new control buildings  
Electrical infrastructure  
Interconnecting pipe & station valves  
New sump

#### Other Work

All civil service work required to site these station facilities

#### Tankage

Not applicable.

#### Land Requirements

EPND has secured a Purchase Option from the landowner to acquire approximately 6 acres of land in Ward County, North Dakota to site its new Kenaston Pump Station.

#### Plot Plan, Topographical and Aerial Maps of the new proposed pump station

Maps are enclosed herewith as:

- Exhibit B.1 (Plot Plan Map)
- Exhibit B.2 (Topo Map)
- Exhibit B.3 (Aerial Map)

## Location of the Proposed Pump Stations and Terminals

### New Lignite Pump Station:

#### Location

The new Lignite Station is located in the southeast corner of the intersection of 101<sup>st</sup> Street NW and 84<sup>th</sup> Avenue Northwest in Burke County, North Dakota.

#### Legal Description

The new Lignite Pump Station will be located in the NE  $\frac{1}{4}$  of Section 7, Township 162 North, Range 91 West in Burke County, North Dakota.

#### New Facilities

2 new 5000 horsepower pump assemblies and variable frequency drives (VFD's)  
New drag reducing agent (DRA) Skid and associated equipment  
2 new control buildings  
Electrical infrastructure  
Interconnecting pipe & valves  
New sump

#### Other Work

All civil service work required to site these station facilities

#### Tankage

Not applicable.

#### Land Requirements

EPND has secured a Purchase Option from the landowner to acquire approximately 5 acres of land in Burke County, North Dakota to site its new Lignite Pump Station.

#### Plot Plan, Topographical and Aerial Maps of the new proposed pump station

Maps are enclosed herewith as:

- Exhibit B.4 (Plot Plan Map)
- Exhibit B.5 (Topo Map)
- Exhibit B.6 (Aerial Map)

## Location of the Proposed Pump Stations and Terminals

### Existing Berthold Pump Station and Terminal:

#### Location

8501 296<sup>th</sup> Northwest  
Berthold, North Dakota 58718

#### Legal Description

The station facilities, which EPND plans to construct, own and operate, will be located within EPND's existing Berthold Station located in Sections 20 and 21, Township 156 North, Range 86 West, Ward County, North Dakota.

#### Facilities

2 new 5000 horsepower pump assemblies and variable frequency drives (VFD's)  
New drag reducing agent (DRA) skid and associated equipment  
New station operations building  
2 new control buildings  
Electrical infrastructure  
New custody transfer metering facility (meters, prover, & sample building)  
2 new 400 horsepower transfer pump assemblies  
New line balance facilities  
1 new NPS 12 pig launcher  
Interconnecting pipe & valves

#### Other Work

All civil service work required to site these station facilities

#### Tankage

Not applicable.

#### Land Requirements

All work activities will be performed within EPND's existing 106-acre site as previously approved and permitted by this Commission on August 4, 2010 in PU-10-130. No new land will be required for this work.

### Plot Plan, Topographical and Aerial Maps of Proposed Stations and Terminals

Maps are enclosed herewith as:

- Exhibit B.7 (Plot Plan Map)
- Exhibit B.8 (Topo Map)
- Exhibit B.9 (Aerial Map)

## A.4 TIME SCHEDULE

### A.4.a Certificate of Corridor Compatibility

EPND respectfully requests its certificate approval from the North Dakota Public Service Commission by April 2011.

### A.4.b Route Application

A route application was submitted by EPND in November 2010 as part of this consolidated Application for a Certificate of Corridor Compatibility and Route Permit.

### A.4.c Route Permit

EPND respectfully requests its route permit approval from the North Dakota Public Service Commission by April 2011.

### A.4.d Construction Start Date

Proposed commencement of construction is immediately upon receipt of appropriate approvals. Expected start construction date is on or before June 2011.

### A.4.e Construction Complete

Estimated construction completion date is on or before the beginning of 4<sup>th</sup> Quarter 2012.

### A.4.f In-Service Date

Estimated in-service date is January 1, 2013.

**APPLICATION FOR CORRIDOR CERTIFICATE**  
**SECTION B**  
**STUDIES**

EPND consulted with several federal, state, and local agencies to identify environmental resources in the project area and determine what, if any, environmental studies or assessments would be required on the proposed project. In these consultations, EPND requested a review of the proposed route and a one-mile wide “study area” centered on the pipeline, as well as a one-mile buffer around the new Lignite and Kenaston Pump Stations, and the existing Berthold Pump Station and Terminal Facility. Discussion of issues and concerns raised by agency personnel are included below.

Summaries of these consultations are included in the following paragraphs. Further details regarding these consultations as they relate to Exclusion Areas, Avoidance Areas, and Selection Criteria are included in Section B.4 of the Route Permit Application and discussion of specific impacts and mitigation measures are included in Section B.4 of the Application for a Route Permit. Documentation of agency consultations is included in Exhibit F.

EPND commissioned cultural, wetland, and biological surveys based on an initial pipeline route established in May 2010. Since the surveys were conducted, EPND has incorporated minor changes to the route between Mileposts 37 and 38, and Mileposts 29 and 30 which has necessitated the need for additional surveys. EPND has also expanded its survey area adjacent to Kenaston Pump Station (south of proposed facility boundary). EPND is working to complete these surveys and will submit supplemental filings to the ND-PSC upon their completion, as more fully explained below.

**B.1 CULTURAL RESOURCE INVESTIGATIONS**

**B.1.a State Historical Society of North Dakota “SHSND” (State Historic Preservation Office or ND-SHPO)**

The State Historical Society of North Dakota (SHSND) is the agency within North Dakota responsible for protecting historic properties. As such, the ND-SHPO within the Historic Preservation Division (HPD) of the SHSND reviews federally proposed licensed and/or funded projects and the concomitant cultural resources identification, evaluation, protection, preservation, and development and/or mitigation efforts. Further, the HPD, through the Director, is responsible for preservation and interpretation of antiquities on the state level. North Dakota Century Code 55-03

outlines the permitting process for cultural resource investigations. The SHSND is charged with the responsibility of implementing the permitting process.

**B.1.a.(1) Cultural Resource Investigations**

Kadrmaz, Lee & Jackson (KL&J) completed a literature review for the Bakken Pipeline Project US in May of 2010. There were 29 cultural resources, all historic sites and mostly historic buildings in the town of Lignite, identified within the study area. None of the previously recorded cultural resources are located within the survey corridor itself. The literature review also revealed that five previous cultural resources inventories have been conducted within one mile of the study area.

