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Williams Four Corners, LLC

Proposed Canyon #19H Well-Tie Pipeline

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ACRONYMS

BLM	Bureau of Land Management
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulations
CO	carbon monoxide
EA	Environmental Assessment
Ecosphere	Ecosphere Environmental Services, Inc.
EIS	Environmental Impact Statement
F	Fahrenheit
FEIS	Final Environmental Impact Statement
FFO	Farmington Field Office
GHG	Greenhouse gas
HAP	hazardous air pollutant
NAAQS	National Ambient Air Quality Standard
NATA	National-Scale Air Toxics Assessment
NEPA	National Environmental Policy Act
NMAAQS	New Mexico Ambient Air Quality Standards
NO_2	nitrogen dioxide
PL	Public Law
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
ppm	Parts per million
PRMP	Proposed Resource Management Plan
RMP	Resource Management Plan
ROD	Record of Decision
ROW	right-of-way
SO_2	sulfur dioxide
µg/m	Micrograms per cubic meter of air
USC	United States Code
USEPA	United States Environmental Protection Agency

WCRM	Western Cultural Resource Management, Inc.
Williams	Williams Four Corners, LLC

1. PURPOSE AND NEED FOR ACTION

1.1 Background

Williams Four Corners, LLC (Williams) is proposing the Canyon #19H well-tie pipeline in San Juan County, New Mexico. Williams would apply for a right-of-way (ROW) grant with the Bureau of Land Management (BLM) Farmington Field Office (FFO). The proposed pipeline would tie into the existing Williams Lateral P-2 pipeline of the Torre Alta Gathering System and terminate on the proposed XTO Energy Inc. Canyon #19H natural gas well. The proposed action would be approximately 1,808 feet of subsurface pipeline that would result in disturbance to approximately 1.66 acres of land administered by the BLM/FFO. The legal description for the proposed action is SE 1/4 Section 2, Township 25 North, Range 11 West, New Mexico Principal Meridian, San Juan County, New Mexico.

The proposed project would be located approximately 19 miles south of Bloomfield, New Mexico and approximately 5 miles west of United States Highway 550.

1.2 Purpose and Need for Action

The purpose of the action is to provide Williams with access to BLM-managed lands to construct a proposed pipeline which would transport fluid minerals produced from the Canyon #19H natural gas well to the Torre Alta gathering system. The need for the action is established by the BLM's responsibility under Title V of the Federal Land Policy and Management Act of 1976, as amended (43 United States Code [USC] 1761-1771), to respond to a request for a ROW grant for legal access.

1.3 Decision to Be Made

Based on the information in this Environmental Assessment (EA), the BLM/FFO will decide whether to issue the ROW grant and, if so, under what terms and conditions. Under the National Environmental Policy Act (NEPA) (Public Law [PL] 91-90, 42 USC 4321 et seq.), the FFO must determine if there are any significant environmental impacts associated with the proposed action warranting further analysis in an Environmental Impact Statement (EIS). The BLM/FFO Field Manager is the responsible officer who will decide one of the following:

- To approve the proposed ROW grant with design features as submitted
- To approve the proposed ROW grant with additional mitigations
- To analyze the effects of the proposal in an EIS
- To deny the ROW grant

An approved grant issued by the BLM would authorize the applicant to construct the subsurface pipeline.

1.4 Conformance with Applicable Land Use Plan(s)

Pursuant to 40 Code of Federal Regulations (CFR) 1508.28 and 1502.21, this EA incorporates the information and analysis contained in the 2003 Farmington Proposed Resource Management Plan (PRMP) /Final Environmental Impact Statement (FEIS) (USDI/BLM 2003a). The proposed action would be in conformance with the oil and gas leasing and development management actions in the Resource Management Plan (RMP)/Record of Decision (ROD) signed December 2003 and updated in December

2003 (USDI/BLM 2003b). The proposed action would be in conformance with the 2003 RMP/ROD that states, to the extent possible, new ROWs will be located within or parallel to existing ROWs or corridors to minimize resource impacts (USDI/BLM 2003b, page 2-11). The PRMP/FEIS and ROD are available for review at the FFO in Farmington, New Mexico or electronically at http://www.nm.blm.gov/ffo/ffo_home.html. This project EA addresses site-specific resources and/or impacts that are not covered within the PRMP/FEIS, as required by the NEPA.

Oil and gas development is recognized as an appropriate use of public lands in the FFO planning area (USDI/BLM 2003b). The RMP adheres to the federal mandates contained in the Energy Policy and Conservation Action (42 USC 6217) and Executive Order 13212, which direct federal land managing agencies to expedite the production of the federal mineral estate for the development of reliable domestic sources of energy (USDI/BLM 2003b, pages 1 and 11).

1.5 Relationship to Statutes, Regulations, or Other Plans

Williams would comply with all applicable federal, state, and local laws and regulations, and obtain the necessary permits for the installation of the pipeline. These laws and regulations include, but are not limited to:

- Antiquities Act of 1906, as amended (PL 52-209; 16 USC 431-433)
- American Indian Religious Freedom Act of 1978 (PL 95-431; 92 Stat. 469; 42 USC 1996);
- Archaeological Resources Protection Act of 1979 (PL 96-95; 93 Stat. 721; 16 USC 470aa et seq.), as amended (PL 100-555; PL 100-588);
- Bald and Golden Eagle Protection Act of 1940, as amended (PL 86-70, PL 87-884, PL 92-535, PL 95-61616; USC 668-668d),
- Clean Air Act, as amended (PL 88-206; 42 USC § 7401 et seq.)
- Clean Water Act, as amended (PL 107-303; 33 USC § 1251, et seq.)
- Colorado River Salinity Control Act, as amended (PL 93-320; 7 CFR Part 702)
- Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (PL 96-510; 42 USC § 9601; 40 CFR Part 307)
- Endangered Species Act of 1973 (PL 94-325; 16 USC § 1531 et seq.),
- Executive Order 11988 Floodplain management
- Executive Order 11990 Protection of Wetlands
- Executive Order 13007 Indian Sacred Sites
- Executive Order 13112 Invasive Species
- Executive Order 13186 Responsibilities of Federal Agencies to Protect Migratory Birds
- Migratory Bird Treaty Act of 1918, as amended (16 USC 703-712; 50 CFR Part 21)
- Native American Graves Protection and Repatriation Act of 1990 (PL 101-601; 104 Stat. 3048; 25 USC 3001; 43 CFR Part 10).
- Paleontological Resources Preservation Act as part of the Omnibus Public Land Management Act (PL 111-011, Title VI, Subtitle D)

- Safe Drinking Water Act, as amended (PL 93-523; 42 USC 300F-300-9), 40 CFR Parts 144 and 147).
- Section 106 of the National Historic Preservation Act of 1966 (PL 89-665; 80 Stat. 915; 16 USC 470 et seq.), as amended (implemented under regulations of the Advisory Council on Historic Preservation, 36 CFR Part 800)

1.6 Scoping, Public Involvement, and Issues

The Council on Environmental Quality (CEQ) defines scoping as "an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action alternative" (40 CFR 1501.7). Scoping is the process by which the BLM solicits internal and external input on the issues, impacts, and potential alternatives that will be addressed in an EIS or EA.

