Federal Energy Regulatory Commission

Office of Energy Projects

March 2023

TRAILBLAZER PIPELINE COMPANY
ROCKIES EXPRESS PIPELINE, LLC

FERC Docket No. CP22-468-000

TRAILBLAZER CONVERSION PROJECT

ENVIRONMENTAL ASSESSMENT

Washington, DC 20426

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, D.C. 20426
OFFICE OF ENERGY PROJECTS

In Reply Refer To:
OEP/DG2E/Gas 3
Trailblazer Pipeline Company
Rockies Express Pipeline, LLC
Trailblazer Conversion Project
Docket No. CP22-468-000

TO THE INTERESTED PARTY:

The staff of the Federal Energy Regulatory Commission (FERC or Commission) have prepared an environmental assessment (EA) for the Trailblazer Conversion Project (Project), proposed by Trailblazer Pipeline Company, LLC (TPC) and Rockies Express Pipeline, LLC (REX), collectively, the Applicants, in the above-referenced docket. The Applicants request authorization to abandon in-place, construct, and operate natural gas transmission facilities in Wyoming, Colorado, and Nebraska. According to TPC and REX, the Project is designed to provide continuing service to TPC's existing natural gas firm transportation customers using underutilized jurisdictional capacity on REX pipeline facilities while making TPC's pipeline facilities available in anticipation of future non-jurisdictional use to transport carbon dioxide (CO_2) for final sequestration. The Project would not involve an increase in natural gas transportation capacity.

The EA assesses the potential environmental effects of the abandonment, construction, and operation of the Project in accordance with the requirements of the National Environmental Policy Act. The FERC staff concludes that approval of the proposed Project, with appropriate mitigating measures, would not constitute a major federal action significantly affecting the quality of the human environment.

The Trailblazer Conversion Project would consist of the following:

- abandonment in-place of 392 miles of 36-inch-diameter Trailblazer Pipeline and three TPC mainline compressor stations on the Trailblazer Pipeline, including activities involving excavation to expose, cut, and cap the pipeline facilities, at discrete sites;

- construction of a new 18.8-mile-long, 20-inch-diameter lateral pipeline (REX Lateral to TPC Adams);

- construction of a new 22.2-mile-long, 36-inch-diameter lateral pipeline (REX Lateral to TPC East);

- installation of station piping and additional regulation at three existing TPC meter stations to enable deliveries into end users or interstate pipeline systems;

- expansion of one existing meter station between the Rockies Express Pipeline and the Trailblazer Pipeline;

- construction of two new REX meter stations; and

- construction of five new interconnect booster stations (small capacity compressor stations) at existing pipeline facilities (footprint of booster stations ranging from 1.2 to 2.1 acres in size and total horsepower ranging from 50 to 3,533).

The EA addresses the facilities and abandonment activities proposed by the Applicants. If the Commission grants approval for abandonment, future use of the pipeline for purposes other than interstate natural gas transportation, including any subsequent construction related to future use of the abandoned pipeline for CO_2 sequestration, would not be subject to the Commission's jurisdiction.

The Commission mailed a copy of the *Notice of Availability* of the EA to federal, state, and local government representatives and agencies; elected officials; environmental and public interest groups; Native American tribes; potentially affected landowners and other interested individuals and groups; and newspapers and libraries in the Project area. The EA is only available in electronic format. It may be viewed and downloaded from the FERC's website (www.ferc.gov), on the natural gas environmental documents page (https://www.ferc.gov/industries-data/natural-gas/environment/environmental-documents). In addition, the EA may be accessed by using the eLibrary link on the FERC's website. Click on the eLibrary link (https://www.ferc.gov/ferc-online/elibrary/overview), select "General Search" and enter the docket number in the "Docket Number" field, excluding the last three digits (i.e. CP22-468). Be sure you have selected an appropriate date range. For assistance, please contact FERC Online Support at FercOnlineSupport@ferc.gov or toll free at (866) 208-3676, or for TTY, contact (202) 502-8659.

The number of pages in the EA exceeds the page limits set forth in the Council on Environmental Quality's July 16, 2020 final rule, Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act (85 Fed. Reg. 43304). The Director of the Office of Energy Projects, as our senior agency official, has authorized

this page limit exceedance for the EA to provide information that is useful to the decision-making process.

The EA is not a decision document. It presents Commission staff's independent analysis of the environmental issues for the Commission to consider when addressing the merits of all issues in this proceeding. Any person wishing to comment on the EA may do so. Your comments should focus on the EA's disclosure and discussion of potential environmental effects, reasonable alternatives, and measures to avoid or lessen environmental impacts. The more specific your comments, the more useful they will be. To ensure that the Commission has the opportunity to consider your comments prior to making its decision on this Project, it is important that we receive your comments in Washington, DC on or before 5:00 pm Eastern Time on **May 1, 2023.**

For your convenience, there are three methods you can use to file your comments to the Commission. The Commission encourages electronic filing of comments and has staff available to assist you at (866) 208-3676 or FercOnlineSupport@ferc.gov. Please carefully follow these instructions so that your comments are properly recorded.

(1) You can file your comments electronically using the eComment feature on the Commission's website (www.ferc.gov) under the link to FERC Online. This is an easy method for submitting brief, text-only comments on a project;

(2) You can also file your comments electronically using the eFiling feature on the Commission's website (www.ferc.gov) under the link to FERC Online. With eFiling, you can provide comments in a variety of formats by attaching them as a file with your submission. New eFiling users must first create an account by clicking on "eRegister." You must select the type of filing you are making. If you are filing a comment on a particular project, please select "Comment on a Filing"; or

(3) You can file a paper copy of your comments by mailing them to the following address using the U.S. Postal Service. Be sure to reference the Project docket number (CP22-468-000) with your submission: Kimberly D. Bose, Secretary, Federal Energy Regulatory Commission, 888 First Street NE, Room 1A, Washington, DC 20426. Submissions sent through carriers other than the U.S. Postal Service must be sent to 12225 Wilkins Avenue, Rockville, Maryland 20852 for processing.

Filing environmental comments will not give you intervenor status, but you do not need intervenor status to have your comments considered. Only intervenors have the right to seek rehearing or judicial review of the Commission's decision. At this point in this

proceeding, the timeframe for filing timely intervention requests has expired. Any person seeking to become a party to the proceeding must file a motion to intervene out-of-time pursuant to Rule 214(b)(3) and (d) of the Commission's Rules of Practice and Procedures (18 CFR § 385.214(b)(3) and (d)) and show good cause why the time limitation should be waived. Motions to intervene are more fully described at https://www.ferc.gov/ferc-online/ferc-online/how-guides.

Additional information about the Project is available from the Commission's Office of External Affairs, at **(866) 208-FERC**, or on the FERC website (www.ferc.gov) using the eLibrary link. The eLibrary link also provides access to the texts of all formal documents issued by the Commission, such as orders, notices, and rulemakings.

In addition, the Commission offers a free service called eSubscription which allows you to keep track of all formal issuances and submittals in specific dockets. This can reduce the amount of time you spend researching proceedings by automatically providing you with notification of these filings, document summaries, and direct links to the documents. Go to https://www.ferc.gov/ferc-online/overview to register for eSubscription.

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TECHNICAL ABBREVIATIONS AND ACRONYMS

µg/m^3	micrograms per cubic meter
ACHP	Advisory Council on Historic Preservation
Agreement	Paris Climate Agreement
AIMP	Agricultural Impact Mitigation Plan
APCD	Air Pollution Control Division
APE	area of potential effects
Applicants	Trailblazer Pipeline Company and Rockies Express Pipeline, LLC
ATWS	additional temporary workspace
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
CAA	Clean Air Act
CCR	Code of Colorado Regulations
CCS	Carbon Capture and Sequestration
CDPHE	Colorado Department of Public Health and the Environment
CEQ	Council on Environmental Quality
Certificate	Certificate of Public Convenience and Necessity
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
COGCC	Colorado Oil and Gas Conservation Commission
Commission	Federal Energy Regulatory Commission
CPW	Colorado Parks and Wildlife
CRP	Conservation Reserve Program
CWA	Clean Water Act
dBA	decibels on the A-weighted scale
EA	Environmental Assessment
EI	Environmental Inspector
EIR	Environmental Information Request
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission

FERC Plan	FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan*
FERC Procedures	FERC's *Wetland and Waterbody Construction and Mitigation Procedures*
g	gravity
GHG	greenhouse gas
GWP	global warming potential
HAP	hazardous air pollutant
HCA	high consequence area
HDD	horizontal directional drill
HDD Contingency Plan	Horizontal Directional Drill Inadvertent Return Contingency Plan
HP	horsepower
HSA	hydrostatic test water storage area
HUC	hydrologic unit code
IPaC	Information for Planning and Consultation
IWG	Interagency Working Group
km	kilometer
L_{dn}	day-night sound level
L_{eq}	24-hour equivalent sound level
m	meter
MAOP	maximum allowable operating pressure
MBCP	Migratory Bird Treaty Act Conservation Plan
MBTA	Migratory Bird Treaty Act
MCA	moderate consequence area
MLV	mainline valve
MMBtu/hr	million British thermal units per hour
MP	milepost
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	Nebraska Administrative Code
NDEE	Nebraska Department of Energy and Environment
NDOT	Nebraska Department of Transportation
NeDNR	Nebraska Department of Natural Resources
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NGA	Natural Gas Act
NGPC	Nebraska Game and Parks Commission
NGPL	Natural Gas Pipeline

NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NNG	Northern Natural Gas
NNSR	Nonattainment New Source Review
NO_2	nitrogen dioxide
NOGCC	Nebraska Oil and gas Conservation Commission
NOS	*Notice of Scoping Period Requesting Comments on Environmental Issues for the Project*
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRD	Natural Resources District
NSA	noise sensitive area
NSPS	New Source Performance Standards
NSR	New Source Review
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OEP	Office of Energy Projects
OPP	Office of Public Participation
PEM	palustrine emergent
PGA	peak ground acceleration
PHMSA	Pipeline and Hazardous Materials Safety Administration
PM_{10}	particulate matter less than or equal to 10 microns in aerodynamic diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in aerodynamic diameter
Project	Trailblazer Conversion Project
PSD	Prevention of Significant Deterioration
Q	quarter
REX	Rockies Express Pipeline, LLC
SCC	social cost of carbon
Secretary	Secretary of the Commission
SHPO	State Historic Preservation Office
SI	spark ignition
SO_2	sulfur dioxide
SPRP	Spill Prevention and Response Plan
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan

Tallgrass	Tallgrass Interstate Gas Transmission, LLC
TC Energy	TransCanada Energy
THPO	Tribal Historic Preservation Officer
TPC	Trailblazer Pipeline Company
tpy	tons per year
U.S.C.	United States Code
UDP	Cultural Resources Unanticipated Discovery Plan
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFWS	U.S. Fish and Wildlife Service
USGCRP	U.S. Global Change Research Program
USGS	U.S. Geological Survey
VOC	volatile organic compound
WHPA	wellhead protection area
WRAP	Western Regional Air Partnership

A. INTRODUCTION

In accordance with the Natural Gas Act (NGA, Title 15 United States Code Section 717 [15 U.S.C. 717]), the Federal Energy Regulatory Commission (FERC or Commission) is responsible for deciding whether to authorize the construction, operation, and abandonment of interstate natural gas transmission facilities. The National Environmental Policy Act (NEPA, 42 U.S.C. 4321 et seq.) requires that the Commission consider the environmental impacts of a proposed project prior to making a decision. FERC staff prepared this Environmental Assessment (EA) to assess the environmental impacts of the Trailblazer Conversion Project (Project), as proposed by Trailblazer Pipeline Company (TPC) and Rockies Express Pipeline, LLC (REX) in Docket No. CP22-468-000.

On May 27, 2022, TPC and REX (the Applicants) filed an application with the FERC pursuant to Sections 7(b) and (c) of the NGA. The Applicants are seeking a Certificate of Public Convenience and Necessity (Certificate) and authorization to abandon, construct, operate, and maintain certain natural gas transmission pipeline facilities in Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties, Nebraska. The Project also includes abandonment of 392 miles of the Trailblazer Pipeline. The pipeline would be abandoned in-place; therefore, only the discrete areas where ground disturbance is proposed to cut, cap, and isolate the pipeline are addressed in this document.

We[1] prepared this EA in compliance with the requirements of NEPA, the Council on Environmental Quality's (CEQ) regulations for implementing NEPA (Title 40 of the Code of Federal Regulations [CFR], Parts 1500-1508 [40 CFR 1500-1508]),[2] and with the Commission's implementing regulations under 18 CFR 380.

The FERC is the lead federal agency for authorizing interstate natural gas transmission facilities under the NGA, and the lead federal agency for preparation of this EA, in accordance with NEPA (40 CFR 1501) and the Energy Policy Act of 2005. No agencies elected to become a cooperating agency[3] for the preparation of this EA.

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1 "We," "us," and "our" refer to environmental staff of the Office of Energy Projects. See section F for the List of Preparers.

2 On April 20, 2022, CEQ issued a final rule, *National Environmental Policy Act Implementing Revisions* (Phase 1: Final Rule, 87 *Fed. Reg*. 23,453), which was effective as of May 20, 2022. Therefore, we are using the new regulations in the preparation of this EA.

3 A "cooperating agency" may have jurisdiction by law or special expertise with respect to environmental impacts related to the Project, and may be involved in the NEPA analysis.

The assessment of environmental impacts is an integral part of the Commission's decision on whether to approve the request by the Applicants to construct, operate, and abandon the Project facilities. Our principal purposes in preparing this EA are to:

- identify and assess potential impacts on the natural and human environment that would result from the proposed action;
- describe and evaluate reasonable alternatives to the Project that would avoid or minimize adverse impacts on environmental resources;
- recommend mitigation measures, as necessary, that could be implemented by the Applicants to reduce impacts on specific environmental resources; and
- encourage and facilitate involvement by the public and interested agencies in the environmental review process.

1. Purpose and Need

The CEQ regulations for implementing NEPA (40 CFR § 1502.13) recommend that an EA briefly address the underlying purpose and need for a project. The Project is proposed to provide natural gas service via the existing Rockies Express Pipeline to existing TPC transportation customers and construct, install, own, operate, and maintain certain facilities necessary for TPC to continue service to its existing customers.[4] According to TPC and REX, the purpose of the Project is to provide continuing service to TPC's existing natural gas firm transportation customers using underutilized jurisdictional capacity on REX's pipeline facilities while making TPC's pipeline facilities available by abandoning facilities in place, in anticipation of future non-jurisdictional use to transport carbon dioxide (CO_2).[5]

Under Section 7(c) of the NGA, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and, if so, grants a Certificate to construct and operate them. Section 7(b) of the NGA specifies that no natural gas company shall abandon any portion of its facilities subject to the Commission's jurisdiction without the Commission first finding that the abandonment would not negatively affect the present or future public convenience or necessity. The Commission bases its decisions on economic issues, including need, and environmental impacts.

[4] Enable Gas Transmission, LLC, Enable Gulf Run Transmission, LLC, and Islander East Pipeline.

[5] The transportation of CO_2 is regulated by the Pipeline and Hazardous Materials Safety Administration, and is not under the jurisdiction of FERC.

2. Scope of the Environmental Assessment

This EA addresses topics including Project alternatives; geology; soils; water resources; wetlands; vegetation; wildlife and aquatic resources; special status species; land use, recreation, special interest areas, and visual resources; socioeconomics; environmental justice; cultural resources; air quality and noise; greenhouse gas (GHG) emissions and climate change; reliability and safety; and cumulative impacts. This EA describes the affected environment as it currently exists and analyzes the anticipated environmental consequences of the proposed Project. This EA also presents our conclusions and recommended mitigation measures.

Our description of the affected environment is based on a combination of data sources, including desktop resources such as scientific literature and regulatory agency reports, information from resource and permitting agencies, scoping comments, and field data collected by the Applicants and their consultants. The Applicants have completed environmental surveys for all identified Project workspace areas.

3. Public Review and Comments

The Applicants conducted four public open house meetings during the week of June 27, 2022. The meetings were held in communities along or near the route of the Project, including: Beatrice, Hastings, and Kearney, Nebraska and Sterling, Colorado. The open houses were an opportunity for stakeholders to ask questions and express concerns to company representatives. The Applicants provided information about the FERC process. Each open house was publicized via local newspapers and through direct mail to landowners and stakeholders. The Applicants reported that collectively 56 individuals attended the open houses.

On June 9, 2022, the FERC issued a Notice of Application for the Project. This notice was also published in the *Federal Register* on June 15, 2022.[6] The Notice of Application described two ways to become involved in the Commission's review of the Project. One way is to become an intervenor, or party to the proceeding. This is a legal position that carries certain rights and responsibilities, and gives parties legal standing to request a rehearing and challenge a Commission decision in court. The second way to participate is to file comments with the Secretary of the Commission (Secretary). The comment period to respond to the Notice of Application closed on June 30, 2022.

On July 11, 2022, FERC issued a *Notice of Scoping Period Requesting Comments on Environmental Issues for the Project* (NOS). The NOS was also published in the

[6] 87 *Fed. Reg*. 36,116 (June 15, 2022).

Federal Register on July 15, 2022.[7] The NOS was sent to the parties on our environmental mailing list, which included federal and state resource agencies; elected officials; environmental groups and non-governmental organizations; potentially interested Indian tribes; affected landowners (as defined in the Commission's regulations at 18 CFR § 157.6); local libraries and newspapers; and other stakeholders who had indicated an interest in the Project. The issuance of the NOS opened a 30-day formal scoping period, which closed on August 10, 2022.

In total, the Commission received 57 comment letters on the Project. The environmental comments received are summarized below and addressed, as applicable, in relevant sections of this EA, as shown in table A-1.

Table A-1
Environmental Issues Identified During the Public Scoping Process

Issue	EA Section Addressing Issue
Air quality, health impacts, and GHGs (including criteria pollutants, dust abatement, and GHG emissions)	Section B.8.1
Alternatives (including use of electric-driven compression)	Section C
Aquatic resources	Section B.3.1
Cultural Resources (including unanticipated discovery of cultural remains or artifacts)	Section B.7
Cumulative Impacts (including Blanket Certificate projects and CO_2 sequestration) and Climate Change	Section B.10
Environmental Justice impacts (including impacts on air quality)	Section B.6.2
Land Use (including no-till farming practices)	Section B.5.1
Soils (including erosion control best management practices)	Section B.1.2
Special Status Species (including migratory birds)	Section B.4
Vegetation (including invasive and noxious species, pollinator plants, calcareous fens, and use of native seed mixes)	Section B.3.2
Water resources (including groundwater, surface water, and wetlands, including water withdrawals, erosion and sediment controls, water discharges, wellhead protection area, and hazardous material spills)	Section B.2
Wildlife (including use of wildlife-suitable erosion control and mulch)	Section B.3.3

Of the 57 letters, 5 expressed general opposition to the Project, while 19 letters were in support of the Project, including 16 letters identifying the benefits of future use of the Trailblazer Pipeline for CO_2 sequestration. The remaining 33 comment letters raised concerns for the Project's impacts on various resources. Numerous commentors raised safety concerns for the conversion of TPC's existing pipeline to transport CO_2, including several landowners along route of the existing pipeline.

[7] 87 *Fed. Reg*. 42,452 (July 15, 2022).

If a pipeline is granted Commission approval for abandonment, the pipeline and associated facilities, and its future use for purposes other than interstate natural gas transportation, are not under the Commission's jurisdiction. Any subsequent construction by TPC or any other entity related to future use of the abandoned pipeline would not be subject to oversight by the Commission. Further, while the abandonment would allow for whatever future use TPC ultimately decides to undertake, the abandonment would not be considered the cause of the future use, as contemplated by CEQ regulations. However, to inform decision makers, we disclose all known information and impacts associated with the future anticipated use of the pipeline in section B.10.

We also received comments that are outside of the scope of this environmental analysis, including those on energy efficiency, financial assurances, and the determination of need for the Project. As stated above in section A.1, the Commission determines whether interstate natural gas transportation facilities are in the public convenience and necessity and bases its decisions on economic issues, including need, and environmental impacts. Therefore, these comments are not addressed further in this EA, but may be addressed in any Order the Commission may issue for this Project.

On August 10, 2022, the Omaha Tribe of Nebraska and Iowa requested that cultural monitors be on-site during construction of the new pipeline laterals and other new aboveground facilities. Tribal consultation is addressed further in section B.7.3. The U.S. Environmental Protection Agency (EPA), in its August 10, 2022 letter, suggested that FERC's environmental document include a Project description; purpose and need; alternatives; connected action and cumulative impacts; wetlands, surface waterbodies, and groundwater resources; air quality; climate change and GHGs; environmental justice; invasive species and noxious weeds; wildlife habitat and endangered species; and consultations with other agencies. These topics are addressed, as appropriate, in the resource-specific sections of this document. In its August 25, 2022 letter, the EPA recommended that the EA include an assessment of climate change impacts on the Project areas. The Project's potentially to contribute to climate change is discussed in section B, Environmental Analysis, and B.10.3.

In its July 21, 2022, comments on the Project, the U.S. Fish and Wildlife Service (USFWS) recommended the use of regionally appropriate seed mixes for revegetation, limiting activity within stream and wetland areas to foot traffic, and the use of best management practices (BMP) for erosion and sediment control. The USFWS also provided recommendations for avoidance and minimization of potential impacts on migratory birds and stated that it had no concerns with the Project as it relates to impacts on protected species, considering the original Applicant-identified construction window (between October and August which would avoid tree clearing in June and July). Refer to sections B.3 and B.4 for resource-specific analyses regarding these comments, including

consideration for the subsequent reclassification of northern long-eared bats from threatened to endangered and subsequent commitments from the Applicants to further restrict tree clearing to the hibernation period.

The Nebraska Department of Natural Resources (NeDNR), in a letter dated August 8, 2022, provided comments regarding the potential for impacts on surface and groundwater resources (including dams, which would not be crossed by the Project, and floodplain management permit requirements). The Nebraska Department of Energy and Environment (NDEE) provided comments on August 9, 2022 regarding air quality (including fugitive dust control), potential impacts on drinking water supply, water quality (including construction stormwater management), and waste disposal. The NDEE identified applicable state and federally delegated permit requirements. Comments are addressed, as appropriate, in the resource-specific sections of the document.

One landowner in Jefferson County, Nebraska expressed concerns regarding restoration of agricultural lands where landowners practice no-till farming and concerns for the Applicants' restoration measures of terraces and waterbody contours. The landowner also expressed concern regarding soil erosion. In response to staff's December 9, 2022 Environmental Information Request (EIR), the Applicants committed to various mitigation measures to address concerns raised by the landowner, as well as for restoration of terraces and grassed waterways across the Project area.[8] See sections B.1.2 and B.5 for additional discussion of erosion control measures and restoration of agricultural land.

Non-environmental comments, such as those declaring opposition or support for the Project or that focused on general energy policy concerns are noted but are considered outside the scope of the EA. Therefore, these comments are not addressed further in this EA, but may be addressed in any Order the Commission may issue for this Project.

As discussed above, our NOS established a defined scoping period with a concluding date. However, we continued to consider comments received after the close of the scoping period, up until the time we completed our reviews of the application and finalized this EA. All filed comments are available for public review on the Commission's website as outlined in the cover letter to this EA.

[8] The Applicants' response is available on eLibrary under accession no. 20221221-5310.

4. Proposed Facilities

The Project would consist of the installation or abandonment of the following pipeline facilities:

- TPC proposes to do the following:
  - abandon in-place 392 miles of the 36-inch-diameter Trailblazer Pipeline;
  - abandon in-place three mainline compressor stations on the Trailblazer Pipeline; and
  - activities at discrete locations along the Trailblazer Pipeline facilities to complete abandonment-in-place, involving excavation to expose, cut, and cap the pipeline.
- REX proposes to do the following:
  - construct a new 18.8-mile-long, 20-inch-diameter lateral pipeline (REX Lateral to TPC Adams);
  - construct a new 22.2-mile-long, 36-inch-diameter lateral pipeline (REX Lateral to TPC East);
  - install station piping and additional regulation at three existing TPC meter stations to enable deliveries into end users or interstate pipeline systems;
  - expand one existing meter station between the Rockies Express Pipeline and the Trailblazer Pipeline;
  - construct two new meter stations; and
  - construct five new interconnect booster stations (small capacity compressor stations) at existing pipeline facilities (operational footprint of booster stations ranging from 0.3 to 2.1 acres in size and total horsepower ranging from 50 to 3,533).

The general location of the Project is shown in figure A-1 below. Additional Project mapping is available in the application and supplemental filings to the application.[9,10] While a portion of the Trailblazer Pipeline to be abandoned in place is in Laramie County, Wyoming, no ground disturbance is proposed along this portion of the pipeline; therefore, the portion of the Project in Laramie County, Wyoming is not discussed further, less for in section B.6.2, as it relates to the environmental justice analysis for the Hereford Ranch booster station.

5. Land Requirements

Construction of the Project, including abandonment activities and the use of additional temporary workspace (ATWS), contractor yards,[11] access roads, and aboveground facilities, would affect 672.9 acres of land. Following construction, about 408.9 acres of temporary workspace would be restored to approximate pre-construction conditions. The remaining 264.0 acres, including the permanent easements for the laterals, aboveground facility sites, and permanent access roads would be retained for operation of the Project. Table A-2 provides acreage requirements for each of the Project facilities, which are further discussed throughout section B. Lands that would be affected by operation of the Project are primarily classified as agricultural and open land (246.6 acres).

9 A "General Search" of the Commission's eLibrary can be used to access information by accession number. From the FERC website at www.ferc.gov, click on the eLibrary link, select a "General Search," and then using the drop down arrow in the first field, switch to "Accession," and enter the accession number.

10 Alignment sheets and facilities drawings are available on eLibrary under accession nos. 20221221-5310, 20230201-5180, 20230217-5105, and 20230313-5218.

11 The Applicants would use these areas for staging, storage, and contractor operations.

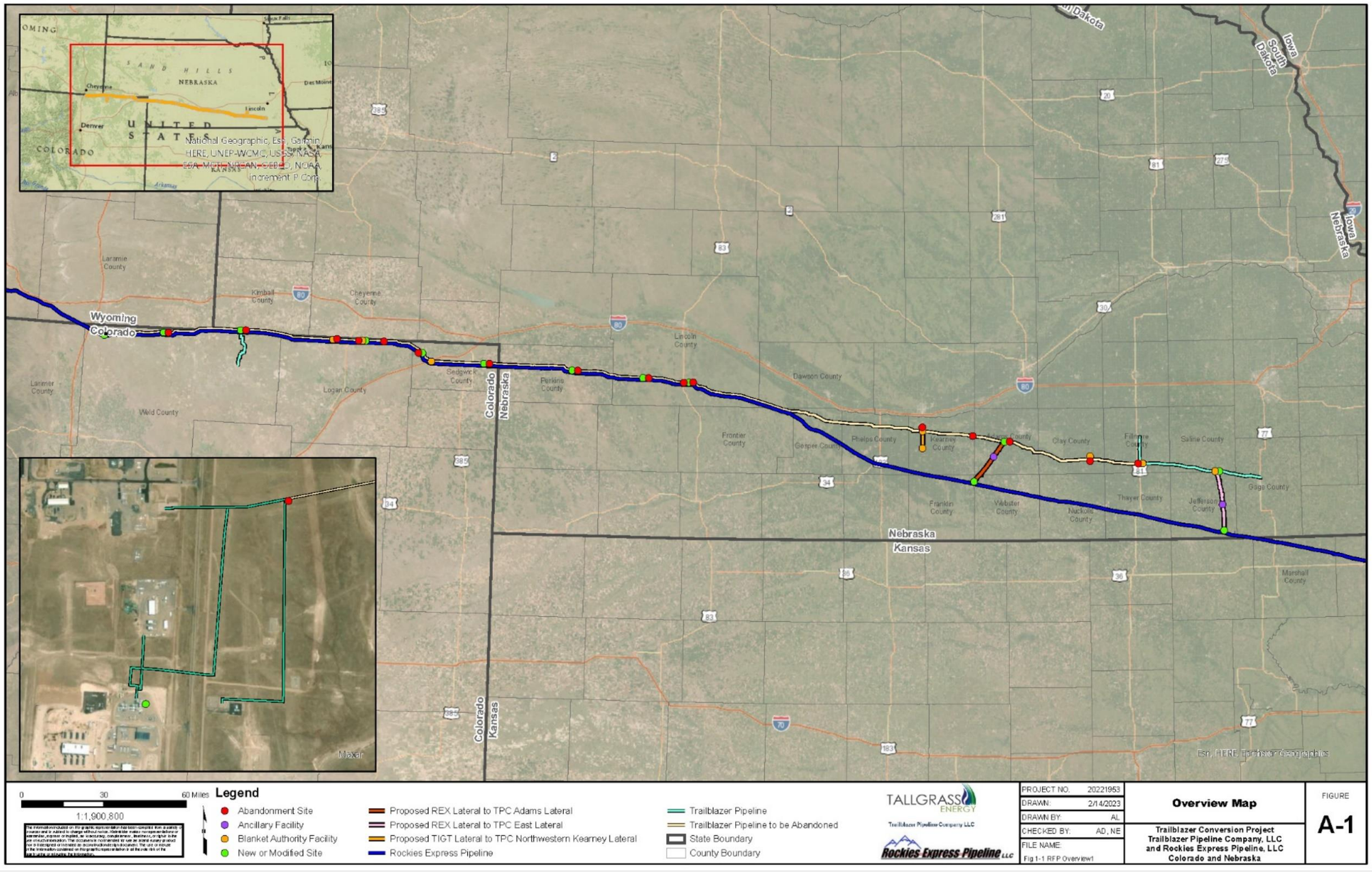

Figure A-1 Trailblazer Conversion Project Overview Map

Table A-2 Proposed Facilities for the Project			
Facility	**County, State**	**Land Affected During Construction (acres)[a]**	**Land Affected During Operation (acres)[a]**
PIPELINE FACILITIES			
REX Lateral to TPC Adams[b]	Franklin, Webster and Adams, Counties, NE	224.0	112.7
REX Lateral to TPC East[b]	Saline and Jefferson Counties, NE	333.6	135.6
ATWS	Weld, Logan, and Sedgwick Counties, CO; Kimball, Perkins, Lincoln, Franklin, Webster, Adams, Saline, and Jefferson Counties, NE	31.9	0.0
Hydrostatic Test Water Storage Areas (HSA)	Franklin, Webster, Adams, Saline, and Jefferson Counties, NE	17.2	0.0
Contractor Yards	Adams and Jefferson Counties, NE	18.6	0.0
ABOVEGROUND FACILITIES			
REX/TPC Lone Tree Interconnect	Weld County, CO	0.6	0.6
Hereford Ranch Compressor Station[c]	Weld County, CO	3.1	1.6
Redtail Compressor Station[c]	Kimball County, NE	4.5	1.6
Logan Compressor and Regulating Station[c]	Logan County, CO	3.6	2.1
Sedgwick Compressor Station[c]	Sedgwick County, CO	1.0	0.3
Sedgwick East Compressor Station[c]	Sedgwick County, CO	2.3	0.5
Mid-American Ethanol Regulating Station	Perkins County, NE	0.3	<0.1
Oppliger Lincoln Regulating Station	Lincoln County, NE	0.8	0.1
North Platte Livestock Feeder Regulating Station	Lincoln County, NE	0.3	0.1
Adams Meter and Regulating Station	Adams County, NE	3.3	0.9
REX to TPC East Meter and Regulating Station	Saline County, NE	5.2	2.8
ANCILLARY FACILITIES			
Adams Launcher Site	Franklin County, NE	1.3	0.3
TPC East Launcher Site	Jefferson County, NE	2.0	0.6

Table A-2 (continued)
Proposed Facilities for the Project

Facility	County, State	Land Affected During Construction (acres)[a]	Land Affected During Operation (acres)[a]
ABANDONMENT FACILITIES			
Abandonment Facilities	Weld, Logan, and Sedgwick Counties, CO; Kimball, Perkins, Lincoln, Kearney, Adams, Clay, and Fillmore Counties, NE	4.6	0.0
ACCESS ROADS			
Pipeline Laterals and Other Appurtenant Facilities	Weld, Logan, and Sedgwick Counties, CO; Kimball, Perkins, Lincoln, Franklin, Webster, Adams, Saline, and Jefferson Counties, NE	6.6	0.1
Aboveground Facilities	Weld, Logan, and Sedgwick Counties, CO; Kimball, Perkins, Lincoln, Adams, and Saline Counties, NE	5.8	3.9
Abandonment Facilities	Weld, Logan, and Sedgwick Counties, CO; Kimball, Perkins, Lincoln, Kearney, Adams, Clay, and Fillmore Counties, NE	2.5	0.0
Project Total	**--**	**672.9**	**264.0**

CO = Colorado; NE = Nebraska

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] This includes impacts for the corresponding mainline valves.

[c] Interconnect booster stations are small capacity compressor stations.

5.1 Pipeline Facilities

The Applicants would modify or abandon existing facilities and construct new facilities at discrete locations along the existing Rockies Express and Trailblazer Pipelines routes on previously disturbed lands, as well as construct new routes for the proposed laterals and associated facilities.

The proposed 20-inch-diameter REX Lateral to TPC Adams pipeline would begin in Franklin County, Nebraska at an interconnection to the existing Rockies Express Pipeline and run northeast for 18.8 miles, crossing the northwest corner of Webster County, Nebraska, and ending at the proposed Adams Meter and Regulating Station in Adams County, Nebraska (see table A-2). A launcher (Adams Launcher Site) is also proposed for construction at the origin of this lateral, a meter station (Adams Meter and Regulating

Station) and interconnect (Adams Interconnect) are also proposed for construction at the terminus of this lateral, and a mainline valve (MLV) at milepost (MP) 11.8.

The REX Lateral to TPC East would be a 36-inch-diameter pipeline that would tie into the existing Rockies Express Pipeline in Jefferson County, Nebraska, following a northernly route for 22.2 miles to the terminus in Saline County, Nebraska. A launcher (TPC East Launcher Site), and a meter station (REX to TPC East Meter and Regulating Station) are also proposed for construction at the origin and terminus of this lateral, respectively, as well as a MLV at MP 9.6.

The construction rights-of-way for the proposed new pipeline laterals would typically be between 100 and 125 feet wide in upland areas to accommodate spoil storage and topsoil segregation in agricultural land (refer to section A.7.2, below). After construction, the Applicants would maintain 50-foot-wide permanent rights-of-way; however, active maintenance within the 50-foot permanent easement in wetlands would be reduced to a 10-foot-wide corridor. The laterals would be collocated with existing pipeline rights-of-way owned and operated by TransCanada (TC) Energy and Tallgrass Interstate Gas Transmission, LLC (Tallgrass), as shown in table A-3. The REX Lateral to TPC Adams route would be collocated for 81.3 percent of route, deviating from existing right-of-way at discrete locations to avoid sensitive resources based on field observations and survey data. Similarly, the REX Lateral to TPC East would deviate from existing right-of-way to avoid sensitive resources, resulting in 68.5 percent of route being collocated. This lateral would also deviate from the existing right-of-way on the northern end of the route to connect to an existing valve on TPC's existing pipeline and for about 3,000 feet at the southern end of the route to avoid existing pipeline infrastructure for the TransCanada Pipeline, as well as impacts on a waterbody. Neither of the pipeline laterals would utilize portions of these existing rights-of-way.

Table A-3 Collocation of the Laterals with Existing Rights-of-Way		
Type of Right-of-Way	**Start Milepost**	**Length (in miles)**
REX LATERAL TO TPC EAST		
TransCanada Pipeline	0.5	0.4
TransCanada Pipeline	2.3	8.1
TransCanada Pipeline	10.9	2.3
TransCanada Pipeline	13.7	2.1
TransCanada Pipeline	16.3	2.3
	Subtotal	**15.2**
REX LATERAL TO TPC ADAMS		
TIGT Pipeline	0.0	3.4
TIGT Pipeline	3.7	0.5
TIGT Pipeline	4.8	1.2
TIGT Pipeline	6.1	0.5
TIGT Pipeline	7.2	2.0
TIGT Pipeline	9.8	0.4
TIGT Pipeline	10.5	1.3
TIGT Pipeline	12.0	1.6
TIGT Pipeline	13.8	1.4
TIGT Pipeline	15.8	2.9
	Subtotal	**15.2**
TIGT = Tallgrass Interstate Gas Transmission, LLC		

Additional Temporary Workspace and Contractor Yards

The Applicants would require ATWS outside the construction rights-of-way for road, wetland, and waterbody crossings; horizontal directional drill (HDD) entry and exit points; storage of segregated topsoil; storage of construction materials; equipment movement and turn-arounds; and other site-specific constraints (see appendix A). Additionally, the Applicants would use five hydrostatic test water storage areas (HSA) to support hydrostatic testing of the new laterals as discussed in section B.2.2. The use of the ATWS and HSAs during construction would affect about 49.1 acres.

The Applicants are also proposing to use two contractor yards for storage of pipeline and equipment, as well supporting contractor operations. The use of contractor yards would affect 18.6 acres during construction, after which these areas would be restored.

5.2 Aboveground Facilities

The Project includes abandonment in-place of existing facilities along the Trailblazer Pipeline (in anticipation of future use of the existing pipeline for CO_2 sequestration, referred to in this EA as the carbon capture and sequestration [CCS] project), including 3 compressor stations, 12 interconnects, and 2 isolation sites. According to the Applicants, Tallgrass would establish a new entity to own and operate the Trailblazer Pipeline in the event the CCS project is approved.

The Project also includes installation of five new booster stations (small capacity compressor stations), modifications at three existing meter stations, expansion of an existing interconnect along the Rockies Express Pipeline, and installation of a new meter station, MLV, and launcher site along each of the pipeline laterals (see table A-4).

Table A-4
Aboveground Facilities

Existing Facility Name	Description of Activity
ABOVEGROUND FACILITIES (NEW CONSTRUCTION OR MODIFICATION; To be completed by REX))	
REX/TPC Lone Tree Interconnect	Expand interconnect capacity within existing Cheyenne Hub Facility.
Hereford Ranch Compressor Station[a]	Install one (1) 1,380 HP unit (gas); install one (1) 690 HP unit (gas); install 8-inch-diameter hot tap; and install station piping.
Redtail Compressor Station[a]	Install one (1) 1,380 HP unit (gas); install one (1) 690 HP unit (gas); install 8-inch-diameter hot tap; and install station piping.
Logan Compressor and Regulating Station[a]	Install one (1) 2,500 HP unit (gas); install one (1) 1,035 HP unit (gas); install 16-inch-diameter hot tap; install station piping; and install heating.
Sedgwick Compressor Station[a]	Install one (1) 50 HP unit (electric); install 4-inch-diameter hot tap; and install station piping.
Sedgwick East Compressor Station[a]	Install one (1) 100 HP unit (electric); install 6-inch-diameter hot tap; and install station piping.
Mid-American Ethanol Regulating Station	Install 6-inch-diameter hot tap; install regulating skid; install heating; and install station piping.
Oppliger Lincoln Regulating Station	Install 4-inch-diameter hot tap; install regulating skid; install heating; and install station piping.
North Platte Livestock Feeder Regulating Station	Install 4-inch-diameter hot tap; install regulating skid; install heating; and install station piping.
Adams Meter and Regulating Station	Construct Meter and Regulating Station; install heating; and construct receiver.
REX to TPC East Meter and Regulating Station	Construct Meter and Regulating Station; install heating; and construct receiver.
OTHER ANCILLARY FACILITIES (To be completed by REX)	
Adams Launcher Site	Construct launcher tie-in location and install 20-inch-diameter hot tap on REX.
TPC East Launcher Site	Construct launcher tie-in location and install 36-inch-diameter hot tap on REX.

Table A-4 (continued) Aboveground Facilities	
Existing Facility Name	**Description of Activity**
ABANDONMENT FACILITIES (To be completed by TPC)	
TPC West Isolation	Cut and cap TPC's mainline to isolate the abandoned mainline pipeline from the mainline pipeline remaining in natural gas service.
Hereford Ranch Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Redtail Lateral and Interconnect	Cut and cap TPC's mainline connection to the 8-inch Redtail lateral and interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
ECGS Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Logan Interconnect	Cut and cap the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Compressor Station 601	Isolate and abandon Compressor Station 601. Abandon 2 units totaling 20,000 certificated HP (gas).
Sedgwick Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Sedgwick East Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Mid-American Ethanol Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Oppliger Lincoln Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Compressor Station 602	Isolate and abandon Compressor Station 602. Abandon 2 units totaling 20,000 certified HP (electric).
North Platte Livestock Feeder Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Northwestern Kearney Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Compressor Station 603	Isolate and abandon Compressor Station 603. Abandon 2 units totaling 20,000 certified HP (electric).
Adams Interconnect	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping.
Clay Interconnect - TPC	Cut and cap TPC's mainline connection to the interconnect to isolate the abandoned pipeline. Abandon the existing interconnect piping. Abandon TPC-owned interconnect facilities.
TPC East Isolation	Cut and cap TPC's mainline to isolate the abandoned mainline pipeline from the mainline pipeline remaining in natural gas service.

HP = horsepower

[a] While the Applicants have named this facility using the term compressor station, the proposed facility type would be an interconnect booster station, which is a small capacity compressor station.

Construction, modification, and abandonment of these facilities would affect 32.8 acres (see table A-2). Most of these impacts would be within the existing operational right-of-way of the Rockies Express Pipeline, proposed operational rights-of-way of the laterals, or within or adjacent to existing aboveground facility footprints.

As reported in table A-4, the Hereford Ranch, Redtail, and Logan booster stations would use gas compressor units, while the Sedgwick and Sedgwick East booster stations would use electric compressor units.

5.3 Access Roads

A total of 44 access roads would be used to construct, abandon, and operate the Project; of these 22 would be newly constructed, 20 are existing access roads that would be modified (i.e., via blading, grading, gravel, and widening) to support access for large construction vehicles, and 2 are existing access roads that would be extended between 235 and 345 feet (see appendix B). Following construction, 15 permanent access roads would support operation of the Project, all of which are existing access roads.

5.4 Blanket Certificate Projects

Under a blanket certificate issued pursuant to Section 7(c) of the NGA, a natural gas company may conduct routine activities and construct, modify, acquire, operate, and abandon a limited set of natural gas facilities provided each activity complies with cost restrictions and environmental impacts set forth by the Commission's regulations.[12] Under the automatic blanket certificate, affected landowners must be notified at least 45 days prior to any planned activities.[13] In addition to the Project facilities discussed in section A.4 to be abandoned or constructed under Section 7(b)(c) of the NGA, the Applicants would also construct and/or modify facilities pursuant to the automatic blanket provisions of the Commission's regulations and Applicants' Blanket Certificates (collectively, Blanket Certificate projects; see table A-5). Similarly, Tallgrass would construct a new 8-inch-diameter lateral to provide continuing service to TPC's existing natural gas firm transportation customers. As these Blanket Certificate projects are not a part of the proposed Project under consideration in this application, they are not evaluated as part of the Project impacts throughout this EA. However, because we consider the Blanket Certificate projects related to the proposed Project, we include a discussion of the environmental impacts of the Blanket Certificate projects in section B.10.5 to inform stakeholders and decision makers. In addition, resource impacts are assessed as part of the

[12] 18 CFR § 157.205, 157.208(b) (2021). 18 CFR § 157.208(b) allows the holder of a blanket certificate to undertake certain activities without specific Commission authorization if the project cost falls below a threshold level.

[13] 18 CFR §157.203 (2021).

cumulative analysis in section B.10, where applicable. Our review indicates that due to the minimal impacts associated with the Blanket Certificate projects, inclusion of these projects in the analysis and scope of the proposed Project would not change any of our conclusions of impact significance described in this EA or necessitate elevation of this EA to an Environmental Impact Statement.

Table A-5
Blanket Certificate Projects

Name of Facility (Entity Performing Work)	Description of Activity	County, State
NEW PIPELINE FACILITIES		
TIGT Lateral to TPC Northwestern Kearney (Tallgrass)	Construct about 6.3 miles of new 8-inch diameter pipeline.	Kearney County, NE
ANCILLARY FACILITIES		
ECGS Regulating Station (REX)	Install 24-inch diameter hot tap; install 16-inch diameter hot tap; install station piping; and install regulating skid.	Logan County, CO
TIGT/TPC Logan Station (Tallgrass)	Install additional station piping and install regulating skid.	Logan County, CO
WME Yates Sedgwick West Interconnect (TPC)	Cut and cap TPC's mainline connection to the interconnect; abandon the existing interconnect piping; and abandon TPC-owned interconnect facilities.	Sedgwick County, CO
Northwestern Kearney Launcher Site (Tallgrass)	Install 8-inch diameter hot tap and construct launcher.	Kearney County, NE
Northwestern Kearney Receiver Site (Tallgrass)	Construct receiver and tie into existing facility.	Kearney County, NE
Clay Interconnect – TIGT (Tallgrass)	Cut and cap TPC's mainline connection to the interconnect. Abandon the existing interconnect piping. Abandon Tallgrass-owned interconnect facilities.	Clay County, NE
Fairmont Receiver Site (TPC)	Construct receiver tie-in location and tie into existing facility.	Fillmore County, NE
TPC East Launchers (TPC)	Construct two launcher tie-in locations.	Saline County, NE
CO = Colorado; NE = Nebraska; TIGT = Tallgrass Interstate Gas Transmission, LLC		

5.5 Non-jurisdictional Facilities

Occasionally, proposed projects have associated facilities that do not come under the jurisdiction of the Commission. These non-jurisdictional facilities may be integral to the need for the proposed facilities (e.g., a gas-fueled power plant at the end of a jurisdictional pipeline) or they may be minor, non-integral components of the jurisdictional facilities that would be constructed and operated as a result of the proposed facilities. Under Section 7 of the NGA, the Commission is required to consider, as part of its decision to authorize jurisdictional facilities, all factors bearing on the public convenience and

necessity. Consequently, this EA discloses available information for these proposed facilities to inform stakeholders and decision makers.

The Applicants anticipate that electrical power upgrades would be required at the new aboveground facilities, including the five booster stations along the existing REX pipeline and at the two new meter stations and two MLVs along the proposed pipeline laterals. Electrical power upgrades would be constructed and operated by the respective power company, who would be required to obtain all necessary permits and authorizations. These facilities are discussed further in section B.10.

As stated previously, the Applicants indicated that the facilities to be abandoned would be made available in anticipation of future use to transport CO_2. The future use of the pipeline facilities, for purposes other than interstate natural gas transportation, is outside of the Commission's jurisdiction once the Commission has authorized abandonment. However, to inform decision makers, we disclose all known information and impacts associated with the future anticipated use of the pipeline in section B.10.

6. Construction Schedule and Workforce

If the Applicants receive necessary permits and regulatory approvals, including the Commission's approval of the Project, they anticipate that construction of the Project would commence as soon as the Project is approved (expected in quarter [Q]3 of 2023). The timing of construction would be consistent with recommendations and conditions, if any, made by agencies based on seasonal restrictions for sensitive species and other restrictions. The Applicants estimate that construction would take about 7 months; therefore, based on this schedule, the Applicants anticipate placing the facilities in service in Q1 of 2024.

The Applicants anticipate utilizing a peak construction work force of 1,260 individuals, with 450 of these workers supporting construction of the aboveground facilities, 700 workers supporting construction of the pipeline laterals and ancillary facilities, and 110 workers for the abandonment facilities. Abandonment activities would be supported by the aboveground facility workforce where the two actions are adjacent. No new permanent employees would be required for operation or maintenance of the Project. The Applicants anticipate that the majority of typical Project construction (including abandonment activities) would occur during daylight hours, generally between the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. While HDD construction would typically occur between the hours of 7:00 a.m. and 7:00 p.m., conditions may require 24-hour HDD operations during pull-back. The proposed HDDs are expected to be complete within about 4 weeks; however, pull-back activities are expected to be of a shorter duration, typically anticipated to be no more than a few days. Other activities that cannot adhere to regular construction hours may also occur outside of the typical timeframe, such

as hydrostatic testing, and other specialized construction techniques, as discussed in throughout section B, where appropriate.

7. Construction, Operations, and Maintenance Procedures

The new Project facilities would be designed, constructed, tested, operated, and maintained to conform with or exceed federal, state, and local requirements, including the U.S. Department of Transportation's (USDOT) regulations in 49 CFR 192, *Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards*; FERC's *Siting and Maintenance Requirements* in 18 CFR § 380.15; and other applicable federal and state safety regulations.

During construction, abandonment, and restoration of the Project, the Applicants would implement the measures contained in the following plans, in addition to other federal, state, and local permit requirements:[14]

- FERC's *Upland Erosion Control, Revegetation, and Maintenance Plan* (FERC Plan);
- FERC's *Wetland and Waterbody Construction and Mitigation Procedures* (FERC Procedures),[15] with certain proposed alternative measures as discussed in section A.7.1, below;
- Horizontal Directional Drill Inadvertent Return Contingency Plan (HDD Contingency Plan);
- Spill Prevention and Response Plan (SPRP);
- Unanticipated Contamination Discovery Plan;
- Cultural Resources Unanticipated Discovery Plan (UDP);
- Noxious Weed Management Plan;
- Agricultural Impact Mitigation Plan (AIMP);

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[14] The Applicants' various plans are available on eLibrary under accession nos. 20220527-5365, 20220912-5172, 20221101-5228, and 20221221-5310.

[15] The FERC Plan and Procedures are a set of baseline construction and mitigation measures developed to minimize the potential environmental impacts of construction on upland areas, wetlands, and waterbodies. The Plan and Procedures can be viewed on the FERC website at: www.ferc.gov/industries/gas/enviro/plan.pdf and www.ferc.gov/industries/gas/enviro/procedures.pdf.

- Winter Construction Plan; and
- Fugitive Dust Control Plan.

7.1 General Pipeline Construction and Abandonment Procedures

For efficiency, crews working on each stage of construction would prefer to proceed along the pipeline rights-of-way in one continuous assembly-line type operation. However, depending on several factors including construction activity, crew availability and efficiency, accessibility and/or timing restrictions, and weather, crews may work independently of each other. The entire process would be coordinated to reduce the total time a tract of land would be disturbed and, therefore, exposed to erosion and temporarily precluded from normal use. On any given property, ground disturbance and construction crews/equipment may be present for several days up to several weeks along the pipeline routes and up to six months at aboveground facility sites. The Applicants have generally adopted the FERC Plan and FERC Procedures, but have requested certain alterative measures to the Procedures regarding reduced ATWS setback requirements from a certain waterbody and use of a temporary access road across wetlands (see table A-6). We have reviewed these alternative measures and find them acceptable. Our convention in this EA is to refer to the Applicants' adoption of the FERC Plan and FERC Procedures (modified as described herein and shown in table A-6) as the "Applicants' Plan" and the "Applicants' Procedures."

Prior to construction, the Applicants' survey crews would stake the pipeline centerlines and limits of the construction rights-of-way, ATWS, road crossings, and access roads. The Applicants would also mark wetland boundaries and other environmentally sensitive areas. The Applicants would also contact the Colorado and Nebraska One-Call systems to identify and mark existing underground utilities within the construction workspace to minimize the potential for accidental damage during pipeline construction and abandonment activities.

Table A-6
Applicants' Requested Alternative Measures to FERC's Plan and Procedures

Workspace Type / ID	Approximate Milepost	Feature ID	Section of Plan or Procedures	Alternative Measure	Justification	Alternative Protection Measures
REX LATERAL TO TPC ADAMS						
07-WS-39	8.3	S-T1-15	Procedures Section V.B.2.a	ATWS within 50 feet of a waterbody.	Workspace about 15 feet from the waterbody is required to set back for road bore and stream crossing.	The Applicants would install erosion and sediment controls in accordance with their Procedures and applicable permit conditions.
REX LATERAL TO TPC EAST						
01-TAR-002	10.7	W-T1-06	Procedures Section VI.B.1.d	Temporary access road within wetland.	Temporary access is required at this location to avoid a busy highway and unsafe conditions for construction crews and the public.	The Applicants would reduce the access road width to 25 feet where crossing the wetland and install up to two timber mats across the wetland. Alternatively, the Applicants would use a timber mat bridge with footings placed in upland areas to cross the feature.

After marking the construction areas, clearing crews would clear workspaces of vegetation and obstructions, including trees, rocks, and logs. In wetlands, most vegetation would be cut to grade to maintain the integrity of the root systems. The Applicants would work with landowners to determine their preferred method for timber handling and removal. Cleared upland vegetation and stumps would be chipped and disposed of according to individual landowner agreements and applicable regulations and ordinances, and in accordance with the Applicants' Plan. The Applicants would ensure timber handling and removal and disposal of construction debris would not result in adverse environmental impact in accordance with Section III.E of the Applicants' Plan. Chipped trees or excess rock would be provided to the landowner for beneficial reuse, or may be utilized for stabilization, habitat restoration, or removed and disposed of in accordance with the Applicants' Plan. Any disposal area for landowner beneficial use would be near access points that would not disrupt sensitive environmental areas during material retrieval.

The Applicants would cut and brace existing fences as needed along the rights-of-way. Crews would install or relocate temporary fencing, safety fencing, or gates as needed and in accordance with permits and landowner agreements. In agricultural areas, the Applicants would segregate topsoil across the entire rights-of-way, where grading is needed, or over the trench and spoil storage side. The full depth of topsoil, up to 12 inches, would be segregated and stored separately from subsoil. Temporary soil erosion and sediment control devices would be installed as needed in accordance with the Applicants' Plan and Procedures, and maintained throughout construction and restoration of the Project. The erosion and sediment controls would be inspected and maintained throughout construction, abandonment, and restoration. Following clearing, the construction rights-of-way and ATWS areas would be graded where necessary to provide a level work surface.

The Applicants would excavate the pipeline trench with a track-mounted backhoe, rotary trenching machine, or similar equipment. Large stones or bedrock would be broken using conventional rock trenching methods. Blasting is not currently proposed; however, if conventional rock trenching methods are unsuccessful and blasting becomes necessary, the Applicants would coordinate with local authorities, conduct appropriate blasting surveys, develop a blasting program in accordance with federal, state, and local regulations, notify all appropriate entities, and obtain any required permits prior to blasting. The Applicants would also file a Blasting Plan for FERC review and approval prior to blasting. The Applicants would stockpile excavated soils along the rights-of-way, typically on the side of the trench away from the construction traffic and pipe assembly areas (on the "spoil side"). In agricultural areas and non-saturated wetlands, subsoil would be stored separately from topsoil piles. The pipeline trench would be excavated at least 12 inches wider than

the diameter of the pipe and to a sufficient depth to allow a minimum of 4 feet of soil cover between the top of the pipe and the final graded land surface after construction, or about 6 feet. Pipeline cover may be greater than 4 feet at road, stream, wetland, and agricultural land crossings, as discussed further below. In compliance with 49 CFR 192, the depth of cover would be a minimum of 2 feet in areas of consolidated bedrock. If the pipeline trench requires dewatering during construction of the Project, the water would be pumped out and discharged into well-vegetated uplands, in a manner that prevents scouring, to create a dry work area for trench excavation and pipe installation.

Individual sections of pipe would be trucked to the construction rights-of-way and strung along the trenchline or, in some cases, fabricated off-site and transported to the rights-of-way. Typically, a track-mounted, hydraulic pipe-bending machine would tailor the shape of the pipe to conform to the contours of the terrain. The pipe segments would then be placed on temporary supports and welded together into long 'strings.' The Applicants would weld the pipelines in compliance with 49 CFR 192 and the Applicants specifications. Completed welds would be coated to prevent corrosion, and the coating would be inspected for defects and repaired, if necessary, prior to lowering the pipe into the trench.

Prior to lowering in the pipe, the Applicants would inspect the trench to ensure it is free of rocks and other debris that could damage the pipe or its protective coating. The pipe would then be lifted from the temporary supports and lowered into the trench using sideboom tractors or similar equipment. Typically, in rocky areas, a layer of soil or sand would be placed on the bottom of the trench to protect the pipe; topsoil would not be used to provide padding around the pipe. Once the pipe has been lowered in, the trench would be backfilled with previously excavated materials. Excess soil may be spread evenly within upland areas in the rights-of-way, and in accordance with landowner and agency requirements.

After backfilling, the Applicants would hydrostatically test pipeline segments to ensure the pipeline segments are free from leaks and meet safety requirements at operating pressures. Refer to section B.2.2 for additional information on hydrostatic testing.

Final cleanup would begin after backfilling and as soon as weather and site conditions permit. In accordance with their Plan, weather and season permitting, the Applicants would complete final cleanup (including removal of construction debris, replacement of topsoil where applicable, final grading, and installation of permanent erosion control devices) within 20 days after the trench is backfilled. In residential areas, cleanup and restoration would occur within 10 days of backfilling. If final cleanup is prevented by winter snowfall, the Applicants would implement their Winter Construction Plan, which includes measures to temporarily stabilize the right-of-way and avoid erosion

until spring thaw conditions (discussed below). The Winter Construction Plan also includes specific measures for snow removal and storage or windrowing of soil stockpiles if backfilling is delayed due to winter conditions.

The Applicants would complete restoration in accordance with their Plan and Procedures and applicable permit requirements. Areas disturbed by construction would be graded to approximate original contours and surrounding drainage patterns except at those locations where permanent changes in drainage would be required to prevent scour, erosion, or potential exposure of the pipeline. Temporary and permanent erosion and sediment control measures, including silt fencing, water bars, and vegetation would be installed. Construction workspaces that would disturb residential lands and/or driveways would be minimized based on residential construction plans and/or landowner negotiations would be restored to approximate pre-construction conditions. Roads disturbed by pipeline construction would be restored to pre-construction conditions or better, as practicable. Markers showing the location of the pipeline would be installed at fence and road crossings to convey emergency information in accordance with applicable government regulations, including USDOT safety requirements.

Where excavation is required to abandon the Trailblazer Pipeline in-place, the Applicants would excavate the cut-site to expose the pipeline, cut the pipe, install a cap, and backfill and restore the site to approximate pre-construction conditions. Abandonment activities would be completed using typical pipeline construction equipment and methods, as described above, and would require between 0.02- and 0.65-acre sites to support construction.

7.2 Special Pipeline Construction Procedures

Horizontal Directional Drill Method

The Applicants propose to use the HDD method of construction at two locations, one on each of the proposed laterals, see table A-7.[16] The HDD method allows for pipeline installation without the excavation of a trench, by drilling under a feature and pulling the pipe back through the borehole. The initial step of placing guide wires over the path of the drill generally requires minor hand clearing of a 3- to 5-foot-wide corridor to enable a line-of-sight; however, each of the proposed HDDs would occur on agricultural and open land; therefore, no vegetation clearing would be required. A small-diameter pilot hole is then drilled under the area to be crossed and enlarged through successive reaming passes until it is large enough to accommodate the pipeline. The head of the pilot drill string contains

[16] Site-specific HDD Diagrams are included in the HDD Contingency Plan for the Project, available on eLibrary under accession no. 20221101-5228.

a pivoting head that can be steered by an operator as the drill progresses. During this process, drilling fluid consisting primarily of bentonite clay and water is continuously pumped into the borehole to lubricate the drill bit, remove cuttings, and maintain the integrity of the borehole. When the borehole has been sufficiently enlarged, a pre-fabricated segment of pipeline is attached behind the reaming tool on the exit side of the crossing and pulled back through the borehole towards the drill rig.

Table A-7
Summary of Horizontal Directional Drill Locations for the Project

HDD	Begin Milepost	End Milepost	Length (feet)	Primary Features Avoided
1 – REX Lateral to TPC Adams	3.1	3.3	1,360	Private Road
2 – REX Lateral to TPC East	15.6	15.9	1,355	720th Road and Union Pacific Railroad

The HDD method generally avoids impacts on the feature being crossed and the Applicants would not clear vegetation between the HDD entry and exit points. The Applicants estimate that each HDD would be completed within about four weeks. While HDD construction would typically occur between the hours of 7:00 a.m. and 7:00 p.m., conditions may require 24-hour HDD operations during pull-back. We have recommended additional noise mitigation measures in section B.8.2 and, with implementation of those measures, find the Applicants' HDD construction schedule to be acceptable.

HDD drilling fluid is pressurized and has the potential to be released inadvertently to the surface if fractures or fissures are encountered in the substrate during drilling. The potential for an inadvertent release is generally greatest during drilling of the pilot hole and/or when drills are at their shallowest depths. The Applicants have provided an HDD Contingency Plan that addresses the prevention, detection, notifications, and response to inadvertent returns in upland areas, as well as adjacent wetlands and waterbodies. HDD personnel would walk the land-based path of the drill to monitor for any inadvertent return of drilling mud to the surface. In response to inadvertent returns of drilling mud to the surface, drilling operation would be immediately stopped and on-site personnel would assess the volume and discharge location to inform appropriate containment and response measures. We find the measures outlined in the HDD Contingency Plan to be acceptable and that implementation of the plan would adequately minimize and mitigate potential adverse impacts associated with HDD construction.

Waterbody Crossings

The Applicants propose to cross waterbodies using the open-cut, dam-and-pump, and conventional bore crossing methods as discussed further in section B.2.2. The

waterbody crossed by bore is adjacent to a road; therefore, this crossing method is described further below. The open-cut method is typically conducted with backhoe-type excavators operating from the banks of the waterbody during flowing conditions. In accordance with the Applicants' Procedure, spoil excavated from the trench would be placed at least 10 feet upland from the bank for use as backfill and sediment barriers (such as silt fence) would be installed to minimize sedimentation into the waterbody from nearby disturbance. A pre-fabricated segment of pipeline would then be placed into the trench using sideboom tractors. Concrete coating or set-on weights would be utilized, as necessary, to provide negative buoyancy for the pipeline. In accordance with the Applicants' Procedures, in-stream construction activities associated with minor open-cut waterbody crossings would be completed within 24 hours, and intermediate open-cut waterbody crossings would be completed within 48 hours, as practicable. Once the trench is backfilled, the banks would be restored to approximate pre-construction contours[17] and stabilized in accordance with the Applicants' Procedures.

The dam-and-pump method would be implemented at the crossing of four perennial streams. A dam-and-pump crossing diverts or isolates flow during pipe installation. The dam-and-pump method involves installing temporary dams upstream and downstream of the waterbody crossing, typically using sandbags.[18] Following dam installation, the Applicants would use pumps with hoses to transport the streamflow around the construction work area and trench. The Applicants would install intake screens to prevent or limit entrainment of aquatic life, and would ensure that streambed scour does not occur at the pump discharge point. Trench excavation and pipe installation would then commence through the dewatered and relatively dry portion of the waterbody channel. In the unlikely event that a feature is dry at the time of the proposed crossing, it would be crossed via open cut.

Some ATWS may be required adjacent to waterbodies for staging the crossing and for the assembly and fabrication of the pipelines. These ATWS would be at least 50 feet from the edge of the waterbody, except where adjacent uplands are disturbed. However, at one location the ATWS would be within about 15 feet of a waterbody to support bore crossing of a road and stream, which is an alternative measure from FERC Procedures. Table A-6 identifies the location and rationale for the change in the setback distance. We have reviewed the ATWS location, the Applicants' justification, and have found it acceptable. See section B.2.2 for further information on waterbodies.

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[17] In some locations, stream banks may need to be contoured differently than pre-construction in order to provide stability and limit any loss of soil.

[18] The Applicants' typical construction drawing for the dam-and-pump method is available on eLibrary under accession nos. 20221221-5310 and 20230201-5180.

Wetlands

The Applicants would delineate and mark wetland boundaries in the field prior to construction activities. All wetlands would be crossed via the open-cut method (see table B-9 for wetland crossing methods at specific locations). At open-cut wetland crossings, woody vegetation (if present) within the construction rights-of-way would be cut off at ground-level and removed from the wetlands, generally leaving the root systems intact. The Applicants would install temporary sediment control devices prior to any construction near wetlands and, as necessary, after initial disturbance of wetlands or adjacent upland areas to prevent sediment flow into wetlands in accordance with their Procedures. The Applicants would maintain these devices until revegetation (either by seeding or natural revegetation) of the wetlands is complete. Construction equipment operating in wetland areas would be limited to that needed to clear the rights-of-way, dig the trenches, install the pipeline, backfill the trenches, and restore the rights-of-way. In addition, the Applicants would use timber mats (or similar measures) in wetland areas where rutting could occur.

One access road would cross a wetland, which is an alternative measure from FERC Procedures. Table A-6 identifies the location and rationale for this wetland crossing and proposed measure to mitigate impacts on the wetland. We have reviewed the access road location, along with the Applicants' justification, and have found it acceptable. See section B.2.3 for further information on wetlands.

Road and Railroad Crossings

The Applicants would generally cross state, local, and private roads using the open-cut, conventional bore, or HDD crossing methods. No federal roads would be crossed by the Project. Of the 48 proposed road crossings, 7 unpaved roads would be open cut (i.e., using typical upland construction methods), 40 would be bored, and 2 roads would be crossed by the HDD method. Of the two railroads that would be crossed, one would be bored and one would be within the HDD crossing of 720th Road at MP 15.8 along the REX Lateral to TPC East. Conventional bores and HDDs avoid direct impacts on the ground surface and associated transportation.

The conventional bore crossings typically consist of excavating a pit on each side of the feature being crossed, placing boring equipment within the pits, boring a hole under the feature, and pulling a section of pipe through the hole. Dewatering the bore pits may be necessary and would be similar to dewatering the trench as described above. For long crossings, pipe sections could be welded into a pipe string before being pushed through the borehole. See appendix C for each road crossed by the Project and the proposed crossing method.

The seven gravel roads that would be crossed using open-cut methods are rural areas with typically low-flow traffic patterns. For all road crossings, the pipelines would be buried to a depth of at least 4 feet below the road or railroad, or in accordance with permit requirements, and would be designed to withstand anticipated external loading. The Applicants have indicated they would coordinate with local highway departments in advance of construction of each Project component and they have committed to requiring that contractors develop Traffic Control Plans to minimize traffic impacts on local roadways. The Applicants would store excavated spoil in identified ATWS on either side of the crossing, and in accordance with their typical construction diagrams;[19] no impacts on the crossed feature are anticipated.

Agricultural Areas

Construction in agricultural areas would be conducted in a manner similar to conventional pipeline construction; however, the Applicants would protect topsoil from the movement of equipment and construction activities through temporary removal of topsoil in accordance with their AIMP and Plan. The Applicants would offer the landowner the option of full right-of-way topsoil stripping or ditch plus spoil side topsoil stripping in agricultural areas. Segregated topsoil and subsoil would be stored in separate windrows along the construction rights-of-way, which would be stored with sufficient space between windrows and stabilized as necessary to minimize mixing. The Applicants would use construction rights-of-way of up to 100 feet (REX Lateral to TPC Adams) and 125 feet (REX Lateral to TPC East) wide in agricultural areas to allow for topsoil stockpiling. During backfill operations, subsoil would be used to initially backfill the trench, and then the topsoil would be reapplied to the top of the trench and the graded right-of-way.

The Applicants have developed an AIMP[20] for the Project, which was developed in consultation with Little Blue Natural Resources District (NRD) and the Lower Big Blue NRD in Nebraska. Mitigation measures in the AIMP include requirements regarding minimum depth of pipeline cover, topsoil segregation (across the entire rights-of-way, where grading is needed, or over the trench and spoil storage side), and post-construction repairs and revegetation. Topsoil would be segregated to the full depth, up to 12 inches, and stored separately from subsoil. The Project's AIMP describes mitigation measures, specific to the types of soils and conditions in Colorado and Nebraska, which the Applicants must implement, which are discussed further in sections B.1.2 and B.5. Certain aspects of the Project's AIMP deviate from the measures described in FERC's Plan,

[19] The Applicants' typical construction diagrams are available on eLibrary under accession nos. 20220912-5172, 20221101-5228, 20221221-5310, and 20230201-5180.

[20] AIMP is available on eLibrary under accession number 20230201-5180.

however, the measures in the Project's AIMP are generally more protective. Key differences between these plans include the following:

- employ agricultural inspectors during construction, restoration, and post-construction monitoring and associated follow-up restoration;
- remove rock greater than 3 inches from the upper 42 inches of soil, or the actual depth of top cover, whichever is less and including topsoil and exposed subsoil; and
- implement all mitigation actions within 45 days following completion of pipeline facilities, weather and landowner permitting.

The Applicants have also developed a Drain Tile Mitigation Plan as part of their AIMP. The Applicants would identify drain tiles in the Project areas based on correspondence with local Soil and Water Conservation Districts; correspondence with local drain tile contractors; review of existing drain tile plans, maps, and aerial imagery; and field investigations. Prior to the start of construction activities, the Applicants would also coordinate with landowners on the location of drain tiles or irrigation systems within the rights-of-way. If drain tiles or irrigation systems are damaged, cut, or removed during construction, the Applicants would work with the landowner to replace them or repair the damaged portion. Additional discussion regarding impacts and mitigation for agricultural areas crossed by the Project are discussed in sections B.1.2 and B.5.

Foreign Utility Crossing

The pipelines would cross 81 foreign utilities or pipelines, (see appendix D). Prior to construction, the Applicants would utilize the respective states' One-Call systems to locate known utilities, and would identify the precise location of each foreign line prior to excavation using probes or handheld devices. The Applicants would give each operator adequate notice so that they could be present during construction around their utility lines. The Applicants would limit mechanical excavation in proximity to existing utilities and would install the pipelines at a minimum 2-foot offset. If foreign utilities are accidentally damaged during construction, the Applicants would stop work, contact emergency response, and evacuate the immediate area, as appropriate.

Winter Construction

Based on the Applicants' anticipated schedule, construction of the Project would extend into the 2024 winter season. Therefore, the Applicants have developed a Winter Construction Plan which includes specialized methods and procedures to protect resources during the winter season in accordance with their Plan and Procedures. These measures

include methods of snow handling and removal; snow removal would be limited to construction work areas, including access roads. The Applicants would establish gaps in topsoil piles to facilitate drainage of melting snow across the rights-of-way. If inclement weather prohibits replacement of topsoil immediately following construction, the Applicants would stabilize topsoil piles (e.g., mulching and erosion controls) until weather conditions improve. The Applicants would implement temporary and permanent sediment control measures in accordance with their AIMP, Plan, and Procedures.

7.3 Aboveground Facilities

The Applicants would construct aboveground facilities in accordance with all applicable federal and state regulations (including 49 CFR 192). Generally, construction of aboveground pipeline facilities would include general activities such as clearing and grading, access road installation, foundation installation, erection of aboveground facilities, installation of piping equipment, testing of equipment, and timely cleanup and restoration of the Project areas. Where aboveground facilities are proposed for abandonment, the Applicants would isolate, cut, and cap mainline connection pipe and abandon the remaining facilities in-place. Construction and abandonment activity and storage of construction material would be limited to the approved Project workspaces, and waste materials would be disposed of in a manner consistent with state and local regulations. Aboveground piping would be cleaned and painted according to the Applicants' specifications and in accordance with regulatory requirements. Upon completion, the Project areas would be cleaned and restored in accordance with applicable federal and state permits and plans. Final grading would be completed, gravel surfaces refreshed (as needed), and grass or appropriate vegetation seeded per specifications. Compliance with the individual Project-specific construction plans and other permanent mitigation measures would be verified in accordance with applicable permits.

7.4 Environmental Compliance and Monitoring

The Applicants would have three Environmental Inspectors (EI) during active construction and restoration. The EIs would have designated responsibility based on designated Project components.[21] Collectively, the EIs would oversee an anticipated 14 spreads during construction (one for each of the laterals, one spread for each of the 11 aboveground facilities and the corresponding abandonment facilities, and one spread for the isolated abandonment facilities, see table A-8).

[21] The Applicant prepared maps showing the areas of responsibility for each EI are available via eLibrary under accession no. 202302001-5180, see attachment 6.

Table A-8
Environmental Inspector Areas of Responsibility

Component	Spread Number	Workforce	Anticipated Construction Schedule
ENVIRONMENTAL INSPECTOR #1[a]			
REX Lateral to TPC East	Spread 3	400	August 2023 – February 2024
REX to TPC East Meter and Regulating Station	Spread 14	50	August 2023 – February 2024
ENVIRONMENTAL INSPECTOR #2[b]			
REX Lateral to TPC Adams	Spread 2	300	August 2023 – February 2024
Adams Meter and Regulating Station	Spread 13	30	August 2023 – February 2024
Mid-American Ethanol Regulating Station	Spread 10	30	September 2023 – December 2023
Oppliger Lincoln Regulating Station	Spread 11	30	October 2023 – January 2024
North Platte Livestock Feeder Regulating Station	Spread 12	30	November 2023 – February 2024
ENVIRONMENTAL INSPECTOR #3[c]			
REX/TPC Lone Tree Interconnect	Spread 4	30	August 2023 – September 2023
Hereford Ranch Compressor Station	Spread 5	50	August 2023 – February 2024
Redtail Compressor Station	Spread 6	50	August 2023 – February 2024
Logan Compressor and Regulating Station	Spread 7	50	August 2023 – February 2024
Sedgwick Compressor Station	Spread 8	50	September 2023 – January 2024
Sedgwick East Compressor Station	Spread 9	50	October 2023 – February 2024
Isolated Abandonment Locations	Spread 1	110	February 2024 – May 2024

[a] The EI would also oversee construction activities for associated appurtenant facilities and abandonment of the TPC East Isolation and Clay Interconnect.

[b] The EI would also oversee construction activities for associated appurtenant facilities and abandonment of the Adams Interconnect, North Platte Livestock Feeder Interconnect, Oppliger Lincoln Interconnect, Mid-American Ethanol Interconnect, and Compressor Stations 602 and 603.

[c] The EI would also oversee construction activities for associated appurtenant facilities and abandonment of the TPC West Isolation, Hereford Ranch, Redtail, Logan, Sedgwick, Sedgwick East, ECGS, and REX/TPC Lone Tree Interconnects, and Compressor Station 601.

The EIs would have peer status with all other activity inspectors (including the agricultural inspectors discussed above in section A.7.2) and would report directly to the Construction Manager/Chief Inspector. The EIs' duties would be consistent with those contained in the Applicants' Plan and Procedures and EIs would have the authority to stop activities that violate the environmental conditions of the FERC Certificate and other federal and state permits or landowner requirements, and to order corrective action. In addition, FERC staff would maintain compliance oversight of the Project throughout construction and restoration.

7.5 Operation and Maintenance

The Project would be designed, constructed, tested, operated, and maintained in accordance with the USDOT *Minimum Federal Safety Standards* in 49 CFR 192 and other applicable federal and state regulations, and would be maintained as required in the Applicants' Plan and Procedures. All Project facilities would be marked and identified in accordance with applicable regulations.

The Applicants' operations personnel would patrol the pipeline rights-of-way by ground and/or air on a routine basis, which would provide information on possible leaks, third-party construction activities, erosion, encroachment, and other potential problems that may affect the safety and operation of the pipeline. Cathodic protection facilities would be installed, as applicable, within 1 year along the pipelines and would be regularly monitored and inspected periodically to ensure proper and adequate corrosion protection.

The Applicants would conduct routine and periodic vegetation maintenance along the permanent rights-of-way in accordance with their Plan and Procedures. Routine vegetation maintenance is normally not required in agricultural cropland or grazing areas, residential areas, or in herbaceous wetlands. Routine vegetation mowing or clearing over the full width of the permanent rights-of-way in remaining upland areas would not be conducted more frequently than every 3 years, with the exception of a 10-foot-wide corridor centered on the pipelines that would be cleared at a frequency necessary to maintain vegetation in an herbaceous state to allow for periodic corrosion and leak surveys. The Applicants would not conduct any routine vegetation mowing between HDD entry and exit points. In wetlands, a 10-foot-wide corridor centered on the pipelines would be cleared at a frequency necessary to maintain an herbaceous state.

The Applicants would perform regular operation and maintenance activities on equipment at the aboveground facilities associated with the Project. These activities would include, but are not limited to, calibration, inspection, and scheduled routine maintenance.

8. Permits, Approvals, and Regulatory Requirements

A list of major federal and state environmental permits, approvals, and consultations for the Project is provided in table A-9. Examples of permits and consultations include the Bald and Golden Eagle Protection Act (BGEPA), Clean Air Act (CAA), Clean Water Act (CWA), Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), and the National Historic Preservation Act (NHPA). Each of these statutes has been taken into account in the preparation of this EA, as discussed below. In comments on the Project, several federal, state, and local agencies (including the EPA, USFWS, NeDNR, and NDEE) identified permits and approvals that may be applicable to the Project. In addition

to a FERC Certificate, numerous other permits, approvals, and regulatory requirements (including consultations) must be obtained/met by the Applicants. Table A-9 below identifies the major federal and state permits, approvals, and consultations to construct and operate the Project. The Applicants would be responsible for obtaining all permits and approvals required to construct, abandonment, and operate the Project, regardless of whether they appear in this table.

Table A-9
Environmental Permits, Approvals, and Consultations

Agency	Permit/Approval/Consultation	Application Date and Status
FEDERAL		
FERC	Certificate of Public Convenience and Necessity under Section 7(c) of the NGA.	The Applicants' FERC application filed on May 27, 2022 – pending.
U.S. Army Corps of Engineers (USACE) – Omaha District	CWA Section 404 – Nationwide Permit (NWP) 12	USACE notification submitted in January 2022 and coordination on the need for a Pre-Construction Notification for the Project is ongoing
USFWS – Region 6 – CO and NE	ESA – Section 7 Consultation	The Applicants requested technical assistance from the USFWS in August 2021. Section 7 ESA consultation will be initiated with FERC submittal of this EA to USFWS; consultation ongoing.
	MBTA, BGEPA	The Applicants requested technical assistance from the USFWS in August 2021. USFWS acknowledged receipt of the revised Migratory Bird Treaty Act Conservation Plan (MBCP) on December 14, 2022.
STATE OF NEBRASKA		
NDEE	Section 401 Water Quality Certification	The Applicants anticipate coverage under the blanket certification for NWP 12.
	National Pollutant Discharge Elimination System (NPDES) Stormwater Permit	Submission of NPDES Stormwater Permit August 2022. The Applicants anticipate approval in Q2 2023.
	Hydrostatic Test Water Discharge Permit	Consultation initiated January 2022. The Applicants received preliminary comments in January 2022.
Nebraska Game and Parks Commission	State Protected Species Consultation	The Applicants requested consultation in August 2021 and concurrence in January 2023; consultation ongoing.

Table A-9 (continued) Environmental Permits, Approvals, and Consultations		
Agency	**Permit/Approval/Consultation**	**Application Date and Status**
State Historical Society of Nebraska	Section 106 Consultation, NHPA	Submission of cultural report December 2021. Submission of Addendum January 2022. Concurrence on original submittal received December 2021. Concurrence on Addendum received February 2022. UDP submitted to State Historic Preservation Office (SHPO) September 2022.
Nebraska Department of Transportation (NDOT)	NDOT District 1 Road Crossing Permit	Submission of Road Crossing Permit August 2022. The Applicants anticipate approval in Q2 2023.
	NDOT District 4 Road Crossing Permit	Submission of Road Crossing Permit August 2022. The Applicants anticipate approval in Q2 2023.
STATE OF COLORADO		
Colorado Department of Public Health and the Environment (CDPHE) Air Pollution Control Division (APCD)	Construction Permit Application (Hereford Ranch Compressor Station, Logan Compressor Station)	Submittal June 2022. The Applicants anticipate approval in Q2 2023.
CDPHE	NPDES Stormwater Permit, General Permit for Construction Stormwater Discharge	Submittal August 2022. The Applicants anticipate approval in Q2 2023.
	Hydrostatic Test Water Discharge Permit	Submittal August 2022. The Applicants anticipate approval in Q2 2023.
Colorado SHPO	Section 106 of the NHPA	Submission of cultural reports November 2021. Submission of Addendum January 2022. Concurrence on original submittal received November 2021. Concurrence on Addendum No. 1 received February 2022. UDP submitted to SHPO September 2022.
Colorado Parks and Wildlife (CPW)	State Protected Species Consultation	The Applicants requested consultation in August 2021; on January 26, 2023, the CPW indicated that it had no significant biological concerns for state-listed species. On March 14, 2023, CPW further indicated that no additional mitigation was needed for work in winter ranges for mule deer and pronghorn. Consultation complete.

9. Non-Jurisdictional Future Use

The Applicants indicated that the facilities to be abandoned would be made available in anticipation of future use to transport CO_2 as part of the CCS project. The future use of the pipeline facilities other than interstate natural gas transportation is outside of the Commission's jurisdiction once the Commission has authorized abandonment. However, to inform stakeholders and decision makers, we disclose all known information and impacts associated with the future anticipated use of the pipeline in section B.10. A brief overview of the CCS project is provided here.

Tallgrass has stated that it intends to establish a commercial-scale CO_2 sequestration hub in southeastern Wyoming to capture, transport, and sequester 10 million tons of CO_2 annually (Tallgrass 2022); however, the specific laterals, ancillary facilities, and appurtenances along the Trailblazer Pipeline needed to implement the CCS project are not currently known.

B. ENVIRONMENTAL ANALYSIS

The following sections discuss the Project's potential impacts on environmental resources. Our description of the affected environment is based on a combination of data sources, including desktop resources such as scientific literature and regulatory agency reports, information from resource and permitting agencies, scoping comments, and field data collected by the Applicants and their consultants that was provided in their application and in response to information requests from our staff.

For the purposes of this analysis, we discuss four impact durations: temporary, short-term, long-term, and permanent. A temporary impact generally occurs during construction with the resource returning to a condition similar to that prior to construction almost immediately afterward. A short-term impact could continue for up to three years following construction. An impact is considered long-term if the resource would require more than three years to recover. A permanent impact would occur if an activity modified a resource to the extent that it would not be restored during the life of the Project. Permanent impacts may also extend beyond the life of the Project. For example, the construction and operation of aboveground facilities would produce permanent impacts. When determining the significance of an impact(s), we consider the duration of the impact; the geographic, biological, and/or social context in which the impact would occur; and the magnitude and intensity of the impact. The duration, context, and magnitude of impacts vary by resource and therefore significance varies accordingly. Lastly, our analysis considers impacts on resources collectively without discerning the specific categories (e.g., direct, indirect, primary, and secondary).

Our impacts conclusions and determinations of significance are based on the successful restoration of affected lands. The restoration of affected lands is a process, dependent on a number of factors, and may be accomplished relatively quickly (1 to 2 growing seasons) or may require several years to complete. Restoration of affected lands can be adversely affected by weather conditions such as drought or abnormal rainfall, landowner actions (e.g., physical changes to land use, cattle grazing), and/or third-party actions including non-project use/activities. If initial restoration activities are unsuccessful, affected lands may exhibit uneven grades, ponding, rill erosion, inconsistent revegetation, and/or other adverse conditions that are not consistent with pre-construction conditions. Some of these restoration issues may require additional attention by the Applicants or may resolve themselves through normal land use practices and/or natural processes. Ineffective restoration may result in unexpected impacts and the prolonging of impacts described in the following analyses. It is our expectation that if initial restoration activities are unsuccessful, the Applicants, in consultation with the affected landowner and consistent with our environmental compliance monitoring and reporting requirements,

would continue to assess, take action, and implement measures to ensure the eventual restoration of the affected resources.

The EPA has assessed indicators of climate change and summarizes this information in its *Climate Change Indicators in the United States.*[22] Included in the summary is a conclusion that a larger percentage of "heavy precipitation" events, in recent years, have come in the form of intense single-day events.[23] "Heavy precipitation" which refers to instances during which the amount of rain (or snow) experienced in a location substantially exceeds what is normal and intense single-day events can increase the risk and intensity of project-related impacts on the environment. Based on our experience regulating the construction of interstate natural gas transmission pipeline projects, "heavy precipitation" and intense single-day events are not wholly uncommon, especially for projects in which construction spans several months, and it is reasonable to expect that one or more of these events may occur during a project's construction. Predicting these and other extreme weather events (hurricanes and tropical storms) is difficult; however, should an extreme weather event occur ("heavy precipitation" or an intense single-day event), project workspaces could become inundated, spoil piles could experience some erosion, and erosion control devices could be overwhelmed. Individually or collectively, these actions may result in off right-of-way impacts and would likely increase rates of erosion, turbidity, and sedimentation. These impacts could in turn affect soil/slope stability, water quality, aquatic wildlife, and other environmental resources. In addition, extreme 1-day precipitation events may lengthen the amount of time required to adequately restore the construction right-of-way. If off-right-of-way impacts occur, the Applicants would need to request additional approvals from FERC and affected landowners to access these off-right-of-way areas to remediate the erosion and cleanup the sedimentation.

The impacts of an extreme weather event(s) must be assessed and addressed in a timely manner by the company so as to avoid further impacts on the environment. Should a project proponent fail to address these impacts in a timely fashion, the project would be out of compliance with the requirements contained within the FERC Plan. Specifically, the Plan requires that project proponents inspect and ensure the maintenance of temporary erosion control measures within 24 hours of each 0.5 inch of rainfall. The Plan then requires that the repair of all ineffective temporary erosion control measures occur within

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[22] United States Environmental Protection Agency (EPA) 2021. Climate Change Indicators: Heavy Precipitation. Available online at: https://www.epa.gov/climate-indicators/climate-change-indicators-heavy-precipitation#tab-2. Accessed September 2022.

[23] The prevalence of extreme single-day precipitation events remained fairly steady between 1910 and the 1980s, but has risen substantially since then. Over the entire period from 1910 to 2020, the portion of the country experiencing extreme single-day precipitation events increased at a rate of about half a percentage point per decade.

24 hours of identification, or as soon as conditions allow. Still, it should be noted that these measures ensure that once an incident occurs, it will be remediated. The occurrence of an incident involving off-right-of-way sediment transport is more likely now than in the past based on the increase in extreme 1-day weather events and should be expected in regions that may experience these events, which includes the Project areas.

The analysis contained in this EA is based upon the Applicants' application and supplemental filings and our experience with the construction and operation of natural gas infrastructure. However, if the Project is approved and proceeds to the construction phase, it is not uncommon for a project proponent to require modifications (e.g., minor changes in workspace configurations). These changes are often identified by a company once on-the-ground implementation work is initiated. Any Project modifications would be subject to review and approval from the Director of FERC's Office of Energy Projects (OEP) and any other permitting/authorizing agencies with jurisdiction.

1. Geology and Soils

1.1 Geology

Geologic Setting

The majority of Project areas are within the Great Plains physiographic province, which is bordered on the west by the Rocky Mountains and slopes eastward toward the Central Lowlands physiographic province. This province is characterized by moderately rolling topography composed of alluvial sediments overlying Mesozoic age bedrock (Trimble 1980). The western extent of the Project is within the High Plains section of the Great Plains physiographic province (including the Project areas in Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Clay, and Fillmore Counties, Nebraska; Vigil 2000, Trimble 1980). The High Plains section is a large plateau covered by wind-blown sand and silt (including loess deposits and eolian sands) that overlie sedimentary rocks (Trimble 1980, Fenneman 1931).

Project facilities in Kearney, Franklin, Webster, and Adams Counties, Nebraska are within the Plains Border section of the Great Plains physiographic province. The Plains Border section gently grades eastward, and is covered by river valley deposits which overlie sedimentary rock. The surface of the Plains Border section is defined by several river valleys that are intricately dissected (Trimble 1980, Fenneman 1931).

Project facilities in Saline and Jefferson Counties, Nebraska are along the border of the Great Plains physiographic province (described above) and the Dissected Till Plains section of the Central Lowlands physiographic province (Vigil et al. 2000). This province is defined by repeated glaciations experienced during the Pleistocene epoch. During

glaciations ice sheets eroded, picking up the surface geology when advancing and depositing thick layers of drift when receding (Vigil et al. 2000, NPS 2018). The Dissected Till Plains section is characterized by flat to rolling glaciated plains dissected by river valleys (Thayer 1918, USFS 1994). Surficial glacial deposits are underlain by thin layers of Paleozoic age sandstone, shale, and carbonate bedrock.