KL&J conducted a Class III inventory field survey of the pipeline survey corridor in May of 2010. The survey consisted of pedestrian survey at 20-meter transects of a 250-foot-wide survey corridor. Ground visibility was variable but adequate during the survey. Land use of the survey corridor varied between tilled farmland and native prairie.

The field survey did not locate any precontact or historical cultural resources within the survey corridor. KL&J prepared a technical report of their methods and findings and submitted it to the ND-SHPO on July 20, 2010. The report included a recommendation for a finding of *No Historic Properties Affected* for the proposed project. Subsequent to submission of the technical report, it was observed that two rural cemeteries are located within 300 feet of the pipeline route. Because the pipeline will be buried, there will be no effect to the historic setting of the cemeteries. EPND is proposing to treat the cemeteries as sensitive resources during construction activity. As such, dust and noise controls will be used in the vicinity of the cemeteries, and additional erosion control measures will be implemented as necessary to avoid impacts to the cemeteries. With these mitigative measures in place for the cemeteries, ND-SHPO concurred with the finding of *No Historic Properties Affected* in a letter dated July 27, 2010.

A copy of the technical report and ND-SHPO concurrence letter and email regarding the cemeteries is included as Exhibits C.1, C.2, and C.3.

Also, KL&J is conducting additional review and surveys of the survey corridor between Mileposts 37 and 38, and an area south of the Kenaston Station. EPND will submit the results of these surveys to ND-SHPO and will continue to consult with ND-SHPO to obtain clearance for these areas. A supplemental filing will be submitted to the ND-PSC upon receipt of ND-SHPO's clearance letter.

## B.2 WETLAND ASSESSMENT

### B.2.a US Army Corps of Engineers (“COE”)

EPND has been in communication with the COE-Omaha District, who has regulatory jurisdiction in the project vicinity, as well as COE representatives from regional North Dakota branch offices. An Inter-Agency Coordination Meeting (ICM) was held on April 15, 2010 to discuss the project, which included COE representatives.

The COE has broad regulatory jurisdiction over construction activities affecting waters of the United States, such as wetlands and waterbodies, which are crossed by the pipeline route. The COE authorizes several classes of construction projects through a Nationwide Permit (NWP) program, if the project has minimal environmental impact, and if the project can meet certain environmental compliance objectives. The COE NWP 12 is specifically issued for the construction of utility lines, such as pipelines, which do not result in the loss of greater than ½ acre of waters (wetlands and waterbodies) of the United States.

The installation of the 11-mile segment of pipeline will result in only temporary impacts to wetlands and waterbodies; however, the work at the Berthold Pump Station and Terminal will result in the permanent fill (loss) of approximately 1.5 acres of wetlands

EPND anticipates the COE will authorize the project as two separate permitting efforts. The pipeline portion will be authorized for coverage under the COE NWP 12, and the work at the Berthold Pump Station and Terminal will require an Individual Permit from the COE, and potentially wetland mitigation to compensate for the permanent loss of approximately 1.5 acres of wetlands on the site.

#### B.2.a.(1) Wetland Assessment

In July 2010, EPND commissioned a wetland assessment of the project area. McCain and Associates Inc. (“McCain”), of Bismarck, North Dakota, completed a wetland delineation survey along the proposed route. EPND also commissioned Merjent, Inc. (“Merjent”) of Minneapolis, Minnesota, to complete a wetland assessment of the Lignite and Kenaston Pump Stations. Barr Engineering Company (“Barr”) of Duluth, Minnesota, with Merjent, completed a wetland delineation survey of the Berthold Pump Station and Terminal.

Also, McCain is conducting additional review and surveys of the survey corridor between Mileposts 37 and 38, and an area south of the Kenaston Station. EPND will submit the results of these surveys as a supplemental filing upon completion of these surveys and reviews.

EPND will be submitting a copy of the wetland delineation reports to COE in its applications to the COE for temporary wetland impacts due to pipeline construction and permanent wetland impacts at the Berthold Station. A copy of the initial delineation reports, including map sets showing the location of delineated wetlands, is included as Exhibits D.1, D.2, and D.3 and further discussion is provided in Section B.4.b.(8) of the Route Permit Application.

No COE-jurisdictional wetlands are located at the Lignite Pump Station or Kenaston Pump Station. One isolated 0.154-acre temporarily flooded, farmed palustrine emergent wetland (PEMAf) will be permanently impacted at Kenaston Station. EPND will implement mitigation measures to minimize these impacts as described in EPND's Environmental Mitigation Plan (EMP) (see Exhibit E).

### **B.2.b US Department of Agriculture, Natural Resource Conservation Service ("NRCS")**

The NRCS administers the Wetland Reserve Program (WRP), a voluntary program offering landowners the opportunity to protect, restore, and enhance wetlands on their property. EPND submitted a consultation request with the NRCS to determine if the study area included any lands enrolled in the WRP. In an April 30, 2010 response, the NRCS concluded that there were no existing WRP easements within the study area, and further, that they did not have any potential 2010 WRP offers within the study area. Unless there are major route revisions that may impact WRP easements, no authorization will be required.

A copy of the correspondence with the NRCS is included as Exhibit F.8.

## **B.3 BIOLOGICAL RESOURCES**

### **B.3.a US Department of Interior, Fish and Wildlife Service ("USFWS")**

EPND initiated consultation with the USFWS for concerns related to federally-listed species and critical habitats that may be affected by the project, as well as the location of USFWS-administered wetland and grassland easements. A copy of the correspondence with the USFWS is included as Exhibit F.1, and further information is described in Section B.2.j of the Route Permit Application.

### **B.3.a.(1) Biological Assessment**

To address biological resource concerns that the USFWS identified during agency consultations, EPND commissioned a habitat assessment of the survey corridor in July 2010. McCain completed a species of concern habitat assessment along the proposed route. See Section B.2.j of the Route Permit Application for further information.

The assessment did not reveal threatened and endangered species or critical habitat areas of concern. Suitable nesting habitat for migratory birds was identified within the proposed pipeline route. The majority of the suitable habitat is located adjacent to wetlands and road crossings. A ground survey for tree and ground raptor nests was conducted within the survey corridor during the on-site evaluation. No raptor nests were observed during the on-site evaluation. The on-site evaluation was performed outside of the nesting season for migratory birds; therefore, nesting sites were not observed. EPND is also proposing to conduct raptor surveys in Spring 2011, prior to construction.