The BLM/FFO Interdisciplinary Team was integrally involved in the internal scoping to identify potential issues, understand the proposal, develop the purpose and need, and develop a range of alternatives.

For the purpose of BLM NEPA analysis, an "issue" is a point of disagreement, debate, or dispute with a proposed action based on some anticipated environmental effect. Preliminary issues are frequently identified during the development of the proposed action through scoping.

The following issues were identified as potential issues of concern by the Interdisciplinary Team during internal scoping:

- How would the alternatives affect air quality in the area?
- How would the alternatives affect cultural resources?
- How would the alternatives affect vegetation?
- How would the alternatives affect soils?
- How would the alternatives affect water quality and quantity?

As outlined in the BLM NEPA Handbook, it is optional for the BLM to conduct external scoping on actions analyzed by an EA (USDI/BLM 2008, Section 6.3.2). External scoping was conducted through posting this project on the FFO's on-line NEPA log. The log is located on the BLM New Mexico website (http://www.blm.gov/nm/st/en/prog/planning/nepa_logs.html). The log contains a list of proposed and approved actions in the FFO. The public is encouraged to provide comments or request information on projects listed in the logs.

1.6.1 Issues Considered but Not Analyzed

CEQ regulations (40 CFR § 1501.7) state that the lead agency shall identify and eliminate from detailed study the issues that are not important or that have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have a significant effect on the human or natural environment or providing a reference to their coverage elsewhere.

The following resources were identified by the Interdisciplinary Team during internal scoping as potential issues of concern that would not be significantly impacted or have been evaluated in previous analyses.

For the proposed action, identification of Native American Religious Concerns were limited to reviewing existing, published, and unpublished literature (Van Valkenburgh 1941, 1974; Brugge 1993; Kelly et al 2006), the site-specific Class III survey report prepared for the proposed action, and a review by the BLM's cultural resources program regarding the presence of Traditional Cultural Properties identified through ongoing BLM tribal consultation efforts. There are currently no known remains that fall within the purview of the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001) or the Archaeological Resources Protection Act (16 USC 470) within the proposed action area. The proposed action would not impact any known Traditional Cultural Properties, prevent access to sacred sites, prevent the possession of sacred objects, or interfere with or hinder the performance of traditional ceremonies and rituals pursuant to the American Indian Religious Freedom Act of 1978 (42 USC 1996) or Executive Order 13007.

There would be no measurable or disproportionate adverse impacts to minority or low income populations under the action alternatives. The PRMP/FEIS analyzed impacts to minority populations and determined that energy resources within the planning area are located in Rio Arriba and San Juan Counties, which have disproportionately high minority or low-income populations compared to all of New Mexico. Resource development, such as the proposed action, would provide jobs and government revenues that would directly or indirectly benefit these vulnerable groups (USDI/BLM 2003a, page 4-129).

No federally listed species with the potential to occur in San Juan County or potential habitats for federally listed species were observed within the proposed project area. Furthermore, no designated critical habitat for any federally listed species occurs within the proposed project area. The FFO reviewed and determined that the proposed action is in compliance with listed species management guidelines outlined in the September 2002 Biological Assessment (Cons. No. 2-22-01-I-389) (USDI/BLM 2002). No further consultation with the United States Fish and Wildlife Service is required.

2. PROPOSED ACTION AND ALTERNATIVES(S)

2.1 No Action

The BLM NEPA Handbook (USDI/BLM 2008) states that for EAs on externally initiated proposed actions, the no action alternative is generally to reject the proposal or deny the application. This option is provided in 43 CFR 3162.3-2 (h)(2). This alternative would deny the ROW grants, and the current land status and resource uses would continue in the proposed project area. The no action alternative provides a useful baseline for comparison of environmental effects (including cumulative effects) and demonstrates the consequences of not meeting the need for the action.

2.2 Proposed Action

Williams is requesting authorization to construct, operate, and maintain the proposed Canyon #19H well-tie pipeline. A vicinity map is provided in Appendix A. The proposed action is shown on the Huerfano Trading Post, New Mexico, United States Geological Survey 7.5-minute quadrangle map (Appendix A).

The proposed pipeline legal description is Section 2, Township 25 North, Range 11 West, NMPM, San Juan County, New Mexico.

The proposed action would involve the construction of an approximately 1,808 feet of subsurface pipeline within a 40-foot-wide ROW. No temporary use area is projected for the proposed project. Total permitted surface disturbance associated with the proposed well-tie pipeline would be approximately 1.66 acres. An aerial map showing the proposed action on 2010 digital photo orthoquads is also provided in Appendix A.

The proposed pipeline would be a 4-inch steel line. The trench (or ditch) would be excavated and sloped in accordance with Occupational Safety and Health Administration specifications. The trenching operation would be followed by pipe installation that would include stringing, bending for horizontal or vertical angles in the alignment, welding pipe segments together, inspection, coating joint areas to prevent corrosion, and lowering pipe into the ditch.

During operation and maintenance, Williams would maintain the pipeline ROW according to the environmental protection measures stipulated in the ROW grant. The proposed action would operate according to industry standards. Normal maintenance of the pipeline would be required. When the pipeline is no longer commercially viable, it would be abandoned per BLM stipulations.

The proposed action would be scheduled for construction in the spring of 2013, with construction and reclamation activities expected to last for approximately 2 to 3 weeks. Williams would comply with all applicable federal, state, and local laws and regulations and obtain the necessary permits for the installation of the pipeline. A Reclamation Plan has been developed for the proposed action and is included as Appendix B.

2.2.1 Design Features

All areas of proposed surface disturbance were inspected in the field to ensure that potential impacts to natural resources would be minimized through the implementation of design features or mitigation measures. For a detailed description of the design and construction practices associated with the proposed action, refer to the project plats provided in Appendix A and the Pipeline Stipulations in Appendix B. For the proposed action, standard and project-specific design features include, but are not limited to:

- Prior to construction, the pipeline ROW would be staked at 100- to 200-foot intervals, and when applicable, BLM boundaries would be marked with station numbers at the entrance to and exit from BLM lands.
- Clearing, removal of topsoil, and grading would be limited to the minimum area required for safe and efficient construction.
- Trees and brush less than 6 inches in diameter would be chipped or shredded and this material would be salvaged and stored with topsoil.
- Trees greater than 6 inches in diameter would be cut, de-limbed, and bucked into 4-foot lengths. Trunks would be stacked to the side of the pipeline workspace and/or access road for wood gatherers and the limbs would be stockpiled for reclamation. Stumps would be cut no higher than 6 inches from the ground and stumps and root balls would be buried onsite.
- Topsoil would be segregated from the trench line, except for areas that require grading. The top 6 inches of soil would be stripped from the entire portion of the workspace that requires grading.