As discussed above the general topography of Project areas can be characterized as level to gently rolling terrain and occasional hills formed by riverine or glacial activity. Elevations range between about 1,380 to 6,000 feet above mean sea level. Abandonment activities would occur within the same geologic formations. Mapped bedrock geology underlying the proposed facilities is summarized in table B-1, below.

HDD Feasibility and Geotechnical Investigation

The Applicants have proposed the HDD method at two locations along the Project (see table A-7). Length of an HDD alignment, pipeline diameter, and subsurface material are factors in the technical feasibility of an HDD installation. Subsurface conditions that can affect the feasibility of an HDD installation include excessive rock strength and abrasiveness, unconsolidated gravel and boulder materials, poor bedrock quality, solution cavities, and artesian conditions. It is also possible for HDD pipeline installations to fail, primarily due to encountering unexpected geologic conditions such as transitioning from coarse unconsolidated materials into bedrock or if the pipe were to become lodged in the hole during pull-back operations. During HDD operations, drilling fluid consisting primarily of water and bentonite clay is pumped under pressure through the inside of the drill pipe and flows back (returns) to the drill entry point along an annular space between the outside of the drill pipe and the drilled hole. Because the drilling fluid is pressurized, in certain conditions it can seep into the surrounding rocks and sediment. Formational drilling fluid losses typically occur when the drilling fluid flows through the pore spaces in the soil through which the HDD drilling profile passes or within fractures contained in the rock formation. Inadvertent returns are more likely to occur in more permeable soils or via fractures or fissures in bedrock. Chances for an inadvertent return to occur are greatest near the drill entry and exit points where the drill path has the least amount of ground cover.

Table B-1
Bedrock Geology of Proposed New Project Facilities

Facility	MP Begin	MP End	Formation Name (Age)	Bedrock composition
PIPELINE FACILITIES				
REX Lateral to TPC Adams	0.0	1.1	Pierre Shale (Cretaceous)	Shale/evaporite
	1.2	5.6	Ogallala Formation (Cenozoic)	Mudstone/sandstone
	5.7	6.8	Pierre Shale (Cretaceous)	Shale/evaporite
	6.9	18.7	Niobrara Formation (Cretaceous)	Limestone/shale
REX Lateral to TPC East	0.0	22.4	Dakota Group (Cretaceous)	Sandstone/shale
ABOVEGROUND FACILITIES				
REX/TPC Lone Tree Interconnect	N/A	N/A	White River Group (Cretaceous)	Claystone/sandstone
Hereford Ranch Interconnect and Compressor Station	N/A	N/A	Gravels and alluviums (Quaternary)	Gravel/alluvium
Redtail Lateral and Interconnect and Compressor Station	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
ECGS Interconnect	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
Logan Interconnect and Compressor and Regulating Station	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
Sedgwick Interconnect and Compressor Station	N/A	N/A	White River Group (Cretaceous)	Claystone/sandstone
Sedgwick East Interconnect and Compressor Station	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
Mid-American Ethanol Interconnect and Regulating Station	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
Oppliger Lincoln Interconnect and Regulating Station	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
North Platte Livestock Feeder Interconnect and Regulating Station	N/A	N/A	Ogallala Formation (Cenozoic)	Mudstone/sandstone
N/A = not applicable				

Prior to construction, REX would conduct a geotechnical investigation at the site of each HDD proposed for the Project, and would provide the results of the geotechnical investigations to FERC. In our experience, feasibility/hydrofracture assessment is necessary in order to further refine drill feasibility and predict the risk of inadvertent returns of drilling fluid to the ground surface. Therefore, **we recommend that:**

- **With its Implementation Plan, REX should file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, feasibility/hydrofracture assessments for each proposed HDD that include:**

  a. **the results of site-specific geotechnical investigation;**

  b. **an alignment plan and profile that incorporates site-specific geotechnical information;**

  c. **a description of any subsurface conditions that were identified during geotechnical investigations that may increase the risk of HDD complications (e.g., loss of drilling fluids, drill transition between overburden/bedrock, drill hole collapse, existing groundwater and/or soil contamination) as well as the measures that would be implemented to minimize these risks; and**

  d. **an assessment of the potential for hydrofracture and inadvertent return using the U.S. Army Corps of Engineers' (USACE) Delft method (or an equivalent method).**

Based on the regional geology and soils (e.g., sandstone and mudstone overlain by clays and silt loam), REX's implementation of its HDD Contingency Plan, and our recommendation, we conclude that HDDs are likely a feasible installation method for the proposed pipelines.

Mineral Resources

Colorado's principal mineral resources include molybdenum, fire clay, gold, helium, silver, and construction material aggregates such as bentonite, cement, common clay, crushed stone, gypsum, industrial sand and gravel, and lime (CGS 2022, USGS 2011). Nebraska's principal mineral resources consist of construction material aggregates such as construction sand, gravel, and crusted stone (USGS 2022a, b).

Information regarding the presence of mineral resources within 0.25 mile of the Project was obtained from a desktop analysis of topographic and aerial maps, as well as a

review of the U.S. Geological Survey (USGS) Mineral Resources Databases Systems and federal and state databases (see section B.1.2).[24] Based on this analysis, no active, inactive, or historic surface or subsurface mines were identified within 0.25 mile of the Project. Therefore, we conclude that the Project would not impact mineral resources (USGS 2011, 2022a).

According to the Applicants' review of records maintained by the Colorado Oil and Gas Conservation Commission (COGCC) and the Nebraska Oil and Gas Conservation Commission (NOGCC), four oil and natural gas wells or related facilities are within 0.25 mile of the Project, of which two are active (see table B-2). The nearest of these wells is 15 feet from the Sedgwick Interconnect and booster station worksite. The Applicants would implement avoidance measures (including placements of balustrades, orange safety fencing, and/or use of stove pipe construction methods[25]) to protect this well during Project activities. If previously unidentified active oil or natural gas wells are identified within 100 feet of the Project area, the Applicants would utilize orange safety fencing to clearly mark the well locations to ensure avoidance during construction. Given the Applicants' proposed mitigation measures for the nearest active wells and the distance to other fuel and non-fuel mineral extraction sites, we conclude that the Project would not impact availability of or access to mineral resources.

Table B-2
Oil and Natural Gas Wells and Facilities Within 0.25 Mile of the Project

Project Component	Distance (feet)	Oil and Gas Facility / Operator	Status
Hereford Ranch Interconnect and Compressor Station	610	Fox Creek Well / Highpoint Operating Corporation	Active
ECGS Interconnect and Regulating Station	906	UPRR 'D' Well / British American Production Company	Closed
Sedgwick Interconnect and Compressor Station	15	Pratt 1R Compressor / Aeon Energy Corp	Active
Adams Meter and Regulating Station	676	2618050050000 Core Hole Well / Operator Unknown	Dry and abandoned

Sources: COGCC 2022, NOGCC 2022

[24] The Applicants conducted an environmental database review to identify sites of known contamination or storage of hazardous wastes, which could identify the presence of mineral resource extraction sites.

[25] Stove pipe construction involves installing and welding one section of pipe at a time.

Geologic Hazards

Geologic hazards are natural physical conditions that can result in damage to land and structures, or injury to people. Potential geologic hazards can be related to seismic activities, such as earthquakes, fault rupture, and soil liquefaction. Other potential geologic hazards include landslides, flooding, and ground subsidence. The Project facilities were evaluated with respect to those geologic processes that have a potential for occurrence in the Project areas.

Seismicity, Ground Rupture, and Soil Liquefaction

The shaking during an earthquake can be expressed in terms of the acceleration as a percent of gravity (g), and seismic risk can be quantified by the motions experienced at the ground surface or by structures during a given earthquake expressed in terms of g. USGS National Seismic Hazard Probability Mapping shows that for the Project areas, within a 50-year period, there is a 2 percent probability of an earthquake with an effective peak ground acceleration (PGA) of up to 10 percent g, and a 10 percent probability of an earthquake with an effective PGA of between 1 and 3 percent g occurring. For reference, a PGA of 10 percent g (0.1 g) is generally considered the minimum threshold for damage to older structures or structures not constructed to resist earthquakes (Petersen et al. 2019, Rukstales and Peterson 2019).

Even under much higher ground vibrations, the main risk to natural gas facilities would be a slip fault that displaces laterally during an earthquake. Project facilities are not underlain by faults (USGS 2022c). Given these conditions, we conclude that there is low potential for prolonged ground shaking, ground rupture, or soil liquefaction to occur or significantly impact the Project.

Landslides

Landslides involve the downslope mass movement of soil, rock, or a combination of materials on an unstable slope. The proposed Project areas are primarily flat terrain and the Project would not cross or occur on steep slopes (slopes greater than 15 percent) with the potential for landslides. Therefore, we conclude that impacts from slope instability would not be significant, and the Applicants have not proposed special construction methods for steep slopes.

Land Subsidence and Karst Terrain

Ground subsidence, involving the localized or regional lowering of the ground surface, may be caused by karst dissolution, sediment compaction, oil and natural gas extraction, underground mines, and groundwater over-pumping. As described above, there

are no subsurface mines within 0.25 mile of the Project areas. The Project overlies unconsolidated aquifers near the ground surface, which are generally susceptible to ground subsidence from groundwater over-pumping. Since about 1950, aquifer levels in the Project areas have lowered up to 50 feet; however, corresponding surface elevation change has been minimal (on the order of millimeters per year since 2005; Overacker et al. 2022, USGS 2017). Therefore, we conclude that the Project is not likely to be affected by future ground subsidence from groundwater over-pumping. While groundwater is proposed for use to support Project construction, water would be obtained from permitted groundwater sources. As such, withdrawals would be subject to any applicable water rights restrictions and are not expected to contribute to localized subsidence. For additional detail, refer to section B.2.1.

Karst features such as sinkholes, caves, and caverns form as a result of long-term dissolution of soluble bedrock (e.g., carbonate rocks [limestone and dolomite], gypsum). The REX Lateral to TPC Adams would overlie carbonite and evaporite rocks of the Pierre Shale and Niobrara Formation with the potential for forming karst features (see table B-1). The carbonate and evaporite bedrock of the REX Lateral to TPC Adams is mapped as being overlain by non-carbonate material (including sand and silt at a depth of 10 feet or more), and Project areas are in dry climates. Both of these factors minimize the probability of karst formation (Weary and Doctor 2014, Davies 2014). There are no recognized areas of true karst topography, the topography for which land subsidence (sinkholes) is common, in Nebraska; small fissures (generally less than 1,000 feet long and 100 feet deep) do occur, including in the Niobrara formation which underlies the Project, but they are uncommon (NEMA 2021, Davies 2014). Therefore, surficial karst expression and associated subsidence impacts are not anticipated to impact the Project.

Flooding and Scour

Bank erosion and/or scour from flash flooding could result in exposure of the pipelines or cause the pipelines to become unsupported. The pipelines would cross designated 100-year floodplains; however, no permanent aboveground facilities with the potential to alter the movement or infiltration of floodwaters would be installed within floodplains. Floodplains and associated hazards and mitigation measures are discussed further in section B.2.2.

Geology Impacts and Mitigation

No active, inactive, or historic surface or subsurface mines were identified within 0.25 mile of the Project, and the Applicants would implement mitigation measures for the nearest active wells. Further, the Project facilities are not underlain by faults, would not cross or occur on steep slopes, would be within areas where surface elevation change

associated with aquifer pumping has been minimal, and have a low probability of karst formation; therefore, we conclude impacts on geological resources are not anticipated or would be sufficiently mitigated. Finally, based on the regional geology and soils, REX's implementation of its HDD Contingency Plan, and our recommendation, we conclude that HDDs are likely a feasible installation method for the proposed pipelines.

Given the Applicants' proposed mitigation measures for the nearest active wells and the distance to other fuel and non-fuel mineral extraction sites, we conclude that the Project would not impact availability of or access to mineral resources.

1.2 Soils

Construction and abandonment activities such as clearing, grading, excavation, backfilling, and the movement of equipment within Project workspaces would affect soils. Clearing removes protective cover and exposes soils to the effects of wind and rain, which increases the potential for soil erosion and sedimentation into sensitive areas. Grading, spoil storage, and equipment traffic can compact soil, reducing porosity and increasing runoff potential. Excess rock or fill material brought to the surface during excavation and grading can hinder restoration and revegetation.

Project area soil characteristics were assessed using the U.S. Department of Agriculture (USDA) – Natural Resources Conservation Service's (NRCS) Soil Survey Geographic Database (USDA-NRCS 2022a, b). Soils were evaluated according to the characteristics that could affect construction or increase the potential impacts on soils during construction (including abandonment activities), restoration, or operation. These characteristics include farmland designation, compaction potential, erodibility, revegetation potential, and depth to bedrock. The potential for encountering contaminated soils was also evaluated. Project area soils are not classified as stony or rocky. Other soil limitations within the Project areas are listed in appendix E.

Soil Characteristics

Prime Farmland and Farmland of Statewide Importance

The USDA-NRCS defines prime farmland as land that has the best combination of physical and chemical characteristics for growing food, feed, forage, fiber, and oilseed crops (USDA-NRCS 2022a, b). Soils that do not meet the above criteria may be considered prime farmland if the limiting factor is mitigated (e.g., by draining or irrigating; USDA-NRCS 2015). Urbanized land, built-up land, and open water cannot be designated as prime farmland. The USDA-NRCS also recognizes unique farmland and farmland of statewide importance, defined as lands other than prime farmland used for production of specific high-value food and fiber crops (e.g., citrus, tree nuts, olives, fruits, vegetables). About

521.6 acres (87.5 percent) of land potentially affected by the Project are classified as prime, unique, or locally important farmland (see table B-3 and appendix E).

Table B-3
Soil Characteristics and Limitations for the Project Construction Workspace (acres)[a]

Project Component	Prime and Important Farmland[a]	High Compaction Potential[b]	High Wind Erodibility Potential[c]	High Water Erodibility Potential[d]	Low Revegetation Potential[e]	Shallow Bedrock[f]
PIPELINE FACILITIES						
REX Lateral to TPC Adams	190.2	0.0	13.0	12.0	3.0	0.0
REX Lateral to TPC East	278.3	13.2	0.0	7.0	5.5	8.4
Access Roads	5.7	0.0	0.0	0.7	0.4	0.0
Contractor Yards	19.0	0.0	0.0	0.0	0.0	0.0
ABOVEGROUND FACILITIES (BOOSTERS, METERING, AND REGULATING)						
REX/TPC Lone Tree Interconnect	0.0	0.0	0.0	0.0	0.6	0.6
Hereford Ranch Compressor Station	3.1	0.0	0.0	0.0	0.0	0.0
Redtail Compressor Station	4.0	0.0	0.0	0.0	0.0	3.9
Logan Compressor and Regulating Station	3.5	0.0	0.0	0.0	0.0	0.0
Sedgwick Compressor Station	1.0	0.0	0.0	0.0	0.0	0.0
Sedgwick East Compressor Station	2.3	0.0	0.0	0.0	0.0	0.0
Mid-American Ethanol Regulating Station	0.3	0.0	0.0	0.0	0.0	0.0
Oppliger Lincoln Regulating Station	0.0	0.0	0.8	0.0	0.0	0.0
North Platte Livestock Feeder Regulating Station	0.0	0.0	0.3	0.0	0.0	0.0
Adams Meter and Regulating Station	3.2	0.0	0.0	0.0	1.1	0.0
REX to TPC East Meter and Regulating Station	5.2	0.0	0.0	0.0	0.0	0.0
Access Roads	0.6	0.0	0.5	<0.1	0.6	2.2

Table B-3 (continued)
Soil Characteristics and Limitations for the Project Construction Workspace (acres)[a]

Project Component	Prime and Important Farmland[a]	High Compaction Potential[b]	High Wind Erodibility Potential[c]	High Water Erodibility Potential[d]	Low Revegetation Potential[e]	Shallow Bedrock[f]
ABANDONMENT FACILITIES						
Compressor Station 601	0.9	0.0	0.0	0.0	0.0	0.0
Compressor Station 602	0.9	0.0	0.0	0.0	0.0	0.0
Compressor Station 603	0.9	0.0	0.0	0.0	0.0	0.0
Interconnects and Isolations	0.75	0.0	<0.1	0.0	0.0	0.0
Access Roads	1.8	0.0	0.5	0.0	0.0	0.0
Project Total	**521.6**	**13.2**	**15.1**	**19.7**	**11.2**	**15.1**
Percent of Project Areas[g]	**87.5**	**2.2**	**2.5**	**3.3**	**1.9**	**2.5**

Source: USDA-NRCS 2022a

Note: The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. No stony or rocky soils occur in the Project areas. Additionally, no hydric soils are present within the Project areas.

[a] As designated by the USDA-NRCS, soils include prime farmland; prime farmland if irrigated; prime farmland if drained; unique farmland; and farmland of statewide importance.

[b] Includes soils that are in the very poorly drained to somewhat poorly drained, drainage classes, with surface textures of sandy clay loam and finer.

[c] Based on wind erodibility group classification. Highly wind erodible soils have a wind erodibility group of 1 to 2.

[d] Based on the land capability class and subclasses 4E through 8E and soils with an average slope greater than or equal to 9 percent.

[e] Revegetation potential is based on soils with a surface texture of sandy loam or coarser that are excessively drained to moderately well drained and have an average slope equal to 9 percent or greater.

[f] As designated by the USDA-NRCS, soils with a restrictive layer of dense material or lithic/paralithic bedrock with 60 inches of the soil surface.

[g] Totals do not equal 100 percent as not all soils are classified with limitations and certain soils are classified as having multiple limitations. Percentages are based on a total construction area affecting 672.9 acres including both pipeline facilities and pipeline aboveground facilities.

After construction is complete, prime farmland soils within temporary workspaces and permanent pipeline rights-of-way would be available for agricultural use; therefore, the majority of impacts on prime farmland would be temporary. However, 9.8 acres of prime and important farmland, would be permanently converted to developed land for operation of the aboveground facilities associated with the REX/TPC Lone Tree Interconnect, Hereford Ranch booster station, Redtail booster station, Logan booster station, Sedgwick booster station, Sedgwick East booster station, Mid-American Ethanol Regulating Station, Adams Meter and Regulating Station, REX to TPC East Meter and

Regulating Station, and Adams Launcher Site. In addition, permanent access roads along the proposed laterals could convert prime farmland in active agricultural use to developed land. However, only 0.7 acre of the proposed permanent access roads would be new and have the potential to affect soils in agricultural use (or prime and important farmland; see appendix B). The acreage of prime farmland that would be permanently impacted by the Project is negligible when compared to the total acreage of prime and important farmland in Weld County (1,567,420 acres), Logan County (592,869 acres), and Sedgwick County (231,113 acres) in Colorado and Kimball County (193,256 acres), Perkins County (389,599 acres), Adams County (292,620 acres), Saline County (282,221 acres) in Nebraska (USDA-NRCS 2022a). Therefore, we conclude impacts on the availability of prime farmland would not be significant. Construction and operation impacts on active agricultural land, including impacts on drain tiles, are further discussed in section B.5.1.

Soil Compaction

Compaction modifies the structure of soil and, as a result, alters its strength and drainage properties. Soil compaction decreases pore space and water-retention capacity, which restricts the transport of air and water to plant roots. As a result, soil productivity and plant growth rates may be reduced, and natural drainage patterns may be altered. Consequently, soil compaction is of particular concern in agricultural areas and wetlands. The susceptibility of soils to compaction varies based on moisture content, composition, grain size, and density of the soil. About 13.2 acres (2.2 percent) of Project areas soils are compaction prone, as summarized in appendix E.

In agricultural lands and unsaturated wetlands, the Applicants would segregate and separately store topsoil and subsoil during construction as required by the Applicants' Plan, Procedures, and AIMP (which would apply Project-wide). After construction, workspaces in agricultural lands would be tested for compaction and tilled or otherwise decompacted as necessary and affected areas would be graded and restored to original contours prior to final revegetation. The Applicants have identified no-till tracts that would be crossed by the laterals and have committed to consulting with landowners regarding the practices to be implemented on such tracts, as discussed further in section B.5.1. Topsoil would be replaced following decompaction of subsoil. Topsoil decompaction, if necessary, would be limited to the depth of topsoil to avoid mixing of topsoil and subsoil. During construction and restoration, the Applicants would limit certain activities (such as topsoil segregation) in wet soil conditions to minimize the potential for rutting or prevent the mixing of topsoil and subsoil until conditions become dry enough to work. The Applicants would also install equipment mats where applicable to prevent rutting. In wet weather conditions and in accordance with the AIMP, the Applicants could use low ground-weight equipment, disk the right-of-way to increase evaporation, or dewater areas of potential rutting using portable pumps. Access roads in uplands would be stabilized using gravel or

to minimize or repair any rutting impacts. As discussed in section B.2.3, where one access road would cross a wetland the Applicants would install a timber mat span bridge (with footings entirely in uplands). Soils underlying permanent aboveground facility foundations would be permanently affected by compaction; however, these effects would be localized and minor.

Highly Erodible Soils

Soil erosion potential is affected by the soil lithology, including mineralogy, grain size, texture, and organic content and is influenced by slope and exposure to erosion mechanisms. Increased rainfall can result in increased erosion where vegetation has been cleared. Soils most susceptible to erosion by water typically have bare or sparse vegetation cover, non-cohesive soil particles, low infiltration rates, and are on moderate to steep slopes. Soils most susceptible to erosion by wind have finer grain sizes and low moisture content. About 15.1 and 19.7 acres (2.5 and 3.3 percent) of soil affected by the Project are classified as highly susceptible to wind and water erosion, respectively (see table B-3 and appendix E).

To minimize erosion impacts, the Applicants would install temporary erosion controls such as slope breakers (where the slopes exceed 5 percent) and sediment barriers during construction in accordance with their Plan and Procedures immediately following initial soil disturbance. BMPs such as applying water to the construction workspaces would be implemented in accordance with the Applicants' Fugitive Dust Mitigation Plan to minimize wind erosion. Following construction, temporary erosion and sediment controls would be maintained or reinstated until permanent erosion control devices are established or restoration is complete. Where the laterals cross slopes greater than 5 percent, the Applicants would install additional erosion and sediment control devices. Should restoration occur during winter months, the Applicants would implement the measures in their Winter Construction Plan, which include guidelines for erosion control, worksite stabilization, and monitoring procedures during winter weather and spring thaw conditions.

Erosion and sediment control measures would be determined in accordance with the Applicants' Plan, AIMP, and Winter Construction Plan, as well as the Stormwater Pollution Prevention Plan (SWPPP) and Stormwater Management Plan (SWMP) that would be completed prior to construction. The Project EIs would be responsible for inspecting erosion and sediment control measures for effectiveness, ordering supplemental corrective action, as needed, and recommending additional erosion and sediment control measures. In accordance with their Plan, the Applicants would conduct inspections on a daily basis within areas of active construction, on a weekly basis in areas with no construction or equipment operation, and within 24 hours of each 0.5 inch of rainfall.

Low Revegetation Potential

Revegetating areas affected by construction or abandonment activities may be more difficult in areas with poor or excessive drainage, shallow depth to bedrock, or steeper slopes. Additionally, soil disturbance could affect soil fertility and facilitate the dispersal and establishment of invasive weeds. The restoration of affected lands is a process, dependent on a number of factors, and may be accomplished relatively quickly (1 to 2 growing seasons) or may require several years to complete. Restoration of affected lands can be adversely affected by weather conditions such as drought or abnormal rainfall, landowner actions (e.g., physical changes to land use, cattle grazing), and/or third-party actions including non-Project use/activities.

As shown in table B-3 and appendix E, about 11.2 acres (1.9 percent) of soils that would be affected by Project construction activities (including abandonment) are considered to have poor revegetation potential. Upland soils disturbed by the Project would be revegetated using seed mixes based on recommendations from the local USDA-NRCS offices and landowner agreements in accordance with the Applicants' Plan. The Applicants would implement the measures in their Noxious Weed Management Plan to control the spread of noxious weeds and invasive plant species. Specific measures include the use of certified weed-free straw or hay for erosion control; establishing equipment wash stations to minimize the potential for spread of noxious weeds; separating stockpiled topsoils from areas with existing noxious weeds; treatment of weeds adjacent to newly seeded areas (i.e., via herbicides, mowing, or grazing generally implemented in the immature to early flowering stage to limit seed production and/or further spread); and monitoring of the rights-of-way to observe for new growth of noxious and invasive plant species (see section B.3.2).

It is our expectation that if initial restoration activities are unsuccessful, the Applicants, in consultation with the affected landowner and consistent with our environmental compliance monitoring and reporting requirements, would continue to assess, take action, and implement measures to ensure the eventual restoration of the affected resources.

Shallow Bedrock

As shown in appendix E, about 15.1 acres (2.5 percent) of the Project areas have a shallow depth to bedrock based on a review of available USDA-NRCS soil series information (see appendix E). If encountered, the Applicants anticipate being able to break apart large stones or bedrock using mechanical rock trenching methods such as rock hammering. Additionally, the Applicants would implement the measures in their AIMP to remove rock greater than 3 inches from the upper 42 inches of soil in agricultural areas, or

the actual depth of top cover, whichever is less and including topsoil and exposed subsoil, to ensure that the size, density, and distribution of rock on the construction work area is similar to adjacent areas. The Applicants' Plan also restricts the use of rock as backfill. In the event that blasting becomes necessary, the Applicants would be required to coordinate with local authorities, conduct appropriate blasting surveys, develop a blasting program in accordance with federal, state, and local regulations, notify all appropriate entities, and obtain any required permits prior to blasting in accordance with the FERC Plan. Given the minimal area of shallow bedrock that would be disturbed as well as the Applicants' mitigation measures, we conclude that incorporation of rocks into surface soil would be minimized and mitigated and would not significantly affect soil resources.

Inadvertent Spills or Discovery of Contaminants

The Applicants reviewed federal and state databases (including data from the EPA, Colorado Department of Public Health and Environment [CDPHE], and Nebraska Department of Environmental Quality) to identify sites of known soil or groundwater contamination within 0.25 mile of the Project areas.[26] Four mapped sites with potential or historic contamination were identified within a 0.25-mile radius of the Project areas; each of these sites were discovered more than 15 years ago and are classified as "No Further Action (Incident Closed)." A description of each of the four potential contaminated sites is addressed below.

One leaking aboveground storage tank associated with the Farmer's Union Cooperative was discovered in 1999 at a site about 1,103 feet east the REX Lateral to TPC Adams. However, based on a 2002 Site Investigation Report, the downward groundwater gradient is expected to flow east-southeast, away from the REX Lateral to TPC Adams (NDEE 2022a).

A leaking aboveground petroleum storage tank (discovered in 1994) and a leaking belowground gasoline storage tank (discovered in 1991) were identified about 260 and 338 feet from Contractor Yard 2, respectively. A Tier 1 site investigation of the property with the aboveground petroleum storage tank leak did not identify soil contamination, and the NDEE closed the site without requiring further remedial action (NDEE 2022b). A Tier 1 site investigation of the property with the underground gasoline storage tank leak was conducted by NDEE in 2016 and did identify soil and groundwater contamination; however, contamination was under a building and, given the groundwater seepage velocity (an estimated 0.007 feet per day), contamination is not expected to reach the Project area (NDEE 2022c). Further, excavation with the potential to encounter contamination is not

[26] The Applicants' environmental database reports are available in Appendix 8B of the Application on eLibrary under accession no. 20220527-5365.

proposed for the contractor yard, and the NDEE closed the site without requiring further remedial action (NDEE 2022c). Therefore, the Applicants are unlikely to encounter contamination associated with the sites during use of Contractor Yard 2.

Finally, one aboveground storage tank leak of anhydrous ammonia was reported within 295 feet of Contractor Yard 2 in 2005; the leak was the result of a purposeful gas release to relieve tank pressure, was dispersed by wind, and therefore would not have resulted in contaminated soil or other media.

Further discussion of water quality and contaminated sediments is provided in section B.2. If the Applicants encounter or suspect contaminated soils or groundwater during construction, they would implement the measures in their SPRP and Unanticipated Contamination Discovery Plan to stop work in the vicinity of the contamination, begin a detailed assessment of the area, and develop a site-specific contaminated soil and/or groundwater plan for handling and disposal of potentially contaminated media.

Project-related soil contamination resulting from spills or leaks of fuels, lubricants, and coolant from construction equipment would be minimized by the Applicants' adherence to their SPRP, which specifies measures to minimize accidental spills of materials that may contaminate soils, and to ensure that inadvertent spills are contained, cleaned up, and disposed of as quickly as possible and in an appropriate manner. Given an absence of identified known soil contamination and the Applicants' proposed minimization and response measures described above, we conclude that the Project would not significantly contribute to or be significantly impacted by soil contamination.

Soils Impacts and Mitigation

The majority of impacts on soils would be temporary to short-term (lasting until revegetation is successful, or until agricultural lands are cultivated following restoration). The Applicants would implement Project-specific plans (e.g., Noxious Weed Management Plan, AIMP, and Winter Construction Plan), as well as the measures in their Plan and Procedures to minimize impacts on soils associated with the Project. The Applicants' SWPPPs and SWMP would be completed prior to construction and implemented in accordance with their state-issued construction stormwater permit applications to each state's National Pollutant Discharge Elimination System (NPDES) program, respectively. Measures to segregate topsoil from subsoil would contribute to post-construction revegetation success and minimize the loss of crop productivity and the potential for long-term erosion impacts. Measures to minimize erosion and reduce or mitigate for soil compaction by the Applicants would also minimize impacts and contribute to successful restoration of affected soils.

We conclude that the Applicants' adherence to measures in their Plan during construction and restoration, in addition to implementation of their Project-specific plans, would adequately minimize impacts on soils. The Project would result in permanent impacts on the availability of prime farmland (9.8 acres of prime farmland and farmland of statewide importance would be encumbered by aboveground facilities, and less than 0.7 acre of additional land, which may include prime farmland, would be affected by new permanent access roads) and soils underlying permanent aboveground facility foundations would be permanently affected by compaction; however, given the Applicants' proposed mitigation measures and that disturbed areas would be revegetated or otherwise stabilized with surface cover, we conclude that significant impacts on soil resources would not occur.

2. Water Resources and Wetlands

2.1 Groundwater Resources

The Project facilities in Weld, Logan, and Sedgwick Counties, Colorado, and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, and Saline Counties, Nebraska, overlie the High Plains Aquifer System, which consists of near-surficial layers of unconsolidated or partly consolidated gravel, sand, silt, or clay of Cenozoic age (USGS 1997a, b). The Ogallala Formation, the most widespread geologic unit and primary water-bearing unit of the system, underlies surficial Quaternary age geologic units, and is about 300 feet deep. The High Plains Aquifer System is the primary source of groundwater in the Project areas and supports a large agricultural area of high economic value. Water quality in the High Plains Aquifer is typically suitable for agricultural use with low dissolved solids concentrations in Colorado; well yields are high, and yields of more than 750 gallons per minute are typical in Nebraska. The High Plains Aquifer System provides about 7,900 million gallons per day for agricultural (primarily irrigation) purposes and 200 million gallons per day of groundwater for public and domestic water supply (USGS 1997b).

The Project facilities in Jefferson County, Nebraska, overlie the Great Plains Aquifer System, which is composed of two sandstone aquifers of Cretaceous age. Separated by a shale confining unit, the upper Maha and underlying Apishapa aquifers consist of medium- to fine-grained water yielding sandstone of varying thickness. The average yield from wells within the Maha Aquifer range from 50 to 1,000 gallons per minute. Water quality in the Great Plains Aquifer System is variable by location; in Jefferson County, the concentration of dissolved solids is generally suitable for drinking water and agricultural uses. Freshwater withdrawn from the Great Plains Aquifer System total about 133 million gallons per day, of which about 97 million gallons per day is used for agricultural purposes and 17 million gallons per day is used for public supply purposes (USGS 1997b).

Designated Sole Source Aquifers

The EPA defines a sole source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer where there are no reasonably available alternative drinking water sources, should the aquifer become contaminated. The Project areas do not overlie sole source aquifers (EPA 2022a).

Wellhead Protection Areas

Wellhead protection areas (WHPA) are defined as the surface and subsurface area surrounding a water well or wellfield, supplying a public water system, through which contaminants are reasonably likely to move toward and reach the water well or wellfield (EPA 2022b). The NDEE administers the wellhead protection program in Nebraska; in Colorado, the source water protection program (including WHPAs) is administered by the CDPHE. WHPAs are generally developed and managed via local plans.

Review of available data from the wellhead protection program in Nebraska determined that the Project would cross four wellhead protection areas along the REX Lateral to TPC Adams (between approximate MP 13.6 and 14.9; and at Contractor Yard 1) and REX Lateral to TPC East (between about MP 0.0 and 1.5; MP 17.9 and 18.7; and at Contractor Yard 2) (NDEE 2022d). The Project does not cross identified wellhead protection areas in Colorado (CDPHE 2022). The Applicants would minimize potential impacts within WHPAs by implementing the measures in their Plan and Procedures, along with their SPRP; and disturbed areas within WHPAs would be restored to approximate pre-construction contours and conditions following construction. In scoping comments on the Project, the NDEE recommended consultation with WHPA managers to determine whether any ordinances apply to these areas. Therefore, and in response to our request, the Applicants submitted a request for consultation to the NDEE Drinking and Groundwater Division regarding impacts on wellhead protection measures; to date, a response has not been received and consultation has not resulted in the identification of additional mitigation measures. However, in its scoping comments on the Project, the NDEE indicated that if the Project adheres to applicable regulations and local ordinances, impacts on drinking water quality are not anticipated.

Water Supply Wells

In scoping comments on the Project, the EPA recommended that the EA identify the locations of public water supply intakes and wells, and assess impacts on those resources. In its scoping comments on the Project, the NeDNR stated that there are no public water supply wells within the Project areas, but that care should be taken to locate wells that may be present in the Project vicinity. The NeDNR also notes that any new

wells require registration. Operation of the proposed new facilities would not require potable water, and the Applicants have not identified new groundwater wells to support the Project. As per 18 CFR § 380.12, section (d)(1) and (9), we require applicants to identify the location of known public and private groundwater supply wells or springs within 150 feet of construction areas, and to identify potable water intake sources within 3 miles downstream of each waterbody crossing. We review this information as part of our NEPA assessment.

Surface water intakes were not identified within 3 miles of the Project (see section B.2.2, below). No municipal or community water supply wells were identified within 150 feet of the Project areas, and in its scoping comments the NeDNR stated that there are no public water supply wells within the proposed Project areas.

The Applicants identified 12 irrigation supply wells and a monitoring well within 150 feet of the proposed pipeline facilities in Nebraska; no water supply wells were identified within 150 feet of the Project facilities in Colorado (see table B-4). Of these, two irrigation wells are within construction workspaces proposed for the REX Lateral to TPC Adams; however, the wells are decommissioned and therefore not subject to impacts from Project activity. In addition, one monitoring well is within 1 foot of the construction work area for the REX Lateral to TPC Adams. No other wells, seeps, or springs were identified within 150 feet of the Project facilities (including access roads, abandonment sites, and aboveground facility sites) based on a review of available data and the Applicants' field surveys (USGS 2021, NeDNR 2021, CDSS 2021).

Table B-4 Water Supply Wells Within 150 Feet of Project Construction Work Areas			
Approximate Milepost	**Well Status**	**Well Use**	**Distance (feet) and Direction from Construction Work Area**
REX LATERAL TO TPC ADAMS			
5.5	Active	Irrigation	44 feet southeast
6.1	Active	Irrigation	50 feet southeast
7.5	Decommissioned	Irrigation	74 feet northwest
7.7	Decommissioned	Irrigation	Within temporary workspace
7.8	Active	Irrigation	15 feet northwest
11.6	Active	Irrigation	86 feet northwest
12.3	National Water Information System Well	Monitoring Well	<1 foot west
13.9	Unregistered, Decommissioned	Irrigation	Within temporary workspace
14.5	Active	Irrigation	58 feet northwest
15.1	Decommissioned	Irrigation	21 feet southeast
REX LATERAL TO TPC EAST			
10.3	Decommissioned	Irrigation	61 feet west
10.3	Active	Irrigation	76 feet west
17.1	Active	Irrigation	43 feet west
Sources: USGS 2021, NeDNR 2021, CDSS 2021			

Groundwater Impacts and Mitigation

Construction of the pipeline facilities would generally require the excavation of a 6-foot-deep trench to allow a minimum of 4 feet of soil cover over the pipelines. Abandonment activities would require excavations between 8 and 10 feet deep. In areas where the water table is near the surface, groundwater could sustain minor impacts from temporary changes in overland water flow and recharge from trenching, backfilling, dewatering, and clearing and grading of the rights-of-way. Such impacts could include an increase in turbidity of the affected groundwater, fluctuations in groundwater levels, and change of flow paths.

Soil compaction from construction could reduce the ability of the soil to absorb water, thereby reducing groundwater recharge. However, the relatively small amount of new impervious surface that would be required for the Project is not expected to affect overall groundwater recharge rates in the vicinity of the Project facility sites. While the trenchless HDD crossings are likely to encounter groundwater where present near the surface, impacts on overall groundwater quality are not anticipated based on the small diameter of the borehole and short duration of this construction technique. The potential also exists for HDD drilling fluid to be lost to groundwater, resulting in a localized increase in aquifer turbidity. However, inadvertent releases would not permanently impact

groundwater quality within the Project areas as the dissolved solids would be removed from the groundwater through natural filtration processes. Further, any impacts on groundwater from HDD drilling operations would be minimized by the use of non-toxic bentonite clay in the drilling fluids which can act to seal the walls of the borehole and would minimize the amount of drilling fluid released into the surrounding geologic formations and potentially reaching the ground surface. Any other additives used during HDD drilling operations would comply with the standards in NSF International/American National Standards Institute 60 Drinking Water Treatment Chemicals – Health Effects as identified in the Applicants' HDD Contingency Plan. Prior to the start of any HDD construction, the Applicants would provide a list of potential additives that would be used and associated safety data sheets to FERC. The Applicants would also use a municipal water source or permitted groundwater source for drilling fluid, as further described in above. Use of a municipal source would avoid the potential for contaminants to be introduced into the environment from the water source. If non-municipal water is used, the Applicants would consult with the CDPHE and NDEE and comply with any sampling and laboratory analysis required prior to use to ensure water used for HDD construction is not contaminated.

An accidental spill of fuel or hazardous materials during refueling or maintenance of construction equipment could also affect groundwater if not cleaned up appropriately. Soils impacted from spills could continue to leach contaminants to groundwater long after the spill has occurred. To minimize the risk of potential fuel or hazardous material spills, the Applicants would implement their SPRP which includes avoidance measures, reporting protocols, mitigation measures, and clean-up methods to reduce potential impacts should a spill occur. The Project does not cross areas of known contamination (see section B.1.2). However, if the Applicants encounter contaminated soil or groundwater during construction, they would implement the measures in their SPRP and Unanticipated Contamination Discovery Plan (which include agency reporting) and develop a site-specific plan for appropriate measures regarding handling and disposal of contaminated media in accordance with applicable regulations and agency coordination.

The Applicants' SPRP prohibits refueling and storage of hazardous materials within 200 feet of identified private water wells and 400 feet of public water supply wells. Groundwater wells (including monitoring wells) within 150 feet of construction would be staked, protected via fencing, and flagged for visibility. The Applicants would conduct pre- and post-construction evaluations of water quality and well yield for wells within 150 feet of construction workspaces, subject to landowner approval. In the event that impacts on wells occur as a result of construction, the Applicants would provide a temporary alternative water source, repair any damage to the extent practicable, or otherwise restore the landowners' water source.

With the implementation of the mitigation measures described above, including the measures in the Applicants' Plan and Procedures, SPRP, Unanticipated Contamination Discovery Plan, and HDD Contingency Plan, we conclude that the Project would not result in significant impacts on groundwater resources in the Project areas.

2.2 Surface Water Resources

The Project lies within 29 hydrologic unit code (HUC) 12 subwatersheds (see table B-5). The Applicants conducted field surveys encompassing all Project areas between August and mid-December of 2021 to identify wetlands and waterbodies that would be crossed by the Project or otherwise within Project workspaces. Supplemental biological resource surveys (including an assessment of wetland and waterbody presence) were conducted on November 1 and 2, 2022 for additional access roads identified during Project development. Based on the field delineations, the Project would cross a total of 27 waterbodies along the REX Lateral to TPC Adams, REX Lateral to TPC East, and associated access roads; no waterbodies would be within the workspaces associated with abandonment activities or construction or modification of aboveground facilities, or contractor yards.

In its comments on the Project, the EPA recommended the EA include details on the water quality and beneficial uses of waterbodies crossed by the Project, and recommended that the EA address stormwater management for the Project. Information on each waterbody crossing by the Project, including name, milepost location, water quality category, flow regime, crossing width, and crossing method is provided in table B-6. Sensitive surface water resources (including impaired waterbodies) and stormwater management proposed for the Project are described below. Table A-9 documents the permits and approvals the Applicants would obtain prior to construction of the Project and permits related to water resources potentially affected by the Project are further described in section B.2.3.

In scoping comments issued for the Project, the NDEE identified construction stormwater permitting requirements for the Project and indicated that a Section 404 CWA permit may be required for wetland or waterbody impacts. The NDEE also stated that the Project would be required to comply with Section 401 of the CWA and associated state water quality requirements.

Table B-5
Watersheds Crossed by the Project

Facility	Subwatershed (HUC 12)	Subwatershed Name	Drainage Area (acres)
PIPELINE FACILITIES[a]			
REX Lateral to TPC Adams	102702060202	Hoffman Reservoir-Little Blue River	33,532
	102702060203	Ray Reservoir-Little Blue River	31,204
	102702060104	Lower Sand Creek	23,697
	102702060302	Outlet Cottonwood Creek	27,651
	102702060307	Plautz Reservoir-Little Blue River	18,652
	102702060306	Scott Creek	23,248
	102702060402	Outlet West Branch Thirty-two Mile Creek	25,419
REX Lateral to TPC East	102702070302	Coon Creek-Little Blue River	27,872
	102702020501	Headwaters Big Indian Creek	25,607
	102702020303	Middle Cub Creek	17,120
	102702020302	Upper Cub Creek	22,772
	102702040309	City of De Witt-Turkey Creek	26,430
	102702040206	Swan Creek	36,186
ABOVEGROUND FACILITIES			
REX/TPC Lone Tree Interconnect	101900080301	Headwaters Owl Creek	40,573
Hereford Ranch Interconnect and Compressor Station	101900090208	Lower Little Crow Creek	38,773
Redtail Lateral and Interconnect and Compressor Station	101900170102	Segment of Two-mile Mountain	21,995
ECGS Interconnect	101900160601	Upper Cow Creek	36,234
Logan Interconnect and Compressor and Regulating Station	101900121204	Headwaters Cottonwood Creek	22,679
Sedgwick Interconnect and Compressor Station	101900121301	Settlers Ditch	12,749
Sedgwick East Interconnect and Compressor Station	102500060301	Segment of “Town of Brandon”	22,787
Mid-American Ethanol Interconnect and Regulating Station	102500060605	City of Madrid-Stinking Water Creek	14,761
Oppliger Lincoln Interconnect and Regulating Station	102500070204	Red Willow Creek	32,876

Table B-5 (continued)
Watersheds Crossed by the Project

Facility	Subwatershed (HUC 12)	Subwatershed Name	Drainage Area (acres)
North Platte Livestock Feeder Interconnect and Regulating Station	102500080207	Hay Canyon-Medicine Creek	32,750
Adams Interconnect and Meter and Regulating Station	102702060402	Outlet West Branch Thirty-two Mile Creek	25,419
REX to TPC East Meter and Regulating Station	102702040206	Swan Creek	36,186
Adams Launcher Site	102702060202	Hoffman Reservoir-Little Blue River	33,532
TPC East Launcher Site	102702070302	Coon Creek-Little Blue River	27,872
Contractor Yards	102702060306	Scott Creek (REX Lateral to TPC Adams Yard)	23,248
	102702070301	Rock Creek (REX Lateral to TPC East)	17,485
ABANDONMENT FACILITIES[b]			
TPC West Isolation	101900080301	Headwaters Owl Creek	40,573
Compressor Station 601	101900121204	Headwaters Cottonwood Creek	22,679
Compressor Station 602	102500080206	Wellfleet Lake-Medicine Creek	27,970
Compressor Station 603	102702060301	Headwaters Cottonwood Creek	35,797
Northwestern Kearney Interconnect	102001011006	Whiskey Slough	17,061
Clay Interconnect - TPC	102702060602	Smith Lagoon	14,657
TPC East Isolation	102702060702	Town of Strang	15,768
		Total Watershed Acres[c]	**744,305**

[a] The launcher sites are accounted for as part of the pipeline laterals.

[b] Abandonment facilities not listed individually are collocated with other Project facilities.

[c] The total does not equal the sum of individual rows, since some HUC-12 subwatershed would be affected by installation or abandonment of multiple Project components.

In total, the Project would cross 4 perennial waterbodies, 4 intermittent waterbodies, and 19 ephemeral waterbodies. Perennial waterbodies have continuous flow or contain standing water year-round and are typically capable of supporting populations of aquatic species. Intermittent waterbodies have flowing water during certain times of the year when groundwater or precipitation provides water for streamflow, and ephemeral waterbodies typically only flow during or for a short time following a rain event or snowmelt. The four perennial waterbodies crossed by the Project are all classified as intermediate waterbodies (10 to 100 feet wide), while all other waterbodies are minor (less than 10 feet wide). See table B-6 below for further details on the waterbodies crossed by the Project.

Table B-6
Waterbodies Crossed by the Project

MP	Waterbody	Waterbody Type / Flow Regime	FERC Classification[a]	Crossing Width (feet)	Water Quality Category[b]	Crossing Method (Contingency)
REX LATERAL TO TPC ADAMS						
0.7	S-T1-11	Ephemeral	Minor	3	N/A	Open Cut
1.9	S-T1-12	Ephemeral	Minor	3	N/A	Open Cut
6.9	S-T4-01	Ephemeral	Minor	3	N/A	Open Cut
8.3	S-T1-15	Ephemeral	Minor	6	N/A	Open Cut
9.4	S-T1-16 (Sand Creek)	Perennial	Intermediate	21	R, WW(A), AG(B)	Dam-and-Pump[c]
10.4	S-T1-17	Ephemeral	Minor	1	N/A	Open Cut
10.8	S-T1-18 (Cottonwood Creek)	Perennial	Intermediate	18	R, WW(A), AG(B)	Dam-and-Pump[c]
--	S-T1-13	Ephemeral	Minor	3	N/A	Access Road Crossing via Air Bridge
11.6	S-T1-19	Ephemeral	Minor	4	N/A	Open Cut
11.9	S-T1-20	Ephemeral	Minor	3	N/A	Not crossed by centerline; within the path of a bore
12.6	S-T1-21	Ephemeral	Minor	4	N/A	Open Cut
13.0	S-T1-22	Intermittent	Minor	6	N/A	Open Cut
18.5	S-T03-001 (West Branch of Thirty-two Mile Creek)	Perennial	Intermediate	27	R, WW(A), AG(B)	Dam-and-Pump[c]
REX LATERAL TO TPC EAST						
1.2	S-T1-09	Intermittent	Minor	7	N/A	Open Cut
1.3	S-T1-08	Ephemeral	Minor	6	N/A	Open Cut
3.0	S-T1-10	Ephemeral	Minor	4	N/A	Open Cut
4.3	S-T1-05	Ephemeral	Minor	6	N/A	Open Cut
4.3	S-T1-06	Ephemeral	Minor	6	N/A	Open Cut
6.6	S-T2-10	Ephemeral	Minor	4	N/A	Open Cut

Table B-6 (continued)
Waterbodies Crossed by the Project

MP	Waterbody	Waterbody Type / Flow Regime	FERC Classification[a]	Crossing Width (feet)	Water Quality Category[b]	Crossing Method (Contingency)
7.0	S-T2-08	Ephemeral	Minor	3	N/A	Open Cut
8.4	S-T2-07	Intermittent (Big Indian Creek)	Minor	7	N/A	Open Cut
10.0	S-T2-06	Ephemeral	Minor	3	N/A	Open Cut
10.5	S-T2-04	Intermittent	Minor	7	N/A	Access Road Crossing via Air Bridge
14.4	S-T1-02	Ephemeral	Minor	6	N/A	Open Cut
15.3	S-T2-03 (Cub Creek)	Perennial	Intermediate	21	R, WW(A), AG(B)	Dam-and-Pump[c]
16.2	S-T6-01	Ephemeral	Minor	6	N/A	Open Cut
16.5	S-T6-02	Ephemeral	Minor	3	N/A	Open Cut

[a] Based on waterbody width.

[b] N/A = not applicable

R = Use applies to surface waters which are used, or have a high potential to be used, for primary contact recreational activities. Primary contact recreation includes activities where the body may come into prolonged or intimate contact with the water.

WW = Warmwater Aquatic Life Use Class:

WW(A) = These waters provide, or could provide, a habitat suitable for maintaining one or more identified key species on a year-round basis. These waters also are capable of maintaining year-round populations of a variety of other warmwater fish, associated vertebrate and invertebrate organisms, and aquatic plants.

WW(B) = These are waters where the variety of warmwater biota is presently limited by water volume or flow, water quality (natural or irretrievable human-induced conditions), substrate composition, or other habitat conditions. These waters are only capable of maintaining year-round populations of tolerant warmwater fish, associated vertebrate and invertebrate organisms, and macrophytes. Key species may be supported on a seasonal or intermittent basis (e.g., during high flows) but year-round populations cannot be maintained.

Individual ephemeral and intermittent waterbodies are not assigned water use designations; however, all waterbodies crossed by the Project are tributaries to the Little Blue River and therefore classified as warmwater fisheries according to that river's designation.

AG = Agricultural Use Class

AG(A) = These are waters used for general agricultural purposes (e.g., irrigation and livestock watering) without treatment.

AG(B) = These are waters where the natural background water quality limits its use for agricultural purposes. No water quality criteria are assigned to protect this use.

[c] The Applicants have stated that flowing, perennial waterbodies would be crossed via dam-and-pump; in the unlikely event the feature is dry at the time of crossing, it would be crossed via open cut.

Prior to construction, the Applicants would develop Project-specific SWPPP and SWMP, which identify erosion and sedimentation control measures to prevent stormwater runoff from impacting surface waters during construction.

Impaired and Sensitive Waterbody Crossings

The CWA requires that each state review, establish, and revise water quality standards for surface waters within the state. States develop monitoring and mitigation programs to ensure that water quality standards within the state are attained as designated. Waters that fail to meet their designated beneficial use(s) are considered impaired and listed under a state's Section 303(d) list of impaired waters, which is updated biannually. The Project does not cross any impaired stream sections currently on Nebraska's 303(d) List of Impaired Waters (NDEE 2021) or Colorado's 303(d) List of Impaired Water (CDPHE 2016).

In addition to the Section 303(d) list of impaired waterbodies, sensitive waterbodies include waters that have been specifically designated by the state as high-quality or exceptional value waterbodies, wild and scenic rivers, and waters supporting fisheries of special concern or federally or state-listed threatened and endangered species. The Project would not cross designated high-quality or exceptional value waterbodies, federal or state wild and scenic rivers, or waters supporting fisheries of special concern. Nor would the Project cross waterbodies designated as federally navigable as defined in 33 CFR 329 by the USACE. The Project is not within subwatersheds identified by the EPA as containing areas of probable concern for sediment contamination and known contaminated sites were not identified in the Project areas (EPA 2021). Therefore, construction of the Project is not expected to impact sensitive surface water features.

Surface Water Intakes and Source Water Protection Areas

Source Water Protection Areas are defined as the drainage area around the point where a public water system withdraws water. In scoping comments on the Project, the NeDNR indicates that surface water appropriations are in the vicinity of some Project sites. However, there are no surface water intakes for public water systems within a 3-mile buffer of the Project facilities in Nebraska based on the Applicants' review of available data; therefore, waterbody crossings are not expected to impact surface water supply sources (NeDNR 2022). The Project would not cross or otherwise affect surface waterbodies in Colorado, and no designated surface water source water protection areas were identified within the Project areas in Colorado (CDPHE 2022a). WHPAs are described in section B.2.1, above.

Floodplains

According to the Federal Emergency Management Agency (FEMA), 100-year floodplains (Zone A) have a 1 percent annual chance of a flood event (FEMA 2022). Pipeline construction would cross multiple 100-year floodplains along each of the proposed laterals, as described in table B-7. Potential impacts on these floodplains include: removal of vegetation, compaction of soils, stream bank erosion, and temporary cuts or infilling during construction activities. However, the Applicants would restore construction workspaces to their approximate pre-construction contours, as practicable. Installation of pipelines would occupy a de minimus volume of flood storage capacity within floodplains. Also, the Project would be installed in accordance with applicable flood hazard development permits, where required by the counties where Project activities are proposed. All abandonment activities would occur outside 100-year floodplains, and new or to be modified aboveground facilities are sited outside of 100-year floodplains.

Table B-7
FEMA 100-Year Flood Zone Crossings

Waterbody Name	Milepost Enter	Milepost Exit
REX LATERAL TO TPC ADAMS		
Little Blue River	0.7	0.8
Little Blue River	1.3	1.7
Little Blue River	5.1	5.2
Little Blue River	6.9	6.9
Sand Creek	9.3	9.3
Sand Creek	9.4	9.4
Cottonwood Creek	10.7	10.8
Cottonwood Creek	13.0	13.0
Scott Creek	15.7	15.9
Scott Creek	16.4	16.5
West Branch Thirty-two Mile Creek	18.2	18.7
REX LATERAL TO TPC EAST		
Big Indian Creek	3.0	3.0
Big Indian Creek	4.2	4.4
Big Indian Creek	6.6	7.0
Big Indian Creek	8.3	8.5
Cub Creek	8.3	8.3
Cub Creek	13.5	13.6
Cub Creek	14.4	14.4
Cub Creek	15.3	15.7
Swan Creek	21.9	22.2

The EPA expressed concern regarding the climate resiliency of pipeline infrastructure, given the projected regional impacts of climate change. The measures the Applicants would implement to comply with applicable safety standards would protect the pipeline from damage due to regional impacts of climate change (such as scour at waterbody crossings associated with more severe rainfall events). As further discussed in section B.9, the Applicants would comply with all applicable USDOT-Pipeline and Hazardous Materials Safety Administration (PHMSA) Minimum Federal Safety Standards specified in 49 CFR 192 for the Project facilities, the pipeline would be buried to a minimum depth of 4 feet along the Project; as depicted on alignment sheets,[27] this depth of cover includes waterbody crossings. The Applicants conduct aerial monitoring of pipeline depth of cover annually and commit to inspecting potentially affected facilities within 72 hours of extreme weather events (such as floods). In addition, the proposed pipelines would be buried and installed as close to perpendicular as possible to minimize the potential for scour from extreme flood events to expose or damage the pipe.

Given the Applicants' commitment to restore pre-construction contours, and the proposed placement of aboveground facilities outside of floodplains, we conclude that the Project facilities would not alter discernably the flood storage capacity of affected floodplains. Therefore, we conclude that impacts would not be significant and would be minimized to the extent practicable.

Surface Water Impacts and Mitigation

Potential impacts on surface water resources include increases in turbidity and sedimentation, depletion of dissolved oxygen levels, and decreased water quality during and immediately following Project construction. These impacts would occur during open-cut stream crossings and potentially from construction runoff if not properly contained using erosion and sediment controls. The Applicants would implement their Plan and Procedures, as well as BMPs to avoid offsite erosion and sediment migration during and after construction of the Project. These measures would minimize impacts on surface water resources as described below.

The Applicants propose to install the pipeline laterals across most waterbodies via wet open-cut technique; one waterbody (waterbody S-T1-20) would be within the path of a bore, and avoided by the pipeline centerline. In-stream impacts and disturbance of the waterbody banks would be avoided for that feature. In addition, the Applicants have indicated they would install the pipeline at the four perennial waterbodies crossed by the Project using a dry-ditch (dam-and-pump) method, unless dry at the time of crossing (see

[27] Alignment sheets are available on eLibrary under accession nos. 20221221-5310 and 20230313-5218.

table B-6). Because perennial waterbodies have continuous flow, these features are expected to be flowing at the time of construction. The Applicants indicate that they would construct waterbody crossings in accordance with federal and state permits and their Procedures.

The Applicants would install erosion controls in accordance with their Procedures, as well as their SWPPP and SWMP (when developed), to minimize impacts on surface waters during construction (including abandonment activities). During waterbody crossings, trench spoil would be placed at least 10 feet from the waterbody edge for use as backfill, and temporary erosion controls would be installed to prevent migration of trench spoil into the waterbody. If flowing at the time of crossing, minor waterbodies would be crossed by open cut within 24 hours to minimize the duration of in-stream disturbance; intermediate waterbodies would be crossed within 48 hours. In-water trenching during open-cut waterbody crossings would result in the greatest potential for sediment mobilization and/or increased turbidity during construction activities; however, increases would be localized and turbidity would be expected to subside shortly following backfilling as suspended sediments settle to the bottom of disturbed waterbodies. The duration of elevated turbidity levels would depend on several factors, including flow rate, sediment size, and geomorphology of the stream. Suspended sediment in the water column would generally travel downstream where it would settle on the stream bottom (i.e., sediment deposition or sedimentation) potentially causing minor structural changes to the stream bed. Typically, turbidity would be highest near the crossing location and dissipate downstream. As a result, more sedimentation would occur closer to the crossing location and less would occur farther from the crossing as most of the sediment particles would have already settled out. The Applicants would construct stream crossings during low-flow periods, when feasible, to minimize the dispersion of suspended sediment downstream. Also, where implemented, dry crossing methods, such as the dam-and-pump method, would not require direct in-water trenching, and therefore, minimize in-stream turbidity and sedimentation. The Applicants do not anticipate that blasting would be required for installation of the Project facilities; therefore, blasting in waterbodies is not proposed. Following installation of the Project, the Applicants would stabilize and restore all waterbodies, to the extent possible, to pre-construction contours. Therefore, overall, impacts would be temporary and minimal. Typical waterbody crossing methods are described above. There are no anticipated impacts on surface waters from abandonment activities or construction of aboveground facilities, since they are all sited in uplands.

ATWS would be sited in accordance with the requirements of our Procedures unless otherwise requested by the Applicants and approved in advance by the FERC. The Applicants have requested an alternative measure to the FERC Procedures regarding the location of ATWS within 50 feet of waterbody S-T1-15 near MP 8.3 of the REX Lateral

to TPC Adams as further described in table A-6. To minimize the potential for offsite sedimentation to impact the waterbody, the Applicants would install erosion and sediment controls in accordance with their Procedures. We have reviewed the requested alternative measure and agree that the modification to the FERC Procedures is justified and that the Applicants' proposed mitigation would provide equal or better protection to the waterbody. Therefore, we find the requested alternative measure to be acceptable.

In addition to the waterbodies described above, upland swales (such as roadside drainage features) that are flowing at the time of construction would meet the definition of waterbodies in FERC's Procedures. During civil surveys of the proposed laterals, some drainage features were recorded which were not delineated as waterbodies during the Applicants' environmental survey; therefore, these features are unlikely to sustain frequent flow or have a defined bed and banks or ordinary high water mark. These features are depicted on the alignment sheets for the Project. However, if drainage features are flowing at the time of construction, the Applicants would be required to cross them using the waterbody construction practices in accordance with their Procedures.

Two waterbodies (waterbody S-T2-04 and S-T1-01) would be crossed by proposed temporary access roads. The Applicants would cross the waterbodies via an air bridge (which may involve timber mats placed over the waterbody or other clear span bridge installed such that there is no ground disturbance within the crossed feature); therefore, the access road crossing would not affect the bed and banks of the feature.

In addition, to prevent stormwater runoff from impacting surface waters, erosion and sedimentation control measures would be implemented in accordance with the Applicants' Plan and Procedures. Project EIs would be responsible for inspection of the effectiveness of erosion and sedimentation control measures, order any supplemental corrective action, and recommendations for additional control measures, as needed.

Finally, the Applicants would adhere to measures in their Procedures and SPRP, including locating hazardous material storage and equipment refueling activities at least 100 feet from waterbodies, which would reduce the potential for hazardous materials to enter waterbodies. The Project-specific SPRP includes measures for containment, notification, and cleanup in the event of a spill.

With implementation of the Applicants' Plan and Procedures and the measures in the SPRP, as well as applicable permit conditions, we conclude that the Applicants would minimize and mitigate impacts on surface waters, and the Project would not have a significant impact on surface waters.

Water Use

In accordance with USDOT regulations, the Applicants would conduct hydrostatic testing of the laterals prior to placing them into service. Hydrostatic testing is a method by which water is introduced to segments of pipe and then pressurized to verify the integrity of the pipelines. The Applicants would obtain water for hydrostatic testing, HDD operations, and fugitive dust control from municipal sources and in compliance with state regulations and existing water rights. The Applicants propose to obtain water from municipalities in the immediate vicinity of the Project facilities as presented in table B-8; however, final municipal water sources would be identified at the time of construction.

The REX Lateral to TPC Adams would be tested in two sections and require about 1.6 million gallons of water. The REX Lateral to TPC East would be tested in three sections and would require about 3.6 million gallons of water. The Applicants would transfer hydrostatic test water between pipeline segments via pumps and temporary "jumper" pipe (short pipe connectors sited wholly within the Project construction workspaces, including the HSAs); the reuse of hydrostatic test water would reduce the total volume of water used to test the Project facilities. If a test section requires more (or less) water than the previous test section, the additional water would be stored in tanks within the HSAs between segments. All water would be obtained from municipal water supplies and no pretreatment chemicals would be added to hydrostatic test water. See table B-8 for hydrostatic test water volumes, sources, and discharge locations.

Hydrostatic test water in the pipe segments would be pressurized and held for a minimum of 8 hours in accordance with 49 CFR 192. The Applicants would repair any leaks detected and retest the pipe segment as applicable. Upon completion of hydrostatic testing, the water would be discharged at HSAs through energy dissipation devices (such as filter bags or haybale structures) in uplands. Discharges would be conducted in compliance with applicable permit requirements.

Water and mud used for HDD operations would be disposed of off-site or by land spreading in upland areas. The Applicants would submit land farming locations to FERC for review prior to use. The Applicants would test any HDD drilling mud prior to upland disposal in accordance with their HDD Contingency Plan, and drilling fluid would be disposed of in compliance with applicable federal, state, and local, regulations.

Table B-8
Hydrostatic Test and HDD Water Source and Discharge Locations for the Project

Activity / Facility	Begin	End	Length of HDD (feet)	Water Source	Estimated Uptake / Discharge Volume (gallons)	Discharge / Disposal Location (MP)
HYDROSTATIC TESTING						
Pipeline Facilities						
REX Lateral to TPC East	0.0	0.5	1,050	Municipal (Hastings and Roseland, NE)	120,592	HSA-001[a]
	0.5	10.5	1,421		2,639,978	HSA-002
	10.5	22.2	646		3,069,996	HSA-003
REX Lateral to TPC Adams	0.0	17.5	2,926	Municipal (Steele City and Plymouth, NE)	1,397,405	HSA-004
	17.5	18.7	208		95,001	HSA-005
Aboveground Facilities						
Hereford Ranch Compressor Station	--	--	--	Municipal (Pine Bluffs, WY)	12,903	Offsite Disposal Facility
Redtail Compressor Station	--	--	--	Municipal (Pine Bluffs, WY)	11,409	Offsite Disposal Facility
Logan Compressor and Regulating Station	--	--	--	Municipal (Sydney, NE)	18,516	Offsite Disposal Facility
Sedgwick Compressor Station	--	--	--	Municipal (Sedgwick, CO)	9,181	Offsite Disposal Facility
Sedgwick East Compressor Station	--	--	--	Municipal (Julesburg, CO)	9,852	Offsite Disposal Facility
Mid-American Ethanol Regulating Station	--	--	--	Municipal (Madrid, NE)	9,231	Offsite Disposal Facility
Oppliger Lincoln Regulating Station	--	--	--	Municipal (Wallace, NE)	9,185	Offsite Disposal Facility
North Platte Livestock Feeder Regulating Station	--	--	--	Municipal (North Platte, NE)	9,165	Offsite Disposal Facility

Table B-8 (continued)
Hydrostatic Test and HDD Water Source and Discharge Locations for the Project

Activity / Facility	Begin	End	Length of HDD (feet)	Water Source	Estimated Uptake / Discharge Volume (gallons)	Discharge / Disposal Location (MP)
Adams Meter and Regulating Station	--	--	--	Municipal (Hastings, NE)	12,500	Offsite Disposal Facility
REX to TPC East Meter and Regulating Station	--	--	--	Municipal (Plymouth, NE)	64,534	Offsite Disposal Facility
				Total[b]	**5,266,476**	
HORIZONTAL DIRECTIONAL DRILLING						
REX Lateral to TPC Adams	3.3	3.1	1,360	Municipal	150,000	Offsite Disposal Facility / Upland Land Spreading
REX Lateral to TPC East	15.6	15.9	1,355	Municipal	375,000	Offsite Disposal Facility / Upland Land Spreading
				Total	**525,000**	

Note: HDD drilling mud would be disposed of in accordance with applicable regulations at an approved disposal site.

[a] HSA = Hydrostatic Water Storage Areas, located at the begin and end of test sections where test water would be both stored (in tanks) and discharged.

[b] The Applicants may reuse hydrostatic test water between new segments of pipe; therefore, the total volume is based on an assumed maximum of 5,100,000 gallons of hydrostatic test water used for the laterals.

Water for fugitive dust control would also be obtained from the same municipal sources as hydrostatic test water. The Applicants estimate that the laterals would each require about 15,000 gallons of water daily for fugitive dust control during construction, totaling about 2.3 million gallons, and that the aboveground and ancillary facilities would require about 6,000 gallons per day (up to 90,000 gallons per facility or site). However, the total volume of water use would depend on the conditions during construction. The abandonment of facilities is not anticipated to generate dust; thus, the Applicants state that no water would be required for dust control at these locations. However, in the event abandonment activities do result in the generation of fugitive dust, FERC staff anticipate any additional water required to implement the Applicants' Fugitive Dust Control Plan and control fugitive dust at abandonment sites would be minimal.

Overall, the Applicants would minimize impacts from water use and disposal in accordance with the methods described above and applicable permit conditions; we therefore conclude that impacts on surface water from use during construction of the Project would be temporary and minor.

2.3 Wetlands Resources

Wetlands are defined by the USACE and EPA as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of wetland vegetation adapted for life in saturated soil conditions (USACE 1987). Wetlands in the Project areas and associated impacts are addressed below.

The Applicants conducted wetland delineation surveys between August 30 and December 18, 2021, in accordance with the USACE Wetland Delineation Manual (USACE 1987), the Great Plains Region Regional Supplement (Version 2.0), and the Midwest Region Regional Supplement (Version 2.0; USACE 2010). Supplemental biological resource surveys (including an assessment of wetland and waterbody presence) were conducted on November 1 and 2, 2022 for additional access roads identified during Project development.

The National Wetlands Inventory classification system was used to assign the wetland types identified within the Project areas (Cowardin et al. 1979). Palustrine emergent (PEM) wetlands were identified within the Project areas. PEM wetlands are characterized as erect, rooted, herbaceous hydrophytes, excluding mosses and lichens.

Dominant wetland vegetation, by vegetation stratum, identified during field surveys of the Project areas consisted of reed canary grass, fall panicum, yellow foxtail roughleaf dogwood, and peachleaf willow. No forested or scrub-shrub wetlands were identified

during field surveys within the Project areas; therefore, no forested or scrub-shrub wetlands would be impacted by the Project.

A total of 20 wetlands (1.34 acres) would be crossed or are within the construction workspace for the proposed laterals, and associated access roads. Of these, a majority of wetlands are associated with agricultural areas. A total of 6 wetlands were identified as within actively cultivated croplands or documented to contain corn by the Applicants; an additional 11 wetlands are swales sited within agricultural land. The remaining three wetlands are associated with isolated or ditch-like depressions (including wetland W-T1-13 along the proposed REX Lateral to TPC Adams route and wetlands W-T1-09 and W-T1-10 along the proposed REX Lateral to TPC East route). Abandonment activities or construction/modification of the aboveground facilities would not affect wetlands. In addition, the proposed contractor yards and HSAs would be sited outside of wetlands. Table B-9 provides the wetland type and classification of each wetland crossed by the Project.

In comments on the Project, the EPA indicated that the Project crosses the Rainwater Basin, a large area of southern Nebraska that supports wetlands and provides important habitat for migratory birds, and expressed concern regarding potential impacts on sensitive playa wetlands within the basin (round, ephemeral ponds that typically fill in the spring and support migratory waterfowl and shorebirds). The EPA also expressed concern regarding the potential for fen wetlands (unique wetlands sustained by groundwater) to occur in the Project vicinity in Colorado. Based on the results of the Applicants' field surveys, the Project would not affect playa wetlands in the Rainwater Basin, and would not affect any wetlands (including fen communities) in Colorado. While a review of aerial imagery identified a round feature that may be indicative of historic playa wetland conditions adjacent to the Mid-American Ethanol Regulating Station, this site was included in the Applicants' field survey and no wetlands were identified. In January 2022, the Applicants provided the results of their field surveys for the Project to the USACE – Omaha District for review, concurrent with a request for verification that the Project qualifies for coverage under Nationwide Permit (NWP) 12. A discussion of permit applicability for the Project is included below.

Table B-9
Wetlands Crossed or Otherwise Impacted by the Project

Approximate Milepost/ Location	Feature ID	Wetland Type	Proposed Crossing Method	Approximate Pipeline Crossing Length (feet)	Construction Impacts (acres)[a]	Operational Impacts (acres)[b]
REX LATERAL TO TPC ADAMS						
0.4	W-T1-11	PEM	Open Cut	36	0.10	0.04
1.3	W-T1-12	PEM	Open Cut	114	0.21	0.13
14.2	W-T1-15	PEM	Open Cut	25	0.06	0.03
15.7	W-T1-17	PEM	Open Cut	33	0.05	0.04
15.9	W-T1-16	PEM	Open Cut	15	0.02	0.02
18.5	W-T3-01	PEM	Open Cut	24	0.05	0.03
REX Lateral to TPC Adams Subtotals				**249**	**0.49**	**0.29**
REX LATERAL TO TPC EAST						
1.8	W-T5-01	PEM	Open Cut	19	0.03	0.02
2.0	W-T1-09	PEM	Open Cut	29	0.04	0.02
3.2	W-T1-10	PEM	Open Cut	94	0.16	0.11
3.8	W-T1-08	PEM	Open Cut	83	0.16	0.10
4.2	W-T1-07	PEM	Open Cut	32	0.05	0.03
7.0	W-T2-08	PEM	Open Cut	27	0.05	0.02
10.7, 10.8[c]	W-T1-06	PEM	Open Cut	41	0.07	0.05
--	W-T1-06	PEM	Access Road 01-TAR-002	--	0.01	
13.6	W-T1-04	PEM	Open Cut	65	0.11	0.08
13.8	W-T1-03	PEM	Open Cut	15	0.02	0.02
18.0	W-T2-02	PEM	Open Cut	10	0.02	0.01
18.2	W-T4-04	PEM	Open Cut	24	0.04	0.03
18.4	W-T2-05	PEM	Open Cut	18	0.03	0.02
19.7	W-T1-02	PEM	Open Cut	15	0.06	0.02
20.3	W-T1-01	PEM	Open Cut	11	0.02	0.01
REX Lateral to TPC East Subtotals				**483**	**0.86**	**0.53**
PROJECT TOTAL				**732**	**1.34**	**0.81**

Table B-9 (continued)
Wetlands Crossed or Otherwise Impacted by the Project

Note: The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[a] The Applicants have identified wetlands within actively cultivated or rotated croplands such as W-T1-11 at MP 0.4, W-T1-15 at MP 14.2, and W-T1-16 at MP 15.9 along the REX Lateral to TPC Adams, and W-T1-02 at MP 19.7 along the REX Lateral to TPC East, and has stated that, as agricultural wetlands, they would be excluded from the requirements in the Applicants' Procedures. We included these wetlands here as they have the soils, hydrology, and vegetation characteristic of wetlands. Also, see our recommendation below regarding W-T1-02 and W-T1-16.

[b] There would be no operational impacts on PEM wetlands crossed by the pipelines, as these wetlands would revert to the same type following construction. The acreages presented represent the wetland acreage within the permanent rights-of-way.

[c] The table depicts two crossing locations for wetland W-T1-06; the respective construction and operation impacts represent the total acreages of the two crossing locations of the wetland.

Wetland Impacts and Mitigation

Construction of the proposed laterals would impact a total of 1.34 acres of PEM wetlands. All 20 of the wetlands would be crossed using open-cut construction methods. One wetland along the REX Lateral to TPC East (W-T1-06) would also be crossed by temporary access road 01-TAR-002; the aboveground facility and abandonment sites would not affect wetlands. Measures to minimize the Project's impacts on wetlands are discussed further below.

The primary impact of the Project construction on wetlands would include the loss of vegetation; soil disturbance (mixing of topsoil and subsoil) associated with grading and trenching; and changes in the hydrological profile due to excavation or compaction. Construction activities could affect soil fertility and facilitate dispersal and establishment of invasive weeds, as further described in section B.3.2. Additionally, construction of the Project could have an impact on water quality within wetlands due to sedimentation from direct soil disturbance in the wetland and erosion and stormwater runoff from upland construction activities or potential inadvertent spills of fuel or other hazardous materials.

Impacts on wetlands would be the greatest during and immediately following construction of the Project. The majority of these effects would be short-term in nature and would cease with restoration and revegetation of wetlands. In comments on the Project, the USFWS-recommended limiting activity within streams and wetland areas to foot traffic and the use of BMPs for erosion and sediment control. While limiting activity within wetlands to foot traffic is not proposed (because installation of the laterals would require excavation within wetlands) the Applicants would implement their Plan and Procedures, as well as BMPs to avoid erosion and sedimentation into wetlands during and after construction of the Project (discussed further below). In addition, the Applicants would use wildlife-safe materials for erosion control as recommended by the USFWS

Colorado and Nebraska field offices. Following construction, the Applicants would restore topsoil and preserve the native seed bank to minimize the potential spread or establishment of noxious and invasive species, and allow wetland areas to revegetate naturally in accordance with their Procedures. The Applicants would also implement the measures in their Noxious Weed Management Plan to minimize the potential for the spread of noxious and invasive weeds (see section B.3.2).

Following restoration, wetlands would eventually transition back into a community similar to that of the pre-construction state. In PEM wetlands, the herbaceous vegetation would regenerate quickly (typically within 1 to 3 years).

Where soils are stable and not saturated at the time of crossing, the laterals would be installed using methods similar to those in upland areas. Woody vegetation (if present) within the construction rights-of-way would be cut off at ground-level and root systems would be removed from areas directly over the trenchline. In the absence of safety-related construction constraints, root systems would be left in place along the remainder of the pipeline construction rights-of-way. The Applicants would remove up to 12 inches of topsoil over the trenchline in wetlands, where hydrologic conditions permit. The salvaged topsoil would be segregated and stored separately from subsoil. Silt fence would be placed around salvaged wetland topsoil to ensure segregation from the surrounding work areas. Gaps within both topsoil and spoil stockpiles would be maintained to support drainage and the Applicants would install silt fence to maintain the separation of the salvaged topsoil and subsoil. Topsoil would be kept free of debris and placed back into the trench after subsoil backfilling.

Saturated wetlands include those with standing water or saturated soils at the time of construction. Topsoil segregation is generally not practical within saturated wetlands due to the unconsolidated conditions. Therefore, topsoil would not be segregated within saturated wetlands and these wetlands would be crossed using timber mats to minimize impacts from rutting and compaction. Where salvaged subsoil would be placed upon topsoil in wetlands, geotextile fabric would be utilized to maintain separation between topsoil and subsoil.

The laterals would be installed via the open-cut method in wetlands and the Applicants would reduce the construction corridor to 75 feet. The Applicants are proposing a construction right-of-way that would exceed 75 feet within four wetlands; W-T1-11 at MP 0.4, W-T1-15 at MP 14.2, and W-T1-16 at MP 15.9 along the REX Lateral to TPC Adams; and W-T1-02 at MP 19.7 along the REX Lateral to TPC East based on their determination that each of these wetlands is within actively cultivated croplands. However, based on staff's initial review of the Applicants' wetland and waterbody delineation, documentation of active cultivation was not sufficient for wetlands W-T1-02, W-T1-15,

and W-T1-16. Therefore, staff requested that the Applicants provide additional documentation to support the classification of these features as agricultural wetlands. In response to staff's request, the Applicants provided additional documentation for W-T1-15 that clarifies that cultivated crop species were observed within the wetland. However, the documentation for wetlands W-T1-02 and W-T1-16 was not sufficient as neither feature was dominated by an agricultural crop species (such as corn) during the Applicants' field surveys. Therefore, **we recommend that:**

- **<u>Prior to construction</u>, REX should file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, either:**

  a. **revised alignment sheets that depict a revised construction right-of-way width of 75 feet across wetlands W-T1-02 (MP 19.7, REX Lateral to TPC East) and W-T1-16 (MP 15.9, REX Lateral to TPC Adams); or**

  b. **site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands W-T1-02 (MP 19.7, REX Lateral to TPC East) and W-T1-16 (MP 15.9, REX Lateral to TPC Adams) in accordance with sections II.A.2 and VI.A.3 of the FERC Procedures.**

The Applicants have requested an alternative measure to the FERC Procedures regarding the construction and use of one temporary access road (01-TAR-002 along the REX Lateral to TPC East) within a wetland, as further described in section A.7.1. To minimize impacts on the wetland crossed by 01-TAR-002, the Applicants would reduce the access road width to a maximum of 25 feet where crossing the wetland and install a timber mat bridge across the wetland (with footings entirely in uplands) to minimize the potential for rutting and soil disturbance. Earthen ramps, constructed of upland material and wholly within uplands, would be installed to approach the timber equipment mats and all matting would extend a minimum of 10 feet outside of the wetland boundary to further protect the feature. If soil conditions are poor at the time of construction, additional layering of a maximum of two timber mats would be installed to raise crossing above grade, where required. The Applicants would periodically check and remove any potential build-up of sediment or debris within the wetland feature. Additionally, prior to removal, the Applicants would monitor all materials used for wetland protection to ensure safe removal and to prevent any potential damage upon their retrieval. All materials would then be completely removed and the wetland would be restored following construction. Site-specific alternative protection measures are described in table A-6; we have reviewed the requested alternative measures and agree that the modification to the FERC Procedures is justified and that the Applicants' proposed mitigation would provide equal or better protection to the wetlands. Therefore, we find the requested alternative measures to be acceptable.

During our review of the Project, we requested that the Applicants assess the feasibility of adjusting the location of an access road to avoid crossing wetlands. The Applicants revised the location of proposed access road 07-TAR-003C to avoid wetlands, and the acreages reported in this EA reflect a reduction of impacts on wetlands by 0.02 acre from what was originally proposed.

The Applicants would implement the measures in their SPRP and applicable permit conditions to minimize the potential for spills and contamination within wetland areas. Refueling and storage of construction equipment and hazardous materials would be restricted within 100 feet of any wetland. The Applicants would further minimize impacts on wetlands by implementing BMPs, mitigation measures adopted from their Procedures, and adherence to applicable permit requirements. General construction mitigation measures include:

- limiting construction rights-of-way width in wetlands outside actively cultivated or rotated croplands to 75 feet;
- limiting construction equipment in wetlands to that needed to clear the rights-of-way, excavate the trench, fabricate the pipe, install the pipe, backfill the trench, and restore the rights-of-way;
- installing sediment control barriers prior to ground-disturbing activities near wetlands and maintaining these barriers throughout construction;
- stabilizing the rights-of-way with timber mats; and
- installing trench plugs as necessary to maintain the original wetland hydrology.

In comments on the Project, the EPA recommended that the EA address mitigation measures for wetland impacts and losses. Operational maintenance of the laterals would not result in impacts across the full permanent rights-of-way because the Applicants would maintain only a 10-foot-wide corridor directly over the pipeline centerline and would remove rooted trees within 15 feet of the centerline in wetlands. Therefore, no permanent conversion or loss of wetlands would occur. While not anticipated to be required for the Project, additional mitigation, if deemed necessary by the USACE, would be included in the associated CWA permit.

Based on the Applicants' commitment to adherence to the measures in their Plan and Procedures, SPRP, and BMPs, as well as applicable permit conditions, and our recommendation above, we conclude that the Project would not result in significant long-term or permanent impacts on wetlands in the Project areas.

Permits and Approvals

The Applicants would be required to seek and obtain all necessary federal, state, and local permits and approvals for the protection of surface water (including wetlands) and water use, as further described in section A.8. Specifically, the Applicants would obtain verification that the Project may proceed under NWP 12 in accordance with Section 404 of the CWA Permit and associated Section 401 Water Quality Certification before construction through any waterbody or wetlands. The Applicants have indicated that the Project may qualify for coverage under NWP 12 without submittal of a Pre-Construction Notification to the USACE-Omaha District; however, the Applicants are continuing to coordinate with the USACE-Omaha District to determine if a Pre-Construction Notification would be required. In accordance with our recommendations in section D, construction of the Project, if approved, would not be authorized to proceed without authorization from the USACE-Omaha District. NPDES Permits for Stormwater Discharges and Hydrostatic Test Water Discharges would be obtained from each of the appropriate state agencies in Colorado and Nebraska, and Flood Hazard Development Permits, as necessary, would be obtained from the applicable local agencies.

3. Fish and Aquatic Species, Vegetation, and Wildlife

3.1 Fish and Aquatic Species

The Project laterals and associated access roads would cross 27 waterbodies in Nebraska, including 4 perennial waterbodies that would be crossed by the proposed pipeline laterals (see table B-6). No waterbodies would be affected in Colorado. As discussed in section B.2.2, perennial waterbodies have continuous flow year-round and are typically capable of supporting populations of fish and other aquatic species. Intermittent and ephemeral waterbodies have restricted water flow regimes and generally provide limited, sometimes seasonal, habitat value for aquatic species. All waterbodies crossed by the Project are classified warmwater fisheries by the State of Nebraska for the regulation and protection of aquatic life (NGPC 2016; see table B-6). Common fish species present within the Project areas include largemouth bass, smallmouth bass, northern pike, channel catfish, flathead catfish, bluegill, sunfish, carp, and shiner (NGPC 2022a).

Fisheries of Special Concern

Fisheries of concern include those waterbodies that provide habitat for protected species, are assigned special status for fishery management, support fisheries of exceptional recreational value (including trout fisheries), or are designated as essential fish habitat. Potential impacts on threatened and endangered species are discussed in section B.4. The Nebraska Game and Parks Commission (NGPC) has classified the fish species within the Project areas as sport and commercial fish. Sport fisheries within the Project

areas include bluegill, largemouth bass, small mouth bass, channel catfish, and northern pike (NGPC 2022a). Commercial fisheries within the Project areas include yellow perch, freshwater drum, black bullhead, and yellow bullhead (NGPC 2022a). However, no waterbodies in the Project areas are classified as stocked and commercial fisheries or trout streams (NGPC 2022b, c). Furthermore, no essential fish habitat is within the Project areas (NOAA-NMFS 2021). Therefore, no impacts on fisheries of special concern are anticipated.

Fisheries Impacts and Mitigation

Of the 27 waterbodies crossed by the Project laterals or associated access roads, 23 are minor waterbodies (less than 10 feet wide). The remaining four waterbodies include three perennial, intermediate (10 to 100 feet wide) waterbodies crossed by the REX Lateral to TPC Adams, and one perennial, intermediate waterbody crossed by the REX Lateral to TPC East. No major waterbodies (greater than 100 feet wide) would be crossed by the Project. The majority (20 of 27) of waterbodies would be crossed by the pipeline centerlines using open-cut crossing methods; of the remaining seven waterbodies, four perennial, flowing waterbodies would be crossed by dam-and-pump (S-T1-16, S-T1-18, S-T03-001, and S-T2-03), one waterbody would be within the path of a conventional bore (S-T1-20), and two waterbodies would be crossed by access roads using an air bridge (S-T1-13 and S-T2-04). Traditional open-cut construction methods used to cross minor and intermediate waterbodies would typically be completed within 24 and 48 hours, respectively, in accordance with the Applicants' Procedures. The Applicants have committed to using a dry-ditch crossing method (dam-and-pump) to cross flowing, perennial waterbodies. Waterbody crossing methods are described in detail in section B.2.2 and listed in table B-6.

NGPC recommended that all in-stream activities be avoided during native fish spawning periods from May 15 to July 31 and further recommended that construction occur during low-flow periods (August through October). Therefore, in accordance with NGPC's recommendations, the Applicants would limit construction across all streams to the time period between August 1 and May 14 and, where practicable, would construct across streams during low-flow.

In general, impacts on aquatic species resulting from traditional open-cut waterbody crossings could include sedimentation and turbidity, alteration or removal of in-stream and stream bank cover, and introduction of water pollutants, each of which could increase the stress rates, injury, and/or mortality experienced by aquatic species. Suspension of deposited organic material and inorganic sediments could cause an increase in biological and chemical oxygen demand, potentially resulting in a decrease of dissolved oxygen concentrations in the affected area. Lower dissolved oxygen concentrations could cause

temporary displacement of mobile organisms, such as fish, and may kill non-mobile organisms within the affected area. However, these impacts would be localized and turbidity would be expected to subside shortly following backfilling as suspended sediments settle to the bottom of disturbed waterbodies. As stated previously, the highest turbidity and sedimentation (deposition of sediment) would occur near the crossing location and dissipate as sediment moves downstream. Sedimentation on the stream bottom could affect benthic habitat of which some aquatic species rely on for certain life functions, such as reproduction or foraging. However, because in-water trenching would be completed in no more than 48 hours, we anticipate that impacts on aquatic species related to turbidity and sedimentation would not be significant and would likely be similar to the turbidity and sedimentation effects caused by a natural heavy precipitation event. The Applicants would construct stream crossings during low-flow periods, when feasible, to minimize the dispersion of suspended sediment downstream.

As discussed in section A.7.2, the dam-and-pump construction method allows for the isolation of flow during pipe installation by installing temporary dams up and downstream of the crossing. Pumps (with intakes screened to minimize entrainment of fish) are then used to allow for continuation of streamflow around the construction area in the waterbody. The implementation of this method would not require trenching within flowing water and therefore, minimize in-stream turbidity and sedimentation in waterbodies.

Upland construction could also result in temporary impacts on water quality due to sediment migration into waterbodies if erosion controls are unsuccessful resulting in turbidity and sedimentation impacts described above. The Applicants would install erosion controls in accordance with their Procedures to minimize impacts during construction. Trench spoil would be placed at least 10 feet from the waterbody edge for use as backfill, and temporary erosions controls would be installed to prevent migration of trench spoil into the waterbodies.

Following construction, pre-construction contours of waterbodies would be reestablished, banks would be stabilized and temporary sediment barriers would be installed. Additionally, these riparian areas would be seeded with native species. During operation, the Applicants would maintain a 25-foot-wide riparian strip within the permanent rights-of-way adjacent to waterbodies and would limit vegetation maintenance to a 10-foot-wide strip centered over the pipelines with selective tree clearing within 15 feet of the pipelines in order to minimize the risk of erosion and sedimentation from riparian areas.

In addition, water quality and aquatic resources could be adversely affected by an inadvertent spill of hazardous materials into a waterbody. Pollutants and substances that

are toxic to aquatic species, including fuel spills, could migrate into surrounding waterbodies if proper containment measures are not administered during construction. The Applicants would adhere to their Procedures and SPRP, which include measures to restrict hazardous material storage and equipment refueling activities to at least 100 feet from waterbodies, which would reduce the potential for impacts on fisheries. The Applicants' SPRP includes measures for containment, notification, and cleanup in the event of a spill.

With implementation of the Applicants' Procedures and SPRP, we conclude that impacts on aquatic resources related to the Project would be sufficiently minimized and not significant.