EPND will implement mitigation measures to minimize impacts to suitable nesting habitats as described in EPND's Environmental Mitigation Plan (EMP) (see Exhibit E).

### **B.3.b North Dakota Game and Fish Department (“NDGF”)**

EPND initiated consultation with the NDGF for concerns related to state-listed species and their habitats that may be affected by the project. In their response, the agency recommended avoiding native prairie, woody vegetation, wildlife management areas (WMAs), and recommended that raptor surveys be conducted. A copy of the correspondence with the NDGF is included as Exhibit F.2, and further information is described in Sections B.2.a and B.2.j of the Route Permit Application.

### **B.3.b.(1) Biological Assessment**

To address biological resource concerns the NDGF identified during agency consultations, EPND commissioned a habitat assessment of the project area in July 2010. McCain completed a species of concern habitat assessment along the survey corridor. See Section B.2.j of the Route Permit Application for further details.

### **B.3.b.(2) Raptor Surveys**

To address raptor concerns identified by the USFWS and NDGF, a ground survey for tree and ground raptor nests was conducted within the survey corridor during the on-site evaluation/habitat assessment completed in July 2010. No raptor nests were observed during the on-site evaluation. EPND is also proposing to conduct raptor surveys in spring 2011 prior to construction. Further information is described in Section B.2.j.(1) of the Route Permit Application.

## **B.4 OTHER AGENCY CONSULTATIONS**

Other agencies that EPND has consulted include the following:

### **B.4.a North Dakota State Water Commission (“NDSWC”)**

A desktop review of the study area did not identify any sovereign lands (navigable waterbodies) within the jurisdiction of the NDSWC. EPND submitted a consultation request to the NDSWC on April 27, 2010, and received confirmation in a May 14, 2010 response that no sovereign lands are located within the study area.

A copy of the correspondence with the NDSWC is included as Exhibit F.9 and further information is described in Section B.4.k of the Route Permit Application.

### **B.4.b North Dakota Parks and Recreation (“NDPR”)**

EPND initiated consultation with the NDPR for concerns related to recreation and biological resources. NDPR identified a Land and Water Conservation Fund (LWCF) site outside the study area (Lignite City Park and Playground), which is under protection of Section 6(f) of the LWCF Act. Any property taken from within the 6(f) boundary must be replaced with property of equal market value. NDPR also identified another park/playground (Berthold Walther Park) outside of the Berthold Pump Station and Terminal study area.

NDPR also reviewed their North Dakota Heritage biological conservation database; no known occurrences of historic plant or animal species of concern or other significant ecological communities are known to occur within the study area.

A copy of the correspondence with the NDPR is included as Exhibit F.3, and further information is described in Section B.4.a.

**B.4.c US Department of Interior, Bureau of Reclamation (“BOR”)**

A desktop review of the project did not identify any BOR-administered lands within the project study area. EPND submitted a consultation request to the BOR on April 27, 2010 to determine if BOR-administered land would be impacted by the project. EPND followed up via phone (voicemail) on July 7, 2010; however, as of the date of this submittal, an agency response has not been received.

Based on the desktop review and lack of agency response, it is assumed that the BOR does not administer land within the study area, and does not have an interest in commenting on the project.

A copy of the correspondence letter sent to the BOR is included as Exhibit F.4.

**B.4.d US Department of Interior, Bureau of Land Management (“BLM”)**

A desktop review of the project did not identify any BLM-administered lands within the project study area. EPND submitted a consultation request to the BLM on April 27, 2010 to determine if BLM-administered land would be impacted by the project. In an April 30, 2010 response, BLM confirmed that there are no BLM-administered lands located within the study area.

A copy of the correspondence with the BLM is included as Exhibit F.5.

**B.4.e US Department of Agriculture, Farm Service Agency (“FSA”)**

The FSA administers the Conservation Reserve Program (CRP) and Grassland Reserve Program (GRP) are voluntary conservation programs focused on enhancing plant and animal diversity and improving long term soil fertility. FSA also addresses concerns related to designated prime farmland.

With respect to CRP lands, FSA identified 7 fields in Burke County that are within the one-mile study area (including one which is directly crossed by the proposed survey corridor. FSA is unable to provide specific geographic data regarding these parcels until a signed release from the producer/landowner is obtained. FSA further commented that CRP participants should contact their local FSA office concerning the activity, and that a permanent grass/legume cover will need to be re-established in excavated areas. If buildings or other storage structures are located on CRP lands, the CRP contracts will need to be terminated and refunded. FSA further noted that since the project is not federally funded, no special authorization is needed for work on designated prime farmland.

EPND is unaware of any GRP lands within the study area. To date, FSA has not provided any comments or addressed any concerns related to GRP lands. EPND followed up with Jim Jost of FSA on July 7, 2010 to confirm no GRP lands are located within the study area. Based on the desktop review and lack of agency response, it is assumed that the FSA does not administer GRP lands within the study area, and does not have an interest in commenting on the project.

A copy of the correspondence with the FSA is included as Exhibit F.6. Further discussion regarding CRP lands and impacts to prime farmland is provided in Section B.4.a(1)(ii) of the Route Permit Application, respectively.

#### **B.4.f North Dakota State Lands Department (“ND-SLD”)**

A desktop review of the project identified one ND-SLD-administered lands (School Trust Lands) within the study area. EPND submitted a consultation request to the ND-SLD on April 27, 2010 to determine if School Trust Lands would be impacted by the project, and received confirmation in an August 19, 2010 response that one School Trust Land is located within the study area; however, no School Trust Lands are crossed by the proposed survey area or pipeline route. As such, School Trusts Lands would not be impacted by the project.

A copy of the correspondence with the ND-SLD is included as Exhibit F.7 and further information is described in Section B.4.a(1)(i) of the Route Permit Application.

