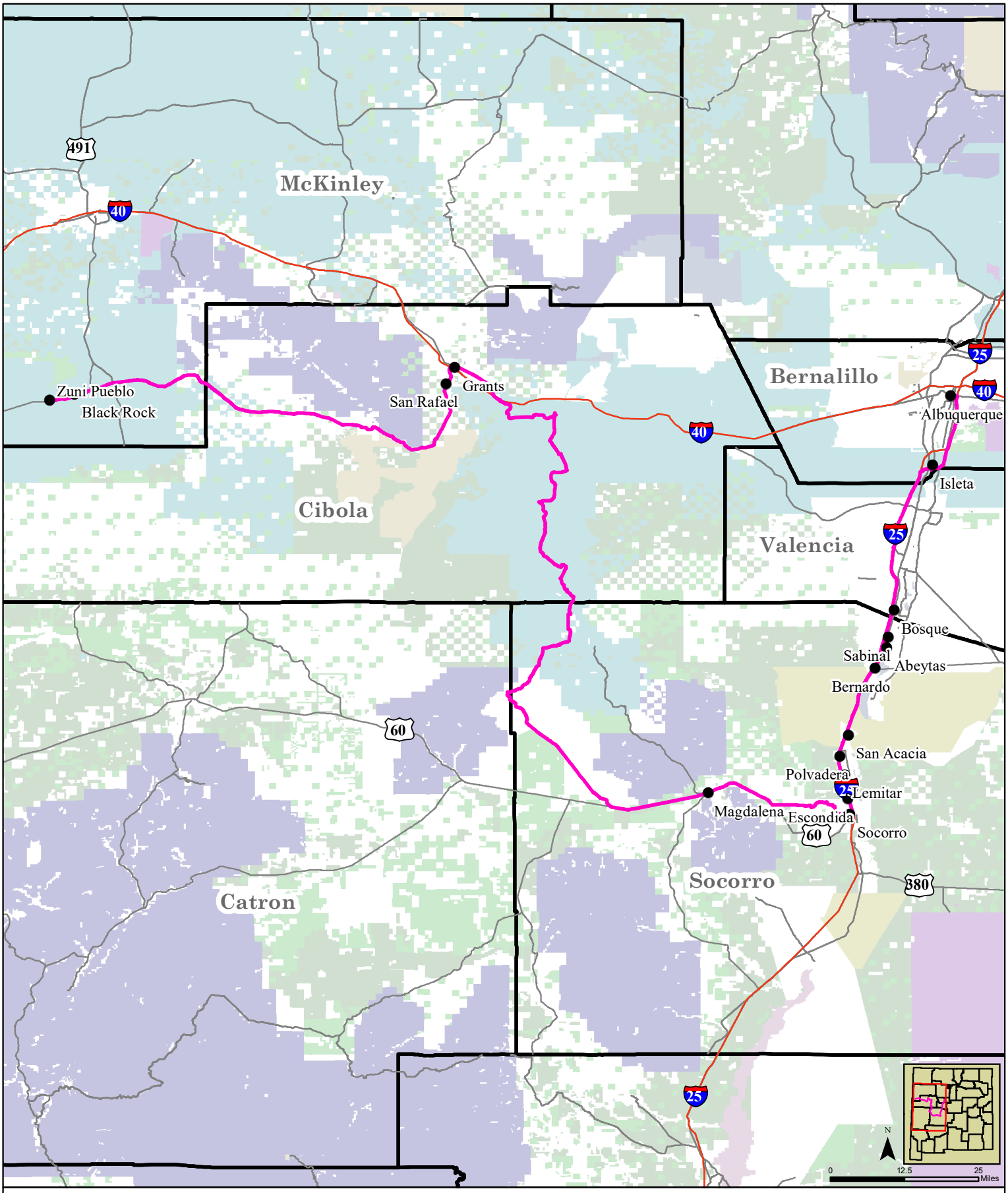
Appendix A

Maps for Proposed Action and Alternative Paths

[Appendix A-1: Alternative A – Proposed Action]



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

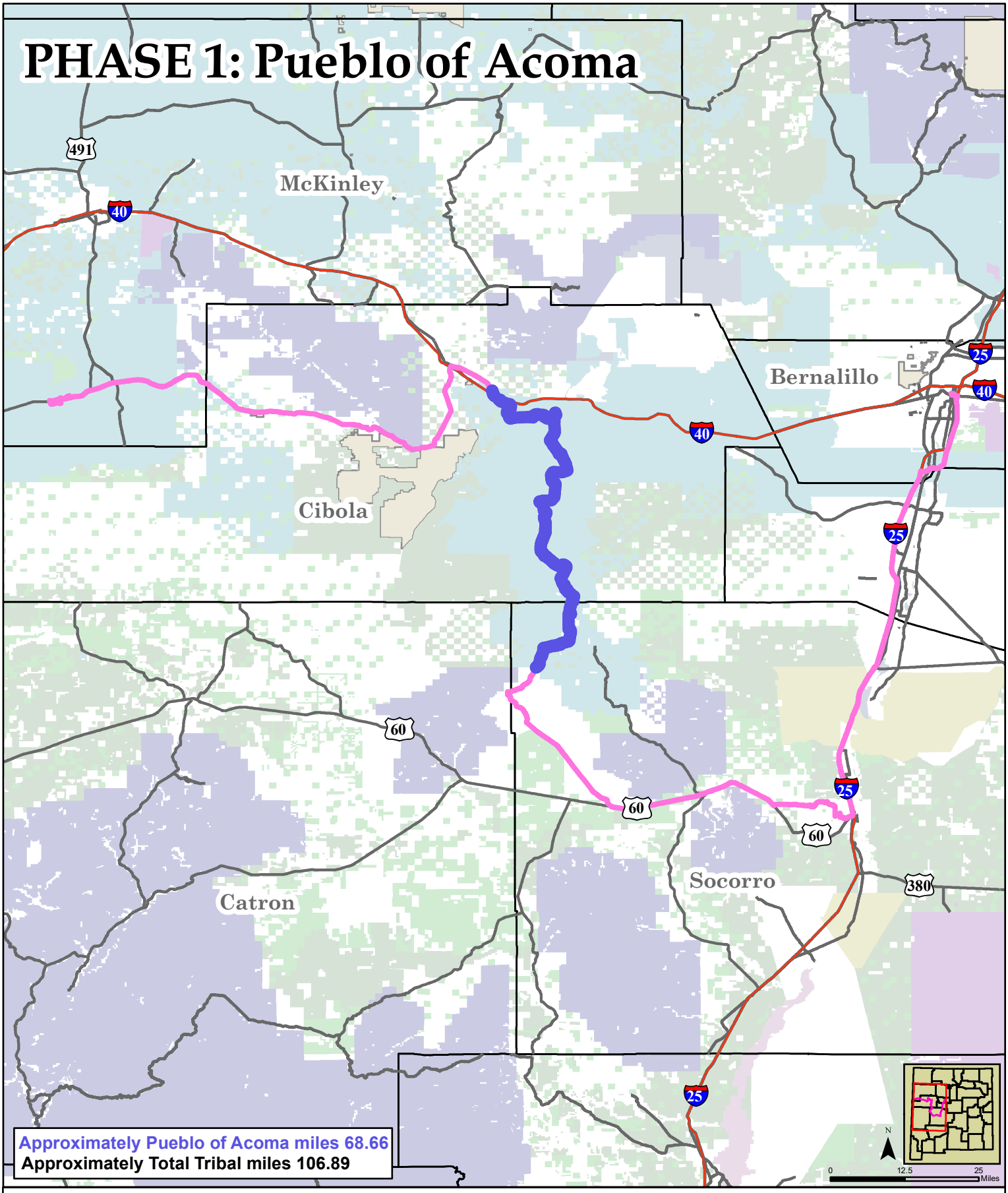
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- PEN Fiber Optic Line 12_19_2023
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS

DRAWN BY: GIS Specialist, HWM on 1/19/2024

PHASE 1: Pueblo of Acoma



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Acoma lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- Pueblo of Acoma
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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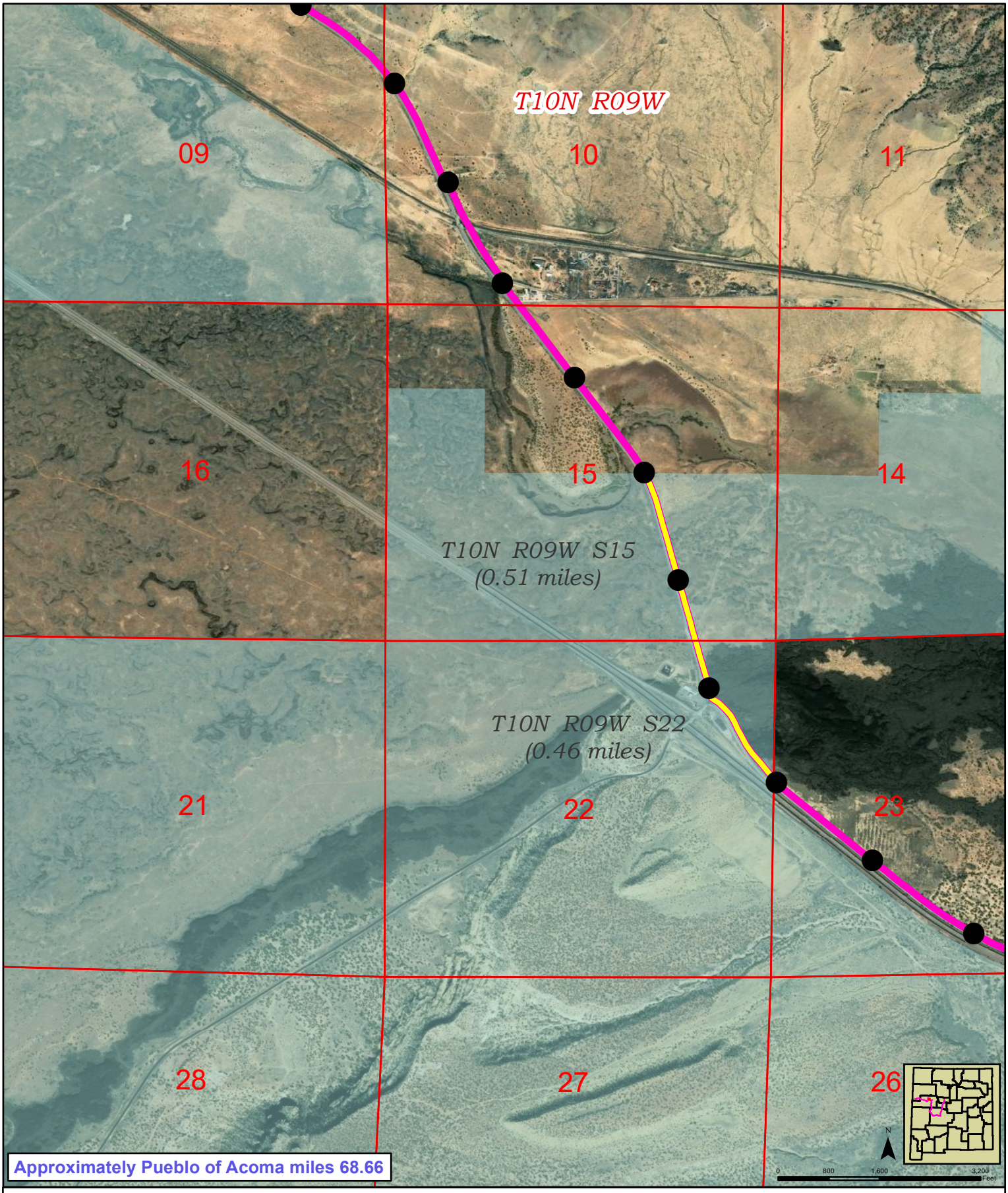
DRAWN BY: GIS Specialist, HWM on 02/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 1 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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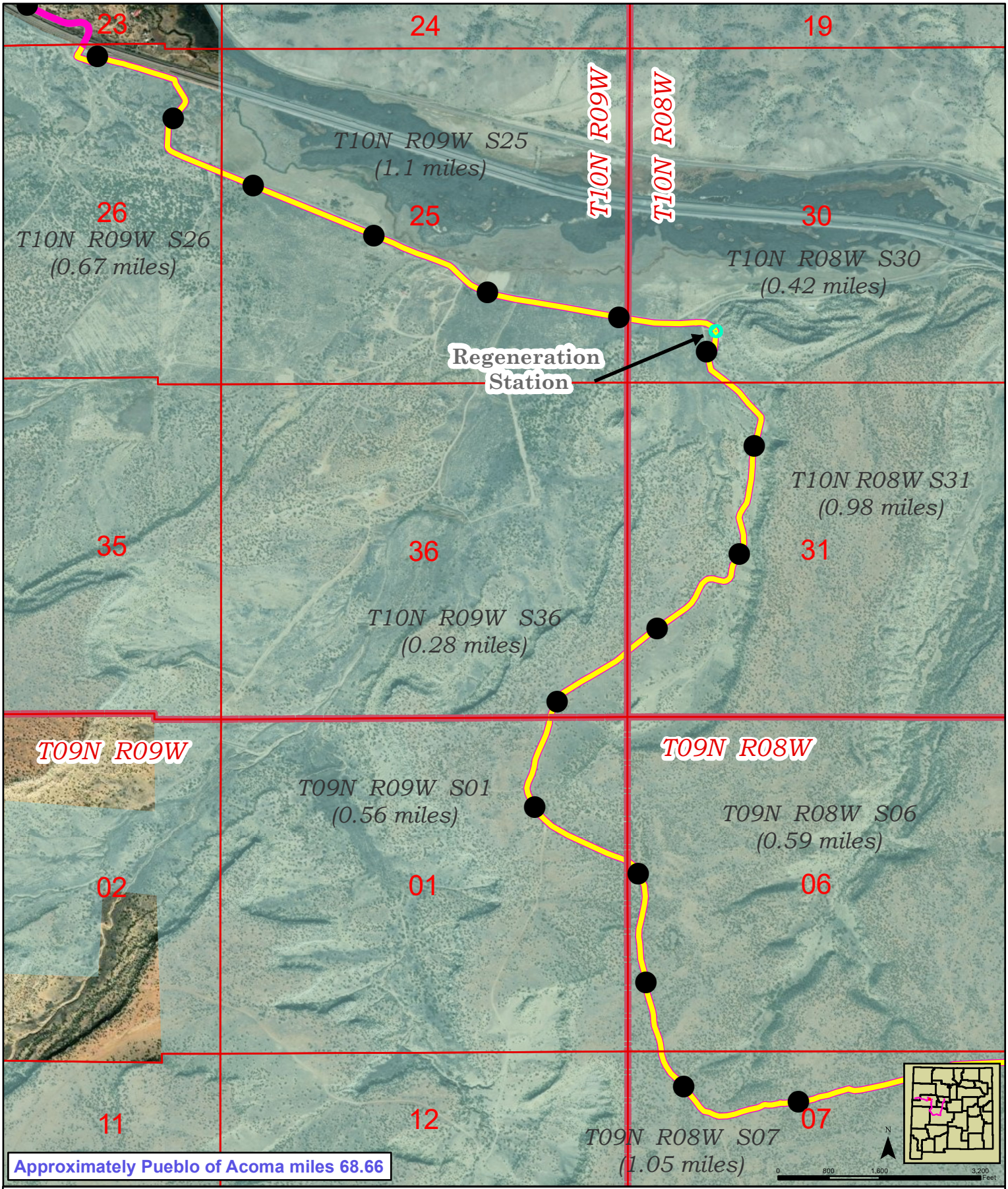
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 2 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

