

September 29, 2015

North Dakota Public Service Commission
600 E. Boulevard, Dept. 408
Bismarck, ND 58505-0480



Attn: Mr. Jerry Lein

Construction Inspection Report 2 - Charlie Creek Transmission Line
Basin Electric Power Cooperative
345 kV Electrical Transmission Line
Mercer, Dunn, McKenzie, Williams Counties, ND
ND PSC Case No. PU-11-696
Keitu Project No. 569-213

In accordance with your request, Keitu Engineers & Consultants, Inc. (Keitu) is pleased to submit for your use two hardcopies and one electronic copy of the Charlie Creek Transmission Line construction report.

Keitu appreciates the opportunity to work with you on this project and I hope this report meets with your complete approval. If you have questions or comments, please contact me at the phone number above or via email at ngaffrey@keitu.com.

Sincerely,



Nathan J. Gaffrey, PE
Project Engineer

Enclosure: Construction Report (2 Copies)
CD-ROM copy of associated files

205 PU-11-696 Filed: 10/1/2015 Pages: 13
Construction Inspection Report 2

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Table of Contents

Executive Summary.....	4
Introduction.....	5
Purpose and Scope of Inspection.....	5
Methods.....	5
General Project Information.....	6
Site Visit Observations.....	6
Conclusions.....	7
Certification.....	7
Appendix A. General Project Photos.....	8
Appendix B. Map - Points of Observation.....	12

Executive Summary

The State of North Dakota, acting through its North Dakota Public Service Commission (NDPSC), Division of Public Utilities, has contracted Keitu Engineers & Consultants, Inc. (Keitu) to perform consulting services for construction and post-construction siting inspections. This report represents the findings of the construction inspection performed on Tuesday, September 15, 2015. The Charlie Creek Transmission Line (Project) portion of the project is located in McKenzie and Williams County in the State of North Dakota. Construction for the Project began in August 2015 with anticipated completion in late October 2015. The purpose of the construction inspection was to ensure the Project was being constructed in compliance with the siting laws, rules, and the applicable PSC Order for the Project. Prior to the construction inspection, Keitu reviewed all Project documents to identify any and all aspects requiring site verification.

The Project was visually inspected on September 15, 2015 by Nathan Gaffrey, P.E., Project Engineer-Keitu and Jennifer Meidinger, Staff Consultant-Keitu. In addition, Mr. Gaffrey and Ms. Meidinger were escorted along the project route Shad Erdmann, Sr. Property Specialist, Basin Electric Power Cooperative (BEPC) and Cris Miller, P.E., Senior Environmental Project Administrator, BEPC. The two aforementioned escort personnel have been involved with construction or oversight of the project since its inception.

Overall, the project was very well-maintained and in good condition. It appeared to be constructed as planned with efforts to minimize impacts.

Introduction

The Charlie Transmission Line is currently under construction at the time of this report. The Project will be operated by Basin Electric Power Cooperative. The Project will transmit 345 kV electricity between the Charlie Creek Substation and the Judson Substation near Williston, ND. The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order on Case No. PU-11-696 on April 23, 2014, granting a Certificate of Site Compatibility for Corridor Compatibility No. 152 and Route Permit No. 164.

Purpose and Scope of Inspection

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and welfare of the citizens of North Dakota. Construction inspections ensure the Project is constructed in compliance with siting laws, rules, and the applicable Commission Findings of Fact, Conclusions of Law, and Order (Order).

The North Dakota PSC retained Keitu to complete construction inspections and post-construction inspections of the Project. The inspection process included a review of the Application for a Certificate of Site Compatibility, Order, and other applicable documents to determine Project-specific siting and construction requirements; a site visit and inspection of facilities; documentation of compliance; and a report summarizing findings. This report includes, but is not limited to, site visit observations, documentation of compliance deficiencies, and a summary of issues, if any, that should be addressed for the Project to be considered in full compliance.

Methods

Keitu reviewed North Dakota siting laws and rules, the Application for a Certificate of Site Compatibility, and the Order for the Project to identify what Project-specific documentation was required for compliance.

Nathan Gaffrey, P.E., Project Engineer, and Jennifer Meidinger, Staff Consultant representing Keitu visited the Project site on September 15, 2015. The site was visually inspected by Keitu staff with a jobsite site survey lead by Shad Erdmann, Sr. Property Specialist, Basin Electric Power Cooperative (BEPC) and Cris Miller, P.E., Senior Environmental Project Administrator, BEPC. Digital photographs were taken showing typical Project infrastructure and documenting problem areas, if any, are located in Appendix A.

General Project Information

Electrical Contractor: Great Southwestern Construction, LLC, Castle Rock, CO

Project Owner: Basin Electric Power Cooperative, Bismarck, ND

Site Visit Observations

Temperature: 57 °F, Windy

Time: 9:30 AM CST

The project is located in western North Dakota and stretches from the Grassy Butte area to the Williston area. At the time of the visit, the project was under construction. The project had steel electrical structures erected for nearly the entire route. In predetermined sensitive areas, special “rust” colored electrical structures were used versus the standard galvanized type to minimize visual impact. As an example, these types of “rust” structures were placed where the project crossed the Little Missouri River near the North Unit of the Theodore Roosevelt National Park.

There were two types of foundations used for the structures throughout the project: concrete and direct embedded. For the concrete foundations, 4,000 psi concrete was used. Direct embedded structures used the surrounding soil as a foundation; however, this method was used only after engineers performed the proper soil stability calculations to determine that it will properly support the electrical structure. Soil created from drilling the foundations was hauled off site and disposed of properly. Many local contractors and farmers accepted the soil as a use for fill on their projects.