**APPLICATION FOR CORRIDOR CERTIFICATE  
SECTION C  
NEED FOR FACILITY**

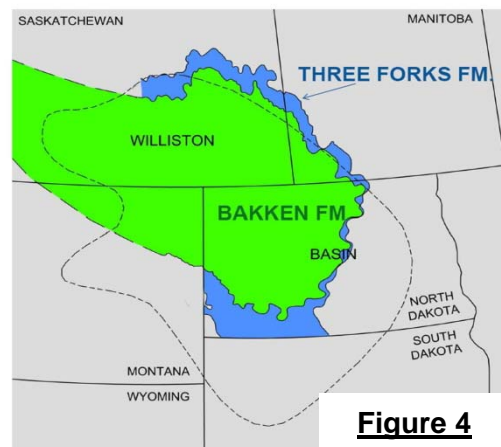
**C.1 AN ANALYSIS OF THE NEED FOR THE PROPOSED FACILITY BASED ON PRESENT AND PROJECTED DEMAND FOR THE PRODUCT TRANSMITTED BY THE FACILITY, INCLUDING THE MOST RECENT SYSTEM STUDIES SUPPORTING THE ANALYSIS OF THE NEED.**

**C.1.a Planned Use and Purpose**

The demand for crude oil transportation on EPND's pipeline system has increased as North Dakota's production has grown from 86,000 barrels per day (bpd) in 2006 to more than 320,000 bpd in July 2010. EPND completed the latest phase of expansions in January 2010, increasing average annual daily capacity to 161,600 bpd, and effectively doubling its pipeline capacity into the Clearbrook Terminal in less than a 24-month period. However, demand has exceeded this pipeline capacity and EPND's capacity has been fully utilized by shippers since its completion, with first-quarter 2010 peak deliveries reaching an average 167,000 bpd, slightly above its 161,600 bpd annual average capacity.

For this reason, EPND developed the "Bakken-Program" comprised of staged-in, independent projects which add incremental capacity to EPND's pipeline system over the next two years. The planned use and purpose of this Project is to increase transportation capacity and options for Bakken producers and shippers on the EPND system. This Project also advances EPND's goal of maintaining facilities that allow for timely future expansions to meet the transportation needs of this region, as described in more detail below.

Supply: The Williston Basin spans parts of western North Dakota, eastern Montana and southeast Saskatchewan and contains the Mississippian Bakken and Devonian Three Forks formations among a number of other producing horizons (see Figure 4). Producers in this region have experienced unprecedented success with the recent improvements in drilling technology to extract crude oil from tight and dense formations, making North Dakota the fourth largest crude oil producing state in the country. According to the North Dakota Petroleum Council, only Texas, Alaska and California produce more on-shore crude oil on a daily basis.



The oil production in the Bakken Formation continues to rise exponentially from 26 million barrels in 2007 to 215 million barrels in 2009, according to reports published by the US Geological Service (“USGS”). In April 2008, the USGS released reserve estimates of the Bakken Formation that exceeded 4 billion barrels across the US portion of the Williston Basin (see Table 1.) Furthermore, in May 2010, the State of North Dakota released reserve estimates with a probability of 2.1 billion barrels for the Bakken and 1.9 billion barrels for the Three Forks formations *in North Dakota only* (see Table 5). Additional reserve estimates for the Bakken and Three Forks in Montana have not been revised since the 2008 USGS report.

<b>Table 5</b>		
<b>NDIC 2008 Bakken Study</b>		
<b>North Dakota Bakken Formation Only</b>		
<b>Reserves, Billion Barrels</b>		
P10*	P50	P90
3.8	2.1	0.78
<b>NDIC 2010 Three Forks Study</b>		
<b>North Dakota Three Forks Formation Only</b>		
<b>Reserves, Billion Barrels</b>		
P10	P50	P90
2.5	1.9	1.3
<b>NDIC 2008 Bakken Study</b>		
<b>US Williston Basin, Bakken and Three Forks Formation</b>		
<b>Reserves, Billion Barrels</b>		
P10	P50	P90
4.3	3.6	3.1

Currently, production in eastern Montana is approximately 65,000 bpd and EPND’s pipeline system receives approximately 40% of its 161,600 bpd of crude oil delivered

into Clearbrook from its Trenton and Alexander, North Dakota Stations that serve eastern Montana producers. Through a series of pipeline expansion projects since 2005, EPND has provided eastern Montana producers with increased capacity to its pipeline system and market access throughout Petroleum Administration for Defense District (“PADD”) II (see Exhibit O for a geographical representation of these districts). However, that pipeline capacity to Clearbrook is now full, and periodically under apportionment.

It is further forecasted that the total US Williston Basin Bakken and Three Forks production (Eastern Montana combined with North Dakota) is expected to exceed 350,000 bpd by mid-2010 and approach a sustainable minimum production rate of 400,000 bpd as early as 2012. Numerous production forecasts provide estimates that could reach 650,000 bpd. Therefore, future pipeline capacity is critical to the transportation of such production to market as Bakken producers forecast their future transportation needs. In 2006, the lack of pipeline capacity substantially contributed to the negative price differential experienced by the Williston Basin crude oil markets. Readily available pipeline capacity is necessary to prevent price disparities between major crude oil marketing hubs in the future.

Demand: North Dakota’s only refinery is Tesoro’s Mandan refinery located near Bismarck, with a nameplate capacity of about 55,000 bpd (current crude runs average 52,000 bpd). Eastern Montana and North Dakota crude oil production supplies the Mandan Refinery. The balance of Williston Basin production represents the total demand for Bakken “export infrastructure capacity” from North Dakota and eastern Montana – the current estimate for deliveries out of the US portion of this basin is 287,000 bpd (and growing).

Montana has four operating refineries with a combined daily average crude oil distillation capacity of 187,100 barrels per day as of 2009, according to EIA statistics. However, these refineries are located nearly 400 miles away in Billings, Montana and have limited, if any, access to Bakken production.

Although significant investments in residual conversion capacity have occurred in a number of PADD II and PADD IV refineries, the largest refinery market for imported light sweet crude remains the Upper Midwest portion of PADD II. More than 1.1 million bpd of light sweet crude are delivered via pipeline into the Upper Midwest refineries served by the Enbridge Mainline System located near Chicago, Illinois, Whiting, Indiana, Toledo, Ohio and Detroit, Michigan. Without access to these volumes, these refineries would otherwise receive light crudes from US offshore Gulf Coast production or import supply marine terminals located on the US Gulf Coast, transported into the Upper Midwest.

The increasing supply of light sweet domestic crude from the growing production of the Williston Basin is extremely advantageous to the United States, not only in ensuring a secure domestic supply of crude oil while the country attempts to

increase the percentage of energy produced from renewable sources, but also in improving the nation's GDP by reducing the costs associated with crude oil imports.

There is no current demand for interconnects from the North Dakota production to serve refineries in the prairie provinces of Canada. Generally, these refineries receive supplies of crude oil from local and Western Canadian Sedimentary Basin ("WCSB") oil production. However, refineries in eastern Canada connected to Enbridge's Mainline System as it crosses the Michigan-Ontario international border are one of the refinery hubs that will have access to the increased North Dakota volumes that would be transported through Line 26, subject to nomination of such supply by shippers on the common carrier Enbridge Mainline System serving eastern Canada.