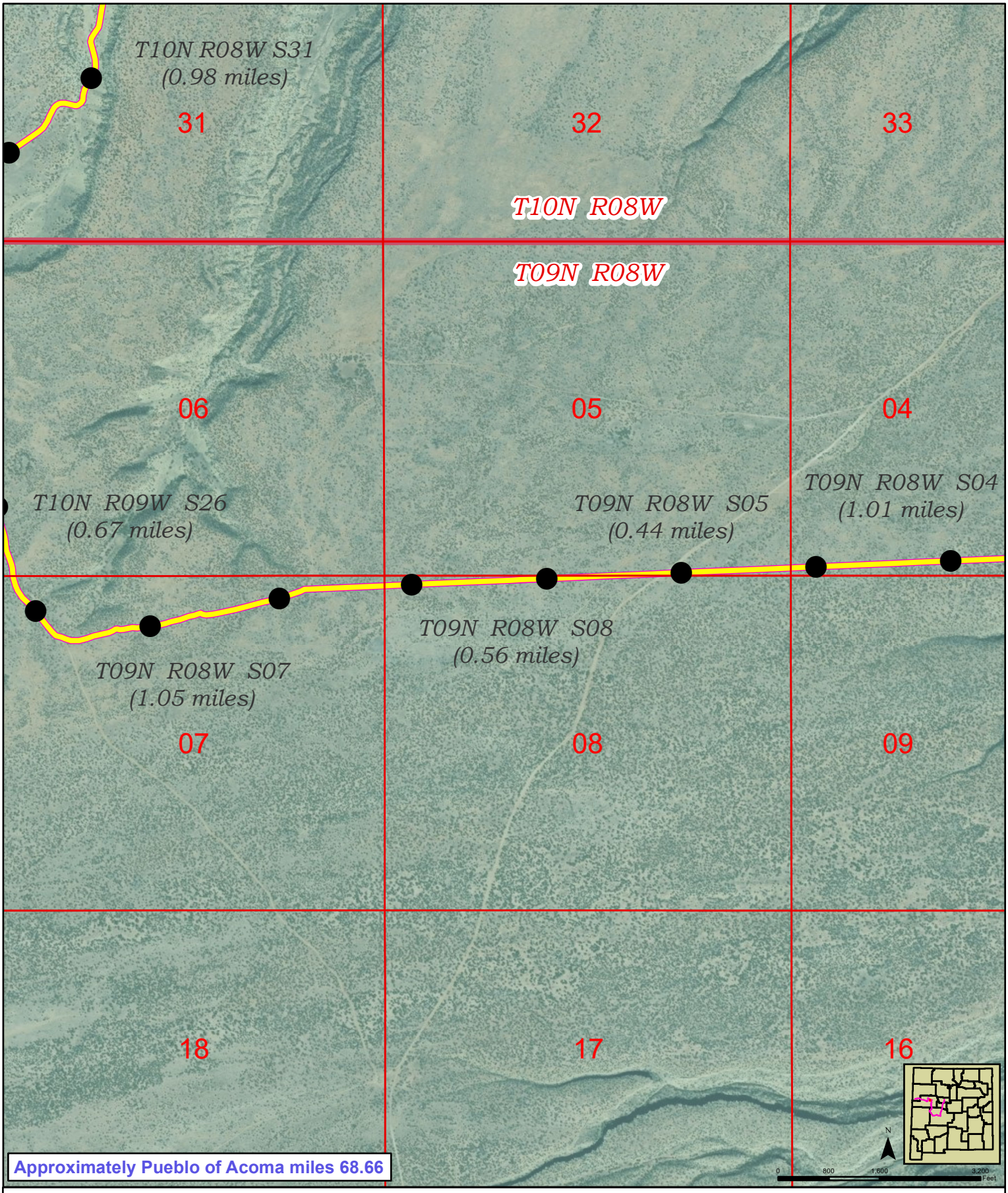
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 3 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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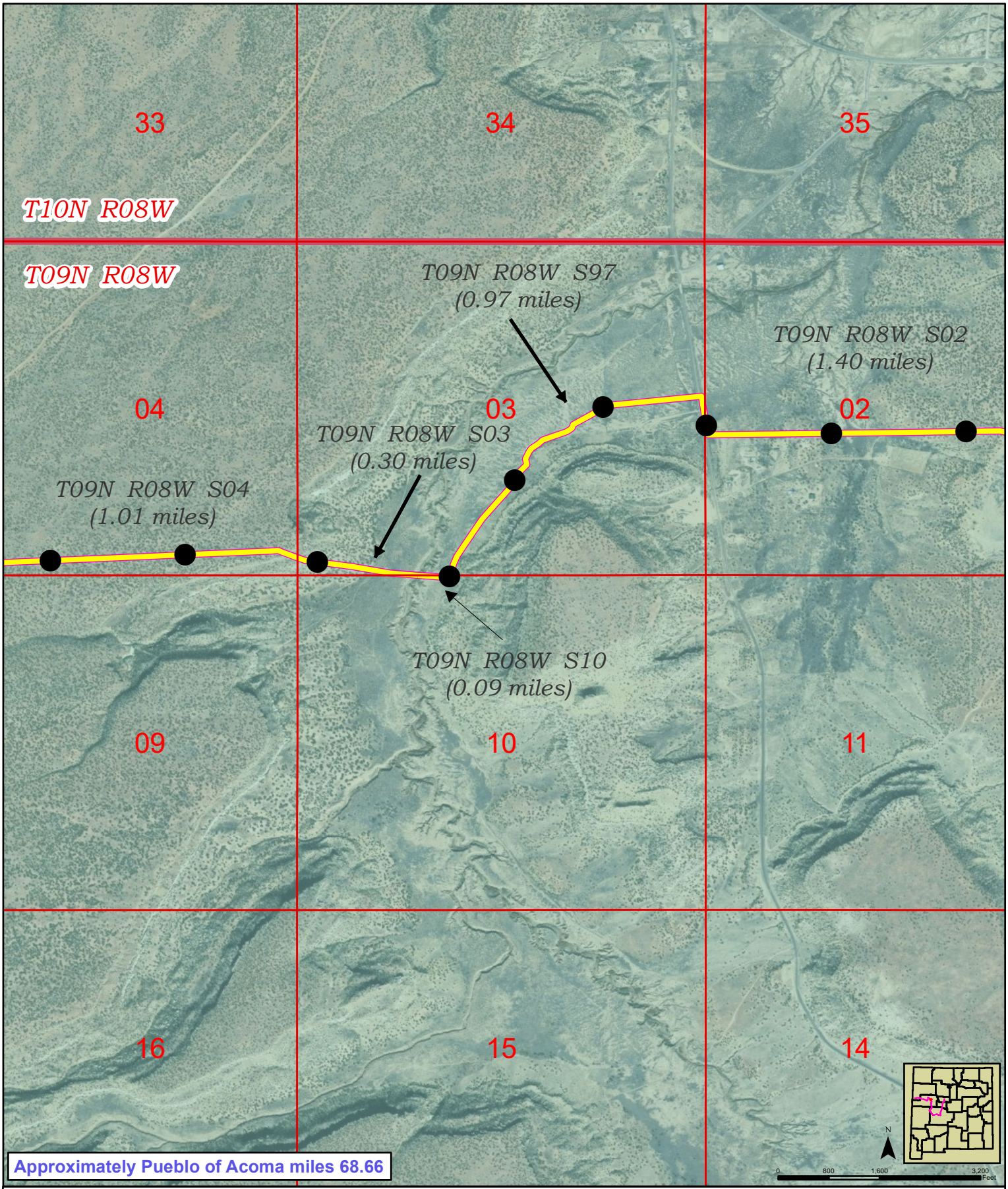
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 4 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

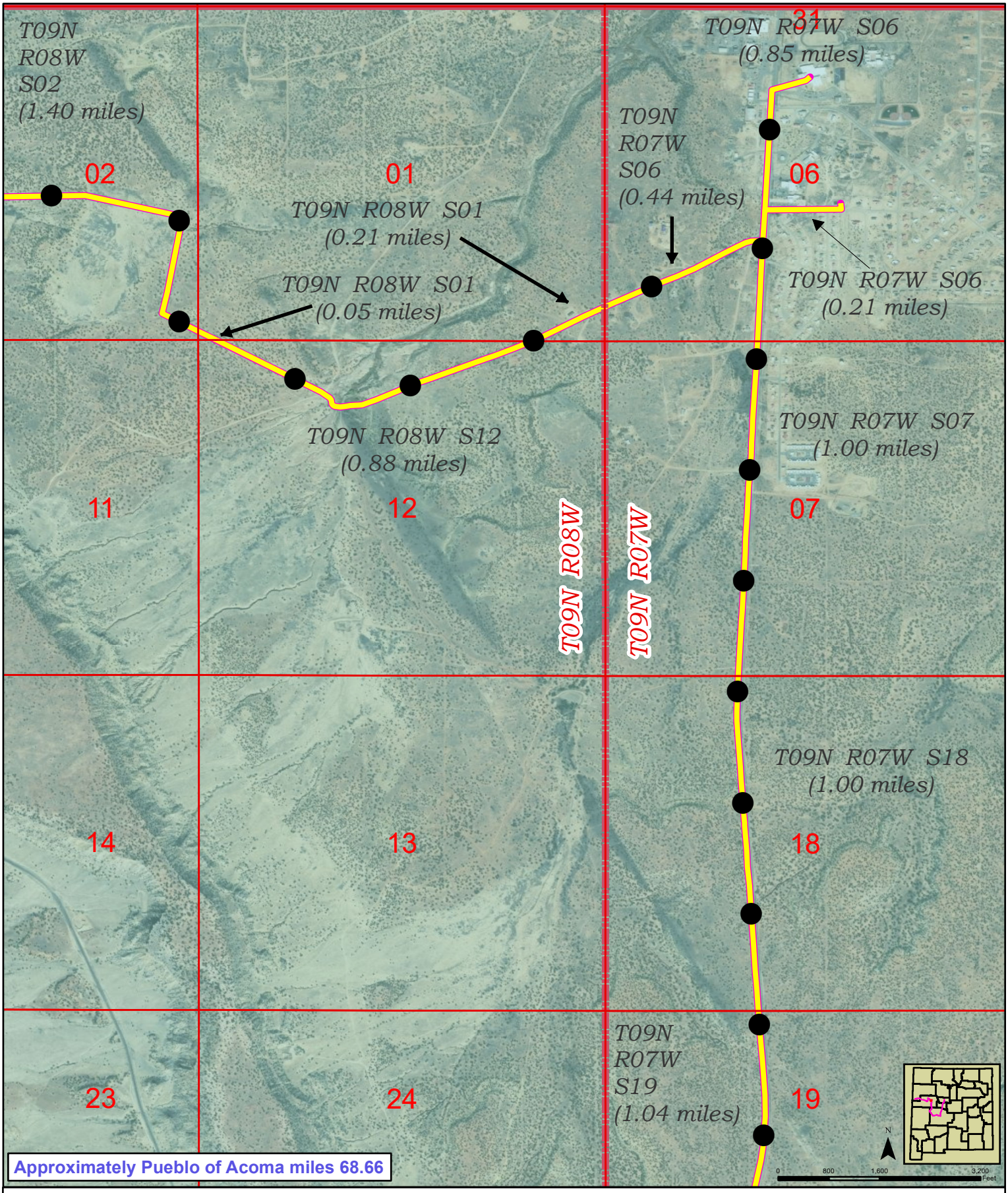
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 5 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