3.2 Vegetation

The Project components within Nebraska would traverse the Rainwater Basin and Smoky Hills sections of the Central Great Plains Level III Ecoregion, which is described as flat to gently rolling plains. The Project would also traverse the Flat to Rolling Cropland and Moderate Relief Rangeland sections of the Western High Plains Level III Ecoregion of Nebraska, which is described as flat to rolling plains containing intermittent and perennial streams, and small, open, depressional wetlands, as well as irregular plains with moderate slopes. Finally, the Project would traverse the Sand Hills section of the Nebraska Sand Hills Level III Ecoregion, which is described as areas of grass stabilized sand dunes that are sparsely populated, with large cattle ranches, few trees, and a general lack of streams (Chapman et al. 2001). The Project components within Colorado would traverse the Moderate Relief Plains and the Flat to Rolling Plains sections of the High Plains Level III Ecoregion. The Moderate Relief Plains are described as irregular plains with slopes greater than the surrounding areas. The Flat to Rolling Plains are described as more level and less dissected than the adjacent sections, with generally silty soils (Chapman et al. 2006).

A total of 629.9 acres of vegetation would be temporarily disturbed during construction. Of this, 248.3 acres of vegetative habitat would be within the operational (permanent) footprint of the Project. The majority (82.2 percent or 518.0 acres) of vegetative habitats within the Project workspaces are areas of previously disturbed or actively maintained lands which do not support natural or native vegetation communities, such as agricultural land (including both pasture and cultivated croplands). Of the 518.0 acres of agricultural land that would be temporarily disturbed during construction, about 202.2 acres would be required for operation of the Project. The remaining vegetated lands within Project workspaces, which may support natural or native vegetation, consist of herbaceous uplands (17.0 percent), forested land (0.5 percent), or emergent wetland (0.2 percent). Of these vegetation types, a combined total of 111.8 acres would be temporarily disturbed during construction, of which 46.0 acres would be within the operational

footprint of the Project. Table B-10 summarizes the vegetative impacts by Project components for construction and operation of the Project. Impacts on developed land (including railroads, paved roads, and associated easements, as well as maintained vegetated areas such as public parks, residential lawns, residential complexes) are discussed in section B.5, and impacts on open waters are discussed in section B.2.2 as these lands are typically not vegetated; therefore, these impacts are not discussed further in this section.

Agricultural land in the Project areas consists of cultivated croplands (primarily corn and soybeans). Cultivated cropland accounts for 504.3 of the total 629.9 acres affected by construction (80.1 percent). Herbaceous habitat in the Project areas consist of grasslands. Species documented during field surveys include smooth brome, Indian grass, and big bluestem. The small areas of forested habitat associated with the Project consists of deciduous forest, evergreen forest, and mixed forest. Species documented during field surveys included chicksaw plum, sandbar willow, and peachleaf willow. In total, 3.3 acres of forest would be affected by construction. Of that, about 3.2 acres would be affected by construction of the new lateral rights-of-way. Wetlands crossed by the Project are classified as PEM wetlands; vegetation identified within these habitats is described in section B.2.3.

Special Vegetation Communities

Special vegetation communities may include designated natural communities (such as fens) or national or state forests. No special vegetation communities were identified during state agency consultation on the Project and the Project is primarily within agricultural land, which does not support the native or natural vegetation communities found within Nebraska and Colorado. The EPA indicated the potential for fen wetlands in the general Project areas; however, the Applicants did not identify fen wetlands in Project workspaces during surveys. Special status plant species that were identified as potentially occurring in the Project areas are discussed in section B.4.

Table B-10
Summary of Construction and Operation Impacts on Vegetation[a,b]

Facility	Agricultural				Herbaceous		Forested		Non-Forested Wetlands[c, d]		Totals	
	Pasture/Hay		Cultivated Crops									
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
Pipeline Facilities[e]	13.5	4.8	432.9	191.1	79.4	35.6	3.2	1.7	1.3	0.8	**530.3**	**234.1**
Abandonment Facilities	0.0	0.0	1.5	0.0	2.9	0.0	0.0	0.0	0.0	0.0	**4.4**	**0.0**
Aboveground Facilities (Booster, Metering, and Regulating)	0.0	0.0	13.1	5.5	8.7	4.0	0.0	0.0	0.0	0.0	**21.8**	**9.5**
Ancillary Facilities	0.0	0.0	1.3	0.3	2.0	0.6	0.0	0.0	0.0	0.0	**3.3**	**1.0**
Additional Areas for Project Construction[f]	0.2	0.0	55.5	0.5	14.2	3.3	0.2	0.0	<0.1	0.0	**70.2**	**0.1**
Project Total	**13.7**	**4.8**	**504.3**	**197.4**	**107.2**	**43.6**	**3.3**	**1.7**	**1.3**	**0.8**	**629.9**	**248.3**

Const = Construction; Oper = Operation

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Developed lands are not included in this table as vegetation in developed lands is typically absent or highly disturbed and/or manicured.

[c] Non-Forested wetlands include PEM wetlands, no palustrine scrub-shrub or palustrine forested wetlands would be impacted by the Project.

[d] Acreages for wetlands impacted by the Project reflect wetlands crossed by the Project as in table B-9.

[e] Pipeline Facilities include the MLV Site for each pipeline lateral.

[f] Additional Areas for Project Construction include ATWS, Access Roads, Contractor Yards, and HSA.

Noxious and Invasive Weeds

Noxious or invasive plant communities can out-compete and displace native plant species, thereby negatively altering the appearance, composition, and habitat value of affected areas. The Applicants assessed the existing federal and state noxious and invasive plant lists to develop a list of noxious and invasive species that may occur in the Project areas and developed a Noxious Weed Management Plan that they would implement during construction and operations (CWMA 2022, NDA 2022, USDA-NRCS 2022c). While knapweed, leafy spurge, and scotch thistle are identified as commonly occurring in the Project areas based on desktop data, only one federal or state-listed noxious weed species (Canada thistle) was identified within Project workspaces during the biological field surveys. The Applicants' Noxious Weed Management Plan includes the following measures to prevent the spread of noxious and invasive weeds:

- separately stockpile topsoil from areas with existing noxious weeds adjacent to their original location;
- use weed-free mulch and native seed, where applicable;
- decontaminate construction equipment and vehicles prior to their entry into the rights-of-way;
- decontaminate construction equipment and vehicles during construction at wash stations designated between known areas of weed infestation; and
- inspect construction equipment and vehicles, prior to on-site entry, to ensure that they are free of soil and debris capable of noxious weed or seed transfer.

The Applicants would implement restoration, monitoring, and necessary treatment procedures in disturbed areas immediately following construction. The Applicants would also monitor the disturbed workspaces annually for a period of 3 years beginning from the year following construction. If noxious weeds are identified during monitoring, the Applicants would treat weeds through mechanical removal (mowing and grazing), hand clearing, competitive planting, and herbicide treatment. The Applicants would only conduct herbicide treatment if all other noxious weed management procedures prove ineffective, or as directed by the landowner. Additionally, herbicide treatment would not be applied within 100 feet of wetlands or waterbodies unless specifically authorized by an appropriate regulatory agency.

Vegetation Impacts and Mitigation

Prior to vegetation clearing, the Applicants would verify and clearly mark the limits of authorized construction workspaces and locations of access roads to ensure that impacts on adjacent vegetation (outside of the marked construction rights-of-way and ATWS) would not occur. During construction, Project workspaces would be cleared of vegetation to the extent necessary to allow for safe working conditions.

Per landowner agreements, trees and brush may be chipped and stockpiled for landowners to retrieve for beneficial reuse, such as stabilization and habitat restoration. The Applicants would ensure that any disposal area designated for landowner retrieval of timber, brush, and woodchips for beneficial reuse would be adjacent to the rights-of-way, near access points that would not disrupt sensitive environmental areas, and in an accessible location for the landowner to retrieve.

Vegetation and debris not stockpiled for beneficial reuse would be cleared from the rights-of-way and disposed of in accordance with federal, state, and local regulations. Following soil disturbance, erosion and sediment controls would be installed according to the Applicants' Plan, Procedures, and BMPs (including use of wildlife-safe materials). As currently designed, 74.1 percent of the proposed new lateral routes would be collocated with existing rights-of-way to minimize impacts on undisturbed vegetation.

Impacts associated with construction of the Project on agricultural lands would generally be temporary or short-term. Agricultural land typically returns to its regular production cycle following construction; however, the Applicants have developed an AIMP to appropriately identify, avoid, and mitigate potential impacts on agricultural resources. The measures proposed in the AIMP are further discussed in sections A.7.2 and B.5.

Herbaceous areas are expected to return to their vegetative cover within 1 to 5 years following construction. Impacts on forested vegetation within construction workspaces would be long-term as trees could take decades to return to pre-construction conditions. Forested upland vegetation within the permanent rights-of-way would be cleared and maintained in an herbaceous state throughout the life of the Project. Limited tree clearing proposed for the Project would be primarily adjacent to existing cleared or converted areas, and therefore would not cause forested fragmentation. Vegetated areas within the construction rights-of-way and workspaces (outside of the permanent easement) and ATWS would be allowed to revegetate following construction. In addition, the Applicants would use HDD and bore construction methods at select road and railroad features, which would minimize or avoid impacts on vegetation at these locations. Vegetation would not

be cleared or maintained between the HDD entry and exit points, which would be in agricultural fields and herbaceous uplands on either side of road and/or railroad crossings.

During construction and operation of the Project, the Applicants would use existing public roads to the extent possible and where feasible. Some existing access roads would require improvements (e.g., widening) and new roads would be constructed (see appendix B). Temporary impacts during construction would occur on 4.6 acres of agricultural land and 6.8 acres of herbaceous uplands; about 3.8 acres of these vegetation types, respectively, would be permanently converted to developed land for permanent access roads (see appendix F).

During operation, maintenance of the permanent pipeline rights-of-way would be necessary to allow for monitoring and maintenance activities. In upland areas, the permanent rights-of-way would be 50 feet wide. Routine mowing would not be conducted more frequently than once every three years across the entire width of the rights-of-way in upland areas; however, a 10-foot-wide corridor centered on the pipelines would be maintained annually to allow for periodic pipeline surveys. In wetlands, as discussed in section B.2.3, vegetation maintenance of the operational rights-of-way for the pipeline facilities would be limited to a 10-foot-wide herbaceous corridor centered over the pipeline and the selective removal of trees within 15 feet of the pipelines with roots that could compromise the pipeline integrity.

To facilitate revegetation, the Applicants would reseed disturbed upland areas using seed mixes based on recommendations from the local soil conservation authorities (USDA-NRCS) and landowner agreements, in accordance with the Applicants' Plan. As recommended by the USFWS, seed mixes would include non-invasive, locally-sourced seeds. The Applicants would also provide landowners the option of reseeding private property with a pollinator seed mix. After construction, the Applicants would monitor revegetation within all construction workspaces, until revegetation is deemed successful in accordance with their Plan and Procedures. Additionally, cultivated land and crop production in disturbed areas would be monitored until adjacent field yields are achieved.

As discussed in section A.5, the Project would require construction of seven new aboveground facilities (five new booster stations and two new meter stations) and modifications to three existing meter stations. Most of the aboveground facilities would be sited in predominantly agricultural areas, along small rural roads. Operation of these facilities would convert about 5.5 acres of agricultural land and 4.0 acres of upland herbaceous land to developed land (see appendix F).

In summary, construction and operation of the Project would result in temporary to permanent impacts on agricultural land and herbaceous and forested vegetation. However,

we conclude that the collocation of the pipeline facilities with existing maintained rights-of-way, and the measures outlined in the Applicants' Plan, Procedures, and Noxious Weed Management Plan would adequately minimize impacts on upland vegetation resources, such that impacts would not be significant.

3.3 Wildlife Resources

Wildlife habitat types are based on vegetation types in the Project areas, which include agricultural land, herbaceous uplands, forested uplands, and wetlands (including PEM). Due to low diversity and frequent disturbance, agricultural land does not provide high-quality habitat for wildlife cover or nesting but does provide foraging opportunities for several species, such as migratory waterfowl. Herbaceous and forested habitat can provide food, shelter, and nesting habitat for an array of species.

Big game species in the Project areas include mule deer, white-tailed deer, and pronghorn. Small game species include fox squirrels, cottontail rabbits wild turkey, pheasant, and quail. Non-game species potentially occurring within the Project areas include a large diversity of animal taxa of mammals, raptors, songbirds, amphibians, and reptiles (USDA 2015a, b). Special status species with the potential to occur in the Project areas are discussed in section B.4.

About 82.2 percent of vegetated lands within the Project workspaces consists of agricultural land (518.0 acres, of which 13.7 acres is hay or and improved pasture). The remaining vegetated lands within Project workspaces consists of herbaceous uplands (17.0 percent; 107.2 acres), forested land (0.5 percent; 3.3 acres), or emergent wetland (0.2 percent; 1.3 acres). Vegetation types are further described in section B.3.2. Developed lands affected by the Project, including industrial facilities, impervious surfaces, or lawns associated with buildings and residences, are discussed in section B.5.

Managed and Sensitive Wildlife Areas

Based on a review of publicly available data, no national or state parks, National Wild and Scenic Rivers, National Wildlife Refuges, or National Wildlife Wilderness Areas are within 0.25 mile of the Project. The Colorado Parks and Wildlife (CPW) has mapped winter range habitats for big game species statewide, including for mule deer, white-tailed deer, pronghorn, and wild turkey (CPW 2020). Only severe winter range and/or winter concentration areas for mule deer and pronghorn overlap with the proposed Project areas; specifically, the Project areas associated with the REX/TPC Lone Tree Interconnect, TPC West Isolation, and Hereford Ranch booster station. Generally, the CPW recommends that no construction (human activity) occur in mule deer severe winter range or winter concentration areas between December 1 and April 30, nor between January 1 and April

30 within pronghorn winter concentration areas (CPW 2021a). In accordance with CPW recommendations, the Applicants would not conduct construction activities at the REX/TPC Lone Tree Interconnect or TPC West Isolation between December 1 and April 30. The Applicants have consulted with CPW regarding the construction period for the Hereford Ranch booster station, which would extend into February.[28] Given construction would generally occur during daylight hours, in a location with other active oil and gas infrastructure, and adjacent to a county road, CPW is not recommending any mitigation in the form of acres or dollars. Although these activities may result in localized avoidance of mule deer within their severe winter range, they would not block migration nor significantly alter the availability of habitat within the severe winter range The NGPC does not maintain a database of important habitats for big game; however, based on the habitat in the Project areas, mule deer and pronghorn antelope are present in the area and actively hunted during the designated season(s).

Wildlife Impacts and Mitigation

Construction (including construction associated with abandonment activities) and operation of the Project would result in various temporary to permanent impacts on wildlife, depending on the habitat requirements of the species and the vegetation affected by the pipeline rights-of-way, facilities, and other Project components such as ATWS, contractor yards, and access roads. Potential temporary to short-term impacts on wildlife include the displacement of individuals from construction areas and adjacent habitats (including pollinator species such as bees and butterflies), and the direct mortality of smaller, less mobile mammals, reptiles, and amphibians that are unable to leave the construction area. Increased lighting and noise during construction of Project could cause some birds and other wildlife to disperse to adjacent habitats; however, noise and light impacts associated with the pipeline components would be temporary (only during construction activities). Similarly, noise and light associated with the construction or modification of aboveground Project components would increase during construction; operational noise and lights would have less of an impact but would occur throughout the life of the Project. The level of displacement due to light and noise would depend on the sensitivity of a species, the surrounding topography and land cover, the type and intensity of adjacent noise sources, and the time of year, but would likely be most pronounced near the proposed booster stations, which would result in higher sound levels than other operational facilities (see section B.8.2).

About 107.2 acres of upland herbaceous habitat would be disturbed during construction of Project facilities, of which, 43.6 acres would be permanently maintained within the permanent rights-of-way or permanently converted within the footprint of the

[28] Copies of the correspondences are available on eLibrary under accession no. 20230324-5094.

aboveground facilities (4.0 acres). In addition, about 3.3 acres of forested habitat would be cleared during construction, of which 1.7 acres would be permanently converted to herbaceous lands. Due to the predominantly agricultural nature of the Project areas, forested areas crossed by the pipelines are generally smaller patches/swaths or riparian corridors, with open-cut crossing lengths that are generally about 200 feet long.

To minimize impacts on wildlife resulting from the Project, the Applicants would implement measures to allow for wildlife movement and protection in accordance with their Plan and Procedures, as well as the following:

- restricting the area of habitat disturbance to the extent possible for construction and operations;
- using wildlife-safe materials (i.e., natural fiber or loose weave, non-welded, movable jointed netting) for erosion control and promptly remove erosion controls when no longer required;
- minimizing the amount of tree clearing necessary during construction; and
- avoidance of construction in mule deer and/or pronghorn severe winter range and winter concentration areas from December 1 to April 30 at the REX/TPC Lone Tree Interconnect and TPC West Isolation sites.

Although individual mortality of some wildlife species could occur because of the proposed Project, the effects of these individual losses on wildlife populations would be temporary and minor. Based on construction predominantly within and/or adjacent to agricultural lands, the presence of similar suitable habitats in the vicinity of construction activities, and implementation of impact avoidance and minimization measures, we conclude that construction and operation of the Project would have no significant or population-level impacts on wildlife.

3.4 Migratory Birds

Migratory birds are protected under the MBTA. Executive Order (EO) 13186 (66 *Federal Register* 3853) directs federal agencies to identify where unintentional take is likely to have a measurable negative effect on migratory bird populations and to avoid or minimize adverse impacts on migratory birds.[29] EO 13186 also states that emphasis should be placed on species of concern, priority habitats, and key risk factors, and that particular focus should be given to addressing population-level impacts.

[29] 66 *Federal Register* 3853 (Jan. 17, 2001).

On March 30, 2011, the USFWS and the Commission entered into a Memorandum of Understanding that focuses on avoiding or minimizing adverse effects on migratory birds and strengthening migratory bird conservation through enhanced collaboration between the two agencies. This voluntary Memorandum of Understanding does not waive legal requirements under the MBTA, BGEPA, ESA, NGA, Federal Power Act, or any other statutes and does not authorize the take of migratory birds. Bald and golden eagles are discussed below. Birds of Conservation Concern are a subset of birds protected under MBTA and include all species, subspecies, and populations of migratory non-game birds that are likely to become candidates for listing under the ESA without additional conservation actions. There are 20 Birds of Conservation Concern species that could potentially be present within the Project areas, 17 of which may breed in the Project areas (see table B-11). No designated Important Bird Areas would be affected by the Project (Audubon 2022).

The primary concern for impacts on migratory birds, including bald eagles, is mortality of eggs and/or young, as mature birds could avoid active construction. Tree clearing and ground-disturbing activities could cause disturbance during critical breeding and nesting periods, potentially resulting in the loss of nests, eggs, or young. Construction activities outside of the nesting season could displace individuals to similar, adjacent habitats, and cause direct mortality of some individuals. The Project areas are composed primarily of agricultural fields where disturbance occurs regularly and large trees are limited primarily to riparian zones. The potential to affect migratory bird species would last the duration of construction but would be expected to return to near background conditions following restoration of temporarily disturbed areas. The Applicants developed a Migratory Bird Treaty Act Conservation Plan (MBCP) to minimize potential impacts on migratory birds, and submitted an updated MBCP to the USFWS on October 24, 2022 to reflect revisions requested by the USFWS and FERC staff. The USFWS (Colorado Field Office) acknowledged receipt of the updated MBCP on December 13, 2022. The MBCP includes measures to perform pre-construction migratory bird and raptor surveys using qualified biological monitors to identify potential nests no more than 5 days before construction clearing, and coordination with the USFWS will occur to determine appropriate protective buffers if nesting birds are discovered during pre-construction clearance surveys. The Applicants would apply a construction-avoidance buffer around any nest identified during surveys, or would coordination further with the USFWS if a protective buffer were determined to be impractical. During operations, the Applicants would avoid maintenance clearing between April 1 and August 15; in accordance with its Plan, no maintenance clearing could occur outside of this window unless specifically approved in writing by the USFWS.

Table B-11
Birds of Conservation Concern Known to Occur in Project Counties within Colorado and Nebraska

Common Name	Scientific Name	Season	Nest Substrate		
			Ground/ Herbaceous	Shrub	Tree/Cliff
American Golden Plover	*Pluvialis dominica*	Migration	-	-	-
Black Tern	*Chlidonias niger*	Breeding	Yes	No	No
Chestnut-collared Longspur	*Calcarius ornatus*	Breeding	Yes	No	No
Lark Buntin	*Calamospiza melanocorys*	Breeding	Yes	No	No
Chestnut-collared Longspur	*Calcarius ornatus*	Breeding	Yes	No	No
Hudsonian Godwit	*Limosa haemastica*	Migration	-	-	-
Clark's Grebe	*Aechmorphorus clarkia*	Breeding	No	No	No
Ferruginous Hawk	*Limosa haemastica*	Breeding	Yes	Yes	No
Long-billed Curlew	*Numenius americanus*	Breeding	Yes	No	No
Lewis's Woodpecker	*Melanerpes lewis*	Breeding	No	No	Yes
Mountain Plover	*Charadrius montanus*	Breeding	Yes	No	No
Chimney Swift	*Chaetura pelagica*	Breeding	No	No	Yes
Lesser Yellowlegs	*Tringa flavipes*	Migration	-	-	-
Long-eared Owl	*Asio otus*	Breeding	No	No	Yes
Thick-billed Longspur	*Rhynchophanes mccownii*	Breeding	Yes	No	No
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Breeding	No	No	Yes
Western Grebe	*Aechmophorus occidentalis*	Breeding	No	No	No
Willet	*Tringa semipalmata*	Breeding	No	No	No
Bald Eagle	*Haliaeetus leucocephalus*	Breeding	No	No	Yes
Bobolink	*Dolichonyx orzivorus*	Breeding	Yes	No	No

Bald eagles generally occur where there is a good food base with ample perching areas and nesting sites. They nest in mature or old growth trees, snags, cliffs, and rock promontories near coastlines, rivers, and large lakes with an adequate food supply. Bald eagles are visual hunters and opportunistic feeders that locate their prey— primarily fish, but also may include waterfowl, shorebirds, colonial waterbirds, small mammals, turtles, and carrion—from a perch or soaring flight (USFWS 2021a). The Project areas are composed primarily of agricultural fields where disturbance occurs regularly and large trees are limited. Bald eagle sightings are common along the Platte River, which is about 16 miles from the Project. During field surveys for the Project, no eagle nests were identified within, or near (using line-of-sight), the survey area. If bald eagle nests are observed within the Project areas, the Applicants would contact USFWS, NGPC, and/or

CPW to determine appropriate mitigation or avoidance measures that should be implemented. Therefore, no significant effects on the bald eagle from the proposed Project are anticipated. Further, although the CPW has indicated the low potential for presence of golden eagles in the Project areas, the NGPC has indicated that golden eagles also frequent river systems in Nebraska, similar to bald eagles. Any golden eagle nests would be identified as part of the MBCP pre-construction surveys.

Based on the characteristics and habitat requirements of migratory birds known to occur in the proposed Project areas, the amount of similar habitat in the vicinity of the Project, and the Applicants' development of an MBCP and commitment to pre-construction nest surveys for migratory birds (as applicable), we conclude that construction and operation of the Project would not result in population-level impacts on migratory birds or measurable negative impacts on their habitat.

4. Special Status Species

Special status species are those species for which federal or state agencies afford an additional level of protection by law, regulation, or policy. In this EA, special status species include federally listed species protected under the ESA, species considered candidates for listing by the USFWS, and those species that are state-listed as threatened, endangered, or otherwise considered sensitive.

Section 7(a)(2) of the ESA requires the Commission to ensure that any action it authorizes, funds, or carries out would not jeopardize the continued existence of federally listed or proposed listed species, or result in the adverse modification or destruction of critical habitat for federally listed and proposed species. As the lead federal agency for the Project, the FERC is responsible for ESA consultation with the USFWS. Species classified as candidates or that are proposed for listing under the ESA do not currently carry regulatory protection but are typically considered during our assessments as they may be listed in the future. Similarly, some species protected under state statutes do not carry regulatory protection under the ESA, but impacts are assessed if the applicable agency indicates its potential presence within the Project areas during construction.

The Applicants reviewed the USFWS Information for Planning and Consultation (IPaC) System and coordinated with the CPW and NGPC to identify a preliminary list of federally and state-listed species, as well as species of special concern, that could potentially occur within the Project areas.[30]

General habitat surveys were conducted by the Applicants between August and December 2021 and on November 1 and 2, 2022 for additional access roads identified during Project development, during which they assessed the potential for suitable habitat for listed species. Appendix G summarizes the federally and state-listed species that may occur in the Project areas, their preferred habitat, and our determinations of effect. Consultation under the ESA is ongoing for multiple species.

4.1 Federally Listed Species

Based on review of the USFWS; IPaC system, 11 federally listed species were identified as occurring in the Project areas including the piping plover (*Charadrius melodus*), whooping crane (*Grus americana*), eastern black rail (*Laterallus jamaicensis jamaicensis*), northern long-eared bat (*Myotis septentrionalis*), Preble's meadow jumping mouse (*Zapus hudsonius preblei*), black-footed ferret (*Musteal nigripes*), pallid sturgeon (*Scaphirhynchus albus*), American burying beetle (*Nicrophorus americanus*), Ute ladies' tresses orchid (*Spiranthes diluvialis*), blowout penstemon (*Penstemon haydenii*), and western prairie fringed orchid (*Platanthera praeclara*). In addition, one candidate species, the monarch butterfly (*Danaus plexippus*), and one proposed endangered species, the tricolored bat (*Perimyotis subflavus*) were identified. No designated critical habitat is present in the Project areas.

We have determined that the Project would have *no effect* on the piping plover, Eastern black rail, Preble's meadow jumping mouse, black-footed ferret, pallid sturgeon, American burying beetle, Ute ladies' tresses orchid, blowout penstemon, and western prairie fringed orchid. Those species are included in appendix G but are not discussed further. Our assessment of the monarch butterfly, northern long-eared bat, tricolored bat, and whooping crane are discussed below.

Monarch Butterfly

The monarch butterfly, a candidate for federal listing, is a bright orange and black butterfly that undergoes long-distance migrations between North America and its

[30] Although pipeline abandonment would also occur in Laramie County, Wyoming, the Applicants have indicated that no ground disturbance (including crew or equipment movements) would occur in Wyoming; therefore, these activities would have no effect on threatened and endangered species.

overwintering sites in Mexico and California. Adults feed on nectar from a variety of flowers, but reproduction is dependent on milkweed, the sole source of food for the monarch caterpillars (87 *Federal Register* 26152). Adults are present in the Project area from June through the fall, with caterpillars appearing shortly thereafter (NGPC 2022d). The primary threats to the species include loss and degradation of habitat, drought, exposure to insecticides, and the effects of climate change. (87 *Federal Register* 26152).

The predominant vegetation type cleared during construction of the proposed Project would be agricultural land (518.0 acres); however, clearing would also occur within 107.2 acres of herbaceous upland, 3.3 acres of forested land, and 1.3 acres of emergent wetland habitat. Clearing of open land, forested lands, and wetland habitat would likely result in the clearing of some nectar plants and milkweed species; however, with the exception of the forested lands, these areas contain predominantly herbaceous species and would return to their vegetation cover within 1 to 5 years. In addition, maintenance mowing during operation would not occur between April 1 and August 15 of any year, which would avoid a large portion of the feeding period for caterpillars. Based on the type of habitat cleared, the extent of similar adjacent habitat, and the Applicants' adherence to their Plan and Procedures for revegetation, construction and operation of the Project *is unlikely to result in a trend towards federal listing* for the monarch butterfly. Further, the Applicants would offer landowners the option of utilizing pollinator-friendly seed mixtures for restoration of the Project workspaces, which could benefit monarchs as vegetation is reestablished.

Northern Long-Eared Bat

The northern long-eared bat was listed as threatened under the ESA in April of 2015 due to population declines related to white-nose syndrome (USFWS 2022a); however, a final rule to reclassify the species as endangered was issued on November 30, 2022, primarily due to the continued spread of white-nose syndrome (effective March 31, 2023; 87 *Federal Register* 73488, USFWS 2022a, USFWS 2023). As the ESA does not allow application of 4(d) rules for species listed as endangered, this reclassification will also nullify the species' 4(d) rule on March 31, 2023. The species is state-listed as threatened in Nebraska.

The northern long-eared bat is a medium-sized bat (with a body about 3 to 4 inches in length) and a wingspan of 9 to 10 inches. It has a medium- to dark brown back and a tawny to pale brown underside. It hibernates during winter in small crevices or cracks within caves and abandoned mines that have constant temperatures, high humidity, and no air currents (USFWS 2015). During the spring and summer months (April 1 through October 31) the northern long-eared bat is found singly or in colonies beneath bark, in cavities or in crevices of live trees and snags. Females within a maternity colony generally

mate in late summer or early fall and give birth to one pup from late May to late July, with pups able to fly and feed independently 18 to 21 days later. Northern long-eared bats generally feed at dusk on flying insects (USFWS 2015).

Threats to the northern long-eared bat include impacts on winter hibernacula as well as impacts on forested habitat, which the bats use from spring through fall. However, as noted above, this species is most affected by white-nose syndrome, a disease that has spread across much of the range of the species and resulted in significant declines of the population (USFWS 2015).

The Project would predominantly affect non-forested lands. Although the National Land Cover Dataset indicates that about 3.3 acres of forested land would be within construction workspaces, 1.7 acres of which would be permanently converted to non-forested land during operations, the Applicants have indicated that only about 1.1 acres of potentially suitable forested habitat for the northern long-eared bat would actually require clearing based on field-collected data.[31] All tree clearing for the proposed Project would occur in Nebraska and most tree clearing would occur along slender treelines or riparian corridors. In response to our request, the Applicants have confirmed that they would restrict tree clearing to the hibernation period (November 1 through March 31, or as otherwise required by the USFWS after the final rule goes into effect) to avoid impacts on summer roosting bats and pups.[32] The Applicants have not conducted presence/absence surveys for bats to determine the likelihood of bat usage; however, because the Project is within the northern long-eared bat range, we assume that bats could be present within any forested areas outside of the hibernation period.

The final rule issued by the USFWS describes 14 actions that are unlikely to result in a take of northern long-eared bats. Among these activities include clearing "insignificant amounts of suitable forested/wooded habitat" during the hibernation period, provided that the habitat removal does not significantly impair essential behavior patterns. The final rule defines suitable habitat as "containing potential roosts (i.e., live trees or snags greater than or equal to 3 inches in diameter at breast height that have exfoliating bark, cracks, crevices, or cavities), as well as forested linear features such as wooded fencerows, riparian forests, and other wooded corridors." The Applicants, in their role as FERC's non-federal

[31] The Applicants' responses are available on eLibrary under accession nos. 20221221-5310 and 20230201-5180. The Applicants indicated that qualified biologists evaluated forested areas for the presence of live trees and/or snags that were greater than or equal to 3 inches diameter at breast height that also had exfoliating bark, cracks, crevices, and/or cavities; when encountered, the boundaries of suitable forested habitat were mapped using GPS. These assessments were conducted concurrent with the Project wetland and waterbody surveys.

[32] The Applicants' response is available on eLibrary under accession no. 20221221-5310.

designees, have consulted with the USFWS regarding their determination of *may affect, not likely to adversely affect*, the northern long-eared bat; the USFWS concurred with this determination on January 30, 2023. However, this coordination did not account for the reclassification of the northern long-eared bat from threatened to endangered, and did not identify the Applicants' prior commitment to FERC to restrict tree clearing to the hibernation period. Therefore, FERC's consultation with the USFWS is ongoing.

As the final rule would go into effect prior to the proposed construction period for the Project (expected to begin in Q3 of 2023), and because the Applicants would minimize tree clearing associated with the Project (no more than 3.3 acres) and have committed in writing to restrict tree clearing to the bat's hibernation period (or as otherwise required by the USFWS upon the effective uplisting of the species to endangered), we have determined that construction and operation of the Project *may affect, but is not likely to adversely affect* the northern long-eared bat, after its effective uplisting to endangered.

Tricolored Bat

The tricolored bat was proposed for federal listing as endangered on September 14, 2022. It is a small bat that often appears yellowish, but can also appear silvery gray, brown, or black. The species hibernates in caves and mines during the winter, and will use smaller caves and mines that are unsuitable for other cave-hibernating bats. They have been identified as one of the first cave-hibernating bats to enter hibernation in the fall, but data also indicate that the number of hibernating tricolored bats peaks in December or later, suggesting that some bats either wait longer to hibernate or only move to caves when it gets colder (USFWS 2021b). No critical habitat for the species has been proposed (87 *Federal Register* 56391).

Between spring and fall, tricolored bats roost among leaf clusters in live or recently dead deciduous hardwood trees, although they have also been noted to roost among pine needles, eastern red cedar, and in artificial roosts. Females have high site fidelity, returning to the same roost area upon cave emergence to form maternity colonies. Although additional research is needed to determine optimal habitat, an adult female may need as little as 0.25 acre for a summer roost site (not including foraging area; USFWS 2021b).

Mating occurs near cave or mine entrances between mid-August and mid-October and the females give birth between May and July. Each female has between one and three young, which begin to fly at about 21 days of age. The bats emerge from roosts in the early evening to feed on insects at the treetops, but may forage closer to the ground in the late evening. Threats to the tricolored bat include white-nose syndrome, wind related mortality, climate changes effects, and habitat loss (USFWS 2021b).

The species occurs throughout Nebraska and has expanded into eastern Colorado in recent decades, which has been attributed to increases in forested riparian habitat and suitable wintering sites. Although no known hibernacula have been recorded in Nebraska or Colorado, the best available hibernacula data for the tricolored bat are from the year 2000 (USFWS 2021b).

As discussed for the northern long-eared bat, the Applicants would clear up to 3.3 acres of forested land during construction (all in Nebraska), but indicated that the clearing of suitable habitat for bats would be restricted to 1.1 acres, all of which would be cleared during the winter months (November 1 through March 31) when bats would likely be hibernating in caves. Because the tricolored bat is not currently listed under the ESA, no federal protections are granted to it and any mortality from tree clearing would not be prohibited; however, due to the limited tree clearing that would occur during construction and the Applicants' written commitment to clear trees during the winter months, the Project is not likely to jeopardize the continued existence of the tricolored bat and no further coordination with the USFWS would be needed if a final rule to list the species were not effective before construction. However, based on the Applicants' commitment to restrict tree clearing until after November 1, some construction activities would occur after the final rule to list the tricolored bat becomes effective (anticipated to be no later than October 2023), when any mortality of tricolored bats during the clearing of trees would constitute a take under the ESA. Therefore, we have determined that the Project *may affect, but is not likely to adversely affect* the tricolored bat and we request informal conference with the USFWS regarding impacts on the tricolored bat.

Whooping Crane

The federally endangered whooping crane is a tall (up to 5 feet), predominantly white bird with black wing tips, crown, and face (NGPC 2022e). Whooping cranes are also state-listed as endangered in Colorado and Nebraska. The species has four wild populations, including the Aransas-Wood Buffalo National Park population, which is the only remaining self-sustaining wild population. This population nests at and near the Wood Buffalo National Park in Canada and winters at the Aransas National Wildlife Refuge on the southern coast of Texas; whooping cranes migrating through the Project areas are part of the wild population (USFWS 2022b). The other three populations are experimental, including two non-migratory populations (in Louisiana and Florida) and one population that migrates between Wisconsin and Florida (USFWS 2022b). Critical habitat has been designated within Kearney County, Nebraska, along the Platte River; however, it is more than 8 miles away from the Project (USFWS 2022c).

Spring migrations through the Project areas occur between March 6 and April 29 and fall migrations occur between October 9 and November 15 (USFWS 2022d). Stopover

habitat includes rivers, agricultural fields, wet meadows, and marsh, with particular use of the central Platte, Middle Loup, North Loup, and Niobrara Rivers in Nebraska (NGPC 2022e). Whooping cranes are omnivorous, with food sources in the Project areas including aquatic plants and animals, as well as waste grain in crop fields (NGPC 2022e). The biggest threats to the species include habitat loss, climate change (increased frequency of droughts), and river flow reductions, which degrade migration roost habitat (USFWS 2022b).

Suitable stopover habitat is present within the footprint of the proposed Project, particularly along wetlands and streams that would be crossed by the pipeline laterals in Nebraska. Although no wetlands or waterbodies would be affected by the abandonment and modification of facilities in Colorado, there is a low potential for whooping cranes to be present in affected agricultural fields. If whooping cranes were present at the time of construction (anticipated to occur between the Q3 of 2023 and the Q1 of 2024), construction activities could temporarily displace them to nearby habitat. To avoid displacement and disturbance of migrating whooping cranes, the Applicants would avoid construction during the migration season, or would implement USFWS-recommended survey protocols[33] if construction were to occur during the spring or fall migration periods. These survey protocols include daily pre-construction surveys of the Project areas and areas within 0.5 mile of Project workspaces (using a spotting scope). If whooping cranes were observed, either during the survey or during active construction, work would not move forward and the Applicants would contact USFWS for further guidance. Further, no surface water withdrawals would occur from Project construction or operation that would cause water depletions.

Operation of the new aboveground facilities would result in the permanent conversion of potential habitat to developed land that whooping cranes would likely avoid in favor of quieter, undisturbed adjacent land; however, no wetlands or waterbodies would be affected by these facilities. Given the lack of breeding/nesting habitat in the Project areas and implementation of the Applicants' Plan and Procedures to restore habitats within temporary workspaces, we conclude that construction and operation of the proposed Project *may affect, but is not likely to adversely affect* the whooping crane.

Federal Status Species Impacts and Mitigation

We have determined that the Project *may affect, but is not likely to adversely affect* the northern long-eared bat and tricolored bat based on the limited tree clearing and the restriction of tree clearing to the hibernation period; however, because the tricolored bat is

[33] The whooping crane survey protocol is available on eLibrary under accession no. 20221101-5228.

currently proposed for listing, we request informal conference with the USFWS for this species. We have also determined that the Project *may affect, but is not likely to adversely affect* the whooping crane based on the Applicants' proposed measures to avoid activity during the migration season or to conduct pre-construction surveys. We have determined that the Project is unlikely to result in a trend towards federal listing for the monarch butterfly (a candidate species) based on the type of habitat cleared, the available adjacent habitat, and the Applicants' proposed revegetation methods.

As required by Section 7 of the ESA, as amended, we request that the USFWS accept the information provided within this EA as the Biological Assessment for the proposed Project. Based on our findings and determinations, as described below, we are requesting that the USFWS concur with our determinations for the northern long-eared bat and whooping crane, as well as our determination for the tricolored bat, should it be formally listed under the ESA prior to construction of the Project (if approved). To ensure compliance with our responsibilities under Section 7 of the ESA regarding federally listed species, **we recommend that:**

- **The Applicants should <u>not begin</u> construction of the Project <u>until</u>:**

  a. **FERC staff completes Section 7 ESA consultation with the USFWS; and**

  b. **the Applicants have received written notification from the Director of OEP, or the Director's designee, that construction and/or use of mitigation may begin.**

4.2 State-Listed Species

The Applicants requested state review of the Project in correspondence with the NGPC and CPW dated August 19, 2021. In response correspondence dated January 5, 2022, NGPC indicated that five state-listed species are within the range of the proposed Project, including the mountain plover, thick-billed longspur, swift fox, timber rattlesnake, and western massasauga. In addition to these species, NGPC identified five species that are both federally and state-listed, including the eastern black rail, whooping crane, American burying beetle, northern long-eared bat, and the rufa red knot; with the exception of the rufa red knot, each of these species is discussed in this section and appendix G, as applicable. The rufa red knot was not identified by the USFWS during early Project coordination or for the Project counties in the IPaC system and is therefore not discussed further.

In correspondence dated September 15, 2021, the CPW indicated that the state-listed threatened burrowing owl could be present in the vicinity of the Project facilities in Colorado. The CPW also indicated the potential presence of two species of concern,

including the mountain plover and swift fox; although these species are discussed below, they are not afforded special protections in Colorado. On January 26, 2023, the CPW indicated that it had no significant biological concerns for state-listed species.

Mountain Plover/Thick-Billed Longspur

The mountain plover and thick-billed longspur are state-listed as threatened in Nebraska. The mountain plover is also a species of concern in Colorado. Within the Project areas, both species inhabit heavily disturbed short-grass prairie habitat in Kimball County, Nebraska. They will nest in agricultural fields, prairie dog colonies, and other disturbed or intensively grazed short-grass habitats. Nearly all areas where these birds may have traditionally nested have been converted to agriculture, such that almost all nesting in Nebraska now occurs in agricultural fields (NGPC 2022f). Both species occur in Nebraska between about March 15 and mid-August. Upon arrival, the birds begin courtship behavior and establish breeding territories and nests, with the primary nesting activity beginning around May 1 (NGPC 2022f). Because both species have been documented within the vicinity of Project facilities in Kimball County, the Applicants have agreed to implement NGPC's protocols for pre-construction surveys if construction were to occur in suitable habitat (short-stature grasslands or fallow farm fields) in Kimball County during the applicable breeding season (April 10 through July 10 for mountain plover and May 1 through July 15 for thick-billed longspur).[34] The NGPC survey protocols include transect surveys within 1 to 3 days of construction to identify and protect birds, with the results of surveys provided to the NGPC for review. With the implementation of pre-construction surveys in accordance with the NGPC protocols if construction were to occur in suitable habitat during the breeding season, we conclude that construction and operation of the Project would not significantly impact the mountain plover or thick-billed longspur.

Burrowing Owl

The burrowing owl is state-listed as threatened in Colorado. The species lives in open, treeless areas with sparse vegetation, including grasslands, deserts, golf courses, pastures, and agricultural lands. They are often associated with burrowing mammals where they can make use of existing burrows, such as in prairie dog towns (Cornell 2022a); however, the Applicants have indicated that there are no prairie dog towns in the vicinity of the Colorado facilities. Burrowing owls in Colorado are mostly migratory and present between late March and early autumn; however, overwintering owls have been

[34] The NGPC protocols for mountain plover and thick-billed longspur are available on eLibrary under accession no. 20221101-5228 and differ slightly between species. In addition, the Applicants' MBCP requires general migratory bird surveys if vegetation clearing were required prior to August 15 (see section B.3.4).

documented (CPW 2021b). The Applicants have indicated that no burrowing owls or suitable burrows were observed during field surveys. If suitable habitat and/or burrows are identified during construction within burrowing owl nesting windows, the Applicants would conduct clearance surveys and implement CPW-recommended buffers for any occupied nests. With the implementation of these protocols, we conclude that construction and operation of the Project would not significantly impact the burrowing owl.

Swift Fox

The swift fox is state-listed as threatened in Nebraska and is listed as a species of concern in Colorado. This small canine requires open short-grass prairies with few shrubs and trees but uses burrows more than any other canine. Swift foxes use an individual burrow during natal denning and pup-rearing, which in Nebraska typically runs from April through August (NGPC 2022f). Because there are multiple occurrences of swift foxes in the vicinity of the Project facilities in Kimball County, Nebraska, the Applicants have agreed to conduct pre-construction surveys for the species if construction is to occur in Kimball County during the natal denning period (April through August). The Applicants would survey for dens 7 to 14 days prior to ground disturbance. With the implementation of pre-construction surveys as warranted, we conclude that construction and operation of the Project would not significantly impact the swift fox.

Timber Rattlesnake/Western Massasauga

Timber rattlesnakes and western massasauga are both state-listed as threatened in Nebraska. Timber rattlesnakes use deciduous and riparian woodlands in conjunction with rock outcrops or talus slopes that provide winter denning opportunities and are only in the southeastern portion of Nebraska; grasslands and agricultural fields act as migratory corridors between woodlots (NGPC 2022f). Western massasaugas hibernate in crayfish burrows in wet, mesic areas identified by reed canary grass or other wetland grasses; they move through grasslands between mating and foraging areas in the summer (NGPC 2022f). Both snakes are active from about April 1 through October 31, depending on ambient temperatures (NGPC 2022f).

The NGPC has indicated that there may be suitable habitat (woodlands, grasslands, and wet, mesic areas) for both snakes along the REX Lateral to TPC East and associated facilities in Jefferson County, Nebraska, where the snakes are known to occur. No denning habitat was identified by the Applicants during initial habitat surveys; however, at the request of the NGPC, they have agreed to mow grassland (and remove mowed vegetation) prior to the active season (April through October), if construction were to occur during the active season. The Applicants have identified potentially suitable habitat along five areas of the pipeline lateral in Jefferson County (MP 0.0 to 0.1, MP 1.0 to 2.2, MP 4.3 to 4.5,

MP 13.6 to 13.8, and MP 14.2 to 14.5). Further, if construction occurs during the active season, visual surveys for snakes would be conducted daily, and the NGPC's Impact Avoidance Protocol[35] would be implemented for any detected individuals. With the implementation of pre-construction clearing and visual surveys, as warranted, we conclude that construction and operation of the Project would not significantly impact the timber rattlesnake or western massasauga.

5. Land Use and Visual Resources

Project construction and abandonment activities would occur in Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties, Nebraska. Most of the land affected by the Project would be agricultural land (77.0 percent) and open land (16.1 percent). The remaining 6.9 percent of land use impacts by the Project affect developed land, forested uplands, and open water. Impacts on open water and wetlands are discussed in sections B.2.2 and B.2.3, respectively; impacts on forested habitat are discussed below.

The Project would affect 672.9 acres of land during construction and abandonment, including pipeline construction rights-of-way, ATWS, access roads, new aboveground valve settings, construction of new aboveground facilities, modifications at existing aboveground facilities, abandonment of existing facilities, and contractor yards. Of that total acreage, 408.9 acres would be restored to approximate pre-construction condition. The remaining 264.0 acres would be maintained for operation of the Project. Table B-12 summarizes the Project's temporary (construction) and permanent (operational) land use impacts. The acreage of estimated construction impacts includes all land disturbed, whereas the acreage of operational impacts represents the land permanently retained for operation.

All facilities to be abandoned would be abandoned in place and all above and below ground structures would remain in place. In response to Staff's EIR dated March 21, 2023, the Applicants confirmed that they would maintain the abandoned compressor stations (see table A-4) for potential use to transport CO_2. Temporary workspace associated with abandonment activities would be allowed to return to pre-construction conditions. Since all abandoned facilities would remain in place, the current land uses would be maintained, including any existing developed land and fencing.

[35] The NGPC's Impact Avoidance Protocol is available on eLibrary under accession no. 20221101-5228.

Table B-12
Land Use Affected by Construction and Operation of Project Facilities (Acres)

Facility	Agricultural Land		Open Land[a]		Forest / Woodland		Open Water, Streams, and Canals		Developed[b]		Totals	
	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)
ABANDONMENT FACILITIES												
TPC West Isolation	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Hereford Ranch Interconnect	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
Redtail Lateral and Interconnect	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
ECGS Interconnect	0.2	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Logan Interconnect	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
Compressor Station 601	0.2	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.9	0.0
Sedgwick Interconnect	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
Sedgwick East Interconnect	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0
Mid-American Ethanol Interconnect	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Oppliger Lincoln Interconnect	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
Compressor Station 602	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0
North Platte Livestock Feeder Interconnect	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0
Northwestern Kearney Interconnect	0.1	0.0	0.0	0.0	0.0	0.0	0.0.	0.0	<0.1	0.0	0.2	0.0
Compressor Station 603	0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0

Table B-12 (continued)
Land Use Affected by Construction and Operation of Project Facilities (Acres)

Facility	Agricultural Land		Open Land[a]		Forest / Woodland		Open Water, Streams, and Canals		Developed[b]		Totals	
	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)
Adams Interconnect	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0
Clay Interconnect – TPC	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.5	0.0
TPC East Isolation	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Abandonment Subtotal	*1.5*	*0.0*	*2.9*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.0*	*4.6*	*0.0*
PIPELINE FACILITIES												
REX Lateral to TPC Adams ROW (Includes MLV Site for Adams Lateral)	184.2	91.9	30.1	15.6	0.4	0.2	0.2	0.1	9.1	5.0	224.0	112.7
REX Lateral to TPC East ROW (Includes MLV Site for TPC East Lateral)	262.3	104.1	50.6	20.9	2.8	1.5	0.2	0.1	17.8	9.0	333.6	135.6
Lateral Subtotal	*446.4*	*195.9*	*80.7*	*36.4*	*3.2*	*1.7*	*0.4*	*0.2*	*26.9*	*14.0*	*557.6*	*248.3*
ABOVEGROUND FACILITIES (BOOSTERS, METERING, AND REGULATING)												
REX/TPC Lone Tree Interconnect	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6
Hereford Ranch Compressor Station	0.0	0.0	3.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	3.1	1.6
Redtail Compressor Station	0.0	0.0	4.5	1.6	0.0	0.0	0.0	0.0	0.0	0.0	4.5	1.6
Logan Compressor and Regulating Station	3.2	1.9	<0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.2	3.6	2.1
Sedgwick Compressor Station	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.3

Table B-12 (continued)
Land Use Affected by Construction and Operation of Project Facilities (Acres)

Facility	Agricultural Land		Open Land[a]		Forest / Woodland		Open Water, Streams, and Canals		Developed[b]		Totals	
	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)
Sedgwick East Compressor Station	1.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.1	2.3	0.5
Mid-American Ethanol Regulating Station	0.3	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	0.3	<0.1
Oppliger Lincoln Regulating Station	0.6	0.1	0.1	<0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.8	0.1
North Platte Livestock Feeder Regulating Station	<0.1	<0.1	0.2	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1
Adams Meter and Regulating Station	2.3	0.7	<0.1	0.0	0.0	0.0	0.0	0.0	1.0	0.2	3.3	0.9
REX to TPC East Meter and Regulating Station	3.9	1.9	0.1	0.1	0.0	0.0	0.0	0.0	1.2	0.9	5.2	2.8
Aboveground Facilities Subtotal	*13.06*	*5.5*	*8.7*	*4.0*	*0.0*	*0.0*	*0.0*	*0.0*	*3.1*	*1.3*	*24.9*	*10.7*
ANCILLARY FACILITIES												
Adams Launcher Site	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.0	1.3	0.3
TPC East Launcher Site	0.0	0.0	1.9	0.6	0.0	0.0	0.0	0.0	0.1	0.0	2.0	0.6
Ancillary Facilities Subtotal	*1.3*	*0.3*	*1.9*	*0.6*	*0.0*	*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	*3.3*	*1.0*
ACCESS ROADS												
Abandonment Facilities	0.5	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.6	0.0	2.5	0.0
Pipeline Laterals and Ancillary Facilities	3.6	0.1	0.6	0.0	0.0	0.0	0.0	0.0	2.5	<0.1	6.6	0.1

Table B-12 (continued)
Land Use Affected by Construction and Operation of Project Facilities (Acres)

Facility	Agricultural Land		Open Land[a]		Forest / Woodland		Open Water, Streams, and Canals		Developed[b]		Totals	
	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)	Const (Temp)	Oper (Perm)
Aboveground Facilities	0.5	0.4	4.8	3.3	0.0	0.0	0.0	0.0	0.4	0.2	5.8	3.9
Access Road Subtotal	*4.6*	*0.5*	*6.8*	*3.3*	*0.0*	*0.0*	*0.0*	*0.0*	*3.5*	*0.3*	*14.9*	*4.1*
ADDITIONAL AREAS FOR PROJECT CONSTRUCTION AND OPERATION												
ATWS	21.1	0.0	7.1	0.0	0.2	0.0	0.0	0.0	3.5	0.0	31.9	0.0
Contractor Yards	14.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	3.7	0.0	18.6	0.0
HSAs	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	17.2	0.0
Additional Areas Subtotal	*51.1*	*0.0*	*7.4*	*0.0*	*0.2*	*0.0*	*0.0*	*0.0*	*9.0*	*0.0*	*67.8*	*0.0*
Project Totals	**518.0**	**202.2**	**108.4**	**44.4**	**3.3**	**1.7**	**0.4**	**0.2**	**42.8**	**15.6**	**672.9**	**264.0**

Const = Construction; Oper = Operation; ROW = right-of-way

Note: The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. This table is based on public land use land cover data, supplemented with field delineated data.

[a] Open land includes all upland herbaceous land, including PEM wetlands. No palustrine scrub-shrub or palustrine forested wetlands would be impacted.

[b] Developed lands are based on public land use land cover data and include developed open space, which can be vegetated, e.g., in the form of grass.

About 30.4 miles (74.1 percent) of the proposed new pipeline lateral routes would be collocated with existing rights-of-way; however, the Applicants would obtain additional easements from landowners where needed to construct and operate their natural gas facilities. Easements would be either temporary, granting the operator the use of the land during construction (e.g., for temporary workspace, access roads, contractor yards), or permanent, granting the operator the right to operate and maintain the pipeline rights-of-way and other approved facilities after construction.

An easement agreement between a pipeline company and a private landowner typically specifies compensation for losses resulting from construction, including losses of non-renewable and other resources, damages to property during construction, and restrictions on existing uses that would not be permitted on the permanent right-of-way after construction. The easement gives the company the right to construct, operate, and maintain the pipeline, and to establish a permanent right-of-way. Landowners are compensated for the use of their land through the easement negotiation process or by the courts through the eminent domain process; however, we note the Commission is not a party to either easement negotiations or eminent domain court proceedings and does not adjudicate disputes regarding compensation. The Applicants would maintain agreements with landowners for the pipeline and facilities that would be abandoned.

Following completion of construction, all temporary construction easements would be restored and returned to the landowners in accordance with the terms of the landowner agreement. The temporary construction easements would remain in place until restoration and closeout of federal, state, and local permits and post-construction monitoring periods are complete. During the restoration and monitoring periods, the Applicants may use these temporary easements to complete restoration and to access monitoring locations.

Landowners would have use of the permanent rights-of-way, except that certain activities, such as the construction of permanent structures, including houses, house additions, trailers, tool sheds, garages, poles, patios, pools, septic tanks, or other objects not easily removable, or the planting of trees, would be prohibited within the 50-foot-wide permanent easements. Post-construction maintenance of the permanent rights-of-way would prevent the reestablishment of trees, including orchards and tree crops if identified during landowner consultation, to promote accessibility for maintenance and inspection, and for emergency response access.

5.1 Land Use

Agricultural Land

Construction of the Project would affect 518.0 acres of agricultural land, defined by the presence of active or rotated crop production, hay, and improved pasture, which is about 77.0 percent of the total area that would be affected by the Project. The predominate crop types within the counties affected by the Project are corn and soybean (USDA 2021). No-till and no-till organic farming practices have been identified on tracts that would be crossed by the proposed laterals. No other areas of specialty crop production are known to be crossed.

The Applicants have developed an AIMP[36] for the Project. The Applicants would implement the measures outlined in their AIMP and their Plan, unless otherwise agreed on by the landowners. The AIMP, which was developed in consultation with Little Blue NRD and the Lower Big Blue NRD in Nebraska, would be implemented on agricultural land across the Project in both states. The Applicants have also submitted the AIMP to the Colorado Department of Agriculture for comment. However, no comments have been received to date.

Within actively cultivated or rotated cropland and improved pasture, topsoil would be stripped and stockpiled separately from the subsoil. The Applicants would offer the landowner the option of full right-of-way topsoil stripping or ditch plus spoil side topsoil stripping. Topsoil would be separated from subsoil at distances sufficient to avoid mixing and would be replaced in the proper order during backfilling and final grading to help ensure post-construction revegetation success. Topsoil would be stored in a windrow parallel to the pipeline trench and stored at the edge of the right-of-way. The Applicants would remove rock greater than 3 inches from the upper 42 inches of soil, or the actual depth of top cover, whichever is less and including topsoil and exposed subsoil. Agricultural land that would not be planted in the calendar year due to Project construction may be seeded with a cover crop or otherwise restored in accordance with landowner agreements. Additionally, as part of their AIMP, the Applicants have developed a Drain Tile Mitigation Plan. Prior to the start of construction activities, the Applicants would coordinate with landowners on the location of drain tiles or irrigation systems within the rights-of-way. The Applicants would also gather information from local Soil and Water Conservation Districts, local drain tile contractors, review existing drain tile plans and maps, review aerial imagery and conduct field investigations. The information gathered would be to develop mapping, construction plans, and mitigation measures in coordination with the landowners. As stated in its AIMP, the Applicants would compensate landowners

[36] The Applicants' AIMP is available on eLibrary under accession number 20230201-5180.

for any construction-related damages caused by the Project, including damage to private property, trees of commercial value, and damages to irrigation system, as well interruptions of irrigation system that result in crop damages. In response to Staff's EIR dated March 7, 2023, the Applicants confirmed that they would compensate landowners for any actual damage and/or loss to normal farming or ranching practices associated with construction of the Project.[37]

In addition to the landowner in Jefferson County, Nebraska who in his comments on the Project stated that he implements no-till farming practices, the Applicants identified another no-till organic tract in response to Staff's EIR dated March 7, 2023. The Applicants have committed to consulting with landowners and implementing mitigation measures such as applying manure, planting a cover crop species, and stabilizing soils by crimping of weed-free straw mulch.[38]

Although impacts on agricultural land use are generally temporary, typically occurring over only one growing season, several short-term impacts, generally observed following restoration of affected lands, could occur as a result of the Project. Impacts that could occur without measures to avoid them include unsuitable drainage and the spread or introduction of non-native plant species, as well as soil compaction, uneven grade, ponding, and mixing of soils as discussed in section B.1.2. Occasionally observed long-term impacts on soils (changes to soil composition and chemistry) could also affect agricultural land use and crop production.

Abandonment of the existing facilities, construction of the pipeline rights-of-way and use of contractor yards, temporary access roads, HSAs, and ATWS would affect 503.1 acres of agricultural land, while construction of aboveground and ancillary facilities and associated permanent access roads would affect 14.9 acres. Following construction, the Applicants would monitor for a period of no less than 3 years in agricultural areas following the completion of initial right-of-way restoration. The Applicants would be responsible for the costs associated with monitoring and any associated remediation or restoration. The agricultural land would be visually inspected to ensure that crop productivity in areas affected by construction is similar to adjacent portions of the same field, or as otherwise agreed to by the landowner. Commission environmental staff would also monitor restoration efforts and require action if necessary. Impacts on prime farmland soils and farmland soils of statewide importance are discussed in section B.1.2.

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[37] The Applicants' response to the comment is available on eLibrary under accession number 20230313-5218. The Commission does not adjudicate disputes regarding compensation for damages.

[38] The Applicants' response is available on eLibrary under accession no. 20221221-5310.

Operation of the Project would affect 202.2 acres of agricultural land, most of which (195.9 acres or 96.9 percent) would be within the permanent rights-of-way of the pipelines, where farming and grazing could resume immediately following restoration. About 5.8 acres would be permanently converted to industrial/developed for the new aboveground facilities and ancillary facilities and an additional 0.5 acre would be permanently converted for the use of permanent access roads. The Applicants would compensate for the permanent loss of agricultural land according to the terms of individual landowner agreements. Given the Applicants' proposed mitigation measures, including the AIMP and Drain Tile Mitigation Plan, we find impacts on agricultural land would mostly be temporary and would not be significant.

Open Land

Project construction would affect 108.4 acres of open land, defined as non-forested upland areas, unimproved pasture, PEM wetlands,[39] and maintained utility rights-of-way (see table B-12). Most of the open lands (64.1 acres) would be within temporary workspace and would be allowed to revert to their original condition once construction is complete. Of the 44.4 acres of open land impacted by operation of the Project, 36.4 acres of open land would be within the maintained pipeline rights-of-way and would be restored and maintained as open land. However, 7.9 acres would be permanently converted to developed land for aboveground and ancillary facilities, including permanent access roads, as detailed in table B-12. Based on the limited acreage of open land that would be permanently maintained as rights-of-way or permanently converted to industrial use, impacts on open land would be predominantly temporary and not significant.

Forested Upland

About 3.3 acres of forested uplands would be affected by construction of the Project. After construction, trees and shrubs would be allowed to grow within the temporary construction rights-of-way and other temporary workspace areas. Impacts on forested uplands would be long-term or permanent, as it would likely take decades for mature trees to reestablish within the about 1.7 acres of construction work areas where trees would be allowed to regrow. About 1.7 acres of forested upland within the permanent rights-of-way would be permanently converted to open land. Impacts on forested vegetation are discussed in section B.3.2, and visual impacts from clearing forested uplands are discussed below. We find that the Project would not result in significant impacts on forested uplands.

[39] The Project would not impact palustrine scrub-shrub or palustrine forested wetlands.

Developed Land

Developed land is defined as areas with a mix of impervious surfaces and vegetated areas such as public parks, residential lawns, residential complexes, commercial/industrial areas, and transportation rights-of-way (including paved roads, railroads, and associated easements). As presented in table B-12, the Project would affect a total of 42.8 acres of developed land during construction and abandonment. Developed areas crossed by the Project include existing aboveground facilities and existing paved roads and railroads. About 15.6 acres would be permanently encumbered by the operational rights-of-way, permanent access roads, and aboveground facilities. The remaining 27.2 acres of developed land would be restored and allowed to revert to prior use after construction.

During construction, the pipelines would cross 49 public and private roads and 2 railroads. The majority of the roads and both railroads would be crossed by trenchless methods such as bore or HDD, thereby avoiding direct impacts on these features. Seven unpaved roads would be crossed using the open-cut method. These roads would be restored to approximate pre-construction conditions. Transportation impacts are discussed in section B.6.1. Impacts on developed land would be mostly temporary and minor; therefore, we conclude that impacts on these lands would not be significant.

5.2 Residential Land and Planned Developments

Residential lands are defined as residential lawns, gardens, and yards. The Project would not cross any residential lands and would not be within 50 feet of any residences.

The Applicants contacted the assessor's offices or planning and zoning administrators for each of the counties crossed by the Project. Responses were received from Weld County, Colorado, and Lincoln, Fillmore, and Saline Counties Nebraska and no planned commercial or residential developments were identified within 0.25 mile of the Project facilities in those counties. No responses have been received to date from the remaining counties within the Project areas.

5.3 Public Land, Recreation, or Sensitive Land Areas

The Project would not cross or be within 0.25 mile of any National Wild and Scenic Rivers, historic trails, National Park Service (NPS) lands, Wildlife Management Areas, state forests, public parks, Indian reservations, or lands held in the Emergency Conservation Program, or Grassland Reserve Program. The Project is outside of any Coastal Zone Management Act areas; as such, federal consistency with a state coastal management program is not necessary.

The Conservation Reserve Program, administered by the Farm Service Agency under the USDA, provides yearly rental payments to farmers enrolled in the program and agree to remove environmentally sensitive land from agricultural production. Based on correspondence with the USDA-NRCS and Farm Service Agency, as well as coordination with affected landowners, no Conservation Reserve Program easements have been identified within the Project areas.

5.4 Visual Resources

The Project areas are predominately characterized as open and rural with much of the area in agricultural use for cultivated crops, hay, and pastureland. Potential visual impacts on culturally sensitive areas are further discussed in section B.7. Impacts on visual receptors, (e.g., residents of, visitors to, and motorists on roadways in the Project areas) would be greatest during construction of the Project because of the increased rights-of-way needed for construction, the displaced soil, and the presence of construction personnel and equipment. After construction, temporary workspaces associated with installation of the pipeline components, which would be buried, would be restored. Given that agricultural and open land (93.1 percent) dominate these areas and would be restored in accordance with the Applicants' AIMP and their Plan, approximate pre-construction conditions are expected to be reestablished within 1 to 3 years following construction. Alternatively, areas where trees would be cleared (3.3 acres) could result in more noticeable changes in the existing viewshed and could take decades to regrow to pre-construction conditions. However, no large forest plots would be cleared, and the laterals would be routed adjacent to existing disturbance (e.g., rights-of-way, agricultural fields) where practicable; therefore, we find that the overall impacts on the viewshed from clearing in forested uplands for the Project would be minor, yet long-term to permanent.

Abandonment of the existing Trailblazer Pipeline, three compressor stations, and interconnect piping would have a negligible impact on visual resources. Impacts associated with abandonment activities would affect 4.6 acres of land, 96.6 percent of which would be open or agricultural land and 3.4 percent would be existing developed land. Since these facilities would be abandoned in place, there would be no change to the overall views associated with the facilities. Abandonment activities would be supported by a nominal number of personnel, small trucks and equipment. Overall, abandonment would have a negligible impact on visual resources.

As discussed in section A.5, the Project would require construction of seven new aboveground facilities (five new booster stations and two new meter stations), modifications to three existing meter stations, and construction of four new ancillary facilities. Most of the aboveground facilities would be sited in predominantly agricultural areas, along small rural roads, with few sensitive visual receptors. At the request of the

FERC staff, the Applicants developed visual simulations for six sites that were identified to be within 1.0 mile of residential structures.[40] Modifications at existing facilities would occur as part of the Project would not result in a significant overall change to the existing viewsheds, as all new structures would be similar in height or shorter than the existing structures and all structures would generally match the color schemes of the surrounding landscape with likely colors of green, tan, or white.

The REX/TPC Lone Tree Interconnect would be constructed within the existing Cheyenne Hub Facility in Weld County, Colorado. The existing facility is visible to motorists along U.S. Route 85; however, there are no residences within 1.0 mile of the site. Expansion of the interconnect within the existing facility site would impact 0.6 acre of open land. Given the existing developed nature of the area, including several other industrial sites adjacent to and across from the Cheyenne Hub Facility, construction and operation of the REX/TPC Lone Tree Interconnect would have a negligible, permanent impact on visual resources.

The three existing meter stations that would require modifications are all sited in rural, agricultural areas accessed from unpaved rural public roads. There are no residences with direct views of the sites. Both the Mid-American and Oppliger Lincoln sites would be visible by motorists; however, the North Platte site is 0.2 mile south of Community Center Road; therefore, the facility is not likely to be visible to passing motorists. During construction, modifications would impact less than 1.0 acre of predominately agricultural and open land at each site and permanent expansion of the sites would impact about 0.1 acre at each site. Given the limited number of viewers and the overall minimal change to the sites, visual impacts would be permanent, but negligible.

Both the Hereford Ranch and the Sedgwick booster stations would be sited in rural areas adjacent to unpaved rural farming roads. While no residences or businesses would have direct view of these sites, commuters along the adjacent roadways would have views of both construction and operation of the booster stations. Both sites would be constructed adjacent to existing aboveground facilities. The Hereford Ranch booster station would be constructed on 3.1 acres of open land and the Sedgwick booster station would impact 1.0 acre of agricultural land. Given the rural location of the sites and the limited number of viewers, as well as the presence of existing facilities, construction and operation of these booster stations are expected to be permanent and minor.

The Redtail booster station would impact 4.5 acres of open land during construction, of which 1.6 acres would be maintained for operation. The booster station would be sited in a rural area 0.6 mile from an unpaved rural farming road. The closest residence is 0.9

[40] Visual simulations are available on eLibrary under accession number 20221221-5310.

mile west of the site. Given the distance from both the residence and the road, the booster station would not be visible from either residents or from motorists along the road. Therefore, construction and operation of this booster station is expected to have a permanent but negligible impact on visual resources.

The Logan booster station would impact 3.6 acres of predominately agricultural land during construction, of which 2.1 acres would be maintained for operation. The booster station is proposed to be sited adjacent to an existing meter station, which would be expanded to include the new facility. The closest residence is 0.2 mile northwest of the proposed site. While there are several large outbuildings around the home, which provide visual screening, given the distance and relatively flat terrain, the Logan booster station would be visible from the residence. Based on the Applicants' visual simulations, while the new booster station would be visible as new features from the residence, it would be similar to components at the existing facility site and to structures at the residence; therefore, we conclude that no significant permanent visual impacts would occur from construction or operation of the Logan booster station.

The Sedgwick East booster station would impact 2.3 acres of predominately agricultural land during construction, of which 0.5 acre would be maintained for operation. The booster station would be constructed adjacent to an existing meter station and the closest residences are about 0.3 mile to southeast (1) and north (1) of the site. Both residences have existing tree rows surrounding the properties that would provide visual screening of the proposed booster station; therefore, the new facility would not be visible from these residences. However, construction activities in this area would be visible to passing motorists. Further, following construction, the new booster station may be visible to passing motorists as a new feature in the viewshed, but it would be similar to components at the existing facility site; therefore, we conclude that no significant permanent visual impacts would occur from construction or operation of the Sedgwick East booster station.

The Adams Meter and Regulating Station would be constructed adjacent to, and incorporated into, an existing aboveground facility. The closest residence is about 0.2 mile south of the proposed site. While there is a large outbuilding and several trees around the home, which may provide visual screening, the facility would be constructed south of the existing aboveground facility and closer to the residence; therefore, it may be visible from portions of the property. While the proposed meter station may be visible as a new feature in the viewshed, it would be similar to components at the existing facility site; therefore, we conclude that there would be no significant change in the viewshed from construction or operation of the Adams Meter and Regulating Station.

The Applicants have proposed two HDDs as part of the Project, both of which would be within agricultural areas. The HDD along the REX to TPC Adams Lateral would occur

from MP 3.1 to 3.3 and the REX to TPC East Lateral HDD is proposed between MP 15.6 and 15.9. The closest residences to these HDDs are about 0.3 mile northeast and 0.2 mile northwest of the HDDs, respectively. Construction vehicles and large equipment at the HDD sites would likely be visible to these residences, as well as passing motorists. The Applicants estimated that the HDDs would take about 24 to 30 days to complete.

Once construction is complete and the pipelines are buried, areas along the construction rights-of-way, including HDD workspaces, would be restored and would not result in any long-term visual impacts.

Through the Applicants' implementation of the revegetation measures in their Plan and Procedures and the AIMP, pipeline placement adjacent to existing disturbance, and avoidance of forested uplands where possible, use of existing facility sites, and siting of new facilities in proximity to similar infrastructure, we conclude that visual impacts of the proposed Project would be appropriately minimized and not significant.

6. Socioeconomics and Environmental Justice

6.1 Socioeconomics

Project construction and abandonment activities would occur in Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties, Nebraska as described in section A.

Population

Populations in the Project areas range from a low of 2,459 people in Sedgwick County, Colorado to a high of 322,424 people in Weld County, Colorado (see table B-13). The Applicants estimate that the peak construction and abandonment workforce would total 1,260 workers of which about 50 percent would be hired locally. The peak workforce would include 450 workers for construction of the aboveground facilities, 700 workers for construction of the pipeline laterals and ancillary facilities, and 110 workers for the abandonment facilities (see table B-14).

Project construction would occur over a 7-month period and the workforce would be spread across the Project areas and would not be concentrated in a single county. The largest workforce would be associated with the pipeline laterals, which would require a single construction spread per lateral with the estimated workforces between 300 and 400 workers, of which between 150 and 200 non-locals are expected to be employed. The addition of the non-local workforces in a single area would result in an increase in population relative to the county populations in Nebraska along the REX Lateral to TPC Adams ranging from a low of 0.5 percent change in Adams County, Nebraska and a high

of 5.1 percent change in Franklin County, Nebraska and along the REX Lateral to TPC East ranging from a low of 1.4 percent change in Saline County, Nebraska and a high of 2.8 percent change in Jefferson County, Nebraska. However, the entire workforce for a lateral would be spread along the pipeline rights-of-way based on the type of activities occurring and would not be concentrated at any single location. Each of the aboveground facilities would also have a single construction spread, with the estimated 450-person workforce (of which 225 workers would be non-local) spread between the 11 sites with an estimated workforce of 30 to 50 workers per aboveground facility. For abandonment locations that are adjacent to proposed aboveground facilities, the construction workforce for the aboveground facility would also complete any abandonment work at that location. For the six abandonment locations that are not adjacent to proposed facilities, a workforce of about 110 workers would complete abandonment activities, with the workforce distributed across these locations simultaneously.

Table B-13
Population Characteristics in the Project Areas

County and State	2017-2021 Average Population[a]	Population Density (persons per square mile)[b]	Civilian Labor Force[c]	Median Household Income[c]	Unemployment Rate (2021)[d]
COLORADO	**5,723,176**	**55.7**	**3,120,868**	**80,184**	**5.4**
Weld	322,424	82.6	171,345	80,843	5.7
Logan	21,765	11.7	11,319	50,998	4.4
Sedgwick	2,459	4.4	1,097	44,405	3.7
NEBRASKA	**1,951,480**	**25.5**	**1,046,463**	**66,644**	**2.5**
Kimball	3,583	3.6	1,884	55,428	2.2
Perkins	2,865	3.2	1,434	57,250	1.4
Lincoln	34,906	13.5	18,016	61,309	2.2
Kearney	6,639	13.0	3,526	68,606	1.8
Franklin	2,914	5.0	1,372	52,400	2.2
Webster	3,442	5.9	1,797	56,786	2.0
Adams	31,284	55.4	16,183	57,783	2.4
Clay	6,104	10.7	3,156	70,690	2.3
Fillmore	5,561	9.6	3,009	66,410	1.9
Saline	14,395	24.9	7,541	58,011	2.3
Jefferson	7,213	12.7	3,587	51,587	1.8

[a] U.S. Census Bureau 2021a
[b] U.S. Census Bureau 2020a
[c] U.S. Census Bureau 2021b
[d] BLS 2021

Table B-14
Workforce Numbers by Project Component and Spread

Project Component	County and State	Spread Number	Peak Workforce Number	Peak Non-local Workforce
PIPELINE FACILITIES[a]				
REX Lateral to TPC Adams	Franklin, Webster, and Adams, NE	Spread 2	300	150
REX Lateral to TPC East	Saline and Jefferson, NE	Spread 3	400	200
ABOVEGROUND FACILITIES[b]				
REX/TPC Lone Tree Interconnect	Weld, CO	Spread 4	30	15
Hereford Ranch Compressor Station[c]	Weld, CO	Spread 5	50	25
Redtail Compressor Station[c]	Kimball, NE	Spread 6	50	25
Logan Compressor and Regulating Station[c]	Logan, CO	Spread 7	50	25
Sedgwick Compressor Station[c]	Sedgwick, CO	Spread 8	50	25
Sedgwick East Compressor Station[c]	Sedgwick, CO	Spread 9	50	25
Mid-American Ethanol Regulating Station	Perkins, NE	Spread 10	30	15
Oppliger Lincoln Regulating Station	Lincoln, NE	Spread 11	30	15
North Platte Livestock Feeder Regulating Station	Lincoln, NE	Spread 12	30	15
Adams Meter and Regulating Station	Adams, NE	Spread 13	30	15
REX to TPC East Meter and Regulating Station	Adams, NE	Spread 14	50	25
ISOLATED ABANDONMENT FACILITIES[d]				
Abandonment Facilities	Logan, CO; Lincoln, Kearney, Clay, and Fillmore, NE	Spread 1	110	55
Project Total			**1,260**	**630**

CO = Colorado; NE = Nebraska

[a] These workers would also construct the ancillary facilities that would be along the pipeline laterals.

[b] These workers would also complete work at abandonment facilities that are collocated with the reported aboveground facility.

[c] Interconnect booster stations are small capacity compressor stations.

[d] These workers would be spread across multiple sites simultaneously.

Employment and Tax Revenue

All of the counties except for Weld County, Colorado have unemployment rates that are lower than their respective state levels. The use of about 630 local workers for construction of the Project would have a negligible, temporary beneficial impact on unemployment within the Project areas. No new operational staff would be required for the Project; therefore, there would be no permanent impact on employment from the Project.

There would be a temporary, positive impact on tax revenue due to construction of the Project from taxes associated with construction payroll and purchases of locally-sourced construction materials and services. The Applicants estimated that the Project would generate about $21,082,808 in sales taxes and $348,777 in payroll taxes during construction.

During operation of the Project, property taxes would be generated on an annual basis by the Project, increasing the tax revenue for local communities. Operation of the laterals and additional aboveground facilities would generate an estimated increase of $250,146 in Colorado and $735,840 in Nebraska. This would result in a negligible to minor, permanent beneficial impact on tax revenue in the Project areas.

Housing and Public Services

The U.S. Census Bureau estimates that there are 2,430 vacant housing units available for rent and 1,710 vacant seasonal, recreational, or occasional use units in the Project areas (U.S. Census Bureau 2021c). The Applicants identified about 110 hotel and motel rooms in the Project areas. Additionally, campgrounds, RV parks, and temporary housing (e.g., VRBO, Airbnb) in the Project areas would supplement these housing stocks.

Public services in the Project areas include 33 hospitals, 134 fire departments, and 60 police departments (County Office 2022). In addition, staff identified 221 schools in the Project areas (Public School Review 2022).

While the need for housing and public services in the Project areas may increase slightly to accommodate the average and peak non-local construction workforce during construction activities, adequate housing and public services exist in the Project areas to accommodate the influx of construction workers. Given the brief construction period, about 7 months, it is unlikely that families would accompany non-local workers to the Project areas; therefore, there would not be a discernible increase in school age children moving into the area due to the presence of the construction workforce. We find this inventory of housing and public service providers sufficient to accommodate the influx of construction workers and their families during construction of the Project and conclude

that construction of the Project would have a temporary, minor impact on housing and public services. Given the lack of new operational workforce, we conclude no impacts on public services would occur during operation of the Project.

Transportation

The Project would require 50 road and/or railroad crossings, as discussed in section A.7.2, less for 7 roads proposed to be open cut; the Applicants are proposing to cross roads and railroads using trenchless methods, e.g., by bore or HDD. All of the open-cut crossings proposed would be of unpaved gravel or dirt roads; all other paved roads would be crossed by trenchless methods, thereby avoiding direct impacts on the road surface.

In addition to the access roads discussed in section A.5.3, the workforce would access work areas and the contractor yards via existing public roads during construction of the Project.

The laterals would have a workforce of between 300 and 400 workers. While each lateral would only have a single spread, the workers would be spread out along the rights-of-way depending on the stage of construction at any single location. Construction shifts would typically end after peak evening commute times; however, construction crew commutes to the work site in the morning may overlap with peak morning commute times. However, as stated above, construction crews for the laterals would be spread along the pipeline rights-of-way such that any traffic impacts from construction of the pipelines that would occur would be minor and temporary due to the linear nature of pipeline construction.

Construction of the aboveground facilities (to be newly constructed, modified, or abandoned), would require nominal workforces, about 30 to 50 workers per site. Most of the public roads that would be used to access these sites are two lane roads, many of them unpaved. The addition of worker commuter traffic, as well as equipment and construction vehicle traffic, would likely have a minor, but temporary impact on traffic along these roads.

Overall, construction of the Project may result in minor, temporary impacts on roadways due to construction and the movement of workers and heavy equipment during the 7-month construction period. The Applicants would obtain all permits necessary to transport construction materials on public roadways and would abide by all local weight restrictions. Given these measures, the nominal construction workforce to be disbursed across the Project areas, current road capacities, and lack of operational workforce, we conclude that impacts on transportation would be temporary, minor, and not significant.

The Applicants have committed to requiring that their contractors develop a Traffic Control Plan to minimize traffic impacts on local roadways.

Socioeconomic Impacts and Mitigation

The small temporary workforce required for construction of the Project would result in a negligible impact on unemployment rates in the Project areas. Additionally, the inventory of housing and public service providers is sufficient to accommodate the influx of non-local construction workers and their families during construction of the Project. Construction of the Project may result in minor, temporary impacts on roadways due to construction activities and the movement of workers and heavy equipment during the 7-month construction period. Overall, given the limited workforce and the short construction period we conclude that the Project would have a negligible, temporary impact on employment and housing, as well as a minor, temporary impact on traffic.

6.2 Environmental Justice

According to the EPA, "environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." Fair treatment means that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies (EPA 2020). Meaningful involvement means:

1. people have an opportunity to participate in decisions about activities that may affect their environment and/or health;

2. the public's contribution can influence the regulatory agency's decision;

3. community concerns will be considered in the decision-making process; and

4. the decision makers will seek out and facilitate the involvement of those potentially affected (EPA 2020).

In conducting NEPA reviews of proposed natural gas projects, the Commission follows the instruction of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, which directs federal agencies to identify and address "disproportionately high and adverse human health or environmental effects" of their actions on minority and low-income populations (i.e., environmental justice communities).[41] EO 14008, *Tackling the Climate Crisis at Home and Abroad*, also directs agencies to develop "programs, policies, and activities to address the

[41] Exec. Order No. 12,898, 59 *Fed. Reg.*7629, at 7629, 7632 (Feb. 11, 1994).

disproportionately high and adverse human health, environmental, climate-related and other cumulative impacts on disadvantaged communities, as well as the accompanying economic challenges of such impacts."[42] The term "environmental justice community" includes disadvantaged communities that have been historically marginalized and overburdened by pollution.[43] Environmental justice communities include, but may not be limited to minority populations, low-income populations, or indigenous peoples.[44]

Commission staff used EPA's Federal Interagency Working Group on Environmental Justice & NEPA Committee's publication, *Promising Practices for EJ Methodologies in NEPA Reviews* (*Promising Practices*) (EPA 2016a), which provides methodologies for conducting environmental justice analyses throughout the NEPA process for this Project. Commission staff's use of these methodologies is described throughout this section.

Commission staff used EJScreen 2.0 (EPA 2022c) as an initial step to gather information regarding minority and/or low-income populations; potential environmental quality issues; environmental and demographic indicators; and other important factors. EPA recommends that screening tools, such as EJScreen 2.0, be used for a "screening-level" look and a useful first step in understanding or highlighting locations that may require further review.

Meaningful Engagement and Public Involvement

The CEQ *Environmental Justice Guidance Under the National Environmental Policy Act* (*CEQ Environmental Justice Guidance*) (CEQ 1997) and *Promising Practices* recommend that federal agencies provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices.[45] They also recommend using adaptive approaches to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation in the decision-making processes of federal agencies. In addition, Section 8 of EO 13985, *Advancing Racial Equity and Support for*

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42 EO No. 14,008, 86 *Fed. Reg.*7619, at 7629 (Jan. 27, 2021).

43 *Id.*

44 See EPA, *EJ 2020 Glossary* (Aug. 18, 2022), https://www.epa.gov/environmentaljustice/ej-2020-glossary.

45 CEQ, *Environmental Justice: Guidance Under the National Environmental Policy Act*, 4 (Dec. 1997) (CEQ's *Environmental Justice Guidance*), https://www.energy.gov/sites/default/files/nepapub/nepa_documents/RedDont/G-CEQ-EJGuidance.pdf.

Underserved Communities Through the Federal Government, strongly encourages independent agencies to "consult with members of communities that have been historically underrepresented in the Federal Government and underserved by, or subject to discrimination in, federal policies and programs."

There have been opportunities for public involvement during the Commission's environmental review processes. The Applicants have conducted four open houses, during the week of June 27, 2022. The meetings were held in communities along or near the route of the Project, including: Beatrice, Hastings, and Kearney, Nebraska and Sterling, Colorado, and in total 56 individuals attended. The Applicants notified local residents and stakeholders via local newspapers and through direct mail. FERC's communication and involvement with the surrounding communities began when the Applicants filed their formal FERC application on May 27, 2022, and provided copies of the application to the local libraries in each of the communities where the open houses were held and the High Plains Library District to facilitate access and review for all members of the communities in the Project areas. FERC issued an NOA,[46] an NOS,[47] and Notice of Schedule,[48] which were published in the *Federal Register* on June 15, 2022, July 15, 2022, and October 5, 2022, respectively. The NOS and Notice of Schedule were mailed to the parties on FERC's environmental mailing list, which included federal and state resource agencies; elected officials; environmental groups and non-governmental organizations; potentially interested Indian tribes; affected landowners; local libraries and newspapers; and other stakeholders who had indicated an interest in the Project. The NOA established a closing date of June 30, 2022 for receiving comments on the Project, and issuance of the NOS established a 30-day formal scoping period that expired on August 10, 2022.

All documents that form the administrative record for these proceedings are available to the public electronically through the internet on the FERC's website (www.ferc.gov). Anyone may comment to FERC about the Project, either in writing or electronically. All substantive environmental comments received prior to issuance of this EA have been addressed within this document.

Regarding future engagement and involvement, in 2021, the Commission established the Office of Public Participation (OPP) to support meaningful public engagement and participation in Commission proceedings. OPP provides members of the public, including environmental justice communities, landowners, Tribal citizens, and consumer advocates, with assistance in FERC proceedings—including navigating

[46] 87 *Fed. Reg.* 36,116 (June 15, 2022); and FERC's Errata correcting the title for issuance available on eLibrary under accession no. 20220624-3027.

[47] 87 *Fed. Reg.* 42,452 (July 15, 2022).

[48] 87 *Fed. Reg.* 60,390 (October 5, 2022).

Commission processes and activities relating to the Project. For assistance with interventions, comments, requests for rehearing, or other filings, and for information about any applicable deadlines for such filings, members of the public are encouraged to contact OPP directly at 202-502-6595 or OPP@ferc.gov for further information.

We recognize that not everyone has internet access or is able to file electronic comments. The NOS was physically mailed to all parties on the environmental mailing list. All comments, whether mailed in, or submitted electronically, receive equal weight by FERC staff for consideration in the EA.

FERC received comments from the EPA. The EPA recommended that (1) any affected environmental justice community concerns should be identified (in the EA); (2) these communities should be given an opportunity to provide input into the remainder of the NEPA process, including proposed mitigation; (3) the EA should include information describing what was or will be done to inform these communities about the Project; (4) disclose the potential impacts it will have on their communities; (5) disclose what input has been received to date from the communities; and (6) how that input was or will be used in decision-making. Community engagement activities were previously described in this section and a discussion of the Applicants' proposed mitigation measures are included below.

Identification of Environmental Justice Communities

According to the CEQ's *Environmental Justice Guidance* and *Promising Practices*, minority populations are those groups that include: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. Following the recommendations set forth in *Promising Practices*, FERC uses the **50 percent** and the **meaningfully greater analysis** methods to identify minority populations. Using this methodology, minority populations are defined in this EA where either: (a) the aggregate minority population of the block groups in the affected area exceeds 50 percent; or (b) the aggregate minority population in the block group affected is 10 percent higher than the aggregate minority population percentage in the county. The guidance also directs low-income populations to be identified based on the annual statistical poverty thresholds from the U.S. Census Bureau. Using *Promising Practices'* **low-income threshold criteria** method, low-income populations are identified as block groups where the percent of low-income population in the identified block group is equal to or greater than that of the county. Here, Commission staff selected Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties, Nebraska, as the comparable reference communities to ensure that affected environmental justice communities are properly identified. As discussed in section A, a portion of the Trailblazer Pipeline to be abandoned in place is in Laramie

County, Wyoming and no ground disturbance is proposed along this portion of the pipeline. However, as discussed below, a census block group in Laramie County, Wyoming is within the buffer distances evaluated for this Project; therefore, this county is included as the comparable reference communities in the analysis that follows. A reference community may vary according to the characteristics of the particular project and the surrounding communities.

Table B-15 below identifies the minority populations (by race and ethnicity) and low-income populations within Wyoming, Colorado, and Nebraska, the counties affected by the Project, and census block groups[49] crossed by the pipeline facilities, including contractor yards, and where abandonment activities would occur, within 1 mile of new meter and regulating stations, modifications of existing aboveground facilities, and new electric-motor-driven booster stations, and within a 5-kilometer buffer for all proposed new gas-fired booster stations.[50] We believe these buffer distances are the appropriate areas of evaluation for this Project as it would encompass the construction-related air and noise emissions, traffic, and visual impacts associated with construction and operation activities. As discussed in section B.8.1, modeling of the expected air emissions associated with the gas-driven booster stations estimated that the furthest radius of impact (for NO_2) was approximately 1.0 kilometer for the Hereford Ranch booster station, 3.0 kilometers for the Logan booster station, and 0.5 kilometer for the Redtail booster station. Each of these are substantially less than the selected 5-kilometer buffer; therefore, we believe the selected buffer provides a conservative analysis. To ensure we are using the most recent available data, we use the U.S. Census American Community Survey[51] File# B03002 as the source for race and ethnicity data and File# B17017 as the source for poverty data. According to the current U.S. Census Bureau information, minority and low-income populations exist within the Project areas, as discussed further below, and depicted in appendix H.[52]

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49 Census block groups are statistical divisions of census tracts that generally contain between 600 and 3,000 people. U.S. Census Bureau. 2022. Glossary: Block Group. Available online at: https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_4.