Public and Economic Benefits: The primary public and economic benefit of the proposed Project is the ability of crude oil producers and shippers to have access to an additional 120,800 bpd of export capacity to reach US refinery markets. Also, this Project provides benefits that extend well beyond North Dakota. The Project ensures that US refineries, which demand nearly 3 Million barrels per day of light sweet crude, have more efficient and economic access to US sourced crude oil production from the Bakken Formation via increased pipeline capacity.

Summary: This Project, as proposed herein, is in the public convenience and necessity as it provides the additional export capacity necessary in late 2012, to transport 120,800 bpd of Bakken production from Berthold through Canada to Clearbrook, thus bypassing EPND's now capacity-constrained pipeline system between Berthold and Clearbrook. Moreover, this Project ensures that North Dakota and Eastern Montana Bakken and Three Forks producers have access to additional export pipeline capacity necessary to meet their current and future long-haul transportation requirements from the Williston Basin region to the important Upper Midwest markets, Cushing and beyond via Enbridge's Mainline System or other interconnecting third-party pipelines. As previously stated, EPND's Canadian counterpart is currently expanding capacity on its Saskatchewan System between Steelman and the Enbridge Mainline System at Cromer. This separate expansion within Canada will be completed by January 2013 and provide sufficient capacity for both Canadian production and the incremental 120,800 bpd transported to Steelman through the Line 26, as proposed herein.

For all the reasons stated herein, EPND respectfully requests that the Commission find the proposed Project in the public's interest and issue a Certificate of Corridor Compatibility as requested herein.

### **C.1.b Future North Dakota System Expansion(s)**

EPND's long term planning is based on its engagement with shippers to assess various production forecasts in order to meet shippers' increasing pipeline capacity requirements. As proposed herein, EPND plans to increase its mainline capacity through the expansion of its system between EPND's existing Beaver Lodge Station in Williams County, North Dakota to its existing Berthold Station in Ward County, North Dakota. This Project is part of a series of independent yet complementary projects in the southwest region of its pipeline system, designed to meet the increasing demands for additional pipeline capacity in the Bakken and Three Forks producing regions.

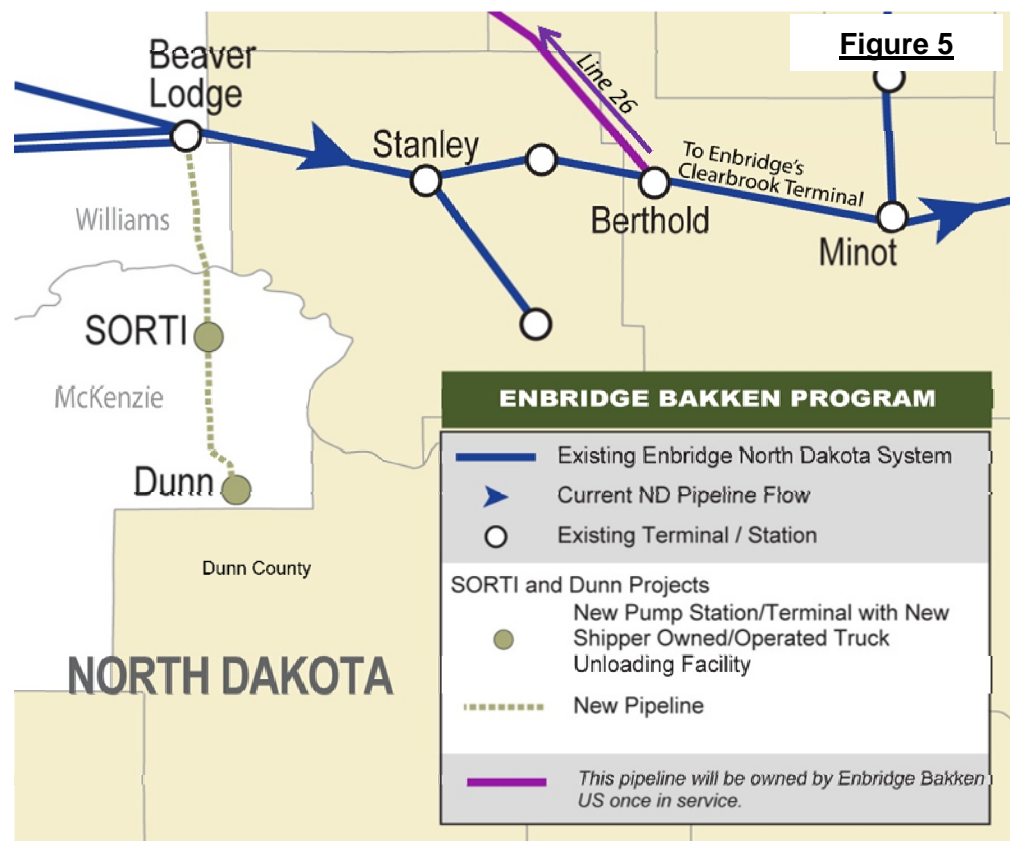
#### **MEDIUM TERM PLANNING:**

As previously stated, the Bakken Program is a series of projects designed to meet the increasing demands for additional pipeline capacity in the Bakken and Three Fork producing regions, (see Exhibit A.3 for a pictorial overview map which shows the location of these projects). This Program is currently in the medium term planning stages as a result of a successful binding open season to meet the current and future transportation requirements of EPND's shippers, and includes:

Beaver Lodge Loop Project: Planned to be filed in mid-November 2010, this project will complement the Bakken Pipeline Project US by providing incremental pipeline capacity to move the annual design rate of 145,800 bpd of Bakken production from the existing Beaver Lodge Station in Williams County to the Berthold Station, in Ward County. This project will involve the construction of a new 16-inch diameter pipeline from Beaver Lodge to Berthold, and the installation of certain station modifications and new tankage at the existing Beaver Lodge, Stanley and Berthold Stations. The new pipeline will primarily run parallel to EPND's existing pipeline system using its existing pipeline right-of-way for the majority of the pipeline route from Beaver Lodge to Berthold.

SORTI-Dunn Pipeline Projects:

EPND has also developed two new pipeline projects commercially known as the Dunn Pipeline Project and the SORTI Pipeline Project.



