Lake Powell Pipeline Project
FERC Additional Information Request Schedule B – Item 21

Land Use Plans and Conflicts

21. In section 5.3.14.1.2.6 of exhibit E, you discuss Wild and Scenic Rivers, and in table 5-111 you summarize your effects assessment. However you do not provide a sufficient assessment of the effects on the Lower Paria River, which is eligible for a Wild and Scenic River designation. Please provide more detailed, specific information, including a map of the potentially affected river segment(s) showing the location of each proposed project feature or activity associated with any effect.

UBWR Response:

The proposed Glen Canyon to Buckskin transmission line alignment (230 kV) would cross over the Lower Paria River – 1 segment considered by BLM to be eligible for Recreation designation as a Wild and Scenic River, parallel to two existing transmission lines (Navajo-McCullough 500 kV transmission line and Glen Canyon to Buckskin 138 kV transmission line) north of the Paria Canyon-Vermilion Cliffs Wilderness boundary (see Appendix E, Map Panel 12 and Figure 2-1). Figure 2-1 is an aerial photograph map of the proposed transmission line crossing of the Paria River canyon. It shows the proximity of the proposed transmission line to the existing 138 kV transmission line and the existing 500 kV transmission line. The proposed 230 kV transmission line conductors (three separate conductor lines) each would be 1.4 inches diameter and consist of non-specular materials. The proposed transmission line towers (H-towers) would be 45.5 feet tall above the ground.

Visual Effects Analysis

The proposed transmission line could have direct visual effects on the Paria River corridor, although the proposed Glen Canyon to Buckskin transmission line may be difficult to visually distinguish from observation points within the canyon because of its distance above the canyon floor. The vertical distance from the bottom of the Paria River canyon immediately below the proposed direct transmission line crossing to the transmission line at its lowest sag point would range from 252 feet on the west to 272 feet on the east. This distance range includes 27 feet to account for required minimum ground clearance at the maximum sag point, and is calculated from the Paria River canyon bottom elevation of 4230 feet MSL to the top of the canyon rim where transmission line towers would be located on the west at 4455 feet MSL (ground level) and on the east at 4475 feet MSL (ground level). Views of the proposed transmission line from 150 feet horizontal distance from either side the transmission line alignment would increase the sight distance from the bottom of the canyon to the transmission line to a range of 293 feet on the west to 311 feet on the east. Figure 2-2 shows an example photograph of a 230 kV transmission line taken 250 feet away from the photographer (near the middle of the photograph). The 230 kV transmission line with non-specular conductors is difficult to see in Figure 2-2. Figure 2-3 shows the same photograph of the 230 kV transmission line with a transmission line tower included for perspective (the tower is closer to the photographer, standing on the highway, because the transmission line is crossing US 89 at an angle to the highway).

The top portions of two proposed transmission line towers would be visible from the canyon bottom under and in the vicinity of the proposed direct transmission line crossing. Figures 2-4, 2-5 and 2-6 show a viewshed analysis from the top elevations of three proposed transmission line towers that would be located east, center and west, respectively, on both sides of the Paria River canyon. The east and center transmission towers would not be visible in their entirety because the sides of the canyon are too steep to allow direct line of sight. The west transmission line tower would not be visible from the canyon bottom as shown in Figure 2-6.

A second, partial crossing of the proposed 230 kV transmission line would occur over a portion of the Paria River canyon where the river makes a sharp turn to the east just upstream of the proposed direct crossing of the same transmission line (Figure 2-1). The proposed transmission line may not be visible from directly underneath because the river undercuts the west and south canyon walls. The vertical distance from the bottom of the Paria River canyon immediately below the proposed transmission line crossing to the transmission line at its lowest sag point would range from 237 feet on the west to 247 feet on the east. This distance range includes 27 feet to account for required minimum ground clearance at the maximum sag point, and is calculated from the Paria River canyon bottom elevation of 4235 feet MSL to the top of the canyon rim where transmission line towers would be located on the west at 4445 feet MSL (ground level) and on the east at 4455 feet MSL (ground level). Views of the proposed transmission line from 150 feet horizontal distance from the north (upstream) side the transmission line alignment would increase the sight distance from the bottom of the canyon to the transmission line to a range of 280 feet on the west to 289 feet on the east. Figure 2-2 shows an example photograph of a 230 kV transmission line taken 250 feet away from the photographer (near the middle of the photograph). The 230 kV transmission line with non-specular conductors is difficult to see in Figure 2-2. Figure 2-3 shows the same photograph of the 230 kV transmission line with a transmission line tower for perspective (the tower is closer to the photographer, standing on the highway, because the transmission line is crossing US 89 at an angle to the highway).