50 Interconnect booster stations are small capacity compressor stations.

51 U.S. Census Bureau, American Community Survey 2021 ACS 5-Year Estimates Detailed Tables, File# B17017, Poverty Status in the Past 12 Months by Household Type by Age of Householder, https://data.census.gov/cedsci/table?q=B17017; File# B03002 Hispanic or Latino Origin By Race, https://data.census.gov/table?q=b03002&tid=ACSDT5Y2021.B03002.

52 The Applicants' figures showing census block groups and environmental justice communities in the Project areas are available on eLibrary under accession no. 20221221-5310. While the Applicants' figures show a one-mile buffer around the laterals; our analysis of environmental justice communities is based on the census block groups crossed.

Table B-15
Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Areas

State / County / Census Tract / Block Group	POPULATION COLUMN	RACE AND ETHNICITY COLUMNS									LOW – INCOME COLUMN
	Total Population	White Alone Not Hispanic (%)	African American (%)	Native American and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority Population (%)[a]	Below Poverty Level (%)[b]
COLORADO	**5,723,176**	**66.8**	**4.1**	**0.9**	**3.2**	**0.1**	**4.5**	**8.4**	**21.9**	**33.2**	**9.6**
REX/TPC Lone Tree Interconnect											
Weld County, CO	322,424	*64.3*	*1.4*	*0.7*	*1.7*	*0.1*	*5.1*	*7.9*	*30*	*35.7*	9.0
Census Tract 25.01, Block Group 4[c]	2,115	82.9	0	0	0	0	0.3	14.5	12.5	17.1	**18.4**
Hereford Ranch Compressor Station[d]											
Weld County, CO	322,424	*64.3*	*1.4*	*0.7*	*1.7*	*0.1*	*5.1*	*7.9*	*30*	*35.7*	9.0
Census Tract 25.01, Block Group 5[c,e]	458	96.1	0	0	0	0	0.2	3.7	0.2	3.9	**20.5**
Laramie County, WY	*99,905*	*77.3*	*2.4*	*1.0*	*1.1*	*0.1*	*3.1*	*6.1*	*15.3*	*22.7*	*8.9*
Census Tract 20.01, Block Group 1 (*5-km buffer)*	1,817	81.1	0.0	0.8	0.0	0.0	1.6	1.7	16.0	18.9	6.5
Census Tract 20.01, Block Group 2 (*5-km buffer*)	2,455	89.4	2.5	4.6	0.0	0.0	0.0	2.9	5.9	10.6	**14.4**
Sedgwick Compressor Station and Sedgwick East Compressor Station[d]											
Sedgwick County, CO	*2,459*	*75.9*	*0.6*	*0.5*	*0.8*	*0*	*4.2*	*8.1*	*19.5*	*24.1*	*19.3*
Census Tract 9683, Block Group 2[c]	1,230	70.5	0.0	0.2	1.0	0.0	5.0	13.3	22.9	**29.5**	14.6

Table B-15 (continued)
Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Areas

State / County / Census Tract / Block Group	POPULATION COLUMN		RACE AND ETHNICITY COLUMNS										LOW – INCOME COLUMN
	Total Population		White Alone Not Hispanic (%)	African American (%)	Native American and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority Population (%)[a]		Below Poverty Level (%)[b]
Logan Compressor and Regulating Station[d]													
Logan County, CO	*21,765*		*75.1*	*0.9*	*0.6*	*0.7*	*0.9*	*4.2*	*8.8*	*17.4*	*24.9*		*9.9*
Census Tract 9659, Block Group 1[c,e]	967		87.6	0.3	0	0.7	0	2.8	2.2	9.7	12.4		8.6
Cheyenne County, NE	*8,432*		*88.1*	*0.8*	*0.9*	*0.6*	*0.4*	*0.5*	*3.6*	*7.9*	*11.9*		*12.5*
Census Tract 9548, Block Group 1 (*5-km buffer*)	1,183		96.0	0.0	0.8	0.3	0.3	0.1	1.8	2.4	4.0		**13.6**
NEBRASKA	**1,951,480**		**77.7**	**4.8**	**0.9**	**2.5**	**0.1**	**3.1**	**5.1**	**11.5**	**22.3**		**10.7**
REX Lateral to TPC Adams and Appurtenant Facilities													
Adams County, NE	*31,284*		*84.4*	*0.7*	*0.2*	*1.3*	*0*	*2.7*	*4.9*	*11.3*	*15.6*		*14.0*
Census Tract 9662, Block Group 1[f]	801		87.6	0.6	0.0	1.9	0.0	0.4	8.9	1.0	12.4		5.3
Census Tract 9662, Block Group 2	1,693		94.1	0.4	0.1	3.2	0	0.5	1.8	2.7	5.9		10.3
Webster County, NE	*3,442*		*90.2*	*0.2*	*0.3*	*0.0*	*1.4*	*0.2*	*3.7*	*5.3*	*9.8*		*8.7*
Census Tract 9650, Block Group 1[f]	774		92.5	0.0	0.0	0.0	2.8	0.0	1.9	5.0	7.5		5.0
Franklin County, NE	*2,914*		94.6	0.3	0.2	0.2	0.1	0.8	2.6	2.7	5.4		*15.7*
Census Tract 9646, Block Group 1[g]	597		93.3	0.0	0.0	0.2	0.0	0.8	2.2	4.4	**6.7**		**17.6**
REX Lateral to TPC East and Appurtenant Facilities													
Jefferson County, NE	*7,213*		92.5	0.6	0.0	0.3	0.0	0.3	2.7	4.8	7.5		*14.2*
Census Tract 9636, Block Group 1[f,h]	1,377		95.4	0.0	0.0	0.2	0.0	0.4	1.2	3.2	4.6		12.5

Table B-15 (continued)
Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Areas

State / County / Census Tract / Block Group	POPULATION COLUMN		RACE AND ETHNICITY COLUMNS										LOW – INCOME COLUMN
	Total Population		White Alone Not Hispanic (%)	African American (%)	Native American and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority Population (%)[a]		Below Poverty Level (%)[b]
Census Tract 9636, Block Group 2	484		100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		8.8
Census Tract 9636, Block Group 3	1,262		99.0	0.0	0.0	0.0	0.0	0.0	0.8	0.2	1.0		4.6
Saline County, NE	*14,395*		68.2	1.0	0.8	1.5	0.0	6.4	6.0	26.2	31.8		*14.2*
Census Tract 9608, Block Group 1	822		93.8	0.0	0.6	0.0	0.0	0.0	2.7	3.5	6.2		8.1
Redtail Compressor Station[d]													
Kimball County, NE	*3,583*		86.4	0.3	2.5	0.2	0.0	0.2	4.1	9.6	13.6		*14.1*
Census Tract 9545, Block Group 1[c,e]	1,049		91.7	0.3	2.3	0.0	0.0	0.0	2.6	3.1	8.3		10.5
Weld County, CO	322,424		64.3	1.4	0.7	1.7	0.1	5.1	7.9	30	35.7		9.0
Census Tract 25.01, Block Group 2 *(5-km buffer)*	497		91.5	0.4	0.0	0.4	0.0	0.0	5.4	2.2	8.5		**9.7**
Census Tract 25.01, Block Group 5[c] *(5-km buffer)*	458		96.1	0	0	0	0	0.2	3.7	0.2	3.9		**20.5**
Mid-American Ethanol Regulating Station													
Perkins County, NE	*2,865*		*93.3*	*0.1*	*0*	*0.3*	*0*	*0.7*	*2.7*	*4.5*	*6.7*		*10.7*
Census Tract 9593, Block Group 2[c]	748		96.3	0	0	0	0	0	1.2	2.5	3.7		6.1
Oppliger Lincoln Regulating Station and North Platte Livestock Feeder Regulating Station													
Lincoln County, NE	*34,906*		86.9	1.1	1.0	0.9	0.1	1.9	3.5	9.4	13.1		*11.9*
Census Tract 9606, Block Group 3[c]	711		93.4	0	0	0	0.1	5.3	0.4	6.2	6.6		7.8

Table B-15 (continued)
Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Areas

State / County / Census Tract / Block Group	POPULATION COLUMN		RACE AND ETHNICITY COLUMNS										LOW – INCOME COLUMN
	Total Population		White Alone Not Hispanic (%)	African American (%)	Native American and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority Population (%)[a]		Below Poverty Level (%)[b]
Adams Meter and Regulating Station													
Adams County, NE	*31,284*		84.4	0.7	0.2	1.3	0	2.7	4.9	11.3	15.6		*14.0*
Census Tract 9662, Block Group 2	1,693		94.1	0.4	0.1	3.2	0	0.5	1.8	2.7	5.9		10.3
REX to TPC East Meter and Regulating Station													
Saline County, NE	*14,395*		*68.2*	*1.0*	*0.8*	*1.5*	*0.0*	*6.4*	*6.0*	*26.2*	*31.8*		*14.2*
Census Tract 9608, Block Group 1	822		93.8	0.0	0.6	0.0	0.0	0.0	2.7	3.5	6.2		8.1
Clay Interconnect-TPC – Abandonment													
Clay County, NE	*6,104*		88.6	0.4	0.8	0.0	0.0	2.3	3.5	9.0	11.4		*10.1*
Census Tract 9622, Block Group 3	696		95.4	0.0	0.0	0.1	0.0	0.0	3.9	0.6	4.6		**12.7**
TPC East Isolation – Abandonment													
Fillmore County, NE	*5,561*		92.6	0.2	0.8	0.4	0.0	0.4	3.4	4.2	7.4		*7.4*
Census Tract 916, Block Group 2	807		97.1	0.0	0.6	0.0	0.0	0.0	0.4	1.9	2.9		5.5
Compressor Station 603 and Northwestern Kearney Interconnect– Abandonment													
Kearney County, NE	*6,639*		*90.6*	*0.0*	*0.5*	*0.8*	*0.0*	*0.5*	*2.7*	*7.6*	*9.4*		*8.5*
Census Tract 9666, Block Group 1	1,311		96.0	0.0	0.0	2.7	0.0	0.0	0.9	0.4	4.0		4.9

Table B-15 (continued)
Minority Populations by Race and Ethnicity and Low-Income Populations in the Project Areas

State / County / Census Tract / Block Group	POPULATION COLUMN		RACE AND ETHNICITY COLUMNS										LOW – INCOME COLUMN
	Total Population		White Alone Not Hispanic (%)	African American (%)	Native American and Alaska Native (%)	Asian (%)	Native Hawaiian and Other Pacific Islander (%)	Some Other Race (%)	Two or More Races (%)	Hispanic or Latino (%)	Total Minority Population (%)[a]		Below Poverty Level (%)[b]

Source: U.S. Census Bureau 2021d,e.

CO = Colorado; km = kilometer; NE = Nebraska; WY = Wyoming

[a] "Minority" refers to people who reported their ethnicity and race as something other than non-Hispanic White.

[b] Low-income or minority populations exceeding the established thresholds are indicated in red, bold type and blue shading.

[c] One or more facilities to be abandoned are within this census block group.

[d] Interconnect booster stations are small capacity compressor stations.

[e] The facility would be located in this census block group.

[f] A contractor yard is within this census block group.

[g] Adams Launcher Facility is within this census block group.

[h] HDD entry and/or exit is within the census block group.

The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

As presented in table B-15, there are minority and low-income communities within the Project areas. Within the geographic scope of the Project, 6 block groups out of 23 block groups are considered environmental justice communities based on low-income thresholds (Census Tract 25.01, Block Group 2, Census Tract 25.01, Block Group 4, Census Tract 25.01, Block Group 5 in Weld County, Colorado; Census Tract 20.01, Block Group 2 in Laramie County, Wyoming; Census Tract 9548, Block Group 1 in Cheyenne County; Nebraska and Census Tract 9622, Block Group 3 in Clay County, Nebraska), 1 block group out of 23 block groups is considered an environmental justice community based on the minority threshold (Census Tract 9683, Block Group 2 in Sedgwick County, Colorado), and 1 block group is an considered environmental justice community based on both the minority and low-income thresholds (Census Tract 9646, Block Group 1 in Franklin County, Nebraska). In total, 8 block groups out of 23 block groups within the geographic scope of the Project are considered environmental justice communities.

No other census block groups, crossed by the remainder of the Project pipeline facilities, were identified as having minority or low-income populations; therefore, the census block groups crossed or in proximity to these facilities are not discussed further regarding environmental justice impacts.

Impacts on Environmental Justice Communities

As previously described, *Promising Practices* provides methodologies for conducting environmental justice analyses. Issues considered in the evaluation of environmental justice include human health or environmental hazards; the natural physical environment; and associated social, economic, and cultural factors. Consistent with *Promising Practices* and EO 12898, we reviewed the Project to determine if the resulting impacts would be disproportionately high and adverse on minority and low-income populations and also whether impacts would be significant.[53] *Promising Practices* provides that agencies can consider any of a number of conditions for determining whether an action will cause a disproportionately high and adverse impact.[54] The presence of any of these factors could indicate a potential disproportionately high and adverse impact. For this Project, a disproportionately high and adverse effect on an environmental justice community means the adverse effect is predominantly borne by such population. Relevant

[53] See *Promising Practices* at 33 (stating that "an agency may determine that impacts are disproportionately high and adverse, but not significant within the meaning of NEPA" and in other circumstances "an agency may determine that an impact is both disproportionately high and adverse and significant within the meaning of NEPA").

[54] See Promising Practices at 45-46 (explaining that there are various approaches to determining whether an impact will cause a disproportionately high and adverse impact). We recognize that CEQ and EPA are in the process of updating their guidance regarding environmental justice and we will review and incorporate that anticipated guidance in our future analysis, as appropriate.

considerations include the location of Project facilities and the Project's human health and environmental impacts on identified environmental justice communities, including direct, indirect and cumulative impacts. The EPA recommends that the EA include impacts on environmental justice communities from the Project. The analysis of impacts is included in this section.

Project work within environmental justice communities includes less than 0.1 mile of the REX Lateral to TPC Adams pipeline and Adams Launcher Site (Census Tract 9646, Block Group 1), the REX/TPC Lone Tree Interconnect (Census Tract 25.01, Block Group 4), the Hereford Ranch booster station (Census Tract 25.01, Block Group 5 in Weld County, Colorado; Census Tract 20.01, Block Group 2 in Laramie County, Wyoming), Redtail booster station (Census Tract 25.01, Block Group 2), Logan booster station (Census Tract 9548, Block Group 1), and the Sedgwick, and Sedgwick East booster stations (Census Tract 9683, Block Group 2). Additionally, five abandonment facilities would also be within census block groups that qualify as an environmental justice community. For the REX Lateral to TPC Adams, one block group (based on the low-income and minority population thresholds) out of four are considered environmental justice block groups; for the Hereford Ranch booster station, two block groups (based on low-income threshold) out of three block groups are considered environmental justice block groups; for the Redtail booster station, two block groups (based on low-income threshold) out of three block groups are considered environmental justice block groups; for the Logan booster station, one block group (based on low-income threshold) out of two block group are considered environmental justice block groups, for the REX/TPC Lone Tree Interconnect, one block group (based on the low-income threshold) out of one is considered an environmental justice block group; for the Sedgwick and Sedgwick East booster stations, one block group (based on the minority threshold) out of one is considered an environmental justice block group; and for the Clay Interconnect - TPC Abandonment, one block group (based on low-income threshold) out of one is considered an environmental justice block group.

Impacts on the natural and human environment from construction and operation of Project facilities are identified and discussed throughout this document. Factors that could affect environmental justice communities include, visual impacts (see section B.5.4), socioeconomic impacts, including traffic impacts (see section B.6.1) and increased demand for temporary housing and public services (see section B.6.1), and air and noise impacts from construction and operation (see sections B.8.1 and B.8.2). Potentially adverse environmental effects on surrounding communities associated with the Project, including environmental justice communities, would be minimized and/or mitigated. In general, the magnitude and intensity of the aforementioned impacts would be greater for individuals and residences closest to the Project's facilities and would diminish with distance. These impacts are addressed in greater detail in the associated sections of this EA. Environmental

justice concerns are not present for other resource areas such as geology, groundwater, surface water, wetlands, wildlife, or cultural resources due to the minimal overall impact the Project would have on these resources.

Visual Resources

Visual impacts associated with the Project would be dependent on the type and location of the activity. The Applicants completed visual simulations for the Hereford Ranch, Logan, and Sedgwick East booster stations, the Northern Platte Livestock Feeder and Oppliger Lincoln Regulating Stations, and the Adams Launcher Site.[55] Four of these facilities would be within environmental justice communities, including the Hereford Ranch, Logan, and Sedgwick East booster stations, and the Adams Launcher Site.

Abandonment activities are generally within or adjacent to the newly proposed or to be modified facilities; therefore, impacts associated with abandonment are addressed in the discussions below for the corresponding facility. Abandonment activities at one location would be independent of other Project work and would occur within a census block group that qualifies as an environmental justice community; Census Tract 9622, Block Group 3 in Clay County, Nebraska. Abandonment activities would be limited to cutting and capping the TPC mainline and abandoning existing piping and facilities in place. These activities would result in limited ground disturbance in agricultural areas (0.3 acre), requiring a nominal number of personnel, small trucks and equipment working for short time periods. Since all facilities and the pipelines would be abandoned in place, there would be no change to the overall views associated with the facilities and visual impacts on environmental justice communities from abandonment of these facilities would not be significant.

Five booster stations are located within the geographic scope of identified environmental justice communities. Construction of the new Sedgwick booster station is adjacent to existing developed and industrial sites within the environmental justice community, Census Tract 9683, Block Group 2. The closest residence to the booster station is 0.6 mile southeast of the site. The residential property has existing tree rows surrounding it that would provide visual screening from the aboveground facility site. Given the distance of the facility from the residence and the presence of existing vegetation, it is unlikely the booster station would be visible from the residence. The Sedgwick booster station would be constructed adjacent to an unpaved county road, County Road 28. Given the location of the booster station in a predominantly agricultural area with limited sensitive visual receptors as well as existing visual screening at the closest residential structure,

[55] Visual simulations are available on eLibrary under accession number 20221221-5310.

visual impacts on environmental justice communities from the new booster station would not be significant.

Construction of the Sedgwick East booster station would also occur adjacent to existing developed and industrial sites and in the same environmental justice community as the Sedgwick booster station. The closest residences to the facility are 0.3 mile (one to the north and one to the southeast) from the site. Both properties have existing tree rows surrounding them that would provide visual screening from the aboveground facility site. Based on visual simulations for the Sedgwick East booster station completed by the Applicants, the facility would not be visible from the residence to the southeast as the existing tree line along the residential property provides visual screening between the residence and the booster station site. Given the similar size and type of visual screening at each of the other residences, it is unlikely the booster station would be visible from the other residence to the north. The facilities would be partially visible during winter months when tree foliage has dropped. Given the existing vegetation, the scale of proposed facility, and distance from the closest residences (0.3 mile), visual impacts on environmental justice communities from the new booster station would not be significant.

The Hereford Ranch booster station would be constructed adjacent to existing developed and industrial sites within Census Tract 25.01, Block Group 5. The closest residences to the booster station are 0.9 mile south. Based on visual simulations for the Hereford Ranch booster station completed by the Applicants, the facility would not be visible from the residence to the south as the existing tree line along the residential property provides visual screening between the residence and the booster station site. Visual receptors for the Hereford Ranch booster station would generally be limited to passing motorists as the distance to the closest residence and elevation change in topography between the residence and the proposed facility would minimize the extent to which the booster station would be visible. One additional census block group within 5 kilometers of the booster station was identified as an environmental justice community (Census Tract 20.01, Block Group 2 in Laramie County, Wyoming) with the closest residence within this community being more than 2.5 miles from the Hereford Ranch booster station. Therefore, visual impacts on environmental justice communities from Hereford Ranch booster station would not be significant.

While the Logan booster station would not be sited within an identified environmental justice community, it would be within 5 kilometers of Cheyenne County, Nebraska Census Tract 9548, Block Group 1, which has been identified as having a low-income population as compared to the respective county. The closest residence within the environmental justice census block group is about 0.8 mile north of the site. Given the distance of the booster station to the residence and the presence of existing structures adjacent to the booster station site, there would be no discernable change to the viewshed

for environmental justice communities. Therefore, visual impacts on environmental justice communities from installation of the booster station would not be significant.

The Redtail booster station would be constructed adjacent to existing developed and industrial sites within 5 kilometers of Weld County, Colorado, Census Tract 25.01, Block Group 2 and Census Tract 25.01, Block Group 5, which have been identified as environmental justice communities. The closest residence within an environmental justice census block group is about 1.9 miles south of the proposed booster station site. Given the distance of the booster station to the residence, there would be no discernable change to the viewshed for environmental justice communities. Therefore, visual impacts on environmental justice communities from installation of the booster station would not be significant.

Expansion of the REX/TPC Lone Tree Interconnect site would occur within and adjacent to an existing industrial site within Census Tract 25.01, Block Group 4. No residences were identified within 2 miles of the proposed interconnect. Visual receptors of the site would be limited to users along CanAm Highway and from the existing industrial sites surrounding the interconnect. Given that the expansion of the interconnect facility would be a low-profile facility and would be partially obstructed by the adjacent existing industrial sites (which have similar components), visibility of the interconnect for these visual receptors would be limited, and visual impacts on environmental justice communities from the REX/TPC Lone Tree Interconnect would not be significant.

The Adams Launcher Site and less than 0.1 mile of the REX Lateral to TPC Adams would be constructed within environmental justice community in Franklin County, Nebraska, Census Tract 9636, Block Group 1. The closest residences within the census bock group to the launcher site and lateral are about 0.6 mile (north and south) and 0.2 mile (northwest), respectively. Existing rows of trees to the north and south would provide visual screening of the launcher site, which would include a gravel pad about 100 feet by 150 feet with some aboveground piping. Based on visual simulations completed by the Applicants, the facility would not be visible from nearby residences; however, it would be visible to passing motorists on 44 Road. Given that the new facility would be limited to low-profile piping, visibility of the facility for these visual receptors would be limited. Following the brief construction period after which the lateral would be buried, all workspaces would be restored. Therefore, visual impacts on environmental justice communities from installation of the launcher and lateral would not be significant.

Socioeconomics

Given the workforce required for Project construction relative to the county populations (at most 630 non-local workers, or 50 percent of the estimated workforce,

during the 7-month construction period), and no new operational workforce required to operate the facilities, we believe that impacts on socioeconomic resources within the environmental justice communities (e.g., population, housing demand, or the provision of community services such as police, fire, or schools) would be temporary and less than significant, as there would be a negligible change from current conditions.

Transportation

Construction and abandonment activities would result in an increased use of local roads and a higher volume of traffic. This may increase commute times and result in a greater risk of vehicle accidents. These impacts would adversely affect local residents, including environmental justice communities. Impacts would be limited to periods of active construction over the course of a 7-month construction period and distributed along 2 lateral spreads and an additional 12 facility spreads. Therefore, we conclude that traffic would not be expected to significantly impact the environmental justice communities in the Project areas.

The Applicants have also committed to requiring their contractors to develop a Traffic Control Plan prior to construction with the goal of minimizing construction traffic along these routes during peak use periods.

Air Quality

Regarding air emissions, we have determined that construction and abandonment-related exhaust emissions and fugitive dust would result in short-term, localized impacts in the immediate vicinity of construction work areas. In order to minimize construction emissions from generation of fugitive dust, the Applicants would comply with all fugitive dust requirements specified in section B.8.1 and would generally limit ground disturbance to the areas needed to install the Project. The Applicants would also minimize construction emissions by following federal, state, and local emission standards and air quality regulations, reducing vehicle speeds on unpaved roads, and limiting vehicle and equipment idling.

The EPA has promulgated National Ambient Air Quality Standards (NAAQS) to protect human health and welfare. The NAAQS include primary standards, which are designed to protect human health, including the health of sensitive subpopulations such as children and those with chronic respiratory problems. The NAAQS also include secondary standards designed to protect public welfare, including economic interests, visibility, vegetation, animal species, and other concerns not related to human health. Areas meeting the NAAQS are termed attainment areas, and areas not meeting the NAAQS are termed nonattainment areas. Areas that have insufficient data to make a determination of

attainment or nonattainment are unclassified or are not designated but are treated as being attainment areas for permitting purposes. The attainment designation of an area is determined on a pollutant-by-pollutant basis and for each established primary standard. With the exception of the Project facilities in Weld County, Colorado, which are within an area designated as moderate nonattainment for the 2015 8-hour ozone standard, the Project areas are classified as attainment for all criteria pollutants.

Construction emissions (including those associated with abandonment activities) shown in table B-16 are not expected to result in a violation or degradation of ambient air quality standards and would not exceed applicable general conformity standards (see table B-17). The Applicants completed air quality dispersion modeling for the Hereford Ranch, Redtail, and Logan booster stations that demonstrated compliance with the NAAQS (see table B-19). Emissions at the remaining Project facilities within environmental justice communities would be limited to fugitive emissions at the electric-powered Sedgwick and Sedgwick East booster stations, REX/TPC Lone Tree Interconnect, and Adams Launcher Site.

The Project would primarily generate air emissions from operation of the new engines at the Hereford Ranch, Redtail, and Logan booster stations and operation of the new heaters at the Logan booster station, Mid-American Ethanol, Oppliger Lincoln, North Platte Livestock Feeder, Adams, and REX to TPC East Regulating Stations. The combined total of existing background and maximum modeled concentrations are less than the applicable NAAQS for all pollutants for these booster stations, and operation of the remaining facilities would not be expected to significantly impact ambient air quality. Therefore, operation of the Project would not cause or significantly contribute to a degradation of ambient air quality. The Project would result in continued compliance with the NAAQS, which are established to be protective of human health. Although the Project would not contribute to exceedances of NAAQS, NAAQS attainment alone may not assure there is no localized harm to such populations due to cumulative emissions of volatile organic compounds (VOC), HAPs, as well as issues such as the presence of non-Project related pollution sources, local health risk factors, disease prevalence, and access (or lack thereof) to adequate care.

Overall, the construction and operational emissions from the Project would not have significant adverse air quality impacts on the environmental justice populations in the Project areas. Air quality impacts are discussed in more detail in section B.8.1.

Noise

Temporary construction impacts on residences and businesses in proximity to construction work areas could include noise. Noise from construction of the pipelines and

aboveground facilities would temporarily increase sound levels in the Project vicinity and would be limited to the duration of active construction (see section B.8.2). Further, the temporary increase in daytime noise levels could be audible for certain residences within the identified environmental justice community along a portion (less than 0.1 mile) of the REX Lateral to TPC Adams, and the following proposed facility sites: the Sedgwick, Sedgwick East, and Hereford Ranch booster stations, REX/TPC Lone Tree Interconnect, Adams Launcher Site, and eight facility abandonment sites. The HDDs associated with installation of the Project facilities would be outside environmental justice communities.

The Applicants anticipate that the majority of typical Project construction (including abandonment activities) would occur during daylight hours, generally between the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday; those activities, including hydrostatic testing, electrical work (i.e., pulling wire conduit), performing x-ray welds, and hanging pipe,[56] proposed for nighttime construction would not require the use of heavy equipment and therefore typically generate little noise. Overall, while individuals in the immediate vicinity of the construction and abandonment activities would experience an increase in noise, this effect would be temporary and local.

As discussed in section B.8.2, we determined that operation of the new booster stations is not expected to exceed 55 decibels on the A-weighted scale [dBA] day-night sound level (L_{dn}) at any nearby noise sensitive area (NSA). Operation of the Hereford Ranch booster station could cause an audible (3.7 dBA L_{dn}) increase in sound levels at the nearest NSA, which is within the identified low-income population (Census Tract 25.01, Block Group 5). While operation of the Redtail booster station could cause an audible (3.4 dBA L_{dn}) increase in sound levels at the nearest NSA (5,200 feet west), the nearest residences with the identified low-income populations (Census Tract 25.01, Block Groups 2 and 5) are more than 2.0 miles south/southwest of the booster station. At this distance, it is unlikely that operation of the facility would be audible. Operation of the Logan booster station could cause an audible (4.9 dBA L_{dn}) increase in sound levels at the nearest NSA (1,400 feet northwest), the nearest residence with the identified low-income population (Census Tract 9548, Block Group 1) is about 4,440 feet north of the booster station. At this distance, it is unlikely that operation of the facility would be audible. The predicted increase in ambient sound levels at the Sedgwick and Sedgwick East new booster stations would be 0.2 and 2.4 dBA L_{dn}, respectively, and would not result in a perceptible change in noise. We have included a recommendation for the Applicants to verify the actual noise levels from operation of the proposed new booster stations at full-load to ensure compliance with our noise standards.

[56] Hanging pipe involves the installation or mounting of small-diameter pipe using clamps, pipe supports, or flange bolting, without welding or cutting.

The Applicants' proposed noise control measures at the booster stations include installation of:

- an acoustically-insulated enclosure for the compressor units;
- low-noise air inlet and exhaust systems;
- low-noise lube oil coolers and gas coolers; and
- unit blowdown silencers.

With our recommendation and the Applicants' proposed noise control measures, we find that the Project would not have a significant adverse effect on noise impacts on the area population during construction, and would not cause a significant impact on noise during operations in the vicinity of environmental justice communities in the Project areas.

Environmental Justice Impact Mitigation

As described in *Promising Practices*, when an agency identifies potential adverse impacts, it may wish to evaluate practicable mitigating measures. The Applicants have committed to several minimization and mitigation measures to reduce impacts related to construction-period dust and noise, as well as air quality. Though not specifically targeted at mitigating impacts on environmental justice communities, mitigation measures would be implemented across the Project areas, including within the identified environmental justice communities. The Applicants have committed to:

- complying with all fugitive dust requirements specified in section B.8.1, including implementation of their Fugitive Dust Mitigation Plan, and generally limiting most construction activities to 7:00 a.m. to 7:00 p.m., as well as the areas of ground disturbance, to minimize fugitive dust and noise during construction;
- conducting post-construction noise surveys to ensure aboveground facilities do not exceed a L_{dn} of 55 dBA;
- installing noise control measures at the new booster stations, e.g., acoustically-insulated enclosures and use of low-noise equipment and silencers;
- complying with applicable air quality regulations; and

- reducing vehicle and equipment speed in construction work areas and on access roads to account for environmental conditions and by limiting vehicle and establishing a policy to limit equipment idling.

Following construction, temporary workspaces associated with installation of the buried facilities would be restored in accordance with the Applicants' AIMP, Plan, and Procedures, and in addition to other federal, state, and local permit requirements. Areas disturbed by construction would be graded to match original contours and surrounding drainage patterns, except at those locations where permanent changes in drainage would be required to prevent scour, erosion, or potential exposure of the pipelines. In addition, FERC staff would maintain compliance oversight of the Project throughout construction and restoration.

Determination of Disproportionately High and Adverse Impacts on Environmental Justice Communities

As described throughout this EA, the proposed Project would have a range of impacts on the environment and on individuals living in the vicinity of the Project facilities, including environmental justice populations. As highlighted in table B-15, 8 block groups out of 23 crossed by the Project, within 1 mile of new meter and regulating stations, modifications of existing aboveground facilities, and new electric-motor-driven booster stations, or within 5 kilometers of a gas-fired booster station are considered environmental justice communities. As previously stated, Project work within the identified environmental justice communities would include less than 0.1 mile of the REX Lateral to TPC Adams, construction of the REX/TPC Lone Tree Interconnect, Adams Launcher Site, the Hereford Ranch, Redtail, Logan, Sedgwick, and Sedgwick East booster stations, and five abandonment facilities. Impacts associated with construction and operation of these Project facilities would be disproportionately high and adverse as impacts would be predominantly borne by the environmental justice communities. With mitigation, Project impacts associated with traffic, visual, air quality, and noise for these components would be less than significant.

7. Cultural Resources

The NHPA is the cornerstone of the federal government's historic preservation program. Section 101(d)(6) of the NHPA states that properties of traditional religious and cultural importance to Indian tribes[57] may be determined eligible for the NRHP. FERC conducted government-to-government consultations with Indian tribes that may attach religious and cultural importance to properties in the area of potential effects (APE), in accordance with the implementing regulations at 36 CFR § 800.2(c)(2)(ii). Consultations with Indian tribes are detailed below.

Section 106 of the NHPA requires that FERC take into account the effect of its undertakings[58] (including authorizations under Section 7 of the NGA) on historic properties[59] and afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment. The Applicants, as non-federal applicants, are assisting the FERC staff in meeting our obligations under the NHPA by providing data, analyses, and recommendations in accordance with Part 800.2(a)(3) and the FERC's regulations at 18 CFR § 380.12(f).

7.1 Agency Consultations

In accordance with the implementing regulations for complying with Section 106, at 36 CFR 800, FERC consulted with the Colorado and Nebraska State Historic Preservation Offices (SHPO)[60] and interested Indian tribes, prior to making our

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[57] Indian tribes are defined in 36 CFR §800.16(m) as: "an Indian tribe, band, nation, or other organized group or community, including a Native village, Regional Corporation, or Village Corporation, as those terms are defined in Section 3 of the Alaska Native Claims Settlement Act (43 U.S.C. 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their special status as Indians."

[58] "Undertaking means a Project activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; those requiring a Federal permit, license or approval; and those subject to state or local regulation administered pursuant to a delegation or approval by a Federal agency," as defined in Part 800.16(y).

[59] Historic properties include prehistoric or historic sites, districts, buildings, structures, objects, landscapes, or properties of traditional religious or cultural importance listed on or eligible for listing on the NRHP, as defined in Part 800.16(l).

[60] In Colorado, the SHPO is housed within the History Colorado Center. In Nebraska, the SHPO is housed within the History Nebraska Headquarters Building.

determinations of NRHP eligibility and Project effects for all cultural resources[61] identified in the APE.

FERC sent copies of our NOS for the Project to a wide range of stakeholders, including other federal agencies, such as the ACHP, USACE, EPA, U.S. Department of the Interior Bureau of Indian Affairs, and NPS; state and local government agencies, such as the SHPOs; affected landowners; and Indian tribes that may have an interest in the Project areas. The NOS contained a paragraph about the NHPA, which stated that we use the notice to initiate consultations with the SHPOs, and to solicit the views of other government agencies, interested Indian tribes, and the public on the Project's potential effects on historic properties.

7.2 SHPO Consultations

The SHPOs did not file comments on the record in response to our NOS. On November 12, 2021, the Applicants wrote a letter to the Colorado SHPO, introducing the Project and providing a copy of the *Colorado Limited-Results Cultural Resource Survey Form* for the following Project components proposed for abandonment in Colorado: TPC West Isolation, Hereford Ranch Interconnect, ECGS Interconnect, Logan Interconnect, Compressor Station 601, Sedgwick Interconnect, Sedgwick East Interconnect, and the following proposed aboveground Project facilities in Colorado: REX/TPC Lone Tree Interconnect, Hereford Ranch, Logan, Sedgwick, and Sedgwick East booster stations.

On January 27, 2022, the Applicants wrote a second letter to the Colorado SHPO with an addendum describing the results of supplemental survey work completed for the Logan booster station and Compressor Station 601 cut-and-cap work area and providing a copy of the *Colorado Limited-Results Cultural Resource Survey Form*.

On November 15, 2021, the Colorado SHPO requested the submission of updated documentation regarding a known historical farm (5WL8128) that appeared to be within the Project area. A modified report with the requested documentation was submitted between November 15 and 17, 2022. On November 29, 2022, and February 1, 2022, respectively, the Colorado SHPO sent the Applicants letters reviewing the survey form and

[61] Cultural resources are locations of human activity, occupation, or use. According to FERC's Office of Energy Projects "Guidelines for Reporting on Cultural Resources Investigations for National Gas Projects" (July 2017), "cultural resources include any prehistoric or historic archaeological site, district, object, cultural feature, building or structure, cultural landscape, or traditional cultural property." Although "cultural resources" are not defined in 36 CFR 800, it is a "term-of-art" in the field of historic preservation and archaeological research. Some Indian tribes believe that cultural resources could include natural resources, such as plants and animals of traditional importance to tribes, and topographic features and viewsheds that may be sacred.

addendum form. In both letters, the Colorado SHPO stated: "After review of the provided documentation, we agree that your finding of no historic properties affected [36 CFR § 800.4(d)(1)] is appropriate for the subject undertaking." FERC staff concurs.

The Applicants wrote a letter to the Nebraska SHPO on December 2, 2021, informing them about the Project, and provided a copy of their Class III inventory survey report covering the proposed REX Lateral to TPC Adams and REX Lateral to TPC East, pipeline laterals, and the following proposed aboveground facilities: the Redtail booster station, Mid-American Ethanol Regulating Station, Oppliger Lincoln Regulating Station, North Platte Livestock Feeder Regulating Station, Adams Meter and Regulating Station, REX to TPC East Meter and Regulating Station, Adams Launcher Site, TPC East Launcher Site, the MLV Site for Adams Lateral, and the MLV Site for TPC East Lateral. The provided survey report also included the following Project components proposed for abandonment: Redtail Lateral and Interconnect, Mid-American Ethanol Interconnect, Oppliger Lincoln Interconnect, Compressor Station 602, North Platte Livestock Feeder Interconnect, Compressor Station 603, Adams Interconnect, Clay Interconnect – TPC, and the TPC East Isolation.

On January 27, 2022, the Applicants wrote a second letter to the Nebraska SHPO, including an addendum to the Class III inventory survey report for an alignment shift of the proposed REX Lateral to TPC East pipeline lateral; and surveys of Compressor Stations 602 and 603, Adams Interconnect, and Clay Interconnect – TPC.

On December 20, 2021, and February 11, 2022, in reply to both letters, the Nebraska SHPO sent the Applicants letters reviewing the survey report and addendum which read: "The [Nebraska] SHPO concurs that the determination of no historic properties affected is appropriate for this undertaking and the project should proceed as planned." FERC staff agrees.

On December 21, 2022, the Applicants submitted a second addendum report to the Class III inventory survey report for one rerouted access road (i.e., 07-TAR-003C) and two new proposed access roads, identified as 01-TAR-000 and 01-TAR-000B. On January 23, 2023, the Nebraska SHPO concurred with the determination of no historic properties affected. The FERC staff agrees with the Nebraska SHPO.

7.3 Tribal Consultations

FERC contacted Indian tribes that may attach religious or cultural significance to sites in the region or may be interested in potential Project impacts on cultural resources. We identified Indian tribes that historically used or occupied the Project areas through basic ethno-historical sources such as the *Handbook of North American Indians*,

communications with the SHPOs, and information provided by the Applicants and their cultural resources consultants. The NOS for this Project was sent to 35 federally recognized Indian tribes, including:

- Apache Tribe of Oklahoma
- Comanche Nation, Oklahoma
- Crow Creek Sioux Tribe of the Crow Creek Reservation, South Dakota
- Iowa Tribe of Kansas and Nebraska
- Iowa Tribe of Oklahoma
- Kaw Nation
- Kickapoo Tribe of Indians of the Kickapoo Reservation in Kansas
- Lower Brule Sioux Tribe
- Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana
- Oglala Sioux Tribe
- Omaha Tribe of Nebraska
- Osage Nation
- Otoe-Missouria Tribe of Indians, Oklahoma
- Pawnee Nation of Oklahoma
- Ponca Tribe of Nebraska
- Ponca Tribe of Indians of Oklahoma
- Prairie Band of Potawatomi Nation
- Rosebud Sioux Tribe of the Rosebud Indian Reservation, South Dakota
- Sac and Fox Nation of Missouri in Kansas and Nebraska
- Sac and Fox Nation, Oklahoma
- Sac & Fox Tribe of the Mississippi in Iowa
- Santee Sioux Nation
- Standing Rock Sioux Tribe of North and South Dakota
- Three Affiliated Tribes of the Fort Berthold Reservation, North Dakota
- Wichita and Affiliated Tribes (Wichita, Keechi, Waco & Tawakonie), Oklahoma
- Winnebago Tribe of Nebraska
- Yankton Sioux Tribe of South Dakota
- Southern Cheyenne and Arapahoe Tribes
- Northern Arapahoe Tribe
- Jicarilla Apache Tribe
- Crow Tribe
- Eastern Shoshone Tribe
- Southern Ute Tribe
- Ute Mountain Tribe
- Ute Tribe of the Uintah and Ouray Reservation

On November 16, 2022, FERC sent individual letters to leaders of the 35 federally recognized Indian tribes listed above. No tribes responded to our NOS or individual letters to date on the record. On August 17, 2021, the Applicants contacted 30 federally recognized Indian tribes with information about the Project, including the results of the

cultural resources surveys. In a September 22, 2021 email to the Applicants' consultant, the Pawnee Nation requested shapefiles of the Project area and any cultural resources survey areas. The requested files were sent, to which the Pawnee Nation acknowledged receipt on September 23, 2021. In a response dated October 22, 2021, the Pawnee Nation's Historic Preservation Officer indicated that several of the Project components could affect their cultural landscape.[62]

On September 22, 2021, the Winnebago Tribe of Nebraska's Cultural Preservation Director requested clarification regarding the Project location, to which the Applicants' consultant responded with corrections. On September 23, 2021, following the clarification, the tribe stated, "This project will not affect any known sites affiliated with the Winnebago Tribe of Nebraska. We do not have any questions or concerns regarding your proposed undertaking at this time. You do not need to consider us as an interested party throughout the duration of your undertaking."

In a letter dated October 20, 2021, the Comanche Nation's Tribal Historic Preservation Officer (THPO) stated, "The location of your project has been cross referenced with the Comanche Nation site files, where an indication of "No Properties" have been identified."

On August 10, 2022, the Omaha Tribe of Nebraska and Iowa requested that cultural monitors be on-site during construction of the new pipeline laterals and other new aboveground facilities. In a letter dated September 20, 2022, to the Omaha Tribe of Nebraska, the Applicants acknowledged the request that cultural monitors be on-site during construction and have committed to employ a monitor.

The Northern Cheyenne Tribe sent an email to the Applicants on October 17, 2022, expressing their interest to be involved in the Project and with a request that the Applicants "please keep the Northern Cheyenne THPO up to date on when the next undertaking such as the Class III report will begin." On October 20, 2022, the Applicants thanked the tribe for their interest and provided electronic copies of the cultural resources survey reports.

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[62] The NPS, the agency responsible for defining historic properties and maintaining the NRHP, defines a cultural landscape as "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values" (NPS 2023). In National Register Bulletin 30, the NPS mentions "landscapes having intangible cultural values, such as ceremonial sites." In its National Register Bulletin 38, the NPS states that "A culturally important natural landscape may be classified as a site."

On September 9, 2022, copies of the Cultural Resources UDP were submitted to all contacted Indian tribes.

7.4 Survey Investigations

Area of Potential Effects

The Applicants' definition of the direct APE includes the footprints of the Project facilities, construction rights-of-way, extra workspaces (including HSAs), HDDs, contractor yards, and access roads. Therefore, according to the Applicants, the direct APE for this Project covers a total of about 672.9 acres, which is equal to the construction rights-of-way.

While the Applicants did not specify an indirect APE, FERC staff considers it the visual distance from facilities where changes may affect characteristics of historic properties, generally considered up to 0.5 mile.

Overview

The Applicants' cultural resources consultant conducted background research at the Colorado and Nebraska SHPOs to identify previously recorded archaeological and aboveground resources within a 1-mile study area centered on the Project. In Colorado, 13 previous surveys cross the Project areas. Sites 5SW102.1 (Highline Canal), 5LO581 (Worden Homestead), 5WS105 (lithic scatter), and isolate 5SW103 (two flakes, two glass fragments) were previously recorded within 1 mile of the Project workspaces. In the direct APE, a prehistoric isolated find (5WL572, single flake) was previously recorded within the access road for the TPC West Isolation; and Site 5WL8128, a Centennial Farm, was previously recorded at the Hereford Ranch booster station.

In Nebraska, a total of 64 cultural resource inventories have been conducted within the 1-mile study area. Twenty of those previous surveys overlap with the direct APE. Within the 1-mile study area, 134 cultural resources have been previously recorded. Eight of these cultural resources are within the direct APE, and include two prehistoric lithic scatter sites, two prehistoric lithic scatter isolated finds, two historical artifact scatter sites, a railroad site, and a ranch site.

Survey Results

Between August and November 2021, the Applicants completed cultural resources surveys, which covered about 1,730.5 acres total. In Nebraska, about 1,670.4 acres were inventoried, covering the following facilities: REX Lateral to TPC Adams; REX Lateral to TPC East; Compressor Station 602; Compressor Station 603; Clay Interconnect – TPC;

TPC East Isolation; Redtail booster station; Mid-American Ethanol Regulating Station; Oppliger Lincoln Regulating Station; North Platte Livestock Feeder Regulating Station; Adams Meter and Regulating Station; REX to TPC East Meter and Regulating Station; Adams Launcher Site; TPC East Launcher Site; MLV Site for Adams Lateral; and MLV Site for TPC East Lateral.

During the surveys in Nebraska, four previously recorded cultural resource locations were revisited and confirmed present. Previously recorded sites 25JF38, 25JF40, and 25JF50 were listed as not eligible on the Nebraska SHPO site files. The Applicants recommend that these previous NRHP eligibility determinations be upheld. Site 25JF52 was previously recommended as eligible for the NRHP, and the Applicants recommend this previous determination also be upheld. Project construction activities in the vicinity would avoid site 25JF52. In addition, one new prehistoric isolated find (KTHIF01), comprised of a single chert flake was recorded, evaluated as not eligible for the NRHP, and no further work was recommended. FERC staff and the Nebraska SHPO agree.

A total of 60.1 acres were inventoried in Colorado, covering the following facilities: TPC West Isolation; Compressor Station 601; REX/TPC Lone Tree Interconnect; Hereford Ranch, Logan, Sedgwick, and Sedgwick East booster stations.

No new or previously recoded cultural resources were identified in Project areas in Colorado. No further work is recommended for the Project in Colorado. We and the Colorado SHPO agree.

7.5 Unanticipated Discovery Plan

The UDP was designed to address the unanticipated discovery of archaeological materials and human remains during Project activities. The UDP describes the process of halting construction activities in the vicinity of the discovery and notifying FERC, the SHPOs, and interested Indian tribes. If human remains are discovered during construction, the local medical examiner and law enforcement would also be notified.

We asked the Applicants to revise the UDP to clarify FERC's role in determining NRHP status and further actions if discoveries are made and list the correct FERC contact. We directed the Applicants to document transmittal of the revised UDP to FERC, SHPOs, and interested tribes, and to file comments on the revised plan. The Applicants filed the revised UDP with FERC, SHPOs, and interested tribes in September 2022. We find the UDP acceptable.

7.6 Compliance with the National Historic Preservation Act

We agree with the SHPOs that the Project would not affect any historic properties. Therefore, the intent of Section 106 of the NHPA is satisfied.

We have not yet completed compliance with Sections 101(d)(6) of the NHPA. No traditional cultural properties or properties of religious or cultural importance to Indian tribes were identified in the APE by the Applicants or their consultants, the SHPOs, Bureau of Indian Affairs, or the NPS. However, the Pawnee Nation has indicated that several Project components may affect sacred Pawnee cultural landscapes. In response to staff's comment in an EIR dated December 9, 2023, the Applicants stated that they are still having discussions with the Pawnee Nation about these concerns and whether any mitigation measures or Project scope changes may be necessary. Therefore, **we recommend that:**

- **The Applicants should <u>not begin</u> construction of the Project facilities and/or use staging, storage, or temporary work areas and new or to-be-improved access roads <u>until</u>:**

  a. **the Applicants file with the Secretary all correspondence with the Pawnee Nation regarding any agreed upon mitigation measures, including avoidance/treatment plans;**

  b. **the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and**

  c. **the FERC staff reviews and the Director of OEP approves any mitigation measures, including avoidance/treatment plans, and notifies the Applicants in writing that the mitigation measures may be implemented and/or construction may proceed.**

8. Air and Noise

8.1 Air Quality

Air Quality

The term "air quality" refers to relative concentrations of pollutants in the ambient air. Local and regional air quality in the Project areas would potentially be affected by construction and operation of the Project. This section summarizes federal and state air quality regulations that are applicable to the proposed facilities. This section also characterizes the existing air quality in the Project areas and describes potential impacts the facilities may have on air quality regionally and locally.

In its comments on the Project, the EPA recommended that the EA characterize baseline air quality and address potential impacts on air quality from construction and operation of the proposed Project, including potential impacts on criteria pollutants and hazardous air pollutants. The EPA also made several recommendations concerning GHGs, including quantifying the social cost of GHGs, and disclosing impacts on air quality. These comments are addressed in the following analysis.

Ambient air quality is protected by the CAA of 1970, as amended in 1977 and 1990. The EPA oversees the implementation of the CAA and establishes the NAAQS to protect human health and welfare.[63] NAAQS have been developed for seven "criteria air pollutants" including nitrogen dioxide (NO_2), carbon monoxide (CO), ozone, sulfur dioxide (SO_2), particulate matter less than or equal to 2.5 microns in aerodynamic diameter ($PM_{2.5}$), particulate matter less than or equal to 10 microns in aerodynamic diameter (PM_{10}), and lead, and includes levels for short-term (acute) and long-term (chronic) exposures. Ozone is not directly emitted into the atmosphere from an emissions source. Ozone develops as a result of a chemical reaction between nitrogen oxides (NO_x) and VOC in the presence of sunlight.

VOCs, classified by the EPA, are a subset of organic compounds emitted during fossil-fuel combustion, which can cause a variety of health effects of varying severity. Fossil fuels would be combusted during construction and operation of the Project. Certain hazardous air pollutants (HAP), also classified by EPA, many of which are VOCs, are also emitted during fossil-fuel combustion and contain compounds that are known to or suspected of causing serious health effects.

The NAAQS include two standards, primary and secondary. Primary standards establish limits that are considered to be protective of human health and welfare, including sensitive populations such as children, the elderly, and asthmatics. Secondary standards set limits to protect public welfare, including protection against reduced visibility and damage to crops, vegetation, animals, and buildings (EPA 2022a). Under the CAA, each state prepares a State Implementation Plan to demonstrate the state's air quality management program to attain or maintain the NAAQS. States must adopt standards that are at least as stringent as the NAAQS. At the state level, the States of Colorado and Nebraska have adopted standards that are at least as stringent as the NAAQS for CO, ozone, SO_2, $PM_{2.5}$, PM_{10}, and lead, as codified under the Code of Colorado Regulations (CCR) Department of Public Health and Environment Rule 5 Section 1001-14-I and Nebraska Administrative Code (NAC) Title 129 Chapter 2. The State of Colorado has also adopted a three-hour maximum concentration standard for SO_2 (Section 5 CCR 1001-14-I.B);

[63] The current NAAQS are listed on the EPA's website at https://www.epa.gov/criteria-air-pollutants/naaqs-table.

Nebraska has also established state-specific standards for total reduced sulfur (Title 129 NAC Chapter 2.002).

The term "greenhouse gases" refers to the gases and aerosols that occur in the atmosphere both naturally and as a result of human activities, such as the burning of fossil fuels. GHGs are non-toxic and non-hazardous at normal ambient concentrations; however, they were identified as pollutants by the EPA due to their impacts on the global climate. The primary GHGs that would be emitted by the Project are CO_2, methane, and nitrous oxide (N_2O). During construction and operation of the Project, these GHGs would be emitted from most of the construction equipment and at valves and other aboveground components associated with the laterals and other aboveground facilities, such as the booster stations.

Emissions of GHGs are typically quantified and regulated in units of carbon dioxide equivalents (CO_2e). The CO_2e takes into account the global warming potential (GWP) of each GHG. The GWP is the measure of a particular GHG's ability to absorb solar radiation as well as its residence time within the atmosphere. The GWP allows comparison of global warming impacts between different gases; the higher the GWP, the more that gas contributes to climate change in comparison to CO_2. For comparison, CO_2 has a GWP of 1, methane has a GWP of 25, and nitrous oxide has a GWP of 298 (EPA 2022b).[64] There are no applicable ambient standards or emission limits for GHG under the CAA.

Existing Air Quality

The Project areas for this air analysis include Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties, Nebraska. The proposed Project areas include multiple counties, therefore, the climate of the northwestern and southeastern extents of the Project are discussed to provide an overall description for the Project areas. Kimball County, which includes the Redtail Lateral and Interconnect (TPC) and the Redtail booster station (REX), is the northwestern-most county included in the Project areas. The maximum daily average temperatures at the Bushnell 15S Monitor in Kimball County, Nebraska peak at 84.3 °F in July, and minimum average daily temperatures are typically lowest in December at 11 °F. Precipitation in the area varies, with an average annual rainfall of 16.7 inches and 51.6 inches of snow (NOAA 2020a). Jefferson County, Nebraska which includes the TPC East Launcher Site and the MLV Site for the REX

[64] These GWPs are based on a 100-year time period. We have selected their use over other published GWPs for other timeframes because these are the GWPs the EPA has established for reporting of GHG emissions and air permitting requirements. This allows for a consistent comparison with these regulatory requirements.

Lateral to TPC East, is the southeastern-most county included in the Project areas. The maximum daily average temperatures at the Fairbury 5S Monitor in Jefferson County peak at 88.4 °F in July, and minimum average daily temperatures are typically lowest in January at 14.1 °F. Precipitation in the area varies, with an average annual rainfall of 32.4 inches and 20.7 inches of snow (NOAA 2020b).

The EPA and state and local agencies have established a network of ambient air quality monitoring stations to measure concentrations of criteria pollutants across the United States. The data are then averaged over a specific time period and used by regulatory agencies to determine compliance with the NAAQS and to determine if an area is in attainment (criteria pollutant concentrations are below the NAAQS), nonattainment (criteria pollutant concentrations exceed the NAAQS), or maintenance (area was formerly nonattainment and is currently in attainment). With the exception of Weld County, Colorado, all counties in the Project areas are in attainment for all criteria pollutants. However, Weld County is part of the Denver Metro/North Front Range, Colorado Moderate Nonattainment Area for the 2015 8-Hour Ozone National Ambient Air Quality Standard (EPA 2022c, d). As noted by the EPA in scoping comments, portions of Weld County are within an area designated as severe nonattainment for ozone; however, no Project facilities are proposed within the severe nonattainment area and the entirety of Weld County is designated as a moderate nonattainment area for the 2015 8-hour ozone NAAQS; additional information is provided below. Additional pollutants, such as VOCs and HAPs, are emitted during fossil-fuel combustion. These pollutants are regulated through various components of the CAA that are discussed further below.

Regulatory Requirements

Prevention of Significant Deterioration and Nonattainment New Source Review

New or modified air pollutant emission sources must undergo a New Source Review (NSR) prior to construction or operation. Through the NSR permitting process, federal and state regulatory agencies review and approve project emissions increases or changes, emissions controls, and various other details to ensure air quality does not deteriorate as a result of new or modified existing emission sources. The three basic categories of NSR permitting are Prevention of Significant Deterioration (PSD), Nonattainment New Source Review (NNSR), and minor source NSR. PSD, NNSR, and minor source NSR are applicable depending on the size of the proposed project, the projected emissions, and if the project is proposed in an attainment area or nonattainment/maintenance area. The Air Pollution Control Division (APCD) of the CDPHE administers the NSR and PSD program in Colorado (EPA 2022e). The NDEE administers the program in the Project areas in Nebraska (EPA 2022i).

PSD regulations define a major source as any source type belonging to a list of named source categories that have a potential to emit 100 tons per year (tpy) or more of any regulated pollutant, or 250 tpy for sources not among the listed source categories. The proposed Hereford Ranch, Redtail, and Logan booster stations would not exceed the PSD major source thresholds for any pollutants; therefore, no major sources are proposed for construction or modification as part of the Project. The Hereford Ranch and Logan booster stations are minor sources subject to NSR; the Redtail booster station is not subject to permit requirements. The Sedgwick and Sedgwick East booster stations would use electric compressor units and do not include new combustion sources subject to PSD regulations.

Class I Areas and Visibility

In scoping comments, the EPA recommended under the PSD program, mandatory federal Class I areas are designated by the EPA to protect certain areas (e.g., wilderness areas, national parks, national forests) to ensure that deterioration of existing air quality-related values, such as visibility, is minimized in these areas. Relative to Class II and III areas, Class I areas have the most restrictive allowable PSD air quality increments. For a new major source or major modification within 62 miles (100 kilometers) of a Class I area, the facility is required to notify the appropriate federal land manager and assess the impacts of that project on the nearby Class I areas. Rocky Mountain National Park is about 50 miles southwest of the nearest Project facility (the REX/TPC Lone Tree Interconnect, which would not emit stationary source emissions); however, the closest minor source of pollutant emissions to the Rocky Mountain National Park is the Hereford Ranch booster station, about 67 miles southwest. Because the Project would not involve new major sources, and given the distance to Class I areas, abandonment, construction, and operation is not expected to affect air quality-related values (including visibility and deposition).

Title V Permitting

Title V is an operating air permit program run by each state for each facility that is considered a "major source." The major source threshold for an air emission source within an attainment area, or within a marginal or moderate nonattainment area, is 100 tpy for criteria pollutants, 10 tpy for any single HAP, and 25 tpy for total HAPs. Compressor Station 601 has an existing Title V major source permit, and the Applicants would cancel the active permit upon the permanent abandonment of that facility (see table A-4; potential emissions from operation of the existing facility are summarized in table B-19, below). Title V permitting is not applicable to any other facilities associated with the Project.

New Source Performance Standards

The EPA promulgates New Source Performance Standards (NSPS) for new, modified, or reconstructed stationary sources to control emissions to the level achievable

by the best-demonstrated technology for stationary source types or categories as specified in the applicable provisions. The NSPS also establish fuel, monitoring, notification, reporting, and recordkeeping requirements.

NSPS Subpart Dc (Standards of Performance for Small-Industrial-Commercial-Institutional Steam Generating Units) establishes emission standards for steam generating units with a design heat input capacity between 10 and 100 million British thermal units per hour (MMBtu/hr). The Logan booster station would have one heater and the REX to TPC East Meter and Regulating Station would have four heaters with design capacities between 10 and 100 MMBtu/hr and are subject to this subpart.

NSPS Subpart JJJJ (Standards of Performance for Spark Ignition Internal Combustion Engines) establishes emission standards for manufacturers and operators of spark ignition (SI) internal combustion engines. The requirements of this subpart apply to SI internal combustion engines with a maximum engine power greater than or equal to 500 horsepower (except lean burn 500≤HP<1,350) manufactured on or after July 1, 2007 and SI lean burn internal combustion engines with a maximum engine rating greater than or equal to 500 and less than 1,350 horsepower manufactured on or after January 1, 2008. The requirements of this rule will apply to engines at the Hereford Ranch, Redtail, and Logan booster stations.

On November 15, 2021, the EPA issued in the *Federal Register* the proposed rule "*Standards of Performance for New, Reconstructed, and Modified Sources and Emissions Guidelines for existing Sources: Oil and Natural Gas Sector Climate Review*" (proposed rule);[65] on December 6, 2022, the EPA issued a supplement to the proposed rule.[66] The proposed rule included three distinct groups of actions under the CAA that are each severable from the other.

First, pursuant to CAA 111(b)(1)(B), the EPA reviewed, and is proposing revisions to, the standards of performance for the Crude Oil and Natural Gas source category published in 2016 and amended in 2020, codified at 40 CFR 60 Subpart OOOOa—*Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015* (2016 NSPS OOOOa). Specifically, the EPA proposes to update, strengthen, and expand

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[65] *Federal Register* 63110, https://www.federalregister.gov/documents/2021/11/15/2021-24202/standards-of-performance-for-new-reconstructed-and-modified-sources-and-emissions-guidelines-for

[66] *Federal Register* 74702, https://www.federalregister.gov/documents/2022/12/06/2022-24675/standards-of-performance-for-new-reconstructed-and-modified-sources-and-emissions-guidelines-for.

the current requirements under CAA section 111(b) for methane and VOC emissions from sources that commence construction, modification, or reconstruction after November 15, 2021. These proposed standards of performance will be in a new subpart, 40 CFR 60 Subpart OOOOb (NSPS OOOOb), and include standards for emission sources previously not regulated under the 2016 NSPS OOOOa. All of the proposed booster stations have equipment currently subject to some requirements under OOOOa (including requirements for reciprocating compressors and fugitive emissions at a compressor station).

Second, pursuant to CAA 111(d), the EPA proposed the first nationwide emission guidelines for states to limit methane pollution from designated facilities in the Crude Oil and Natural Gas source category. Third, the EPA proposed amendments to the 2016 NSPS OOOOa. The EPA also proposed to update the NSPS OOOO and NSPS OOOOa provisions in the CFR to reflect the Congressional Review Act resolution's disapproval of the final 2020 Policy Rule. These proposals and updates to the CFR text are also included in the EPA Docket ID EPA-HQ-OAR-2021-0317.

According to the proposed rule, the requirements of 40 CFR 60 Subpart OOOOa will apply to new, modified, or reconstructed sources commencing construction after September 18, 2015 and on or before November 15, 2021, the requirements of 40 CFR 60 Subpart OOOOb will apply to new, modified, or reconstructed sources commencing construction after November 15, 2021, and the requirements of 40 CFR 60 Subpart OOOOc will apply to sources existing on or before November 15, 2021. Therefore, the Project would be subject to all applicable requirements of 40 CFR 60 OOOOb upon issuance of the final rule. The Applicants have committed to complying with the applicable requirements in the event a new rule is issued. Prior to the issuance of the new rule, the Applicants have committed to complying with the existing applicable requirements under 40 CFR 60 OOOOa.

National Emission Standards for Hazardous Air Pollutants

The 1990 CAA amendments established a list of 189 HAPs, resulting in the promulgation of National Emission Standards for Hazardous Air Pollutants (NESHAP). The NESHAPs regulate HAP emissions from specific source types at major or area sources of HAPs by setting emission limits, monitoring, testing, record keeping, and notification requirements. The Hereford Ranch, Redtail, and Logan booster stations would each have the potential to emit less than the combined HAP total threshold of 25 tpy and single HAP threshold of 10 tpy. Therefore, they are considered area sources of HAPs; the other facilities proposed for the Project would not include equipment subject to the NESHAPs.

40 CFR 63 Subpart ZZZZ applies to stationary reciprocating internal combustion engines at area sources of HAP emissions that are installed on or after June 12, 2006. Per

40 CFR § 63.6590(c)(1), an affected source under this Subpart must meet the requirements by meeting the requirements of 40 CFR 60 Subpart JJJJ for SI engines. The Hereford Ranch, Redtail, and Logan booster stations would both have engines at area sources that would be installed after the applicable date; therefore, REX would be required to comply with 40 CFR 63 Subpart ZZZZ by complying with all applicable requirements of 40 CFR 60 Subpart JJJJ.

General Conformity

The General Conformity Rule was developed to ensure that federal actions in nonattainment and maintenance areas do not impede states' attainment of the NAAQS. The General Conformity Rule is codified in 40 CFR 51, Subpart W and 93 Subpart B, *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*. A conformity determination must be conducted by the lead federal agency if a federal action's unpermitted construction and/or operational activities are likely to result in generating direct and indirect emissions that would exceed the conformity threshold (*de minimus*) levels of the pollutant(s) for which an area is in nonattainment or maintenance.

Conforming activities or actions should not, through additional air pollutant emissions:

- cause or contribute to new violations of the NAAQS in any area;
- increase the frequency or severity of any existing violation of any NAAQS; or
- delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule entails both an applicability analysis and a subsequent conformity determination, if applicable. A General Conformity Determination must be completed when the total direct and indirect emissions of a project would equal or exceed specified pollutant thresholds on a calendar year basis for each nonattainment or maintenance area.

Estimated emissions for the Project subject to review under the general conformity thresholds include construction emissions and operational emissions not subject to major or minor NSR permitting. Operational emissions from the modified Project facilities in Weld County, Colorado would occur at the Hereford Ranch booster station and are subject to NSR permitting. Detailed construction emissions are presented in appendix I and summarized in table B-16, and a comparison of the construction emissions from Weld County, which is included in the Denver Metro/North Front Range Nonattainment Area for the 2015 8-Hour Ozone National Ambient Air Quality Standard, to applicable general

conformity thresholds are presented in table B-17, below.[67] Construction emission estimates and unpermitted operation emissions for the Project would not exceed general conformity applicability thresholds; therefore, a General Conformity Determination is not required.

Leak Detection and Repair

As described above, pending regulations under NSPS Subpart OOOOb may become applicable to the Project. NSPS OOOOb proposed regulations include leak detection and repair requirements including quarterly monitoring on new, modified, and/or reconstructed sources and requirements regarding the repair of any leak sources that are discovered as a result of the monitoring. The Applicants would also conduct optical gas imaging surveys annually and attempt to repair any leaks identified at the proposed new booster stations.

Mandatory Greenhouse Gas Reporting Rule

The EPA's Mandatory Reporting of Greenhouse Gases Rule requires reporting GHG emissions if applicable sources at a facility emit greater than or equal to 25,000 metric tons of GHG (as CO_2e) in 1 year. The Mandatory Reporting Rule does not require emission control devices and is strictly a reporting requirement for stationary sources based on actual emissions. Although the rule does not apply to construction emissions, we have provided GHG construction emission estimates in table B-16, as CO_2e, for accounting and disclosure purposes. Operational GHG emission estimates for the Project are also presented, as CO_2e, in table B-19. Based on the emission estimates presented, actual GHG emissions from operation of the Project facilities are not expected to exceed the 25,000-tpy reporting threshold and reporting requirements for the Mandatory Reporting Rule would therefore not be applicable to the Project.

State Air Quality Regulations

This section discusses the potentially applicable state air regulations for the Project. Emissions resulting from the Project are subject to Colorado air quality standards, codified in the CCR, and Nebraska air quality standards, codified in the NAC. Specific regulations and their applicability are reviewed below.

Colorado

Air pollution control regulations are promulgated in Division 1001 of the CDPHE CCR, which establish standards for particulate matter, smoke, CO, sulfur oxides, odors,

[67] Detailed emissions calculations for the emission estimates identified in tables B-16 and B-19 were filed in the Applicants' May 27, 2022 and September12, 2022 submittals and are available for public review on eLibrary under accession nos. 20220527-5365 and 20221012-5050.

stationary source permitting, control of ozone precursors and control of hydrocarbons via oil and gas emissions, asbestos controls, and state standards for hazardous pollutants. Federal programs that are incorporated into Colorado's code include NESHAP, NSPS, and NSR. Colorado has full delegation from the EPA for air permitting programs in the Project areas.[68] On June 6, 2022 air permit applications were submitted to the CDPHE – APCD for the Hereford Ranch and Logan booster stations.[69] The final permit issuance is pending for both booster stations.

In addition, the CDPHE requires implementation of fugitive dust control measures for land development projects, such as the proposed Project. The precautions that the Applicants would use to reduce airborne particulate matter are described in the Fugitive Dust Control Plan.[70]

Local regulations or ordinances that apply to construction and operation emissions from the Project facilities have not been identified to date. The Applicants would be required to comply with any new or as yet unidentified requirements that apply at the time of construction.

Nebraska

Air pollution control regulations are promulgated in Title 129 of the Nebraska Revised Statutes. Federal programs that are incorporated into Nebraska's code include NESHAP, NSPS, and NSR. Nebraska has full delegation from the EPA for air permitting programs. However, the Project does not include activities which would require permits from the State of Nebraska. The Applicants would be required to apply all such reasonable measures to prevent particulate matter from becoming airborne so that it remains visible beyond the premises where it originated to limit emissions of particulate matter from construction and materials handling in compliance with NDEE 129.15.003.02 and as identified in NDEE's scoping comments on the Project. The Applicants have stated the measures they would implement to limit emissions of particulate matter in the Fugitive Dust Control Plan.

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[68] EPA does not delegate authority to Colorado or Nebraska in Indian Country, defined under 18 U.S.C. 1151 and 40 CFR § 171.3 as all land within the limits of an Indian reservation, dependent Indian communities, and Indian allotments including rights-of-way. The Project is not within Indian Country.

[69] Available on eLibrary under accession no. 20220912-5172.

[70] Available on eLibrary under accession no. 20221221-5310.

Construction Emissions Impacts and Mitigation

Construction of the Project would result in temporary and localized emissions that would last the duration of construction and abandonment activities along each lateral and at each abandonment and aboveground facility, which would last about 7 months. Exhaust emissions would be generated by the use of heavy equipment and trucks powered by diesel or gasoline engines. Exhaust emissions would also be generated by delivery vehicles and construction workers commuting to and from work areas. The Applicants have stated that open burning would not be used to clear vegetation and debris, and blasting is not proposed for the Project.

Construction activities would also result in the temporary generation of fugitive dust (large particles as well as PM_{10} and $PM_{2.5}$) due to land clearing and grading, ground excavation, and driving on unpaved roads. The amount of dust generated would be a function of construction activity, soil type, soil moisture content, wind speed, precipitation, vehicle traffic and types, and roadway characteristics. Emissions would be greater during dry periods and in areas of fine-textured soils subject to surface activity. Finally, vented emissions and flaring associated with purging of the natural gas during abandonment of the Trailblazer Pipeline and during construction of the proposed pipeline laterals would result in emissions of air pollutants.

Construction emission estimates are based on the fuel type and anticipated frequency, duration, capacity, and levels of use of various types of construction equipment. Construction emissions were estimated using emission factors provided in AP-42 data (EPA 1998, 2018), manufacturer's specification sheets, GWP factors found in 40 CFR 98 (EPA 2022b), EPA MOVES version 14a on-road emission factors (EPA 2022j), Greenhouse Gas Inventory Guidance (EPA 2016b), and the Western Regional Air Partnership (WRAP) Fugitive Dust Handbook Chapter 3 (WRAP 2006).

Table B-16 provides the total Project construction emissions, including exhaust emissions and fugitive dust from on-road and off-road construction equipment and vehicles, exhaust emissions from construction worker vehicles for commuting, vehicles used to deliver equipment/materials to the Project construction sites, fugitive and wind-blown dust, and venting.

Construction emissions shown in table B-16 are not expected to result in a violation or degradation of ambient air quality standards and would not exceed applicable general conformity standards (see table B-17). In comments on the Project, the EPA recommended preparing an emissions inventory for construction and operation of the Project, as well as identifying measures to minimize air emissions (including GHG) from the Project. Tables B-16 and B-19 estimate the potential Project emissions from construction and operation,

respectively. The Applicants would minimize construction emissions by implementing their Fugitive Dust Control Plan, by following federal, state, and local emission standards and air quality regulations, and by encouraging contractors and employees to minimize vehicle and equipment idling time between equipment usages.

Table B-16
Construction Emissions (tons per 7-month construction duration)[a]

Project Facility	NO_x	SO_2	CO	PM_{10}[b]	$PM_{2.5}$[b]	VOC	Total HAP[c]	CO_2e
PIPELINE FACILITIES								
REX Lateral to TPC Adams	7.9	<0.1	21.1	44.7	5.0	1.6	0.3	3,369.2
REX Lateral to TPC East	9.8	<0.1	25.8	70.6	7.7	3.2	0.4	5,137.1
ABOVEGROUND FACILITIES								
REX/TPC Lone Tree Interconnect	0.5	<0.1	0.4	0.8	0.1	0.1	<0.1	71.3
TPC West Isolation	0.2	<0.1	0.2	0.3	0.1	<0.1	<0.1	36.7
Hereford Ranch Compressor Station[d]	2.6	<0.1	3.4	2.9	0.5	0.4	0.1	520.4
Redtail Compressor Station[d]	2.6	<0.1	3.4	2.9	0.5	0.4	0.1	520.4
Logan Compressor and Regulating Station[d]	2.6	<0.1	3.4	2.9	0.5	0.4	0.1	520.4
Sedgwick Compressor Station[d]	2.6	<0.1	3.4	2.9	0.5	0.4	0.1	520.4
Sedgwick East Compressor Station[d]	2.6	<0.1	3.4	2.9	0.5	0.4	0.1	520.4
Mid-American Ethanol Regulating Station	0.5	<0.1	0.4	0.6	0.1	0.1	<0.1	71.3
Oppliger Lincoln Regulating Station	0.5	<0.1	0.4	0.6	0.1	0.1	<0.1	71.3
North Platte Livestock Feeder Regulating Station	0.5	<0.1	0.4	0.6	0.1	0.1	<0.1	71.3
Adams Meter and Regulating Station	1.3	<0.1	1.3	1.6	0.3	0.2	0.1	279.2
REX to TPC East Meter and Regulating Station	1.3	<0.1	1.3	1.6	0.3	0.2	0.1	279.2
On-road equipment and commuter transit (All aboveground facilities)[e]	0.6	<0.1	2.7	<0.1	<0.1	<0.1	<0.1	512.3
ABANDONMENT FACILITIES[f]								
Compressor Station 601	0.2	<0.1	0.2	0.3	0.1	<0.1	<0.1	36.7
Compressor Station 602	0.2	<0.1	0.2	0.3	0.1	<0.1	<0.1	36.7
Compressor Station 603	0.2	<0.1	0.2	0.3	0.1	<0.1	<0.1	36.7
Clay Interconnect – TPC	0.2	<0.1	0.2	0.3	0.1	<0.1	<0.1	36.7

Table B-16 (continued)
Construction Emissions (tons per 7-month construction duration)[a]

Project Facility	NO_x	SO_2	CO	PM_{10}[b]	$PM_{2.5}$[b]	VOC	Total HAP[c]	CO_2e
Northwestern Kearney Interconnect[g]	0.2	<0.1	0.2	0.3	0.1	<0.1	<0.1	36.7
Vented Emissions for TPC Abandonment Activities	3.8	<0.1	8.8	0.2	0.2	14.3	0.2	11,841.8
Total Project	**40.9**	**<0.1**	**80.7**	**137.0**	**16.5**	**21.9**	**1.6**	**24,526.1**

CO = Colorado; NE = Nebraska

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Emissions of total suspended particulate from Project construction, which includes dust particles of any size including those greater than PM_{10}, would be considerably greater than the estimates for PM_{10} and $PM_{2.5}$, and would depend on efficacy of the Applicants' implemented dust control methods.

[c] Based on the assumption that VOC emissions from fossil fuel-fired construction equipment consist substantially of VOC HAPs, e.g., benzene, formaldehyde, acetaldehyde, 1,3-butadiene, and acrolein.

[d] Interconnect booster stations are small capacity compressor stations.

[e] This estimate includes vehicle travel to all aboveground facility sites proposed for construction or abandonment activities, and also includes vehicle personnel traveling to the Blanket Certificate projects. As such, the estimate presents a conservative assumption of on-road combustion emissions.

[f] Abandonment sites not presented separately here are generally associated with other Project facility construction sites. Abandonment activities would be supported by the aboveground facility workforce where the two actions are adjacent.

[g] Emissions are based on the assumption that each abandonment facility will require approximately the same construction equipment and produce the same quantity of emissions.

Table B-17
Comparison of Construction Emissions for the Project to General Conformity Thresholds[a]

Air Pollutant	Designated Area	Threshold (tpy)	Construction Emissions (tpy)[b]
NO_x	Weld County, CO	100	3.9
VOC	Weld County, CO	100	0.6

CO = Colorado; tpy= tons per year

[a] General Conformity is only applicable to nonattainment or maintenance areas.

[b] Includes construction equipment combustion and fugitive dust emissions from the Hereford Ranch booster station (REX), REX/TPC Lone Tree Interconnect (REX), and TPC West Isolation (TPC); and conservatively assumed on-road emissions from all aboveground facilities. Abandonment associated with the TPC West Isolation and Hereford Ranch Interconnect are not expected to result in additional emissions of NO_x or VOC.

The Applicants would implement measures in their Fugitive Dust Control Plan to reduce fugitive emissions, including:

- applying dust suppressants (e.g., water from municipal sources) to storage piles, disturbed work areas, and unpaved access roads;
- reducing vehicle speeds on unpaved roads and when hauling material and operating non-earthmoving equipment to prevent material spillage;
- removing spilled or tracked dirt from construction entrances, exits, and road surfaces;
- covering trucks which transport materials which may produce dust; and
- revegetating the Project workspaces following construction and abandonment activities.

Construction emissions would take place over the duration of construction and at different times and locations throughout the Project areas. In general, construction emissions would be minor and would result in temporary, localized impacts in the immediate vicinity of the Project facilities. Based on the Project scope and temporary nature of construction emissions, we conclude that air quality impacts from construction, including impacts on visibility within the regional airshed, would not result in significant impacts on local or regional air quality.

Operational Emissions Impacts and Mitigation

The Project would primarily generate air emissions from operation of the new engines at the Hereford Ranch, Redtail, and Logan booster stations and operation of the new heaters at the Logan booster station, Mid-American Ethanol, Oppliger Lincoln, North Platte Livestock Feeder, Adams, and REX to TPC East Regulating Stations. Table B-18 summarizes the stationary combustion emissions sources proposed for the Project, by facility. The proposed Sedgwick and Sedgwick East booster stations would be powered by electric-motor-driven compressor units. The Applicants have stated a local power company would provide the necessary power to operate electric-driven compressor units. Operating the Project's facilities would also result in fugitive emissions from minor leaks associated with piping components and valves at all aboveground facilities.

Table B-18 Proposed Stationary Emission Sources	
Existing Facility Name	**Description of Activity**
Hereford Ranch Compressor Station	Install one (1) 1,380 HP unit (gas); install one (1) 690 HP unit (gas); install one (1) emergency generator.
Redtail Compressor Station	Install one (1) 1,380 HP unit (gas); install one (1) 690 HP unit (gas); install one (1) emergency generator.
Logan Compressor and Regulating Station	Install one (1) 1,380 HP unit (gas); install one (1) 690 HP unit (gas); install one (1) emergency generator; install one (1) heater.
Mid-American Ethanol Regulating Station	Install one (1) heater.
Oppliger Lincoln Regulating Station	Install one (1) heater.
North Platte Livestock Feeder Regulating Station	Install one (1) heater.
Adams Meter and Regulating Station	Install one (1) heater.
REX to TPC East Meter and Regulating Station	Install four (4) heaters.
HP = horsepower	

The Applicants would also retire facilities that are currently operational and have existing air permits to generate air emissions including, natural gas-fired compressors, heaters, and generators, storage tanks, and venting and fugitive sources at Compressor Station 601, Compressor Station 602, and Compressor Station 603, each of which is currently active, along with the Clay Interconnect – TPC and the Northwestern Kearney Interconnect. Following abandonment, each of these facilities would no longer operate to transport natural gas.

Table B-19 estimates the potential annual emissions at the proposed new and modified booster stations, meter stations, and associated facilities, modified metering stations, as well as the reduction in potential emissions at the facilities proposed for abandonment. These emissions are based on:

- manufacturers' data; EPA AP-42 and other emission factor data (EPA 2000); engineering calculations; GHG emission methodology found in 40 CFR 98;

- the Applicants' commitment to install oxidation catalysts to control emissions at the Hereford Ranch and Logan booster stations;[71]

- the Applicants' commitment to abandon in place three existing compressor stations and associated equipment; and

- estimates for emissions from blowdowns.

Compressor unit blowdowns (gas venting) can occur during initial construction and testing, operational start-up and shut-down, maintenance activities, and during emergency situations. The Applicants estimate 5 full station blowdowns per year, 36 compressor unit blowdowns per year, and 6 filter separator blowdowns per year would occur during operations of each booster station proposed for the Project.

Based on the existing operational emissions from facilities to be abandoned, the replacement of these units with those proposed for the Project would result in an overall reduction in potential operational emissions for the period in which they remain abandoned. As stated in section B.5, the Applicants have indicated that the abandoned compressor stations (see table A-4) would be maintained for potential use to transport CO_2. However, as discussed further in section B.10.5, the specific details of the CCS project are not known. While the Project would have minor impacts on local air quality during operation, the Project would not cause or contribute to a violation of the NAAQS and would not result in significant impacts on air quality.

Downstream Emissions

The Project is proposed to provide natural gas service via the existing REX pipeline to existing TPC transportation customers and construct, install, own, operate, and maintain certain facilities necessary for TPC to continue service to its existing customers. According to TPC and REX, the purpose of the Project is to provide continuing service to TPC's existing natural gas firm transportation customers using underutilized jurisdictional capacity on REX pipeline facilities while making TPC's pipeline facilities available by abandoning facilities in place, in anticipation of future non-jurisdictional use to transport CO_2 for sequestration. As such, there would be no new natural gas transportation capacity

[71] We noted a discrepancy in operating emission estimates presented by the Applicants for the Logan Compressor (Booster) and Regulating Station between the Air Permit Application and the detailed emissions calculations filed in the Applicants' September 12, 2022 submittal available for public review on eLibrary under accession no. 20221012-5050. The Applicants have committed to updating the Air Permit Application for consistency with the analysis filed on September 12, 2022 (which is used in this EA), and would provide an update to FERC regarding the status of the Air Permit Application revision when available.

or increase in downstream GHG emissions. Further, an increase in fugitive emissions for pipeline facilities is not expected as a result of this Project. Downstream emissions are not addressed further.

Table B-19
Potential Operational Emissions for the Project (tons per year)[a]

Emission Source	NO_x	SO_2	CO	$PM_{2.5}$[b]	VOC	Total HAPs[c]	CO_2e
ABOVEGROUND FACILITIES							
Hereford Ranch Compressor Station[c]	12.0	<0.1	21.9	0.8	28.0	3.8	10,870.2
Redtail Compressor Station[c]	12.0	<0.1	21.9	0.8	27.3	3.5	10,462.6
Logan Compressor and Regulating Station[d]	18.6	0.1	40.3	1.6	32.3	6.3	23,651.8
Sedgwick Compressor Station	0.0	0.0	0.0	0.0	1.2	0.4	510.0
Sedgwick East Compressor Station	0.0	0.0	0.0	0.0	0.8	0.3	551.1
Mid-American Ethanol Regulating Station	0.2	0.0	0.2	0.0	0.1	0.0	306.0
Oppliger Lincoln Regulating Station	0.2	0.0	0.2	0.0	0.1	0.0	306.0
North Platte Livestock Feeder Regulating Station	0.2	0.0	0.2	0.0	0.1	0.0	306.0
Adams Meter and Regulating Station	2.4	<0.1	2.1	0.2	0.3	0.0	3,167.6
REX to TPC East Meter and Regulating Station	16.3	0.1	13.7	1.2	1.2	0.3	20,722.4
Adams Launcher Site	0.0	0.0	0.0	0.0	0.0	0.0	8.9
REX to TPC East Launcher Site	0.0	0.0	0.0	0.0	0.0	0.0	8.9
Subtotal	*62.0*	*0.3*	*100.4*	*4.6*	*91.3*	*14.6*	*70,871.5*
ABANDONMENT FACILITIES[e]							
Compressor Station 601	(105.5)	(3.2)	(116.3)	(6.3)	(64.4)	(4.0)	(120,954.6)
Compressor Station 602	(2.8)	0.0	(0.3)	0.0	(18.8)	(2.1)	(9,424.0)
Compressor Station 603	(2.8)	0.0	(0.4)	0.0	(20.7)	(2.3)	(10,444.2)
Clay Interconnect – TPC	0.0	0.0	0.0	0.0	(0.1)	0.0	(66.2)
Subtotal	*(111.1)*	*(3.2)*	*(117.0)*	*(6.3)*	*(104.0)*	*(8.4)*	*(140,888.9)*
Total for Project	**(49.2)**	**(2.9)**	**(16.6)**	**(1.7)**	**(12.7)**	**6.2**	**(70,017.4)**

[a] Sum of columns may not add to total due to rounding.

[b] All operating emissions of PM are $PM_{2.5}$.

[c] Formaldehyde is the largest contributor of HAP emissions.

[d] CO and VOC emissions from compressor engines account for reductions for oxidation catalysts.

[e] In addition to the emissions reductions presented here, minor fugitive emissions associated with operation of the Northwestern Kearney Interconnect and TPC's existing pipeline facilities would also be expected to be reduced following abandonment.

Air Quality Modeling

The Applicants completed air quality dispersion modeling to determine the impacts of emissions from the proposed construction of the Hereford Ranch, Redtail, and Logan booster stations on regional air quality. The analyses were conducted using the EPA, AERMOD model version 21112 using AERMOD-ready meteorological datasets and modeling guidance obtained from the CDPHE. According to The Interim Colorado Modeling Guidelines, modeling may not be required for a pollutant if the requested emission rates are below the thresholds set forth in Table 1 of the Interim Colorado Monitoring Guidelines (CDPHE 2022b); further, the Project is not subject to modeling requirements associated with air permits in Nebraska. However, to provide a more thorough evaluation of the potential impacts on air quality in the vicinity of the Project, the Applicants conducted a quantitative assessment of air emissions associated with operation of each proposed natural gas-powered booster station. The analyses for the Hereford Ranch, Redtail, and Logan booster stations each assumed that the new compressor units would run at full capacity and the emergency generator would operate no more than 500 hours per year; thus, the model estimated the maximum predicted concentrations of pollutants emitted from the new compressor units using conservative assumptions for the operation of stationary combustion sources. Fugitive emission sources do not produce the pollutants required for modeling; thus, are not included in the analyses. Existing background concentrations were collected from air quality monitoring site 56-021-100 in Cheyenne, Wyoming for the 3-year period from 2019 to 2021 due to the monitor's location in the general Project vicinity, topographical similarity, and availability of data for all pollutants of concern for the Project. Data from Cheyenne, Wyoming are used for all pollutants, with the exception of background concentrations for NO_2 and $PM_{2.5}$ at the Hereford Ranch booster station, which are based on Project-specific correspondence with the CDPHE as part of the Applicants' minor source permit application process. Background concentrations were then added to the maximum predicted concentrations from the model and the total was compared to the NAAQS. The model results are provided in tables B-20, B-21, and B-22.

Table B-20
Predicted Air Quality Impacts of the Proposed Hereford Ranch Compressor Station (µg/m^3)

Pollutant	Averaging Period	Existing Ambient Background Concentration (µg/m^3)[a]	Maximum Modeled Concentration (µg/m^3)[b]	Combined Background and Maximum Modeled (µg/m^3)[c]	NAAQS (µg/m^3)	Radius of Impact (m)[d]	SIL (µg/m^3)
NO_2[e]	1-hour	52.60	48.53	101.12	188	1,022.8	7.5
	annual	9.40	2.34	11.74	100	196.1	1.0
CO	1-hour	405.0	855.03	1,260.02	40,000	0.0	2,000.0
	8-hour	333.0	403.79	736.78	10,000	0.00	500.0
PM_{10}	24-Hour	63.0	4.31	67.30	150	0.00	5.0
$PM_{2.5}$	24-hour	22.00	2.59	24.58	35	196.8	1.2
	annual	7.00	0.15	7.14	12	0.00	0.3
SO_2	1-Hour	12.0	0.45	12.45	196	0.00	7.8

µg/m^3 = micrograms per cubic meter; m = meter

[a] Background concentrations obtained from monitor ID 56-021-100 in Cheyenne, Wyoming for CO, PM_{10}, and SO_2. Background concentrations for NO_2 and $PM_{2.5}$ were provided by the CDPHE.

[b] Based on maximum emission rates for all modeled sources.

[c] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[d] The distance from the compressor engine stack to the furthest modeling receptor with maximum impacts greater than the SIL.

[e] AERMOD Tier 2 (ARM2 method to calculate NO_x to NO_2 conversion) was assumed for the modeling.

Table B-21
Predicted Air Quality Impacts of the Proposed Logan Compressor and Regulating Station ($\mu g/m^3$)

Pollutant	Averaging Period	Existing Ambient Background Concentration ($\mu g/m^3$)[a]	Maximum Modeled Concentration ($\mu g/m^3$)[b]	Combined Background and Maximum Modeled ($\mu g/m^3$)[c]	NAAQS ($\mu g/m^3$)	Radius of Impact (m)[d]	SIL ($\mu g/m^3$)
NO_2[e]	1-hour	37.3	51.87	89.17	188	3,020.0	7.5
	annual	6.3	3.70	10.00	100	424.50	1.0
CO	1-hour	405.0	1,114.14	1,519.14	40,000	0.0	2,000.0
	8-hour	333.0	929.55	1,262.55	10,000	59.40	500.0
PM_{10}	24-Hour	63.0	10.13	73.13	150	31.20	5.0
$PM_{2.5}$	24-hour	23.0	7.06	30.06	35	389.80	1.2
	annual	4.1	0.35	4.45	12	120.50	0.3
SO_2	1-Hour	12.0	0.58	12.58	196	0.0	7.8

$\mu g/m^3$ = micrograms per cubic meter; m = meter

[a] Background concentrations obtained from monitor ID 56-021-100 in Cheyenne, Wyoming.