As shown on Figure 5, these individual projects jointly form one contiguous 45-mile pipeline consisting of 8-inch and 10-inch diameter pipe that will transport volumes from the production areas south of the Missouri River and Lake Sakakawea in Dunn and McKenzie Counties to EPND’s existing Beaver Lodge Terminal in Williams County, North Dakota. From Beaver Lodge, such volumes will have access to EPND’s new proposed Beaver Lodge Loop line (as described above) or its existing mainline system for further transportation and access to other Enbridge pipelines for movement of such volumes to refineries and marketing hubs in the Midwest and beyond. EPND plans to file both projects concurrently with the ND-PSC as a combined Corridor Certificate and Route Permit application, and shall be referred to therein as the SORTI-Dunn Pipeline Projects. The SORTI-Dunn Projects offer additional service to this producing area with initial capacity to deliver 67,000 bpd of crude oil into the EPND system. EPND is targeting February 2011 as its ND-PSC filing date.

**LONG TERM FUTURE PLANNING:**

Bakken Pipeline Project US Phase 2:

With certain upgrades to EPND's Bakken Pipeline or Line 26, EPND has the ability to increase its pipeline capacity by 180,000 bpd. Thus, EPND could provide an ultimate pipeline capacity of 325,000 bpd on Line 26 to Bakken producers and shippers. The commercial development of this additional expansion could begin as early as mid-2011.

Beaver Lodge Expansion:

Additionally, the design of the Beaver Lodge Expansion Project allows for future expandability to accommodate an Ultimate Annual Capacity of 204,000 bpd through the addition or modification of existing EPND pumping stations should future growth of Bakken production and demand by shippers in the North Dakota require it. Plans for such an expansion have not been approved and there is no active consideration of such an expansion. However, EPND and its customers are continuously assessing demand and supply patterns, as well as various other pipeline infrastructure development projects, to determine if and when future expansions or changes are needed in the EPND's North Dakota Pipeline System to meet market needs.

SORTI-Dunn Expansion:

The design of the SORTI-Dunn Projects allows for future expandability up to an Ultimate Annual Capacity of 111,000 bpd through the addition of horsepower along the proposed new line via new pumping stations and modification of existing EPND pumping stations should future growth of Bakken production and demand by shippers in the North Dakota. However, EPND and its customers are continuously assessing demand and supply patterns, as well as various other pipeline infrastructure development projects, to determine if and when future expansions or changes are needed in the EPND's North Dakota Pipeline System to meet market needs. Plans for such an expansion have not been approved and there is no active consideration of such an expansion at this time.

## C.2 ALTERNATIVES TO THE PROPOSED FACILITY

EPND has performed a reasonable and defensible alternative analysis that involves consideration of environmental, engineering and economic factors in a multi-disciplinary and iterative fashion. Thus, discussed below are the following alternatives to the Project:

### C.2.a No Action Alternative

In light of the overall increase in Williston Basin production, the requirements by shippers to increase pipeline capacity and the current apportionment that is being experienced on the EPND's North Dakota pipeline system today, a "no action" alternative is unacceptable to EPND and its shippers.

### C.2.b Trucking Alternative

Currently, there is insufficient tanker trailer truck capacity to transport the incremental 120,800 bpd to refinery hubs. Moreover, the trucking alternative significantly overburdens current public road capacity, especially considering that trucks would require round-trip routing. Additionally, should the truck capacity issue be resolved, Bakken Pipeline Project US or its shippers would need to expand truck loading/unloading facilities at suitable locations to allow receipt into the Enbridge Clearbrook Tank Farm and Terminal Facility. While trucks are a vital part of the crude gathering and distribution network, pipelines are a safer and more economical alternative for transporting crude oil volumes for these distances. The potential in-service date of additional trucking, road and off-loading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restrictions on truck traffic due to winter storms and spring road restrictions or other weather related or capacity availability restrictions.

- a discussion of the design and the geographical area affected

In order to transport the incremental 120,800 bpd of crude oil proposed by Bakken Pipeline Project US, a fleet of trucks would be required as detailed below:

- computation of trucking requirements

Crude oil volumes = 120,800 bpd

Per truck capacity = 200 barrels per truck

Number of trucks required =  $120,800 / 200 = 604$  trucks per day

Assume each truck requires loading, in-transit full (1 day), in-transit empty (1 day), and unloading time

Number of trucks in transit =  $604 \times 1 \text{ day} = 604$  trucks

Number of trucks returning empty =  $604 \times 1 \text{ day} = 604$  trucks

20% of the in-transit trucks loading and unloading = 120 trucks

Total truck requirements =  $604 + 604 + 120 = 1328$  trucks

(ignoring scheduled/unscheduled down time)

Number of drivers required for 2-day round-trip including loading/unloading = 1328  
x 1 driver/truck = 1328 drivers

Number of drivers required for 1-day round-trip including loading/unloading = 1328  
x 2 driver/truck = 2656 drivers

In order to facilitate this operation, significant truck loading and offloading terminal facilities would have to be constructed at the Berthold and Clearbrook Stations. In addition, it is likely that substantial upgrades and ongoing maintenance would be required (at public expense) to the connecting roadways along the entire route.

- an estimate of the in-service date

EPND believes that it is impossible for the required terminal facilities at both the Berthold and Clearbrook Stations to be constructed on the same timeline as the Bakken Pipeline Project US or the timeline required to meet the production increases. Additionally, EPND does not have an estimate of the time required to acquire the trucking fleet described above, how long it would take to attract and train the associated drivers, nor how extensive the roadway upgrade program would be.

- a discussion of the method of operation

This operation would be highly labor-intensive, with a significant workforce required at both terminal locations, to allow for the constant loading and offloading requirements. This option would require a significant driver pool to maintain the constant movement of the entire truck fleet.

- its costs

Based on the North Dakota Petroleum Council's "Williston Basin Crude Oil Transportation Bottleneck White Paper" dated March, 2006, the approximate transportation costs to move 120,800 bpd by truck would range from \$6.00 to \$10.00 per barrel. Using the United States Department of Labor's Consumer Products Index Inflation Calculator (<http://www.bls.gov/data/inflationcalculator.htm>), the 2010 rates to move those same barrels would range from \$6.50 to \$10.83 per barrel. Therefore, the estimated transportation costs to truck 120,800 bpd would range between approximately \$286.6 and \$477.5 million dollars per year (ignoring the cost of new vehicles and infrastructure facilities necessary).

- its economic life

With mileage that the trucks would incur in steady service, EPND estimates that the economic life of a truck would not exceed 4 to 5 years. The truck loading and offloading terminals would have an estimated economic life of 25 years. EPND does not have an assessment of the impact that this amount of incremental truck traffic would have on the various roadways.