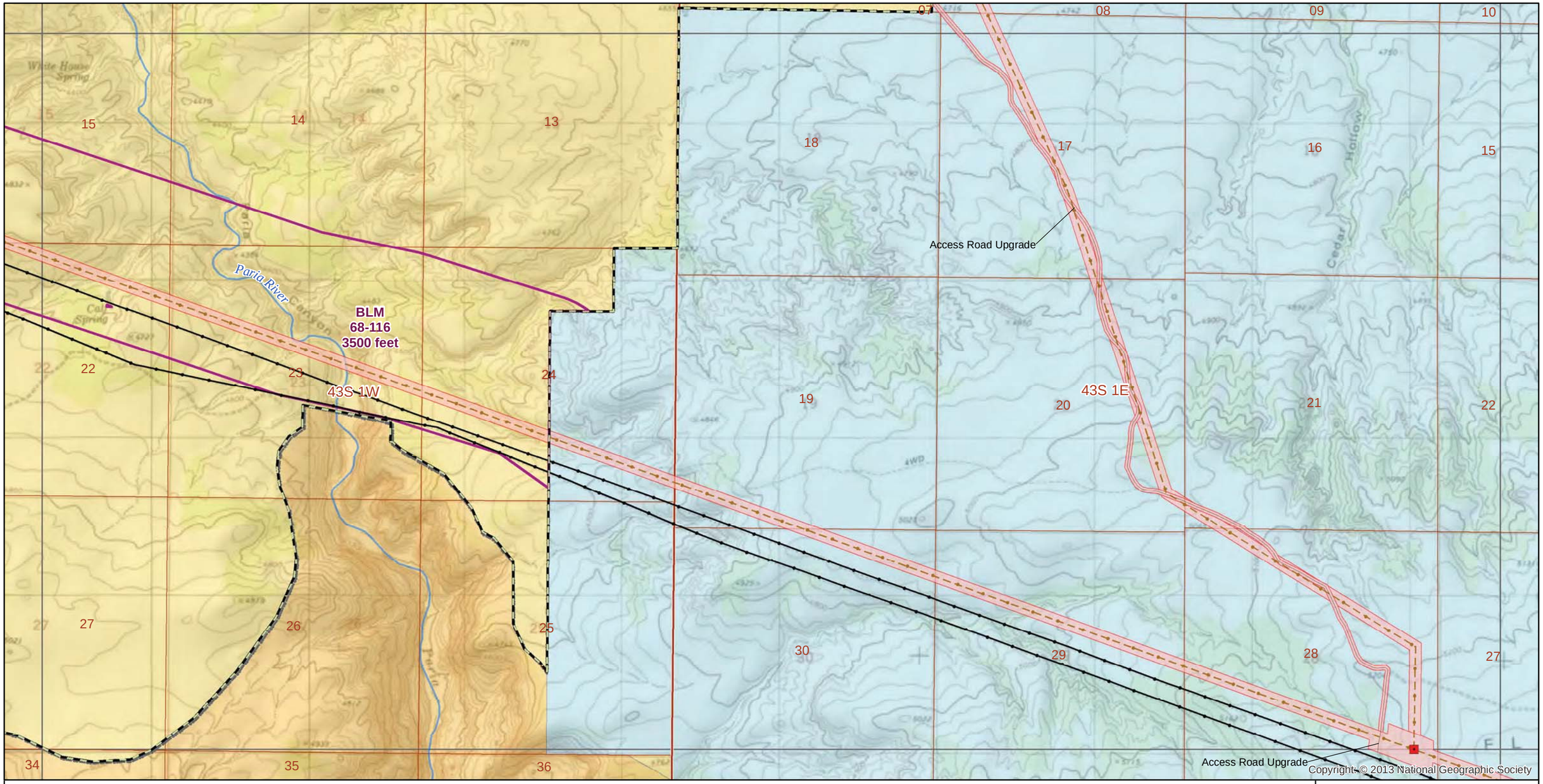
The top portions of two proposed transmission line towers would be visible from the canyon bottom under and in the vicinity of the proposed partial transmission line crossing. Figures 2-4, 2-5 and 2-6 show a viewshed analysis from the top elevations of three proposed transmission line towers that would be located east, center and west, respectively across the Paria River canyon. The west and center transmission towers would not be visible in their entirety because the sides of the canyon are too steep to allow direct line of sight. The east transmission line tower would not be visible from the canyon bottom under in the vicinity of the proposed partial transmission line crossing as shown in Figure 2-4.