- Topsoil would be segregated and stockpiled at the edge of the workspace. Topsoil would not be used for padding or mixed with excavated subsoil.
- Excavated material would be stockpiled at the edge of the workspace.
- Cover from top of pipe to ground level would be a minimum of 36 inches through typical soil and rock. Inspection would be conducted to verify that minimum cover is provided, the trench bottom is free of rocks and debris, external pipe coating is not damaged, and the pipe is properly fitted and installed into the ditch.
- Backfilling would begin after a section of the pipe has been successfully placed in the ditch and final inspection has been completed.
- After backfilling has been completed, cleanup activities would be initiated as soon as practicable. All construction-related debris would be removed and disposed of at an approved disposal area. The workspace would be graded as near as possible to the preconstruction contours and natural runoff and drainage patterns would be restored.
- Rocks and limbs removed during clearing would be scattered across the workspace in a random arrangement using rubber-tired equipment.
- All existing improvements (such as fences, gates, and bar ditches) would be repaired to previous or better than pre-construction conditions.
- Permanent erosion control measures would be installed after the workspace has been re-contoured. The disturbed areas would then be reseeded with a BLM/FFO approved seed mix. Seeding would be accomplished within 120 days of construction completion, weather permitting. Upon evaluation after the second growing season, seeding would be repeated if a satisfactory stand is not obtained. Cut and fill slopes would be hand seeded with hydro-mulch excelsior netting and/or mulch with netting.
- All employees, contractors, and sub-contractors of the project will be informed by the project proponent that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment, and that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm). In the event of a cultural resources discovery during construction, the project proponent will immediately stop all construction activities in the immediate vicinity of the discovery and immediately notify the archaeological monitor, if present, or the BLM. The BLM would then evaluate or cause the site to be evaluated. Should a discovery be evaluated as significant (e.g., National Register, Native American Graves Protection and Repatriation Act, Archaeological Resources Protection Act), it will be protected in place until mitigating measures can be developed and implemented according to guidelines set by the BLM.

2.3 Alternatives Considered but Eliminated from Further Analysis

No other alignments were considered during scoping of the project. In addition, there were no alternative routes that would have significantly fewer impacts or clear advantages over the proposed action. If an alternative were required, it would be essentially identical to the proposed action, with only minor differences in disturbance to natural resources.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section describes the environment that would be affected by implementation of the alternatives described in Chapter 2. Aspects of the affected environment described in this section focus on the relevant major resources or issues. Only the aspects of the affected environment that are potentially impacted are described.

Under the no action alternative, the proposed pipeline would not be constructed. The no action alternative would result in the continuation of the current land and resource uses in the project area. This alternative will not be evaluated further in this EA.

Field resource investigations of the proposed project area were conducted on February 5, 2013, by biologists from Ecosphere Environmental Services (Ecosphere). Cultural resources were conducted by Western Cultural Resource Management, Inc. (WCRM) on February 7, 2013. The project area is defined as the project footprint (the area of proposed disturbance). The analysis area is considered the Upper San Juan sub-watershed, which encompasses approximately 657,318 acres. However, some analyses (such as air quality) identify a larger resource area to capture a sufficient area of interest.

3.1 Air Resources

3.1.1 Affected Environment

The proposed pipeline would be located in San Juan County, New Mexico. Additional general information on air quality in the area is contained in Chapter 3 of the Farmington PRMP/FEIS (USDI/BLM 2003a). In addition, new information about greenhouse gases (GHGs), and their effects on national and global climate conditions has emerged since this document was prepared. On-going scientific research has identified the potential impacts of GHG emissions such as carbon dioxide, methane, nitrous oxide, water vapor, and several trace gases on global climate. Through complex interactions on a global scale, GHG emissions may cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), industrialization and burning of fossil carbon sources have caused GHG concentrations to increase measurably and may contribute to overall climatic changes, typically referred to as global warming.

Much of the information referenced in this section is incorporated from the Air Resources Technical Report for BLM Oil and Gas Development in New Mexico, Kansas, Oklahoma, and Texas (herein referred to as Air Quality Technical Report (USDI/BLM 2011). This document summarizes the technical information related to air resources and climate change associated with oil and gas development and the methodology and assumptions used for analysis.

The U.S. Environmental Protection Agency (USEPA) has the primary responsibility for regulating air quality, including six nationally regulated ambient air pollutants (criteria pollutants). These criteria pollutants include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide (SO_2) and lead. The USEPA has established National Ambient Air Quality

Standards (NAAQS) for criteria air pollutants. The NAAQS are protective of human health and the environment. The USEPA has approved New Mexico's State Implementation Plan, which enforces state and federal air quality regulations on all public and private lands within the state, except for tribal lands and within Bernalillo County.

Air quality is determined by atmospheric pollutants and chemistry, dispersion meteorology and terrain, and includes applications of noise, smoke management, and visibility. Climate is the composite of generally prevailing weather conditions of a particular region throughout the year, averaged over a series of years. Climate has the potential to influence renewable and non-renewable resource management. The USEPA has proposed or recently completed actions to implement Clean Air Act requirements for greenhouse gas emissions.

Criteria Air Pollutants

The Air Quality Technical Report defines the types of data used for descriptions of the existing conditions of criteria pollutants, how the criteria pollutants are related to the activities involved in oil and gas development, and current national and state standards (USDI/BLM 2011). The USEPA Green Book web page reports that all counties in the analysis area—San Juan, McKinley, Rio Arriba, and Sandoval Counties in New Mexico and La Plata County in Colorado—are in attainment of all NAAQS as defined by the Clean Air Act. The area also does not violate any New Mexico Ambient Air Quality Standards (NMAAQS). The current criteria pollutant (ozone design value) in the analysis area is described below. Design values are the concentrations of air pollution at a specific monitoring site that can be compared to the NAAQS. Table 1 shows monitored design values for ozone in recent years for each of the three, San Juan County ozone monitoring stations.

Table 1. Reported ozone values for San Juan County ozone monitoring stations

State Air Monitoring Station	8-hour Ozone Design Value (ppm[1])				NAAQS[2]
	2007-2009	2008-2010	2009-2011	2010-2012	2008
Substation	0.067	0.063	0.063	0.067	0.075
Bloomfield	0.061	0.060	0.061	0.067	0.075
Navajo Lake	0.069	0.066	0.068	0.071	0.075

Source: NMED March 22, 2013

(1) parts per million

(2) NAAQS – National Ambient Air Quality Standards

Table 2 summarizes monitored design values for other criteria pollutants in San Juan County.

Table 2. Criteria pollutant design value concentrations monitored in San Juan County (USEPA, 2012)

Pollutant	Design Value	Averaging Time	NAAQS	NMAAQS
NO_2	13 ppb	Annual	53 ppb	50 ppb
NO_2	39 ppb	1-hour	100 ppb[1]	0.10 ppm (24-hour)
PM_{10}	Data incomplete	24-hour	150 µg/m[3,3]	150 µg/m[3,4]
$PM_{2.5}$	4.5µg/m[3]	Annual	12 µg/m[3,5]	60 µg/m[3,4]
$PM_{2.5}$	14µg/m[3]	24-hour	35 µg/m[3,1]	

SO_2	0.001ppm	Annual	None	0.02 ppm
SO_2	20ppb	1-hour	75 ppb[6]	None
SO_2	0.008 ppm	24-hour	None	0.10ppm

[1] 98th percentile, averaged over 3 years.

[2] Not to be exceeded more than once per year.

[3] Micrograms per cubic meter of air (µg/m) not to be exceeded more than once per year on average, over 3 years.

[4] The NMAAQS is a standard for total suspended particulate matter.

[5] Annual mean, averaged over 3 years.

[6] 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years.