- its reliability

This operation would be inherently much less reliable than the Bakken Pipeline Project US, as truck traffic is affected by weather conditions, mechanical failure, manpower (driver shortages), road maintenance or closures. Furthermore, according to the National Transportation Safety Board, trucks have a significantly higher rate of accidents affecting driver and public safety than compared to pipelines. Trucking cannot compete with pipelines for volumes over long distances given the physical limitations of trucks and unloading facilities that are required to sustain operations of this nature. Therefore, this alternative was not further considered.

### **C.2.c Rail Alternative**

Currently, there is insufficient rail tanker car capacity to transport the incremental 120,800 bpd to Clearbrook, Minnesota. The rail tanker car alternative would require the construction (by EPND or its shippers) of rail car loading and off-loading facilities. Also, the construction of a new lateral above ground rail service poses additional risk and impact to landowners and the public. While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a safer and more economic transportation alternative<sup>7</sup>. The potential in-service date of additional truck-to-rail, rail tanker car, rail line, and off-loading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restriction in truck traffic to deliver to rail due to winter storms and spring road restrictions or other weather-related or capacity availability restrictions.

- a discussion of the design and the geographical area affected

In order to transport 120,800 bpd of heavy oil, a fleet of rail cars would be required as detailed below:

- computation of rail car requirements

Crude oil volumes = 120,800 bpd

Rail car capacity = 600 barrels per rail car

Tank cars required =  $120,800/600 = 202$  rail cars per day

Estimated time to move each rail car from Berthold Station to Clearbrook  
(various carriers and through various rail assembly yards) = 2-3 days

Number of cars in transit =  $202 \times 3$  days = 606 cars

Number of cars returning empty =  $202 \times 3$  days = 606 cars

20% of the in-transit cars loading and unloading = 122 cars

Total tank car requirements =  $606+606+122 = 1334$  cars

(ignoring scheduled/unscheduled down time)

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<sup>7</sup> See "Safe Pipelines Facts and Questions" (FAQs) at US Department of Transportation Pipeline & Hazardous Material Safety Administration website, <http://www.phmsa.dot.gov>.

Approximately 1,334 rail cars would have to be en route each day, making the round trip between those two locations in approximately 6 days. In order to facilitate this operation, significant spur lines, rail sidings, and terminal facilities would have to be constructed at Berthold and Clearbrook Stations. In addition, the connecting railways would require substantial upgrades and ongoing maintenance.

- an estimate of the in-service date

EPND believes that it is impossible for terminal facilities at both Berthold and Clearbrook Stations to be constructed on the same timeline as the Bakken Pipeline Project US or the timeline required to meet the production increases. Additionally, EPND does not know if the number of rail cars required is available or the time that would be required to manufacture them. Moreover, EPND does not have an estimate of the time required to construct the necessary upgrades associated with the railway infrastructure.

- a discussion of the method of operation

This operation would be highly labor-intensive, with a significant workforce required at both terminal locations to allow for the constant loading and offloading requirements and rail car operation.

- its costs

Based on the North Dakota Petroleum Council's "Williston Basin Crude Oil Transportation Bottleneck White Paper" dated March, 2006, the approximate transportation costs to move 15,000 bpd by rail would range from \$6.00 to \$10.00 per barrel. Using the United States Department of Labor's Consumer Products Index Inflation Calculator, (<http://www.bls.gov/data/inflationcalculator.htm>), the 2010 rates to move those same barrels would range from \$6.50 to \$10.83 per barrel. Therefore, the estimated transportation costs would range between approximately \$286.6 and \$477.5 million dollars per year (ignoring the cost of new rail cars and infrastructure facilities necessary).

- its economic life

With mileage that the cars would incur in steady service, the applicant estimates that the economic life of a rail car would not exceed 10 to 15 years. The rail loading and offloading terminals would have an estimated economic life of 25 years.

- its reliability

This operation would be inherently much less reliable than the Bakken Pipeline Project US. The entire operation would be subject to weather related delays, delays caused by scheduling conflicting rail traffic, and a significant mechanical/maintenance requirement exposure based on the number of rail cars involved in this operation.

## **C.2.d Alternatives to the Project**

Alternative transportation options are limited and would result in more impacts than the proposed Project, as explained in more details below.

Since EPND's existing pipeline system from Berthold to Clearbrook has been expanded to its optimum (Phase VI Expansion) and is presently operating at its maximum allowable operating capacity, EPND looked at the possibility of constructing a new or looped pipeline between Berthold and Clearbrook (a distance of approximately 325 miles) to move similar volumes as the proposed Project into Clearbrook. It was concluded that constructing such a pipeline was not an economical, viable option at this time, and would have more environmental and public impacts than the Project proposed herein. For these reasons, this alternative was rejected.

With limited existing export pipeline capacity in the Williston Basin area, the only other alternatives for shippers would be to

- (1) reduce production if transport options out of North Dakota are capacity constrained;
- (2) truck<sup>8</sup> or rail<sup>9</sup> all or portions of the additional 120,800 bpd to refineries outside North Dakota with attendant problems noted in the footnotes below and detailed Sections C.2.b and C.2.c above; or
- (3) transport crude on non-Enbridge pipelines that are also at capacity and thus would require new pipe or facilities.

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<sup>8</sup> Currently, due to the lack of pipeline capacity, there are some volumes of crude oil that are transported by truck to by-pass constrained pipelines (see Trucking Alternative analysis in Section C.2.b above). The trucking alternative significantly overburdens public roadway capacity, especially considering that trucks require round-trip routing. Even if the truck capacity issue was resolved, EPND or its shippers would need to expand truck loading/unloading facilities at suitable locations to allow receipt into the Enbridge Clearbrook Tank Farm and Terminal Facility or the Enbridge Saskatchewan System for trucks that drive across the US-Canada border to offload. While trucks are a vital part of the crude gathering and distribution network, pipelines are a safer and more economical alternative for transporting this volume of crude oil for these distances. The potential in-service date of additional trucking, road and off-loading capacity is not known. The reliability of this alternative in northern climates is furthermore compromised by periodic restrictions in truck traffic due to winter storms and spring road restrictions or other weather related or capacity availability restrictions.