[b] Based on maximum emission rates for all modeled sources.

[c] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[d] The distance from the compressor engine stack to the furthest modeling receptor with maximum impacts greater than the SIL.

[e] AERMOD Tier 2 (ARM2 method to calculate NO_x to NO_2 conversion) was assumed for the modeling.

Table B-22
Predicted Air Quality Impacts of the Proposed Redtail Compressor Station (µg/m³)

Pollutant	Averaging Period	Existing Ambient Background Concentration (µg/m³)[a]	Maximum Modeled Concentration (µg/m³)[b]	Combined Background and Maximum Modeled (µg/m³)	NAAQS (µg/m³)	Radius of Impact (m)[c]	SIL (µg/m³)
NO_2[d]	1-hour	37.30	19.62	56.91	188	479.0	7.5
	annual	6.30	1.46	7.75	100	136.0	1.0
CO	1-hour	405.00	687.24	1,092.23	40,000	0.0	2,000.0
	8-hour	333.00	516.74	849.74	10,000	30.9	500.0
PM_{10}	24-Hour	63.00	5.28	68.28	150	30.9	5.0
$PM_{2.5}$	24-hour	23.00	3.05	26.04	35	190.5	1.2
	annual	4.10	0.09	4.19	12	0.0	0.3
SO_2	1-Hour	12.00	0.36	12.35	196	0.0	7.8

µg/m³ = micrograms per cubic meter; m = meter

[a] Background concentrations obtained from obtained from monitor ID 56-021-100 in Cheyenne, Wyoming.

[b] Based on maximum emission rates for all modeled sources.

[c] The distance from the compressor engine stack to the furthest modeling receptor with maximum impacts greater than the SIL.

[d] AERMOD Tier 2 (ARM2 method to calculate NO_x to NO_2 conversion) was assumed for the modeling.

The results in tables B-20, B-21, and B-22 indicate that the combined total of existing background and maximum modeled concentrations for each booster station are less than the applicable NAAQS for all criteria pollutants and averaging periods assessed at all points outside each proposed station's fenceline boundary. Therefore, the Project would not cause or significantly contribute to a degradation of ambient air quality for nearby populations. Based on the estimated emissions from operation of the proposed Project facilities and review of the modeling analyses, we find that the Project would not cause or contribute to a violation of the NAAQS. While the Project would have minor impacts on local air quality during operation, the Project would not result in significant impacts on air quality.

Impacts on Human Health

We received comments from the EPA concerned with air quality in the vicinity of the Project and the health effects associated with Project-related emissions. Generally, natural gas is composed of about 90 percent methane. When combusted, methane forms CO_2 and water vapor, comprising the majority of compressor station emissions. The CO_2 emissions, combustion-related emissions, including NO_x and CO, and the emissions associated with the majority of the remaining 10 percent of natural gas composition are shown in table B-16. With the exception of CO_2e (as defined above), all of the compounds

identified in table B-16 have known health impacts, and are therefore regulated by the EPA through various components of the CAA. As described above, under the CAA, the EPA established the NAAQS to protect human health and to be protective of human health and public welfare, including sensitive populations such as infants, children, pregnant women, the elderly, and those with compromised respiratory function, e.g., asthmatics. The air quality modeling completed by the Applicants indicates that the proposed booster stations would not result in emissions that exceed the NAAQS or significantly contribute to a degradation of ambient air quality (modeling results shown in tables B-20 through B-22). The air quality model evaluates pollutant concentrations from the facility fenceline to a 10-kilometer (6.2-mile) radius from the emissions source, where impacts from the Project are no longer expected to be measurable, and accounts for existing pollution in the Project vicinity via the inclusion of ambient pollutant levels. Lastly, in order to ensure compliance with the CAA, the Applicants must obtain air quality permits through CDPHE – APCD for applicable facilities, as described above. Based on our analysis above, we conclude that construction and operation of the Project would not have a significant impact on air quality or human health.

8.2 Noise

Noise is generally defined as sound with intensity greater than the ambient or background sound pressure level. Construction and operation of the Project would affect overall sound levels in the Project areas.

The magnitude and frequency of environmental noise may vary considerably over the course of the day, throughout the week, and across seasons, in part due to changing weather conditions and the effects of seasonal vegetation cover. Two measures that relate the time-varying quality of environmental noise to its known effect on people are the 24-hour equivalent sound level (L_{eq}) and L_{dn}. The L_{eq} is an A-weighted sound level containing the same energy as the instantaneous sound levels measured over a specific time period. Noise levels are perceived differently, depending on length of exposure and time of day. The L_{dn} takes into account the duration and time the noise is encountered. Specifically, the L_{dn} is the L_{eq} plus a 10 dBA penalty added to account for people's greater sensitivity to sound levels during late evening and early morning hours (between the hours of 10:00 p.m. and 7:00 a.m.). The A-weighted scale is used to assess noise impacts because human hearing is less sensitive to low and high frequencies than mid-range frequencies. The human ear's threshold of perception for noise change is considered to be 3 dBA; 6 dBA is clearly noticeable to the human ear, and 10 dBA is perceived as a doubling of noise (Bies and Hansen 1988).

Federal Noise Regulations

In 1974, the EPA published *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*. This document provides information for state and local governments to use in developing their own ambient noise standards. The EPA has indicated that an L_{dn} of 55 dBA protects the public from indoor and outdoor activity interference. We have adopted this criterion and use it to evaluate potential Project-related noise impacts at NSAs. NSAs are defined as homes, schools, churches, or any location where people reside or gather. In general, noise emitted from an interstate natural gas transmission pipeline project that does not include a compressor station or other substantial aboveground facilities is minimal. Project-related noise would result primarily from the temporary use of construction equipment to install the laterals and would cease once the pipelines are complete. FERC does not have noise requirements relevant to typical daytime construction (including use of the contractor yards), but does require that the noise attributable to 24-hour construction (including HDDs) not exceed an L_{dn} of 55 dBA at any NSA or be mitigated to the extent practicable.

In addition to FERC's requirements described above, state and local noise ordinances are relevant to construction and operation of the Project. Weld County, Colorado has quantitative noise level requirements that could be applicable to the Hereford Ranch booster station and would be met by complying with FERC's requirement of 55 L_{dn} dBA. No additional quantitative state, county, or local noise ordinances were identified as being applicable to the Project facilities.

Ambient Noise Conditions

Generally, land use in the Project areas where construction and abandonment activities would occur is agricultural. The Applicants completed ambient sound surveys to measure the existing sound levels during the daytime and nighttime at the nearest NSAs within 1 mile of the proposed Hereford Ranch, Redtail, Logan, Sedgwick, and Sedgwick East booster stations and within 0.5 mile of the proposed Oppliger Lincoln Regulating Station and Adams Meter and Regulating Station.[72] No NSAs were identified within 0.5 mile of the REX/TPC Lone Tree Interconnect, Mid-American Ethanol Regulating Station, North Platte Livestock Feeder Regulating Station, and REX to TPC East Meter and Regulating Station. Ambient sound levels were also collected at the closest NSAs within a 0.5-mile radius of the proposed HDD entry and exit sites; no NSAs were identified within

[72] The Applicants' complete aboveground facility noise analyses are available on the FERC eLibrary via https://www.ferc.gov/docs-filing/elibrary.asp, in accession no. 20220527-5365.

0.5 mile of the exit location along the REX to TPC Adams HDD.[73] Surveys were conducted between August 30, 2021 and September 2, 2021; the results of the ambient sound surveys are provided in tables B-23, B-24, and B-25, and the locations of NSAs are depicted in appendix J.

Construction Noise Impacts and Mitigation

Construction and abandonment activities are proposed to occur over a 7-month period that the Applicants state would begin in Q3 of 2023. Construction noise (including noise associated with abandonment activities) is highly variable as equipment operates intermittently. The type of equipment operating at any location changes with each construction phase. The noise level impacts on NSAs near each Project component due to typical construction activities would depend on the type of equipment used, the duration of use for each piece of equipment, the number of construction vehicles and equipment used simultaneously, and the distance between the source and receptor. While individuals in the immediate vicinity of the construction and abandonment activities would experience an increase in noise, this effect would be temporary and local.

The Applicants anticipate that the majority of typical Project construction (including abandonment activities) would occur during daylight hours, generally between the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. While HDD construction would typically occur between the hours of 7:00 a.m. and 7:00 p.m., conditions may require 24-hour HDD operations during pull-back. Nighttime HDD construction would be subject to our requirement to limit noise at nearby NSAs to 55 dBA or lower. In addition, certain Project construction activities, including hydrostatic testing, electrical work (i.e., pulling wire conduit), performing x-ray welds, and hanging pipe[74] may be conducted during nighttime hours. These proposed nighttime construction activities would not require the use of heavy equipment. As such, they typically generate little noise and are not expected to exceed a nighttime noise level of 48.6 dBA (equivalent to 55 dBA L_{dn}); therefore, impacts from nighttime construction-related noise along the Project components, other than HDD, would not be significant.

The Applicants propose to use the HDD construction method at two locations; each of these HDDs is expected to be completed within about 4 weeks. Table B-23 summarizes the noise analysis for HDD operations, which was conducted using a 24-hour drilling scenario and assuming that louder, entry-side equipment would be present at the entry site

[73] The Applicants' complete HDD noise analysis are available on the FERC eLibrary via https://www.ferc.gov/docs-filing/elibrary.asp, in accession no. 20221101-5228.

[74] Hanging pipe involves the installation or mounting of small-diameter pipe using clamps, pipe supports, or flange bolting, without welding or cutting.

for each HDD. However, as stated above, the Applicants plan to conduct drilling operations primarily during daytime hours (unless 24-hour operations are required for continuous pull-back). The location of the NSAs assessed and HDD sites are depicted in appendix J. The Applicants' noise analysis indicates that unmitigated sound levels associated with 24-hour HDD drilling may exceed the 55 dBA L_{dn} at the nearest NSAs to the REX Lateral to TPC East HDD entry site. However, the Applicants propose to use mitigation measures, such as the installation of noise barriers, as recommended in the noise analysis to reduce sound levels from HDD operations, as presented in table B-23.

Table B-23
Noise Analysis Summary for 24-Hour HDD Operations

Location	HDD Site	Distance and Direction to NSA	Existing Ambient L_{dn} (dBA)	Estimated L_{dn} due to Project Construction (dBA)	Estimated L_{dn} due to Project Construction with Existing Ambient (dBA)	Potential Increase Above Ambient (dBA)
REX Lateral to TPC Adams HDD	Entry[a]	1,800 feet east northeast	50.7	52.9	54.9	4.2
REX Lateral to TPC East HDD	Entry[b]	1,450 feet northeast	52.1	56.2 (44.1)	57.6 (52.7)	5.5 (0.6)
	Exit	2,100 feet northeast	53.4	42.7	53.8	0.4

[a] No NSAs were identified within 0.5 mile of the HDD exit location.

[b] Where two values are included, the values are presented without and with proposed mitigation. Values in parentheses are estimates with mitigation, including installation of a noise barriers in accordance with the design considerations in the Applicants' noise analysis (such as the placement of 16-foot-high noise barriers between the HDD site and nearest NSA) to minimize impacts on nearby NSAs.

Based on the Applicants' analysis, expected noise levels associated with HDD construction would not exceed the 55 dBA L_{dn} threshold at any NSA during 24-hour drilling with the implementation of additional noise mitigation measures. Therefore, while residents in the Project areas would be impacted by noise from construction, based on our analyses, the mitigation measures proposed (including primarily constructing the Project during daytime hours as well as the proper placement of noise barriers during HDD activities), and the short-term nature of construction, we conclude that construction of the Project would result in temporary and not significant noise impacts on local residents and the surrounding communities.

Operational Noise Impacts and Mitigation

The Applicants performed ambient sound surveys at the proposed new and modified aboveground facility sites, as described above. The results of the ambient sound surveys

were combined with the predicted noise impacts from each facility's proposed equipment to estimate the operational noise impacts at the Project's associated NSAs.

Following abandonment, Compressor Stations 601, 602, and 603 would no longer operate, resulting in a localized reduction in sound levels for the period in which they remain abandoned. As stated in section B.5, the Applicants have indicated that the abandoned compressor stations (see table A-4) would be maintained for potential use to transport CO_2. However, as discussed further in section B.10.5, the specific details of the CCS project are not known. However, the proposed new and modified aboveground facilities would generate sound on a continuous basis (i.e., up to 24 hours per day) when operating. Noise impacts associated with the operation of these aboveground facilities would be limited to the vicinity of the facilities. The specific operational noise sources associated with these facilities and their estimated impact at the nearest NSAs are described below.

The Applicants would implement noise control measures to ensure sound levels from booster station operations are adequately controlled, including:

- an acoustically-insulated enclosure for the compressor units;
- low-noise air inlet and exhaust systems;
- low-noise lube oil coolers and gas coolers; and
- unit blowdown silencers.

The predicted sound levels presented in table B-24 incorporate the use of these specified noise control treatments on the proposed facilities. Operation of the new booster stations is not expected to exceed 55 L_{dn} at any nearby NSA; however, operation of the Hereford Ranch, Redtail, and Logan booster stations could cause an audible increase in sound levels at the nearest NSAs.

Table B-24
Noise Analysis for Full-Load Operation of the Proposed New Booster Stations

Project Facility[a]	Closest NSA(s) and Type of NSA	Distance and Direction from Closest NSA	Ambient Level (L_{dn}) (dBA)	Predicted L_{dn} Attributable to Proposed Facility (dBA)	Level (L_{dn}) of the CS plus Ambient Level (dBA)	Predicted Change in L_{dn} from Existing Sound Level (dBA)
Hereford Ranch Compressor Station	Residence	4,700 feet south	34.9	36.1	38.6	3.7
Redtail Compressor Station	Residence	5,200 feet west	34.3	35	37.7	3.4
Logan Compressor and Regulating Station	Residence	1,400 feet northwest	46.1	49.3	51	4.9
	Residence	1,700 feet south	47.4	47.2	50.3	2.9
Sedgwick Compressor Station	Residence	3,350 feet southeast	49.2	36.3	49.4	0.2
Sedgwick East Compressor Station	Residence	1,400 feet east	47.3	46.1	49.7	2.4
	Residence	1,870 feet north	45.2	43.1	47.3	2.1

[a] Interconnect booster stations are small capacity compressor stations.

Blowdown events generate noise at booster stations and occur when pressure in the compressor casing, piping, or the entire station must be released in a controlled manner. Blowdown events are typically infrequent and cause a temporary increase in sound levels that generally last for about 1 to 5 minutes. The Project compressor units would be a source of blowdown noise. The Applicants are proposing to install a silencer that would reduce noise from each blowdown event to 70 dBA at a distance of 300 feet from the source at the Hereford Ranch, Redtail, and Sedgwick booster stations, and to 60 dBA at the Redtail and Sedgwick East booster stations. At those sound levels, we estimate a noise level of 49.0 dBA at the NSA nearest to the Sedgwick booster station; sound reaching the other NSAs within 1 mile of the proposed booster stations would be lower. Given the non-routine nature and short-term duration (typically 1 to 5 minutes) of these blowdown events, we do not believe that they would result in significant impacts on nearby residents or that they would be a significant contributor to operational sound levels from the Project.

The Applicants calculated the sound-level contribution at NSAs within 0.5 mile of full-load operation of the proposed Oppliger Lincoln Regulating Station and Adams Meter and Regulating Station. At the metering and regulating stations, recommended design measures include use of flow-control valves designed to achieve a maximum sound level

of 90 dBA under all operating conditions, as well as low-noise regulator valves or heaters, as applicable. However, final design of the Project facilities is pending. As presented in table B-25, operation of either meter station is not predicted to exceed 55 L_{dn} at any nearby NSA, and would result in an increased sound level of less than 3 decibels (the threshold for typical human perception of a change in sound) at all NSAs.

Table B-25
Noise Analysis for the Operation of the Proposed Meter Stations[a]

Project Facility a	Closest NSA(s) and Type of NSA	Distance and Direction from Site Center	Ambient Level (L_{dn}) (dBA)	Predicted L_{dn} Attributable to Proposed Facility (dBA)	Level (L_{dn}) of the Facility plus Ambient Level (dBA)	Predicted Change in L_{dn} from Existing Ambient (dBA)
Oppliger Lincoln Regulating Station	Residence	2,450 feet north	52.8	35.5	52.9	0.1
Adams Meter and Regulating Station	Residence	810 feet south	49.4	45.1	50.8	1.4

[a] No NSAs were identified within 0.5 mile of the REX/TPC Lone Tree Interconnect, Mid-American Ethanol Regulating Station, North Platte Livestock Feeder Regulating Station, and REX to TPC East Meter and Regulating Station.

Based on the results in table B-24, operation of each of the proposed booster stations would meet FERC's sound-level requirements at the nearest NSAs. However, to ensure Project-related sound-level impacts do not exceed our noise standards at the booster stations, **we recommend that:**

- **REX should file a noise survey with the Secretary no later than 60 days after placing each proposed booster station into service. If a full-load condition noise survey is not possible, REX should provide an interim survey at the maximum possible horsepower load and file the full-load survey within 6 months. If the noise attributable to the operation of the equipment at any proposed booster station under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, REX should file a report on what changes are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. REX should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after they install the additional noise controls.**

The predicted increase in noise attributable to the proposed new and modified meter stations summarized in table B-25 would be less than 3 decibels at each NSA, and therefore would not likely be perceptible to the human ear. To verify compliance with the FERC's noise standards at the Oppliger Lincoln Regulating Station and Adams Meter and Regulating Station, **we recommend that:**

- **REX should file a noise survey with the Secretary no later than 60 days after placing the Oppliger Lincoln Regulating Station and Adams Meter and Regulating Station into service. If a full-flow condition noise survey is not possible, REX should provide an interim survey at the maximum possible flow conditions and file the full-load survey within 6 months. If the noise attributable to the operation of the equipment at the Oppliger Lincoln Regulating Station or Adams Meter and Regulating Station under interim or full-load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, REX should file a report on what changes are needed and should install the additional noise controls to meet the level within 1 year of the in-service date. REX should confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after they install the additional noise controls.**

Based on our analyses, the mitigation measures proposed by the Applicants, and our recommendations above, we conclude that the Project would result in minimal noise impacts on these and other more distant NSAs during Project operations. Therefore, impacts would not be significant.

9. Reliability and Safety

The transportation of natural gas by pipeline involves some risk to the public due to the potential for accidental and subsequential release of natural gas. The greatest hazard is a fire or explosion following a major pipeline rupture.

Methane, the primary component of natural gas, is colorless, odorless, and tasteless. While non-toxic, methane is classified as a simple asphyxiate on account of its slight inhalation hazard. If breathed in high concentration, oxygen deficiency can occur, resulting in serious injury or even death. In the air, methane is flammable at concentrations between 5.0 percent and 15.0 percent, auto-ignition will take place at a temperature of 1,000 °F. An unconfined mixture of methane and air is not explosive; however, there is a potential for it to ignite and burn if introduced to an ignition source. A flammable concentration within an enclosed space in the presence of an ignition source can render an explosion. Methane is buoyant at atmospheric temperatures and rapidly disperses into the air.

We received numerous comments that raised safety concerns for the abandonment of the Trailblazer Pipeline and conversion to transport CO_2. The regulation of CO_2 pipelines is a joint responsibility of federal and state governments. States typically play a primary role in establishing the requirements for siting, construction, and operations of CO_2 pipelines; however, the USDOT-PHMSA regulates CO_2 transported by pipeline facilities where CO_2 is a fluid consisting of more than 90 percent CO_2 molecules compressed to a supercritical state (49 CFR § 195.2).[75] In May, PHMSA announced that it is taking new measures to strengthen its safety oversight in response to the CO_2 pipeline failure in Sataria, Mississippi, including new rulemaking and requirements to update standards and emergency preparedness, and response (PHMSA 2022a).

9.1 Safety Standards

The USDOT-PHMSA is mandated to provide pipeline safety under 49 U.S.C. 601 PHMSA administers the USDOT's national regulatory program for the safe transportation of natural gas and other hazardous materials by pipeline. Safety regulations and other approaches to risk management for pipelines and associated facilities are developed by PHMSA to ensure safety in the design, construction, testing, operation, maintenance, and emergency response. A number of these regulations are written as performance standards which set the level of safety to be attained and require pipeline operators to utilize various technologies to achieve optimal safety. PHMSA ensures that people and the environment are protected from the risk of pipeline incidents. These efforts are shared with state agency partners and others at the federal, state, and local levels.

Title 49 U.S.C. 601 provides for a state agency to assume all aspects of the safety program for intrastate facilities by adopting and enforcing the federal standards. A state may also act as the USDOT's agent to inspect interstate facilities within its boundaries; however, the USDOT is responsible for enforcement actions.

The PHMSA pipeline standards are published in 49 CFR 190-199. Part 192 specifically addresses natural gas pipeline safety issues. PHMSA retains exclusive authority to promulgate federal safety standards relevant to the transportation of natural gas, under a Memorandum of Understanding with FERC on Natural Gas Transportation Facilities dated January 15, 1993. Section 157.14(a)(10)(vi) of the FERC's regulations requires that an applicant certify that it would design, install, inspect, test, construct, operate, replace, and maintain the facility for which a certificate is requested in accordance with federal safety standards and plans for maintenance and inspection. Alternatively, an

[75] 49 CFR 195 – Transportation of Hazardous Liquids by Pipeline. July 27, 1981. Available at: https://www.ecfr.gov/current/title-49/subtitle-B/chapter-I/subchapter-D/part-195. Accessed February 2023.

applicant must certify that it has been granted a waiver of the requirements of PHMSA safety standards in accordance with Section 3(e) of the Natural Gas Pipeline Safety Act. The FERC accepts this certification and does not impose additional safety standards.

If the FERC becomes aware of existing or potential safety concerns, a provision within the Memorandum warrants PHMSA to be immediately notified. The Memorandum also provides for referring any complaints or inquiries made by the state and local governments and the general public involving safety concerns related to pipelines under the FERC's jurisdiction. The FERC participates as a member of PHMSA's Technical Pipeline Safety Standards Committee, which determines if proposed safety regulations are reasonable, feasible, and practicable.

9.2 Project Design Requirements

The piping and aboveground facilities associated with the Project must be designed, constructed, operated, and maintained in accordance with the PHMSA *Minimum Federal Safety Standards* in 49 CFR 192. The regulations are intended to ensure adequate protection for the public and to prevent natural gas facility accidents and failures. PHMSA specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion.

9.3 Pipeline Safety

In addition to the requirements discussed above, PHMSA also defines area classifications based on population density near the pipeline and associated facilities and applies specific safety requirements for more populated areas. The class location unit is an area that extends 220 yards on either side of the centerline of any continuous 1-mile length of pipeline. The four area classifications are defined below:

- Class 1: Location with 10 or fewer buildings intended for human occupancy;
- Class 2: Location with more than 10 but less than 46 buildings intended for human occupancy;
- Class 3: Location with 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of any building, or small well-defined outside area occupied by more than 20 people on at least 5 days a week for 10 weeks in any 12-month period; and
- Class 4: Location where buildings with four or more stories aboveground are prevalent.

Class locations representing more populated areas require increased safety elements in pipeline design, testing, and operations. For instance, pipelines constructed in Class I locations must be installed with a minimum depth cover requirement of 18 inches in consolidated rock and 30 inches in normal soil. Class 2, 3, and 4 locations, as well as drainage ditches for public roads and railroad crossings require a minimum depth cover of 24 inches in consolidated rock and 36 inches in normal soil.

Class locations also enumerate the maximum distance to sectionalizing block valve (i.e., 10.0 miles in Class 1, 7.5 miles in Class 2, 4.0 miles in Class 3, and 2.5 miles in Class 4). Pipe wall thickness and pipeline design pressures, hydrostatic test pressures, maximum allowable operating pressure (MAOP), inspection and testing of welds, and the frequency of pipeline patrols and leak surveys must also uphold and conform to higher safety standards in more populated areas.

Under PHMSA's pipeline safety regulations, pipeline operators are required to develop and follow a written integrity management program which would include an emergency plan, a continuing education program, an outline of the risks on each transmission pipeline segment and all other elements described in 49 CFR § 192.911. PHMSA has also published rules defining high consequence areas (HCA) as areas where a gas pipeline accident could exert considerable harm to people and their property. Once a pipeline operator has determined HCAs along its pipeline, elements of the integrity management program must be applied to the applicable pipeline segments.

TPC has completed a class location study for the proposed pipeline laterals and booster stations by completing a detailed GIS analysis. The results indicate that all proposed facilities be assigned to Class 1, non-HCAs and that no further analysis is required. If subsequent increases in population density adjacent to the rights-of-way result in changes in class location for either of the pipeline laterals or booster stations, the Applicants would implement the following mitigation measures:

- HCAs would be incorporated into the Applicants' Gas Transmission Integrity Management Program, in accordance with 49 CFR 192, Subpart O; and

- an Emergency Plan would be prepared meeting the requirements of 49 CFR § 192.615.

Additionally, moderate consequence areas (MCA) are described in 49 CFR § 192.3 as areas within a potential impact circle containing five or more buildings for human occupancy or any portion of a paved road surface that is a designated interstate, freeway, expressway, or other major arterial roadway with four or more lanes. The Applicants have determined the locations of 13 MCAs areas along the proposed pipeline laterals, see table

B-26. The Applicants have committed to manage the MCAs within the Project areas in accordance with the pipeline safety standards and procedures.

Table B-26
Identified Moderate Consequence Areas Crossed by the Project

Facility	Begin Milepost	End Milepost
REX Lateral to TPC East	0.3	1.0
	6.1	6.8
	10.0	11.0
	11.5	12.2
	12.7	13.5
	14.7	15.3
	16.6	17.2
	17.9	18.9
	18.9	19.3
REX Lateral to TPC Adams	0.0	0.2
	3.3	3.8
	13.5	13.8
	16.9	17.3

The EPA expressed concern regarding the climate resiliency of pipeline infrastructure, given the projected regional impacts of climate change. As indicated in section B.10, the projected regional impacts of climate change on critical infrastructure such as pipeline facilities would be more frequent intense rainfall events. As stated above, the Applicants would comply with all applicable USDOT-PHMSA *Minimum Federal Safety Standards* specified in 49 CFR 192 for the proposed facilities. In addition, no permanent aboveground facilities would be built or modified in designated floodplains. The Applicants conduct aerial monitoring of pipeline depth of cover annually and commit to inspecting potentially affected facilities within 72 hours of extreme weather events (such as floods).

We received a scoping comment expressing concern that the depth of burial would not be sufficient to protect the pipeline from ground freezing. As stated above, the pipeline laterals would be installed in accordance with applicable federal safety standards regarding depth of cover, as well as design specifications to ensure pipeline integrity. These regulations are also applicable to the Trailblazer Pipeline, which is currently transporting natural gas. Further, natural gas freezes at temperatures below 297 °F, and, therefore, would not be subject to freezing under natural temperature conditions in the Project area. In the event that TPC converts the pipeline to transport CO_2, it would also be subject to applicable pipeline safety regulations.

9.4 Emergencies

PHMSA's minimum standards for operating and maintaining pipeline facilities require the establishment of a written plan which governs these activities. Each pipeline operator is required under 49 CFR § 192.615 to establish an emergency plan that initiates procedures to minimize the hazards associated with a natural gas pipeline emergency. Key elements of the plan include procedures for:

- receiving, identifying, and classifying emergency events, gas leakage, fires, explosions, and natural disasters;
- establishing and maintaining communications with local fire, police, and public officials, and coordinating emergency response;
- emergency system shut-down and safe restoration of service;
- making personnel, equipment, tools, and materials available at the scene of an emergency; and
- protecting people first and then property and making them safe from actual or potential hazards.

Each operator is required by PHMSA to establish and maintain liaison with appropriate fire, police, and public officials to assimilate resources responsibilities of each organization that would respond to a natural gas pipeline emergency, and to coordinate mutual assistance. Additionally, as required by PHMSA, the Applicants must also establish and sustain an education program to enable customers, the public, government officials, and those engaged in excavation activities to recognize a gas pipeline emergency and report it to the appropriate public officials. The Applicants would administer the appropriate training to local emergency service personnel before the Project is placed in service.

Construction for the proposed Project requires the installation of station piping and additional regulation at three existing meter stations, construction of five new booster stations, and two new meter stations. The Applicants would implement procedural controls for testing, start-up, operation and maintenance, and the training of operations and maintenance staff. On October 1, 2019, PHMSA issued new regulations modifying and expanding the standard pipeline safety standards under 49 CFR 191 and 192. These regulations, in part, established new standards for in-line inspections; requirements for newly established MCAs; requirements to consider seismicity and geotechnical risks in its integrity management plan for the pipeline; new regulations on pipeline patrol frequency for HCAs, MCAs, and grandfathered pipelines; a policy to reconfirm MAOP for certain

pipelines; installation of pressure relief for pig launcher/receivers; and reporting requirements for exceedances of MAOP to PHMSA. These regulations went into effect on July 1, 2020.

9.5 Pipeline Accident Data

PHMSA requires all operators of natural gas transmission pipelines to alert the agency of any significant incident and to submit a report within 20 days. Significant incidents are defined as any leaks that:

- caused a death or personal injury requiring hospitalization;
- involve property damage of more than $50,000 (1984 dollars);
- release five barrels or more of highly volatile liquid or other liquid releases of 50 barrels or more; or
- liquid releases which result in an unintentional fire or explosion.

During the 20-year period from 2002 to 2021, a total of 1,432 significant incidents were reported on the more than 300,000 miles of natural gas transmission pipelines nationwide (PHMSA 2022b). Insight into the nature of service incidents could be found by examining the primary factors that induced the failures. Table B-27 provides a distribution of the casual factors as well as the number of each incident by cause, excluding gas distribution incidents caused by a nearby fire or explosion that may have impacted a pipeline system.

The dominant causes of pipeline incidents are faulty pipeline material, weld or equipment failure, and corrosion, amounting to 56.4 percent of all significant incidents. The data set in table B-27 is collected from pipelines that vary widely in terms of age, diameter, and level of corrosion control. Each variable influences the incident frequency that may be expected for a specific segment of pipeline.

The frequency of significant incidents is heavily influenced by the age of the pipeline. Older pipelines have a higher frequency of corrosion incidents and material failure, since corrosion and pipeline stress and strain are time-dependent processes. The use of both an external protective coating and a cathodic protection system, required on all pipelines installed after July 1971, significantly reduces the corrosion rate compared to unprotected or partially protected pipe.

Table B-27
Natural Gas Transmission Pipeline Significant Incidents by Cause (2002 – 2021)

Cause	Number of Incidents[a]	Percentage of All Incidents
Pipeline material, weld or equipment failure	481	33.6
Corrosion	326	22.8
Excavation[b]	178	12.4
Natural force damage	162	11.3
All other causes[c]	107	7.5
Outside force[d]	105	7.3
Incorrect operation	73	5.1
Total	**1,432**	**-**

[a] All data acquired from PHMSA's 2021 significant incident files.

[b] Includes damage from third-party excavation, operator/contractor excavation damage, and previous damage due to excavation.

[c] Miscellaneous causes or unknown causes.

[d] Includes, electrical arcing, maritime activity, fire/explosion, vehicle not engaged in excavation, damage, previous damage, intentional damage.

Outside force, excavation, and natural forces are the next three most significant causes of pipeline incidents, totaling 31 percent of all significant pipeline incidents. These result from the encroachment of mechanical equipment such as bulldozers and backhoes; earth movements due to soil settlement, washouts, or geologic hazards; weather effects such as winds, storms, and thermal strains; and willful damage. Older pipelines have a higher frequency of outside-forces incidents partially due to their lesser-known locations and substandard pipeline markers. Furthermore, older pipelines contain a disproportionate number of smaller-diameter pipelines, which experience incidents caused by outside-forces at a higher rate. Small-diameter pipelines are more likely to succumb to damage associated with earth movement or use of mechanical equipment. Table B-28 provides a breakdown of excavation, outside force, and natural force incidents by cause.

Since 1982, operators have been required to participate in One-Call public utility programs in populated areas to minimize unauthorized excavation activity within the vicinity of pipelines. The One-Call program is a service used by public utilities and some private sector companies (e.g., oil pipelines and cable television) to supply contractors or other maintenance workers with pre-construction information including underground location of pipes, cables, and culverts.

Table B-28 Excavation, Outside Force, and Natural Force Incidents by Cause (2002 – 2021)[a,b]		
Cause	**Number of Incidents**	**Percentage of All Incidents**
Third-party excavation damage	139	9.7
Heavy rains/floods	82	5.7
Vehicle not engaged in excavation	60	4.2
Earth movement	29	2.0
Operator excavation damage	25	1.7
Previous damage due to excavation	14	1.0
Lightning	14	1.0
Temperature	13	0.9
Other natural forces	13	0.9
Unspecified natural forces	13	0.9
Unspecified outside force damage	13	0.9
High winds	11	0.8
Fire/explosion as primary cause	12	0.8
Other outside force damage	11	0.8
Fishing or maritime activity	7	0.5
Previous mechanical damage	6	0.4
Electrical arcing from other equipment	4	0.3
Maritime equipment of vessel adrift	2	0.1
Intentional damage	1	0.1
Total	**469**	**-**

[a] All data acquired from PHMSA's 2021 significant incident files.
[b] Excavation, outside force, and natural force data from table B-27 as referenced in PHMSA 2021.

9.6 Impact on Public Safety

The Applicants would comply with all applicable USDOT pipeline safety standards and perform regular monitoring and testing of the proposed pipelines. While pipeline failures are rare, the potential the rupturing of pipeline systems and the risk to nearby residents is acknowledged below.

Table B-29 depicts the average annual injuries and fatalities that occurred on natural gas transmission lines from 2002 to 2021. Most fatalities from pipelines are due to local distribution pipelines, which are not regulated by the FERC. These are natural gas pipelines that distribute natural gas to homes and businesses following transportation through interstate natural gas transmission pipelines. These distribution lines are predominately smaller-diameter pipes and/or plastic pipes, which are more susceptible to

damage. Local distribution systems typically do not have large rights-of-way and pipeline markers common to the FERC-regulated natural gas transmission pipelines.

Table B-29
Injuries and Fatalities – Natural Gas Transmission Pipelines[a]

Year	Injuries	Fatalities
2002	4	1
2003	8	1
2004	2	0
2005	5	0
2006	3	3
2007	7	2
2008	5	0
2009	11	0
2010	61	10
2011	1	0
2012	7	0
2013	2	0
2014	1	1
2015	16	6
2016	3	3
2017	3	3
2018	5	1
2019	8	1
2020	1	2
2021	4	4

[a] All data acquired from PHMSA's 2021 significant incident files.

The nationwide totals of accidental fatalities from various anthropogenic and natural hazards from 2002 to 2021 are listed in table B-30 to provide a relative measure of the industry-wide safety of natural gas transmission pipelines. However, direct comparisons between the various accident categories should be made cautiously because of the nonuniformity of individual exposures to hazards among all categories. The data nonetheless indicates a low risk of death due to incidents involving natural gas transmission pipelines compared to the other categories. Furthermore, the fatality rate is considerably lower than fatalities from natural hazards such as lightening, tornados, or floods.

Table B-30 Nationwide Accidental Deaths	
Cause	**Annual Number of Deaths**
All accidents[a]	173,040
Poisoning[a]	65,773
Falls[a]	39,443
Motor Vehicle[a]	39,107
Drowning[a]	3,692
Fire, smoke inhalation, burns[a]	2,692
Floods[b]	88
Tornado[b]	71
Lightning[b]	37
Natural gas distribution lines[c]	9
Natural gas transmission pipelines[c]	2

[a] The Centers for Disease Control, 2022. National Vital Statistics Reports, Volume 70, Report 8; Table 6.

[b] National Oceanic Atmospheric Administration, 2022. National Weather Service, Office of Climate, Water and Weather Services, 30-year average (1992-2021) http://www.weather.gov/om/hazstats.shtml.

[c] PHMSA's 2002 – 2021 significant incident files.

The available data corroborates that natural gas transmission pipelines continue to be a safe and reliable means of energy transportation. From 2002 to 2021, there were 1,432 significant incidents, averaging 8 injuries and 2 fatalities per year (PHMSA 2022b). The number of significant incidents over the more than 300,000 miles of natural gas transmission lines indicates a low risk for incident occurrence at any given location. Construction and operation of the proposed Project would represent a minimal increase in risk to the nearby public. We conclude that with the Applicants' implementation of safety design criteria including that required by the USDOT-PHMSA, the Project would be constructed and operated safely.

10. Cumulative Impacts

In accordance with NEPA[76] and FERC policy, we evaluated potential cumulative impacts of the Trailblazer Conversion Project when combined with other projects or

[76] On July 16, 2020, the CEQ issued a final rule, *Update to the Regulations Implementing the Procedural Provisions of the National Environmental Policy Act* (Final Rule, 85 *Federal Register* 43,304), which became effective as of September 14, 2020. On April 20, 2022, CEQ issued a final rule to amend three provisions of its regulations implementing NEPA, addressing the purpose and need of a proposed action, agency NEPA procedures for implementing CEQ's NEPA regulations, and the definition of "effects," which became effective on May 20, 2022. The amendments generally restore provisions that were in effect before being modified in 2020 (Final Rule, 87 *Federal Register* 23,453).

actions in the areas. Cumulative impacts represent the incremental effects of a proposed action when added to impacts associated with past, present, or reasonably foreseeable projects, regardless of what agency or person undertakes such other actions. Although the individual impact of each separate project may be minor, the additive or synergistic effects of multiple projects could be significant.

Before the first Europeans arrived in Nebraska and Colorado, Native American tribes lived within these areas (Dalstrom and Naugle 2022, Dietz et al. 2022). The first Europeans in Nebraska and Colorado were Spanish and French explorers, soldiers, and traders, starting in the southwest portions of the states. Throughout the 19th century, Nebraska was explored and primarily utilized as a highway for fur trade and a migration route to the west. In addition to settlers from the eastern United States who came to Nebraska, large numbers of European immigrants settled in the state during the late 19th century. Similarly, Colorado was explored and utilized for fur trapping and trading as well as mining. Land records from the late 19th century document German, Scandinavian, Bohemian, and Irish settlements in Colorado and Nebraska; settlers were primarily farmers and livestock handlers (Joyner 2021).

In this analysis, we consider the impacts of past projects to have become part of the affected environment (environmental baseline), which is described and evaluated in the preceding environmental analyses; however, ongoing effects of past actions that are relevant to the analysis are also considered. Furthermore, the CEQ in a memorandum regarding analysis of past actions issued on June 24, 2005, stated: "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." (CEQ 2005). "Present" projects are those currently ongoing (either being constructed or are in operation) and affecting the environment in such a manner that could contribute to a cumulative impact. We consider "reasonably foreseeable" projects to be proposed projects or developments that have applied for a permit from a federal, state, or local authority or planned projects, which have been publicly announced.[77]

For a cumulative impact to occur, another project(s) must impact the same resource(s) as the Project. Impacts often vary in extent and duration. For example, a project's impact on cultural resource sites is localized in nature, with some exceptions, and typically not affecting other sites whereas a project's impact on air quality could be measured over a relatively large distance. We account for this variation by considering resource-specific geographic scopes. Within each geographic scope, other projects' impacts when combined with those of the Project could result in a cumulative impact.

[77] CEQ defines "reasonably foreseeable" as an action that is sufficiently likely to occur such that a person of ordinary prudence would take it into account in reaching a decision.

Continuing the use of cultural resources and air quality as examples, the geographic scope for cultural resources is limited to the area within which sites could be directly or indirectly affected by another project(s) and would be significantly smaller than the geographic scope for air quality. Projects outside a geographic scope are not evaluated because their potential to contribute to a cumulative impact diminishes with increasing distance from the Project.

10.1 Geographic Scope of Cumulative Impacts

When determining the significance of a cumulative impact, we consider the duration of the impact; the geographic, biological, and/or social context in which the impact would occur; and the magnitude and intensity of the impact. For each environmental resource, the potential impacts associated with the Project are discussed in relation to the cumulative effects that may occur when they are added to other past, present, or reasonably foreseeable projects within the geographic scope of analysis. Based on the impacts of the Project as identified and described in this EA and consistent with CEQ guidance, we have determined that the resource-specific geographic scopes described below are appropriate to assess cumulative impacts.

Table B-31 summarizes the resource-specific geographic scopes considered in this analysis and the justification for each. As discussed throughout section B, the proposed Project would not result in impacts on geological resources and would have no effect on cultural resources; therefore, the Project would not contribute to cumulative effects on these resources, and they are not discussed further.

The Applicants identified the HUC-12 watersheds that would be affected by the Project (see table B-5). The total acreage of these watersheds is 744,305 acres. The footprint of the proposed Project represents about 0.1 percent of the area considered for groundwater, surface water, wetlands, aquatic resources, vegetation, wildlife, and special status species.

Table B-31
Geographic Scope by Resource for Cumulative Impacts Associated with the Trailblazer Conversion Project

Resource	Geographic Scope	Justification for Geographic Scope
Soils	Limits of Project disturbance/construction workspaces	Impacts on soils would be highly localized and are not expected to extend beyond the area of direct disturbance associated with the Project.
Water Resources, including: Groundwater, Surface Water, Wetlands, Aquatic Resources	HUC-12 subwatersheds	Watersheds are natural, well-defined boundaries for surface water flow, and commonly contribute to the recharge of groundwater resources. Impacts on groundwater, surface water resources, wetlands, and aquatic resources could reasonably extend throughout a HUC-12 subwatershed (i.e., a detailed hydrologic unit that can accept surface water directly from upstream drainage areas and indirectly from associated surface areas such as remnant, noncontributing, and diversions to form a drainage area with single or multiple outlet points, as could the related impacts on aquatic resources and fisheries).
Biological Resources including: Vegetation, Wildlife, Special Status Species	HUC-12 subwatersheds	Consideration of impacts within a HUC-12 subwatershed sufficiently accounts for impacts on vegetation and wildlife (including special status species) that would be directly affected by construction activities and for indirect impacts such as changes in habitat availability and displacement of transient species.
Land Use	Within 1 mile of construction workspace	Impacts on general land uses, including public recreational areas, would be restricted to the construction workspaces and the adjacent landscape up to 1 mile where indirect impacts could occur.
Visual Resources	Within 0.25 mile of pipelines and 0.5 mile of aboveground facilities	Assessing the impact based on the viewshed allows for the impact to be considered with any other feature that could have an effect on visual resources.
Socioeconomics	Counties where Project activities are proposed: Weld, Logan, and Sedgwick in Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties in Nebraska.	An estimated 50 percent of workers would be expected to reside in the affected counties during construction of the Project. Affected counties would experience the greatest impacts associated with employment, housing, public services, transportation, traffic, property values, and economy and taxes.
Environmental Justice	Census block groups crossed by the pipelines, abandonment sites or contractor yards, within 5 kilometers of the Hereford Ranch, Redtail, and Logan booster stations, and within 1 mile of all other aboveground facilities.	The geographic scope of potential impacts for environmental justice includes all block groups affected by the Project.

Table B-31 (continued)
Geographic Scope by Resource for Cumulative Impacts Associated with the Trailblazer Conversion Project

Resource	Geographic Scope	Justification for Geographic Scope
Air Quality – Construction[a]	Within 0.25 mile of all active construction (pipeline, road crossing, aboveground facilities, abandonment sites)	Air emissions during construction would be limited to vehicle and construction equipment emissions and dust, and would be localized to the Project's active construction work areas and areas adjacent to these active work areas.
Air Quality – Operation[a]	Within 10 kilometers (6.2 miles) of the Project compressor (booster) facilities	We adopted the distance used by the EPA for cumulative modeling of minor sources during permitting (40 CFR 51, appendix W), which is a 10-kilometer radius
Noise – Construction	NSAs within 0.25 mile of any construction and within 0.5 mile of HDD activities	Areas in the immediate proximity of a pipeline or aboveground facility construction activities (including abandonment activities) would have the potential to be affected by construction noise. NSAs within 0.5 mile of an HDD could be cumulatively affected if other projects had a concurrent impact on the NSA.
Noise – Operation	NSAs within 1 mile of a noise-emitting permanent aboveground facility	Noise from the Projects' permanent aboveground facilities could result in cumulative noise impacts on NSAs within 1 mile.

[a] We note that GHGs do not have a localized geographic scope. GHG emissions from the Project combined with projects all over the planet lead to increased CO_2, methane, and other GHG concentrations in the atmosphere, discussed below.

10.2 Projects and Activities Considered

Our cumulative impacts analysis looks at the potential impacts of other actions as described in relevant guidance. NEPA requires reasonable forecasting, but an agency is not required to engage in speculative analysis or to do the impractical, if not enough information is available to permit meaningful consideration. The scope of the cumulative impact assessment depends in part on the availability of information about other projects. Other projects considered for this assessment were identified from information provided by the Applicants; FERC's documentation of other planned, pending, and ongoing jurisdictional natural gas projects; and via online research. Table B-32 and figure B-1 provide details on the current and reasonably foreseeable projects or construction activities identified within the designated geographic scope of the proposed Project areas. For some projects, we were unable to obtain quantitative information (e.g., project planning stage, size), in these cases our analysis relies on qualitative information.

In comments issued during the scoping period, the EPA recommended the EA assess cumulative impacts, including an analysis of the capture, transport, and sequestration of CO_2 as part of the CCS project. As stated in section A.1, according to TPC and REX, the purpose of the proposed Trailblazer Conversion Project is to provide continued service to

TPC's existing natural gas firm transportation customers while making TPC's pipeline facilities available in anticipation of future non-jurisdictional use to transport CO_2 for final sequestration. However, the scope of the CCS project is not known. Tallgrass has stated that it intends to establish a commercial-scale CO_2 sequestration hub in southeastern Wyoming to capture, transport, and sequester 10 million tons of CO_2 annually (Tallgrass 2022); however, the specific laterals, ancillary facilities, and appurtenances needed to implement the CCS project are not known at this time. Given the intended future use of the existing Trailblazer Pipeline for CO_2 transportation, ground disturbance is expected to be limited to the construction of new laterals, ancillary facilities, and appurtenances that would likely be collocated with (or connected to) the existing Trailblazer Pipeline that is proposed for abandonment in this proceeding. Therefore, we assume that ground-disturbing activities associated with future non-jurisdictional CO_2 facilities would occur after the proposed Trailblazer Conversion Project is in service and undergoing restoration; as such, the potential for cumulative impacts would be limited to any permanent conversion of undeveloped areas to developed land, as well as air and noise impacts. Any loss or conversion of wetlands would be subject to applicable CWA permits. Similarly, air and noise impacts associated with construction of any future non-jurisdictional CO_2 facilities would not likely occur concurrently with the proposed Project given the CCS project's scope is still in the early stages of project development, and any operations would be subject to applicable air quality regulations to ensure continued compliance with applicable air quality standards.

Table B-32
Projects within the Geographic Scopes for Cumulative Impacts associated with the Trailblazer Conversion Project[a]

Project (Developer; Figure B-1 Reference Number, where applicable)	Project Description	Schedule (Const / Oper)	Approximate Project Size	Closest Distance from the Project (nearest facility)	Resources Potentially Affected within the proposed Project's Geographic Scope
NON-JURISDICTIONAL POWERLINES TO PROJECT FACILITIES[b]					
Utility Line for Hereford Ranch Compressor Station (High West Energy; collocated with project #20 in figure B-1)	High West Energy would install an approximate 1,000-foot-long powerline extension, replace power poles, and install new power pole and electric metering equipment.	2023	1.2 acres	0 mile (Hereford Ranch booster station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics, Environmental Justice
Utility Line for Redtail Compressor Station (High West Energy; collocated with project #21 in figure B-1)	High West Energy would upgrade about 3 miles of existing powerline and install 1 mile of new powerline, including new power poles and electric metering equipment.	2023	17.8 acres	0 mile (Redtail booster station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics
Utility Line for Logan Compressor Station (Highline Electric Association; collocated with project #22 in figure B-1)	Highline Electric Association would rebuild its existing 601 substation and install a new power pole and electric metering equipment.	2023	32.0 acres	0 mile (Logan booster station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics
Utility Line for Sedgwick Compressor Station (Highline Electric Association; collocated with project #23 in figure B-1)	Highline Electric Association would install about 13 new power poles to accommodate a powerline extension and install electric metering equipment.	2023	33.7 acres	0 mile (Sedgwick booster station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics, Environmental Justice
Utility Line for Sedgwick East Compressor Station (Highline Electric Association; collocated with project #24 in figure B-1)	Highline Electric Association would upgrade 5 miles of existing powerlines, install a new power pole, and install electric metering equipment.	2023	23.5 acres	0 mile (Sedgwick East booster station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics, Environmental Justice

Table B-32 (continued)
Projects within the Geographic Scopes for Cumulative Impacts associated with the Trailblazer Conversion Project[a]

Project – Developer (Figure B-1 Reference Number, where applicable)	Project Description	Schedule (Const / Oper)	Approximate Project Size	Closest Distance from the Project (nearest facility)	Resources Potentially Affected within the proposed Project's Geographic Scope
Utility Line for Adams Meter and Regulating Station (Southern Public Power District; collocated with project #28 in figure B-1)	Southern Public Power District would install a new power pole, a new electric meter, and a new disconnect switch.	2023	Unknown	0 mile (Adams Meter and Regulating Station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics
Utility Line for REX to TPC East Meter and Regulating Station (Norris Public Power District; collocated with project #29 in figure B-1)	Norris Public Power District would install a new power pole, a new electric meter, and a new disconnect switch.	2023	Unknown	0 mile (REX to TPC East Meter and Regulating Station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics
Utility Line for MLV Site for Adams Lateral (Southern Public Power District; collocated with project #31 in figure B-1)	Southern Public Power District would install a new power pole, a new electric meter, and a new disconnect switch.	2023	Unknown	0 mile (MLV Site for Adams Lateral)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics
Utility Line for MLV Site for TPC East Lateral (Norris Public Power District; collocated with project #32 in figure B-1)	Norris Public Power District would install a new power pole, a new electric meter, and a new disconnect switch.	2023	Unknown	0 mile (MLV Site for TPC East Lateral)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics
BLANKET CERTIFICATE PROJECTS					
TIGT Lateral to TPC Northwestern Kearney (Tallgrass; project #34 in figure B-1)	Tallgrass is currently proposing to construct 6.3 miles of 8-inch-diameter pipeline.	September 2023 / January 2024	66.5 acres	0 mile (adjacent to the Northwestern Kearney Interconnect)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const, oper), Noise (const, oper), Socioeconomics
ECGS Regulating Station (REX; project #35 in figure B-1)	REX is currently proposing to install 20-inch-diameter hot tap, station piping and regulating skid.	October 2022 / December 2022	1.8 acres	0 mile (adjacent to the ECGS interconnect)	Air (oper)

Table B-32 (continued)
Projects within the Geographic Scopes for Cumulative Impacts associated with the Trailblazer Conversion Project[a]

Project – Developer (Figure B-1 Reference Number, where applicable)	Project Description	Schedule (Const / Oper)	Approximate Project Size	Closest Distance from the Project (nearest facility)	Resources Potentially Affected within the proposed Project's Geographic Scope
TIGT/TPC Logan Station (Tallgrass; project #36 in figure B-1)	Tallgrass is currently proposing to install additional station piping and regulating skid at its exiting meter station.	August 2023 / February 2024	0.4 acre	0 mile (within the Logan booster station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const, oper), Noise (const, oper), Socioeconomics
WME Yates Sedgwick West Interconnect (TPC; project #37 in figure B-1)	TPC is currently proposing to cut and cap the Trailblazer Pipeline mainline connection to the interconnect, abandon the existing interconnect piping, and abandon the TPC-owned interconnect facilities in-place.	February 2024 / March 2024	0.3 acre	5 miles SE (Sedgwick booster station)	Socioeconomics
Northwestern Kearney Launcher Site (Tallgrass; project #38 in figure B-1)	Tallgrass is currently proposing to install 8-inch-diameter hot tap on the TIGT Lateral to TPC Northwestern Kearney and to construct launcher.	September 2023 / January 2024	0.7 acre	6 miles S (Northwestern Kearney Interconnect)	Socioeconomics
Northwestern Kearney Receiver Site (Tallgrass; project #39 in figure B-1)	Tallgrass is currently proposing to construct a receiver and tie into existing facilities.	September 2023 / January 2024	0.3 acre	0 mile (within the Northwestern Kearney Interconnect)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const), Socioeconomics; Noise (const)
Clay Interconnect - TIGT (Tallgrass; project #41 in figure B-1)	Tallgrass is currently proposing to cut and cap the Trailblazer Pipeline mainline connection to the interconnect and abandon the existing interconnect piping as well as to abandon the Tallgrass-owned interconnect facilities.	February 2024 / March 2024	0.1 acre	0 mile (adjacent to the Clay Interconnect-TPC)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const, oper), Noise (const), Socioeconomics, Environmental Justice

Table B-32 (continued)
Projects within the Geographic Scopes for Cumulative Impacts associated with the Trailblazer Conversion Project[a]

Project – Developer (Figure B-1 Reference Number, where applicable)	Project Description	Schedule (Const / Oper)	Approximate Project Size	Closest Distance from the Project (nearest facility)	Resources Potentially Affected within the proposed Project's Geographic Scope
Fairmont Receiver Site (TPC; project #42 in figure B-1)	TPC is currently proposing to construct receiver tie-in location and tie into the existing facility.	August 2023 / March 2024	1.3 acres	0 mile (TPC East Isolation)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const, oper), Noise (const), Socioeconomics
TPC East Launchers (TPC; project #43 in figure B-1)	TPC is currently proposing to construct two launcher tie-in locations.	August 2023 / March 2024	2.6 acres	0 mile (REX to TPC East Meter and Regulating Station)	Soils, Water Resources, Biological Resources, Land Use/Visual, Air (const, oper), Noise (const), Socioeconomics
ENERGY PROJECTS					
TPC Adams to TPC Heartwell Lateral (TPC)	TPC would construct and operate a new 14.2-mile 6-inch-diameter lateral pipeline to the TPC Heartwell Lateral and associated delivery meter station in Adams County, Nebraska.	2024 / 2024	86.8 acres	0 mile NE (Adams Metering and Regulating Station)	Soils, Water Resources, Biological Resources, and Land Use/Visual, Air (const), Noise (const), Socioeconomics
REX Cheyenne Hub Enhancement Project – Compressor 5 and 6 Installation (REX)	REX is currently constructing compressor units 5 and 6 at the existing Cheyenne Hub in Weld County, Colorado, which was certificated under docket number CP18-103.	Ongoing Construction / Winter 2022 for Compressor 5 and Fall 2023 for Compressor 6	7.1 acres	500-feet SW (REX/TPC Lone Tree Interconnect)	Water Resources, Biological Resources, Land Use/Visual, Air (const), Noise (const), Socioeconomics, Environmental Justice
DEVELOPMENT PROJECTS					
Campbell West Project (Nebraska Department of Transportation [NDOT])	NDOT plans to resurface and improve 12.0 miles of U.S. Hwy N-4 in Franklin County, Nebraska.	2023-2027	12 miles	1 mile S (REX Lateral to TPC Adams and Adams Launcher Site)	Socioeconomics, Environmental Justice

Table B-32 (continued)
Projects within the Geographic Scopes for Cumulative Impacts associated with the Trailblazer Conversion Project[a]

Project – Developer (Figure B-1 Reference Number, where applicable)	Project Description	Schedule (Const / Oper)	Approximate Project Size	Closest Distance from the Project (nearest facility)	Resources Potentially Affected within the proposed Project's Geographic Scope
Kearney/Adams County Line East Project (NDOT)	NDOT plans to resurface 18.1 miles of U.S. Hwy N-74 in Adams County, Nebraska.	2023-2027	18.1 miles	0 mile (intersects with REX Lateral to TPC Adams)	Air (const), Noise (const), Socioeconomics
Jansen East Project (NDOT)	NDOT plans to resurface 9.8 miles of U.S. Hwy 136 in Jefferson County, Nebraska.	2023-2027	9.8 miles	0 mile (intersects with REX Lateral to TPC East)	Air (const), Noise (const), Socioeconomics
Steele City Spur Bridge Project (NDOT)	NDOT plans to improve the Steele City Bridge in Jefferson County, Nebraska.	2023-2027	Unknown	1 mile NE (REX Lateral to TPC East, and TPC East Launcher Site)	Socioeconomics
McCook – North Platte Project (NDOT)	NDOT plans to modify and improve 60 miles of U.S. Hwy 83 in Red Willow, Frontier, and Lincoln Counties, Nebraska.	2020-2026	60 miles	1 mile W (North Platte Livestock Feeder Regulating Station)	Water Resources, Biological Resources, Land Use, Socioeconomics

Const = Construction; E = East; MLV = Mainline Valve; NE = Northeast; Oper = Operation; S = South; SE = Southeast; SW = Southwest; W = West; TIGT = Tallgrass Interstate Gas Transmission, LLC

[a] The Applicants also identified existing oil and gas development within 0.25 mile of the Project areas in their application; however, no cumulative impacts are anticipated for the continued operation of oil and gas facilities assessed as part of the baseline condition for the Project. The Strang North Project – NDOT Project and the Bertrand Compressor Station Bi-directional Project (REX) are scheduled to be complete prior to construction of the proposed Trailblazer Conversion Project. Additionally, the Pony Express Guernsey Expansion (PEGE) – Colorado Liberty Pipeline, LLC, in-service status remains stalled; however, it is anticipated that the only potential concurrent activities with the Trailblazer Conversion Project would relate to ongoing restoration.

[b] While the specific construction schedule for non-jurisdictional facilities is not known, it is assumed that construction would be concurrent with the proposed Project to allow for power supply at the time of in service.

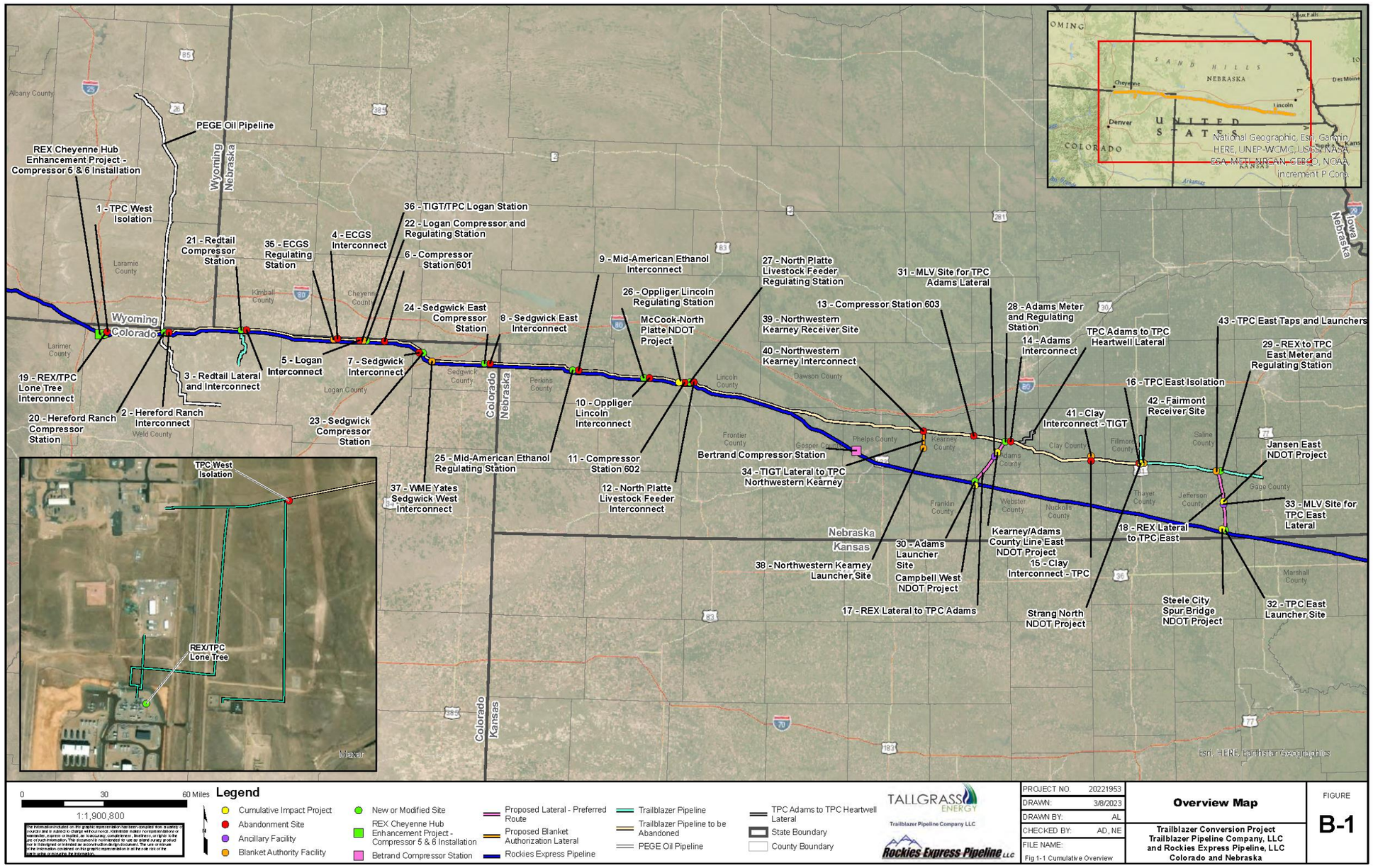

Figure B-1 Trailblazer Conversion Project Actions Considered in the Cumulative Impacts Analysis

The EPA also recommended that the CCS project be considered a connected action[78] to the proposed Project. We discuss the CCS project in more detail in section B.10.5; however, if the Commission grants the abandonment, the pipeline and any future use other than interstate natural gas transportation would no longer be under the Commission's jurisdiction. Any subsequent construction by the Applicants or any other entity related to the abandoned pipeline for purposes other than interstate natural gas transportation would also not be under the Commission's jurisdiction. Further, while the abandonment would allow for whatever future use the Applicants ultimately decide to undertake, the abandonment would not be the cause of the future use as contemplated by CEQ regulations.

Of the projects identified in table B-32, nine projects are proposed as modifications to the Applicants' existing systems pursuant to Sections 157.208 and 157.216 of their Blanket Certificates, and thus are not part of the proposed Project. Most of these modifications would be minor, including cut-and-cap locations for abandonment activities and construction of pipeline appurtenances; however, the TIGT Lateral to TPC Northwestern Kearney would involve new construction of a 6.3-mile-long pipeline lateral. We considered the impacts that would occur from the Blanket Certificate projects within the geographic scope of the Project in the cumulative impacts assessment that follows. As discussed in section A.5.4, we consider the Blanket Certificate projects related to the proposed Project, therefore, we also disclose all known impacts of the activities associated with the Blanket Certificate projects in section B.10.5, below. In addition, several projects were identified by the Applicants as potentially contributing to cumulative impacts with the proposed Trailblazer Conversion Project that have already been completed and are therefore considered as part of the baseline condition of the Project areas.

In addition to the projects identified in table B-32, existing oil and gas facilities were identified 610 feet south of Hereford Ranch booster station, 906 feet east of ECGS Regulating Station, 15 feet south of the Sedgwick booster station, and 676 feet west of Adams Meter and Regulating Station. Continued operation of these oil and gas facilities are considered as part of the baseline condition for the Project for our assessment.

[78] The CEQ defines connected actions as actions that are closely related to the proposed action, which therefore should be discussed in the same impact statement. Connected actions (i) automatically trigger other actions which may require environmental impact statements, (ii) cannot or will not proceed unless other actions are taken previously or simultaneously, or (iii) are interdependent parts of a larger action and depend on the larger action for their justification (40 CFR § 1508.25).

10.3 Potential Cumulative Impacts by Resource

The following sections address the potential cumulative impacts on specific environmental resources from the Project and the other projects identified within the cumulative geographic scope, as presented in table B-32. In each resource section, we highlight those projects that would occur within the same timeframe as the proposed Project, as these are the most likely to contribute to cumulative impacts with the Project.

Soils

The geographic scope for soils was defined as the area that would be affected by, or immediately adjacent to, the Trailblazer Conversion Project. Large projects with ground disturbance and excavation associated with construction and permanent aboveground facilities generally would have the greatest impacts on soils. Specific to the Project areas, the non-jurisdictional facilities, six of the Blanket Certificate projects, and the TPC Adams to TPC Heartwell Lateral would occur within areas of direct disturbance associated with the Project. Therefore, these projects in combination with the proposed Trailblazer Conversion Project have the potential to contribute to cumulative impacts on soils.

The majority of impacts on soils associated with the Project would be temporary to short-term (lasting until revegetation is successful). The Applicants would implement Project-specific plans (e.g., AIMP, Winter Construction Plan, Unanticipated Contamination Discovery Plan, and SPRP), as well as the measures in their Plan and Procedures to minimize impacts on soils associated with the Project, and implement the measures in their Noxious Weed Management Plan on areas where soils are classified as low revegetation potential. However, the Project would result in permanent impacts on the availability of prime farmland (9.8 acres of prime farmland and farmland of statewide importance would be encumbered by aboveground facilities, and less than 0.7 acre of additional land, which may include prime farmland, would be affected by new permanent access roads). The soil stabilization and revegetation requirements included in the Applicants' Project-specific plans would prevent or minimize impacts on soils, including erosion and offsite sedimentation. Similarly, the other projects in the geographic scope that require excavation or grading would also have temporary, direct impacts on soils, although, like the proposed Project, impacts would be predominantly temporary and minimized by the implementation of erosion control and restoration measures required for compliance with stormwater management requirements under the CWA. Additionally, the other FERC-regulated projects (such as the Blanket Certificate projects) would be required to conserve topsoil through segregation and the installation of temporary erosion controls such as slope breakers and sediment barriers during construction and until permanent erosion control devices are established or restoration is complete in accordance with the FERC Plan and Procedures. Therefore, the proposed Project, with the other projects in the

geographic scope, would not contribute to significant cumulative impacts on soils. While other projects, including the Blanket Certificate projects, may cause loss of prime farmland soils (including 0.8 acre at the TPC East Launchers, 0.1 acre at the TIGT/TPC Logan Station [affecting prime farmland if irrigated], and 0.6 acre at the Fairmont Receiver Site), and an estimated 37.4 acres of prime farmland soils are estimated within the permanent operation area associated with the TIGT Lateral to TPC Northwestern Kearney. However, the cumulative effects on soils, including prime farmland, are expected to be negligible.

Water Resources

The geographic scope established for water resources is the HUC-12 subwatersheds crossed by the Project. Any projects listed in table B-32 involving ground disturbance within HUC-12 subwatersheds crossed by the Project could result in cumulative impacts on water resources. This includes all of the non-jurisdictional powerlines to Project facilities, all of the energy projects, six of the Blanket Certificate projects, and the McCook-North Platte transportation project. Table B-33 lists the affected subwatersheds and provides information on impact acreages within each watershed, including the percentage of the subwatershed affected by the proposed Project and other projects/actions in the geographic scope.

Groundwater

Cumulative impacts on groundwater, primarily due to increased turbidity or contamination due to spills, could extend outside of the Project workspaces, but would likely be contained to a relatively small area (about 0.1 percent of the HUC-12 subwatersheds' total drainage area). In addition, new impervious cover at the aboveground facility sites could reduce levels of groundwater recharge. The majority of the other projects within the geographic scope would involve similar, relatively shallow ground-disturbing activities that could temporarily affect groundwater quality or recharge. Furthermore, other projects within the geographic scope would involve similar, relatively small areas of vegetated land that would be permanently converted to industrial uses. These sites would consist of impervious cover and would result in a localized reduction in groundwater infiltration.

Table B-33
Subwatersheds Affected by the Trailblazer Conversion Project and Other Projects included in the Cumulative Analysis

Subwatershed Name (HUC 12)	Drainage Area (acres)	Project Facilities (Acreage in HUC)[a]	Other Projects (Acreage in HUC if Known)[b]	Percentage of HUC Affected by the Project[c]	Percentage of HUC Affected by Other Projects	Percentage of HUC Affected by the Project and Other Projects
Outlet West Branch Thirty-two Mile Creek (102702060402)	25,419	REX Lateral to TPC Adams (11.3 acres); Adams Interconnect (<0.1 acre); and Adams Meter and Regulating Station (3.3 acres)	TPC Adams to TPC Heartwell Lateral (27.1 acres); Utility Line for Adams Meter and Regulating Station	0.1	0.1	0.2
Swan Creek (102702040206)	36,186	REX Lateral to TPC East (129.8 acres); REX to TPC East Meter and Regulating Station (5.2 acres)	Utility Line for REX to TPC East Meter and Regulating Station; TPC East Launchers (2.6 acres)	0.4	<0.1	0.4
Headwaters Owl Creek (101900080301)	40,573	REX/TPC Lone Tree Interconnect (0.6 acre); TPC West Isolation (1.0 acre)	REX Cheyenne Hub – Compressor 5 and 6 Installation (7.1 acres)	<0.1	<0.1	<0.1
Lower Little Crow Creek (101900090208)	38,773	Hereford Ranch Interconnect (<0.1 acre); and Hereford Ranch Compressor Station (3.1 acres)	Utility Line for Hereford Ranch Compressor Station (1.2 acres)	<0.1	<0.1	<0.1
Segment of Two-mile Mountain (101900170102)	21,995	Redtail Lateral and Interconnect (<0.1 acre) and Redtail Compressor Station (4.5 acres)	Utility Line for Redtail Compressor Station (17.8 acres)	<0.1	0.1	0.1
Headwaters Cottonwood Creek (101900121204)	22,679	Logan Interconnect (<0.1 acre) and Logan Compressor Regulating Station (3.5 acres); Compressor Station 601 (0.9 acre)	Utility Line for Logan Compressor Station (32.0 acres); TIGT/TPC Logan Station (0.4 acre)	<0.1	0.1	0.2

Table B-33
Subwatersheds Affected by the Trailblazer Conversion Project and Other Projects included in the Cumulative Analysis

Subwatershed Name (HUC 12)	Drainage Area (acres)	Project Facilities (Acreage in HUC)[a]	Other Projects (Acreage in HUC if Known)[b]	Percentage of HUC Affected by the Project[c]	Percentage of HUC Affected by Other Projects	Percentage of HUC Affected by the Project and Other Projects
Settlers Ditch (101900121301)	12,749	Sedgwick Interconnect (<0.1 acre) and Sedgwick Compressor Station (1.0 acre)	Utility Line for Sedgwick Compressor Station (33.7 acres)	<0.1	0.3	0.3
Segment of "Town of Brandon" (102500060301)	22,787	Sedgwick East Interconnect (<0.1 acre) and Sedgwick East Compressor Station (2.3 acres)	Utility Line for Sedgwick East Compressor Station (23.5 acres)	<0.1	0.1	0.1
Hay Canyon-Medicine Creek (102500080207)	32,750	North Platte Livestock Feeder Interconnect (<0.1 acre) and North Platte Livestock Feeder Regulating Station (0.3 acre)	McCook – North Platte Project	<0.1	Unknown	<0.1
Whiskey Slough (102001011006)	17,060	Northwestern Kearney Interconnect (0.2 acre)	Northwestern Kearney Receiver Site (0.3 acre), and about 1.1 miles of the TIGT Lateral to TPC Northwestern Kearney (estimated 12.0 acres)	<0.1	0.1	0.1
Smith Lagoon (102702060602)	14,657	Clay Interconnect - TPC (0.5 acre)	Clay Interconnect - TIGT (0.1 acre)	<0.1	<0.1	<0.1
Town of Strang (102702060702)	15,768	TPC East Isolation (0.1)	Fairmont Receiver Site (1.3 acres)	<0.1	<0.1	<0.1
Total (acres)	**301,396**	**167.3**	**159.1**			

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Abandonment facilities not listed individually would be collocated with other Project facilities.

[c] Based on the construction workspace for aboveground facilities presented in table B-12 and the portion of the proposed laterals identified within each HUC-12 subwatershed in Table 1-18 of the Applicants' filing under accession no. 20220912-5172.

The Applicants would develop and implement the measures in their Plan and Procedures, along with their SPRP, Unanticipated Contamination Discovery Plan, and HDD Contingency Plan to minimize the potential for groundwater contamination. Further, the Applicants are proposing use of municipal water sources (or a permitted groundwater source) to support construction of the Project, thereby reducing the potential for contaminants to be introduced into the environment. Further, with the relatively small amount of new impervious surface that would be required for the Project, overall groundwater recharge rates are not expected to be affected in the area. All other projects in the HUC-12 subwatershed would be required to obtain water use and discharge permits and would be expected to implement their various spill prevention plans as required by federal and state agencies. Projects that require large amounts of excavation or grading, such as the TIGT Lateral to TPC Northwestern Kearney and TPC Adams to TPC Heartwell Lateral, could also have temporary impacts on groundwater quality and infiltration rates, although like the proposed pipeline facilities, these projects would have relatively shallow ground disturbance relative to the typical depth of aquifers in the Project areas and the effect of these projects would be minimized by the implementation of erosion control and restoration measures. For these reasons, we anticipate that the Project in conjunction with other projects within the geographic scope would contribute to minor and temporary cumulative impacts on groundwater.

Surface Water and Wetlands

Concurrent construction activities within the geographic scope could result in potential impacts on surface water and wetland resources including increases in turbidity and sedimentation, depletion of dissolved oxygen levels, and decreased water quality during and immediately following Project construction. The primary impacts on these resources would result from in-water disturbance and sedimentation during open-cut waterbody crossings and alteration of vegetation within or adjacent to these resources during clearing. Compaction, rutting, and mixing of topsoil and subsoil could affect wetland soils if adequate mitigation measures are not implemented. Additionally, inadvertent spills could also affect water quality. These impacts would be the greatest during and immediately following concurrent construction of the proposed Project and other projects within the HUC-12 subwatershed.

The Project's impacts on waterbodies and wetlands are discussed in section B.2.2 and B.2.3. Project-related impacts would occur in 17 HUC-12 watersheds in which no other projects also occur, and other projects with the potential to contribute to cumulative impacts were identified in 12 HUC-12 watersheds, which are listed in table B-33. Based on information provided by the Applicants, the Blanket Certificate projects within the geographic scope for potential cumulative impacts on surface water and wetlands would not fill or permanently convert wetland communities or affect waterbodies. While

Tallgrass is planning to cross three intermittent streams and one PEM wetland along the TIGT Lateral to TPC Northwestern Kearney via the open-cut crossing method, one additional PEM wetland would be crossed by the HDD method, based on a review of alignment sheets for the lateral, these features appear to be located outside the HUC-12 subwatersheds affected by the proposed Project where cumulative impacts could occur.

The Cheyenne Hub Project is not expected to affect wetlands and waterbodies within the Headwaters Owl Creek subwatershed. The TPC Adams to TPC Heartwell Lateral would cross 4 waterbodies identified in the National Hydrography Dataset (NHD) and 3 wetland and waterbody features identified in the National Wetlands Inventory (NWI) within the Outlet West Branch Thirty-two Mile Creek subwatershed, and the utility lines associated with the booster stations would collectively affect 13 waterbodies identified in the NHD and 19 features identified in the NWI within the Swan Creek, Lower Little Crow Creek, Segment of Two-mile Mountain, Headwaters Cottonwood Creek, Settlers Ditch, and Segment of "Town of Brandon" subwatersheds. Specific information regarding waterbody and wetland impacts associated with the other identified projects that would involve ground disturbance and activities within the affected watersheds is not readily available.

Potential cumulative impacts from in-stream/in-wetland work and upland ground disturbance would be greatest if multiple projects were to conduct work concurrently in the same waterbody or wetland or within close distance. Generally, increased sedimentation and turbidity in waterbody and wetland areas resulting from potential runoff from the adjacent construction workspace and use of access roads would be mitigated through implementation of erosion control measures within areas where ground-disturbing activities would take place. The Applicants and Tallgrass would adhere to the same BMPs for the Blanket Certificate projects that are proposed for the Project to avoid and minimize impacts on wetlands and waterbodies, including impacts on water quality, in accordance with Sections 401, 402, and 404 of the CWA. Projects not under FERC jurisdiction would also need to incorporate BMPs, as required by the CWA. The Applicants would implement their Plan and Procedures, SPRP, and associated BMPs, as well as applicable permit conditions to minimize the risk of occurrence and potential impacts from inadvertent spills. Developers of other identified projects that require use of equipment and or materials that could be hazardous to the environment in the event of a spill would likely follow BMPs similar to those proposed by the Applicants to prevent spills of hazardous materials from reaching surface water and wetland resources in accordance with the requirements for protection of waters of the U.S. in the CWA.

Therefore, overall cumulative impacts on surface water and wetland resources as a result of in-water disturbance during open-cut waterbody crossings, excavation in

wetlands, stormwater runoff, discharges, and spills of hazardous materials are not anticipated to be significant.

Biological Resources

Cumulative effects on biological resources affected by the Project, including threatened and endangered species, could occur in the HUC-12 subwatersheds where Project construction and abandonment activities would occur. Any project listed in table B-33 involving vegetation clearing within HUC-12 subwatersheds affected by the Project could result in cumulative impacts on biological resources. This includes all of the non-jurisdictional facilities, all of the energy projects, six of the Blanket Certificate projects, and the McCook-North Platte transportation project (see table B-33).

Fish and Aquatic Species

Construction of the Project would have temporary impacts on fisheries associated with affected waterbodies. The primary impacts on fisheries would result from in-water disturbance and sedimentation during open-cut waterbody crossings, as well as alteration of vegetation within or adjacent to these resources during clearing. Additionally, inadvertent spills and sediment migration associated with stormwater runoff could also affect water quality and benthic habitat due to increases in turbidity and sedimentation (deposition of sediment), and subsequently, fish and aquatic species. These impacts would be the greatest during and immediately following concurrent construction of the proposed Project and other projects. However, the Applicants would implement measures to reduce fisheries impacts during installation of the pipeline laterals. Because other projects in the geographic scope with waterbody impacts would be subject to the requirements of the CWA for the protection of waters of the U.S., as described in the section above, the potential for cumulative impacts on fisheries would be minimized.

Vegetation and Wildlife

Cumulative impacts, such as those on vegetation cover types and wildlife habitat, are additive in that impacts, when combined, have a synergistic effect that produces a greater collective impact than the impact associated with a single action. Project activities such as clearing and grading would remove vegetation, alter and fragment wildlife habitat, displace wildlife, and result in other potential secondary effects, such as increased population stress, predation, and the establishment or spread of invasive species. The potential for cumulative effects would be greatest where the other projects are constructed within the same timeframe and habitat areas as the proposed Project. However, even construction that does not overlap temporally can have cumulative effects as

vegetation/habitat may not be allowed to reestablish, or may take years (or decades in the case of forested habitats) to reestablish.

Impacts on vegetated habitats from construction (including abandonment activities) and operation of the Project are described in section B.3.2. Of those areas affected by the Project, a majority (381.6 acres or 60.6 percent) would be allowed to revegetate following construction. However, impacts on forested vegetation would be long-term to permanent, taking 20 to 30 years or more to recover, and a 10-foot-wide corridor centered on the laterals would be maintained annually to allow for periodic pipeline surveys.

Potential impacts on wildlife could include the displacement of individuals from construction and maintenance areas and adjacent habitats, direct mortality of smaller, less mobile mammals, reptiles, and amphibians, as well as altered or permanent conversion of wildlife habitat, human presence, vehicular transit, which could also increase wildlife mortality, injury, and stress. While the vegetation impacts and associated wildlife impacts from the Project combined with the other projects would not be inconsequential, the overall impact of these projects would be considered minor in comparison to the abundance of comparable habitat in the HUC-12 subwatersheds crossed by the Project, with the largest impacts likely being due to linear projects (including non-jurisdictional powerlines, the TIGT Lateral to TPC Northwestern Kearney, and the TPC Adams to TPC Heartwell Lateral); however, these types of projects typically allow for revegetation along newly established permanent easements during operations. The Applicants and Tallgrass would be required to restore vegetation in temporarily disturbed areas for the proposed Project and other Blanket Certificate projects pursuant to our regulations and the conditions of their Blanket Certificates. Other projects identified within HUC-12 subwatersheds could also be held to similar standards by state permitting agencies. Similarly, the other projects would also likely be required to implement mitigation measures designed to minimize the potential for long-term erosion and resource loss, increase the stability of site conditions, and revegetate disturbed areas, thereby minimizing the degree and duration of the impacts of these projects.

The aboveground facilities associated with the Project would result in some permanent impacts on vegetation and wildlife habitat. Most of the other projects identified within the HUC-12 subwatersheds crossed by the Project would also have associated aboveground facilities or other permanent infrastructure (including appurtenances along existing pipelines). However, due to the limited size of these facilities relative to the geographic scope, disbursed placement within HUC-12 subwatersheds, and the prevalence of similar habitat in adjacent areas, the permanent loss of this land would likely represent a minor impact on wildlife resources.

Special Status Species

Special status species are those species for which federal or state agencies afford an additional level of protection by law, regulation, or policy. In this EA, special status species include federally listed species protected under the ESA, species considered candidates or that are proposed for listing by the USFWS, and those species that are state-listed as threatened or endangered.

In section B.4, we assess the Project's potential impacts on listed species and determine that the Project would have *no effect* on nine federally listed species (including the piping plover, eastern black rail, Preble's meadow jumping mouse, black-footed ferret, pallid sturgeon, American burying beetle, Ute ladies' tresses orchid, blowout penstemon, and Western prairie fringed orchid). We have also determined that the Project *may affect, but is not likely to adversely affect* the whooping crane and northern long-eared bat. Although the tricolored bat is currently proposed for listing and we have determined that the Project would not jeopardize the existence of the species, we find that a determination of *may affect, not likely to adversely affect* would be appropriate once the final rule is issued, which is anticipated to occur prior to construction; therefore, we request informal conference with the USFWS for this species. We have determined that the Project is *unlikely to result in a trend towards federal listing* for the monarch butterfly. We have also assessed impacts on six state-listed species and have determined that the Project would not have significant impacts on these species given the Applicants' commitments to conduct pre-construction clearance surveys, as applicable.

All federal projects are required by law to coordinate with the USFWS, which takes into account regional activity and changing baseline conditions in determining the extent of impacts on a federally listed or proposed species. Further, other (non-federal) projects would be required to consult with applicable state agencies and adhere to any mitigation measures required by the agencies for the protection of state-listed species. Consequently, we conclude that past, present, and reasonably foreseeable projects in combination with the proposed Project would have minor cumulative effects to special status species, and that any such impacts would be appropriately minimized or mitigated for, as required by USFWS and the states.

Land Use and Visual Resources

Over 9,787,600 acres of land are present within the counties affected by construction and abandonment activities where ground disturbance is proposed for the Project. The geographic scope established for land use is land within 1 mile of the Project (see table B-32); therefore, in addition to the non-jurisdictional facilities, six of the Blanket Certificate projects, the TPC Adams to TPC Heartwell Lateral, REX's Cheyenne Hub

Enhancement Project, and Nebraska Department of Transportation's (NDOT) McCook – North Platte project have the greatest potential to contribute to cumulative impacts on land use. These projects would or have disturbed hundreds of acres of land affecting a variety of land uses, including the land uses impacted by the Project. The NDOT project is the only project listed in table B-32 within the geographic scope for land use that would not also be within the defined geographic scope for cumulative impacts on visual resources.

Projects with permanent aboveground components (e.g., buildings) that convert land use types, such as the commercial or residential developments, would generally have greater impacts on land use than the operational impacts of a pipeline, which would be buried and would not limit most land use activities to resume on the land following construction. The majority of long-term or permanent impacts of a pipeline on land use are associated with vegetation clearing and maintenance of the permanent rights-of-way.

In general, cumulative impacts on land use and visual resources could occur if the other projects are constructed within 1 mile of the Project. With the exception of the permanent rights-of-way (including a permanent conversion of forested land to herbaceous cover), construction and operation of the proposed laterals would have minor, temporary effects on existing and future land use. Similarly, above and below ground structures would remain in-place at the facilities to be abandoned; therefore, current land uses would be maintained, including any existing developed land and fencing. Following construction, temporary workspace areas would be restored by the Applicants in accordance with their AIMP, Plan, and Procedures as well as individual landowner agreements. The other projects within or intersecting (in the case of the TIGT Lateral to Northwestern Kearney) the defined geographic scope would affect a total of about 273.3 acres of land (including about 190.2 acres of agricultural land, 27.9 acres of open land, 1.0 acre of emergent wetlands, and 1.9 acres of forest uplands; the remaining 52.2 acres are developed land and open space).[79]

The proposed Project components in proximity to the other projects identified within the geographic scope for visual resources (see table B-32) would cross a majority of agricultural and open land. The proposed booster stations would be sited within or adjacent to existing facilities, along small rural roads, with few sensitive visual receptors. The closest residences are at distances ranging from 0.3 mile to 0.9 mile, with existing tree rows surrounding the closest residences that would provide visual screening of the

[79] See table 8-3 in Resource Report 8 of the Applicants' Application available on eLibrary under accession no. 20220527-5365 and table 1-17 in supplemental information available on eLibrary under accession no. 20220912-5172.

proposed booster station; therefore, the Project facilities would not be readily visible from nearby residences.

Overall, the cumulative impacts on land use and visual resources of the Project when considered with other projects would be temporary (during 7-month construction period) to permanent (within aboveground facility footprints), and minor given the large geographic scope (over 9,787,600 acres of land in the Project-area counties). Additionally, 74.1 percent of the pipeline lateral routes would be collocated with existing pipeline rights-of-way, and the aboveground facilities would be within or adjacent to existing natural gas facilities or industrial sites/facilities.

Impacts from the Project would be minimized or mitigated to the greatest extent practicable through the Applicants' implementation of Project-specific construction plans (for example, their Plan and Procedures and AIMP) and consultation with federal agencies, state agencies, and landowners. Other projects in the geographic scope would primarily affect existing, developed sites and we anticipate that other projects within the geographic scope would be required to implement similar construction and restoration practices to minimize impacts on land use.

Socioeconomics

The geographic scope for the assessment of cumulative impacts on socioeconomic resources includes Weld, Logan, and Sedgwick Counties, Colorado and Kimball, Perkins, Lincoln, Kearney, Franklin, Webster, Adams, Clay, Fillmore, Saline, and Jefferson Counties, Nebraska. The other projects identified in table B-32 would be wholly or partially within one or more of these counties. Although there is some uncertainty as to when these projects would be completed, impacts on population and employment, demand for housing and public services, transportation, and government revenue from sales and payroll taxes would generally be temporary and primarily limited to the period of construction. These impacts would increase if construction of more than one project occurs at the same time. The other projects in the cumulative impacts area are generally similar in nature to the Trailblazer Conversion Project and would likely utilize a mix of local and non-local workers; however, the non-jurisdictional facilities and NDOT projects are expected to utilize entirely local workforces. Given the projects are smaller than the Project, it is suggestive of smaller workforces that would be disbursed across the cumulative impacts area, which would not alter housing and public service demands. Construction of the Project would be brief (about 7 months) and require a small temporary workforce that would spread across the Project areas, such that the Project's cumulative impacts, in addition to the other projects listed in table B-32, on communities in the area and socioeconomic characteristics of the Project areas would not be significant.

Environmental Justice

According to the 2021 U.S. Census Bureau information, minority and low-income populations exist within the Project areas. Of the block groups within the geographic scope of the Project, there are four low-income communities, two minority communities, and one that is both a low-income and minority environmental justice community as further described in section B.6.2. As identified in table B-32, three of the non-jurisdictional facilities, one of the blanket facilities, one energy project, and one transportation project would occur within environmental justice communities identified in the Project areas. Specifically, electrical upgrades to support operation of the Hereford Ranch booster station would occur in a low-income community (Census Tract 25.01, Block Group 5), REX's Cheyenne Hub Enhancement Project would occur within a low-income community (Census Tract 25.01, Block Group 4), electrical upgrades to support operation of the Sedgwick and Sedgwick East booster station would occur a minority community (Census Tract 9683, Block Group 2), Clay Interconnect – TIGT would occur in a low-income community (Census Tract 9622, Block Group 3), and NDOT's Campbell West Project would occur in a low-income and minority environmental justice community (Census Tract 9646, Block Group 1).