In 2005, the USEPA estimated there was less than 0.01 ton per square mile of lead emitted in the analysis area, which is less than 2 tons total (USDI/BLM 2011. There is no monitoring conducted for lead and CO in northwestern New Mexico; however, concentrations of these pollutants are expected to be low in rural areas and are therefore not monitored.

Hazardous Air Pollutants

The Air Quality Technical Report discusses the relevance of hazardous air pollutants (HAPs) to oil and gas development and the particular HAPs that are regulated in relation to these activities (USDI/BLM 2011). The USEPA has identified 187 toxic air pollutants as HAPs. In March 2011, the USEPA published the fourth in a series of National-Scale Air Toxics Assessments (NATAs) that quantify HAP emissions for 2005 by counties in the United States. The purpose of the NATA is to identify areas where HAP emissions result in high health risk. Computer models are used to develop estimates of risk of cancer or other health impacts.

NATA presents risk hazard indexes for cancer, neurological, and respiratory problems for each county and census tract. Because techniques have changed over the years, each NATA is not comparable to those previously issued. The USEPA also cautions that because data availability varies from state to state, the results are not necessarily comparable from one geographic area to another. The 2005 NATA analysis estimated tract level total cancer risk for the analysis area as 25 to 50 per one million and the estimated tract level total respiratory hazard index was 0 to 1. The USEPA estimates the average national cancer risk for 2005 was 50 per one million, meaning 1 person out of every 20,000 had an increased likelihood of contracting cancer from breathing air toxins from outdoor sources if exposed to 2005 emission levels over their lifetime. A respiratory hazard index below 1 indicates that exposures in the area do not exceed reference levels that would have adverse effects for human health.

Climate

The analysis area is located in a semi-arid climate regime typified by dry windy conditions and limited rainfall. Summer maximum temperatures are generally in the range of 80 or 90 degrees (°) Fahrenheit (F); winter minimum temperatures are generally in the teens to 20s. Temperatures occasionally reach above 100°F in June and July and have dipped below zero in December and January. Precipitation is divided between summer thunderstorms associated with the southwest monsoon and winter snowfall as Pacific weather systems drop south into New Mexico. Table 4 shows climate “normals” for the 30-year period from 1981 to 2010 in the Farmington, New Mexico area.

Table 3. Climate normals for the Farmington area, 1981-2010

Month	Average Temperature (^{O}F)	Average Maximum Temperature (^{O}F)	Average Minimum Temperature (^{O}F)	Average Precipitation (inches)
January	30.5	40.8	20.3	0.53
February	35.8	46.8	24.8	0.59
March	43.2	56.1	30.3	0.78
April	50.4	64.7	36.2	0.65
May	60.4	74.8	46.1	0.54
June	69.8	85.1	54.5	0.21
July	75.4	89.6	61.2	0.90
August	73.2	86.5	59.8	1.26
September	65.4	79.1	51.7	1.04
October	53.3	66.4	40.1	0.91
November	40.5	52.2	28.8	0.68
December	31.0	41.2	20.7	0.50

Source: USDI/BLM 2011; data collected at New Mexico State Agricultural Science Center, Farmington, New Mexico

Direct and Indirect Impacts

Air quality would temporarily be impacted with pollution from exhaust emissions and dust. Air pollution from the motorized equipment and dust dissemination would discontinue at the completion of the project. Other factors that currently affect air quality in the area include dust from livestock herding activities, dust from recreational use, dust from use of roads for vehicular traffic, and emissions from oil and gas production activities. Impacts to air quality attributable to this project would be temporary and short term.

Cumulative Impacts

The FFO manages federal hydrocarbon resources in San Juan, Sandoval, Rio Arriba, and McKinley counties in New Mexico. There are approximately 23,522 wells in the San Juan Basin. About 16,435 of the wells in these counties are federal wells. Analysis of cumulative impacts for reasonable development scenarios of oil and gas wells on public lands in the FFO was presented in the 2003 PRMP. This included modeling of impacts on air quality. A more detailed discussion of Cumulative Impacts can be found in the Air Resources Technical Report (USDI/BLM 2011).

The primary activities that contribute to levels of air pollutant and GHG emissions in the Four Corners area are electricity generation stations, fossil fuel industries, and vehicle travel. The Air Quality Technical Report includes a description of the varied sources of national and regional emissions that are incorporated here to represent the past, present, and reasonably foreseeable impacts to air resources (USDI/BLM 2011). It includes a summary of emissions on the national and regional scale by industry source. Sources that are considered to have notable contributions to air quality impacts and GHG emissions include electrical generating units, fossil fuel production (nationally and regionally), and transportation.

Emission calculators estimated that there could be very small direct and indirect increases in several criteria pollutants, HAPs, and GHGs because of implementing the proposed action. The very small increase in emissions that could result would not be expected to result in exceeding the NAAQS for any criteria pollutants in the analysis area.

The very small increase in GHG emissions that could result from implementing the proposed action would not produce climate change impacts that differ from the no action alternative. This is because climate change is a global process that is impacted by the sum total of GHGs in the Earth's atmosphere. The incremental contribution to global GHGs from the action alternatives cannot be translated into effects on climate change globally or in the area of this site-specific action. It is currently not feasible to predict with certainty the net impacts from the action alternatives on global or regional climate.

The Air Resources Technical Report (USDI/BLM 2011) discusses the relationship of past, present, and future predicted emissions to climate change and the limitations in predicting local and regional impacts related to emissions. It is currently not feasible to know with certainty the net impacts from particular emissions associated with activities on public lands.

Mitigation Measures and Residual Impacts

No mitigations measures have been identified. The proposed action would result in very small short-term increases in several criteria pollutants, hazardous air pollutants, and GHGs. These emissions are not expected to impact the 8-hour average ozone concentrations or any other criteria pollutants in the southern San Juan Basin.

3.2 Soils

3.2.1 Affected Environment

Soils in the San Juan Basin were formed primarily in two kinds of parent material—alluvial sediment and sedimentary rock. Alluvial sediment is material that was deposited in river valleys and on mesas, plateaus, and ancient river terraces. Sedimentary parent material consists mainly of sandstone and shale bedrock. These shale and resistant sandstone beds form prominent structural benches, buttes, and mesas bounded by cliffs.

Two major soil-mapping unit types occur within the proposed project area—Blancot-Notal association, gently sloping, and Fruitland-Persayo-Sheppard complex, hilly (Keetch 1980). Some soils in the project area have been previously compacted and mixed during the construction and operation of the existing access road and well. Biological crusts were observed scattered throughout the project area. Surface geology of the proposed project is the Nacimiento Formation from the Paleocene Period (Manley et al. 1987) and includes recent alluvial deposits.

Blancot-Notal association, gently sloping consists of deep and well-drained soils on upland and valleys at an elevation ranging from 5,600 to 6,400 feet. The parent materials are formed from fan alluvium derived from sandstone and shale, and stream alluvium derived from sandstone and shale. This soil unit is composed of 55 percent Blancot, 25 percent Notal; and 20 percent of a small area of Stumble, Turley, and Fruitland soils. Permeability of the Blancot soil is moderate. Available water capacity is high. Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. Effective rooting depth is 60 inches or more. Permeability of the Notal soil is very slow. Available water capacity is very high. Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is severe (Ketch 1980).