With the non-specular conductors partially visible at 250 feet sight distance and less visible at longer sight distances, the proposed transmission line is expected to have minimal to no visual effect on recreational users within the Paria River canyon.

Noise Effects Analysis

Noise effects of the proposed transmission line operation are projected to be below the level of normal human conversation (60 dBA). The Ldn (typical day/night noise levels) 150 feet away from a 230 kV transmission line are projected at 58.2 dBA (Electrical Design Parameters of

Typical 230 kV and 500 kV Transmission Lines, 2005 Southern Company Services). The Ldn 250 feet away from the 230 kV transmission line would be approximately 50.0 dBA. Therefore, at the bottom of the Paria River canyon immediately under the proposed 230 kV transmission line, the noise generated by the transmission line would be approximately 50 dBA. As the distance from the transmission line increases, the noise level would decrease by 6 dBA with every doubling of distance.



Township
Section
Map Book Grid/Match Lines
LPP 250ft APE
GSENM Utility Corridor
West Wide Energy Corridor
BLM Administration Boundary
Right of Way Line

Water Treatment Facility (Not Part of LPP)
Project Pump Station
Project Hydro Station
Project Regulating Tank
Substation
Proposed Substation
Project Transmission Line
Existing Transmission Lines

Interstate
US Highway
ST Highway
Hwy
Major Road
Access Road

Lakes & Reservoirs
National Park/Monument
GSENM-Boundary
Tribal Lands
State Boundary
County Boundary

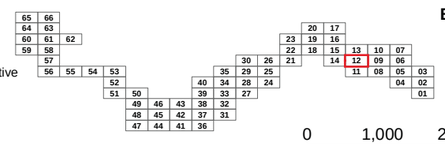
Land Ownership
BLM
Bureau of Reclamation
State
Private
Tribal
National Park Service

USFS
State Park
BLM Wilderness
State Wildlife Reserve
USFS Wilderness Area
USFWS

Hydro System, Existing Highway Alternative
Water Conveyance System
Hydro System - South Alternative
KCWCD System
Hydro System - Southeast Corner Alternative

APE for all features, access roads, construction staging areas, forebay, and afterbay includes a 100 foot wide buffer.