There were many locations that required and had the proper erosion control in place. These areas along with the Storm Water Pollution Prevention Plan commonly known as a “SWPPP” are being managed an environmental consultant Stantec per discussion with Mr. Miller. The inspections are completed every 14 days or within 24-hours after a rain event greater than 0.25 inches. The SWPPP inspections are to occur until 70% native vegetative cover is in place. Wood matting was also observed to be laid down in sensitive areas with high vehicle traffic to avoid rutting of the transmission line access roads.

BEPC normally has six to ten people onsite through various locations on the project daily. In addition to performing their normal tasks, they keep close observation that the project is being constructed and installed to the project specifications and the orders of the permit.

Conclusions

Overall, the Project appeared to be constructed as designed with minimal impacts to the surrounding natural and human environment to-date. The Project site was in good condition and well maintained.

Certification

I declare that I have the specific qualifications based on education, training, and experience to assess a property of this nature; I believe to the best of my professional knowledge the contents of this report accurately represents the condition of this project to-date.



Nathan J. Gaffrey, P.E.
Project Engineer

Appendix A. General Project Photos



Photo 1 -Typical Galvanized Type of Structure.



Photo 2 -Typical "Rust" Type of Structure.



Photo 3 - Typical Embedded Type Structural Base.



Photo 4 - Typical Concrete Type Structural Base.



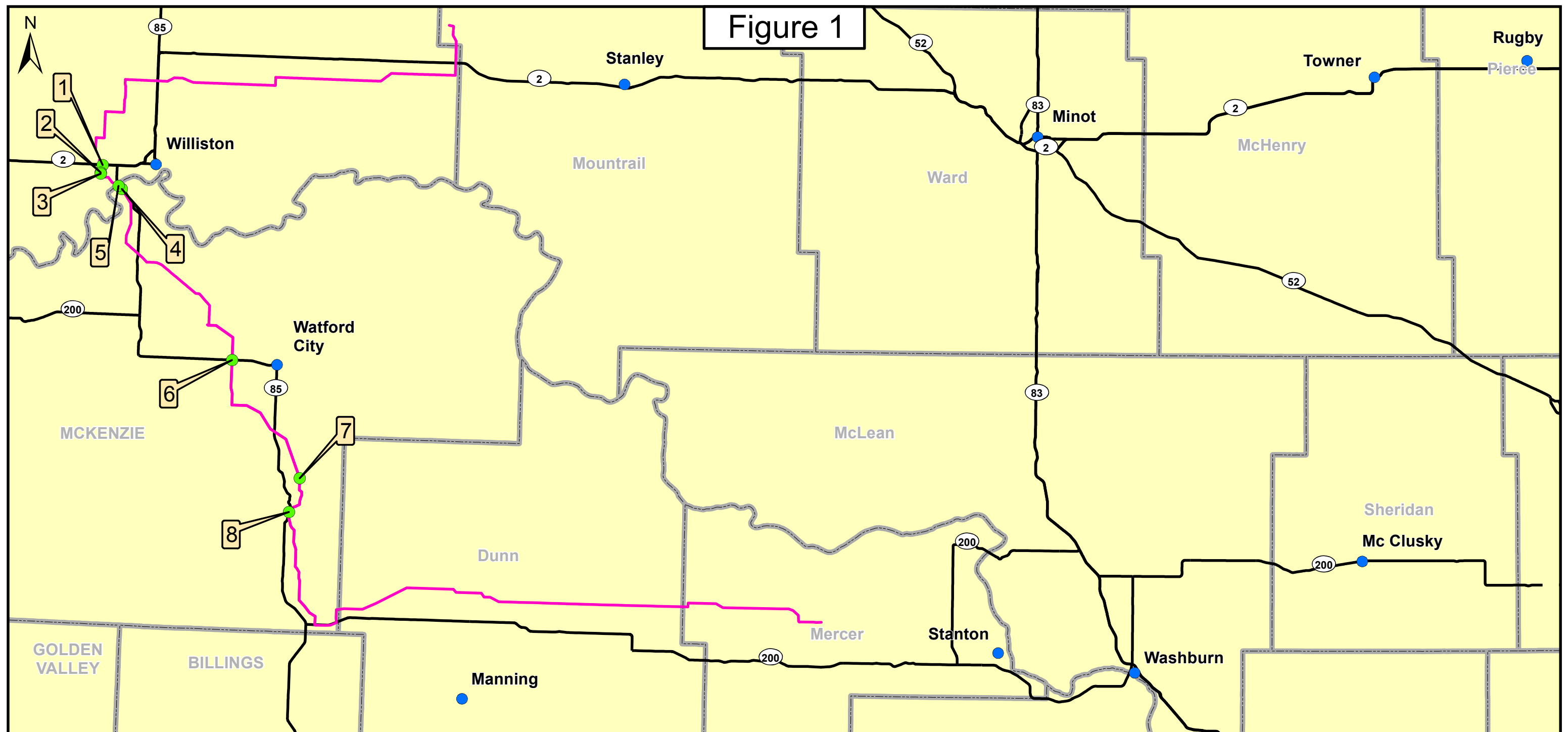
Photo 5 – Steel Rebar for concrete structure base.



Photo 6 – Transmission line crossing Little Missouri River (looking south).

Appendix B. Map - Points of Observation

Figure 1



ND PSC Case Number PU-11-696
 Basin Electric Power Cooperative

345 kV Transmission Line
 Charlie Creek Transmission Line

Legend

- Observation Points
- Project Centerline
- Counties