Fruitland-Persayo-Sheppard complex, hilly consists of shallow to deep well-drained to somewhat excessively drained on hills, mesas, plateaus, fans, and breaks at an elevation ranging from 4,800 to 6,400 feet. The parent material is formed from slope alluvium derived from sandstone and shale, residuum weathered from shale, and eolian deposits over mixed alluvium. This soil unit is composed of 40 percent Fruitland, 30 percent Persayo, 25 percent Sheppard, and 5 percent of small areas of Farb and rock outcrop. Permeability of the Fruitland soil is moderately rapid. Available water capacity is moderate. Runoff is medium and the hazard of water erosion is moderate. The hazard of soil blowing is severe. Permeability of the Persayo soil is moderately slow. Available water capacity is very low. Runoff is rapid, and the hazard of water erosion is high. The hazard of soil blowing is severe. Permeability of the Sheppard soil is moderately rapid. Available water capacity is low. Runoff is slow and the hazard of water erosion is slight. The hazard of soil blowing is very severe (Ketch 1980).

3.2.2 Impacts from the Proposed Action

Direct and Indirect Impacts

New construction would result in temporary displacement, compaction, and mixing of soils. The proposed project would affect a maximum of 1.66 acres of soils that have been classified as having slight to high surface runoff, and slight to very severe water and wind erosion potential. Compaction of the soils during construction of the proposed action, coupled with the implementation of stipulations and construction general practices, would limit soil impacts from erosion. The most susceptible period for soil erosion impacts is during construction, when strong winds or precipitation could mobilize soils. The impact on soil resources because of the proposed project would be localized and short to long term.

Cumulative Impacts

The PRMP/FEIS determined that “cumulative impacts on soils in the San Juan Basin would comprise the total amount of short-term and long-term surface disturbance due to all new oil and gas development and other activities” (USDI/BLM 2003a, page 4-123). The PRMP/FEIS projected disturbance to approximately 7,981 acres in the Upper San Juan watershed (USDI/BLM 2003a, page 4-7). The proposed action would cumulatively contribute 1.66 acres of short-term disturbance to soils in the watershed; of which, all would be reclaimed, with the exception of the existing road.

3.3 Water Resources/Quality—Surface and Groundwater

3.3.1 Affected Environment

The proposed project area would be located in the Upper Colorado River Hydrologic Region and is part of the Upper San Juan sub-watershed. A gullied arroyo, not shown on the United States Geological Survey National Hydrography Dataset, is located east of the proposed project area. From Station 0+00 to 4+06 of the proposed ROW, the arroyo extends parallel approximately 60 to 100 feet southeast of the proposed ROW. A diversion ditch, approximately 1 to 5 feet deep by 3 to 6 feet wide, runs through the proposed ROW between Stations 5+00 to 4+06. Surface runoff flows south from the proposed project area into Gallegos Canyon located approximately 600 feet from Station 0+00 (beginning of line). There are no perennial streams, springs, seeps, or wetlands within the proposed area.

The primary aquifers in the BLM/FFO area are the sandstone-based Uinta-Animas and the Mesaverde. Groundwater is readily available in most of the BLM/FFO area and is of fair to poor quality. A search was performed of the New Mexico State Engineers Office–Water Administration and Technical Engineering Resource System database for the proposed project area and vicinity (1-mile radius). The database has no records of water wells located within the proposed project area or a 1-mile radius (NMOSE 2013).

3.3.2 Impacts from the Proposed Action

Direct and Indirect Impacts

The proposed project would temporarily expose approximately 1.66 acres of soil as a sediment source. Exposures of soils, particularly on slopes, could lead to an increase in an undetermined but likely small amount of sediment transport, particularly during and following storm events. Slight alterations in project area drainage patterns may also lead to an increase in sediment transport. These increases in sediment transport would persist for 1 to 2 years until the disturbed areas are stabilized. The potential for sediment transport into the drainages would be minimized through the implementation of best management practices and other preventive measures, such as re-establishment of vegetation and proper site hydrological diversions.

There would be the potential for accidental spills or release of materials that could impact local water quality. Potential for surface water quality impacts from accidental spills or releases of hazardous materials would be short term during construction. Williams maintains a hazardous material response contingency plan to cover an accidental release of hazardous materials. During operation, the proposed pipeline could potentially leak or rupture, which could impact groundwater quality. The proposed pipeline would be tested to ensure integrity prior to operation. A cathodic protection system would be installed to monitor the integrity of the pipeline. Potential impacts to groundwater quality from the proposed action would be long term.

Cumulative Impacts

Cumulative impacts to surface waters would be related to short-term sedimentation or flow changes. Surface-disturbing activities (other than the proposed action) that may cause accelerated erosion include but are not limited to construction of roads, other facilities, and installation of trenches for utilities; road maintenance such as grading or ditch-cleaning; public recreational activities; vegetation manipulation and management activities; prescribed and natural fires; and livestock grazing. Because the proposed action would have a negligible impact to downstream surface water quality, the cumulative impact also would be negligible when added to other past, present, and reasonably foreseeable activities downstream.

3.4 Vegetation Resources

3.4.1 Affected Environment

The natural vegetation in the proposed project area is classified as Great Basin desert scrub/grassland intermixed with open Juniper Savannah woodland (Dick-Peddie 1993). The existing access road and well pad are essentially devoid of vegetation. The current vegetation in undisturbed areas is dominated by low

stands of herbaceous species such as blue grama (*Bouteloua gracilis*), and purple threeawn (*Aristida purpurea*). Woody species were few to moderate and include big sagebrush (*Artemisia tridentata*), horsebush (*Tetradymia canescens*), and prairie sagewort (*Artemisia frigida*). Four mature one-seed juniper (*Juniperus monosperma*) trees are located within the proposed project area. Overall, the vegetation ground cover was visually estimated at 0 to 30 percent. No riparian vegetation occurs within the proposed project area.

3.4.2 Impacts from the Proposed Action

Direct and Indirect Impacts

The proposed action would remove approximately 1.66 acres of undisturbed and disturbed desert scrub/grassland vegetation. Four mature juniper trees would be removed by the proposed action. Following installation of the proposed pipeline, the entire proposed ROW, with the exception of where it overlaps the existing roadway, would be reseeded with a BLM/FFO seed mix. Following reclamation, there would be long-term changes in the density and composition of project area vegetation communities. Disturbed areas would be expected to be fully reclaimed within 1 to 3 years.

Cumulative Impacts

Within the FFO planning area, there are approximately 435,500 acres of Great Basin desert scrub and approximately 56,500 acres of Juniper Savannah (USDI/BLM 2003a, page 3-31). Based on the acres of plant community types within the planning area and the estimated total disturbance of future activities, approximately 7 percent of the Great Basin desert scrub and Juniper Savannah communities would be disturbed within the planning area over 20 years from reasonably foreseeable future actions (USDI/BLM 2003a, page 3-31 and 4-7). The proposed action would not contribute to a loss of vegetation communities in the planning area, as all areas would be reclaimed with the exception of existing roads. Changes in vegetation composition and the potential for invasive, non-native species to establish would cumulatively impact vegetation in the project area. These impacts would affect approximately 1.26 acres of undisturbed vegetation.