Based on the scope of the Project and our analysis of the Project's impacts on the environment as described throughout this EA, we have determined Project-related impacts on socioeconomics, traffic, noise, and air quality may adversely affect the identified environmental justice communities. Given these impacts, plus potential impacts from existing or planned facilities and activities, cumulative impacts on environmental justice communities could occur for these resources.

Impacts on population and employment, demand for housing and public services, and tax revenue would generally be temporary and primarily limited to the period of construction at the given facility site. These impacts could contribute to cumulative impacts on these resources should the other projects identified above be built at the same time, including the non-jurisdictional electric upgrades at the Hereford Ranch, Sedgwick, and Sedgwick East booster stations, REX's Cheyenne Hub Enhancement Project, and NDOT's Campbell West Project. An influx of construction workers associated with projects that fall within environmental justice communities could temporarily increase demand for housing and increase calls for public services, such as police, fire, and medical services. The increase in construction workforce would also have a beneficial, short-term impact on employment, local goods and service providers, and state and local governments in the form of sales tax revenues. The Project facilities along with the other identified projects in the geographic scope for environmental justice would contribute to both beneficial and adverse cumulative socioeconomic impacts on environmental justice

communities. Due to the temporary nature of these impacts, impacts on environmental justice communities would be less than significant.

Construction of the Project facilities and other projects identified above are expected to occur during the 2023 calendar year, and therefore, would contribute to traffic on roadways within the corresponding county and state that are likely to be used by construction personnel and associated Project vehicles. This would include roadways in Weld County, Colorado used during construction of the Hereford Ranch booster station and associated non-jurisdictional facilities, the REX/TPC Lone Tree Interconnect, and REX's Cheyenne Hub Enhancement Project, roadways in Sedgwick County, Colorado supporting construction of the Sedgwick and Sedgwick East booster stations and associated non-jurisdictional facilities, and Franklin County, Nebraska supporting construction of less than 0.1 mile of the REX Lateral to TPC Adams, the Adams Launcher Site, and NDOT's Campbell West Project.

Given the presence of environmental justice communities in these Project areas, this increased traffic would impact these individuals. However, impacts on traffic patterns would be limited to periods of active construction with a nominal number of workers at a given site. Therefore, the overall cumulative traffic impacts on environmental justice communities would be less than significant.

Construction of the Project facilities in the identified environmental justice communities identified above would temporarily increase air quality impacts surrounding the construction workspaces due to emissions from the combustion engines used to power construction equipment, vehicle emissions traveling to and from the construction sites, and fugitive emission dust resulting from equipment movement on dirt roads and earth-disturbing activities. The potential for cumulative construction emissions impacts would be greatest during site preparation when fugitive dust production would likely be at its peak should the Project facilities and other projects be constructed at the same time. Construction emissions would cease with the end of construction; thus, the period of influence for cumulative air quality impacts would be temporary (weeks to months at each location). The Applicants have committed to several minimization and mitigation measures to reduce impacts from construction-related dust and air quality, including compliance with all fugitive dust requirements specified in section B.8.1, and generally limiting most construction activities to 7:00 a.m. to 7:00 p.m. The Applicants have limited the areas of ground disturbance to the workspaces needed to install the Project. Based on the short-term nature of construction and the implementation of appropriate mitigation measures, the cumulative air quality impacts on environmental justice communities during construction would not be significant.

Non-jurisdictional facilities are not anticipated to contribute to air quality concerns during operation. Further, all facilities would be required to be in compliance with all applicable federal and state air quality permitting programs. The addition of compressor units in Weld and Sedgwick Counties, Colorado would not cause or significantly contribute to an exceedance of the NAAQS and would not result in a significant impact on air quality in environmental justice communities. Although the Project would not contribute to exceedances of NAAQS, we acknowledge that the Hereford Ranch booster station would be in an area designated as a moderate nonattainment for the 2015 8-hour ozone standard. Additionally, for the other criteria pollutants,[80] the NAAQS attainment alone may not assure there is no localized harm to populations due to cumulative emissions of VOCs, HAPs, as well as issues such as the presence of non-Project-related pollution sources, local health risk factors, disease prevalence, and access (or lack thereof) to adequate care.

Construction of the Project facilities and other projects within the geographic scope for environmental justice could require the use of construction equipment that would generate noise. Cumulative impacts on noise could occur where the location and timing of those noise effects overlap. Construction in proximity to the identified environmental justice communities would be limited to daylight hours, generally between the hours of 7:00 a.m. to 7:00 p.m., Monday through Saturday. Following construction, the operation of the Project facilities would not result in a perceivable noise increase at the closest residence in environmental justice communities, except in the vicinity of the Hereford Ranch booster station; however, the non-jurisdictional powerline within the geographic scope for noise impacts at the Hereford Ranch booster station is not expected to contribute to operational sound at nearby NSAs. Therefore, construction and operation of the Project, when considered with other projects in the geographic scope, would not contribute to cumulative noise impacts on local residents and the surrounding communities, including environmental justice populations.

Air Quality

The geographic scope for assessment of cumulative impacts on air quality during construction of the proposed Project is the area within 0.25 mile of all active construction (including abandonment activities) because construction emissions would be highly localized, while operational air emissions are assessed at 10 kilometers (about 6.2 miles) from aboveground compression facilities.

[80] According to EPA, the six criteria pollutants are carbon monoxide, ground-level ozone, lead, nitrogen dioxide, particulate matter, and sulfur dioxide (https://www.epa.gov/criteria-air-pollutants).

Air emissions in the vicinity of the proposed Trailblazer Conversion Project would be additive. Construction activities for the Project, the non-jurisdictional facilities associated with the Project, six of the Blanket Certificate projects, the TPC Adams to TPC Heartwell Lateral, REX's Cheyenne Hub Enhancement Project, and two of the transportation projects would involve the use of heavy equipment that would generate emissions of air contaminants and fugitive dust that could occur concurrent with the Trailblazer Conversion Project. The potential for the Project to contribute to cumulative air quality impacts with other activities as listed in table B-32 within 0.25 mile of, and which may occur concurrently with, Project construction and abandonment activities would be greatest during clearing and grading when fugitive dust production would likely be at its peak. However, the Applicants would implement the measures in their Fugitive Dust Control Plan and comply with regulatory requirements for emissions controls. Other projects under construction at the same time as the proposed Project would also be subject to applicable regulations for vehicle emissions and dust control. Construction emissions would diminish with distance from the source. Therefore, any potential cumulative impacts from construction would be limited to the duration of the construction period, and would be temporary and minor.

Air dispersion modeling conducted for the proposed natural-gas-powered booster stations indicates that air emissions would not cause or contribute to an exceedance of the NAAQS at the station fencelines. Therefore, while operation of the proposed booster stations is expected to cause a localized increase in air pollutants, they are not expected to cause or contribute to an exceedance of air quality standards. No pending new major sources of operating emissions were identified within 10 kilometers of the proposed booster stations; such projects would have the greatest potential to cause an exceedance of applicable air quality standards due to the volume of associated emissions. Further, the Applicants provided a summary of the potential emissions from operation of the Blanket Certificate projects, which would be limited to about 0.1 ton per year of VOC and 103.4 tons per year of CO_2e associated with fugitive releases.[81] Therefore, while other projects within the geographic scope (such as operation of the Blanket Certificate projects), could cause an increase in air pollutant emissions concurrent with Project operations, those projects would be subject to applicable regulations and are not expected to cause or contribute to an exceedance of the NAAQS. Overall, we conclude that the Project would not result in significant cumulative impacts on regional air quality. Climate change is discussed in detail below.

[81] The Applicants estimated emissions associated with the ECGS Regulating Station, Northwestern Kearney Launcher, Northwestern Kearney Receiver, Fairmont Receiver, and TPC East Launchers. Fugitive releases are also anticipated to occur at the Logan booster station.

Climate Change

Climate change is the variation in the Earth's climate (including temperature, precipitation, humidity, wind, and other meteorological variables) over time. Climate change is driven by accumulation of GHGs in the atmosphere due to the increased consumption of fossil fuels (e.g., coal, petroleum, and natural gas) since the early beginnings of the industrial age and accelerating in the mid- to late-20th century.[82] The GHGs produced by fossil-fuel combustion are CO_2, methane, and nitrous oxide.

In 2017 and 2018, the U.S. Global Change Research Program (USGCRP)[83] issued its *Climate Science Special Report: Fourth National Climate Assessment*, Volumes I and II.[84] This report and the recently released report by the Intergovernmental Panel on Climate Change, Climate Change 2021: The Physical Science Basis, state that climate change has resulted in a wide range of impacts across every region of the country and the globe. Those impacts extend beyond atmospheric climate change alone and include changes to water resources, agriculture, ecosystems, human health, and ocean systems.[85] According to the Fourth Assessment Report, the United States and the world are warming; global sea level is rising and oceans are acidifying; and certain weather events are becoming more frequent and more severe.[86] These impacts have accelerated throughout the end of the 20th and into the 21st century.[87]

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[82] Intergovernmental Panel on Climate Change, United Nations, *Summary for Policymakers* of Climate Change 2021: The Physical Science Basis. (Valerie Masson-Delmotte et al., eds.) (2021), https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf (IPCC Report) at SPM-5. Other forces contribute to climate change, such as agriculture, forest clearing, and other anthropogenically driven sources.

[83] The U.S. Global Change Research Program is the leading U.S. scientific body on climate change. It comprises representatives from 13 federal departments and agencies and issues reports every 4 years that describe the state of the science relating to climate change and the effects of climate change on different regions of the United States and on various societal and environmental sectors, such as water resources, agriculture, energy use, and human health.

[84] U.S. Global Change Research Program, Climate Science Special Report, Fourth National Climate Assessment | Volume I (Donald J. Wuebbles et al. eds) (2017), https://science2017.globalchange.gov/downloads/CSSR2017_FullReport.pdf (USGCRP Report Volume I); U.S. Global Change Research Program, Fourth National Climate Assessment, Volume II Impacts, Risks, And Adaptation In The United States (David Reidmiller et al. eds.) (2018), https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (USGCRP Report Volume II).

[85] IPCC Report at SPM-5 to SPM-10.

[86] USGCRP Report Volume II at 73-75.

[87] *See, e.g.*, USGCRP Report Volume II at 99 (describing accelerating flooding rates in Atlantic and Gulf Coast cities).

GHG emissions do not result in proportional local and immediate impacts; it is the combined concentration in the atmosphere that affects the global climate. These are fundamentally global impacts that feed back to local and regional climate change impacts. Thus, the geographic scope for cumulative analysis of GHG emissions is global rather than local or regional. For example, a project 1 mile away emitting 1 ton of GHGs would contribute to climate change in a similar manner as a project 2,000 miles distant also emitting 1 ton of GHGs.

Climate change is a global phenomenon; however, for this analysis, we will focus on the existing and potential cumulative climate change impacts in the Project areas. The EPA recommended that the EA include an assessment of climate change impacts on the Project areas. The USGCRP's Fourth Assessment Report notes the following observations of environmental impacts are attributed to climate change in the U.S. Southwest region (which includes the Project facilities in Colorado): [88]

- annual average temperatures across Colorado have increased about 2 degrees Fahrenheit since the beginning of the 20th century;
- an increase in heat and reduction of snow have amplified recent hydrological droughts (severe shortages of water) in the Colorado River Basin;
- droughts in the Southwest have contributed to declines in traditional Indigenous staple foods, including acorns, corn, and pine nuts;
- climate change has driven the wildfire increase, particularly by drying forests and making them more susceptible to burning; and
- mountain and desert ecosystems are being affected by large changes in a variety of climate-related environmental conditions.

[88] USGCRP Report Volume I and II.

The USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Project region (U.S. Southwest) with a high or very high level of confidence:[89]

- under the higher emissions scenario, climate models project an 8.6 °F (4.8 °C) increase in Southwest regional annual average temperature by 2100;
- a decrease in precipitation of up to 10 percent under higher emissions pathway;
- higher temperatures would cause more frequent and severe droughts and sharply increase the risk of megadroughts—dry periods lasting 10 years or more;
- projected reductions in water supply reliability, coupled with water agreements that involve selling or leasing tribal water to neighboring communities, could place tribal water supplies at risk during severe shortages;
- under a higher emissions scenario, declines in snowpack and runoff in the Colorado River and a shift of spring runoff to earlier in the year would reduce hydroelectric power potential in the region by up to 15 percent by 2050;
- under continued climate change, higher temperatures would shift plant hardiness zones northward and upslope; and
- under the higher emissions scenario, the Southwest would experience the highest increase in annual premature deaths due to extreme heat in the country.

The USGCRP's Fourth Assessment Report notes the following observations of environmental impacts are attributed to climate change in the Northern Great Plains region (which includes the Project areas in Nebraska):[90]

- since the beginning of the 20th century, temperatures in Nebraska have risen approximately 1 °F;

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[89] The report authors assessed current scientific understanding of climate change based on available scientific literature. Each "Key Finding" listed in the report is accompanied by a confidence statement indicating the consistency of evidence or the consistency of model projections. A high level of confidence results from "moderate evidence (several sources, some consistency, methods vary and/or documentation limited, etc.), medium consensus." A *very* high level of confidence results from "strong evidence (established theory, multiple sources, consistent results, well documented and accepted methods, etc.), high consensus." https://science2017.globalchange.gov/chapter/front-matter-guide/.

[90] USGCRP Report Volume II.

- Nebraska has experienced increasing rainfall over the past 50 years, with an increase in heavy rainfall events;

- heavy rainfall events are leading to more flooding, erosion, and runoff into waterways;

- climate-driven changes in snowpack, spring snowmelt, and runoff have resulted in more rapid melting of winter snowpack and earlier peak runoff due to rapid springtime warming; and

- lower stream flows especially in late summer which, combined with warmer air temperatures, have caused stream temperatures to rise.

The USGCRP's Fourth Assessment Report notes the following projections of climate change impacts in the Northern Great Plains with a high or very high level of confidence:[91]

- annual average temperatures in the Northern Great Plains are projected to increase by 3.6 to 4.6 °F by the mid-21st century and by 5.4 to 9.4 °F by the late 21st century, compared to the average for 1976-2005;

- although annual precipitation has increased, as described above, and winter and spring precipitation is projected to increase, summer precipitation is expected to vary across the Northern Great Plains, ranging from no change under a lower scenario to between 10 and 20 percent reductions under a higher scenario, however this is projected to occur with a higher frequency of heavy rain;

- the overall warmer and generally wetter conditions projected for some of the Northern Great Plains, coupled with elevated atmospheric CO_2 concentrations, are expected to challenge existing agricultural practices with changing soil moisture content, growing season length, increase crop pests, increase weed and invasive competition as well as other identified challenges; and

- the probability for more very hot days (days with maximum temperatures above 90 °F) is expected to increase, and cool days (days with minimum temperatures less than 28 °F) are expected to decrease by 30 days or more per year by mid-century.

It should be noted that while the impacts described above taken individually may be manageable for certain communities, the impacts of compound events (such as

[91] USGCRP Report Volume I and II.

simultaneous heat and drought, wildfires associated with hot and dry conditions, or flooding associated with high precipitation on top of saturated soils) can be greater than the sum of the parts.[92]

The GHG emissions associated with construction and operation of the Project were identified and quantified in tables B-16 and B-19; individual GHG emissions are presented in table B-34, below. Emissions of GHGs are typically expressed in terms of CO_2e.[93] Construction (including abandonment) of the Project may result in emissions of up to about 22,249.7 metric tons (24,526.1 tons) of CO_2e.[94] Operation of Project equipment would result in a net decrease in potential emissions of up to -63,518.8 metric tons per year (-70,017.5 tpy) of CO_2e. This decrease is based on the replacement of existing, operating compressor units with those proposed for the Project, which would result in an overall reduction in potential operational emissions for the period in which the compressor units remain abandoned. However, the Applicants have indicated that the abandoned compressor stations (see table A-4) would be maintained for potential use to transport CO_2. As discussed further in section B.10.5, the specific details of the CCS project are not known.

While construction of the Project would increase the atmospheric concentration of GHGs in combination with past, current, and future emissions from all other sources globally and contribute incrementally to future climate change impacts, overall, Project operations would reduce potential GHG emissions due to the retirement of existing facilities. To assess impacts on climate change associated with the Project, Commission staff considered whether it could identify discrete physical impacts resulting from the Project's GHG emissions or compare the Project's GHG emissions to established targets designed to combat climate change.

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92 USGCRP Report Volume II.

93 GHG gases are converted to CO_2e by means of the GWP; the measure of a particular GHG's ability to absorb solar radiation; and its residence time within the atmosphere, consistent with the EPA's established method for reporting GHG emissions for air permitting requirements that allows a consistent comparison with federal regulatory requirements.

94 See table B-16. Figures presented here are converted from U.S. tons to metric tons. A metric ton is about equal to 1.1 ton.

Table B-34
Individual Greenhouse Gas Emissions for the Project[a]

Emission Source	Emissions (tons per year)				Emissions (metric tonnes per year)			
	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e
CONSTRUCTION EMISSIONS								
Pipeline Facilities								
REX Lateral to TPC Adams	2,999.75	14.07	0.06	3,369.21	2,721.33	12.76	0.05	3,056.50
REX Lateral to TPC East	3,845.92	50.80	0.07	5,137.05	3,488.96	46.08	0.06	4,660.25
Aboveground Facilities								
REX/TPC Lone Tree Interconnect	70.50	0.00	0.00	71.30	63.96	0.00	0.00	64.68
TPC West Isolation	36.30	0.00	0.00	36.70	32.93	0.00	0.00	33.29
Hereford Ranch Compressor Station[d]	515.10	0.00	0.00	520.40	467.29	0.00	0.00	472.10
Redtail Compressor Station[d]	515.10	0.00	0.02	520.40	467.29	0.00	0.02	472.10
Logan Compressor and Regulating Station[d]	515.10	0.00	0.02	520.40	467.29	0.00	0.02	472.10
Sedgwick Compressor Station[d]	515.10	0.00	0.02	520.40	467.29	0.00	0.02	472.10
Sedgwick East Compressor Station[d]	515.10	0.00	0.02	520.40	467.29	0.00	0.02	472.10
Mid-American Ethanol Regulating Station	70.50	0.00	0.00	71.30	63.96	0.00	0.00	64.68
Oppliger Lincoln Regulating Station	70.50	0.00	0.00	71.30	63.96	0.00	0.00	64.68
North Platte Livestock Feeder Regulating Station	70.50	0.00	0.00	71.30	63.96	0.00	0.00	64.68
Adams Meter and Regulating Station	277.10	0.00	0.01	279.20	251.38	0.00	0.01	253.29

Table B-34 (continued)
Individual Greenhouse Gas Emissions for the Project[a]

Emission Source	Emissions (tons per year)				Emissions (metric tonnes per year)			
	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e
REX to TPC East Meter and Regulating Station	277.10	0.00	0.01	279.20	251.38	0.00	0.01	253.29
On-road equipment and commuter transit (All aboveground facilities)[e]	511.51	0.01	0.00	512.27	464.03	0.01	0.00	464.72
Abandonment Facilities								
Compressor Station 601	36.30	0.00	0.00	36.70	32.93	0.00	0.00	33.29
Compressor Station 602	36.30	0.00	0.00	36.70	32.93	0.00	0.00	33.29
Compressor Station 603	36.30	0.00	0.00	36.70	32.93	0.00	0.00	33.29
Clay Interconnect – TPC	36.30	0.00	0.00	36.70	32.93	0.00	0.00	33.29
Northwestern Kearney Interconnect	36.30	0.00	0.00	36.70	32.93	0.00	0.00	33.29
Vented Emissions for TPC Abandonment Activities	1,839.24	399.47	0.05	11,841.79	1,668.53	362.39	0.05	10,742.69
Total Project Construction Emissions	***12,825.92***	***464.35***	***0.28***	***24,526.12***	***11,635.48***	***421.25***	***0.25***	***22,249.73***
OPERATION EMISSIONS								
Aboveground Facilities								
Hereford Ranch Compressor Station[c]	8,848.90	81.00	0.02	10,870.20	8,027.59	73.48	0.02	9,861.28
Redtail Compressor Station[c]	8,849.60	64.30	0.02	10,462.60	8,028.22	58.33	0.02	9,491.51
Logan Compressor and Regulating Station[d]	20,521.80	124.80	0.04	23,651.80	18,617.07	113.22	0.04	21,456.56
Sedgwick Compressor Station	0.60	20.40	0.00	510.00	0.54	18.51	0.00	462.66
Sedgwick East Compressor Station	0.30	22.00	0.00	551.10	0.27	19.96	0.00	499.95

Table B-34 (continued)
Individual Greenhouse Gas Emissions for the Project[a]

Emission Source	Emissions (tons per year)				Emissions (metric tonnes per year)			
	CO_2	CH_4	N_2O	CO_2e	CO_2	CH_4	N_2O	CO_2e
Mid-American Ethanol Regulating Station	256.30	2.00	0.00	306.00	232.51	1.81	0.00	277.60
Oppliger Lincoln Regulating Station	256.30	2.00	0.00	306.00	232.51	1.81	0.00	277.60
North Platte Livestock Feeder Regulating Station	256.30	2.00	0.00	306.00	232.51	1.81	0.00	277.60
Adams Meter and Regulating Station	3,074.40	3.70	0.01	3,167.60	2,789.05	3.36	0.01	2,873.60
REX to TPC East Meter and Regulating Station	20,494.90	8.60	0.04	20,722.40	18,592.67	7.80	0.04	18,799.05
Adams Launcher Site	0.00	0.40	0.00	8.90	0.00	0.36	0.00	8.07
REX to TPC East Launcher Site	0.00	0.40	0.00	8.90	0.00	0.36	0.00	8.07
Abandonment Facilities[b]								
Compressor Station 601	(111,295.00)	(383.90)	(0.21)	(120,954.60)	(100,965.15)	(348.27)	(0.19)	(109,728.20)
Compressor Station 602	(305.50)	(364.70)	0.00	(9,424.00)	(277.15)	(330.85)	0.00	(8,549.31)
Compressor Station 603	(384.50)	(402.40)	0.00	(10,444.20)	(348.81)	(365.05)	0.00	(9,474.82)
Clay Interconnect – TPC	(0.10)	(2.60)	0.00	(66.20)	(0.09)	(2.36)	0.00	(60.06)
Total Project Operational Emissions	***(49,425.70)***	***(822.00)***	***(0.08)***	***(70,017.50)***	***(44,838.25)***	***(745.71)***	***(0.07)***	***(63,518.83)***
Total Project Construction and Operational Emissions	**(36,599.78)**	**(357.65)**	**0.20**	**(45,491.38)**	**(33,202.77)**	**(324.45)**	**0.18**	**(41,269.10)**

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. Any minor discrepancies between this table and other tables in this section are due to rounding.

[b] In addition to the emissions reductions presented here, fugitive emissions associated with operation of the Northwestern Kearney Interconnect and TPC's existing pipeline facilities would also be expected to be reduced following abandonment.

The EPA recommended that the EA assess and disclose the significance of climate change impacts associated with GHG emissions from the Project. To date, Commission staff have not identified a methodology to attribute discrete, quantifiable, physical effects on the environment resulting from the Project's incremental contribution to GHGs. Without the ability to determine discrete resource impacts, Commission staff are unable to assess the Project's contribution to climate change through any objective analysis of physical impact attributable to the Project. Additionally, Commission staff have not been able to find an established threshold for determining the Project's significance when compared to established GHG reduction targets at the federal or state level. Ultimately, this EA is not characterizing the Project's GHG emissions as significant or insignificant because the Commission is conducting a generic proceeding to determine whether and how the Commission will conduct significance determinations going forward.[95] However, as we have done in prior NEPA analyses, we disclose the Project's GHG emissions in comparison to national and state GHG emission inventories.

In order to provide context of the Project emissions on a national level, we compare the Project's potential GHG emissions to the total GHG emissions of the United States as a whole. At a national level, 5,222.4 million metric tons of CO_2e were emitted in 2020 (inclusive of CO_2e sources and sinks) (EPA 2022k). Construction emissions from the Project could potentially increase CO_2e emissions based on the national 2020 levels by 0.0004 percent. Project operations could potentially decrease emissions nationally by 0.001 percent. As noted above, this decrease is based on the replacement of existing, operating compressor units with those proposed for the Project, which would result in an overall reduction in potential operational emissions for the period in which the compressor units remain abandoned.

In order to provide context of the Project emissions on a state level, we compare the Project's potential GHG emissions to the Colorado and Nebraska GHG inventories. At the state level, Colorado energy related CO_2 emissions in 2019 were 91.7 million metric tons, while Nebraska's emissions in 2019 were 50.5 million metric tons (EIA 2022a, b). Because Project emissions estimates were not presented on a state-by-state basis, we cannot determine the amount of emissions to attribute to each state. If all emissions from the Project were to occur in Colorado, Project construction could potentially increase CO_2e emissions based on 2019 levels by 0.02 percent. In subsequent years, Project operations of the facilities proposed in Colorado (including consideration of any facilities that would be abandoned) could potentially decrease emissions by 0.08 percent. If all emissions from the Project were to occur in Nebraska, Project construction could potentially increase CO_2e

[95] *Consideration of Greenhouse Gas Emissions in Natural Gas Infrastructure Project Reviews*, 178 FERC ¶ 61,108 (2022); 178 FERC ¶ 61,197 (2022).

emissions based on 2019 levels by 0.04 percent. In subsequent years, Project operations of the facilities proposed in Nebraska (including any facilities that would be abandoned) could potentially increase emissions by 0.03 percent. As noted above, this decrease is based on the replacement of existing, operating compressor units with those proposed for the Project, which would result in an overall reduction in potential operational emissions for the period in which the compressor units remain abandoned.

In 2019, Colorado enacted statutory targets to reduce GHG emissions by 26 percent, 50 percent, and 80 percent below 2005 levels by 2025, 2030, and 2050, respectively. Nebraska has not set statewide goals for GHG emissions reduction targets.[96] GHG emissions from construction of the Project could represent 0.02 percent, 0.03 percent, and 0.08 percent of Colorado's projected 2025, 2030, and 2050 levels, assuming the proposed reductions from 2005 levels. Reductions of potential GHG emissions from Project operations in Colorado (including facilities to be abandoned) could represent 0.08 percent, 0.11 percent, and 0.28 percent of Colorado's projected 2025, 2030, and 2050 levels, respectively, assuming the proposed reductions from 2005 levels.[97]

In regard to nationwide goals for reduction targets, the EPA recommended that the EA should include a discussion of the Project's GHG emissions in the context of national GHG emission goals, considering the U.S. 2030 GHG reduction target and 2050 net-zero pathway (including upstream and downstream emissions, which are addressed above). We note that on January 20, 2021, President Biden issued the EO on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis (EO 13990); and on January 27, 2021, he issued the EO on Tackling the Climate Crisis at Home and Abroad (EO 14008). Amongst other objectives, the EOs call for a net-zero emission economy and a carbon-free electricity sector. In addition, on January 20, 2021, President Biden announced that the United States will rejoin the Paris Climate Agreement (Agreement), enabling the United States to be a party to the Agreement. The Agreement aims to limit global warming to well below 2 degrees Celsius, and preferably to 1.5 degrees Celsius, compared to preindustrial levels (UNFCCC 2021).[98] On April 20, 2021, the United States set a U.S. economy-wide target of reducing net GHG emissions by 50 to 52 percent below 2005 levels by 2030 (The United States of America Nationally Determined Contribution

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[96] We reviewed the U.S. State Greenhouse Emission Targets site for individual state requirements at: https://www.c2es.org/document/greenhouse-gas-emissions-targets/.

[97] Based on a 2005 baseline level of 139.22 million metric tons per year, as presented in the Colorado Energy Office GHG Pollution Reduction Roadmap at: https://energyoffice.colorado.gov/climate-energy/ghg-pollution-reduction-roadmap.

[98] United Nations Framework Convention on Climate Change (UNFCCC). 2021. The Paris Agreement: What is the Paris Agreement? Available online at: https://unfccc.int/process-and-meetings/the-parisagreement/the-paris-agreement. Accessed October 2021.

2021).[99] In November 2021, the U.S. Department of State published The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050.[100] The Commission has stated in recent orders that it is unable to determine how individual projects will affect international, national, or statewide GHG emissions reduction targets or whether a project's GHG emissions comply with those goals or laws.[101]

The EPA in comments on the Project recommended that the EA should estimate and analyze all potential upstream and downstream emissions associated with the proposed Project. As described above, there will be no new natural gas transportation capacity or increase in downstream GHG emissions. Also, since the Project would not require any new upstream production, there would be no increase in upstream emissions. Related to comments on upstream emissions impacts, the Project would not require any new upstream production, so we have not estimated upstream emissions. The EPA expressed concern regarding the climate resiliency of pipeline infrastructure, given the projected regional impacts of climate change, which is discussed in section B.9.3.

The EPA recommended that the EA should use the social cost of GHGs (also referred to as the "social cost of carbon" [SCC]) to assess climate impacts generated by each additional ton of GHGs emitted or saved by the Project. The EPA further recommended that the SCC calculation be estimated based on individual GHGs, rather than using estimates based on CO_2e. We note there is pending litigation challenging federal agencies' use of the Interagency Working Group (IWG) on Social Cost of Greenhouse Gases' interim values for calculating the social cost of GHGs.[102] In addition, on November

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99 The United States of America Nationally Determined Contribution. 2021. Available online at: https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/United%20States%20of%20America%20First/United%20States%20NDC%20April%2021%202021%20Final.pdf. Accessed May 2021.

100 The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050. 2021. Published by the United States Department of State and the United States Executive Office of the President, Washington DC. November 2021. Available online at: https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf. Accessed October 2021.

101 *See* Order Issuing Certificates and Approving Abandonment, 178 FERC ¶ 61,199 (2022) at P89; and Order Issuing Certificate, 178 FERC ¶ 61,198 (2022) at P48.

102 *Missouri v. Biden*, 8th Cir. No. 21-3013; *Louisiana v. Biden*, No. 21-cv-1074-JDC-KK (W.D. La). On February 11, 2022, the U.S. District Court for the Western District of Louisiana issued a preliminary injunction limiting federal agencies' employment of estimates of the social costs of GHGs and use of the IWG's interim estimates. On March 16, 2022, the U.S. Court of Appeals for the Fifth Circuit issued a stay of the district court's preliminary injunction, finding among other things that the federal agency defendants' continued use of the interim estimates was lawful. *Louisiana v. Biden*, No. 22-30087 (5th Cir. Mar. 16, 2022).

11, 2022, the EPA released a supplement to its proposed Methane Rule (issued in the Federal Register on December 6, 2022); the proposed rulemaking includes new estimates of the SCC based on refined methodology. The EPA's proposed calculation method, unlike existing SCC estimation processes, utilizes a modular approach with key updates to each of the four main steps in estimating SCC (socioeconomics and emissions, climate, damages, and discounting) to enhance consistency with current scientific knowledge; that rulemaking is not final as of the time of publication of this EA. However, we are disclosing an estimate of the social cost of GHGs associated with construction and operation (direct emissions) of the Project using the calculations described below.

As both EPA and CEQ participate in the IWG, Commission staff used the methods and values contained in the IWG's current draft guidance but note that different values will result from the use of other methods.[103] Commission staff calculated the social cost of carbon dioxide, nitrous oxide, and methane. For the analysis, staff assumed discount rates of 5 percent, 3 percent, and 2.5 percent,[104] assumed the Project would begin service in 2024 and that the Project's net emissions (due to abandonment as well as proposed Project emissions) would be at a constant rate throughout the life of an assumed 20-year contract. Construction emissions are assumed to take place in 2023. Noting these assumptions, the emissions from construction and operation of this Project are calculated to result in a total social cost of GHGs equal to -$20,459,718, -$65,254,208, and -$94,616,818, respectively (all in 2020 dollars).[105] Using the 95th percentile of the social cost of GHGs using the

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[103] *Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide Interim Estimates under Executive Order 13990*, Interagency Working Group on Social Cost of Greenhouse Gases, United States Government, February 2021 (IWG Interim Estimates Technical Support Document).

[104] IWG Interim Estimates Technical Support Document at 24. To quantify the potential damages associated with estimated emissions, the IWG methodology applies consumption discount rates to estimated emissions costs. The IWG's discount rates are a function of the rate of economic growth where higher growth scenarios lead to higher discount rates. For example, IWG's method includes the 2.5 percent discount rate to address the concern that interest rates are highly uncertain over time; the 3 percent value to be consistent with the Office of Management and Budget (OMB) circular A-4 (2003) and the real rate of return on 10-year Treasury Securities from the prior 30 years (1973 through 2002); and the 5 percent discount rate to represent the possibility that climate-related damages may be positively correlated with market returns. Thus, higher discount rates further discount future impacts based on estimated economic growth. Values based on lower discount rates are consistent with studies of discounting approaches relevant for intergenerational analysis. *Id.* at 18-19, 23-24.

[105] The IWG draft guidance identifies costs in 2020 dollars. *Id*. at 5 (Table ES-1).

3 percent discount rate,[106] the total social cost of GHGs from the Project is calculated to be -$189,804,433 (in 2020 dollars). As noted above, this decrease is based on the replacement of existing, operating compressor units with those proposed for the Project, which would result in an overall reduction in potential operational emissions for the period in which the compressor units remain abandoned.

Noise

The geographic scope for assessment of cumulative noise impacts during construction of the proposed Project is generally within 0.25 mile of all active construction (including abandonment activities) or within 0.5 mile of an HDD installation, while operational noise is assessed for NSAs within 1 mile of noise-emitting aboveground facilities. Construction of the non-jurisdictional powerlines, six of the blanket facilities, the TPC Adams to TPC Heartwell Lateral, REX's Cheyenne Hub Enhancement Project, and two of the NDOT projects may be concurrent with the proposed Trailblazer Conversion Project and contribute to cumulative sound levels within the geographic scope for noise during construction. The TIGT/TPC Logan Station, a Blanket Certificate project, is most likely to contribute to cumulative noise impacts during operations of the Logan booster station, since that project involves the installation of new regulating equipment at an existing meter station.

Noise impacts would occur during construction of the Project and other projects within the geographic scope. Sound-level impacts during construction would be highly localized and attenuate quickly as the distance from the sound source increases. Construction of the other projects within the geographic scope may overlap in construction schedule with the proposed Project and could result in cumulative noise impacts on nearby residents. However, a majority of the Project facilities are sited in agricultural areas with few NSAs that could be adversely affected by concurrent construction. Further, based on the short-term and temporary nature of construction-related activities, the Applicants' proposed mitigation measures to minimize noise from HDDs and the Applicants' commitment to construct primarily during the daytime hours, impacts from the Project are not expected to significantly contribute to cumulative impacts on noise levels during construction.

Operational noise impacts would be limited to the vicinity of the new aboveground facilities, with noise decreasing with distance from the source. Operation of the new booster stations is not expected to exceed 55 L_{dn} at any nearby NSA; however, operation

[106] This value represents "higher-than-expected economic impacts from climate change further out in the tails of the [social cost of CO_2] distribution." *Id.* at 11. In other words, it represents a higher impact scenario with a lower probability of occurring.

of the Logan booster station could cause an audible increase in sound levels at the nearest NSA (see section B.8.2). Concurrent operation of the proposed Logan booster station and the TIGT/TPC Logan Station Blanket Facility could contribute to a cumulative increase in operational noise; however, given the distance to the nearest NSA (1,400 feet northwest of the Logan booster station), the Project is not expected to contribute to significant cumulative impacts on noise during operations.

10.4 Conclusions on Cumulative Impacts

Construction of the Trailblazer Conversion Project would have adverse impacts on a range of environmental resources, as discussed above. The impacts from other existing and proposed projects or general activities within the geographic scope (see table B-32) are expected to be generally temporary and minor, with the exception of permanent removal of vegetation and wildlife habitat and alteration of land use associated with new aboveground facility construction of the non-jurisdictional facilities, Blanket Certificate projects, energy projects, and transportation projects, and noise and air impacts associated with operation of the aboveground facilities and other projects. Given our analysis discussed above, we anticipate that the Project would contribute a negligible to minor cumulative impact when the effects of the Project are added to past, present, and reasonably foreseeable projects within the geographic scope. Refer to section B.10.3 for a comprehensive analysis of cumulative impacts associated with climate change.

10.5 Related Facilities

To inform stakeholders and decisionmakers, below we describe the environmental impacts associated with projects that the Commission has determined are related to the proposed Project (including the CCS project and the Blanket Certificate projects) but are not components of the proposed action evaluated in the EA. In general, we include in this section the best available information regarding the overall impacts of the CCS project and Blanket Certificate projects.

Carbon Capture and Sequestration Project

We received many comments from stakeholders regarding the potential impacts associated with the CCS project. Although the Commission has no authority to approve or deny the CCS project and no ability to require any avoidance or minimization of related impacts, here we provide the best available information regarding the CCS project's impacts to inform stakeholders and decision makers. As noted above, the scope of the CCS project is not known. Tallgrass has stated that it intends to establish a commercial-scale CO_2 sequestration hub in southeastern Wyoming to capture, transport, and sequester 10 million tons of CO_2 annually (Tallgrass 2022); however, the specific laterals, ancillary

facilities, and appurtenances along the Trailblazer Pipeline needed to implement the CCS project are not known. Given the intended future use of the existing Trailblazer Pipeline for CO_2 transportation, ground disturbance may be limited to the construction of new laterals, ancillary facilities, and appurtenances that would be collocated with (or connected to) the existing pipeline. However, the specific resources that may be impacted and to what degree are not known.

We received a number of comments regarding the safety of the CCS project and the transport of CO_2 through the pipeline to be abandoned. During the 20-year period from 2002 to 2021, a total of 49 significant incidents were reported on the about 5,300 miles of CO_2 transmission pipelines nationwide; a majority of the incidents (32) resulted from a material, weld, or equipment failure (PHMSA 2023). PHMSA began regulating the transport of carbon dioxide by pipeline facilities in 1991. As discussed in section B.9, on May 26, 2022, PHMSA announced that it would initiate a new rulemaking to update safety standards and emergency preparedness requirements associated with CO_2 pipelines.

Blanket Certificate Projects

This section describes general impacts (including construction and operational acreages) that would occur from the overall Blanket Certificate projects, whereas the cumulative impact analysis above assessed only the portions of the Blanket Certificate projects within the same resource-specific geographic scopes as the Project. In general, the project proponents of these Blanket Certificate projects are required to follow standard construction procedures described above in section A.7 and the FERC Plan and Procedures and adhere to all conditions and requirements under the Blanket Certificate to minimize environmental impacts.

Based on the Applicants' review of available data, no mineral deposits, mineral resources, U.S. mine features, or oil and gas facilities are within 0.25 mile of Blanket Certificate projects. Further, no cultural resources were recorded during field surveys of the Blanket Certificate projects. Therefore, no impacts on geological or cultural resources are expected to occur.

Finally, no designated scenic areas were identified in the Project areas for the Blanket Certificate projects. Construction of these facilities would mainly be within previously disturbed lands, and within or adjacent to existing facilities, and along small rural roads with few sensitive visual receptors. No residences would be within 50 feet of construction work areas. Therefore, impacts on visual receptors are expected to be limited to construction period.

Pipeline Facilities

Tallgrass would install a 6.3-mile-long, 8-inch diameter pipeline lateral extending from the TIGT Lateral to TPC Northwestern Kearney in Kearney County, Nebraska. About 66.5 acres of land would be disturbed during construction of the lateral (including access roads and ATWS) and 38.4 acres of land would be required for operation of the lateral (see table B-35). A brief description of resource impacts is provided below.

Table B-35
Blanket Certificate Projects

Name of Facility (Entity Performing Work)	County, State	Proposed Action	Construction (acres)	Operation (acres)
PIPELINE FACILITIES				
TIGT Lateral to TPC Northwestern Kearney (Tallgrass)	Kearney County, NE	New construction	56.9	38.2
ATWS			3.9	0.0
Access Roads			5.6	0.2
New Pipeline Facilities Subtotal[a]			***66.5***	***38.4***
ANCILLARY FACILITIES				
ECGS Regulating Station (REX)	Logan County, CO	Modification of existing meter station	1.8	0.1
Access Roads			0.2	0.1
TIGT/TPC Logan Station (Tallgrass)	Logan County, CO	Modification of existing meter station	0.4	0.4
WME Yates Sedgwick West Interconnect (TPC)[b]	Sedgwick County, CO	Abandonment in place	0.3	0.0
Northwestern Kearney Launcher Site (Tallgrass)	Kearney County, NE	New construction	0.7	0.3
Northwestern Kearney Receiver Site (Tallgrass)	Kearney County, NE	New construction	0.3	0.2
Clay Interconnect - TIGT (Tallgrass)[b]	Clay County, NE	Abandonment in place	0.1	0.0
Fairmont Receiver Site (TPC)[b]	Fillmore County, NE	New construction	1.3	0.6
TPC East Launchers (TPC)	Saline County, NE	New construction	2.6	0.8
Ancillary Facilities Subtotal[a]			***7.5***	***2.5***
Blanket Certificate Project Totals[a]			**74.1**	**40.8**

CO = Colorado; NE = Nebraska; TIGT = Tallgrass Interstate Gas Transmission, LLC

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] This facility is collocated with a Project facility that would be within an environmental justice community as discussed in section B.6.2.

Construction of the lateral would primarily affect agricultural lands (87.3 percent), with the remaining land use impacts associated with developed lands (6.4 percent) and

open land (6.3 percent).[107] Additionally, about 64.1 acres of prime farmland[108] and 62.3 acres of vegetated land would be temporarily disturbed. While the lateral would not cross any federal or state managed lands, about 4.2 acres of wildlife habitat (including open land and emergent wetlands based on a review of available desktop data) would be temporarily disturbed during construction. As a required condition under the Blanket Certificate (18 CFR § 157.206 Appendix I), Tallgrass would need to complete consultation with the USFWS under Section 7 of the ESA for any federally listed species that could be affected by the construction and operation of the lateral. Based on a review of the USFWS' IPaC system, five federally listed species were identified as occurring in Kearney County, Nebraska, where Tallgrass would install the lateral, including the piping plover, whooping crane, northern long-eared bat, pallid sturgeon, and western prairie fringed orchid. In addition, one candidate species, the monarch butterfly, was identified. However, any impacts on species with the potential to occur in the vicinity of the lateral would be assessed during consultation with USFWS.

Tallgrass is planning to cross three intermittent streams and one PEM wetland via the open-cut crossing method, one additional PEM wetland would be crossed by HDD method. This would result in the temporary disturbance of about 0.2 and 0.3 acre of waterbodies and wetlands, respectively.[109] Construction activities associated with the TIGT Lateral to TPC Northwestern Kearney would involve the use of heavy equipment that would generate emissions of air contaminants and fugitive dust, which would diminish with distance from the source. Heavy equipment used during construction would also emit noise, although sound levels would be highly localized and quickly weakened with distance from the sound source. Tallgrass would install the TIGT Lateral to TPC Northwestern Kearney via HDD at one location, resulting in a localized increase in noise for the duration of HDD activities. Overall, emissions of any air contaminants, fugitive dust, and noise would be limited to the duration of the construction period and would cease once construction is complete.

Ancillary Facilities

The Applicants and Tallgrass are also proposing to construct, modify, and/or abandon ancillary facilities, including modifications at two existing meter stations, construction of four new ancillary facilities, and abandonment in place of two interconnects

[107] See tables 3-6 and 8-8 in Resource Reports 3 and 8, respectively, of the Applicants' Application available on eLibrary under accession no. 20220527-5365.

[108] See table 7-4 in Resource Report 7 of the Applicants' Application available on eLibrary under accession no. 20220527-5365.

[109] See tables 2-3 and 2-6 in Resource Report 2 of the Applicants' Application available on eLibrary under accession no. 20220527-5365.

(see table B-35). A total of 7.5 acres would be required for construction and/or abandonment of these ancillary facilities, of which 2.5 acres would maintained for operation of the ancillary facilities. Construction and/or abandonment of these ancillary facilities would require clearing, grading, and leveling of the individual facility locations. Further, construction and modification of the ancillary facilities would include the installation of new aboveground equipment (see table A-5).

The ancillary facilities would temporarily disturb a total of 4.9 acres of prime farmland[110] and 5.4 acres of vegetated land.[111] While the ancillary facilities would not cross any federal or state managed lands, about 0.3 acre of wildlife habitat would be temporarily disturbed during construction. As a required condition under the Applicants' and Tallgrass' Blanket Certificates, the Applicants and Tallgrass would need to complete consultation with the USFWS under Section 7 of the ESA for any federally listed species that could be affected by construction and operation of these facilities. Based on a review of the USFWS' IPaC system, six federally listed species were identified as occurring in the counties where the ancillary facilities are proposed (Logan and Sedgwick Counties, Colorado and Kearney, Clay, Fillmore, and Saline Counties, Nebraska). These include the piping plover, whooping crane, gray wolf, northern long-eared bat, pallid sturgeon, and western prairie fringed orchid. In addition, one candidate species, the monarch butterfly, was identified. However, any impacts on species with the potential to occur in the vicinity of the lateral would be assessed during consultation with USFWS, and habitat for each of the identified species may not be present at the specific site where each ancillary facility would be constructed or modified.

No wetlands or waterbodies would be crossed or affected during construction and/or abandonment of ancillary facilities.

Construction activities associated with the ancillary facilities would involve the use of heavy equipment that would generate emissions of air contaminants and fugitive dust, which would diminish with distance from the source. Heavy equipment used during construction of the ancillary facilities would also emit noise, although sound levels would be highly localized and quickly weakened with distance from the sound source. Emissions

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[110] See table 7-4 in Resource Report 7 of the Applicants' Application available on eLibrary under accession no. 20220527-5365. As of the Applicants' February 17, 2023 filing, the Northwestern Kearney Interconnect is now included as part of the proposed Project, see accession no. 20230220-5105.

[111] See table 3-6 in Resource Report 3 of the Applicants' Application available on eLibrary under accession no. 20220527-5365. As of the Applicants' February 17, 2023 filing, the Northwestern Kearney Interconnect is now included as part of the proposed Project, see accession no. 20230220-5105.

of any air contaminants, fugitive dust, and noise would be limited to the duration of the construction period and would cease once construction is complete. Further, the Applicants provided a summary of the potential emissions from operation of the Blanket Certificate projects, which would be limited to about 0.1 ton per year of VOC and 103.4 tons per year of CO_2e associated with fugitive releases.[112]

Environmental Justice

Three of the Blanket Certificate projects would be wholly or partially within an environmental justice community. These planned projects do not include any significant aboveground facilities and are between 0.2 and 0.5 mile from the closest residence based on a review of available aerial imagery. One of the projects is planned for abandonment (Clay Interconnect – TIGT) and the TIGT Lateral to TPC Northwestern Kearney and the associated Launcher Site are planned new construction blanket facilities. The Clay Interconnect-TIGT is located within Clay County, Nebraska Census Tract 9622, Block Group 3, a low-income community. About 0.7 mile of the TIGT Lateral to TPC Northwestern Kearney, as well as the Northwestern Kearney Launcher Site, would be within Kearney County, Nebraska Census Tract 9666, Block Group 2, which is identified as a low-income community. Abandonment activities would require clearing, grading, and leveling at the facility locations. The types of impacts that could occur within environmental justice communities for the Blanket Certificate projects would likely be similar to those associated with the proposed Project as discussed in section B.6.2; for example, impacts on environmental justice communities could occur during construction and may include traffic delays during the construction period, construction-related air emissions, noise, and visual impacts.

[112] The Applicants estimated emissions associated with the ECGS Regulating Station, Northwestern Kearney Launcher, Northwestern Kearney Receiver, Fairmont Receiver, and TPC East Launchers. Fugitive releases are also anticipated to occur at the Logan Station.

C. ALTERNATIVES

1. Introduction

As required by NEPA and Commission policy, we identified and evaluated reasonable alternatives to the Project to determine whether the implementation of an alternative would be environmentally preferable to the proposed action. A reasonable alternative would meet the Project's purpose and would be technically and economically feasible and practical. Specifically, we describe and evaluate system alternatives, pipeline route alternatives, and route variations in the following analyses. We also evaluate the no-action alternative as required by NEPA.

We received comments from the EPA regarding the need to evaluate alternatives to the proposed Project, including alternatives not within the jurisdiction of FERC and which would not meet the Project's stated objective. As described above, we review alternatives under the Commission's jurisdiction as part of our NEPA assessment.

2. No-Action Alternative

NEPA requires the Commission to consider and evaluate the no-action alternative. According to CEQ guidance, in instances involving federal decisions on proposals for projects, no-action would mean the proposed activity would not take place and the resulting environmental effects from taking no-action would be compared with the effects of permitting the proposed activity. Further, the no-action alternative provides a benchmark for decisionmakers to compare the magnitude of environmental effects of the proposed activity and alternatives.

Here, under the no-action alternative, the environmental impacts associated with the proposed activity, as described in the Environmental Analysis section of this EA, would not occur. We have prepared this EA to inform the Commission and stakeholders about the expected impacts that would occur if the Project is constructed and operated.

Under the no-action alternative, TPC would continue to provide natural gas service to its existing transport customers, the REX pipeline facilities would continue to be underutilized, and TPC's pipeline facilities would not be available for any future non-jurisdictional use. The Commission will ultimately determine the Project need and could choose the no-action alternative.

3. Facility Siting Alternatives Evaluation Process

Our evaluation considers impacts on both the natural and human environments. Additionally, in recognition of the competing interests and the different nature of impacts

that sometimes exist (i.e., impacts on the natural environment versus impacts on the human environment), we also consider other factors that are relevant to a particular alternative and discount or eliminate factors that are not relevant or may have less weight or significance.

We would generally consider an alternative to be preferable to a proposed action if three evaluation criteria were met, as discussed in greater detail below. These criteria include that the alternative:

1. meets the stated purpose of the project;

2. is technically and economically feasible and practical; and

3. offers a significant environmental advantage over a proposed action.

The alternatives discussed below were reviewed against the evaluation criteria in the sequence presented above. It is important to recognize that not all conceivable alternatives can meet the Project's purpose and an alternative that does not meet the Project's purpose cannot be considered a reasonable alternative. Many alternatives are technically and economically feasible but not practical. Technically practical alternatives, with exceptions, would generally use industry-standard pipeline construction methods and techniques. An alternative that would require the use of new, unique, or experimental construction method(s) may not be practical because the required technology is not available or is unproven. Economically practical alternatives would result in an action that generally maintains the price competitive nature of the proposed action. Generally, we do not consider the cost of an alternative as a critical factor unless the added cost to design, permit, and construct the alternative would render a project economically impractical. Alternatives that do not meet the Project's purpose or are not technically/economically feasible or practical were not brought forward to the next level of review.

Determining if an alternative provides a significant environmental advantage requires a comparison of the impacts on each resource as well as an analysis of impacts on resources that are not common to the alternatives being considered. Alternatives that initially resulted in less than or similar levels of environmental impact were reviewed in greater detail. An alternatives determination must balance the overall impacts and all other relevant considerations. In comparing the impact between resources, we also considered the degree of impact anticipated on each resource. Ultimately, an alternative that results in equal or minor advantages in terms of environmental impact would not compel us to shift the impacts from the current set of landowners to a new set of landowners.

In the Environmental Analysis section of this EA, we evaluate each environmental resource potentially affected by the Project. Consistent with our conclusions, the value gained by further reducing not significant impacts when considered against relocating the

route/facility to a new set of landowners was also factored into our evaluation. The following discussion addresses alternatives that warranted further review and provides sufficient detail to explain why they were eliminated from further consideration or are recommended for adoption into the Project.

4. System Alternatives

System alternatives would make use of other existing or proposed facilities to meet the stated objectives of the proposed project. A system alternative would make it unnecessary to construct all or part of the proposed project, although modifications or additions to existing or proposed facilities could be required. The purpose of identifying and evaluating system alternatives is to determine whether the environmental impacts associated with Project construction and operation could be avoided or reduced by using existing facilities while still meeting the objectives of the proposed action.

Under NEPA, the Commission is required to analyze the environmental consequences of a proposed project as well as reasonable alternatives to the project to ensure that the Commission is fully informed of the environmental consequences of a proposal before it decides whether to certificate it. This EA analyzed the environmental impacts of system alternatives to the extent possible, making certain assumptions about the system alternatives as the specifics of or applications for such alternatives have not been filed with the Commission for consideration.

The Commission does not plan, design, build or operate infrastructure. It evaluates applications for infrastructure. The Commission may either approve, approve with modifications to minimize impacts, or deny an application. Should the Commission determine that another system alternative is preferred, it could not compel the alternative system operator to plan, design, build and operate the alternative, nor could it compel the project proponent to carry out the alternative. Thus, our selection of a systems alternative as the preferred alternative would be the same as recommending the Commission deny approval of the proposed project, rather than approving the preferred system alternative.

We identified and evaluated three system alternatives to the Project to determine whether the environmental impacts associated with construction and operation of the Project laterals could be avoided or reduced while still meeting the objectives of the Project.[113] Available capacity within each of the systems was determined based on consultation between the Applicants and associated pipeline companies.[114]

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[113] The Applicants' figures depicting these system alternatives as compared to the proposed Project are available on eLibrary under accession nos. 20220527-5365 and 20221101-5228.

[114] The Applicants' response is available on eLibrary under accession no. 20221031-5324.

- Northern Natural Gas (NNG) Pipeline;
- Natural Gas Pipeline (NGPL); and
- Tallgrass Interstate Transmission System (TIGT Pipeline).

According to the Applicants, none of these existing systems have capacity to provide natural gas service to TPC's existing customers; available capacities are 140,000 Dth/d on the NNG Pipeline, 10,000 Dth/d on the NGPL Pipeline, and 12,024 Dth/d on the TIGT Pipeline. Therefore, modifications or additions to each of the system alternatives (e.g., additional compression or constructed pipeline) would be necessary to provide natural gas service to accommodate the existing transportation capacity to continue service to TPC's existing natural gas firm transportation customer. The REX system is underutilized and affords use of existing rights-of-way. Detail on any modifications or additions to the other three systems are unknown; therefore, could result in environmental impacts that would be less than, similar to, or greater than those associated with construction and operation of the Project. Consequently, these systems alternatives do not offer a significant environmental advantage over the proposed action.

5. Route Alternatives and Route Variations

We considered route alternatives and variations to determine whether their implementation would be preferable to the proposed corresponding action. Route alternatives are longer than variations, usually extending several miles in length, and can deviate from the proposed route by a significant distance. Route variations are shorter in length and deviate from the proposed route to a lesser degree than route alternatives. We did not receive any comments or specific recommendations regarding pipeline route alternatives during scoping and our review of resource impacts did not discover any significant impacts that would be addressed by alternative routing. Thus, pipeline route alternatives are not considered further.

Minor route variations are relatively short deviations (generally in close proximity to the proposed route) that would avoid or further reduce impacts on specific localized resources. We analyzed three route variations (one for the REX Lateral to TPC Adams and two for the REX Lateral to TPC East). Staff generally prefers that new rights-of-way be collocated with existing linear features in order to reduce habitat fragmentation. In our analysis, we examine route variations that were considered in order to increase the length of collocation with other existing pipeline corridors. The Applicants selected the proposed alignments and included deviations that it determined necessary in order to avoid impacts on other resources.

During the development of this EA, we requested that the Applicants review specific locations along the proposed route where wetlands would be affected. As described throughout section B, in response to our comments on the application, the Applicants revised the proposed Project workspaces to avoid or minimize impacts on these resources, where feasible. No minor route variations were identified by stakeholders or agencies following the filing of the application.

5.1 REX Lateral to TPC Adams

The REX Lateral to TPC Adams Route Variation was identified by the Applicants during early Project planning and route development. This Route Variation was considered to collocate the route along the northwest side of the existing TIGT Pipeline, deviating from the existing pipeline to minimize impacts on sensitive resources, including reducing the number of wetland and waterbody crossings. Impacts from the proposed route as compared to the Route Variation are presented in table C-1.[115]

Table C-1
Analysis of a Route Variation for REX Lateral to TPC Adams[a]

Environmental Factor	Unit	Route Variation	Proposed Route
Total Length	Miles	18.8	18.7
Adjacent to existing right-of-way	Percent	86.2	81.3
Construction right-of-way[b]	Acres	284.6	284.2
Waterbodies Crossed (NHD)	Number	65	62
Agricultural	Acres	225.2	230.9
Open Land	Acres	46.6	38.4
Forested	Acres	0.0	0.5
Wetlands	Acres	1.5	2.1
Developed	Acres	11.3	12.1
Residences within 50 feet	Number	0	0
Environmental justice communities	Number	1	1

Note: Comparisons are based on publicly available GIS data and are not based on field surveyed data.

[a] An identified environmental justice community, that is both a low-income and minority population, would be crossed by a portion (less than 0.1 mile) of the proposed route and route variation.

[b] Based on a 125-foot-wide construction right-of-way.

The Route Variation exhibits a higher percentage of collocation with existing corridors than the proposed route; however, the proposed route's deviation from the existing pipeline avoids impacts on three streams, see table C-1. Each of the routes would

[115] The Applicants' figures depicting route variations as compared to the proposed Project are available on eLibrary under accession nos. 20220527-5365 and 20221101-5228.

have similar overall construction right-of-way acreage impacts and neither route would be within 50 feet of any residences. Land use impacts would also be similar, with slightly higher acreage impacts on agricultural land, wetlands (as identified in the NWI), and forest uplands for the proposed route. However, the differences are too small to be considered significant. For example, the Route Variation would affect no acres of forest and the proposed route affects only 0.5 acre.

Impacts in table C-1 are based on desktop assessments. Because the Route Variation would not offer a significant environmental advantage over the proposed route, we did not consider this variation further.

5.2 REX Lateral to TPC East

The REX Lateral to TPC East Route Variation 1 and Route Variation 2 were identified by the Applicants during early Project planning and route development. Route Variation 1 was developed to be collocated with the existing TransCanada Pipeline, with site-specific adjustments to avoid or minimize impacts on environmentally sensitive features. Similarly, Route Variation 2 would be collocated with the existing TransCanada Pipeline; however, the route would deviate from the existing pipeline corridor (and therefore Route Variation 1) on the northern end to connect to an existing valve on the Trailblazer Pipeline. Impacts from the proposed route as compared to Variation 1 and Variation 2 are presented in table C-2.[116]

The proposed route has a greater percentage of collocation with existing corridors than the two variations; however, the difference is small. Variation 2 is 59.5 percent collocated, Variation 1 is 64.0 percent collocated, and the proposed route is 68.5 percent collocated. Variations 1 and 2 as well as the proposed route would have similar overall construction right-of-way acreage impacts, as they are all the same length. Land use impacts would also be similar across the three routes. Variation 1 would cross fewer waterbodies and impact the least amount of forested land; however, Variation 1 would impact the most acres of NWI wetlands and would be within 50 feet of two residences. Variation 2 would impact the most forested land and would be within 50 feet of one residence. The proposed route is the only route that would avoid TC Energy's existing pipeline facility that is to be expanded.

Impacts in table C-2 are based on desktop assessments. Overall, the three routes are comparable. Because neither Variation 1 nor 2 would offer any significant environmental advantages over the proposed route, we did not consider these variations further.

[116] The Applicants' figures depicting these route variations as compared to the proposed Project are available on eLibrary under accession nos. 20220527-5365 and 20221101-5228.

Table C-2 Analysis of Route Variations for REX Lateral to TPC East[a]				
Environmental Factor	**Unit**	**Route Variation 1**	**Route Variation 2**	**Proposed Route**
Total Length	Miles	22.2	22.2	22.2
Adjacent to existing right-of-way	Percent	64.0	59.5	68.5
Construction right-of-way[a]	Acres	335.8	337.3	336.8
Waterbodies Crossed (NHD)	Number	37	48	48
Agricultural	Acres	271.6	259.6	254.3
Open Land	Acres	49.4	57.9	56.9
Forested	Acres	3.2	4.3	4.0
Wetlands	Acres	0.9	<0.1	0.0
Developed	Acres	10.7	15.4	21.5
Residences within 50 feet	Number	2	1	0
Environmental justice communities	Number	0	0	0
[a] Based on a 125-foot-wide construction right-of-way.				

6. Aboveground Facility Site Alternatives

The new aboveground facilities would be within or adjacent to other existing natural gas facilities or industrial sites, or are within the pipeline construction and operational footprints, as is required for pipeline tie-ins. The facilities would be sited predominately within agricultural and open lands. We have not received any comments regarding the siting of the new facilities or identified in our review any environmental issues that would lead us to seek alternative sites. Therefore, we did not evaluate any aboveground facility site alternatives for the Project.

6.1 Electric-Driven Motors

During the development of this EA, we requested that the Applicants assess the feasibility of using electric motor-driven compressor units in lieu of the proposed natural gas-fired compressor units at the Hereford Ranch, Redtail, and Logan booster stations to reduce local and regional emissions.[117] The Applicants are already proposing to install electric-driven compressor units at the Sedgwick and Sedgwick East booster stations; therefore, these sites are not discussed further.

Several factors were considered in evaluating the type of unit to install, including: proximity to existing electric power sources; the need for new or modified electric power

[117] The Applicants' response to our data request is available via eLibrary under accession no. 20220912-5172.

sources or transmission facilities; the need for additional ancillary facilities, such as substations; and additional environmental impacts associated with construction of new facilities.

Although technically feasible, use of electric-powered compressor units would increase the overall acreage of impacts at each site to install new substations and supporting infrastructure that would increase the size of the electrical buildings. These impacts would extend outside of the corresponding existing facility fenceline in which the Redtail and Logan booster stations are proposed to be sited. The Applicants also state that based on the minimum compression requirements for these stations, a power supply increase of 185 kilowatts to the current power supply systems would be required. Because current power supply to these sites is not sufficient, the use of electric-driven compression would require the installation of at least one medium voltage variable frequency drive at each station. Additional upgrades would include: new substations at the each of the booster stations; 4 miles of a new high voltage line and upgrades to the substation that would serve the Redtail booster station; and 7 miles of a new power line to the substation that would serve the Logan booster station. The Applicants also state that electric motor-driven compressor units are subject to interruption in service during power outages.

To determine whether the gas-driven compression would result in greater emissions than grid-sourced electricity, we compared the grid-sourced emissions to the gas-fired emissions. Such comparisons are complicated because grid power could be obtained from a variety of power sources, e.g., fossil fuel, renewable fuels. Further, there would be differences in the contributing fossil fuel-fired generating stations, including the plants use of gas, oil, or coal for fuel; different plant configurations (simple cycle or combined cycle power generation); and the plants would likely have different emission control systems. However, it is possible to provide a generic estimate the emissions of grid power would produce using EPA's emission factors for grid supplied power for the region (EPA 2023), which is the latest such data is available. Current emissions may be lower due to changes in plant operation and fueling as a result of EPA regulatory changes after 2021. A comparison of available grid-sourced emissions with the proposed gas-fired emissions is provided below in table C-3.

Table C-3 Gas-fired vs. Electric Generated Compression Alternative Comparison (tons per year)										
Emission Source	**NO_x**	**SO_2**	**CO**	**$PM_{2.5}$[b]**	**VOC**	**Total HAPs[c]**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Hereford Ranch Compressor Station										
Gas Compression	12	<0.1	21.9	0.8	28	3.8	8,848.90	81	0.02	10,870.20
Electric Compression	5.5	2.9	0	0	0	0	10,216.40	0.9	0.1	10,277.10
Redtail Compressor Station										
Gas Compression	12	<0.1	21.9	0.8	27.3	3.5	8,849.60	64.3	0.02	10,462.60
Electric Compression	5.5	2.9	0	0	0	0	10,216.40	0.9	0.1	10,277.10
Logan Compressor and Regulating Station										
Gas Compression	18.6	0.1	40.3	1.6	32.3	6.3	20,521.80	124.8	0.04	23,651.80
Electric Compression	9.4	4.9	0	0	0	0	17,446.90	1.5	0.2	17,550.50

Local air emissions from electric-driven compressor units would generally be lower than those from natural gas-driven compressor units, see table C-3. The noise and air quality impacts on local residents could be lower using an electric-motor alternative. However, the overall magnitude of emissions, including GHG may be greater based upon available data on the existing power generation units on the regional grid. The electrical power generation estimates are generic in nature and based on the available data. Based on the available data, the additional construction impacts to support power supply increases, and considering the Applicants' concern for interruption in service during power outages, we conclude that the alternative of using electric-motor-driven compression does not offer a significant environmental advantage over the proposed use of gas-fired compressors.

7. Alternatives Conclusions

We considered alternatives to the Applicants' proposal, and conclude that no technically and economically feasible system, route, or other alternative would provide a significant environmental advantage over the Project as proposed and meet the Project objectives. Therefore, we conclude that the proposed Project, with our recommended mitigation measures, is the preferred alternative to meet the Project objectives.

D. STAFF CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis contained within this EA, we have determined that if the Applicants construct, abandon, and operate the proposed facilities in accordance with the application and supplements and our recommended mitigation measures, approval of this proposal would not constitute a major federal action significantly affecting the quality of the human environment. We recommend that the Order contain a finding of no significant impact and include the following mitigation measures listed below as conditions to any Certificate the Commission may issue.

1. The Applicants shall follow the construction and abandonment procedures and mitigation measures described in the application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. The Applicants must:

    a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;

    b. justify each modification relative to site-specific conditions;

    c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and

    d. receive approval in writing from the Director of OEP, or the Director's designee, **before using that modification**.

2. The Director of OEP, or the Director's designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project, and abandonment activities. This authority shall allow:

    a. the modification of conditions of the Order;

    b. stop-work authority; and

    c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction, operation, and abandonment activities.

3. **Prior to any construction**, the Applicants shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel,

EIs, and contractor personnel would be informed of the EI's authority and have been or would be trained on the implementation of the environmental mitigation measures appropriate to their jobs **before** becoming involved with construction, abandonment, and restoration activities.

4. The authorized abandonment activities and facility locations shall be as shown in the EA, as supplemented by filed alignment sheets and facility drawings. **As soon as they are available, and before the start of construction**, the Applicants shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

   The Applicants' exercise of eminent domain authority granted under NGA Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. REX's right of eminent domain granted under NGA Section 7(h) does not authorize it to increase the size of its natural gas facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

5. The Applicants shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, pipe storage yards, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP, or the Director's designee, **before construction in or near that area**.

   This requirement does not apply to extra workspace allowed by the Commission's *Upland Erosion Control, Revegetation, and Maintenance Plan* and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

a. implementation of cultural resources mitigation measures;

b. implementation of endangered, threatened, or special concern species mitigation measures;

c. recommendations by state regulatory authorities; and

d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.

6. **Within 60 days of the acceptance of the authorization and before construction or abandonment begins**, the Applicants shall file an Implementation Plan(s) with the Secretary for review and written approval by the Director of OEP, or the Director's designee. The Applicants must file revisions to the plan(s) as schedules change. The plan(s) shall identify:

a. how the Applicants would implement the construction procedures and mitigation measures described in the application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;

b. how the Applicants would incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to on-site construction and inspection personnel;

c. the number of EIs assigned, and how the company would ensure that sufficient personnel are available to implement the environmental mitigation;

d. company personnel, including EIs and contractors, who would receive copies of the appropriate material;

e. the location and dates of the environmental compliance training and instructions the Applicants would give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change), with the opportunity for OEP staff to participate in the training session(s);

f. the company personnel (if known) and specific portion of the Applicants' organization having responsibility for compliance;

g. the procedures (including use of contract penalties) the Applicants would follow if noncompliance occurs; and

h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:

i. the completion of all required surveys and reports;

ii. the environmental compliance training of on-site personnel;

iii. the start of construction; and

iv. the start and completion of restoration.

7. The Applicants shall employ at least three EIs during active construction and restoration, as described in the application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order. The EIs shall be:

a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;

b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see condition 6 above) and any other authorizing document;

c. empowered to order correction of acts that violate the environmental conditions of the Order, and any other authorizing document;

d. full-time positions, separate from all other activity inspectors;

e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and

f. responsible for maintaining status reports.

8. Beginning with the filing of their Implementation Plan, the Applicants shall file updated status reports with the Secretary on a **biweekly** basis until all construction, abandonment, and restoration activities are complete. On request, these status reports would also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

a. an update on the Applicants' efforts to obtain the necessary federal authorizations;

b. the construction status of the Project, work planned for the following reporting period, and any schedule changes for stream crossings or work in other environmentally sensitive areas;

c. a listing of all problems encountered and each instance of noncompliance observed by the EIs during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);

d. a description of the corrective actions implemented in response to all instances of noncompliance;

e. the effectiveness of all corrective actions implemented;

f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and

g. copies of any correspondence received by the Applicants from other federal, state, or local permitting agencies concerning instances of noncompliance, and the Applicants' response.

9. The Applicants must receive written authorization from the Director of OEP, or the Director's designee, **before commencing construction or abandonment activities.** To obtain such authorization, the Applicants must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

10. REX must receive written authorization from the Director of OEP, or the Director's designee, **before placing the Project into service**. Such authorization would only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

11. **Within 30 days of completing Project abandonment and construction**, the Applicants shall file an affirmative statement with the Secretary, certified by a senior company official:

a. that the facilities have been abandoned and constructed in compliance with all applicable conditions, and that continuing activities would be consistent with all applicable conditions; or

b. identifying which of the conditions in the Order the Applicants have complied with or would comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.

12. **Within 5 days of the final determination of the use of the NWP 12 issued by the United States Army Corps of Engineers,** the Applicants shall file the complete water quality certification issued categorically by the NDEE or other applicable certifying agency, including all conditions, for review by the Director of OEP, or the Director's designee, under 40 CFR § 121.9. All conditions attached to the water quality certification except those that the Director of OEP, or the Director's designee, may identify as waived pursuant to 40 CFR § 121.9, constitute mandatory conditions of the Certificate Order. **Prior to construction**, the Applicants shall file, for review and written approval by the Director of OEP, or the Director's designee, any revisions to its project design necessary to comply with the water quality certification conditions.

13. **With its Implementation Plan**, REX shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, feasibility/hydrofracture assessments for each proposed HDD that include:

a. the results of site-specific geotechnical investigation;

b. an alignment plan and profile that incorporates site-specific geotechnical information;

c. a description of any subsurface conditions that were identified during geotechnical investigations that may increase the risk of HDD complications (e.g., loss of drilling fluids, drill transition between overburden/bedrock, drill hole collapse, existing groundwater and/or soil contamination) as well as the measures that would be implemented to minimize these risks; and

d. an assessment of the potential for hydrofracture and inadvertent return using the USACE Delft method (or an equivalent method). *(section B.1.1)*

14. **Prior to construction,** REX shall file with the Secretary, for review and written approval by the Director of OEP, or the Director's designee, either:

a. revised alignment sheets that depict a revised construction right-of-way width of 75 feet across wetlands W-T1-02 (MP 19.7, REX Lateral to TPC East) and W-T1-16 (MP 15.9, REX Lateral to TPC Adams); or

b. site-specific justifications for the use of a construction right-of-way greater than 75-feet-wide in wetlands W-T1-02 (MP 19.7, REX Lateral to TPC East) and W-T1-16 (MP 15.9, REX Lateral to TPC Adams) in accordance with sections II.A.2 and VI.A.3 of the FERC Procedures. *(section B.2.3)*

15. The Applicants shall **not begin** construction of the Project **until**:

    a. FERC staff completes Section 7 ESA consultation with the USFWS; and

    b. the Applicants have received written notification from the Director of OEP, or the Director's designee, that construction and/or use of mitigation may begin. *(section B.4.1)*

16. The Applicants shall **not begin** construction or abandonment of the Project facilities and/or use staging, storage, or temporary work areas and new or to-be-improved access roads **until**:

    a. the Applicants file with the Secretary all correspondence with the Pawnee Nation regarding any agreed upon mitigation measures, including avoidance/treatment plans;

    b. the ACHP is afforded an opportunity to comment if historic properties would be adversely affected; and

    c. the FERC staff reviews and the Director of OEP approves any mitigation measures, including avoidance/treatment plans, and notifies the Applicants in writing that the mitigation measures may be implemented and/or construction may proceed. *(section B.7.6)*

17. REX shall file a noise survey with the Secretary **no later than 60 days** after placing each proposed booster station into service. If a full-load condition noise survey is not possible, REX shall provide an interim survey at the maximum possible horsepower load and file the full-load survey **within 6 months**. If the noise attributable to the operation of the equipment at any proposed booster station under interim or full horsepower load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, REX shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. REX shall confirm compliance with the above requirement by filing

a second noise survey with the Secretary **no later than 60 days** after they install the additional noise controls. *(section B.8.2)*

18. REX shall file a noise survey with the Secretary **no later than 60 days** after placing the Oppliger Lincoln Regulating Station and Adams Meter and Regulating Station into service. If a full-flow condition noise survey is not possible, REX shall provide an interim survey at the maximum possible flow conditions and file the full-load survey **within 6 months**. If the noise attributable to the operation of the equipment at the Oppliger Lincoln Regulating Station or Adams Meter and Regulating Station under interim or full-load conditions exceeds an L_{dn} of 55 dBA at any nearby NSAs, REX shall file a report on what changes are needed and shall install the additional noise controls to meet the level **within 1 year** of the in-service date. REX shall confirm compliance with the above requirement by filing a second noise survey with the Secretary **no later than 60 days** after they install the additional noise controls. *(section B.8.2)*

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Edge Engineering and Science, LLC is a third-party contractor assisting the Commission staff in reviewing the environmental aspects of the project application and preparing the environmental documents required by NEPA. Third party contractors are selected by Commission staff and funded by project applicants. Per the procedures in 40 CFR § 1506.5(b)(4), third party contractors execute a disclosure statement specifying whether any financial or other interests in the outcome of the project exist. In accordance with Commission policies, these statements are reviewed to ensure no financial or other organizational conflicts of interest exist. Third party contractors are required to self-report any changes in financial situation and to refresh their disclosure statements annually. The Commission staff solely directs the scope, content, quality, and schedule of the contractor's work. The Commission staff independently evaluates the results of the third-party contractor's work and the Commission, through its staff, bears ultimate responsibility for full compliance with the requirements of NEPA.

APPENDIX A

Additional Temporary Workspaces for the Project Areas

Appendix A Additional Temporary Workspaces for the Project Areas			
Name	**Milepost Start Location**	**Temporary Disturbance (Acres)**	**ATWS Use**
REX LATERAL TO TPC ADAMS			
07-WS-002	0.1	0.11	Workspace for road bore
07-WS-003	0.6	0.11	Workspace for open cut of stream
07-WS-004	0.7	0.11	Workspace for open cut of stream
07-WS-005	1.0	0.35	Workspace for pipe bend
07-WS-006	1.3	0.24	Workspace for open cut of wetland
07-WS-007	1.3	0.28	Workspace for open cut of wetland
07-WS-008	1.5	0.11	Workspace for pipe bend
07-WS-009	1.7	0.12	Workspace for road bore
07-WS-010	1.7	0.14	Workspace for road bore
07-WS-011	2.0	0.11	Workspace for road crossing
07-WS-012	2.0	0.13	Workspace for road crossing
07-WS-013	3.0	0.49	Workspace for HDD
07-WS-014	3.3	0.46	Workspace for HDD
07-WS-015	3.4	0.21	Workspace for pipe bend
07-WS-016	3.6	0.26	Workspace for road bore
07-WS-017	3.6	0.11	Workspace for road bore
07-WS-018	3.75	0.22	Workspace for pipe bend
07-WS-019	4.5	0.34	Workspace for pipe bend
07-WS-020	4.6	0.23	Workspace to accommodate ROW neck down
07-WS-021	4.8	0.11	Workspace for pipe bend
07-WS-022	4.8	0.11	Workspace for road crossing
07-WS-023	4.9	0.11	Workspace for road crossing
07-WS-024	5.1	0.11	Workspace for road crossing
07-WS-025	5.1	0.16	Workspace for road crossing
07-WS-026	5.8	0.11	Workspace to accommodate ROW neck down
07-WS-027	5.9	0.11	Workspace to accommodate ROW neck down
07-WS-028	6.2	0.11	Workspace for road bore
07-WS-029	6.2	0.11	Workspace for road bore
07-WS-030	6.3	0.11	Workspace to accommodate ROW neck down
07-WS-031	6.4	0.11	Workspace to accommodate ROW neck down
07-WS-032	6.6	0.11	Workspace for road bore
07-WS-033	6.7	0.11	Workspace for road bore
07-WS-034	6.9	0.11	Workspace for open cut of stream

Appendix A (continued) Additional Temporary Workspaces for the Project Areas			
Name	**Milepost Start Location**	**Temporary Disturbance (Acres)**	**ATWS Use**
07-WS-035	6.9	0.11	Workspace for open cut of stream
07-WS-036	7.5	0.12	Workspace for road bore
07-WS-037	7.5	0.11	Workspace for road bore
07-WS-038	8.3	0.11	Workspace for road bore
07-WS-039	8.3	0.16	Workspace for open cut of road and stream
07-WS-040	8.4	0.11	Workspace for open cut of stream
07-WS-041	8.7	0.11	Workspace for road bore
07-WS-042	8.7	0.11	Workspace for road bore
07-WS-043	9.4	0.11	Workspace for open cut of stream
07-WS-044	9.4	0.11	Workspace for open cut of stream
07-WS-045	10.4	0.10	Workspace for open cut of stream
07-WS-046	10.4	0.11	Workspace for open cut of stream
07-WS-047	10.7	0.12	Workspace for open cut of stream
07-WS-048	10.8	0.11	Workspace for open cut of stream
07-WS-049	11.2	0.11	Workspace for road crossing
07-WS-050	11.2	0.11	Workspace for road crossing
07-WS-051	11.9	0.75	Workspace for MLV, road bore, and pipeline bend
07-WS-052	12.0	0.11	Workspace for road bore
07-WS-053	12.4	0.11	Workspace for road bore
07-WS-054	12.5	0.11	Workspace for road bore
07-WS-055	12.6	0.11	Workspace for open cut of stream
07-WS-056	12.6	0.11	Workspace for open cut of stream
07-WS-057	12.9	0.11	Workspace for open cut of stream
07-WS-058	13.0	0.11	Workspace for open cut of stream
07-WS-059	13.6	0.20	Workspace for road bore and pipe bend
07-WS-060	13.6	0.22	Workspace for road bore and pipe bend
07-WS-061	13.7	0.11	Workspace for road bore
07-WS-062	13.8	0.11	Workspace for road bore
07-WS-063	14.0	0.11	Workspace for road bore
07-WS-064	14.1	0.11	Workspace for road bore
07-WS-065	14.3	0.11	Workspace for road bore
07-WS-066	14.4	0.11	Workspace for road bore
07-WS-067	14.9	0.11	Workspace for road crossing
07-WS-068	15.0	0.11	Workspace for road crossing
07-WS-069	15.2	0.39	Workspace for pipe bend and road bore

Appendix A (continued) Additional Temporary Workspaces for the Project Areas			
Name	**Milepost Start Location**	**Temporary Disturbance (Acres)**	**ATWS Use**
07-WS-070	15.3	0.11	Workspace for road bore
07-WS-071	15.4	0.21	Workspace for pipe bend
07-WS-072	15.7	0.12	Workspace for open cut of wetland
07-WS-073	15.8	0.11	Workspace for open cut of wetland
07-WS-074	16.2	0.12	Workspace for road bore
07-WS-075	16.3	0.11	Workspace for road bore
07-WS-076	17.1	0.11	Workspace for road bore
07-WS-077	17.1	0.11	Workspace for road bore
07-WS-078	17.5	0.11	Workspace for road bore
07-WS-079	17.5	0.11	Workspace for road bore
07-WS-080	18.5	0.12	Workspace for open cut of wetland and stream
07-WS-081	18.5	0.11	Workspace for open cut of wetland and stream
07-WS-082	18.6	0.12	Workspace for road bore
	TOTAL	**12.57**	
REX LATERAL TO TPC EAST			
01-WS-002	0.5	0.11	Workspace for road bore
01-WS-003	0.5	0.11	Workspace for road bore
01-WS-004	1.1	0.21	Workspace for open cut of 2 streams
01-WS-005	1.2	0.28	Workspace for open cut of 2 streams
01-WS-006	1.3	0.32	Workspace for open cut of 2 streams
01-WS-007	1.8	0.11	Workspace for open cut of wetland
01-WS-008	1.85	0.11	Workspace for open cut of wetland
01-WS-009	1.9	0.11	Workspace for open cut of wetland
01-WS-010	2.0	0.11	Workspace for open cut of wetland
01-WS-011	2.2	0.82	Workspace to accommodate avoidance of Environmentally Sensitive Area
01-WS-012	2.25	0.26	Workspace to accommodate avoidance of Environmentally Sensitive Area
01-WS-013	2.5	0.11	Workspace for road bore
01-WS-014	2.5	0.12	Workspace for road bore
01-WS-015	2.9	0.11	Workspace for open cut of stream
01-WS-016	3.0	0.11	Workspace for open cut of stream
01-WS-017	3.2	0.11	Workspace for open cut of wetland
01-WS-018	3.3	0.11	Workspace for open cut of wetland
01-WS-019	3.5	0.11	Workspace for road bore
01-WS-020	3.5	0.11	Workspace for road bore

Appendix A (continued) Additional Temporary Workspaces for the Project Areas			
Name	**Milepost Start Location**	**Temporary Disturbance (Acres)**	**ATWS Use**
01-WS-021	3.7	0.11	Workspace for open cut of wetland
01-WS-022	3.8	0.11	Workspace for open cut of wetland
01-WS-023	4.1	0.11	Workspace for open cut of wetland
01-WS-024	4.2	0.11	Workspace for open cut of wetland
01-WS-025	4.3	0.11	Workspace for open cut of 2 streams
01-WS-026	4.3	0.23	Workspace for open cut of 2 streams
01-WS-027	4.4	0.11	Workspace for road bore
01-WS-027B	4.5	0.11	Workspace for road bore
01-WS-028	5.5	0.11	Workspace for road bore
01-WS-029	5.5	0.11	Workspace for road bore
01-WS-030	6.5	0.11	Workspace for road bore
01-WS-031	6.5	0.11	Workspace for road bore
01-WS-032	6.6	0.11	Workspace for open cut of stream
01-WS-033	6.7	0.11	Workspace for open cut of stream
01-WS-034	7.0	0.11	Workspace for open cut of wetland
01-WS-035	7.1	0.11	Workspace for open cut of wetland
01-WS-036	7.5	0.11	Workspace for road bore
01-WS-037	7.5	0.12	Workspace for road bore
01-WS-038	8.3	0.11	Workspace for open cut of stream
01-WS-039	8.4	0.11	Workspace for open cut of stream
01-WS-040	8.5	0.37	Workspace for road bore and pipe bend
01-WS-041	8.5	0.52	Workspace for road bore and pipe bend
01-WS-042	8.6	0.11	Workspace for road bore
01-WS-043	9.5	0.11	Workspace for road bore
01-WS-044	9.6	0.11	Workspace for road bore
01-WS-045	9.9	0.11	Workspace for open cut of stream
01-WS-046	10.0	0.11	Workspace for open cut of stream
01-WS-047	10.5	0.12	Workspace for road bore
01-WS-048	10.6	0.26	Workspace for road bore and open cut of wetland
01-WS-049	10.7	0.11	Workspace for open cut of wetland
01-WS-050	10.8	0.14	Workspace for open cut of wetland
01-WS-051	10.9	0.11	Workspace for open cut of wetland
01-WS-052	11.4	0.42	Workspace for road bore and pipe bend
01-WS-053	11.4	0.56	Workspace for road bore and pipe bend
01-WS-054	11.6	0.11	Workspace for road bore

Appendix A (continued) Additional Temporary Workspaces for the Project Areas			
Name	**Milepost Start Location**	**Temporary Disturbance (Acres)**	**ATWS Use**
01-WS-055	11.6	0.11	Workspace for road bore
01-WS-058	12.7	0.38	Workspace for pipe bend
01-WS-059	12.9	0.31	Workspace for a road bore
01-WS-059A	13.0	0.11	Workspace for road crossing
01-WS-059B	13.0	0.13	Workspace for road crossing
01-WS-060	13.4	0.37	Workspace for road bore and pipe bend
01-WS-061	13.6	0.11	Workspace for open cut of wetland
01-WS-062	13.6	0.11	Workspace for open cut of wetland
01-WS-063	13.6	0.13	Workspace for a road bore
01-WS-064	13.7	0.11	Workspace for a road bore
01-WS-065	13.8	0.11	Workspace for open cut of wetland
01-WS-066	13.8	0.11	Workspace for open cut of wetland
01-WS-067	13.9	0.37	Workspace for existing pipeline bore and pipe bend
01-WS-068	13.9	0.35	Workspace for existing pipeline bore and pipe bend
01-WS-069	14.3	0.11	Workspace for open cut of stream
01-WS-070	14.4	0.11	Workspace for open cut of stream
01-WS-071	14.7	0.11	Workspace for a road bore
01-WS-072	14.7	0.11	Workspace for a road bore
01-WS-073	15.3	0.11	Workspace for open cut of stream
01-WS-074	15.4	0.12	Workspace for open cut of stream
01-WS-075	15.6	0.46	Workspace for HDD
01-WS-076	15.9	0.23	Workspace for HDD
01-WS-077	15.9	0.27	Workspace for HDD
01-WS-078	15.9	1.91	Pullback for HDD
01-WS-079	16.6	0.47	Workspace for existing pipeline bore and pipe bend
01-WS-080	16.6	0.27	Workspace for existing pipeline bore and pipe bend
01-WS-081	16.8	0.11	Workspace for a road bore
01-WS-082	16.8	0.11	Workspace for a road bore
01-WS-083	17.8	0.11	Workspace for a road bore
01-WS-084	17.8	0.11	Workspace for a road bore
01-WS-085	18.0	0.11	Workspace for open cut of wetland
01-WS-086	18.0	0.11	Workspace for open cut of wetland
01-WS-087	18.1	0.12	Workspace for a road bore
01-WS-088	18.1	0.12	Workspace for a road bore
01-WS-089	18.2	0.11	Workspace for open cut of wetland and stream

Appendix A (continued) Additional Temporary Workspaces for the Project Areas			
Name	**Milepost Start Location**	**Temporary Disturbance (Acres)**	**ATWS Use**
01-WS-090	18.2	0.11	Workspace for open cut of wetland and stream
01-WS-091	18.4	0.11	Workspace for open cut of wetland and stream
01-WS-092	18.4	0.11	Workspace for open cut of wetland and stream
01-WS-093	18.5	0.38	Workspace for pipe bend, road bore, and existing pipeline
01-WS-094	18.6	0.11	Workspace for pipe bend, road bore, and existing pipeline
01-WS-095	18.9	0.11	Workspace for a road bore
01-WS-096	19.0	0.11	Workspace for a road bore
01-WS-097	19.9	0.11	Workspace for a road bore
01-WS-098	20.0	0.11	Workspace for a road bore
01-WS-099	20.3	0.11	Workspace for open cut of wetland
01-WS-100	20.3	0.11	Workspace for open cut of wetland
01-WS-101	21.0	0.11	Workspace for a road bore
01-WS-102	21.0	0.11	Workspace for a road bore
01-WS-103	22.1	0.11	Workspace for a road bore
01-WS-104	22.1	0.11	Workspace for a road bore
	TOTAL	**19.39**	
HSA LOCATED ALONG LATERALS			
07-HSA-001	0.0	3.61	Hydrostatic test water storage area
07-HSA-002	17.6	3.67	Hydrostatic test water storage area
01-HSA-001	0.4	3.56	Hydrostatic test water storage area
01-HSA-002	10.5	3.57	Hydrostatic test water storage area
01-HSA-003	22.2	2.77	Hydrostatic test water storage area
	TOTAL	**17.18**	
Note: The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. No stony or rocky soils occur in the Project areas.			