Map Panel Index



0 1,000 2,000 4,000 Feet

N

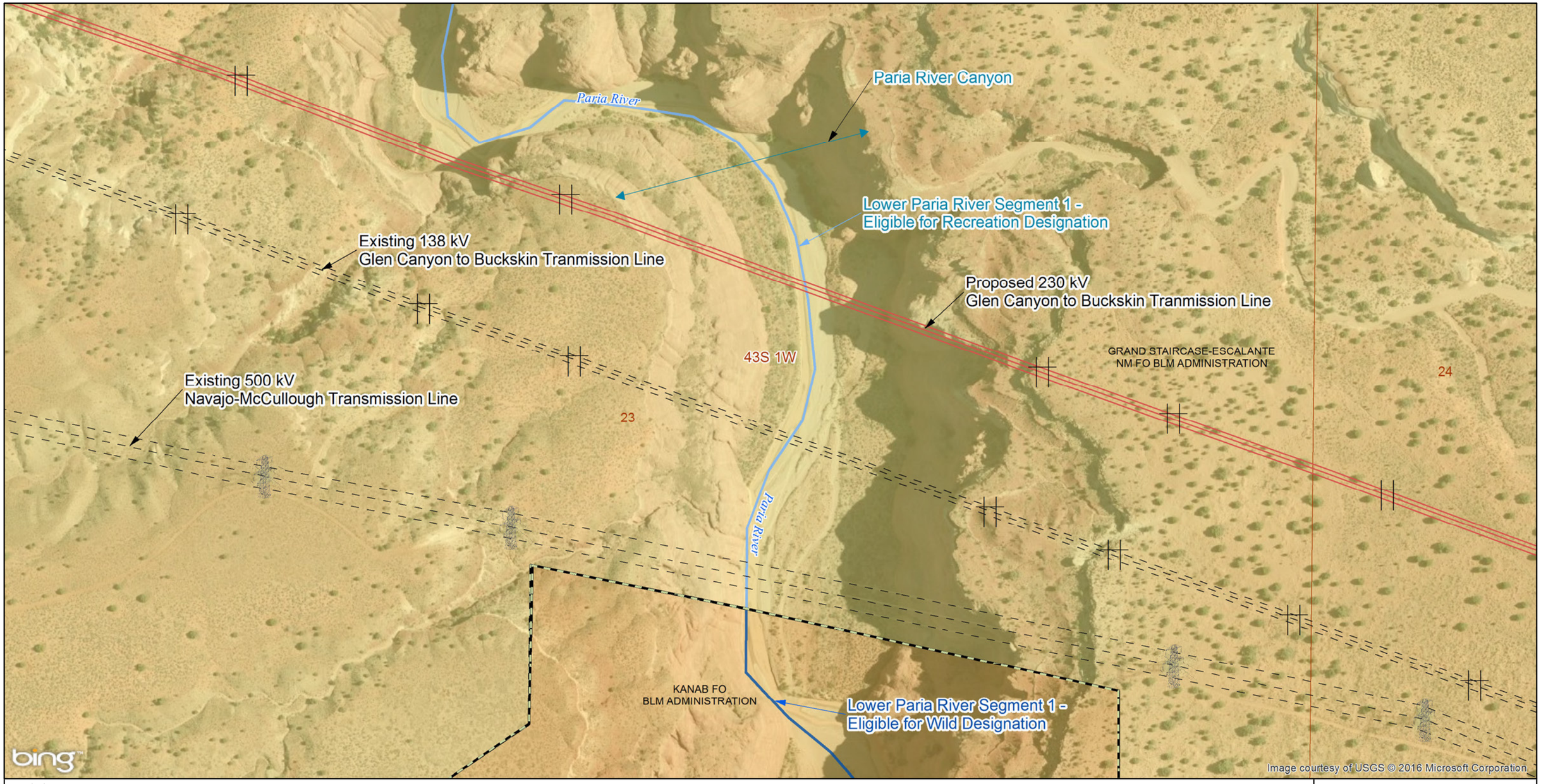
FERC Project Number: 12966-001
BLM Serial Numbers: AZA-34941 UTU-85472

Lake Powell Pipeline Project

Spatial Reference: UTM Zone 12N, NAD-83

UDWR Appendix E MWH

Area of Potential Effect (APE) Pipeline Alternatives
Map Panel 12



230 kV H-Frame

138 kV H-Frame

500 kV Steel Lattice

138 kV Transmission Line
230 kV Transmission Line
500 kV Transmission Line
Township
Section

Lower Paria River Segment 1 - Eligible for Recreation Designation
Lower Paria River Segment 1 - Eligible for Wild Designation