3.5 Cultural Resources

3.5.1 Affected Environment

The proposed project area is located within the archaeologically rich San Juan Basin of northwestern New Mexico. In general, the prehistory of the San Juan Basin can be divided into five major periods: PaleoIndian (ca. 10000 B.C. to 5500 B.C.), Archaic (ca. 5500 B.C. to A.D. 400), Basketmaker II-III and Pueblo I-IV periods (A.D. 1 to 1540), and the historic (A.D. 1540 to present) that includes Native American as well as later Hispanic and Euro-American settlers. A detailed description of these various periods and select phases within each period is provided in the Farmington PRMP/FEIS (USDI/BLM 2003a). Additional information can also be found in an associated documented, Cultural Resources Technical Report (CRTR; SAIC 2002).

Cultural sites vary considerably, and can include but are not limited to simple artifact scatters, domiciles of various types with a myriad of associated features, rock art and inscriptions, ceremonial/religious

features, and roads and trails. The entire Area of Potential Effect (APE) for the proposed action was archaeologically surveyed by WCRM at a BLM Class III level (100 percent) and a report was prepared and submitted to the BLM in accordance with the *Procedures for Performing Cultural Resources Fieldwork on Public Lands in the Area of New Mexico BLM Responsibilities* (BLM 2005). The Class III inventory identified no cultural sites within the APE (WCRM Report WRCM(F)1195; BLM Report 2013(II)025F).

3.5.2 Impacts from the Proposed Action

Direct and Indirect Impacts

There are no cultural sites within the APE.

Cumulative Impacts

There would be no negative cumulative impact on cultural resources as no cultural sites are present. A positive cumulative effect is the additional scientific information yielded by the archaeological survey.

Mitigation Measures and Residual Impacts

No specific protective measures have been recommended for the proposed construction activities.

4. SUPPORTING INFORMATION

4.1 Tribes, Individuals, Organizations, or Agencies Consulted

This section includes individuals or organizations from the general public, public land users, and interdisciplinary team that were contacted during the development of this document.

- Andrea Felix—Williams Four Corners, LLC

4.2 List of Preparers

The environmental document was prepared by Ecosphere Environmental Services in conformance with the standards of, and under the direction of, the BLM/FFO. The following individuals contributed to this document.

- Amanda Nisula, Planning & Environmental Specialist—BLM/FFO
- Marcy Romero, Realty Specialist—BLM/FFO
- Jim Copeland, Archaeologist—BLM/FFO
- John Dodge, Biologist—Ecosphere Environmental Services
- Joey Herring, Sr. Biologist—Ecosphere Environmental Services
- Laura Getts, Biologist—Ecosphere Environmental Services
- Charles W. Wheeler, Ph.D., RPA, Archaeologist—Western Cultural Resource Management, Inc.

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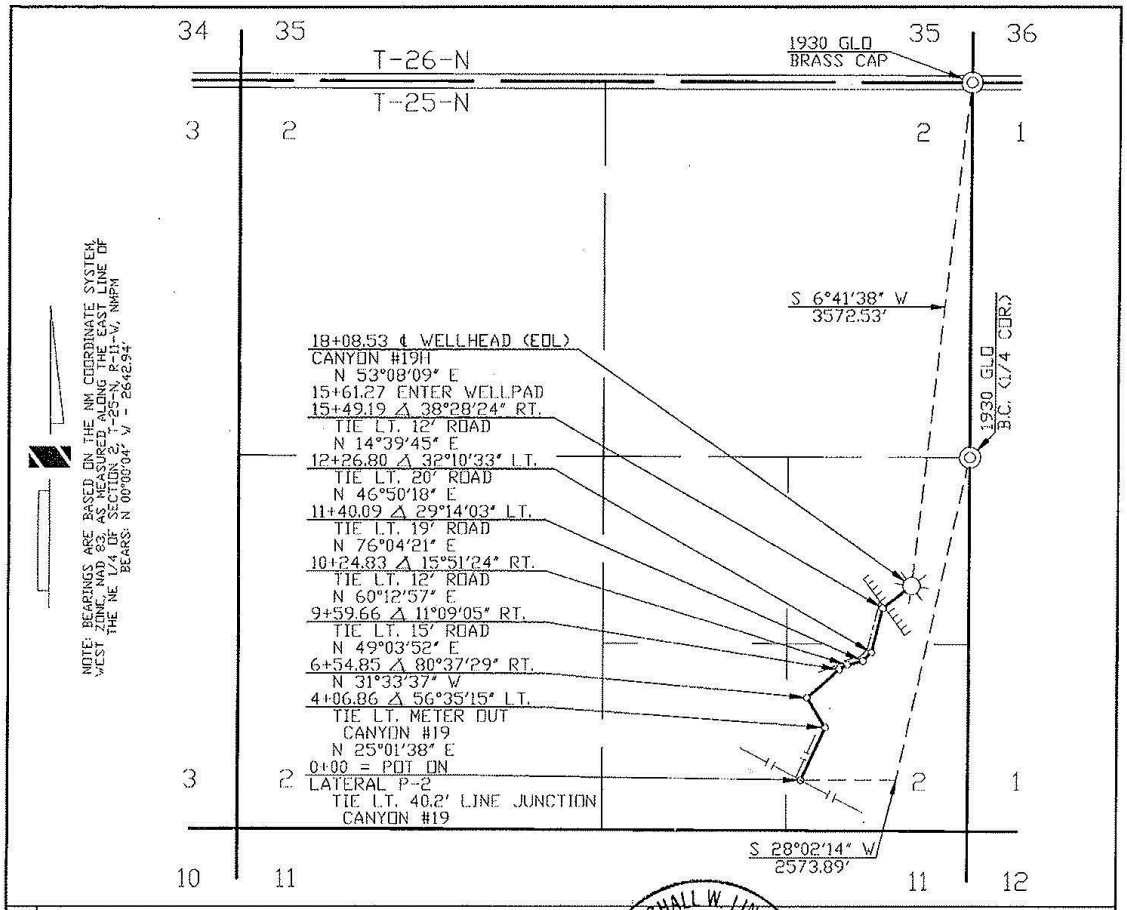
Appendix A—Plats and Maps