APPENDIX B

Temporary and Permanent Access Roads for the Project Facilities

Appendix B
Temporary and Permanent Access Roads for the Project Facilities

Milepost or Facility	Access Road Name	Existing Condition	Approximate Length (ft.)	Proposed Modification[a]	Existing Road Width (ft.)	Approximate Width (ft.) Temp ROW	Approximate Width (ft.) Perm ROW	Construction Requirements (acres)	Operation Requirements (acres)
ABANDONMENT									
TPC West Isolation	TPC West Isolation TAR-001	Dirt lane	935	Widen, blading and gravel	18	50	0	0.65	0.00
ECGS Interconnect	ECGS TAR-001	Crop Land	55	Build new	-	50	0	0.03	0.00
Compressor Station 601	Compressor Station 601 TAR-001	Gravel lane	100	Widen, blading and gravel	20	50	0	0.57	0.00
Compressor Station 602	Compressor Station 602 TAR-001	Gravel lane	1,090	Widen, blading and gravel	20	50	0	0.56	0.00
Northwestern Kearney Interconnect	Northwestern Kearney Interconnect TAR-001	Crop land	100	Build New	-	50	0	0.05	0.00
Compressor Station 603	Compressor Station 603 TAR-001	Gravel lane	1,355	Widen, blading and gravel	20	50	0	0.50	0.00
Clay Interconnect	Clay TAR-001	Gravel lane	25	Widen, blading and gravel	15	50	0	0.02	0.00
Clay Interconnect	Clay TAR-002	Crop land	25	Build new	-	50	0	0.02	0.00
TPC East Isolation	TPC East Isolation TAR-001	Gravel lane/crop land	415 (180 gravel, 235 crop land)	Widen, blading and build new	25 (gravel lane)	50	0	0.15	0.00

Appendix B (continued)
Temporary and Permanent Access Roads for the Project Facilities

Milepost or Facility	Access Road Name	Existing Condition	Approximate Length (ft.)	Proposed Modification[a]	Existing Road Width (ft.)	Approximate Width (ft.) Temp ROW	Approximate Width (ft.) Perm ROW	Construction Requirements (acres)	Operation Requirements (acres)
REX LATERAL TO TPC ADAMS									
3.1	07-TAR-001	Crop land	388	Build new	-	50	0	0.27	0.00
3.5	07-TAR-002	Crop land	30	Build new	-	50	0	0.08	0.00
10.0	07-TAR-003	Dirt lane	740	Widen, blading and gravel	20	50	0	0.50	0.00
11.2	07-TAR-003A	Crop land	1,810	Build new	-	50	0	1.23	0.00
13.7	07-TAR-003B	Crop land	228	Build new	-	50	0	0.15	0.00
13.8	07-TAR-003C	Crop land	396	Build new	-	50	0	0.29	0.00
14.9	07-TAR-003D	Dirt lane	1,130	Widen, blading and gravel	24	50	0	0.76	0.00
REX LATERAL TO TPC EAST									
0.5	01-TAR-000	Dirt lane/crop land	319	Build new	-	50	0	0.23	0.00
0.5	01-TAR-000B	Gravel lane/crop land	360	Widen, blading and build new (portion in crop land portion)	15 (gravel lane)	50	0	1.05	0.00
10.5	01-TAR-001	Crop land	368	Build new	-	50	0	0.25	0.00
10.7	01-TAR-002	Crop land	320	Build new	-	50	0	0.22	0.00
12.6	01-TAR-003	Dirt lane	688	Widen, culvert, blading and gravel	10	50	0	0.47	0.00

Appendix B (continued)
Temporary and Permanent Access Roads for the Project Facilities

Milepost or Facility	Access Road Name	Existing Condition	Approximate Length (ft.)	Proposed Modification[a]	Existing Road Width (ft.)	Approximate Width (ft.) Temp ROW	Approximate Width (ft.) Perm ROW	Construction Requirements (acres)	Operation Requirements (acres)
14.2	01-TAR-004	Dirt lane	1,542	Widen, blading and gravel	10	50	0	1.06	0.00
15.7	01-TAR-005	Dirt lane	60	Widen, blading and gravel	15	50	0	0.04	0.00
19.0	01-TAR-006	Crop land	840	Build new	-	50	0	0.58	0.00
ABOVEGROUND FACILITIES (BOOSTER, METERING, AND REGULATING)									
REX/TPC Lone Tree Interconnect	REX/TPC Lone Tree PAR-001	Gravel lane	1,400	Widen, blading, grading, and gravel	20	50	30	0.67	0.67
Hereford Ranch Interconnect and Compressor Station[b]	Hereford Ranch PAR-001	Gravel lane	397	Widen	10	50	30	0.22	0.22
Hereford Ranch Interconnect and Compressor Station[b]	Hereford Ranch TAR-001	Gravel lane	50	Widen, blading and gravel	20	50	0	0.02	0.00
Redtail Interconnect and Compressor Station[b]	Redtail PAR-001	Gravel lane	3,419	Widen, blading, grading, and gravel	10	50	30	3.85	2.31
Logan Interconnect and Compressor and Regulating Station[b]	Logan PAR-001	Crop land	20	Build new	-	50	30	0.02	0.02

Appendix B (continued) Temporary and Permanent Access Roads for the Project Facilities									
Milepost or Facility	**Access Road Name**	**Existing Condition**	**Approximate Length (ft.)**	**Proposed Modification[a]**	**Existing Road Width (ft.)**	**Approximate Width (ft.) Temp ROW**	**Approximate Width (ft.) Perm ROW**	**Construction Requirements (acres)**	**Operation Requirements (acres)**
Logan Interconnect and Compressor and Regulating Station[b]	Logan TAR-001	Gravel lane	155	Widen, blading and gravel	45	50	0	0.05	0.00
Sedgwick Interconnect and Compressor Station[b]	Sedgwick PAR-001	Crop land	60	Build new	-	50	30	0.03	0.03
Sedgwick Interconnect and Compressor Station[b]	Sedgwick TAR-001	Gravel lane	25	Widen, blading and gravel	20	50	0	0.01	0.00
Sedgwick East Interconnect and Compressor Station[b]	Sedgwick East PAR-001	Crop land	80	Build new	-	50	30	0.08	0.08
Sedgwick East Interconnect and Compressor Station[b]	Sedgwick East TAR-001	Crop land	209	Build new	-	50	0	0.13	0.00
Mid-American Ethanol Interconnect and Regulating Station	Mid-American Ethanol PAR-001	Gravel lane	25	Widen, blading, grading, and gravel	25	50	30	0.01	0.01
Mid-American Ethanol Interconnect and Regulating Station	Mid-American Ethanol TAR-001	Crop land	32	Build new	-	50	0	0.01	0.00

Appendix B (continued)
Temporary and Permanent Access Roads for the Project Facilities

Milepost or Facility	Access Road Name	Existing Condition	Approximate Length (ft.)	Proposed Modification[a]	Existing Road Width (ft.)	Approximate Width (ft.) Temp ROW	Approximate Width (ft.) Perm ROW	Construction Requirements (acres)	Operation Requirements (acres)
Oppliger Lincoln Interconnect and Regulating Station	Oppliger PAR-001	Grass field	355	Build new	-	50	30	0.28	0.21
North Platte Livestock Feeder Interconnect and Regulating Station	North Platte PAR-001	Dirt lane	1,250	Widen, blading, grading, and gravel	15	50	30	0.24	0.24
MP 18.7 - Adams Interconnect and Meter and Regulating Station	Adams Interconnect 07-PAR-002	Crop land	242	Build new	0	50	30	0.12	0.12
MP 22.2 - REX to TPC East Meter and Regulating Station	REX to TPC East Meter 01-PAR-003	Crop land	30	Build new	-	50	30	0.02	0.02
ANCILLARY FACILITIES									
MP 0.0 -Adams Launcher Site	Adams Launcher 07-PAR-001	Gravel road	100	Widen, blading and grading	30	50	30	0.05	0.05
MP 11.8 -MLV Site for Adams Lateral	Adams MLV 07-PAR-002	Crop land	172	Build new	-	50	30	0.12	0.12

Appendix B (continued)
Temporary and Permanent Access Roads for the Project Facilities

Milepost or Facility	Access Road Name	Existing Condition	Approximate Length (ft.)	Proposed Modification[a]	Existing Road Width (ft.)	Approximate Width (ft.) Temp ROW	Approximate Width (ft.) Perm ROW	Construction Requirements (acres)	Operation Requirements (acres)
MP 0.0 – TPC East Launcher Site	TPC East Launcher 01-PAR-001	Dirt lane	180	Widen, blading, grading, and gravel	10	50	30	0.12	0.12
MP 9.6 – MLV Site for TPC East Lateral	TPC East MLV 01-PAR-002	Crop land	60	Build new	-	50	30	0.07	0.07
						Construction Requirements (acres)[c]	Operation Requirements (acres)[c]		
Abandonment Facilities						2.5	0.0		
Pipeline Laterals and Ancillary Facilities						6.6	0.1		
Aboveground Facilities						5.8	3.9		
Access Road Total						14.9	4.1		

[a] Widening of access roads may occur across the entire length or on portions of the existing road as depicted in the Applicants figures available via eLibrary under accession nos. 20221221-5310 and 20230201-5180.

[b] Interconnect booster stations are small capacity compressor stations.

[c] Note that the total acreages for construction and operation presented in this table have been calculated using raw data from Geographic Information System applications.

APPENDIX C

Road and Railroad Crossings Proposed in the Project Areas

Appendix C Road and Railroad Crossings Proposed in the Project Areas				
Milepost	**Feature**	**Name**	**Method (Open Cut/Bore/ HDD)**	**Alignment Sheet Number**
REX LATERAL TO TPC ADAMS				
0.1	CL Road- County	44th Road	Bore	01
1.7	CL Road- County	Private Road	Bore	03
2.0	CL Road- County	Z Road	Open Cut	03
3.2	CL Road- County	County Road 300	HDD	04
3.6	CL Road- County	W Blue Valley Road	Bore	05
4.9	CL Road- County	County Road 51	Open Cut	06
5.1	CL Road- County	S Powderhorn Ave	Open Cut	06
6.2	CL Road- County	W. Blue Hill Road	Bore	07
6.7	CL Road- County	S Holstein Ave	Bore	07
7.5	CL Road- County	W Powerline Road	Bore	08
8.3	CL Road- County	County Road 12-1	Bore	09
8.7	CL Road- County	W Cimarron Road	Bore	10
11.9	CL Road- County	S Bladen Ave	Bore	13
12.5	CL Road- County	W Pony Express Road	Bore	13
13.6	CL Road- County	S Posser Ave	Bore	14
13.7	CL Road- County	W Sundown Road	Bore	15
14.0	Top of Rail	Burlington Northern Railroad (abandoned)	Bore	15
14.3	CL Road- County	Patton Street	Bore	15
14.9	CL Road- 2 Track	W Saddlehorn	Open Cut	15
15.3	CL Road- County	S Roseland Ave	Bore	16
16.2	CL Road- County	W Oregon Trail Road	Bore	17
17.1	CL Road- County	S Conestoga Ave	Bore	18
17.5	CL Road- County	W Assumption Road	Bore	18
18.7	CL Road- County	S Liberty Ave	Bore	19
REX LATERAL TO TPC EAST				
0.5	CL Road- County	705th Road	Bore	1
2.5	CL Road- County	707th Road	Bore	3
3.5	CL Road- County	708th Road	Bore	4
4.5	CL Road- County	709th Road	Bore	6
5.5	CL Road- County	710th Road	Bore	7
6.5	CL Road- County	PWF Road	Bore	8
7.5	CL Road- County	712th Road	Bore	9
8.6	CL Road- County	713th Road	Bore	10

Appendix C (continued) Road and Railroad Crossings Proposed in the Project Areas				
Milepost	**Feature**	**Name**	**Method (Open Cut/Bore/ HDD)**	**Alignment Sheet Number**
8.8	Field Road	Private	Open Cut	11
9.6	CL Road- County	714th Road	Bore	11
10.6	CL State Highway	HWY 136	Bore	13
11.4	CL Road- County	577th Ave	Bore	13
11.6	CL Road- County	716th Road	Bore	14
12.9	CL Road- County	577th Ave	Open Cut	15
13.5	CL Road- County	577th Ave	Open Cut	16
13.7	CL Road- County	718th Road	Bore	16
14.7	CL Road- County	719th Road	Bore	17
15.8	CL Road- County	720th Road and UPPR Railroad	HDD	18
16.8	CL Road- County	721st Road	Bore	20
17.8	CL Road- County	722nd Road	Bore	21
18.1	Private Driveway	N/A	Bore	21
18.6	CL Road- County	576th Road	Bore	22
18.9	CL State Highway	HWY 4	Bore	22
20.0	CL Road- County	724th Road	Bore	24
21.0	CL Road- County	725th Road	Bore	25
22.1	CL Road- County	Y Road	Bore	26

APPENDIX D

Foreign Utility Crossings in the Project Areas

Appendix D Foreign Utility Crossings in the Project Areas			
Milepost	**Utility Crossed/Type**	**Owner Name**	**Method (Open Cut/Bore/HDD)**
REX LATERAL TO TPC ADAMS			
0.1	Overhead Power Line	Unknown	Bore
1.7	Overhead Power Line	Unknown	Bore
1.7	Underground Electrical Line	Unknown	Bore
2.0	Overhead Power Line	Unknown	Open Cut
3.6	Fiber Optic Cable	Unknown	Bore
3.6	Overhead Power Line	Unknown	Bore
6.2	Overhead Power Line	Unknown	Open Cut
6.7	Overhead Power Line	Unknown	Bore
7.5	Overhead Power Line	Unknown	Bore
7.5	Fiber Optic Cable	Unknown	Bore
7.8	Waterline	Private	Open Cut
8.7	Overhead Power Line	Unknown	Bore
10.5	Overhead Power Line	Unknown	Open Cut
10.6	Overhead Power Line	Unknown	Open Cut
10.8	Existing Pipeline	Undetermined	Open Cut
11.8	CL Existing Pipeline	Tallgrass	Open Cut
11.9	Overhead Power Line	Unknown	Bore
11.9	Fiber Optic Cable	Unknown	Bore
12.4	Waterline	Private	Bore
12.5	Fiber Optic Cable	Unknown	Bore
13.6	CL Existing Pipeline	Tallgrass	Bore
13.6	Fiber Optic Cable	Unknown	Bore
13.6	Overhead Power Line	Unknown	Bore
13.6	CL Existing Pipeline	Black Hills Energy	Bore
13.7	Fiber Optic Cable	Unknown	Bore
13.7	Overhead Power Line	Unknown	Bore
14.8	Waterline	Private	Open Cut
14.9	Underground Electrical Line	Unknown	Open Cut
14.9	Existing Pipeline	Undetermined	Open Cut
15.3	Overhead Power Line	Unknown	Bore
15.3	Fiber Optic Cable	Unknown	Bore
15.4	Underground Electrical Line	Unknown	Open Cut
16.2	CL Existing Pipeline	Black Hills Energy	Bore
16.3	Overhead Power Line	Unknown	Bore

Appendix D (continued) Foreign Utility Crossings in the Project Areas			
Milepost	**Utility Crossed/Type**	**Owner Name**	**Method (Open Cut/Bore/HDD)**
17.1	Fiber Optic Cable	Unknown	Bore
17.1	Overhead Power Line	Unknown	Bore
17.5	Underground Telephone	Unknown	Bore
17.5	Fiber Optic Cable	Unknown	Bore
17.5	Overhead Power Line	Unknown	Bore
18.7	Fiber Optic Cable	Unknown	Bore
18.7	Overhead Power Line	Unknown	Bore
REX LATERAL TO TPC EAST			
0.5	Overhead Power Line	Unknown	Bore
0.5	Underground Telephone	Unknown	Bore
3.5	Overhead Power Line	Unknown	Bore
3.7	CL Existing Pipeline	Kinder Morgan	Open Cut
4.5	Overhead Power Line	Unknown	Bore
4.5	Underground Telephone	Unknown	Bore
4.5	Fiber Optic Cable	Unknown	Bore
6.5	Overhead Power Line	Unknown	Bore
8.5	CL Existing Pipeline	TransCanada	Open Cut
8.6	Overhead Power Line	Unknown	Bore
9.6	Overhead Power Line	Unknown	Bore
10.6	Overhead Power Line	Unknown	Bore
10.6	Fiber Optic Cable	Unknown	Bore
11.4	CL Existing Pipeline	Unknown	Bore
11.4	Fiber Optic Cable	Unknown	Bore
11.6	Fiber Optic Cable	Unknown	Bore
11.6	Overhead Power Line	Unknown	Bore
12.8	CL Existing Pipeline	TransCanada	Open Cut
12.9	Overhead Power Line	Unknown	Open Cut
13.2	Overhead Power Line	Unknown	Open Cut
14.0	CL Existing Pipeline	TransCanada	Bore
14.7	Fiber Optic Cable	Unknown	Bore
14.7	Overhead Power Line	Unknown	Bore
15.8	Overhead Power Line	Unknown	HDD
16.6	CL Existing Pipeline	TransCanada	Bore
16.8	Overhead Power Line	Unknown	Bore
17.8	Underground Electrical Line	Unknown	Bore
17.8	Overhead Power Line	Unknown	Bore

Appendix D (continued) Foreign Utility Crossings in the Project Areas			
Milepost	**Utility Crossed/Type**	**Owner Name**	**Method (Open Cut/Bore/HDD)**
18.1	Overhead Power Line	Unknown	Bore
18.6	CL Existing Pipeline	TransCanada	Bore
18.6	Underground Telephone	Unknown	Bore
18.6	Overhead Power Line	Unknown	Bore
18.9	Overhead Power Line	Unknown	Bore
18.9	Fiber Optic Cable	Unknown	Bore
19.0	Underground Telephone	Unknown	Bore
20.0	Overhead Power Line	Unknown	Bore
20.0	Underground Telephone	Unknown	Bore
21.0	Overhead Power Line	Unknown	Bore
22.1	Underground Telephone	Unknown	Bore
22.1	Overhead Power Line	Unknown	Bore

APPENDIX E

Soil Characteristics and Limitations for the Project Construction Workspace (acres)

Appendix E
Soil Characteristics and Limitations for the Project Construction Workspace (acres)

Facility/ County	Prime and Important Farmland[a]	High Compaction Prone[b]	High Water Erodibility Potential[c]	High Wind Erodibility Potential[d]	Low Revegetation Concerns[e]	Shallow Bedrock[f]
PIPELINE FACILITIES (NEW CONSTRUCTION)						
REX Lateral to TPC Adams						
Franklin County, NE	5.05	0.00	0.00	0.00	0.00	0.00
Webster County, NE	32.53	0.00	0.19	0.00	0.00	0.00
Adams County, NE	152.61	0.00	11.79	13.01	3.01	0.00
REX Lateral to TPC East						
Jefferson County, NE	277.51	13.18	6.65	0.00	5.47	8.39
Saline County, NE	0.82	0.00	0.00	0.00	0.00	0.00
ABOVEGROUND FACILITIES (BOOSTER, METERING, AND REGULATING) (NEW CONSTRUCTION)						
REX/TPC Lone Tree Interconnect						
Weld County, CO	0.00	0.00	0.00	0.00	0.55	0.55
Hereford Ranch Compressor Station						
Weld County, CO	3.11	0.00	0.00	0.00	0.00	0.00
Redtail Compressor Station						
Kimball County, NE	3.95	0.00	0.00	0.00	0.00	3.9
Logan Compressor and Regulating Station						
Logan County, CO	3.49	0.00	0.00	0.00	0.00	0.00
Sedgwick Compressor Station						
Sedgwick County, CO	1.02	0.00	0.00	0.00	0.00	0.00
Sedgwick East Compressor Station						
Sedgwick County, CO	2.25	0.00	0.00	0.00	0.00	0.00

Appendix E (continued)
Soil Characteristics and Limitations for the Project Construction Workspace (acres)

Facility/ County	Prime and Important Farmland[a]	High Compaction Prone[b]	High Water Erodibility Potential[c]	High Wind Erodibility Potential[d]	Low Revegetation Concerns[e]	Shallow Bedrock[f]
Mid-American Ethanol Regulating Station						
Perkins County, NE	0.33	0.00	0.00	0.00	0.00	0.00
Oppliger Lincoln Regulating Station						
Lincoln County, NE	0.00	0.00	0.00	0.76	0.00	0.00
North Platte Livestock Feeder Regulating Station						
Lincoln County, NE	0.00	0.00	0.00	0.28	0.00	0.00
Adams Meter and Regulating Station						
Adams County, NE	3.24	0.00	0.00	0.00	1.07	0.00
REX to TPC East Meter and Regulating Station						
Saline County, NE	5.18	0.00	0.00	0.00	0.00	0.00
ANCILLARY FACILITIES (NEW CONSTRUCTION)						
Adams Launcher Site						
Franklin County, NE	1.33	0.00	0.00	0.00	0.00	0.00
TPC East Launcher Site						
Jefferson County, NE	0.00	0.00	0.38	0.00	0.00	0.00
Contractor Yard 1						
Adams County, NE	9.02	0.00	0.00	0.00	0.00	0.00
Contractor Yard 2						
Jefferson County, NE	10.0	0.00	0.00	0.00	0.00	0.00
ABANDONMENT FACILITIES						
TPC West Isolation						
Weld County, CO	0.00	0.00	0.00	0.00	0.00	0.00
Hereford Ranch Interconnect						
Weld County, CO	0.002	0.00	0.00	0.00	0.00	0.00

Appendix E (continued)
Soil Characteristics and Limitations for the Project Construction Workspace (acres)

Facility/ County	Prime and Important Farmland[a]	High Compaction Prone[b]	High Water Erodibility Potential[c]	High Wind Erodibility Potential[d]	Low Revegetation Concerns[e]	Shallow Bedrock[f]
Redtail Lateral and Interconnect						
Kimball County, NE	0.002	0.00	0.00	0.00	0.00	0.002
ECGS Interconnect (TPC)						
Logan County, CO	0.02	0.00	0.00	0.00	0.00	0.00
Logan Interconnect						
Logan County, CO	0.002	0.00	0.00	0.00	0.00	0.00
Compressor Station 601						
Logan County, CO	0.865	0.00	0.00	0.00	0.00	0.00
Sedgwick Interconnect						
Sedgwick County, CO	0.002	0.00	0.00	0.00	0.00	0.00
Sedgwick East Interconnect						
Sedgwick County, CO	0.002	0.00	0.00	0.00	0.00	0.00
Mid-American Ethanol Interconnect						
Perkins County, NE	0.050	0.00	0.00	0.00	0.00	0.00
Oppliger Lincoln Interconnect						
Lincoln County, NE	0.002	0.00	0.00	0.002	0.00	0.00
Compressor Station 602						
Lincoln County, NE	0.860	0.00	0.00	0.00	0.00	0.00
North Platte Livestock Feeder Interconnect						
Lincoln County, NE	0.00	0.00	0.00	0.002	0.00	0.00
Northwestern Kearney Interconnect (TPC)						
Kearney County, NE	0.15	0.00	0.00	0.00	0.00	0.00
Compressor Station 603						
Kearney County, NE	0.866	0.00	0.00	0.002	0.00	0.00

Appendix E (continued)
Soil Characteristics and Limitations for the Project Construction Workspace (acres)

Facility/ County	Prime and Important Farmland[a]	High Compaction Prone[b]	High Water Erodibility Potential[c]	High Wind Erodibility Potential[d]	Low Revegetation Concerns[e]	Shallow Bedrock[f]
Adams Interconnect						
Adams County, NE	0.002	0.00	0.00	0.00	0.00	0.00
Clay Interconnect – TPC						
Clay County, NE	0.458	0.00	0.00	0.00	0.00	0.00
TPC East Isolation						
Fillmore County, NE	0.055	0.00	0.00	0.00	0.00	0.00
ACCESS ROADS						
Abandonment						
Weld County, CO	0.362	0.00	0.00	0.00	0.00	0.00
Logan County, CO	0.566	0.00	0.00	0.00	0.00	0.00
Lincoln, NE	0.082	0.00	0.00	0.461	0.00	0.00
Kearney, NE	0.547	0.00	0.00	0.00	0.00	0.00
Clay, NE	0.038	0.00	0.00	0.00	0.00	0.00
Fillmore, NE	0.180	0.00	0.00	0.00	0.00	0.00
Pipeline Laterals and Ancillary Facilities						
Franklin County, NE	0.05	0.00	0.00	0.00	0.00	0.00
Webster County, NE	0.29	0.00	0.00	0.00	0.00	0.00
Adams County, NE	2.71	0.00	0.32	0.00	0.32	0.00
Jefferson County, NE	2.69	0.00	0.33	0.00	0.33	0.00
Aboveground Facilities						
Weld County, CO	0.25	0.00	0.00	0.00	0.51	0.51
Logan County, CO	0.03	0.00	0.00	0.00	0.00	0.00
Sedgwick, CO	0.25	0.00	0.00	0.00	0.00	0.00
Kimball, NE	0.00	0.00	0.00	0.00	0.00	1.67

Appendix E (continued)
Soil Characteristics and Limitations for the Project Construction Workspace (acres)

Facility/ County	Prime and Important Farmland[a]	High Compaction Prone[b]	High Water Erodibility Potential[c]	High Wind Erodibility Potential[d]	Low Revegetation Concerns[e]	Shallow Bedrock[f]
Perkins, NE	0.02	0.00	0.00	0.00	0.00	0.00
Lincoln, NE	0.00	0.00	0.02	0.52	0.00	0.00
Adams, NE	0.03	0.00	0.00	0.00	0.10	0.00
Saline, NE	0.02	0.00	0.00	0.00	0.00	0.00

Source: USDA-NRCS 2022a

Note: The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends. No stony or rocky soils occur in the Project areas. Additionally, no hydric soils are present within the Project areas.
The values in each row do not add up to the total acreage for each county because soils may occur in more than one characteristic class or may not occur in any class listed in the table.

[a] As designated by the USDA-NRCS, soils include prime farmland; prime farmland if irrigated; prime farmland if drained; unique farmland; and farmland of statewide importance.

[b] Includes soils that are in the very poorly drained to somewhat poorly drained, drainage classes, with surface textures of sandy clay loam and finer.

[c] Based on the land capability class and subclasses 4E through 8E and soils with an average slope greater than or equal to 9 percent.

[d] Soils with a wind erodibility group (WEG) classification of 1 or 2.

[e] Revegetation potential is based on soils with a surface texture of sandy loam or coarser that are excessively drained to moderately well drained and have an average slope equal to 9 percent or greater.

[f] As designated by the USDA-NRCS, soils with a restrictive layer of dense material or lithic/paralithic bedrock with 60 inches of the soil surface.

APPENDIX F

Acreage of Construction and Operation Impacts on Vegetation

Appendix F
Acreage of Construction and Operation Impacts on Vegetation[a,b]

Facility	Agricultural				Herbaceous		Forested		Non-Forested Wetlands[c, d]		Totals	
	Pasture/Hay		Cultivated Crops									
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
PIPELINE FACILITIES												
REX Lateral to TPC Adams ROW (Includes MLV Site for Adams Lateral)	0.0	0.0	184.2	91.9	29.6	15.3	0.4	0.2	0.5	0.3	**214.7**	**107.6**
REX Lateral to TPC East ROW (Includes MLV Site for TPC East Lateral)	13.5	4.8	248.7	99.3	49.8	20.4	2.8	1.5	0.9	0.5	**315.6**	**126.4**
Subtotal	***13.5***	***4.8***	***432.9***	***191.1***	***79.4***	***35.6***	***3.2***	***1.7***	***1.3***	***0.8***	***530.3***	***234.1***
ABANDONMENT FACILITIES												
TPC West Isolation	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	**1.0**	**0.0**
Hereford Ranch Interconnect	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	**<0.1**	**0.0**
Redtail Lateral and Interconnect	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	**<0.1**	**0.0**
ECGS Interconnect	0.0	0.0	0.2	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	**0.2**	**0.0**
Logan Interconnect	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**
Compressor Station 601	0.0	0.0	0.2	0.0	0.7	0.0	0.0	0.0	0.0	0.0	**0.9**	**0.0**
Sedgwick Interconnect	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**<0.1**	**0.0**
Sedgwick East Interconnect	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**
Mid-American Ethanol Interconnect	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**	**0.0**
Oppliger Lincoln Interconnect	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**<0.1**	**0.0**

Appendix F (continued)
Acreage of Construction and Operation Impacts on Vegetation[a,b]

Facility	Agricultural				Herbaceous		Forested		Non-Forested Wetlands[c, d]		Totals	
	Pasture/Hay		Cultivated Crops									
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
Compressor Station 602	0.0	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	**0.9**	**0.0**
North Platte Livestock Feeder Interconnect	0.0	0.0	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	**<0.1**	**0.0**
Northwestern Kearney Interconnect	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**	**0.0**
Compressor Station 603	0.0	0.0	0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	**0.9**	**0.0**
Adams Interconnect	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**	**0.0**
Clay Interconnect - TPC	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.3**	**0.0**
TPC East Isolation	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**	**0.0**
Subtotal	***0.0***	***0.0***	***1.5***	***0.0***	***2.9***	***0.0***	***0.0***	***0.0***	***0.0***	***0.0***	***4.4***	***0.0***
ABOVEGROUND FACILITIES (BOOSTER, METERING, AND REGULATING)												
REX/TPC Lone Tree Interconnect	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	**0.6**	**0.6**
Hereford Ranch Compressor Station	0.0	0.0	0.0	0.0	3.1	1.6	0.0	0.0	0.0	0.0	**3.1**	**1.6**
Redtail Compressor Station	0.0	0.0	0.0	0.0	4.5	1.6	0.0	0.0	0.0	0.0	**4.5**	**1.6**
Logan Compressor and Regulating Station	0.0	0.0	3.2	1.9	<0.1	0.0	0.0	0.0	0.0	0.0	**3.3**	**1.9**
Sedgwick Compressor Station	0.0	0.0	1.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	**1.0**	**0.3**
Sedgwick East Compressor Station	0.0	0.0	1.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	**1.8**	**0.5**
Mid-American Ethanol Regulating Station	0.0	0.0	0.3	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	**0.3**	**0.0**

Appendix F (continued)
Acreage of Construction and Operation Impacts on Vegetation[a,b]

Facility	Agricultural				Herbaceous		Forested		Non-Forested Wetlands[c, d]		Totals	
	Pasture/Hay		Cultivated Crops									
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper
Oppliger Lincoln Regulating Station	0.0	0.0	0.6	0.1	0.1	<0.1	0.0	0.0	0.0	0.0	**0.7**	**0.1**
North Platte Livestock Feeder Regulating Station	0.0	0.0	<0.1	<0.1	0.2	<0.1	0.0	0.0	0.0	0.0	**0.3**	**0.1**
Adams Meter and Regulating Station	0.0	0.0	2.3	0.7	<0.1	0.0	0.0	0.0	0.0	0.0	**2.3**	**0.7**
REX to TPC East Meter and Regulating Station	0.0	0.0	3.9	1.9	0.1	0.1	0.0	0.0	0.0	0.0	**4.0**	**2.0**
Subtotal	***0.0***	***0.0***	***13.1***	***5.5***	***8.7***	***4.0***	***0.0***	***0.0***	***0.0***	***0.0***	***21.8***	***9.5***
ANCILLARY FACILITIES												
Adams Launcher Site	0.0	0.0	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	**1.3**	**0.3**
TPC East Launcher Site	0.0	0.0	0.0	0.0	2.0	0.6	0.0	0.0	0.0	0.0	**2.0**	**0.6**
Subtotal	***0.0***	***0.0***	***1.3***	***0.3***	***2.0***	***0.6***	***0.0***	***0.0***	***0.0***	***0.0***	***3.3***	***1.0***
ADDITONAL AREAS FOR PROJECT CONSTRUCTION												
ATWS	0.2	0.0	20.9	0.0	7.1	0.0	0.2	0.0	0.0	0.0	**28.4**	**0.0**
Access Roads	0.0	0.0	4.6	0.5	6.8	3.3	0.0	0.0	<0.1	0.0	**11.4**	**3.8**
Contractor Yards	0.0	0.0	14.7	0.0	0.3	0.0	0.0	0.0	0.0	0.0	**14.9**	**0.0**
Hydrostatic Test Water Storage Area	0.0	0.0	15.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**15.4**	**0.0**
Subtotal	***0.2***	***0.0***	***55.5***	***0.5***	***14.2***	***3.3***	***0.2***	***0.0***	***<0.1***	***0.0***	***70.2***	***0.1***
Project Total	**13.7**	**4.8**	**504.3**	**197.4**	**107.2**	**43.6**	**3.3**	**1.7**	**1.3**	**0.8**	**629.9**	**248.3**

Appendix F (continued)
Acreage of Construction and Operation Impacts on Vegetation[a,b]

Facility	Agricultural				Herbaceous		Forested		Non-Forested Wetlands[c, d]		Totals	
	Pasture/Hay		Cultivated Crops									
	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper	Const	Oper

Const = Construction; MLV = mainline valve; Oper = Operation; ROW = right of way

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Developed lands are not included in this table as vegetation impacts would not occur within these areas.

[c] Non-Forested wetlands include PEM wetlands.

[d] Acreages for wetlands impacted by the Project reflect wetlands crossed by the Project as in Table B-9.

APPENDIX G

Federally and State Listed Threatened and Endangered Species Potentially Occurring within the Project Area

APPENDIX G-1

Federally Listed Threatened and Endangered Species Potentially Occurring within the Project Area

Appendix G-1 Federally Listed Threatened and Endangered Species Potentially Occurring within the Project Areas				
Common Name (Scientific Name)	**Federal/ State Status**	**Potential Counties of Occurrence within the Project Area[a]**	**Habitat Description**	**Determination of Effect**
BIRDS				
Piping plover (*Charadrius melodus*)	T / T	Colorado: Adams, Clay, Logan, Sedgwick, Weld Nebraska: Kearney, Kimball, Lincoln, Perkins, Saline	Historically this species nested primarily on sparsely vegetated sandbars; however, today they are found along river sandbars, sand and gravel mine sandpits, lake shore housing, and reservoir shorelines (USFWS 2022e, NGPC 2022g). In Nebraska, they are present between mid-April and late-August, where they breed along the Missouri, Platte, Elkhorn, Loup, and Niobrara Rivers (NGPC 2022g).	*No effect.* No major rivers would be crossed and no sandbars or sandy shorelines have been identified along the minor or intermediate waterbodies crossed by the Project. Further, no surface water withdrawals would occur from Project construction or operation that would cause water depletions.
Whooping crane (*Grus americana*)	E / E	Colorado: Adams, Clay, Logan, Sedgwick, Weld Nebraska: Filmore, Franklin, Kearney, Kimball, Lincoln, Perkins, Webster	This species is generally found in shallow braided riverine habitats and wetlands for roosting. Additionally, the whooping crane uses agricultural fields, wet meadows, marsh habitats, and shallow rivers for feeding (USFWS 2022b, NGPC 2022e).	*Not likely to adversely affect.* Although suitable habitat would be affected, the Applicants would conduct daily pre-construction surveys during the spring and fall migration periods to ensure that no whooping cranes are present in or around Project workspaces. Further, no surface water withdrawals would occur from Project construction or operation that would cause water depletions.
Eastern black rail (*Laterallus jamaicensis spp.*)	T / T	Colorado: Weld	This species are found in shallow emergent wetland habitat dominated by cattails, hardstem bulrush and soft stemmed bullrush with willows in the overstory (USFWS 2022f)	*No effect.* No wetlands would be affected by Project activities in Colorado.

Appendix G-1 (continued)
Federally Listed Threatened and Endangered Species Potentially Occurring within the Project Areas

Common Name (Scientific Name)	Federal/ State Status	Potential Counties of Occurrence within the Project Area[a]	Habitat Description	Determination of Effect
MAMMALS				
Northern long-eared bat (*Myotis septentrionalis*)	T / T	Colorado: Adams, Clay, Weld Nebraska: Filmore, Franklin, Jefferson, Kearney, Saline, Webster	Summer roosting habitat includes large trees and snags with shingled bark, crevices, or cavities for roosting. Additionally, may roost in human structures, such as sheds or barns. Winter hibernation habitat includes caves and abandoned mines (USFWS 2022g).	*Not likely to adversely affect.* Minimal potentially suitable summer habitat would be cleared and clearing would occur during the hibernation period. No known hibernacula are present in the Project area.
Tricolored bat (*Perimyotis subflavus*)	PE[b]	Wherever found	This species roosts among live and dead leaf clusters of live or recently dead deciduous hardwood trees during spring, summer, and fall. In addition, they have been observed roosting during summer among pine needles, eastern red cedar, and within manmade structures including barns, bridges, and concrete culverts. This species generally hibernates in the north from November to April or May (USFWS 2022h,i)	*Not likely to adversely affect.* Minimal potentially suitable summer habitat would be cleared and clearing would occur during the hibernation period. No known hibernacula are present in the Project area.
Preble's meadow jumping mouse (*Zapus hudsonius preblei*)	T / E	Colorado: Weld	This species is found in well-developed riparian habitat with relatively undisturbed adjacent grassland communities and a nearby water source. Riparian vegetation generally includes a dense combination of grasses, forbs, and shrubs with a high vertical density. Typical shrub canopies include willow, snowberry, chokecherry, Gambel's oak, alder, and skunkbush (USFWS 2022j).	*No effect.* No riparian habitat would be affected by Project facilities in Colorado.
Black- footed ferret (*Musteal nigripes*)	E / E	Colorado: Weld	This species inhabits the intermountain prairies and grasslands, generally coinciding with prairie dog habitat (USFS 2022a, USFWS 2022k).	*No effect.* No suitable habitat would be affected by Project facilities in Colorado.

Appendix G-1 (continued)
Federally Listed Threatened and Endangered Species Potentially Occurring within the Project Areas

Common Name (Scientific Name)	Federal/ State Status	Potential Counties of Occurrence within the Project Area[a]	Habitat Description	Determination of Effect
FISH				
Pallid sturgeon (*Scaphirhynchus albus*)	E / T	Colorado: Adams, Logan, Sedgwick, Weld Nebraska: Kearney, Kimball, Lincoln, Perkins, Saline	This bottom-dwelling species prefers waterbodies with fluctuating flows and water levels with high turbidities consistent with conditions found along large braided channels, sand bars, islands, sand flats, and gravel bars. In Nebraska, this species is primarily found along main channel habitats of the Mississippi River as well as main channel areas containing islands or sandbars within the upper Missouri River system, including the Platte (USFWS 2022l, NGPC 2022h).	*No effect.* No large rivers would be crossed by the Project and no surface water withdrawals would occur from Project construction or operation that would cause water depletions.
INSECTS				
American burying beetle (*Nicrophorus americanus*)	T / E	Nebraska: Lincoln	This generalist occurs in a wide range of habitats including wet meadows, partially forested loess canyons, oak-hickory forests, shrub land and grasslands, lightly grazed pastureland, riparian zones, and coniferous and deciduous forests with an open understory (USFWS 2022m). Known occurrences are within 1 mile of the Project area (NGPC 2022f).	*No effect.* The NGPC indicated the potential for occurrence at the two new aboveground facilities proposed in Lincoln County, Nebraska. The Applicants surveyed the two locations and indicated that potential habitat was not present.

Appendix G-1 (continued)
Federally Listed Threatened and Endangered Species Potentially Occurring within the Project Areas

Common Name (Scientific Name)	Federal/ State Status	Potential Counties of Occurrence within the Project Area[a]	Habitat Description	Determination of Effect
Monarch butterfly (*Danaus plexippus*)	C	Colorado: Adams, Clay, Logan, Sedgwick, Weld Nebraska: Filmore, Franklin, Jefferson, Kearney, Kimball, Lincoln, Perkins, Saline, Webster	This species occurs throughout much of the United States, spending most of its time migrating between Canada, Mexico, and the United States. The monarch butterfly can often be found in open areas where there is milkweed and other flowering plants to feed on nectar (USFWS 2022n).	*Unlikely to result in a trend towards federal listing.* Although there are open areas within the Project area with nectar plants (including few milkweed plants), the majority of these areas are routinely disturbed for agricultural use and therefore would not provide suitable habitat for this species. The Applicants would revegetate affected areas in accordance with landowner agreements and would offer the use of pollinator-friendly seed mixes.
FLOWERING PLANTS				
Ute ladies'-tresses orchids (*Spiranthes diluvialis*)	T	Colorado: Weld	This species is usually found in moist environments including alkaline wetlands, moist meadows, floodplains, flooded river terraces, sub-irrigated or spring-fed abandoned stream channels and valleys, lakeshores, irrigation canals, berms, levees, or irrigated meadows (USFS 2022b).	*No effect.* No suitable habitat would be affected by Project facilities in Colorado.
Blowout penstemon (*Penstemon haydenii*)	E / T	Nebraska: Lincoln	This species is found only in north central Nebraska and the northeast Great Divide Basin in Wyoming in areas containing bare sand within the bowl or blowouts or in conjunction with blowout grass in depositional areas around a blowout. Additionally, this species is found at an elevation of approximately 2,800 feet (USFS 2022c).	*No effect.* Although the Project facilities in Lincoln County are at a suitable elevation, most workspaces in Lincoln County are in disturbed lands and the Applicant has indicated that no blowouts were identified during Project surveys.

Appendix G-1 (continued)
Federally Listed Threatened and Endangered Species Potentially Occurring within the Project Areas

Common Name (Scientific Name)	Federal/ State Status	Potential Counties of Occurrence within the Project Area[a]	Habitat Description	Determination of Effect
Western prairie fringed orchid (*Platanthera praeclara*)	T / T	Colorado: Adams, Clay, Logan, Sedgwick, Weld Nebraska: Kearney, Kimball, Lincoln, Perkins, Saline	This species occurs in moist tallgrass prairies and sedge meadows. It is well adapted to survive fires and light grazing does not appear to negatively affect this species (USFWS 2022o).	*No effect.* Project activities in the potential counties of occurrence would occur predominantly in agricultural lands and would not affect wetlands. Further, no surface water withdrawals would occur from Project construction or operation that would cause water depletions.

C = Candidate, E = Endangered, PE = Proposed Endangered, T = Threatened

[a] Determined through a county-level review of the USFWS' IPaC system for each affected county in Nebraska and Colorado.

[b] Based on the Applicants' commitment to restrict tree clearing until after November 1, some construction activities would occur after the final rule to list the tricolored bat becomes effective (anticipated to be no later than October 2023), when any mortality of tricolored bats during the clearing of trees would constitute a take under the ESA; therefore, we have included a determination of effect applicable to a listed, rather than proposed, species.

APPENDIX G-2

State-Listed Threatened and Endangered Species Potentially Occurring within the Project Area

Appendix G-2 State-Listed Threatened and Endangered Species Potentially Occurring within the Project Area			
Common Name (Scientific Name)	**State Status**	**Habitat Description**	**Determination of Effect**
BIRDS			
Mountain Plover (*Charadrius montanus*)	T(NE); SC(CO)	This species prefers flat, dry, open areas which may include agricultural areas and shortgrass prairies and predominantly occurs away from shorelines. Nests in native short and mixed grass prairie, semi-desert sites, prairie dog colonies, and agricultural land (NGPC 2022i). The species occurs in Nebraska between about March 15 and mid-August.	*No significant impact.* Although documented near Project facilities in Kimball County, Nebraska, the Applicants would conduct pre-construction clearance surveys if construction were to occur in suitable habitat in Kimball County between April 10 and July 10.
Thick-billed longspur (*Rhynchophanes mccownii*)	T (NE)	This species breeds in the Great Plains through Montana, Wyoming and into Colorado. Ideal nesting habitat consists of blue gama and buffalo grass containing scattered purple three-awn, western wheatgrass, needle and threadgrass, and taller vegetation including prairie sagebrush and rabbitbrush. Occasionally, overgrazed pastures provide suitable habitat which mimic shortgrass prairie. (Cornell 2022b). The species occurs in Nebraska between about March 15 and mid-August.	*No significant impact.* Although documented near Project facilities in Kimball County, Nebraska, the Applicants would conduct pre-construction clearance surveys if construction were to occur in suitable habitat in Kimball County between May 1 and July 15.
Burrowing owl (*Athene cunicularia*)	T (CO)	This species live in open, treeless areas with low, sparse vegetation, generally on gently sloping terrain. They are often found in grasslands, desert, and steppe environments but also may be found in human influenced areas including golf courses, pastures, agricultural fields, and road embankments (Cornell 2022a).	*No significant impact.* No prairie dog towns are present within workspaces and no burrows were observed during field surveys.
MAMMALS			
Swift fox (*Vulpes velox*)	T (NE); SC (CO)	This species require open shortgrass prairies containing few trees and shrubs. They often use prairie dog and badgers dens to raise their young and rarely dig their own dens. This species relies on grasses left through grazing, haying, or fire to allow for detection of predators (NGPC 2022j). The natal denning period is from April through August.	*No significant impact.* Although documented near Project facilities in Kimball County, Nebraska, the Applicants would conduct pre-construction clearance surveys if construction were to occur in Kimball County from April through August.

Appendix G-2 (continued)
State-Listed Threatened and Endangered Species Potentially Occurring within the Project Area

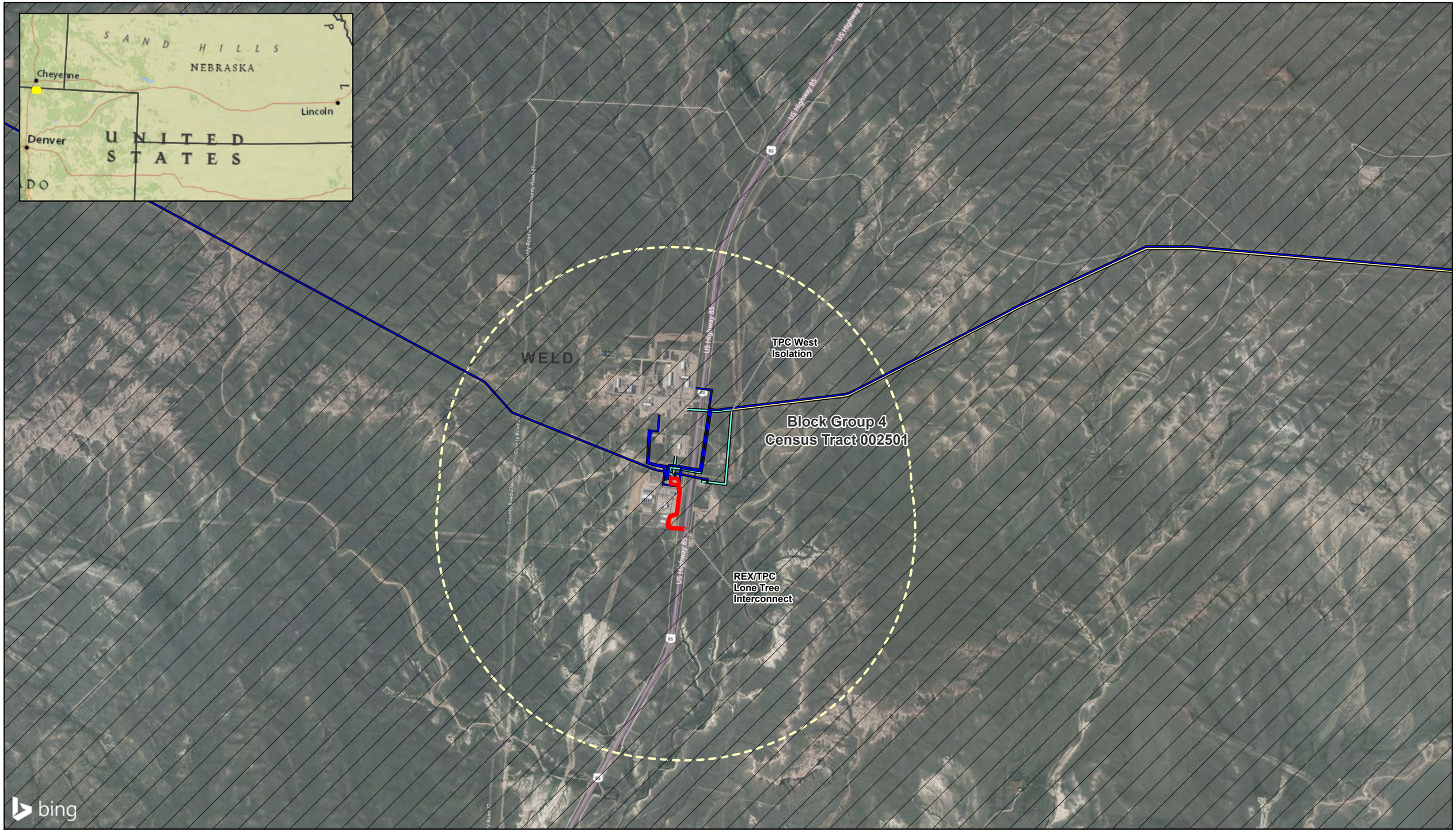
Common Name (Scientific Name)	State Status	Habitat Description	Determination of Effect
Reptiles			
Timber rattlesnake (*Crotalus horridus*)	T (NE)	This species occur within deciduous and riparian woodlands often in conjunction with rock outcrops or talus slopes providing winter denning. Woodland habitat is often associated with upland prairie; additionally, grasslands and agricultural fields provide migratory corridors for this species between forest habitat (NGPC 2022k).	*No significant impact.* Although documented near Project facilities in Jefferson County, Nebraska, the Applicants would clear grasslands in the county prior to the active period and would conduct visual surveys for snakes during the active period, further implementing avoidance protocols if observed.
Western massasauga (*Sistrurus catenatus*)	T (NE)	This species is found in grassland habitats such as tallgrass prairie and grassy fields; although, they generally favor moist areas including marshland, wet prairies, and floodplains. (NGPC 2022l).	*No significant impact.* Although documented near Project facilities in Jefferson County, Nebraska, the Applicants would clear grasslands in the county prior to the active period and would conduct visual surveys for snakes during the active period, further implementing avoidance protocols if observed.

CO = Colorado, NE = Nebraska, SC = Species of Concern, T = Threatened

Note: Although the federally listed threatened rufa red knot was also identified during state consultation, the USFWS did not identify the rufa red knot as being potentially present in the Project areas during early Project coordination with the Applicants, nor did the species appear in IPaC for the counties affected by Project activities in Nebraska and Colorado. Therefore, this species is not discussed further.

APPENDIX H

Environmental Justice Maps



0 2,000 4,000 Feet

1:24,000

Legend

- Abandonment Activity (Temporary)
- Facility Site
- Rockies Express Pipeline
- Trailblazer Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

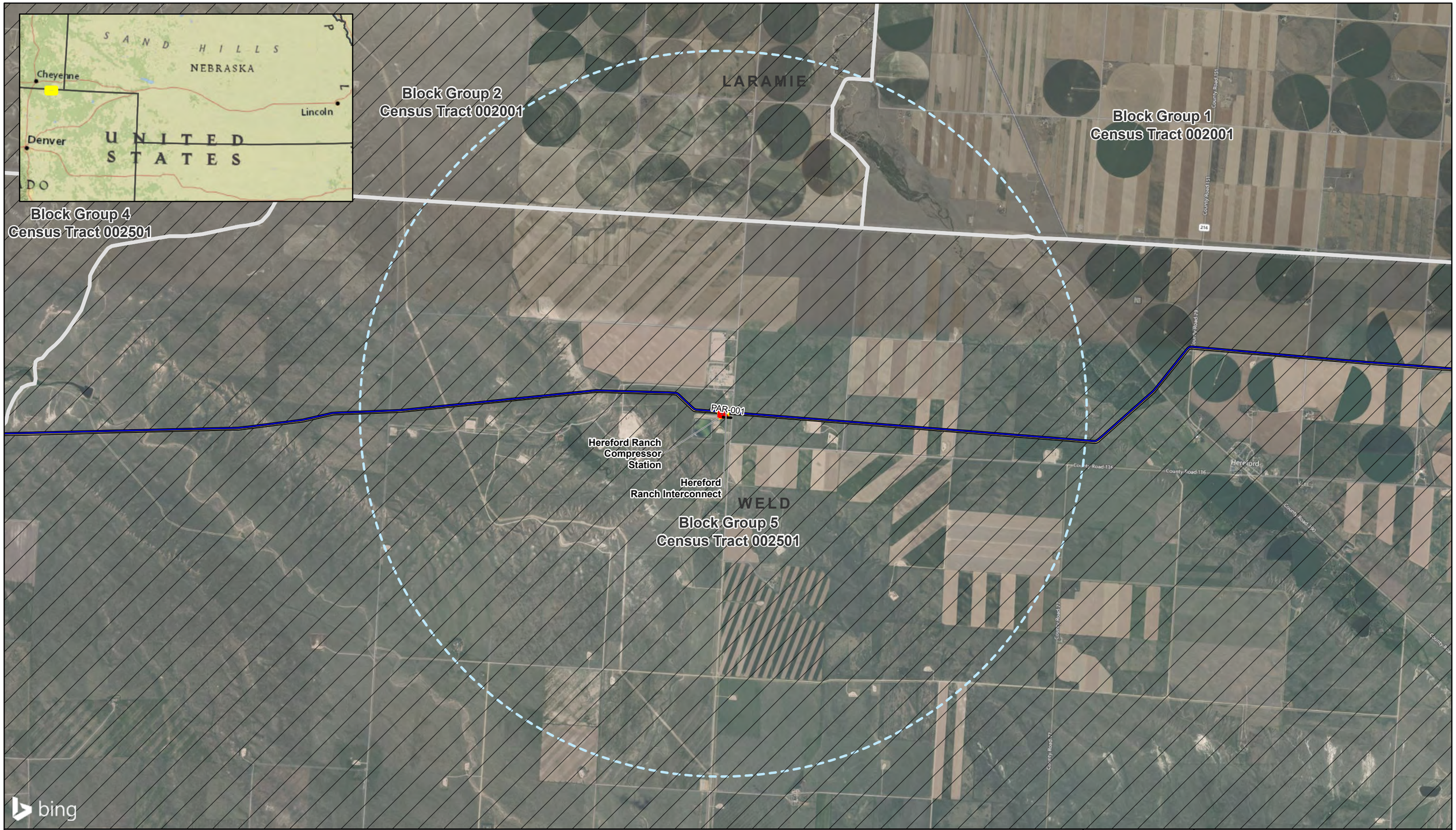
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-1



0 4,000 8,000 Feet

1:48,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- Facilities 5-kilometer Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-2

KIMBALL

Block Group 1
Census Tract 954500

Redtail
Lateral and
Interconnect

PAR-001

Redtail
Compressor
Station

Block Group 5
Census Tract 002501

WELD

Block Group 2
Census Tract 002501

bing

0 4,000 8,000 Feet

1:48,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- Facilities 5-kilometer Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

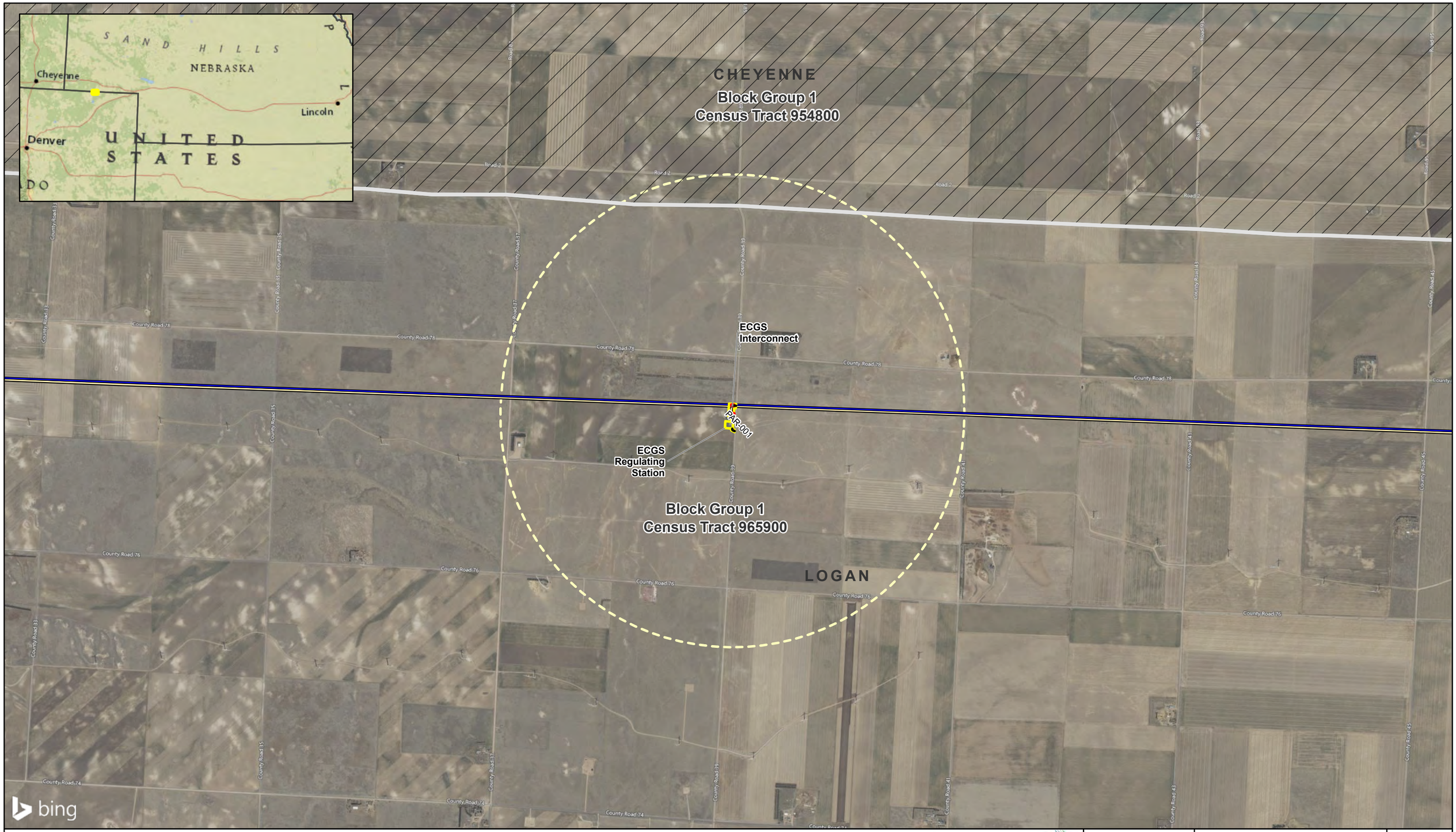
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-3



0 2,000 4,000 Feet

1:24,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

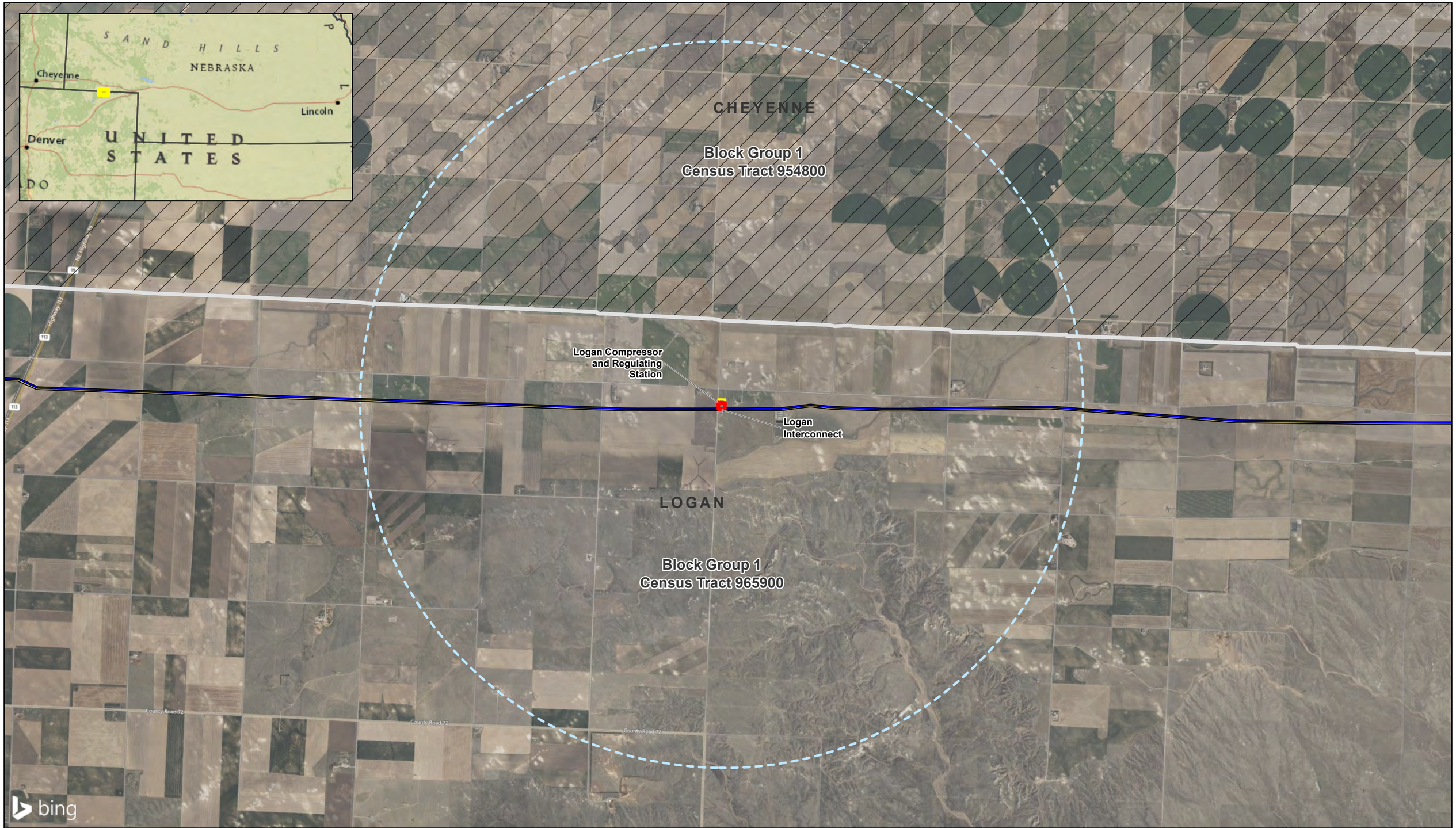
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-4



0 4,000 8,000 Feet

1:48,000

Legend

- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- Facilities 5-kilometer Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

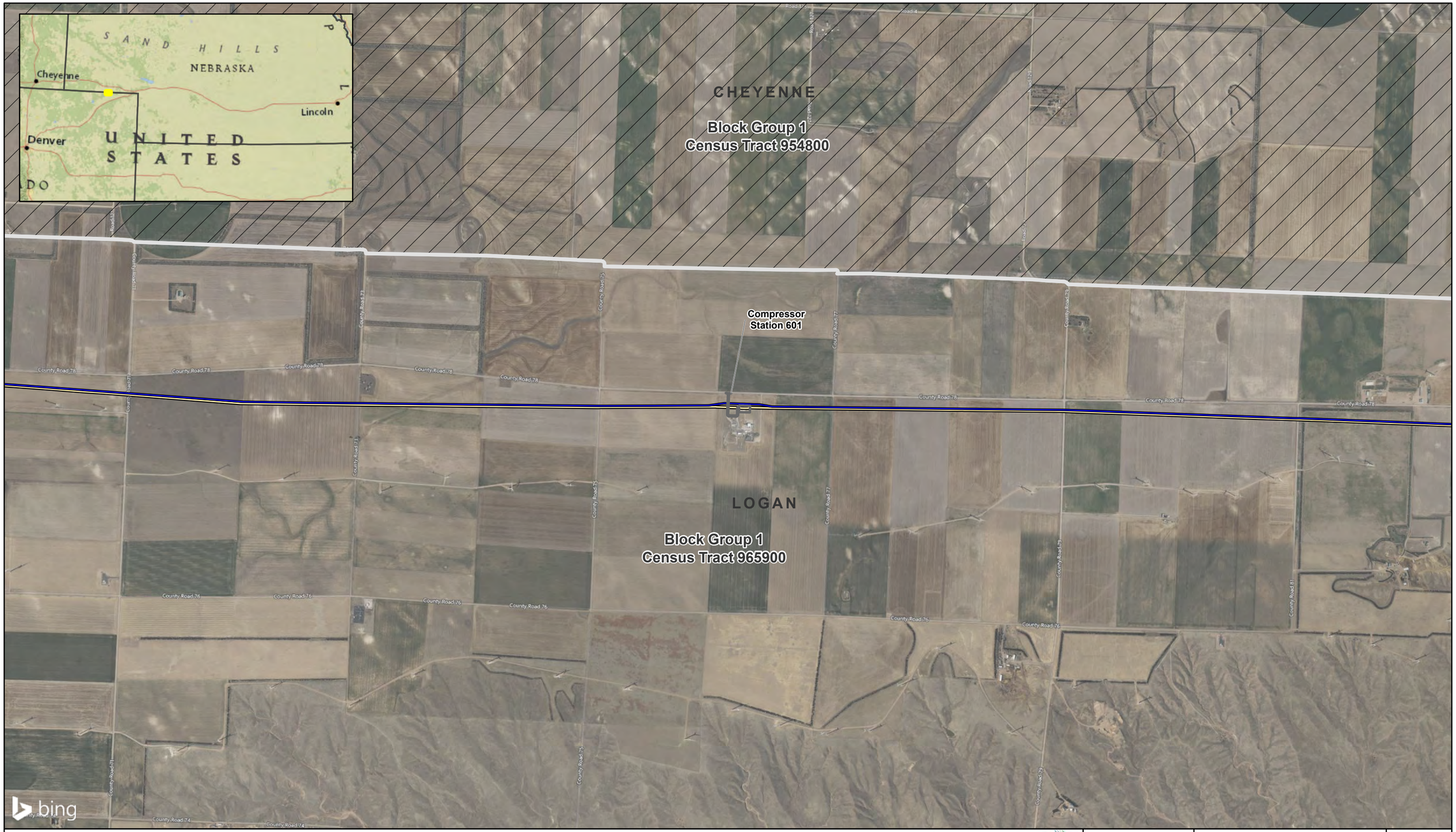
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-5



0 2,000 4,000 Feet

1:24,000

Legend

- Abandonment Activity (Temporary)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

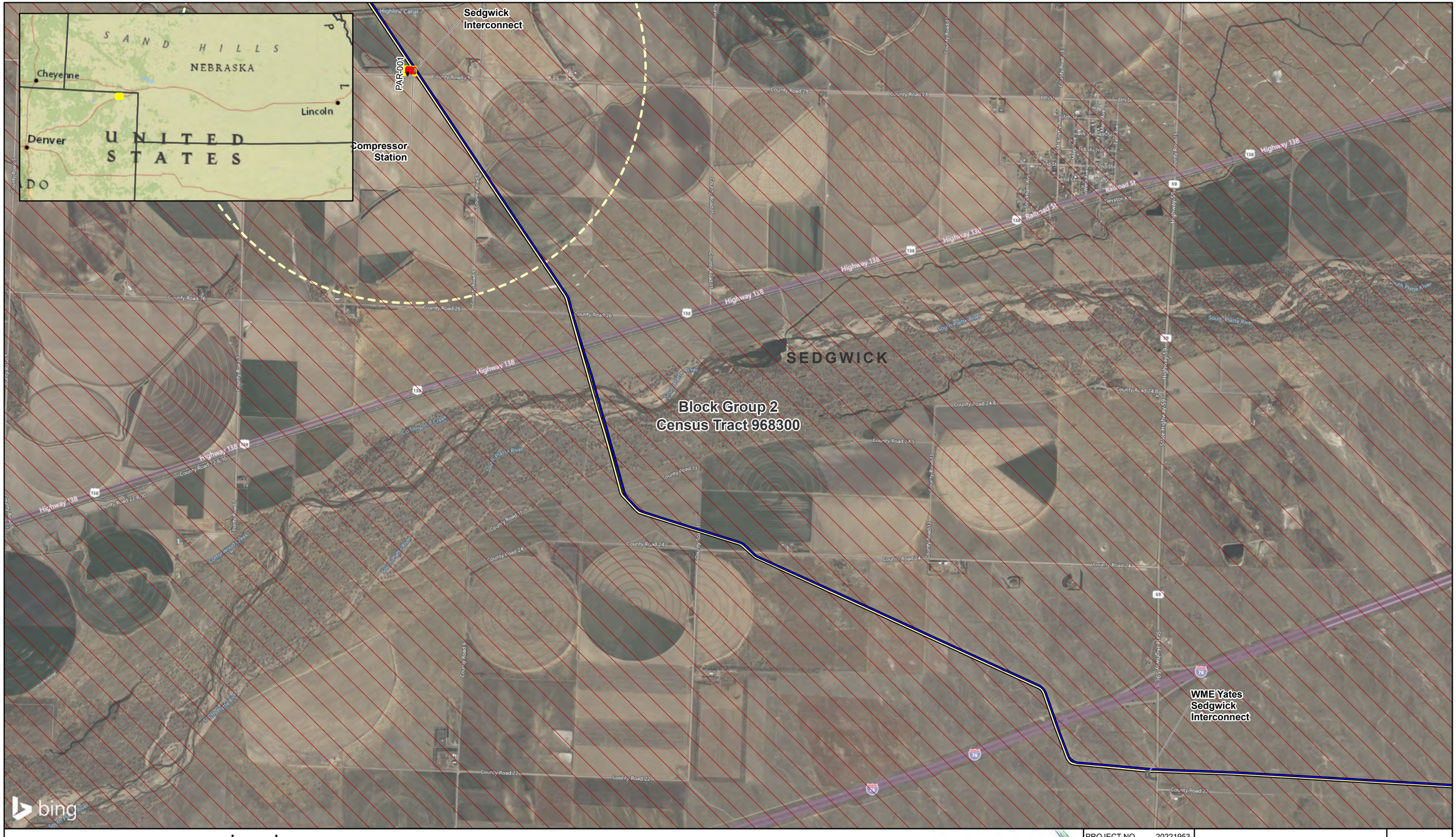
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-6



0 2,000 4,000 Feet

1:24,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Minority Environmental Justice Communities
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

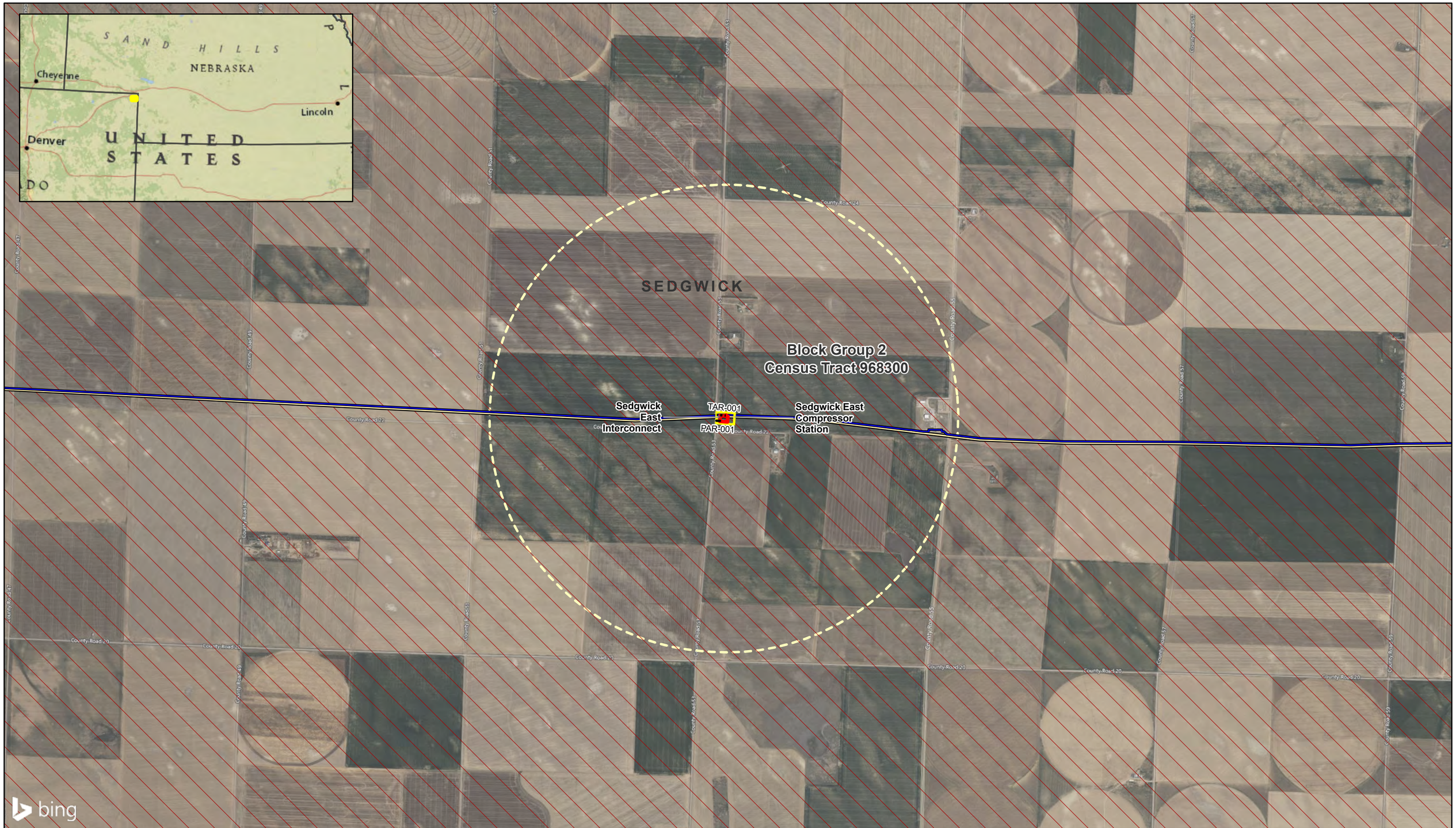
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-7



0 2,000 4,000 Feet

1:24,000

Legend

- Permanent Access Road
- Temporary Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Minority Environmental Justice Communities
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-8

0 2,000 4,000 Feet

1:24,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

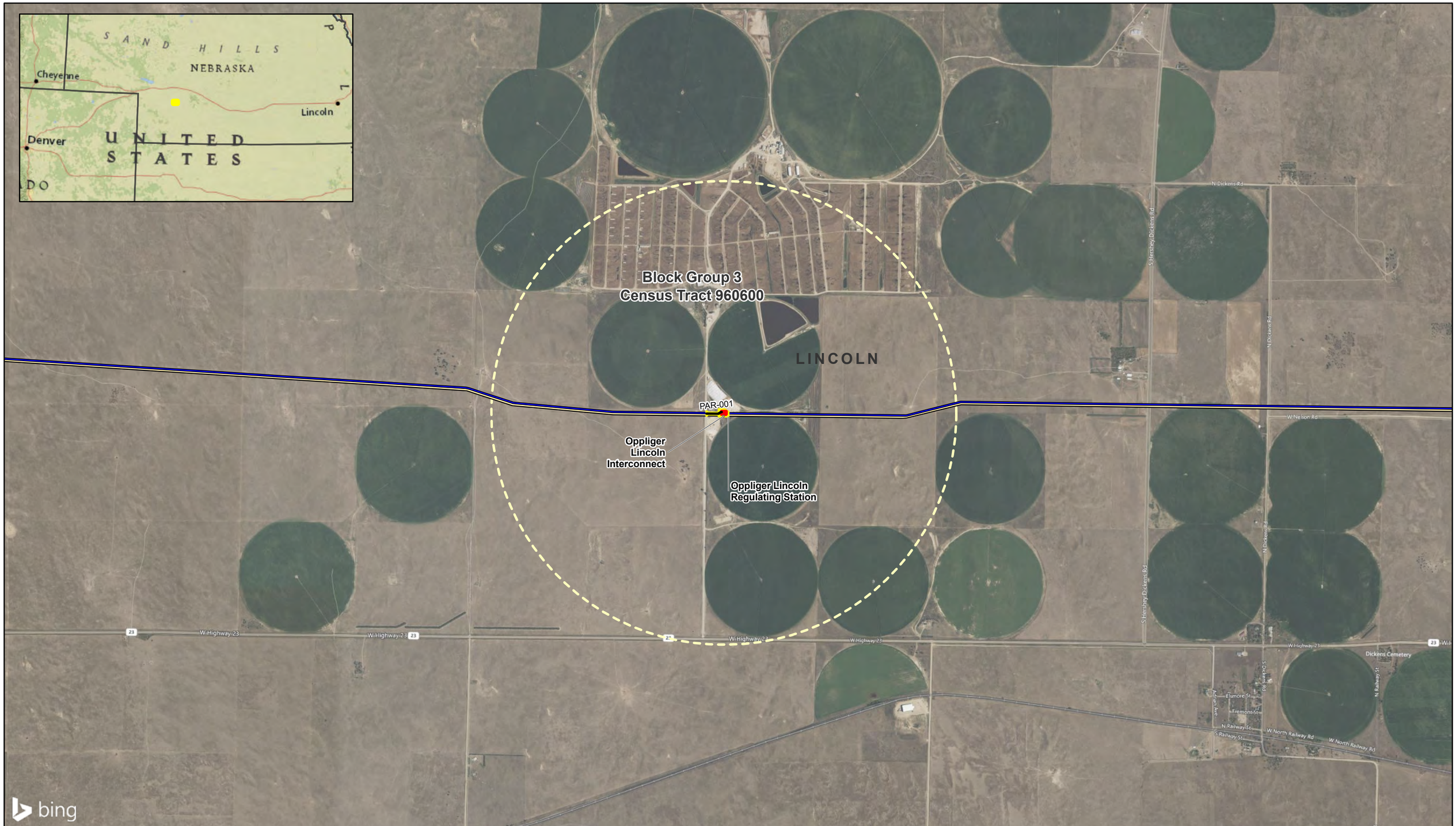
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-9



0 2,000 4,000 Feet

1:24,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

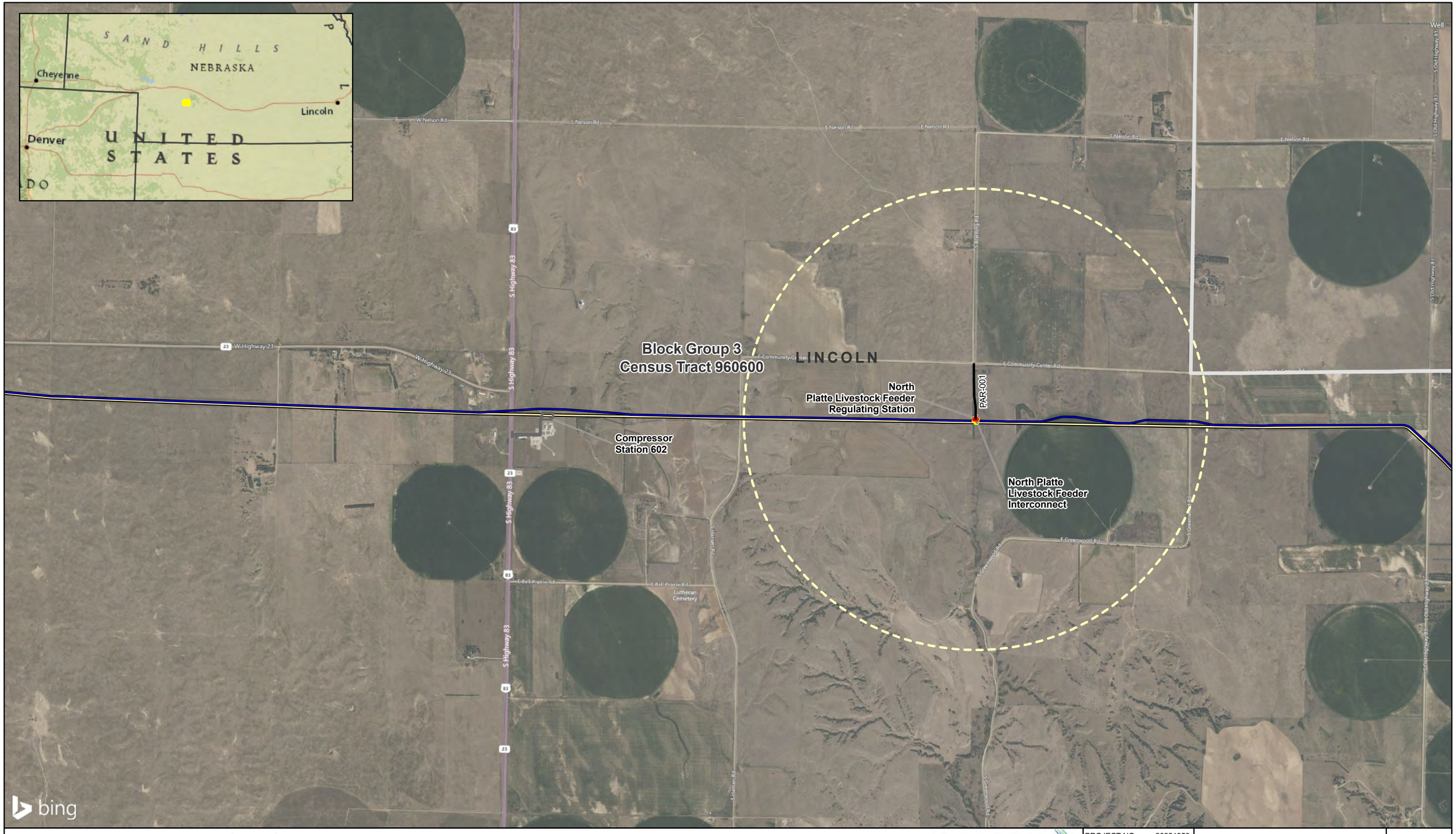
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-10



0 2,000 4,000 Feet

1:24,000

Legend

- Permanent Access Road
- Abandonment Activity (Temporary)
- Facility Site
- Facility Workspace (FWS)
- Rockies Express Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-11

0 100 200 Feet

1:1,200

Legend

- Abandonment Activity (Temporary)
- Temporary Access Road
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	3/8/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-12

0 2,000 4,000 Feet

1:24,000

Legend

- Abandonment Activity (Temporary)
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

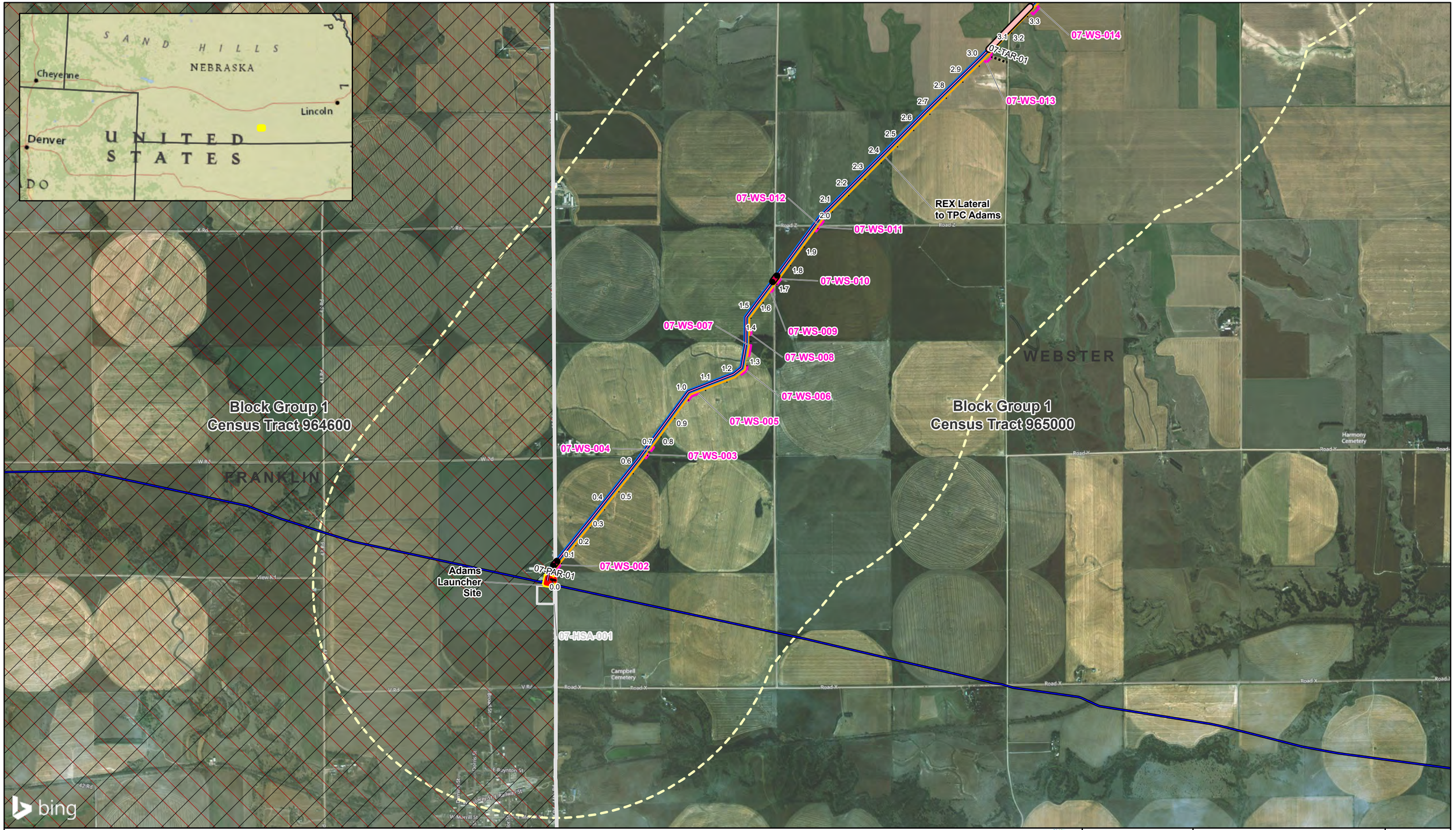
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-13



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- HDD
- Permanent Access Road
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Facility Site
- Facility Workspace (FWS)
- Hydrostatic Test Area
- Permanent ROW
- Temporary ROW
- Rockies Express Pipeline
- Census Block Group
- Low-Income Environmental Justice Communities
- Minority Environmental Justice Communities
- Facilities 1-mile Buffer