<sup>9</sup> Currently, there are some volumes of crude oil transported as far as Cushing, Oklahoma via rail transport in response to the pipeline capacity constraints out of the Williston Basin (see Rail Alternatives in Section C.2.c above). However, the Line 26 reversal and the increased pipeline capacity proposed herein alleviates the need to add more rail transport off loading facilities and lines as production grows. Also, there is insufficient rail tanker car capacity to transport the incremental 120,800 bpd to Clearbrook. The rail tanker car alternative would require the construction (by EPND or its shippers) of rail car loading and off-loading facilities. Also, the construction of a new lateral above ground rail service poses additional risk and impact to landowners and the public. While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a safer and more economic transportation alternative. The potential in-service date of additional truck-to-rail, rail tanker car, rail line, and off-loading capacity is not known. The reliability of this alternative in northern climates is compromised by periodic restriction in truck traffic to rail due to winter storms and spring road restrictions or other weather-related or capacity availability restrictions.

While pipeline expansions have been proposed or are under consideration by other companies, EPND concluded that the Project proposed herein provides the most cost-effective incremental capacity in the near term to help relieve the capacity constraints being experienced by Bakken producers in the Williston Basin region.

**C.2.e A summary of the conclusions reached with respect to the alternative and the reason for its rejection**

Based on the forecast of demand and supply for crude oil discussed in Section C.1 (Needs Summary), EPND determined, and shippers have supported, the need to expand Line 26, as proposed herein, to meet the increasing demand for additional pipeline capacity in the Williston Basin region. As previously stated, the alternative transportation options are limited. However, the alternatives examined with respect to optimizing the EPND's pipeline system from Berthold to Clearbrook with the construction of a new paralleling pipeline or "looping" did not prove to be an economical, viable option at this time, and alternative modes of transportation such as trucking and rail as discussed in Sections C.2.b and C.2.c above, are cost-prohibitive or impose higher public and environmental costs than the Project proposed herein.

Therefore, EPND has concluded that this Project provides a cost effective and efficient method that will:

- provide a long-term transportation solution for moving Bakken production to US refineries and marketing hubs;
- increase the pipeline capacity of Line 26 to meet the current and future transportation requirements of its shippers;
- help reduce the current reliance on long haul truck deliveries and rail export options; and
- reduce the transportation costs borne by Williston Basin producers, allowing their savings to be immediately re-directed toward the development of the oil and gas resources in the State thereby providing additional economic benefits to North Dakota.

As proposed, this Project minimizes environmental and landowner impacts to the extent possible and, when integrated with the existing EPND System, provides the safest, most efficient and cost effective alternative to link the growing demand for crude oil supplies in the Midwest with increased and reliable domestic supplies from North Dakota and Montana. Thus, all other alternatives discussed herein were rejected.

**C.3 STATEMENT CONCERNING DEVIATION FROM MOST RECENT 10-YEAR PLAN**

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EPND's currently filed 10-year plan with the ND-PSC is enclosed herein as Exhibit G. At the time of filing, EPND did anticipate the need for the proposed project as disclosed in Schedule H of this plan.

**APPLICATION FOR CORRIDOR CERTIFICATE**  
**SECTION D**  
**LOCATION**

**D.1 STUDY AREA**

EPND defined its study area as a one-mile-wide corridor centered on the proposed pipeline route. Section 69-06-04-02.1.b. of the North Dakota Administrative Code requires that the width of the study area for the proposed pipeline be at least 10 percent of its length, but not less than 1 mile and not greater than 6 miles unless approved by the Commission. The proposed project, therefore, requires a 1.08-mile-wide study area. EPND, however, is requesting that the Commission reduce the width of the study area to 1 mile, centered on the proposed pipeline. This study area should be sufficient to allow the Commission to evaluate the factors addressed in Chapter 49-22-09 of the North Dakota Century Code (see Section B.2 in the Route Permit Application for further discussion of these factors).

EPND conducted a desktop analysis consisting of mapping, GIS, and internet research, and then completed agency consultations over the one-mile-wide study area (see Section B of the Route Permit Application). In addition, cultural resource field surveys, biological and wetland/waterbody field surveys were conducted on an approximate 250-foot-wide survey corridor along the proposed route within the one-mile wide study area.

**D.2 MAP OF PROPOSED CORRIDOR**

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. Maps showing the location of exclusion and avoidance areas in the area of the corridor are attached as Exhibit J.1.

**D.3 RELATIVE VALUE OF EVALUATION CRITERION**

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. The relative value of evaluation criterion is discussed in Sections B.4, B.5, and B.6 of the Route Permit portion of this Application.

**D.4 CRITERIA TO BE EVALUATED**

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. The criteria to be evaluated are discussed in Sections B.4, B.5, and B.6 of the Route Permit portion of this Application.

## D.5 GENERAL MITIGATIVE MEASURES TO BE TAKEN

Mitigation measures to minimize adverse impacts of the proposed project are identified throughout this Consolidated Application for a Corridor Certificate and Route Permit. In addition, EPND has developed an Environmental Mitigation Plan (EMP) for this Project (See Exhibit E). The EMP provides a more detailed discussion of the guidelines and mitigation measures that Bakken Pipeline Project US would implement during this project. It was developed based on EPND corporate experience implementing best management practices during construction of pipelines and associated station facilities.

In addition, EPND has developed a Spill Prevention, Control, and Countermeasure Plan (SPCCP) that describes planning, prevention and control measures to minimize impacts of project-related spills. (See Exhibit I) EPND's EMP and SPCCP are comprehensive, controlling documents that will be included in contract specifications.

## D.6 QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

### D.6.a Paul Meneghini

Supervisor, Major Projects (US)

Degree: BS, Civil Engineering, Michigan Technological University, Houghton, Michigan.

MBA, Environmental Management, University of St. Thomas, St. Paul, Minnesota.

Experience: 16 years experience in environmental and regulatory permitting and construction oversight compliance.

Other Training and Licenses: Professional Engineer – Minnesota.

### D.6.b Angela Ronayne

Senior Analyst, Merjent, Inc.

Degree: BS, Civil Engineering, University of Minnesota, Twin Cities.

Experience: 12 years experience in pipeline environmental and regulatory compliance.

Other Training and Licenses: Professional Engineer – Minnesota.

## **D.7 MAPS**

### **D.7.a Map of Evaluation Criteria within Study Area**

EPND encloses herewith as Exhibit B, its station plot plans, topographical maps and aerial maps. Also enclosed herewith as Exhibit H are the route maps showing the location of the proposed 11-mile replacement segment of Line 26, and the location of new and existing pump stations as described in Section A above. County maps of the proposed Project are enclosed herewith as part of Exhibit H.

### **D.7.b Mylar Maps of Study Area**

Mylar maps have not been included with this application, because this map producing process is no longer in use.