GRAND STAIRCASE-ESCALANTE NM FO
KANAB FO

Land Ownership
BLM
BLM Wilderness

FERC Project Number:
12966-001
BLM Serial Numbers:
AZA-34941
UTU-85472

N

0 150 300 600 Feet

Lake Powell Pipeline Project

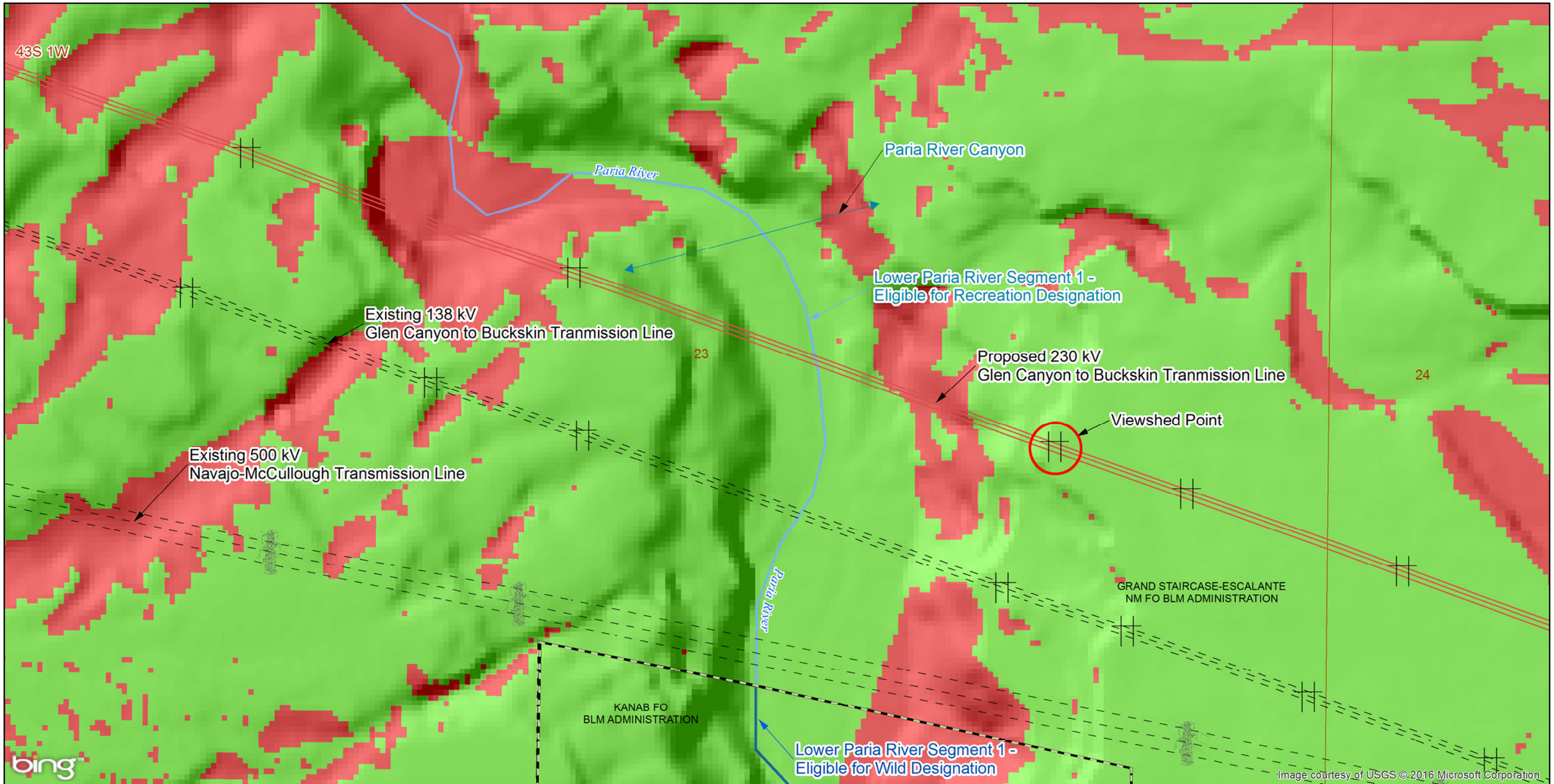
Spatial Reference: UTM Zone 12N, NAD-83

UDWRe **Figure 2-1** MWH

Proposed 230 kV Transmission Line Crossing of the Paria River

Figure 2-2
Rocky Mountain Power 230 kV Transmission Line 250 feet from Photographer (along US 89)

Figure 2-3
Rocky Mountain Power 230 kV Transmission Line 250 feet from Photographer, with Tower (along US 89)