34
35
T-26-N
T-25-N
1930 GLO
BRASS CAP
35
36
3
2
2
1
S 6°41'38" W
3572.53'
1930 GLO
B.C. (1/4 COR.)
18+08.53 ℄ WELLHEAD (EOL)
CANYON #19H
N 53°08'09" E
15+61.27 ENTER WELLPAD
15+49.19 Δ 38°28'24" RT.
TIE LT. 12' ROAD
N 14°39'45" E
12+26.80 Δ 32°10'33" LT.
TIE LT. 20' ROAD
N 46°50'18" E
11+40.09 Δ 29°14'03" LT.
TIE LT. 19' ROAD
N 76°04'21" E
10+24.83 Δ 15°51'24" RT.
TIE LT. 12' ROAD
N 60°12'57" E
9+59.66 Δ 11°09'05" RT.
TIE LT. 15' ROAD
N 49°03'52" E
6+54.85 Δ 80°37'29" RT.
N 31°33'37" W
4+06.86 Δ 56°35'15" LT.
TIE LT. METER OUT
CANYON #19
N 25°01'38" E
0+00 = POT ON
LATERAL P-2
TIE LT. 40.2' LINE JUNCTION
CANYON #19
3
2
2
1
S 28°02'14" W
2573.89'
10
11
11
12
NOTE: BEARINGS ARE BASED ON THE NM COORDINATE SYSTEM, WEST ZONE, NAD 83, AS MEASURED ALONG THE EAST LINE OF THE NE 1/4 OF SECTION 2, T-25-N, R-11-W, NMPM
BEARS: N 00°00'04" W - 2642.94'
PIPE DATA
SURVEYORS CERTIFICATION
I, MARSHALL W. LINDEEN, BEING A PROFESSIONAL SURVEYOR IN THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAT WAS MADE UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT ACCURATELY REPRESENTS THIS SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF.
MARSHALL W. LINDEEN P.S. #17078
7-13-12
DATE
MARSHALL W. LINDEEN
NEW MEXICO
17078
PROFESSIONAL SURVEYOR
OWNERSHIP
SUBDIVISION | OWNER | FEET | MILES | ACRES | RODS | R.O.W. WIDTH
0+00 TO 18+08.5 | BUREAU OF LAND MANAGEMENT | 1808.53 | 0.343 | 1.661 | 109.608 | 40'
REVISION
NO. | DATE | BY | DESCRIPTION | W.O.NO. | CHK. | APP. | NO. | DATE | BY | DESCRIPTION | W.O.NO. | CHK. | APP.
1 | 06/04/12 | CB | ISSUED FOR REVIEW | 1113431 | MW
INFO
R/W #: 127805
NWC #:
METER #:
SURVEYED: 05/15/12
DRAFTING | BY | DATE
DRAWN BY | CB | 06/04/12
CHECKED BY | MW | 06/04/12
APPROVED BY
ENGINEER | BY | DATE
DESIGNED BY
PROJ. APPROVED
STATE: NEW MEXICO
COUNTY: SAN JUAN
WILLIAMS FOUR CORNERS, LLC
ONE OF THE WILLIAMS COMPANIES
TORRE ALTA GATHERING SYSTEM
XTO - CANYON #19H
(REF DWG. 2P799.0-1)
SEC. 2, T-25-N, R-11-W, NMPM
0+00 = POT ON LATERAL P-2
SCALE: 1" = 1000'
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DWG NO. 2P799.0-13-1
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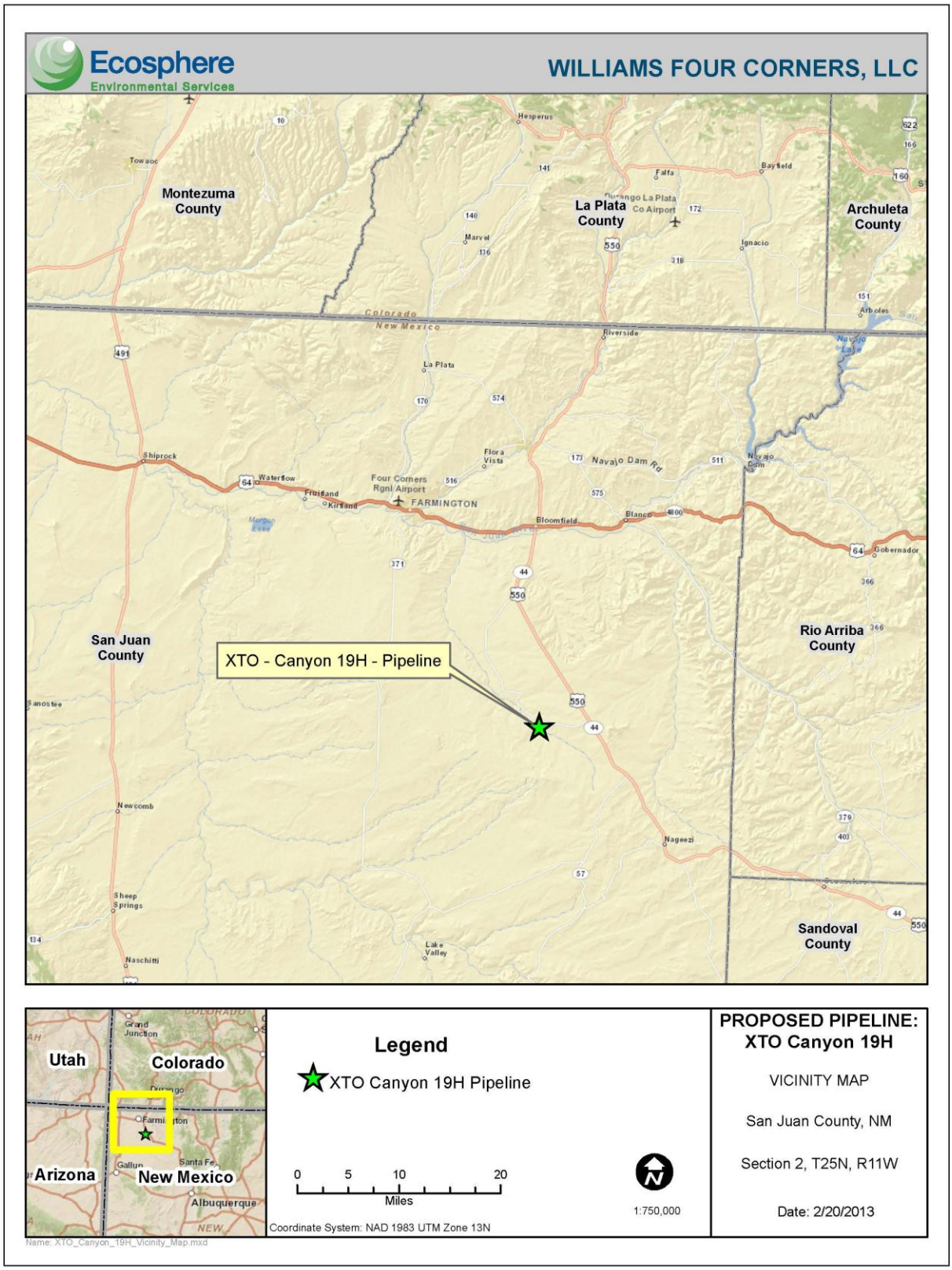