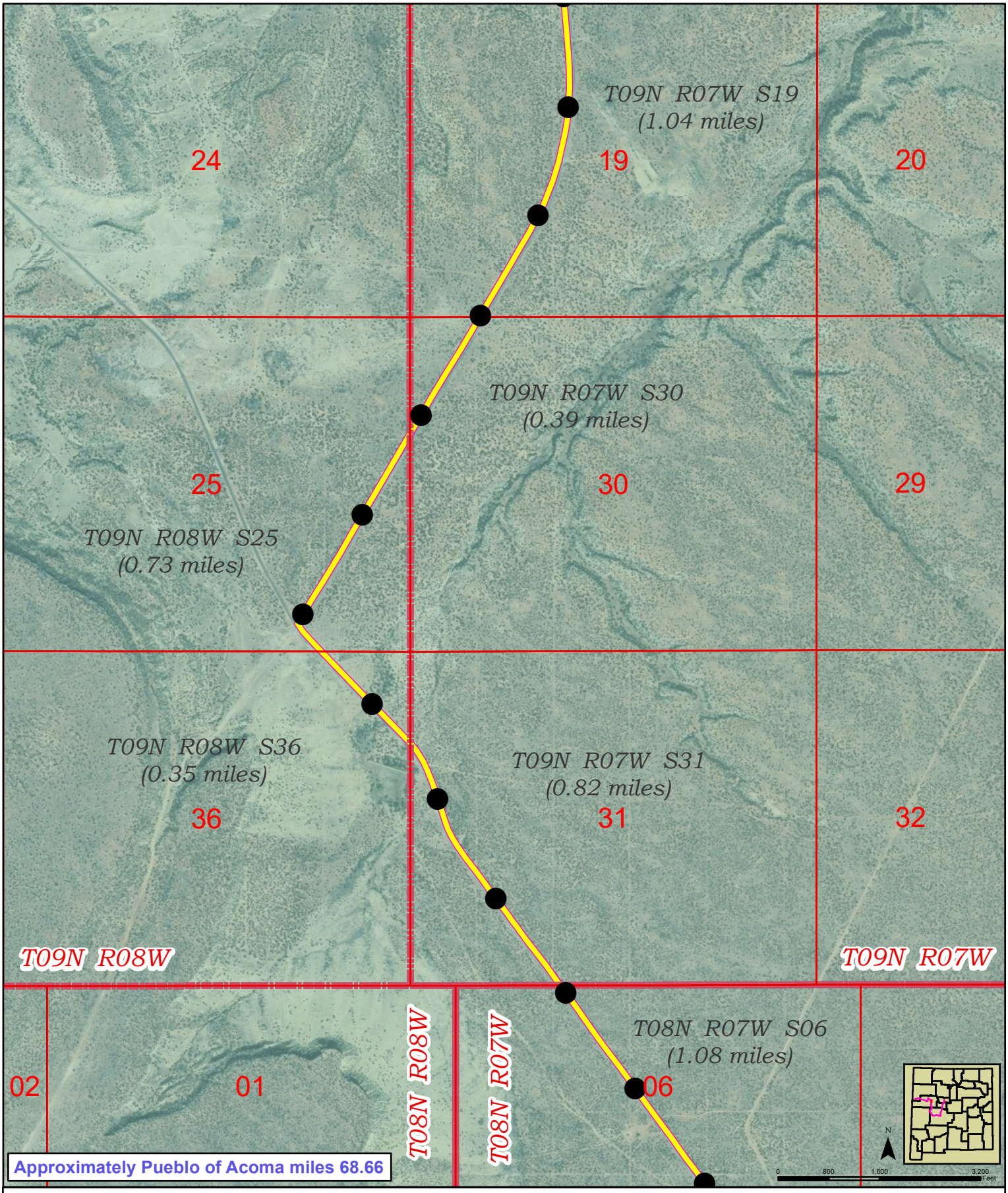
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 6 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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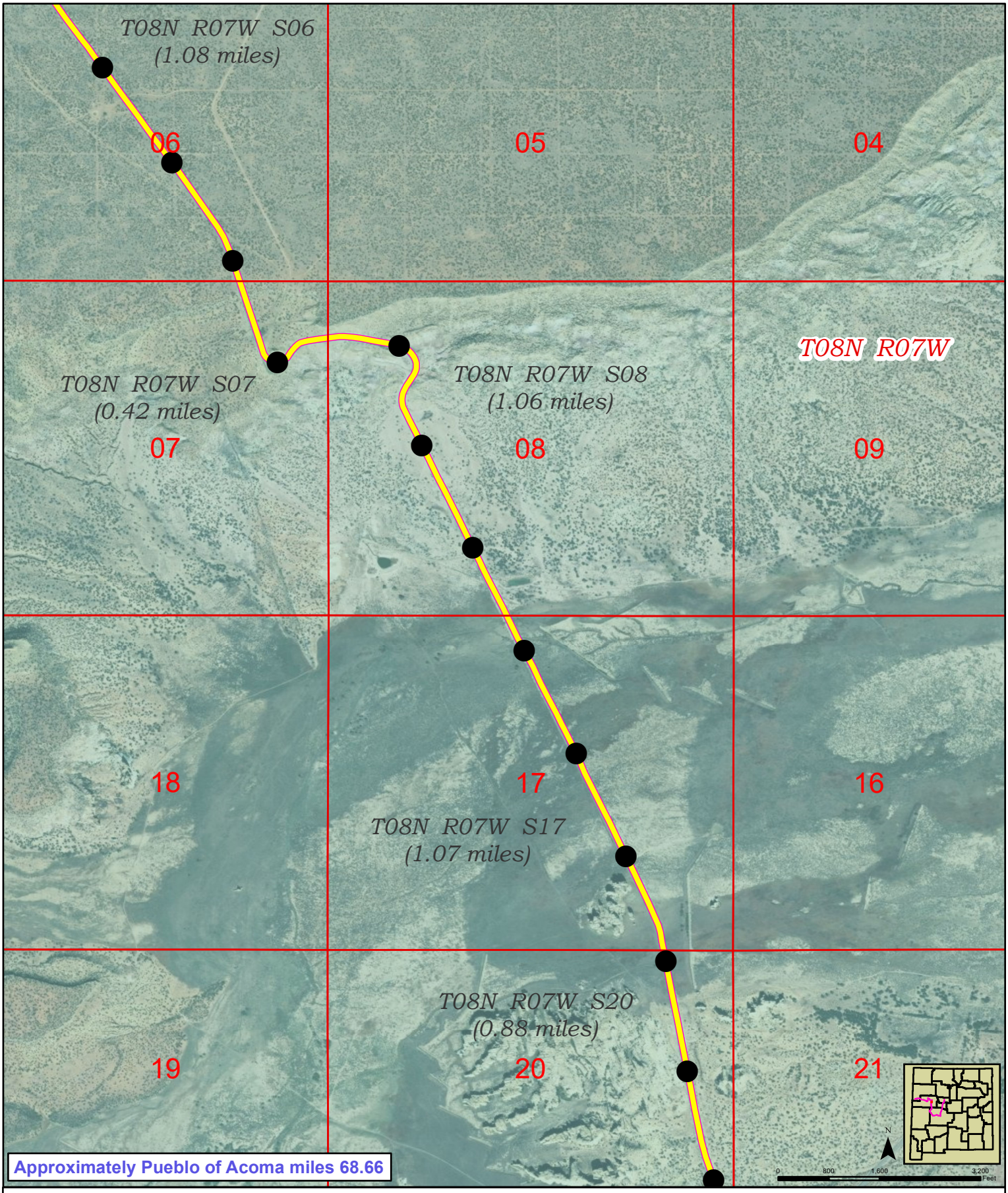
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 7 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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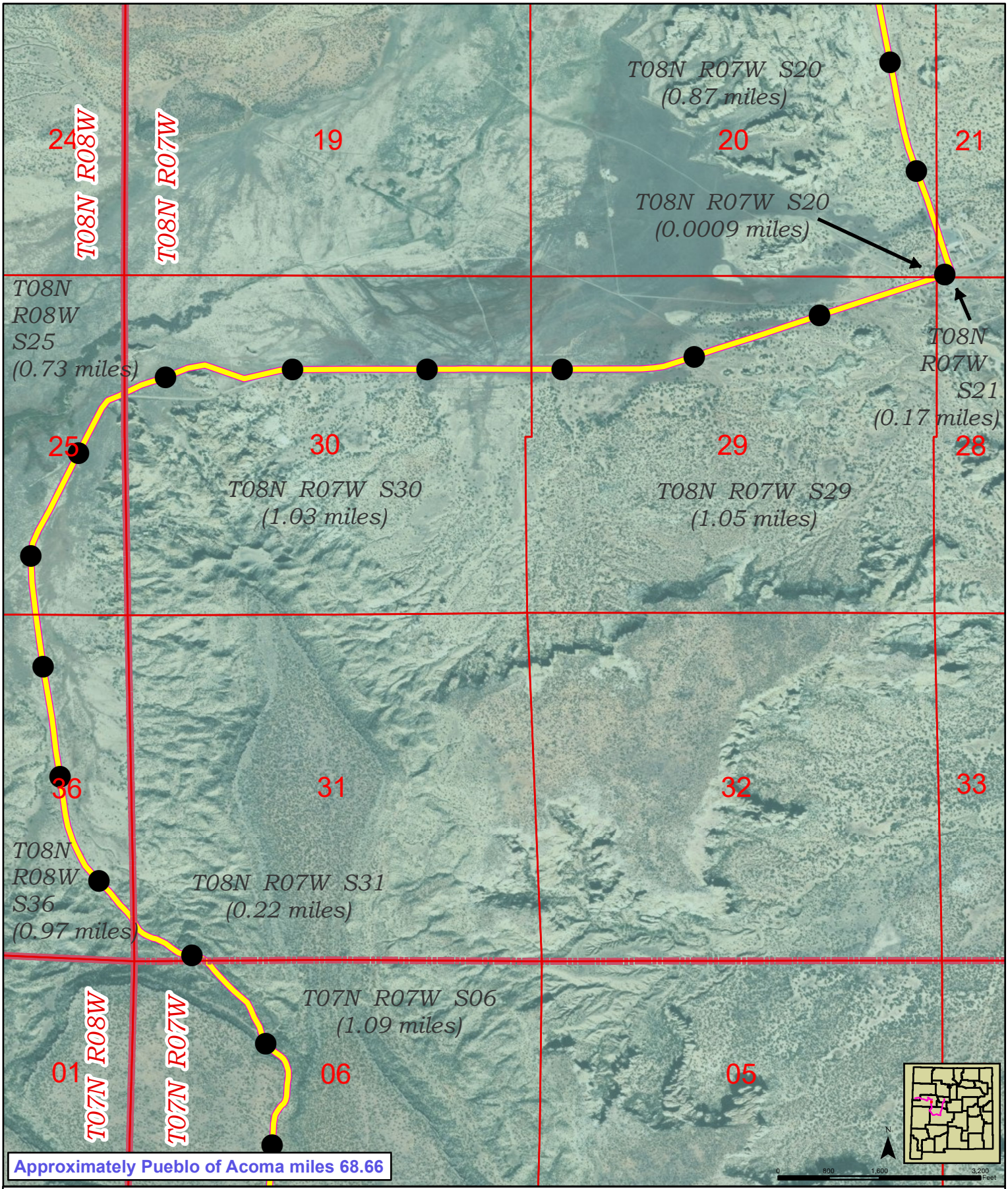
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 8 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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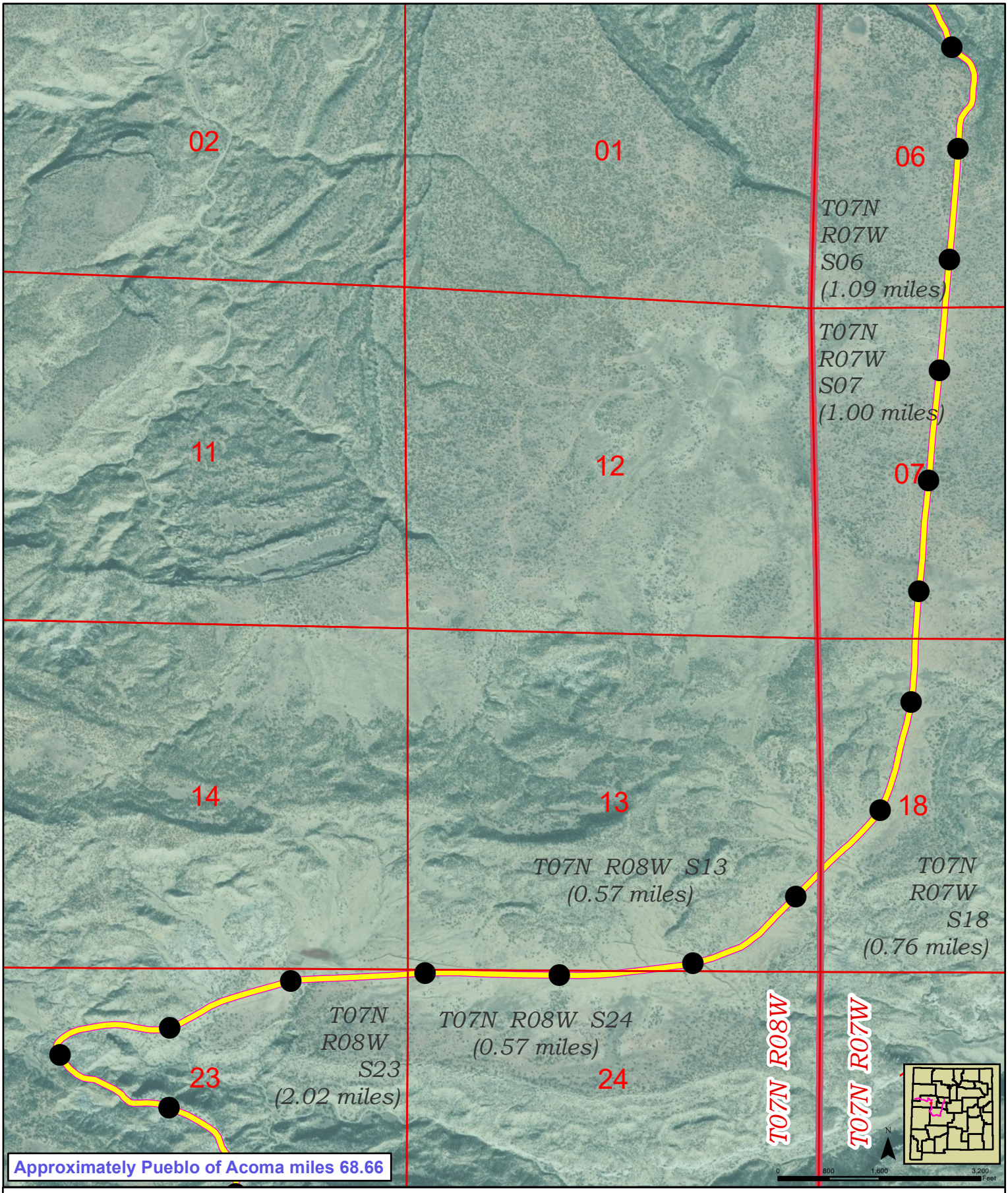
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 9 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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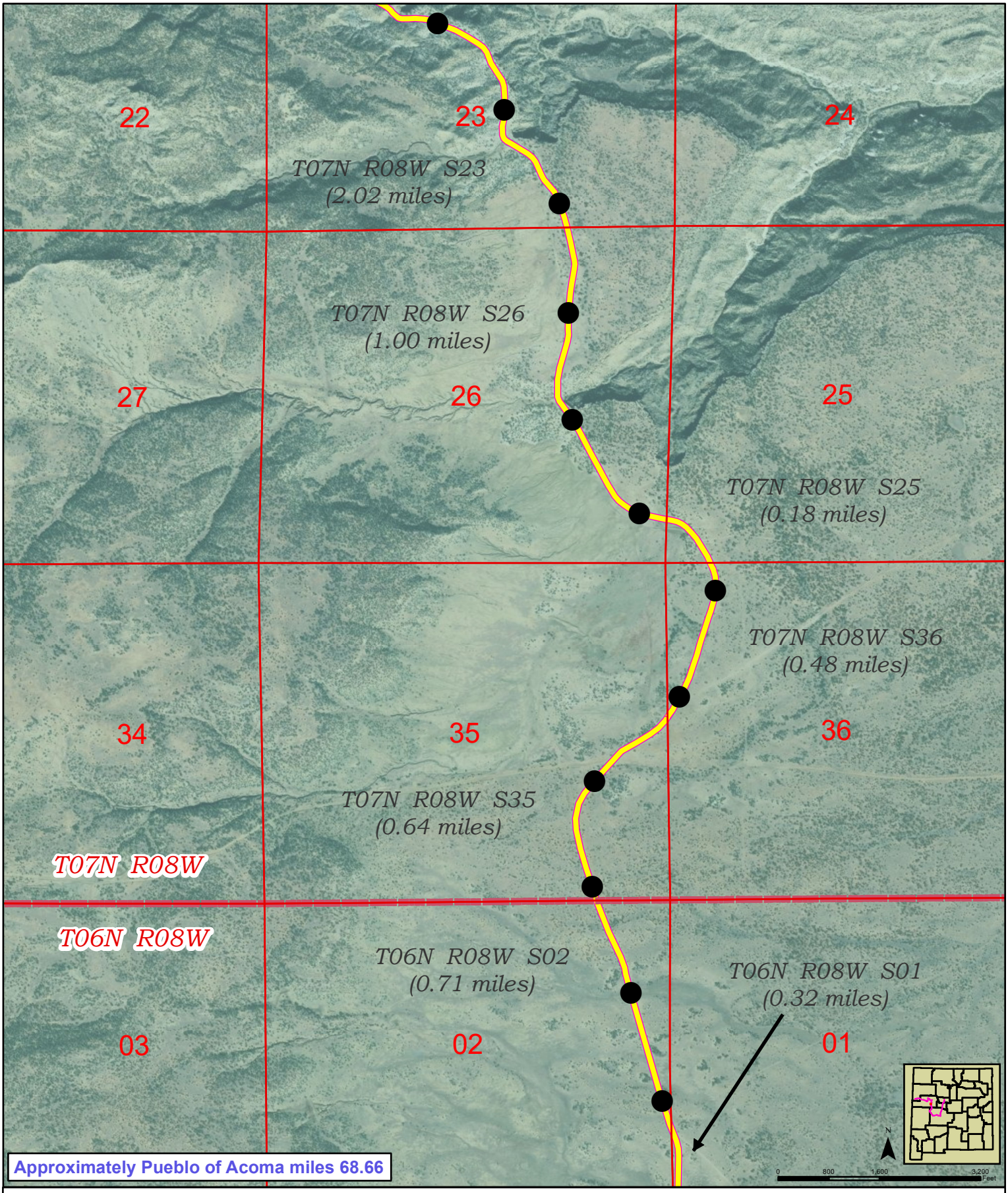
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 10 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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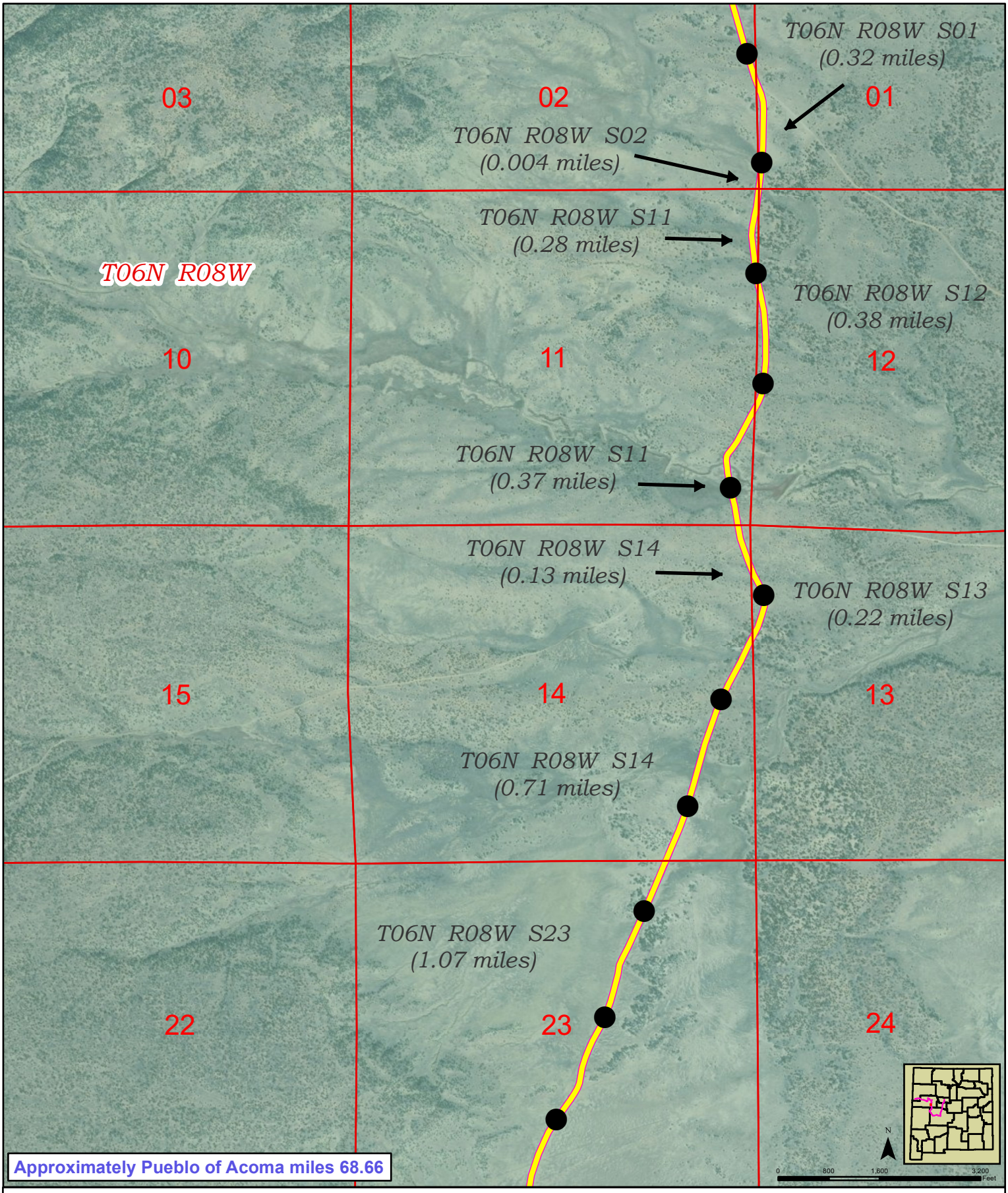
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 11 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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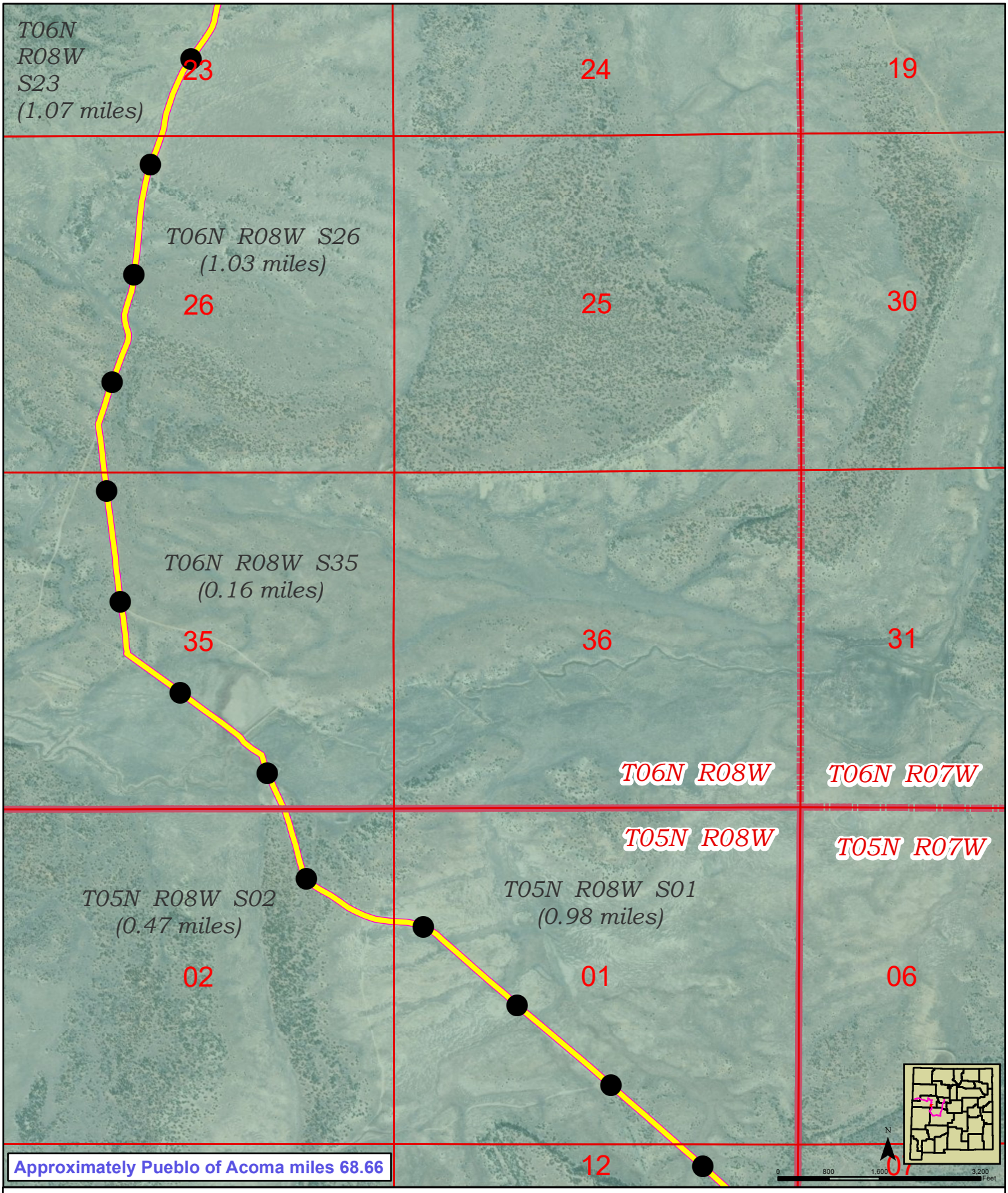
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 12 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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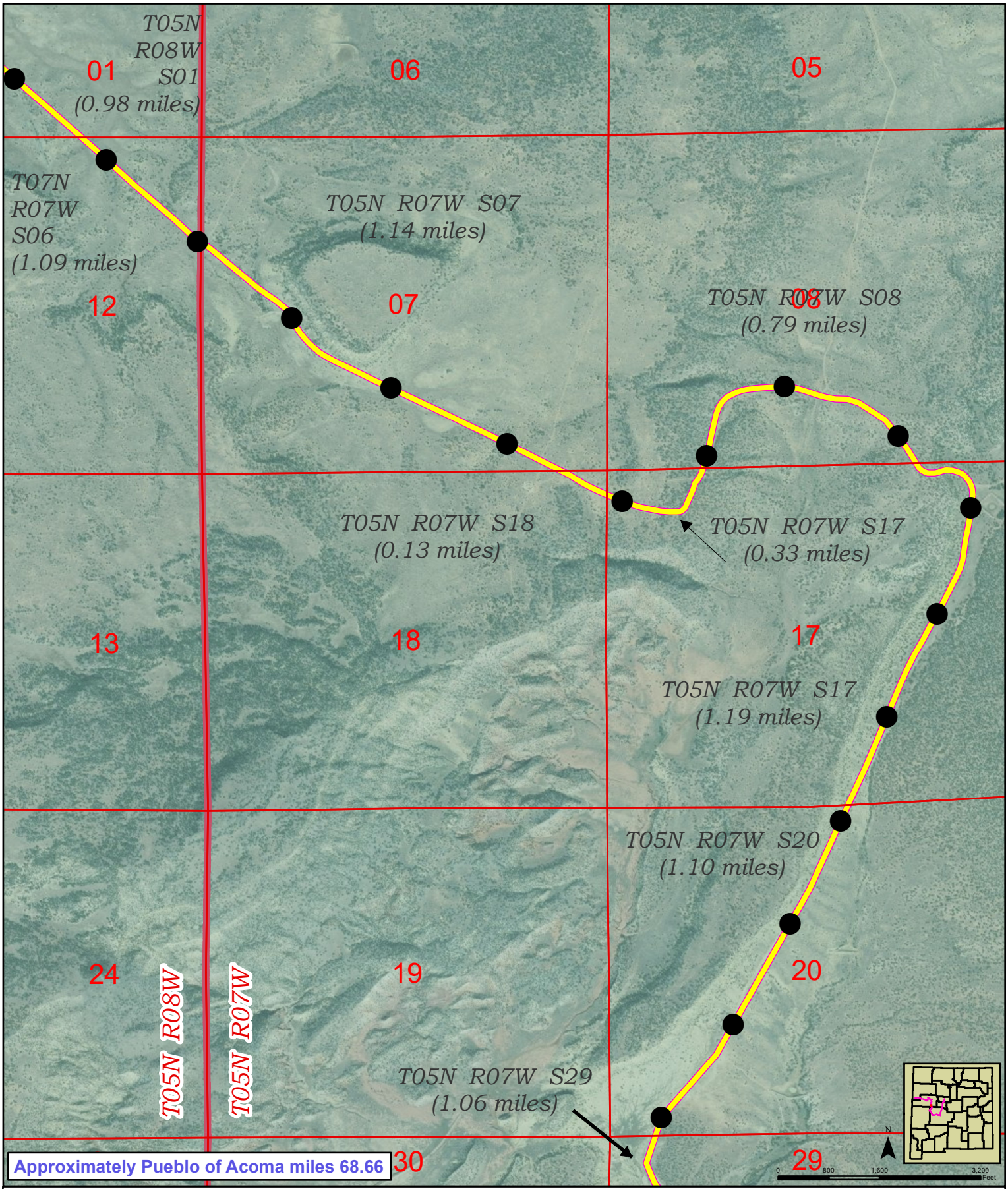
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 13 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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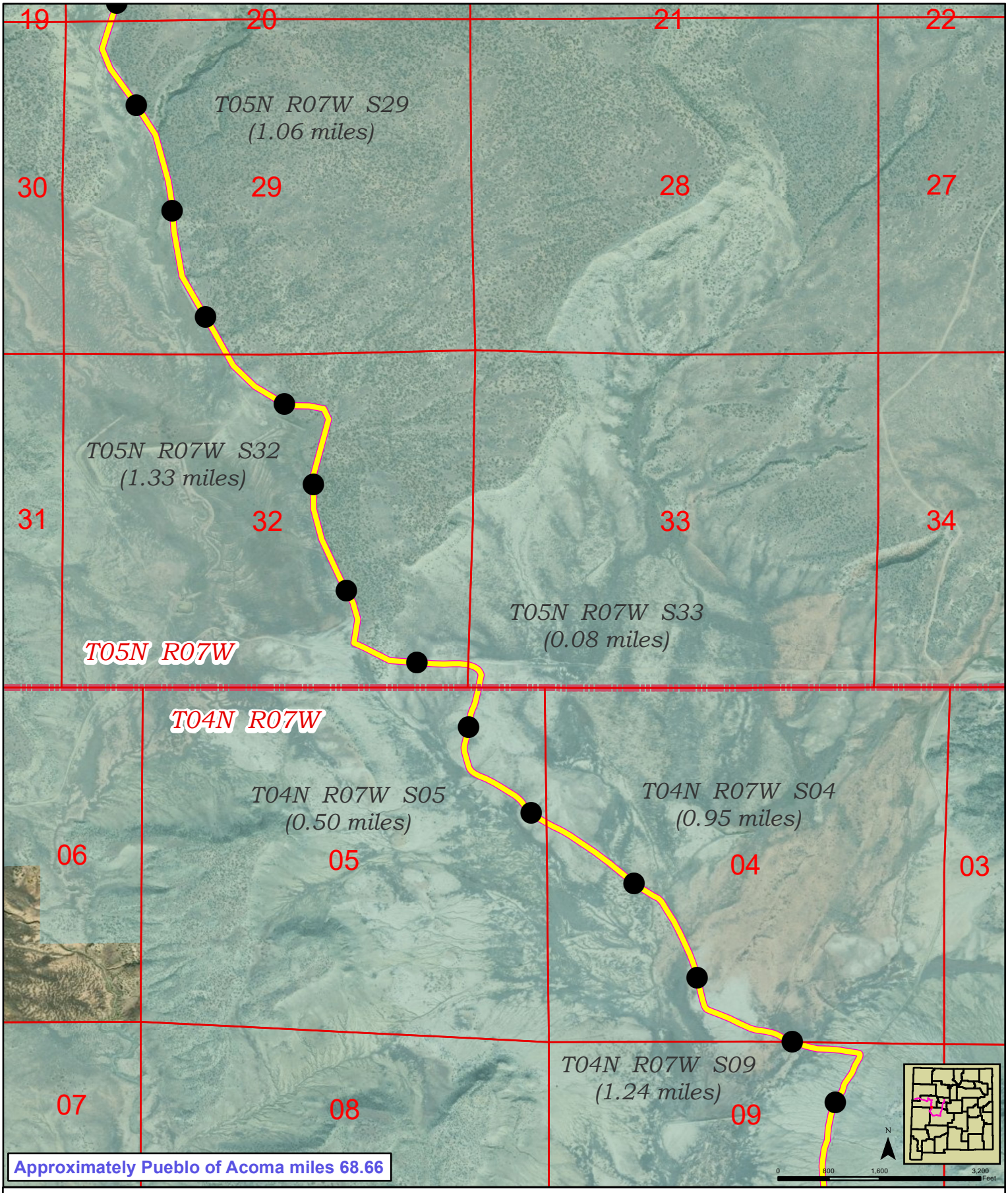
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 14 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