230 kV H-Frame

138 kV H-Frame

500 kV Steel Lattice

138 kV Transmission Line

230 kV Transmission Line

500 kV Transmission Line

Township

Section

Lower Paria River Segment 1 - Eligible for Recreation Designation

Lower Paria River Segment 1 - Eligible for Wild Designation

GRAND STAIRCASE-ESCALANTE NM FO

KANAB FO

Not Visible

Visible

FERC Project Number:
12966-001
BLM Serial Numbers:
AZA-34941
UTU-85472

N

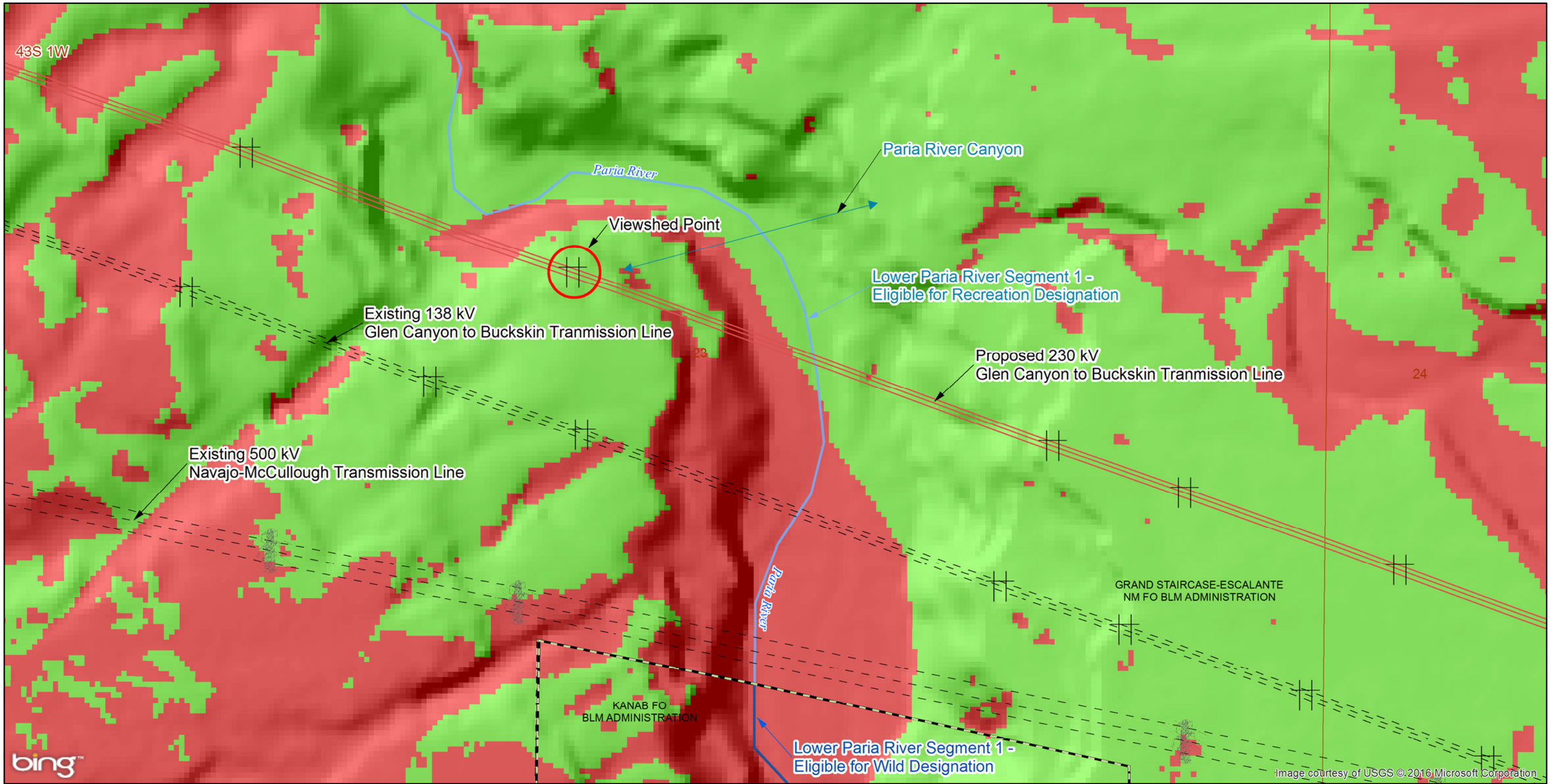
0 150 300 600 Feet

Lake Powell Pipeline Project

Spatial Reference: UTM Zone 12N, NAD-83

UDWRe **Figure 2-4** MWH

Proposed 230 kV Paria River Transmission Line Crossing East Tower Viewshed Analysis



230 kV H-Frame

138 kV H-Frame

500 kV Steel Lattice

138 kV Transmission Line
230 kV Transmission Line
500 kV Transmission Line
Township
Section

Lower Paria River Segment 1 - Eligible for Recreation Designation
Lower Paria River Segment 1 - Eligible for Wild Designation