Figure 1. Proposed Canyon #19H Well-Tie Pipeline vicinity

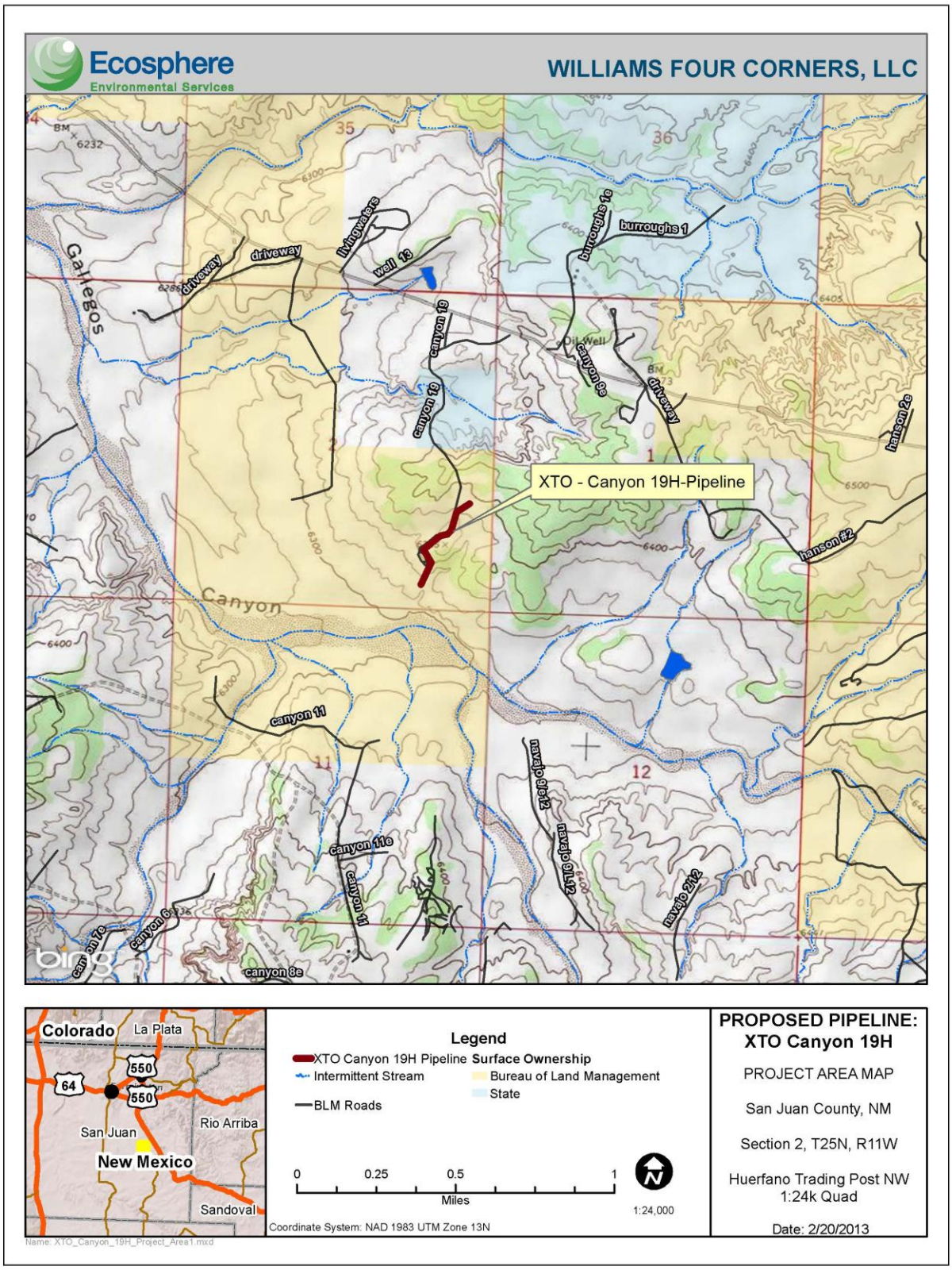

Figure 2. Proposed Canyon #19H Well-Tie Pipeline project area

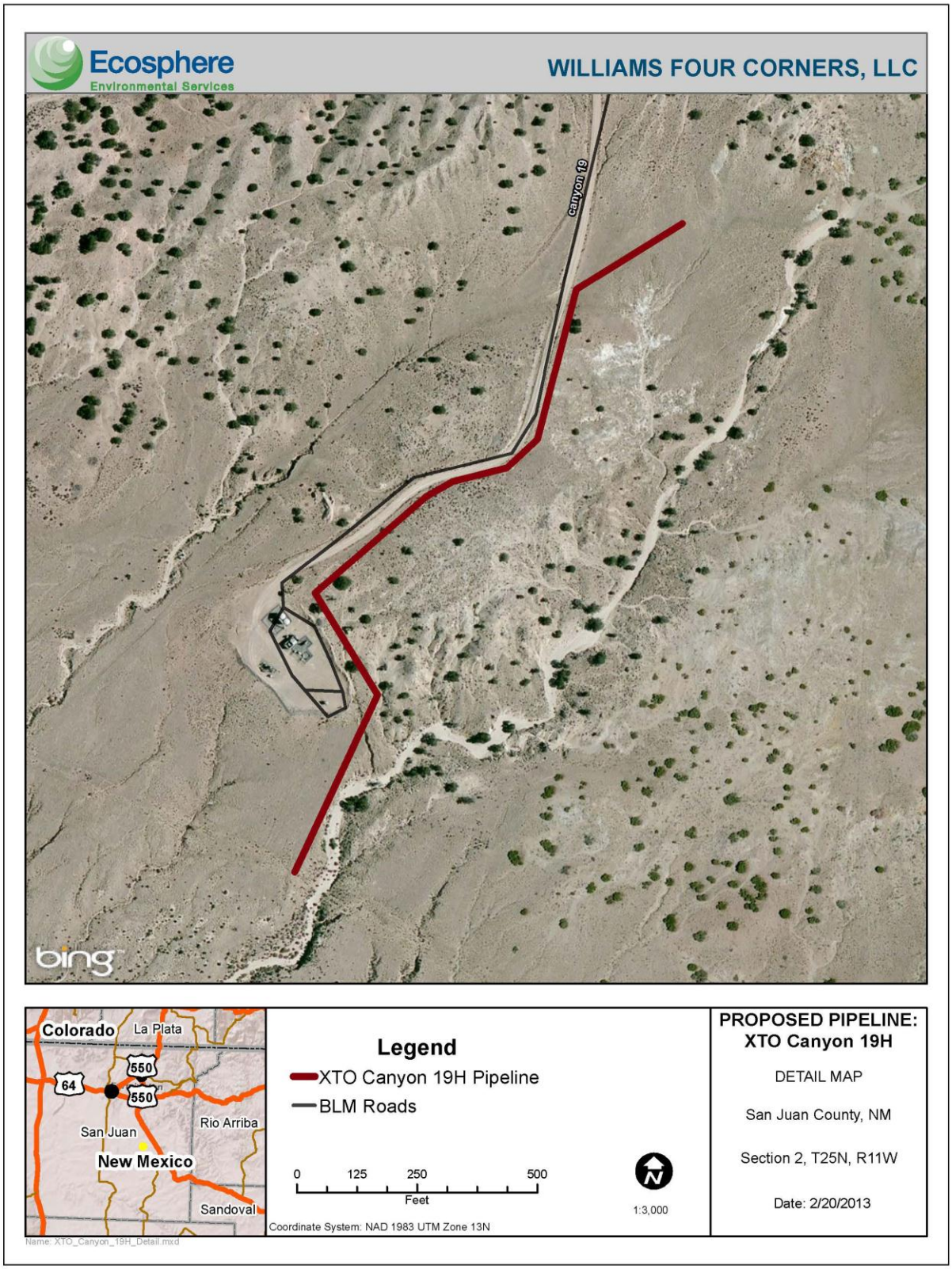

Figure 3. Proposed Canyon #19H Well-Tie Pipeline site detail map

Appendix B—Reclamation Plan

Appendix C—Pipeline Stipulations

Appendix D—Biological Survey Report