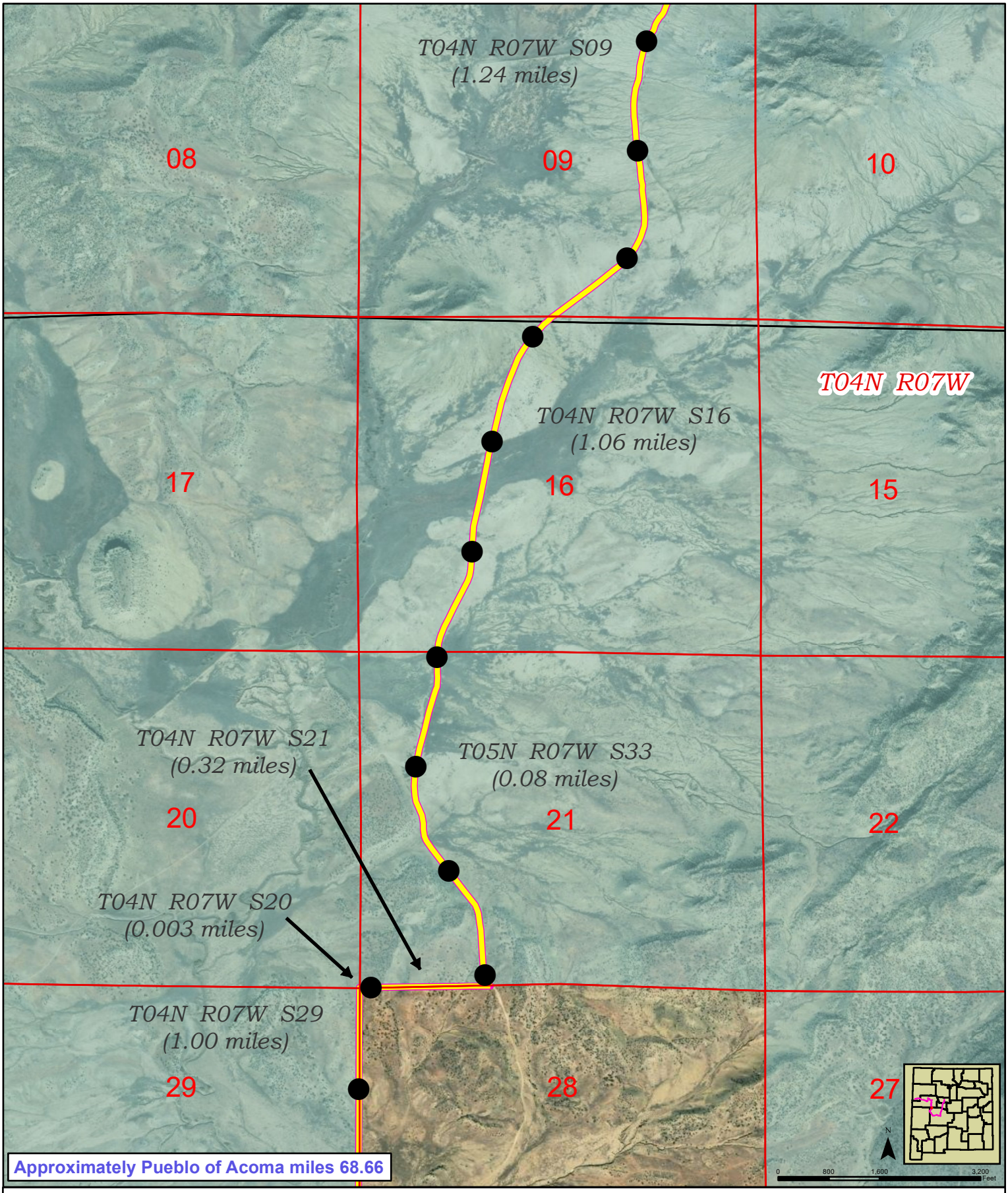
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 15 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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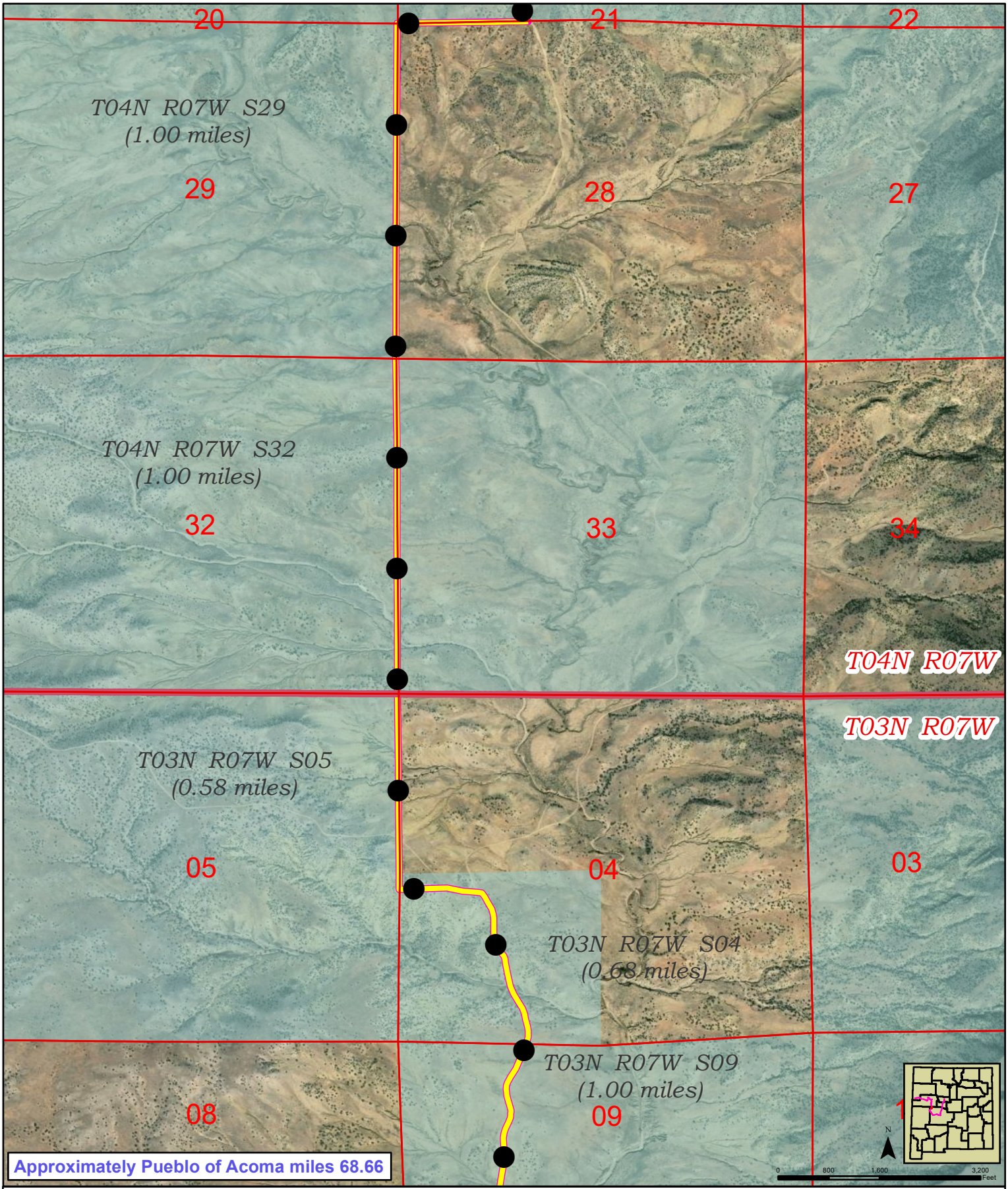
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 16 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