GRAND STAIRCASE-ESCALANTE NM FO
KANAB FO
Not Visible
Visible

FERC Project Number:
12966-001
BLM Serial Numbers:
AZA-34941
UTU-85472

N

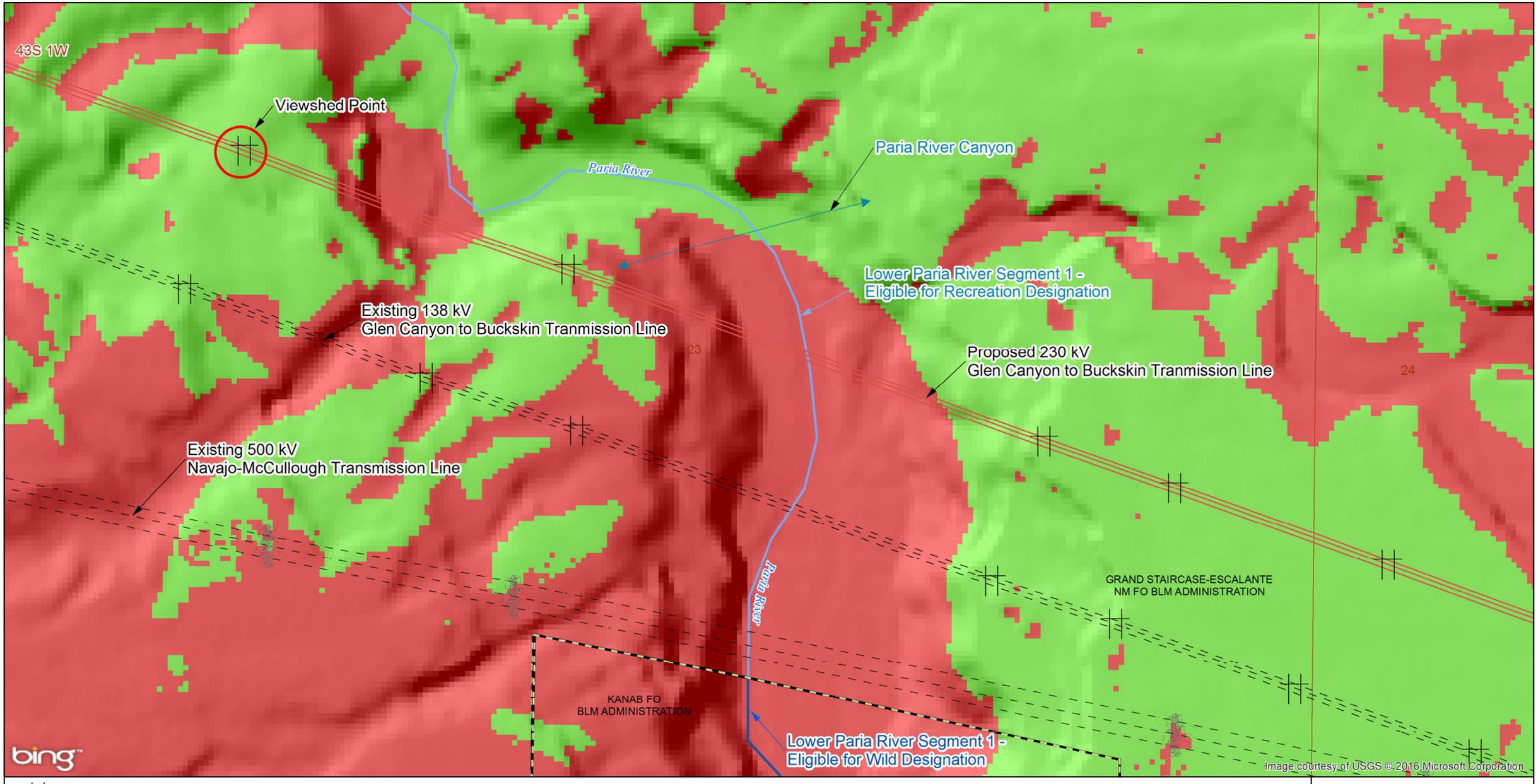
0 150 300 600 Feet

Lake Powell Pipeline Project

Spatial Reference: UTM Zone 12N, NAD-83

UDWRe **Figure 2-5** MWH

Proposed 230 kV Paria River Transmission Line Crossing Center Tower Viewshed Analysis



230 kV H-Frame

138 kV H-Frame

500 kV Steel Lattice

138 kV Transmission Line

230 kV Transmission Line

500 kV Transmission Line

Township

Section

Lower Paria River Segment 1 - Eligible for Recreation Designation

Lower Paria River Segment 1 - Eligible for Wild Designation

GRAND STAIRCASE-ESCALANTE NM FO

KANAB FO

Not Visible

Visible

FERC Project Number:
12966-001
BLM Serial Numbers:
AZA-34941
UTU-85472

N

0 150 300 600 Feet

Lake Powell Pipeline Project

Spatial Reference: UTM Zone 12N, NAD-83

UDWRe **Figure 2-6** MWH

Proposed 230 kV Paria River Transmission Line Crossing West Tower Viewshed Analysis