TALLGRASS ENERGY

Rockies Express Pipeline LLC

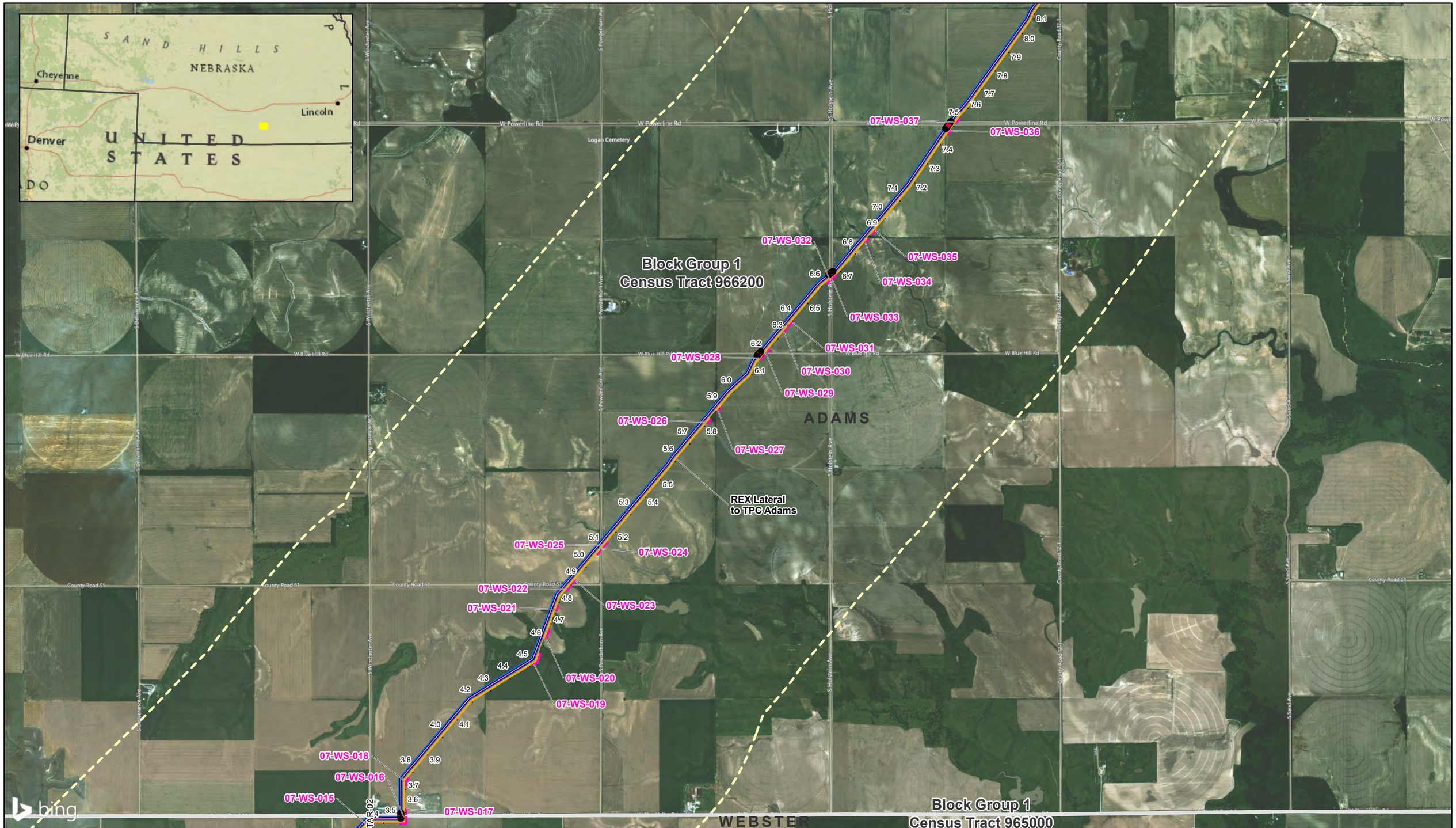
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-14



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

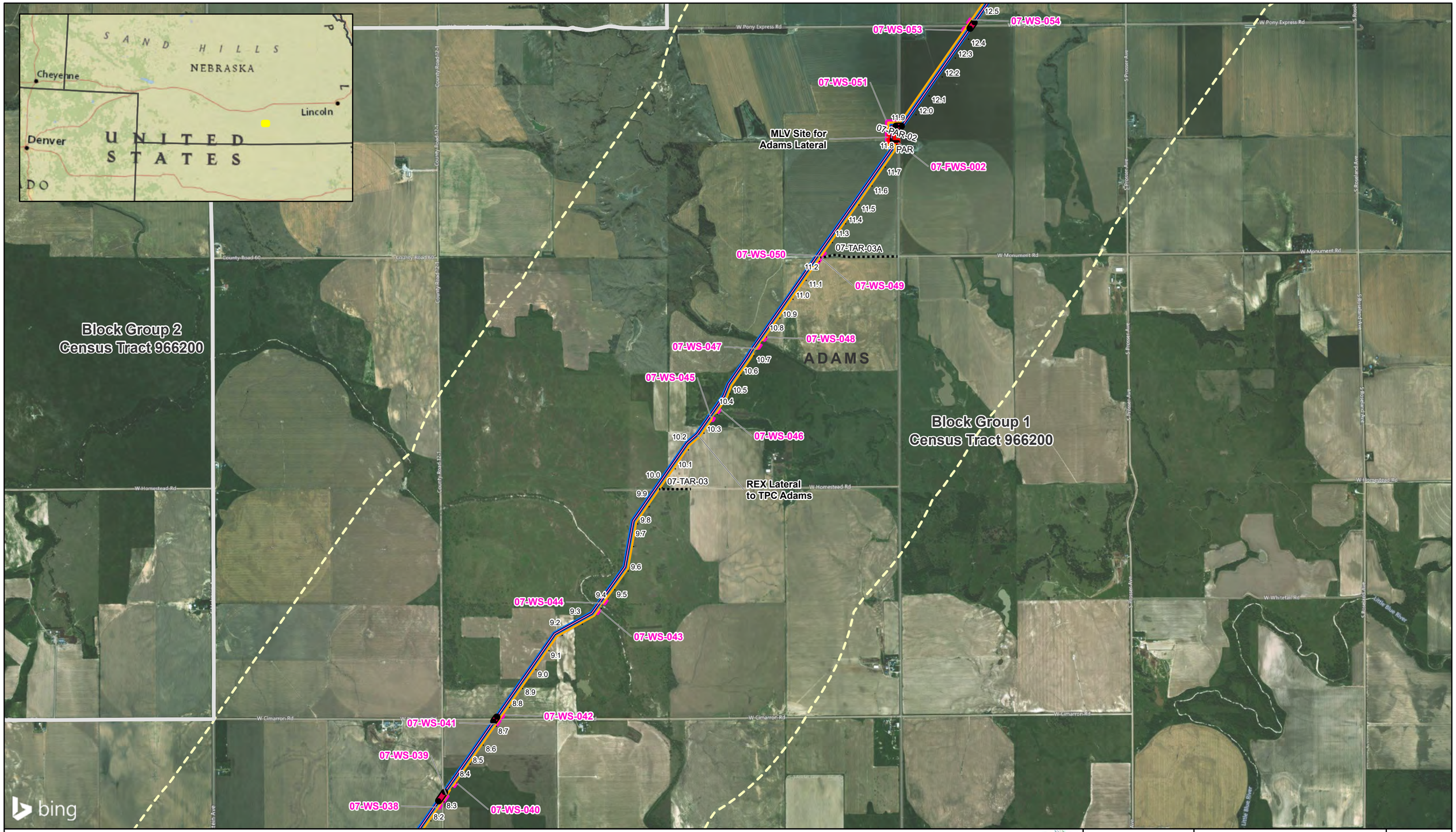
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-15



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Permanent Access Road
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Facility Site
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-16

Block Group 2
Census Tract 966200

Block Group 1
Census Tract 966200

ADAMS

07-WS-076
07-WS-075
07-WS-074
07-WS-073
07-WS-072
07-WS-071
07-WS-069
07-WS-070
07-TAR-03D
07-WS-068
07-WS-066
07-WS-065
07-WS-064
07-WS-063
07-TAR-03C
07-TAR-03B
07-WS-062
07-WS-059
07-WS-060
07-WS-058
07-WS-057
07-WS-056

REX Lateral to TPC Adams

Contractor Yard #1

W Saddlehorn Rd
W Sundown Rd
Patton St
S Roseland Ave
S Prosser Ave
County Road 11-5W
County Road 11-6W
S Conestoga Ave
S Garfield Ave
S Lincoln Ave
W Alexander St
W Davis St
W Clark St
Evans St
W Church St
Roseland Cemetery

bing

0 2,000 4,000 Feet

1:24,000

Legend

- School Location
- Bore Entry/Exit
- Bore
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Contractor Yard
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

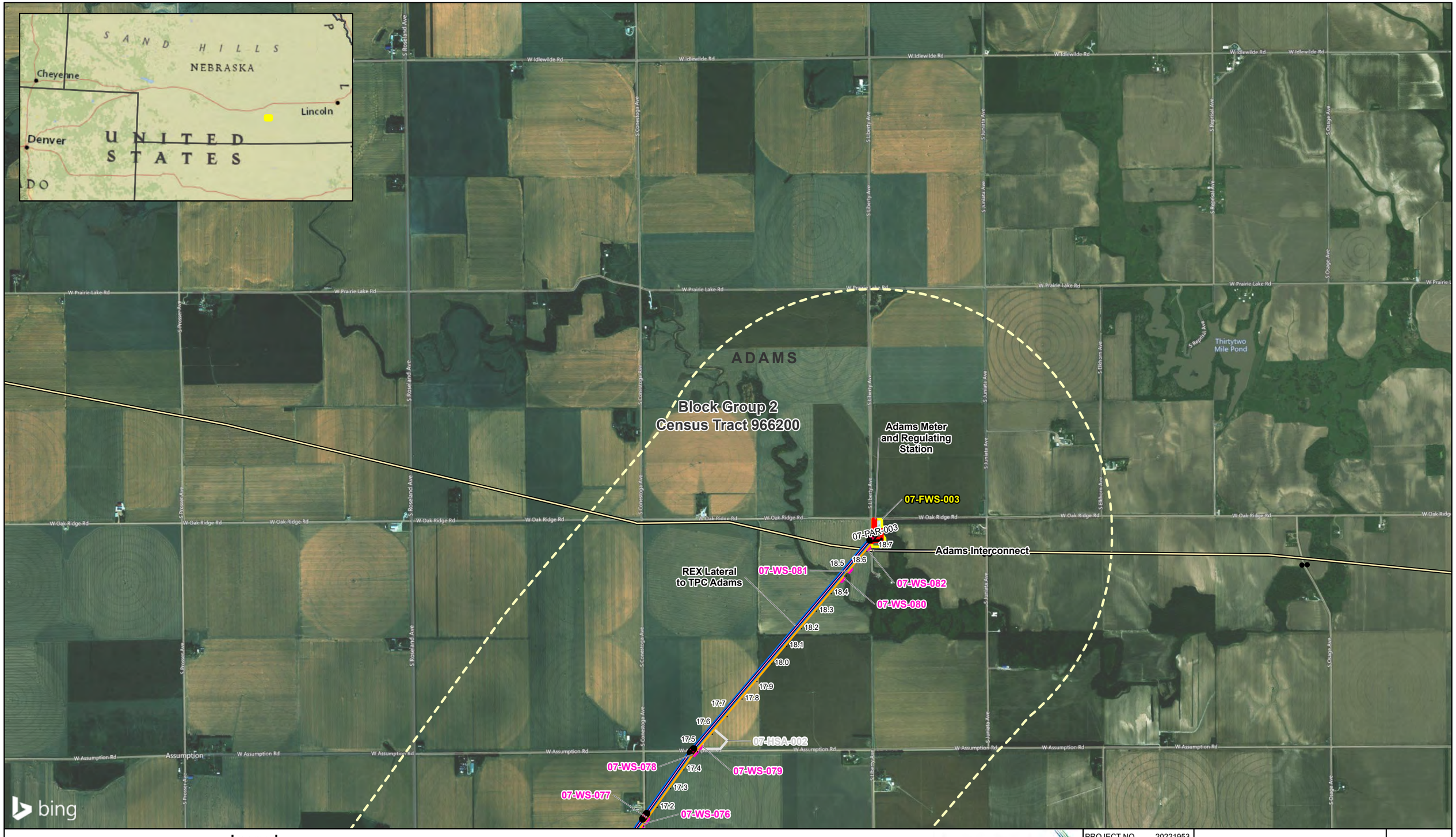
Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE
H-17



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Permanent Access Road
- Proposed Lateral
- Abandonment Activity (Temporary)
- Additional Temporary Workspace
- Facility Site
- Facility Workspace (FWS)
- Hydrostatic Test Area
- Permanent ROW
- Temporary ROW
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

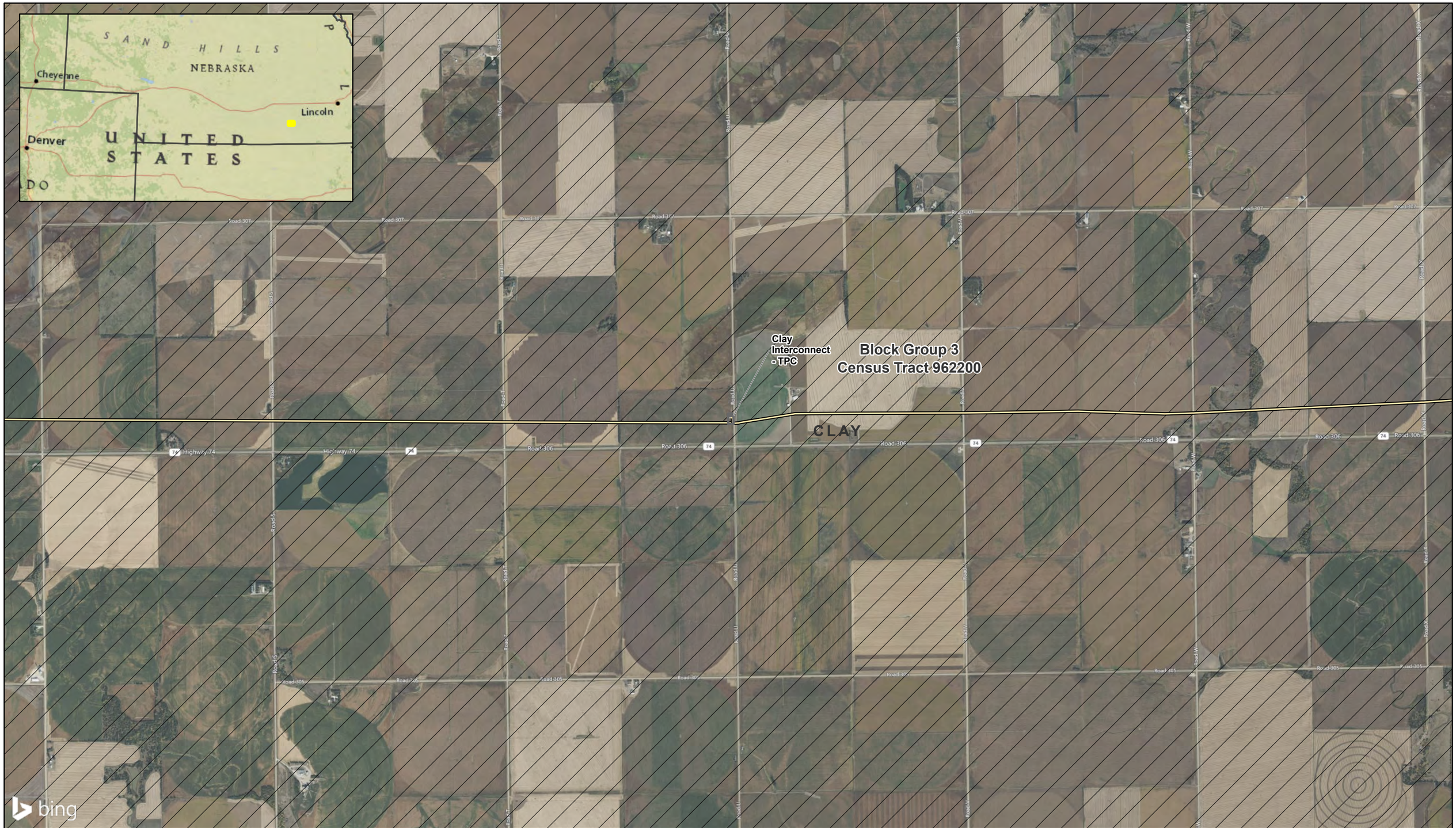
Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE
H-18



0 2,000 4,000 Feet

1:24,000

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N

Legend

- Abandonment Activity (Temporary)
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

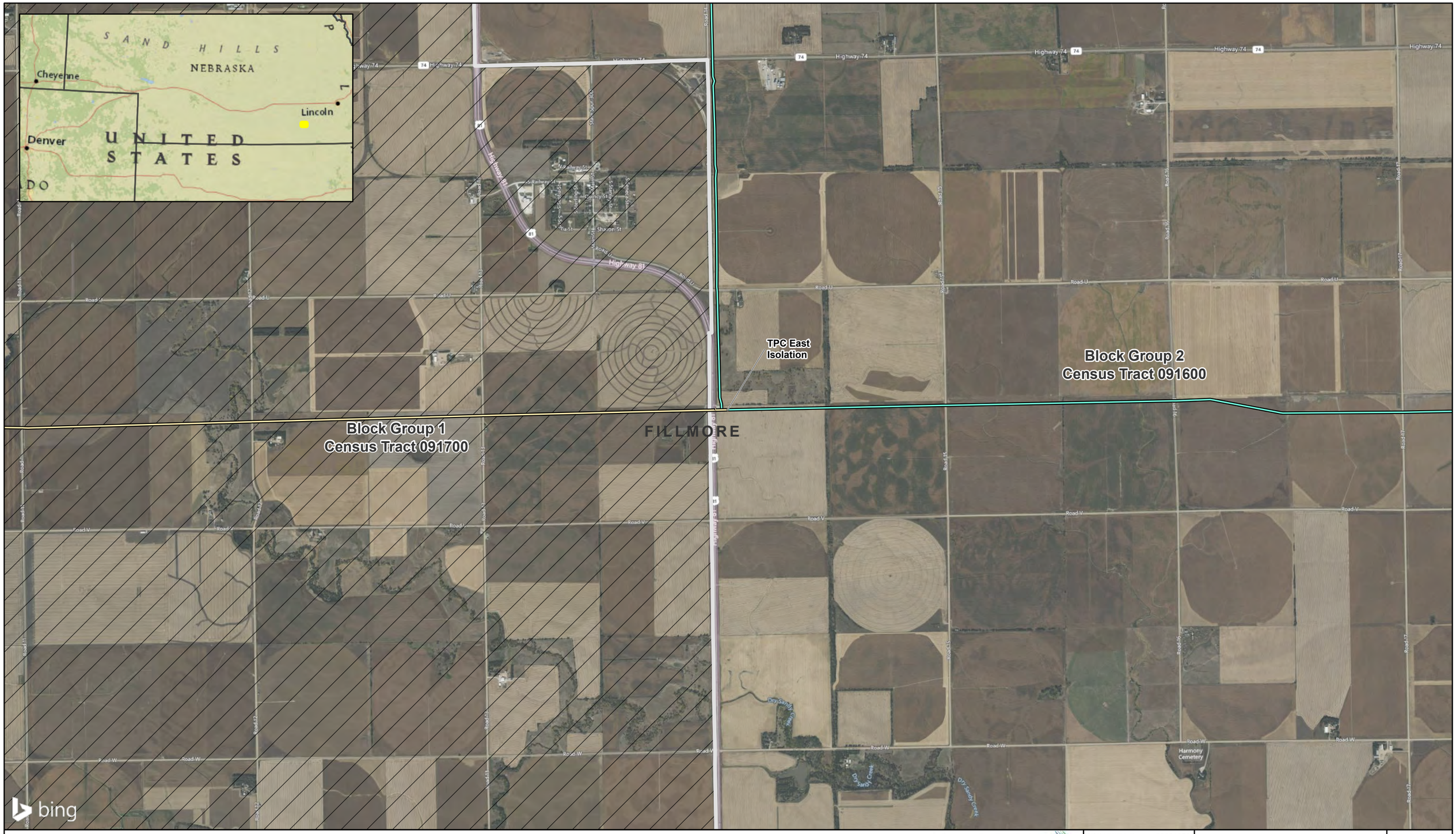
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-19



0 2,000 4,000 Feet

1:24,000

Legend

- Abandonment Activity (Temporary)
- Trailblazer Pipeline
- Trailblazer Pipeline to be Abandoned
- Census Block Group
- Low-Income Environmental Justice Communities
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

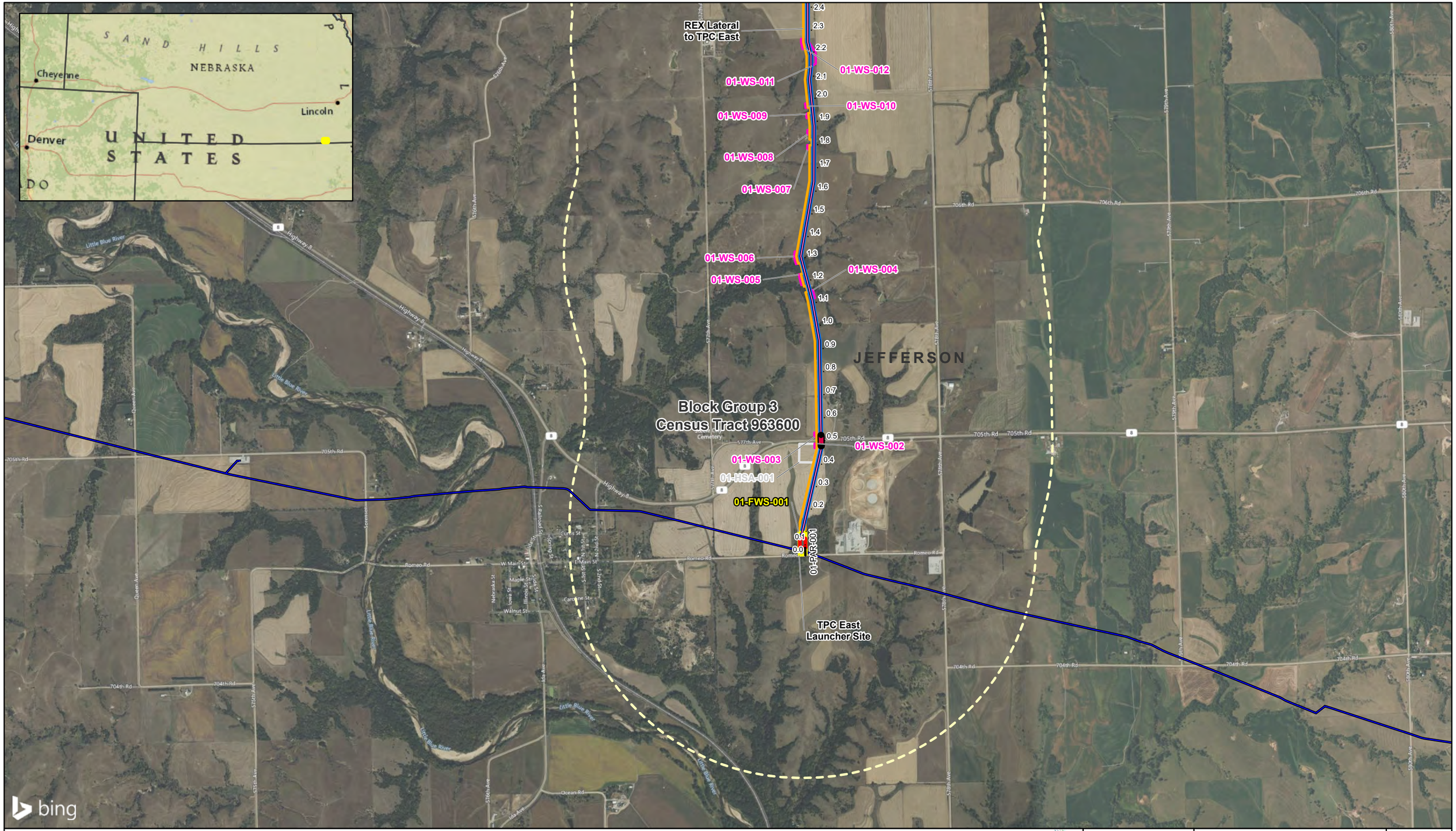
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-20



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Permanent Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Facility Site
- Facility Workspace (FWS)
- Hydrostatic Test Area
- Permanent ROW
- Temporary ROW
- Rockies Express Pipeline
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-21

0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Proposed Lateral
- Additional Temporary Workspace
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

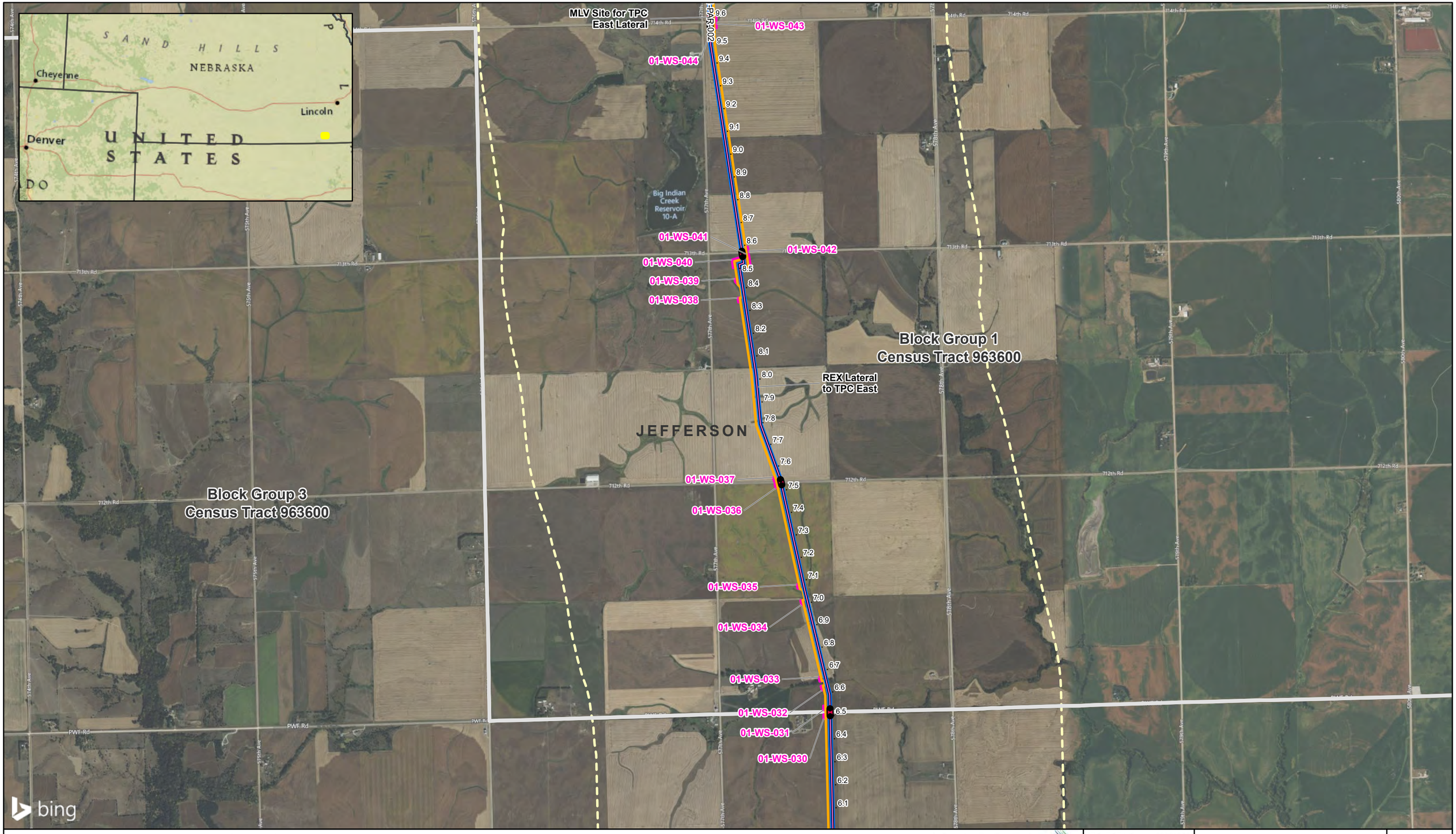
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-22



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Permanent Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Facility Site
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

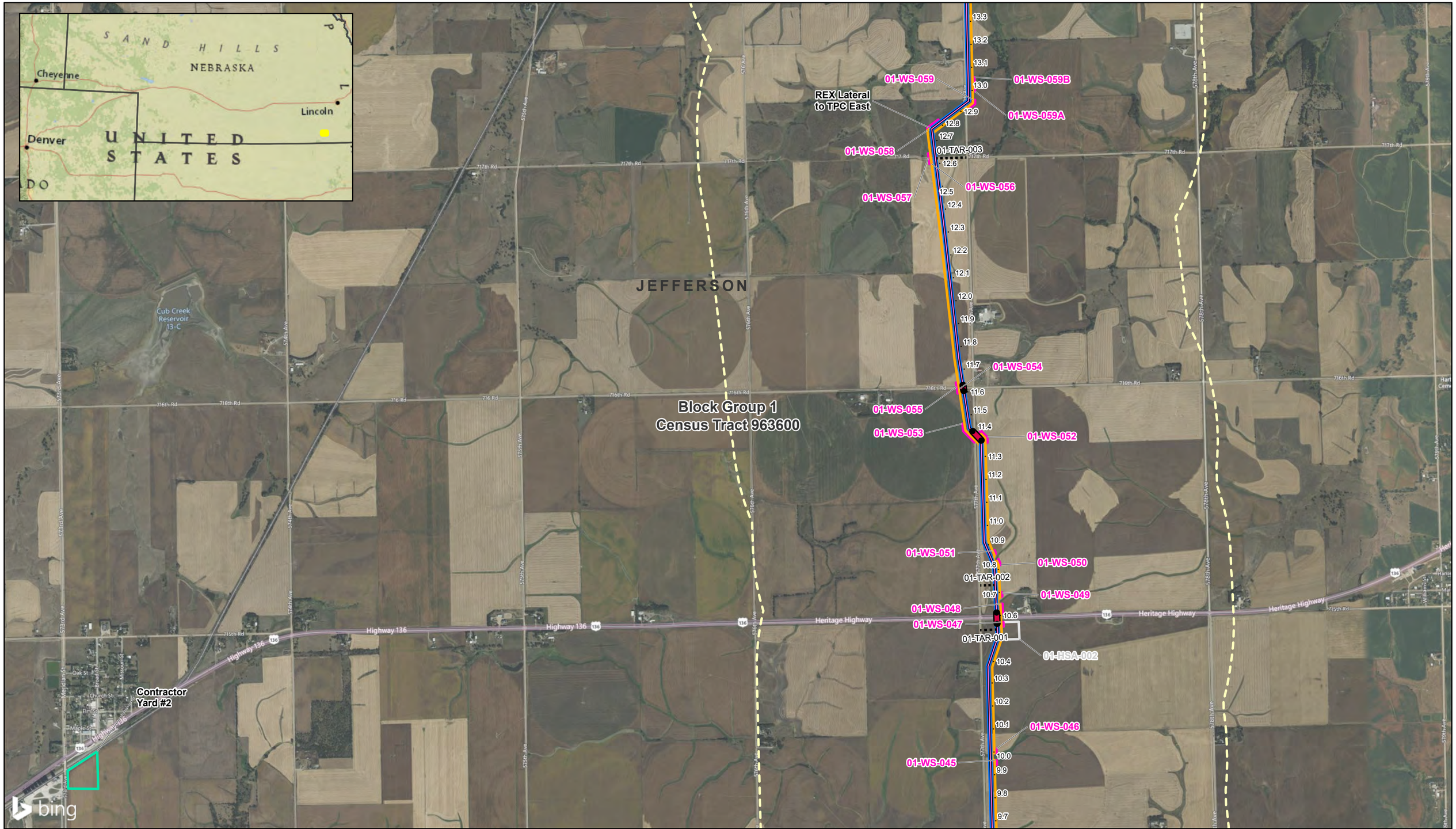
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-23



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Contractor Yard
- Hydrostatic Test Area
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

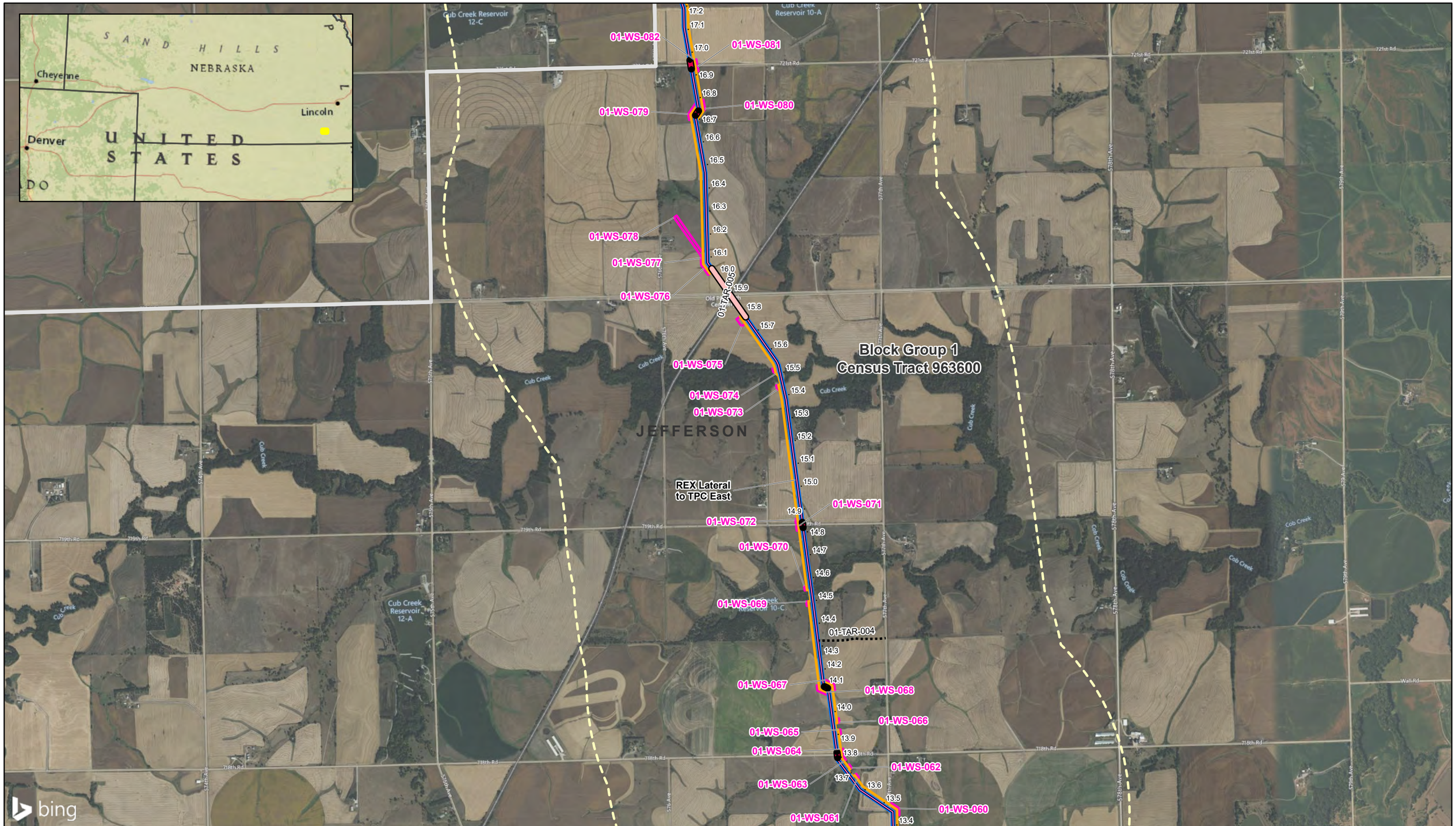
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-24



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- HDD
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

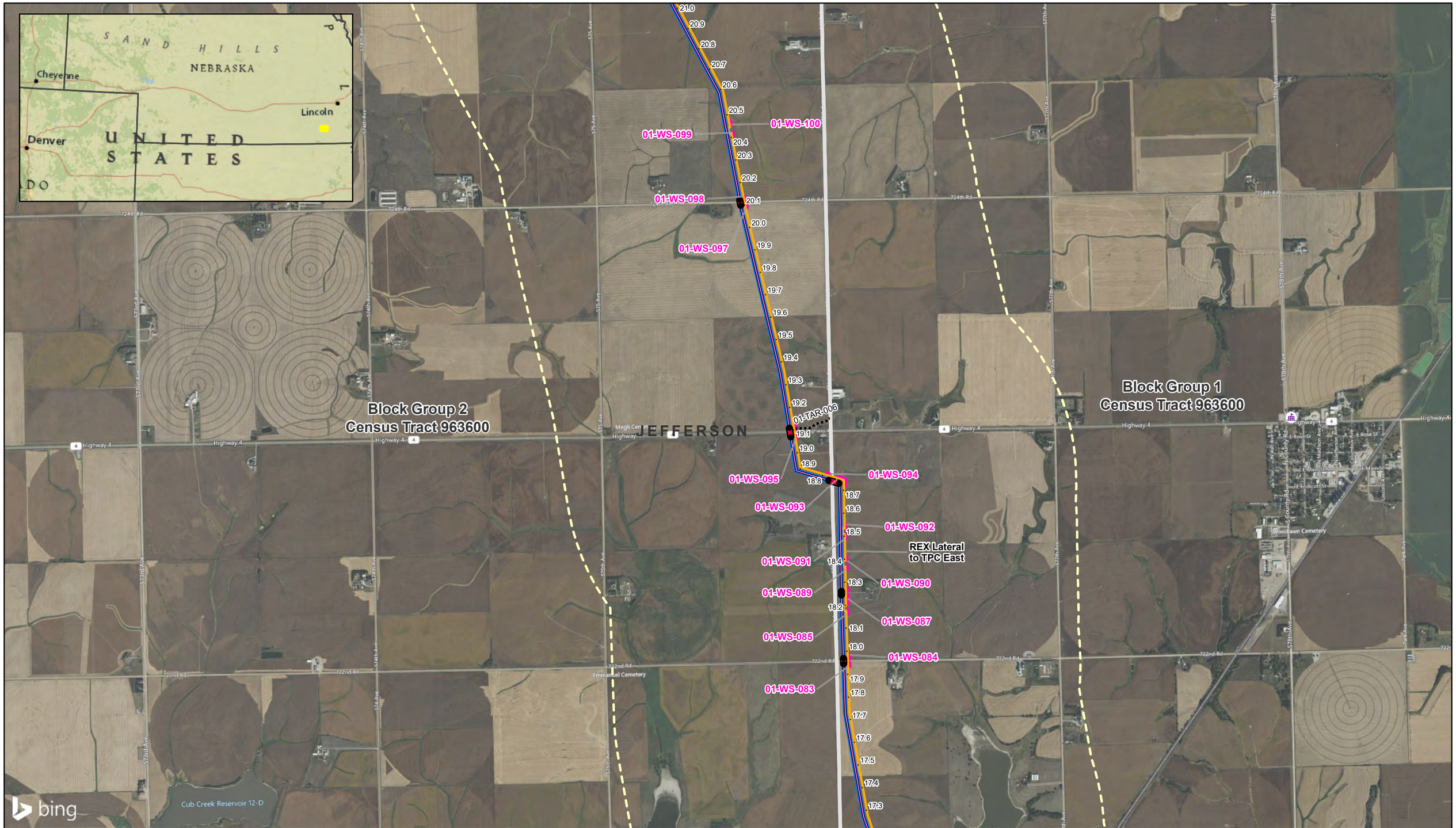
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-25



0 2,000 4,000 Feet

1:24,000

Legend

- School Location
- Bore Entry/Exit
- Bore
- Temporary Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Permanent ROW
- Temporary ROW
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

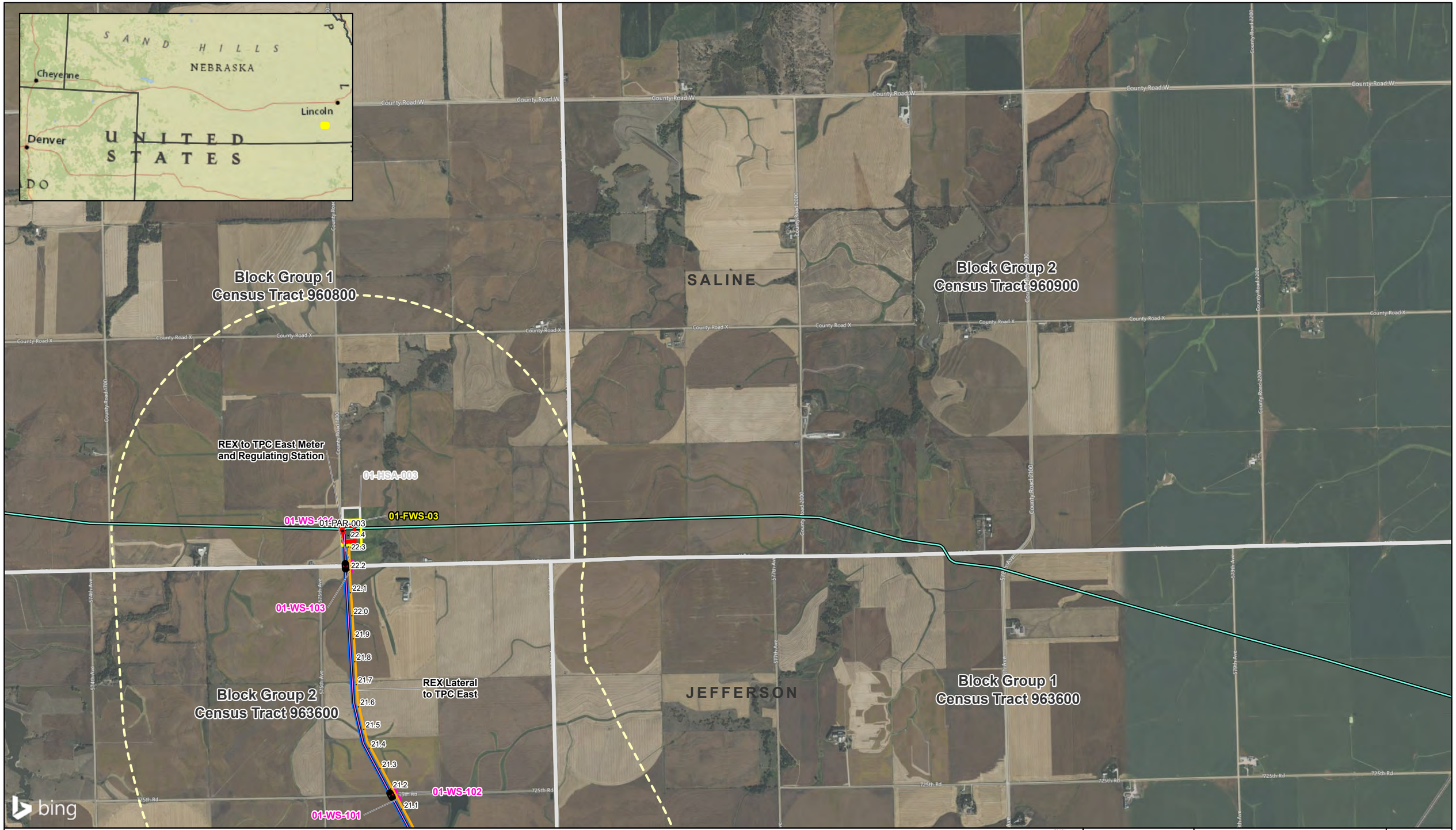
PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE

H-26



0 2,000 4,000 Feet

1:24,000

Legend

- Bore Entry/Exit
- Bore
- Permanent Access Road
- Proposed Lateral
- Additional Temporary Workspace
- Facility Site
- Facility Workspace (FWS)
- Hydrostatic Test Area
- Permanent ROW
- Temporary ROW
- Trailblazer Pipeline
- Census Block Group
- Facilities 1-mile Buffer
- County Boundary

TALLGRASS ENERGY

Rockies Express Pipeline LLC

PROJECT NO.	20221953
DRAWN:	1/30/2023
DRAWN BY:	AL
CHECKED BY:	AD, NE
FILE NAME:	CensusBlock

Census Block Map

Trailblazer Conversion Project
Trailblazer Pipeline Company, LLC
and Rockies Express Pipeline, LLC
Colorado and Nebraska

FIGURE
H-27

APPENDIX I

Construction Emissions

Appendix I Construction Emissions (tons per 7-month construction duration)[a]								
Activity	**NO_x**	**SO_2**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**Total HAP[b]**	**CO_2e**
PIPELINE FACILITIES								
REX Lateral to TPC Adams – Franklin, Webster, and Adams Counties, NE								
On-road equipment and commuter transit	0.1	<0.1	0.3	<0.1	<0.1	<0.1	<0.1	54.6
Off-road equipment	7.8	<0.1	20.8	0.6	0.6	1.1	0.3	2,965.6
Fugitive dust[c]	0.0	0.0	0.0	44.1	4.4	0.0	0.0	0.0
Venting	0.0	0.0	0.0	0.0	0.0	0.5	0.0	349.1
REX Lateral to TPC Adams (REX) Total	*7.9*	*<0.1*	*21.1*	*44.7*	*5.0*	*1.6*	*0.3*	*3,369.2*
REX Lateral to TPC East – Jefferson and Saline Counties, NE								
On-road equipment and commuter transit	0.3	<0.1	1.4	<0.1	<0.1	<0.1	<0.1	211.8
Off-road equipment	9.6	<0.1	24.4	0.7	0.7	1.3	0.4	3,657.1
Fugitive dust[c]	0.0	0.0	0.0	69.9	7.0	0.0	0.0	0.0
Venting	0.0	0.0	0.0	0.0	0.0	1.8	0.0	1,268.2
REX Lateral to TPC East (REX) Total	*9.8*	*<0.01*	*25.8*	*70.6*	*7.7*	*3.2*	*0.4*	*5,137.1*
ABOVEGROUND FACILITIES								
REX/TPC Lone Tree Interconnect – Weld County, CO								
Off-road equipment	0.5	<0.1	0.4	<0.1	<0.1	0.1	<0.1	71.3
Fugitive dust[c]	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0
REX/TPC Lone Tree Interconnect (REX) Total	*0.5*	*<0.1*	*0.4*	*0.8*	*0.1*	*0.1*	*<0.1*	*71.3*
TPC West Isolation – Weld County, CO								
Off-road equipment	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	36.7
Fugitive dust[c]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
TPC West Isolation (TPC) Total	*0.2*	*<0.1*	*0.2*	*0.3*	*0.1*	*<0.1*	*<0.1*	*36.7*
Hereford Ranch Compressor Station – Weld County, CO								
Off-road equipment	2.6	<0.1	3.4	0.2	0.2	0.4	0.1	520.4
Fugitive dust[c]	0.0	0.0	0.0	2.6	0.3	0.0	0.0	0.0
Hereford Ranch Compressor Station (REX) Total	*2.6*	*<0.1*	*3.4*	*2.9*	*0.5*	*0.4*	*0.1*	*520.4*
Redtail Compressor Station – Kimball County, NE								
Off-road equipment	2.6	<0.1	3.4	0.2	0.2	0.4	0.1	520.4
Fugitive dust[c]	0.0	0.0	0.0	2.6	0.3	0.0	0.0	0.0
Redtail Compressor Station (REX) Total	*2.6*	*<0.1*	*3.4*	*2.9*	*0.5*	*0.4*	*0.1*	*520.4*

Appendix I (continued) Construction Emissions (tons per 7-month construction duration)a								
Activity	**NO_x**	**SO_2**	**CO**	**PM_{10}**	**$PM_{2.5}$**	**VOC**	**Total HAP[b]**	**CO_2e**
Logan Compressor and Regulating Station (REX) – Logan County, CO								
Off-road equipment	2.6	<0.1	3.4	0.2	0.2	0.4	0.1	520.4
Fugitive dust[c]	0.0	0.0	0.0	2.6	0.3	0.0	0.0	0.0
Logan Compressor and Regulating Station (REX) Total	*2.6*	*<0.1*	*3.4*	*2.9*	*0.5*	*0.4*	*0.1*	*520.4*
Sedgwick Compressor Station – Sedgwick County, CO								
Off-road equipment	2.6	<0.1	3.4	0.2	0.2	0.4	0.1	520.4
Fugitive dust[c]	0.0	0.0	0.0	2.6	0.3	0.0	0.0	0.0
Sedgwick Compressor Station (REX) Total	*2.6*	*<0.1*	*3.4*	*2.9*	*0.5*	*0.4*	*0.1*	*520.4*
Sedgwick East Compressor Station – Sedgwick County, CO								
Off-road equipment	2.6	<0.1	3.4	0.2	0.2	0.4	0.1	520.4
Fugitive dust[c]	0.0	0.0	0.0	2.6	0.3	0.0	0.0	0.0
Sedgwick East Compressor Station (REX) Total	*2.6*	*<0.1*	*3.4*	*2.9*	*0.5*	*0.4*	*0.1*	*520.4*
Mid-American Ethanol Regulating Station – Perkins County, NE								
Off-road equipment	0.5	<0.1	0.4	<0.1	<0.1	0.1	<0.1	71.3
Fugitive dust[c]	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0
Mid-American Ethanol Regulating Station (REX) Total	*0.5*	*<0.1*	*0.4*	*0.6*	*0.1*	*0.1*	*<0.1*	*71.3*
Oppliger Lincoln Regulating Station – Lincoln County, NE								
Off-road equipment	0.5	0.0	0.4	0.1	0.1	0.1	0.0	71.3
Fugitive dust[c]	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0
Oppliger Lincoln Regulating Station (REX) Total	*0.5*	*0.0*	*0.4*	*0.6*	*0.1*	*0.1*	*0.0*	*71.3*
North Platte Livestock Feeder Regulating Station – Lincoln County, NE								
Off-road equipment combustion emissions	0.5	<0.1	0.4	<0.1	<0.1	0.1	<0.1	71.3
Fugitive dust[c]	0.0	0.0	0.0	0.5	0.1	0.0	0.0	0.0
North Platte Livestock Feeder Regulating Station (REX) Total	*0.5*	*<0.1*	*0.4*	*0.6*	*0.1*	*0.1*	*<0.1*	*71.3*

Appendix I (continued)
Construction Emissions (tons per 7-month construction duration)a

Activity	NO_x	SO_2	CO	PM_{10}	$PM_{2.5}$	VOC	Total HAP[b]	CO_2e
Adams Meter and Regulating Station – Adams County, NE								
Off-road equipment	1.3	<0.1	1.3	0.1	0.1	0.2	0.1	279.2
Fugitive dust[c]	0.0	0.0	0.0	1.5	0.2	0.0	0.0	0.0
Adams Meter and Regulating Station (REX) Total	*1.3*	<0.1	*1.3*	*1.6*	*0.3*	*0.2*	*0.1*	*279.2*
REX to TPC East Meter and Regulating Station – Saline County, NE								
Off-road equipment	1.3	<0.1	1.3	0.1	0.1	0.2	0.1	279.2
Fugitive dust[c]	0.0	0.0	0.0	1.5	0.2	0.0	0.0	0.0
REX to TPC East Meter and Regulating Station (REX) Total	*1.3*	*<0.1*	*1.3*	*1.6*	*0.3*	*0.2*	*0.1*	*279.2*
Aboveground Facilities – All[d]								
On-road equipment and commuter transit[d]	0.6	<0.1	2.7	<0.1	<0.1	<0.1	<0.1	512.3
ABANDONMENT FACILITIES[e]								
Compressor Station 601 - Logan County, CO								
Off-road equipment	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	36.7
Fugitive dust[c]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Compressor Station 601 Total	*0.2*	*<0.1*	*0.2*	*0.3*	*0.1*	*<0.1*	*<0.1*	*36.7*
Compressor Station 602 - Lincoln County, NE								
Off-road equipment	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	36.7
Fugitive dust[c]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Compressor Station 602 Total	*0.2*	*<0.1*	*0.2*	*0.3*	*0.1*	*<0.1*	*<0.1*	*36.7*
Compressor Station 603 - Kearney County, NE								
Off-road equipment	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	36.7
Fugitive dust[c]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Compressor Station 603 Total	*0.2*	*<0.1*	*0.2*	*0.3*	*0.1*	*<0.1*	*<0.1*	*36.7*
Clay Interconnect (TPC) - Clay County, NE								
Off-road equipment	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	36.7
Fugitive dust[c]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Clay Interconnect (TPC) Total	*0.2*	*<0.1*	*0.2*	*0.3*	*0.1*	*<0.1*	*<0.1*	*36.7*
Northwestern Kearney Interconnect - Kearney County, NE								
Off-road equipment	0.2	<0.1	0.2	<0.1	<0.1	<0.1	<0.1	36.7
Fugitive dust[c]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Northwestern Kearney Interconnect Total	*0.2*	*<0.1*	*0.2*	*0.3*	*0.1*	*<0.1*	*<0.1*	*36.7*

Appendix I (continued)
Construction Emissions (tons per 7-month construction duration)[a]

Activity	NO_x	SO_2	CO	PM_{10}	$PM_{2.5}$	VOC	Total HAP[b]	CO_2e
Vented Emissions for TPC Abandonment Activities								
Pressure drawdown, vented and flared emissions	3.8	<0.1	8.8	0.2	0.2	14.3	0.2	11,841.8
Total Project	**40.9**	**<0.1**	**80.7**	**137.0**	**16.5**	**21.9**	**1.6**	**24,526.1**

CO = Colorado; NE = Nebraska

[a] The numbers in this table have been rounded for presentation purposes. As a result, the totals may not reflect the sum of the addends.

[b] Based on the assumption that VOC emissions from fossil fuel-fired construction equipment consist substantially of VOC HAPs, e.g., benzene, formaldehyde, acetaldehyde, 1,3-butadiene, and acrolein.

[c] Emissions of total suspended particulate from Project construction, which includes dust particles of any size including those greater than PM10, would be considerably greater than the estimates for PM10 and PM2.5, and would depend on efficacy of the Applicants' implemented dust control methods.

[d] This estimate includes vehicle travel to all aboveground facility sites proposed for construction or abandonment activities, and also includes vehicle personnel traveling to the Blanket Authorization Facilities. As such, the estimate presents a conservative assumption of on-road combustion emissions.

[e] Abandonment sites not presented separately here are generally associated with other Project facility construction sites. Abandonment activities would be supported by the aboveground facility workforce where the two actions are adjacent.

APPENDIX J

Noise Sensitive Areas Figures

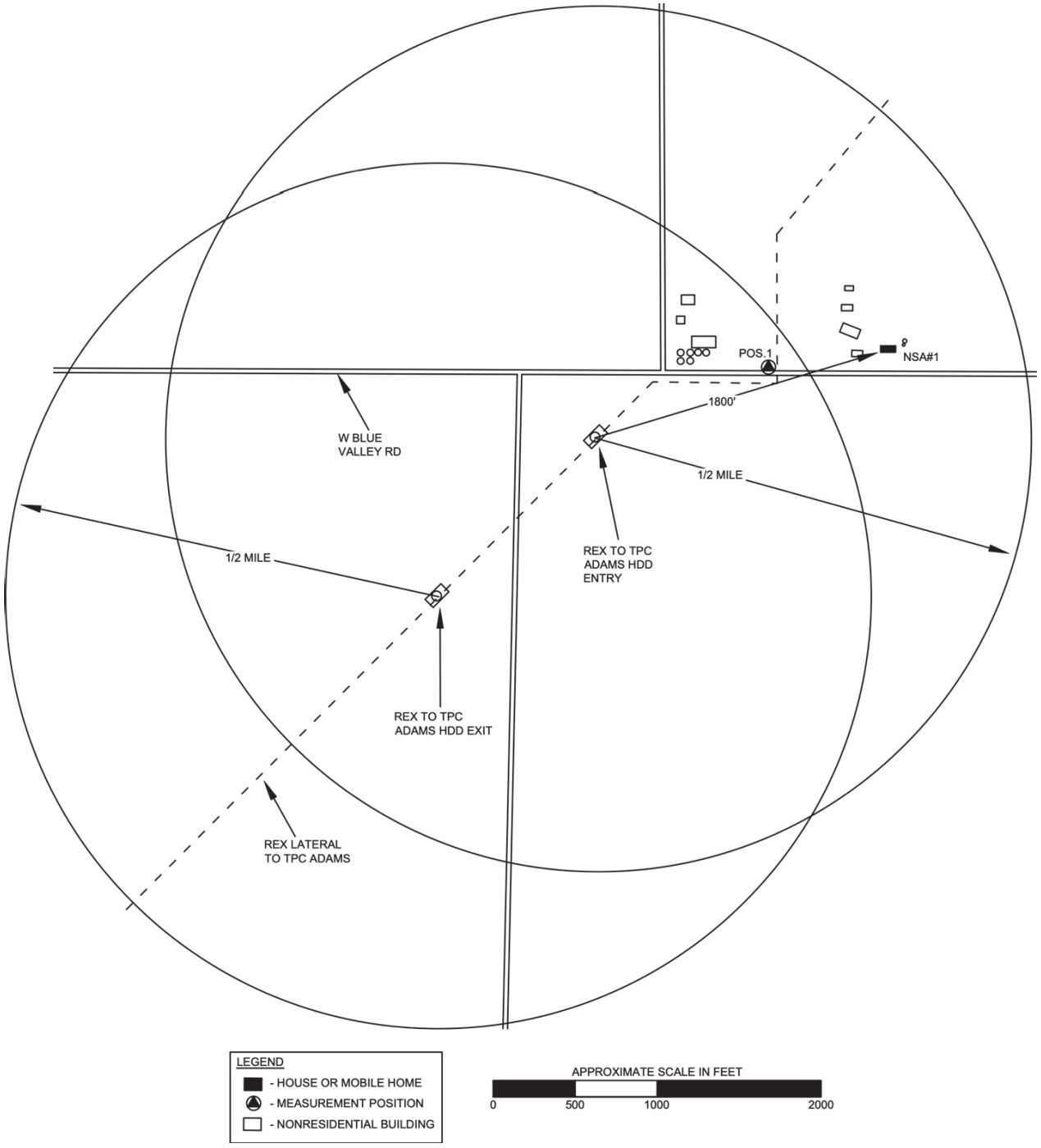


Figure J-1: Trailblazer Conversion Project (REX Lateral to TPC Adams HDD): Area Layout–Map showing the HDD Crossing, HDD Entry/Exit Location and the Designated Closest NSA(s).

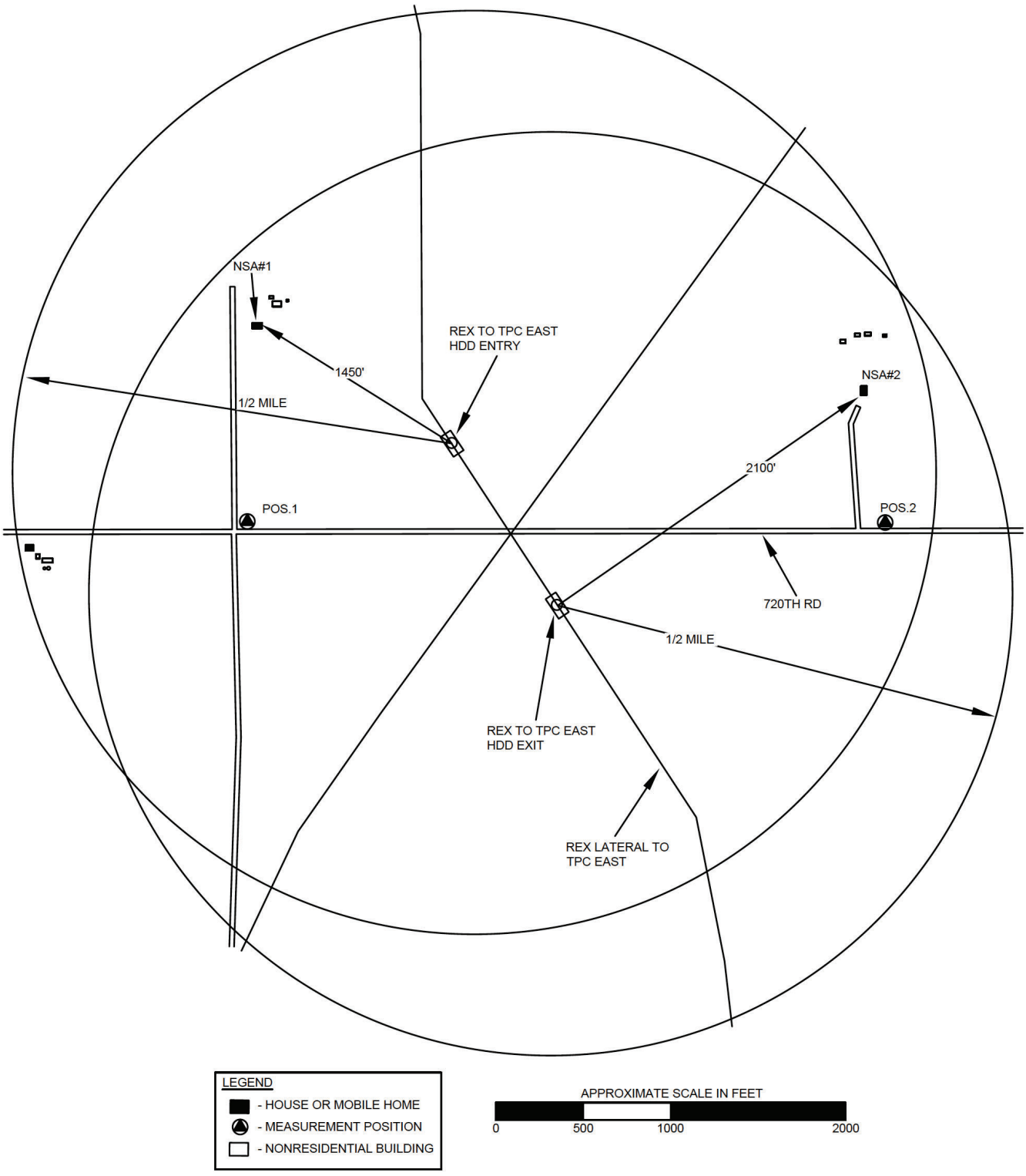


Figure J-2: Trailblazer Conversion Project (REX Lateral to TPC East HDD): Area Layout–Map showing the HDD Crossing, HDD Entry/Exit Location and the Designated Closest NSA(s).

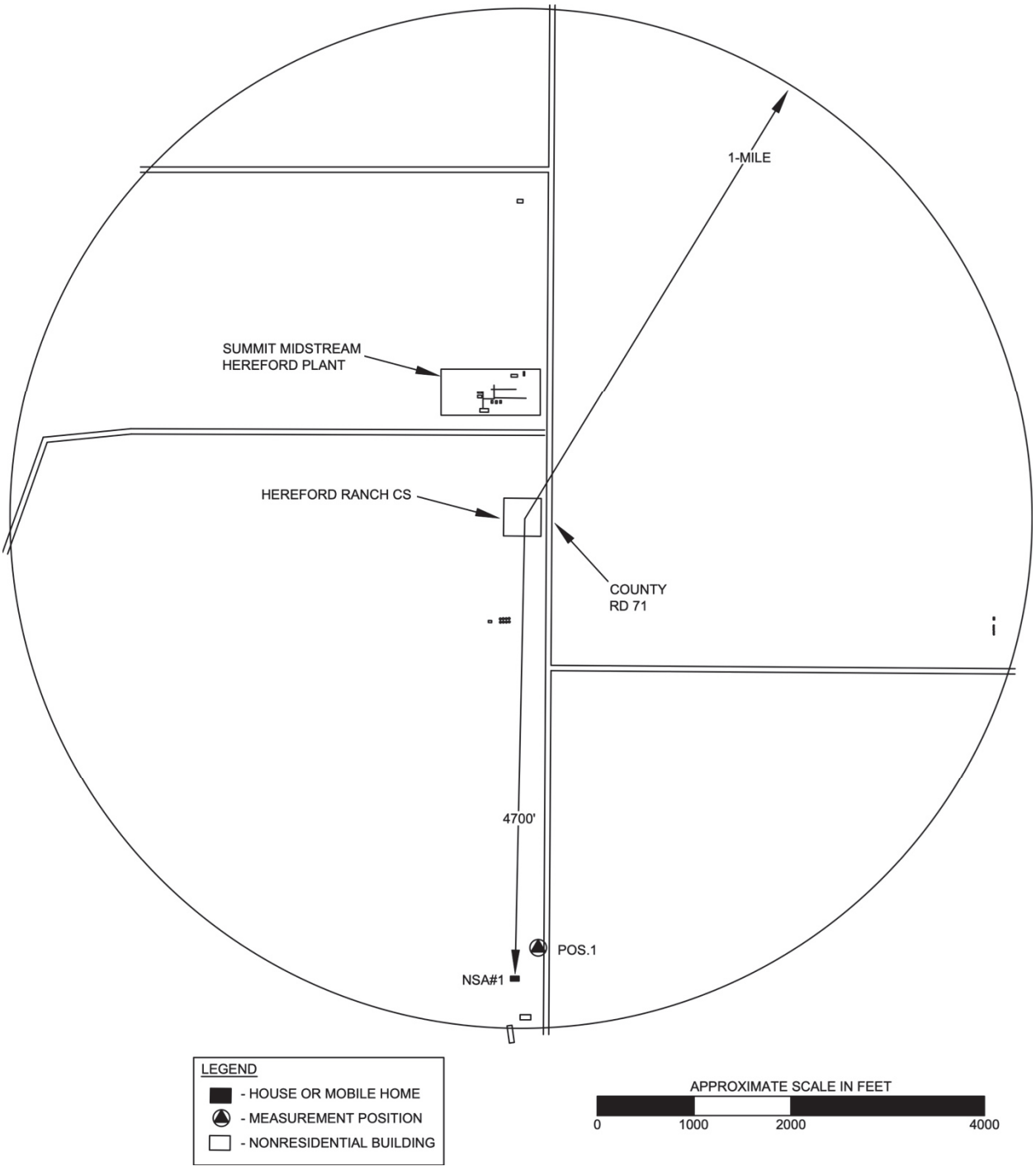


Figure J-3: Trailblazer Conversion Project – Hereford Ranch CS: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA(s).

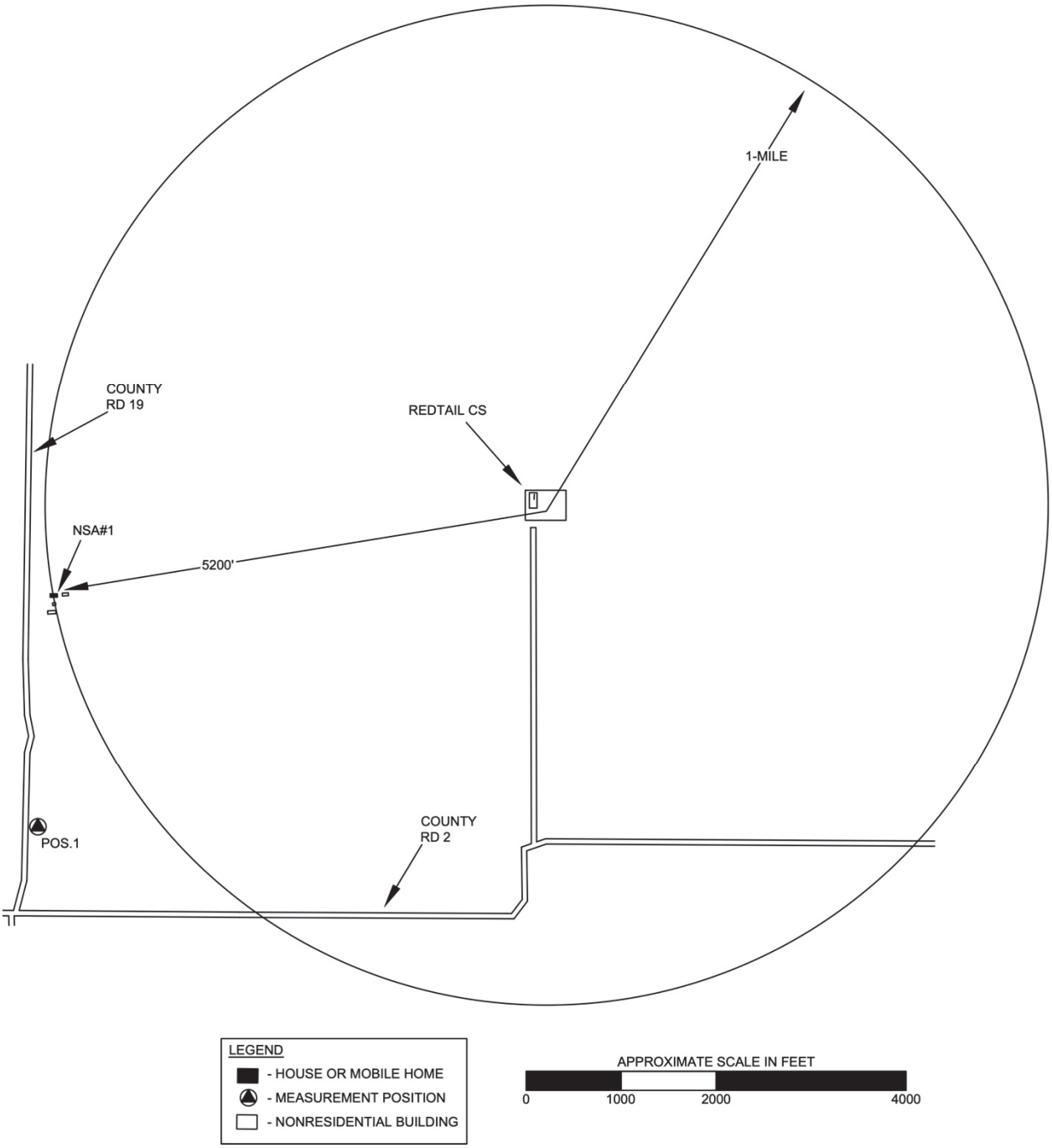


Figure J-4: Trailblazer Conversion Project – Redtail CS: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA(s).

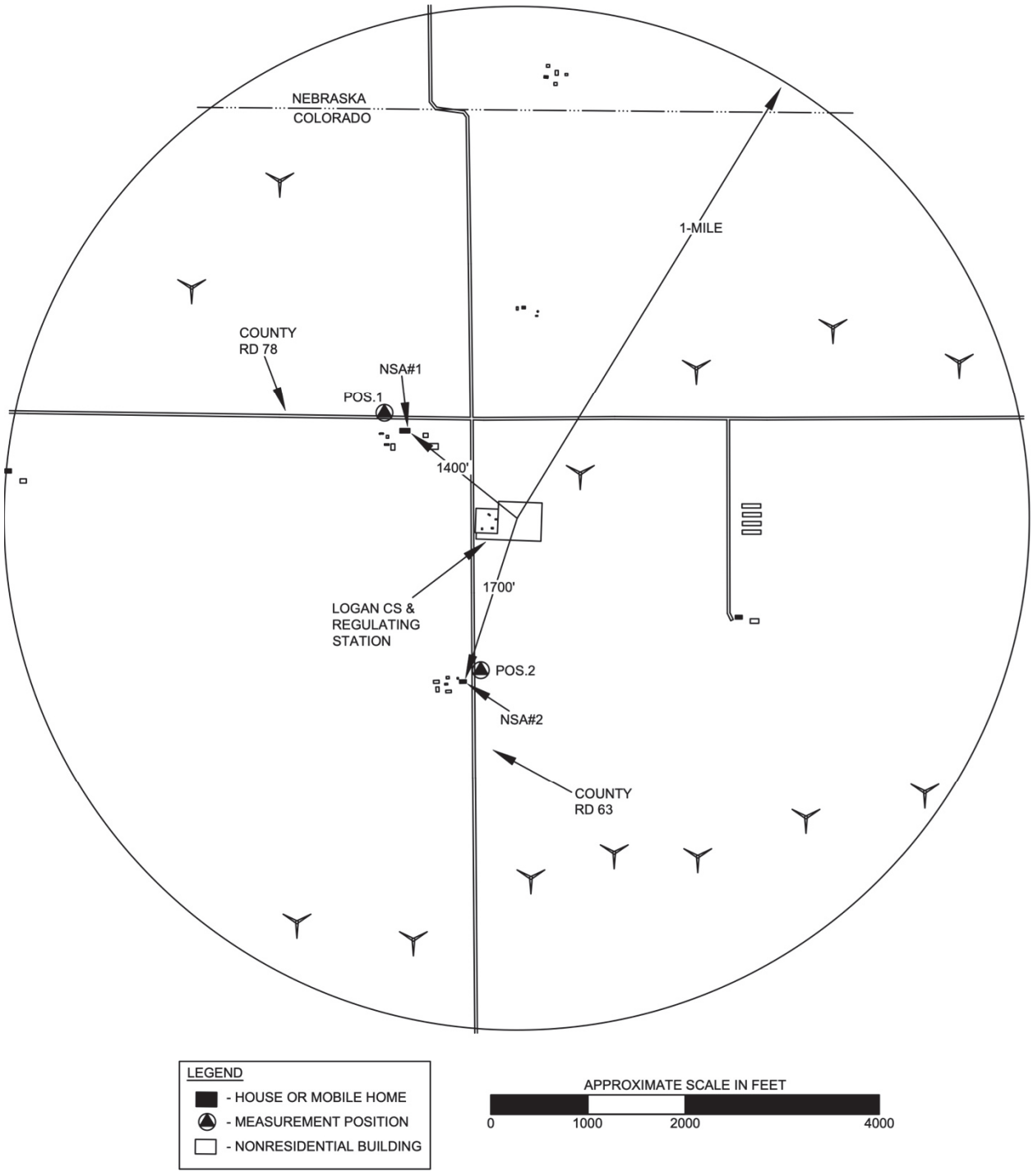


Figure J-5: Trailblazer Conversion Project – Logan CS and Regulating Station: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA(s).

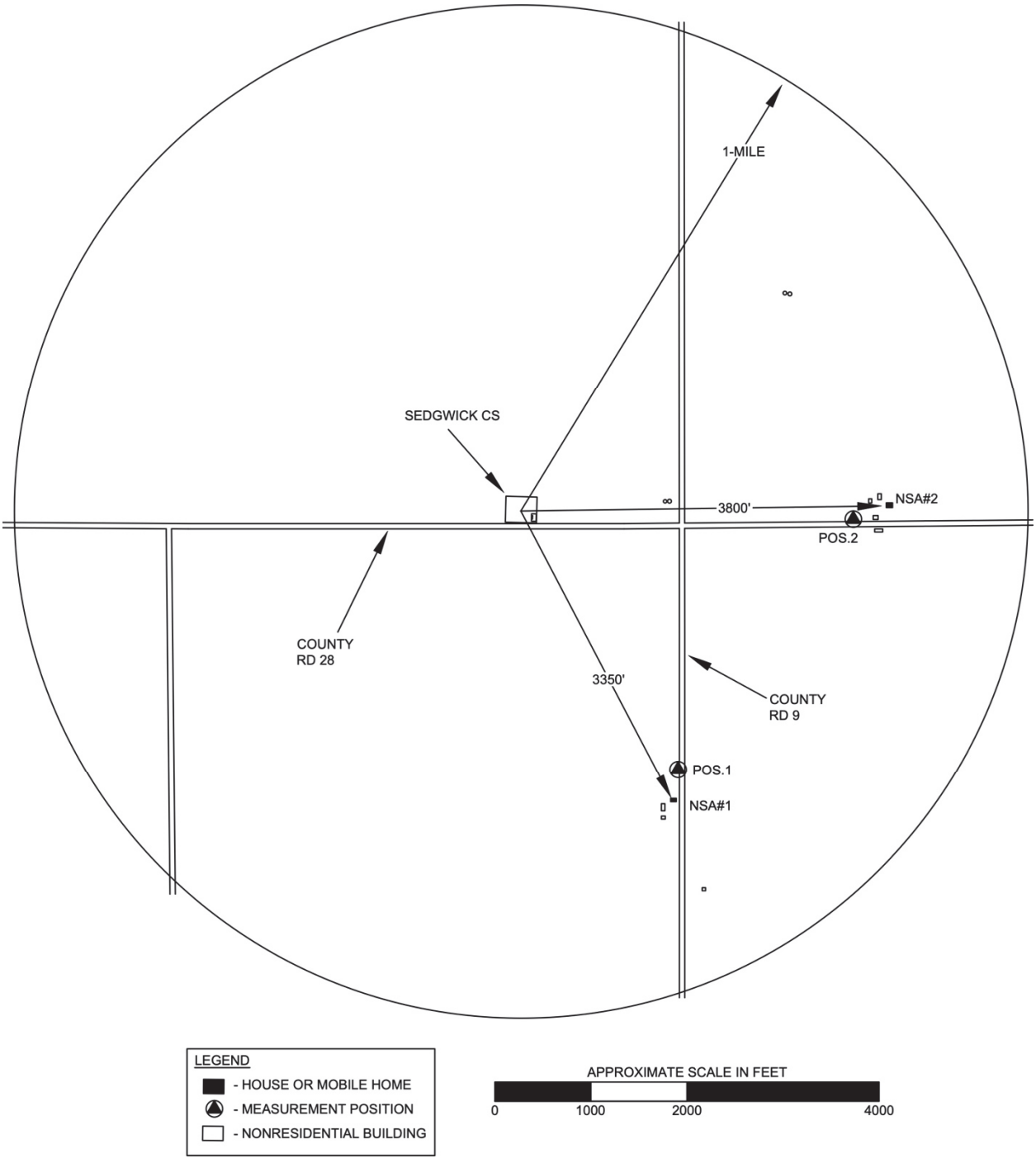


Figure J-6: Trailblazer Conversion Project – Sedgwick CS: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA(s).

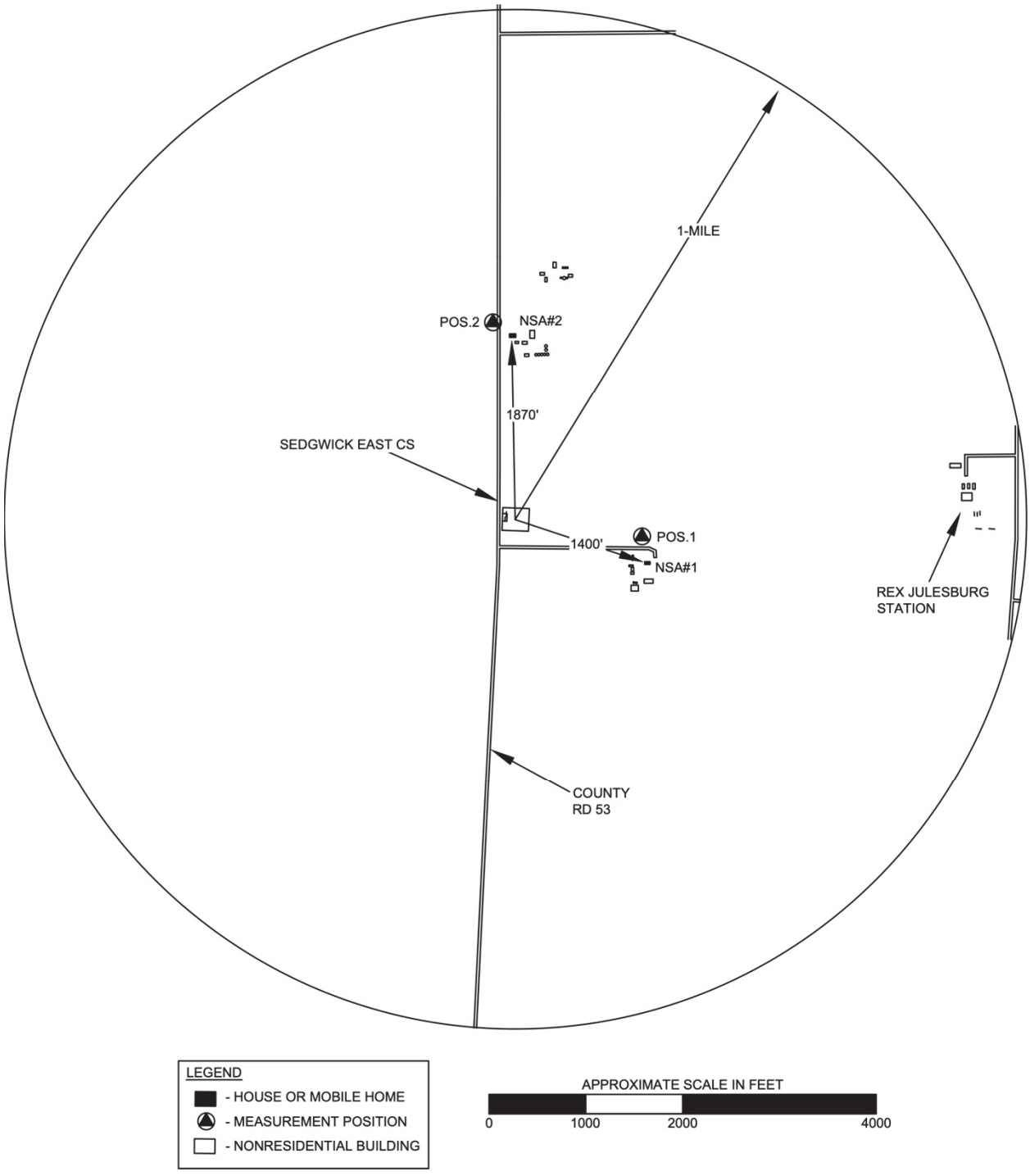


Figure J-7: Trailblazer Conversion Project – Sedgwick East CS: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA(s).

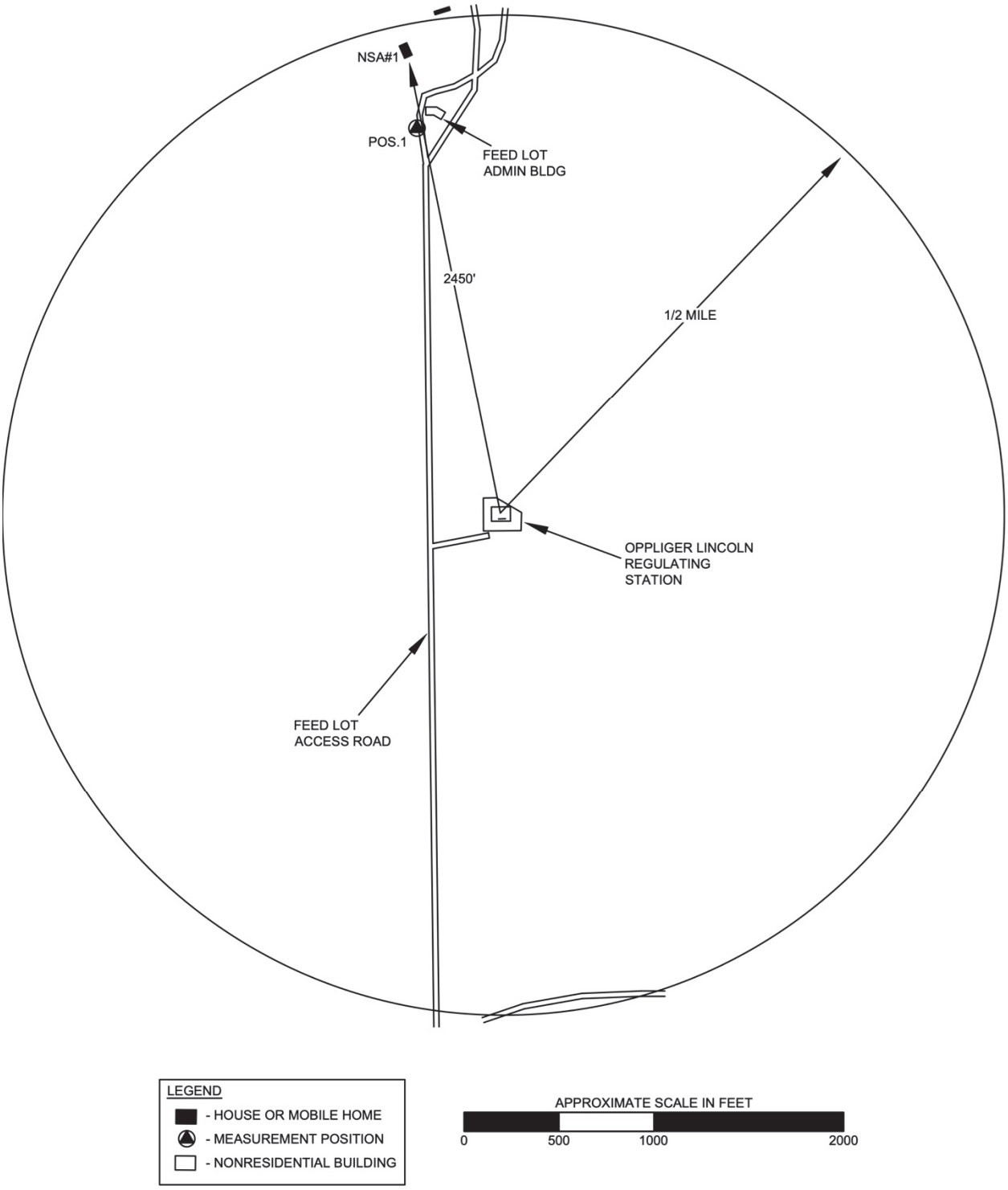


Figure J-8: Trailblazer Conversion Project – Oppliger Lincoln Regulating Station: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA(s).

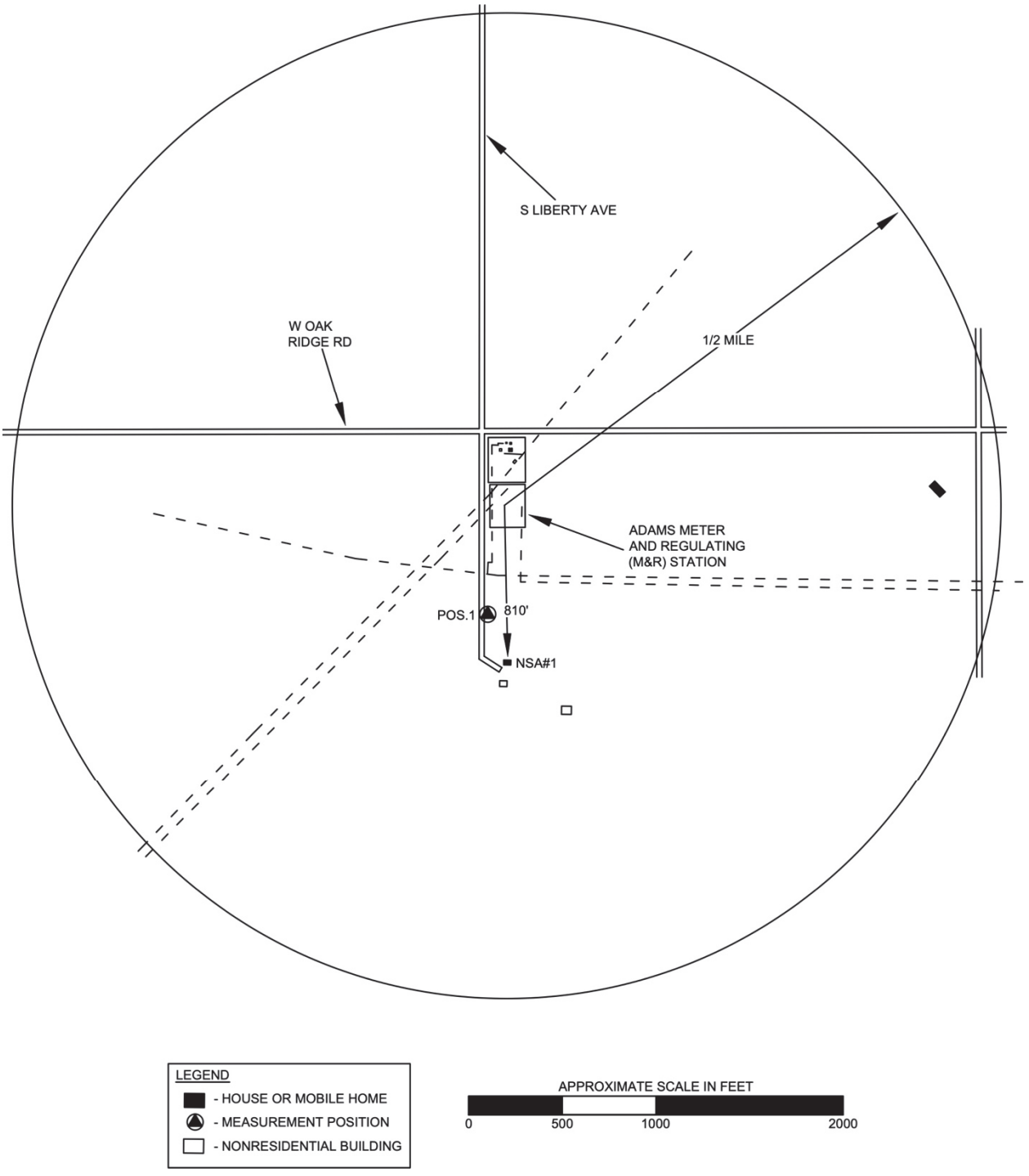


Figure J-9: Trailblazer Conversion Project – Adams Meter and Regulating Station: Area Layout showing the Location of the nearby NSA(s) and NSA Sound Measurement Position near the Designated Closest NSA.