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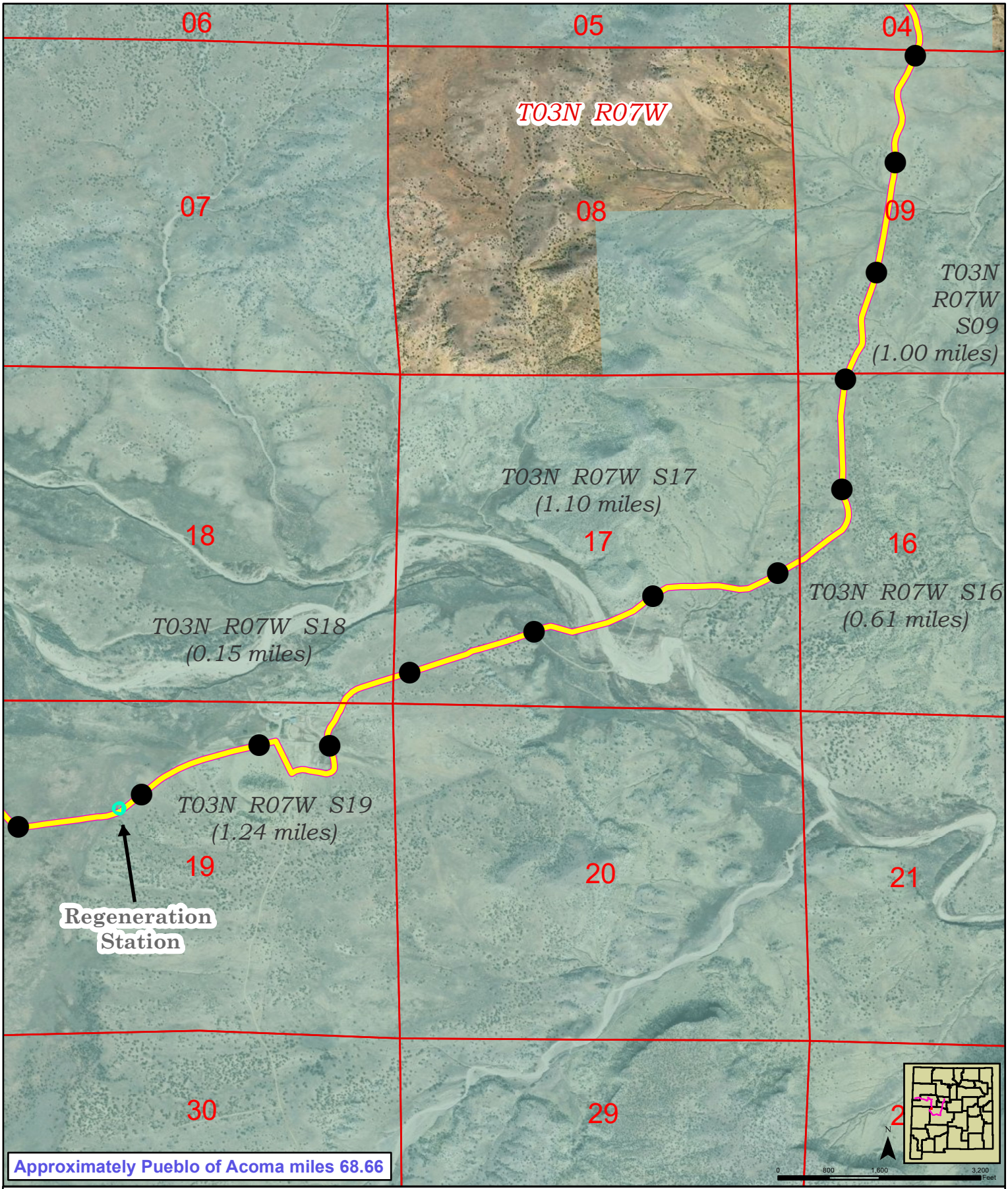
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 17 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

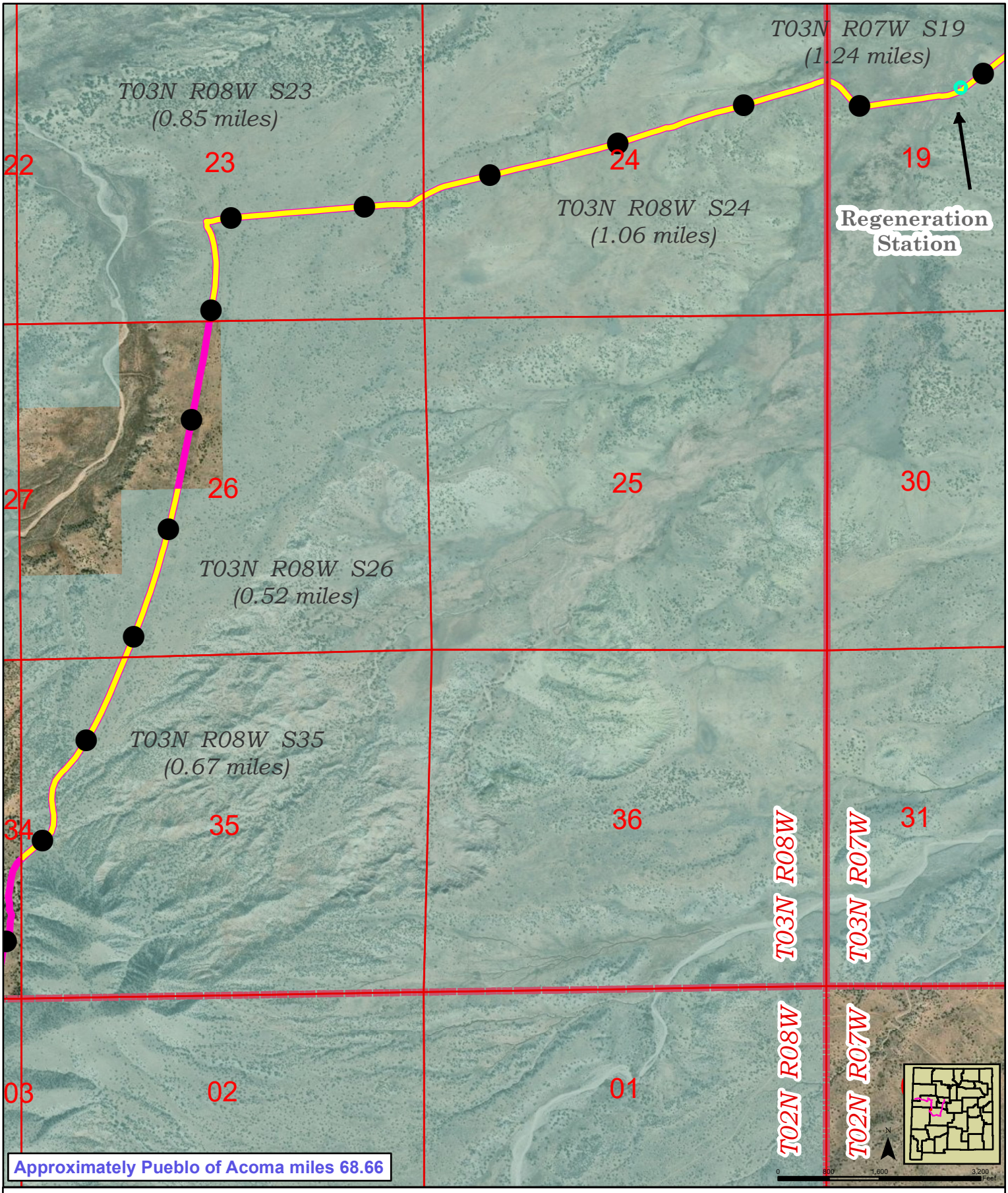
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 18 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

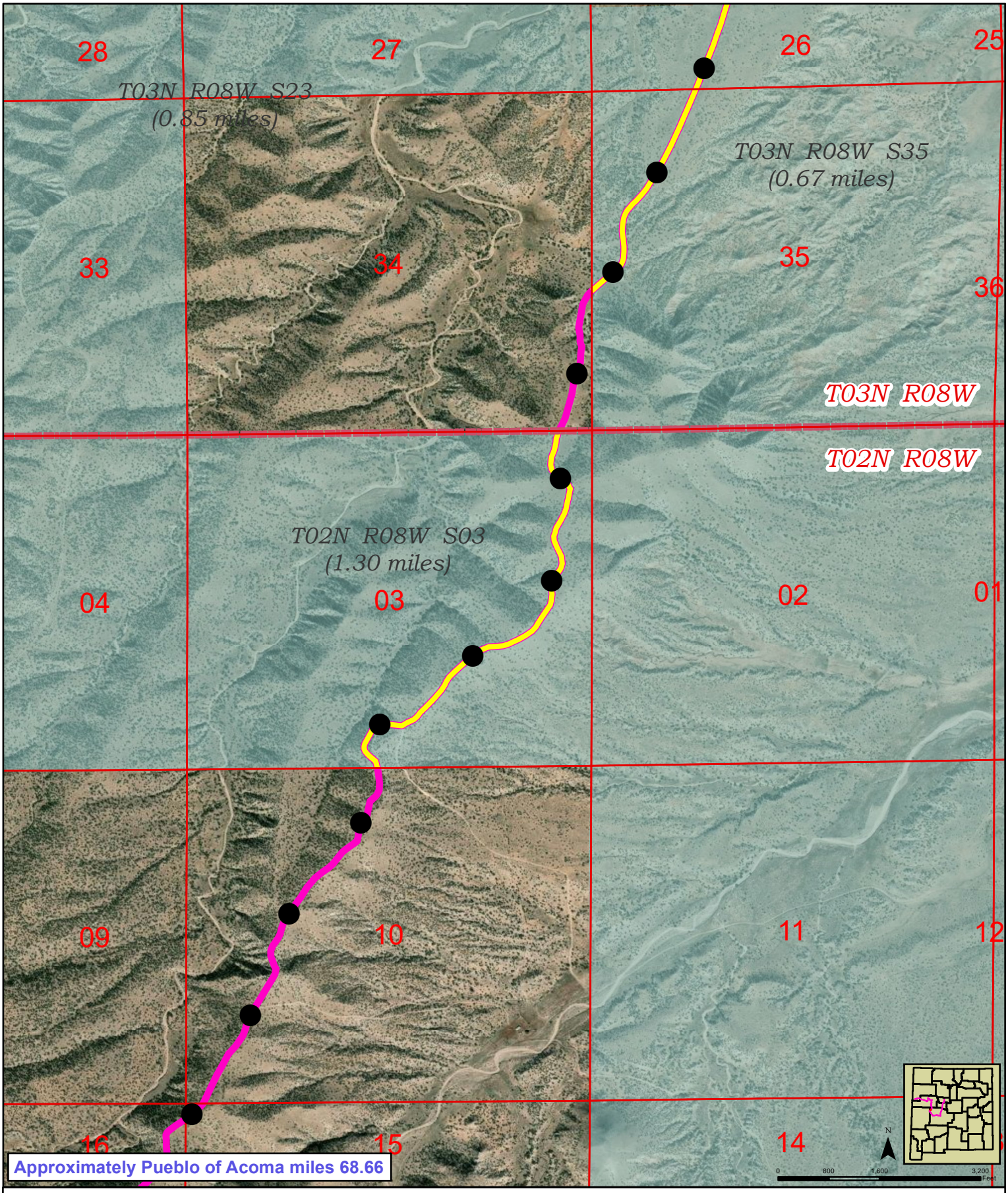
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 19 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

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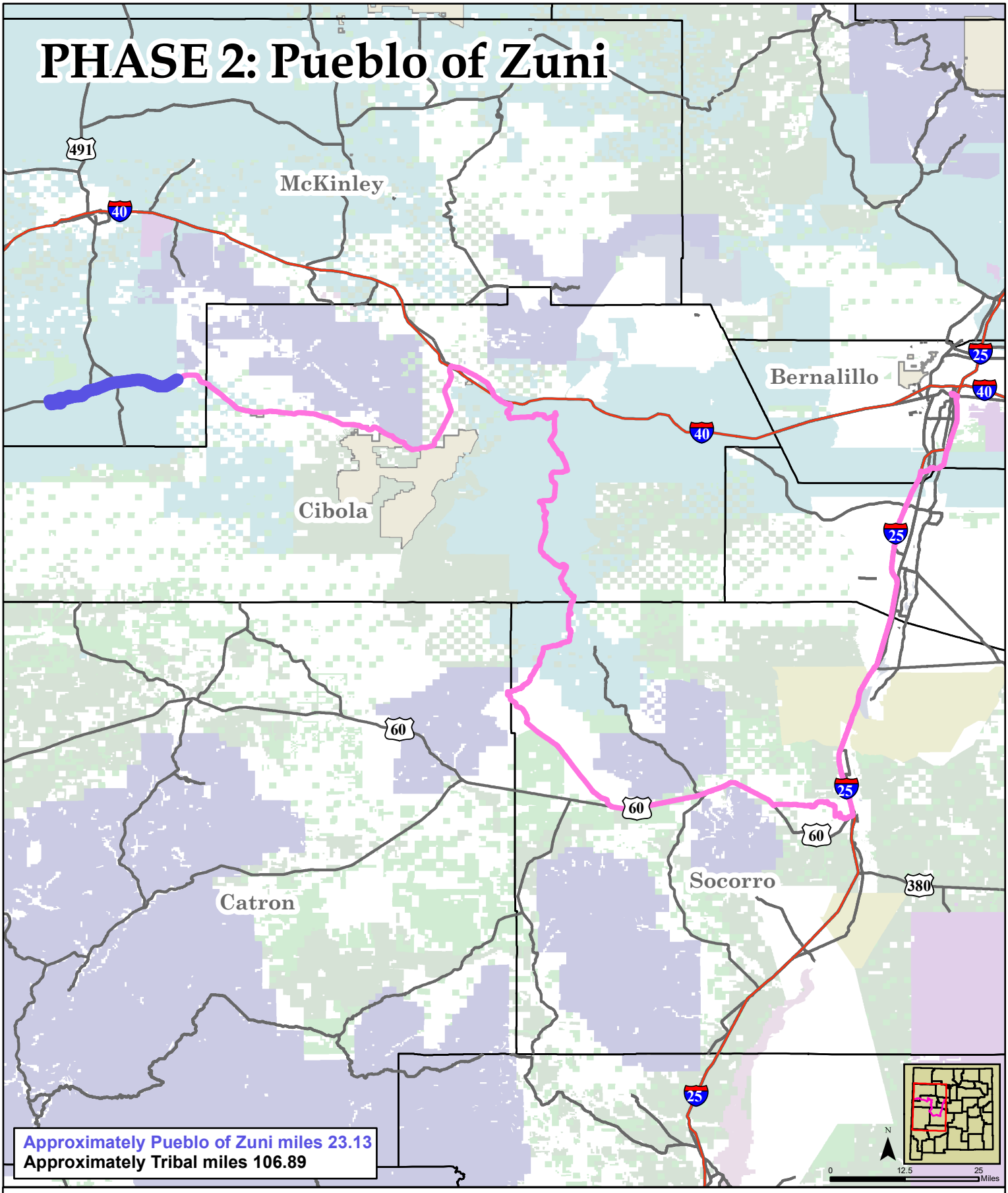


Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Zuni lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

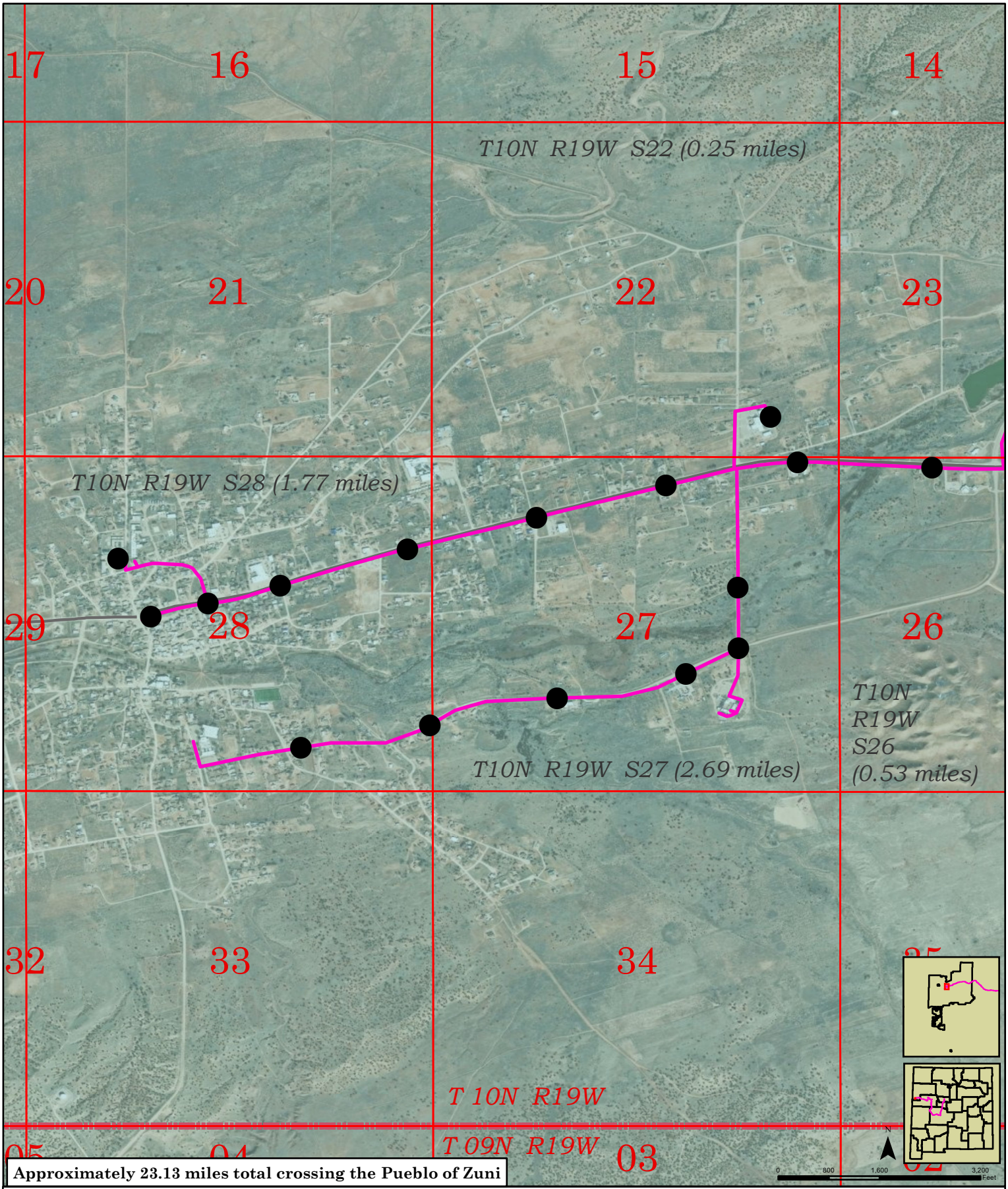
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Pueblo of Zuni
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\NDN

DRAWN BY: GIS Specialist, HWM on 02/2025



Approximately 23.13 miles total crossing the Pueblo of Zuni

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 1 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

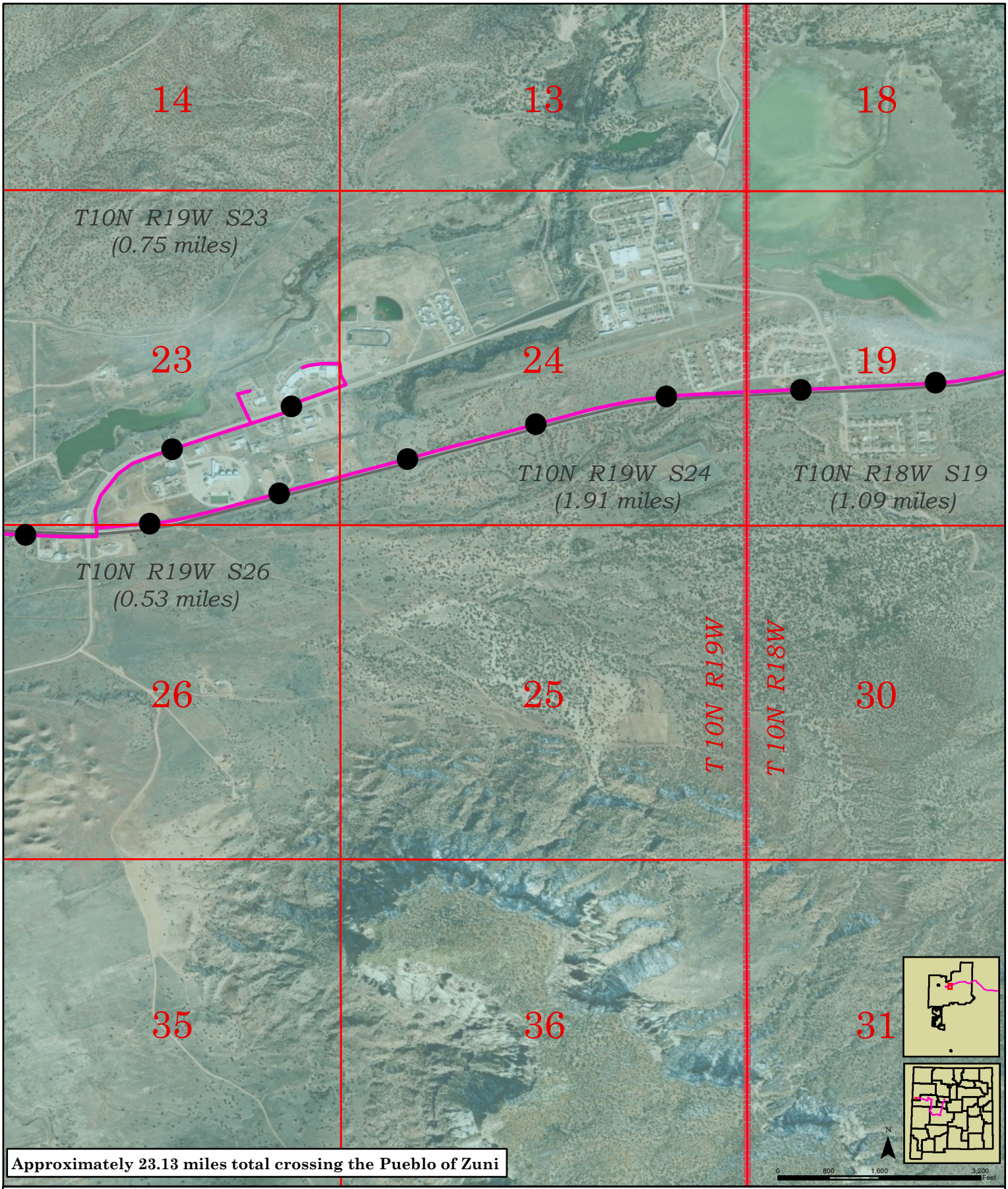
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 2 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
SFIS PEN Fiber Line Updated 12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

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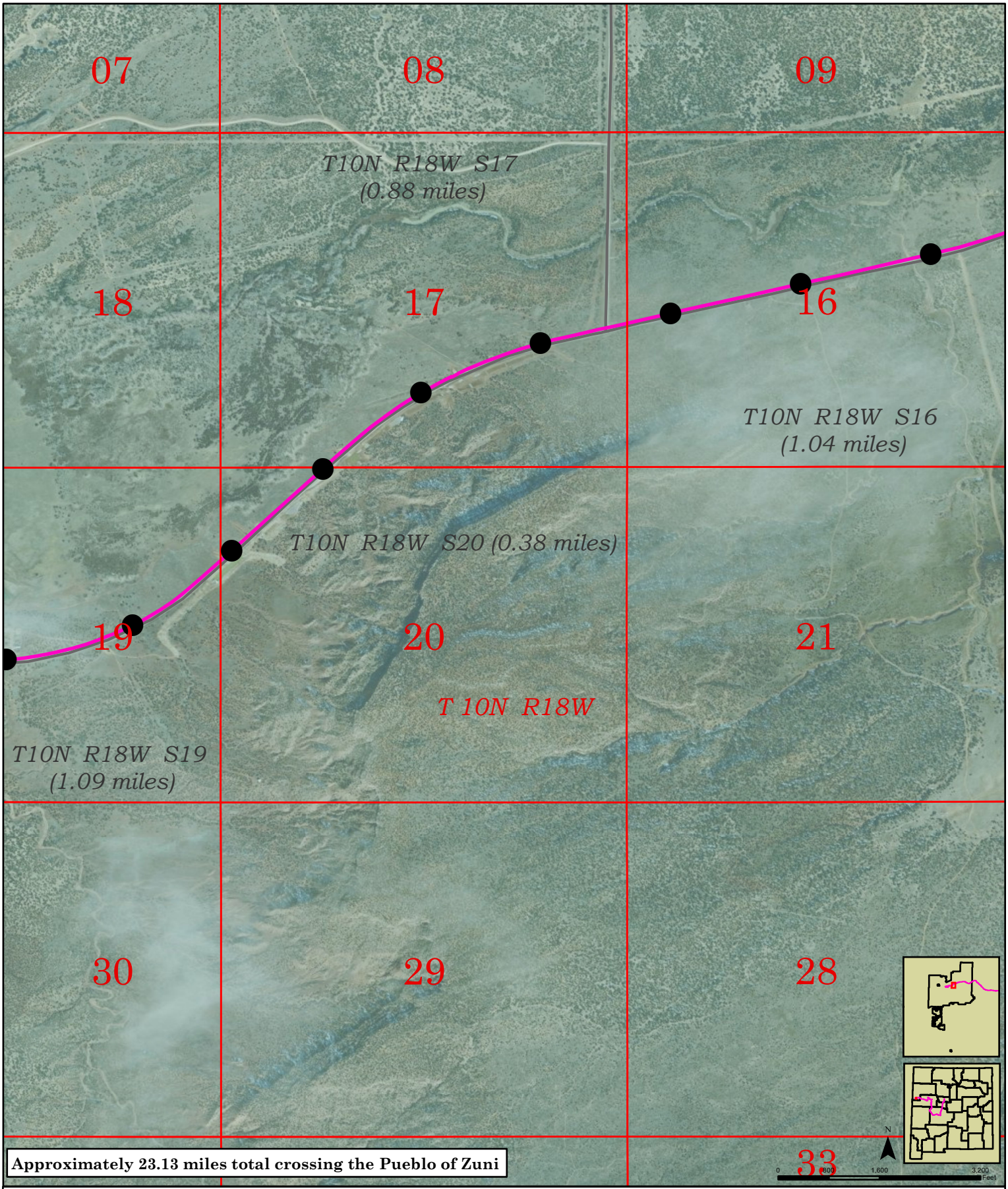
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 3 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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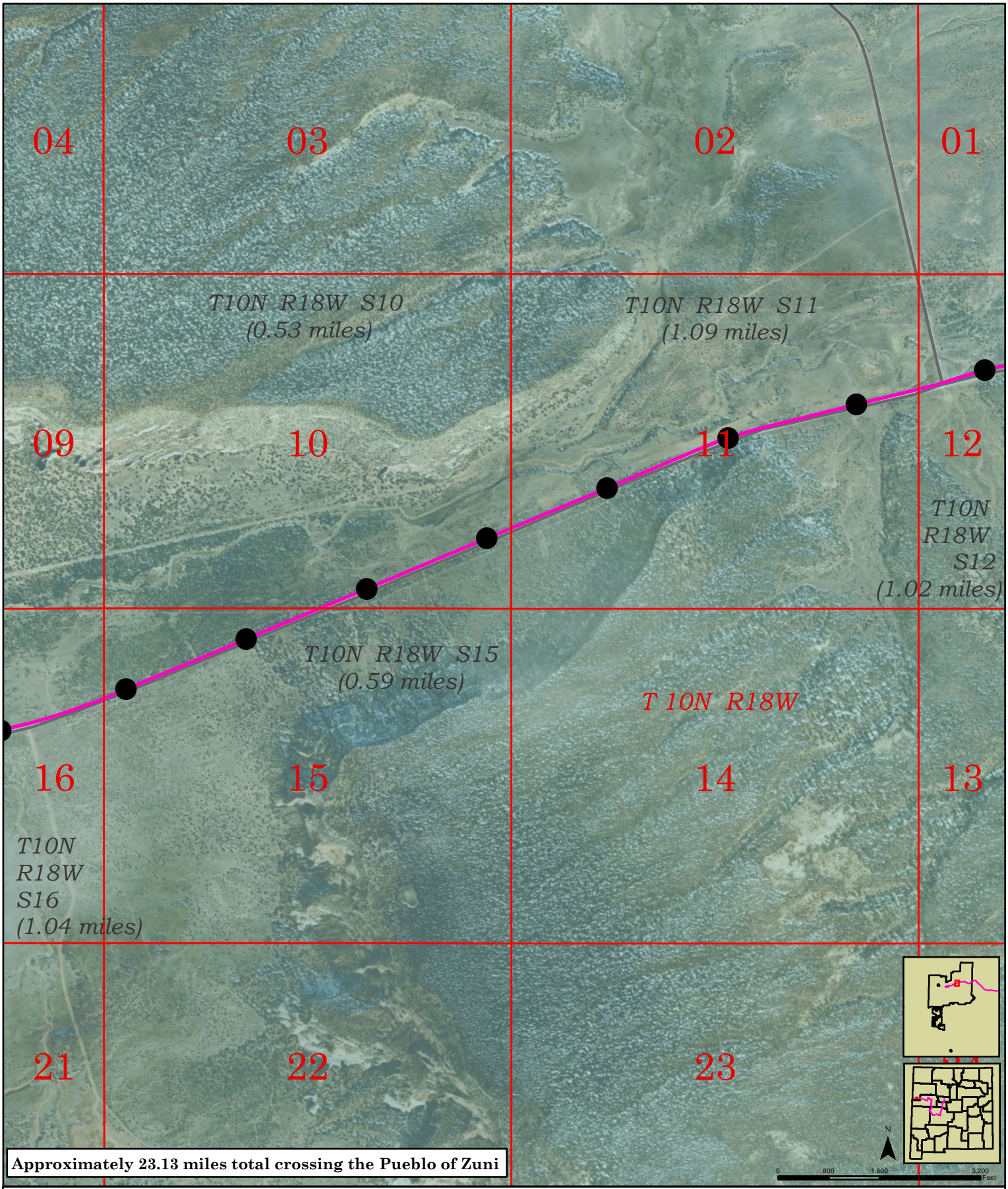
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 23.13 miles total crossing the Pueblo of Zuni

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 4 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

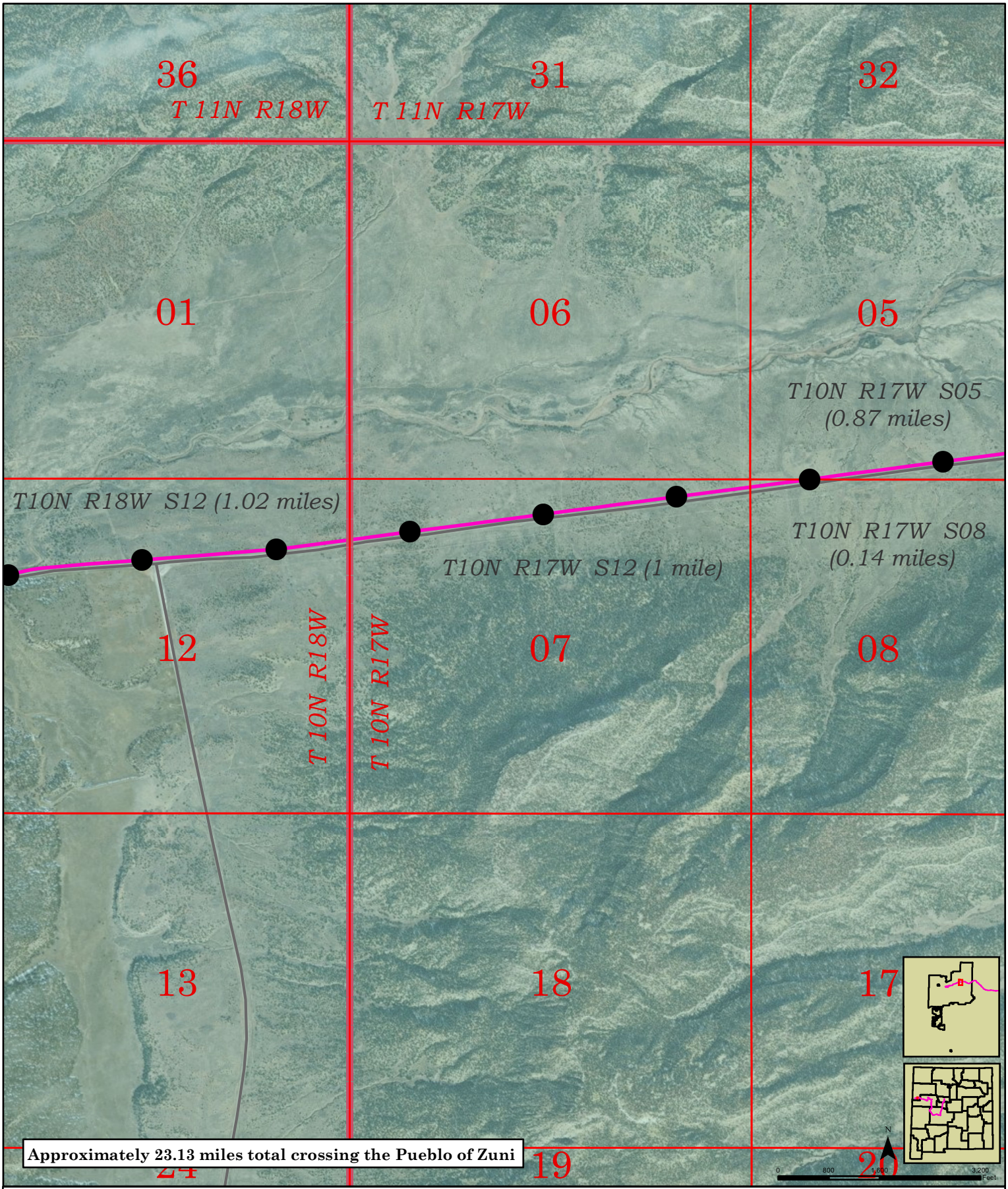
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
SFIS PEN Fiber Line Updated 12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 5 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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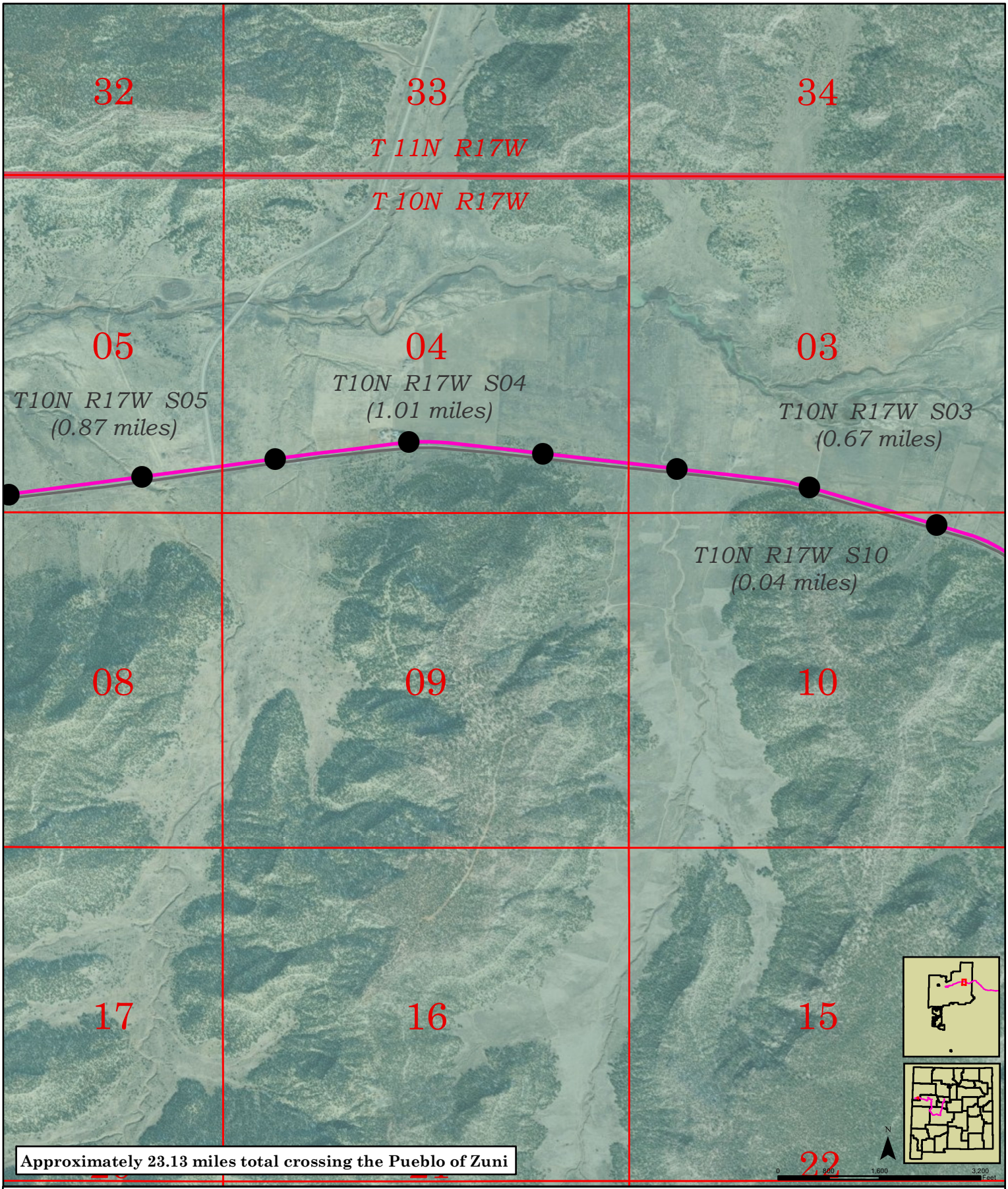
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 6 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

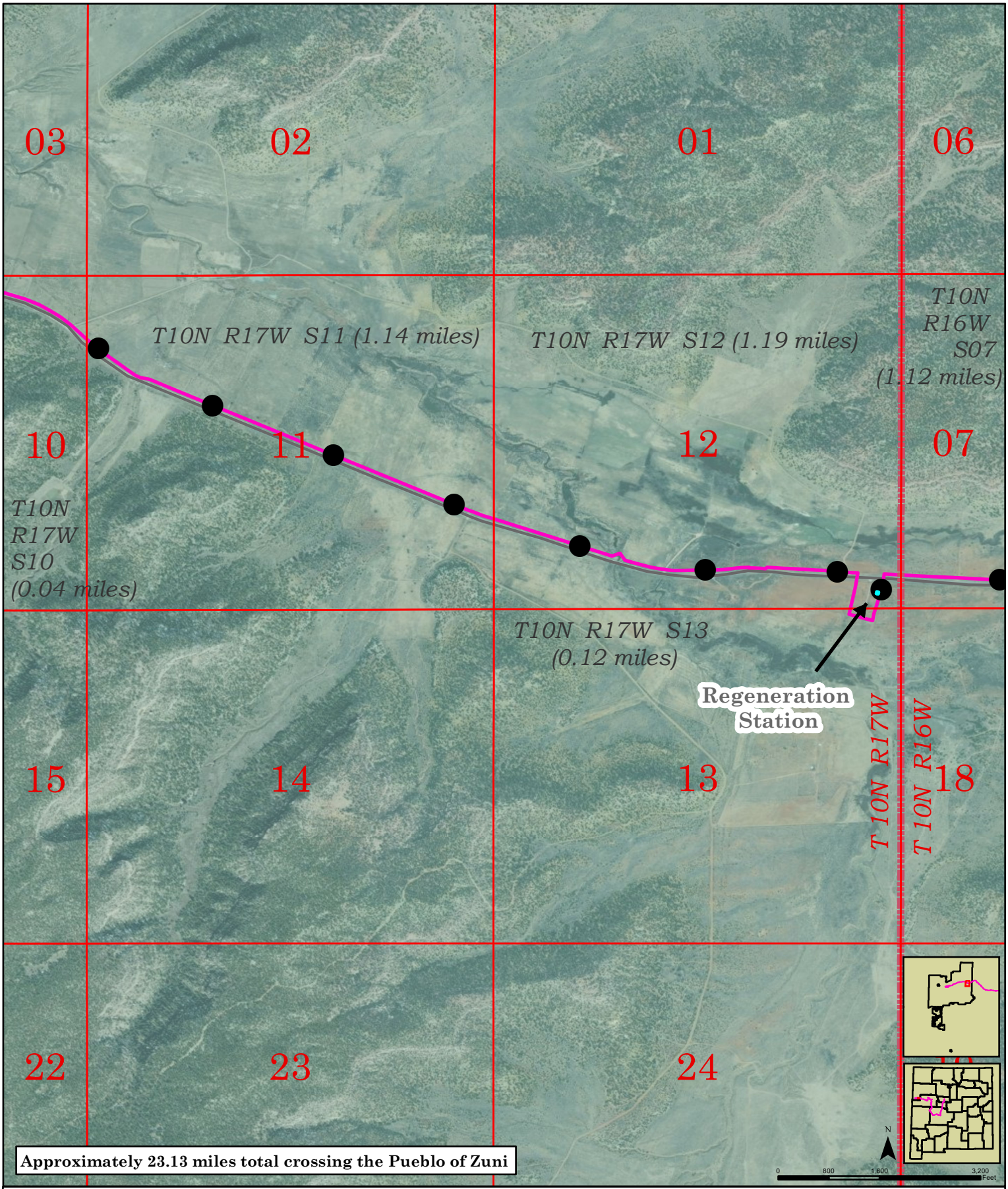
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 7 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

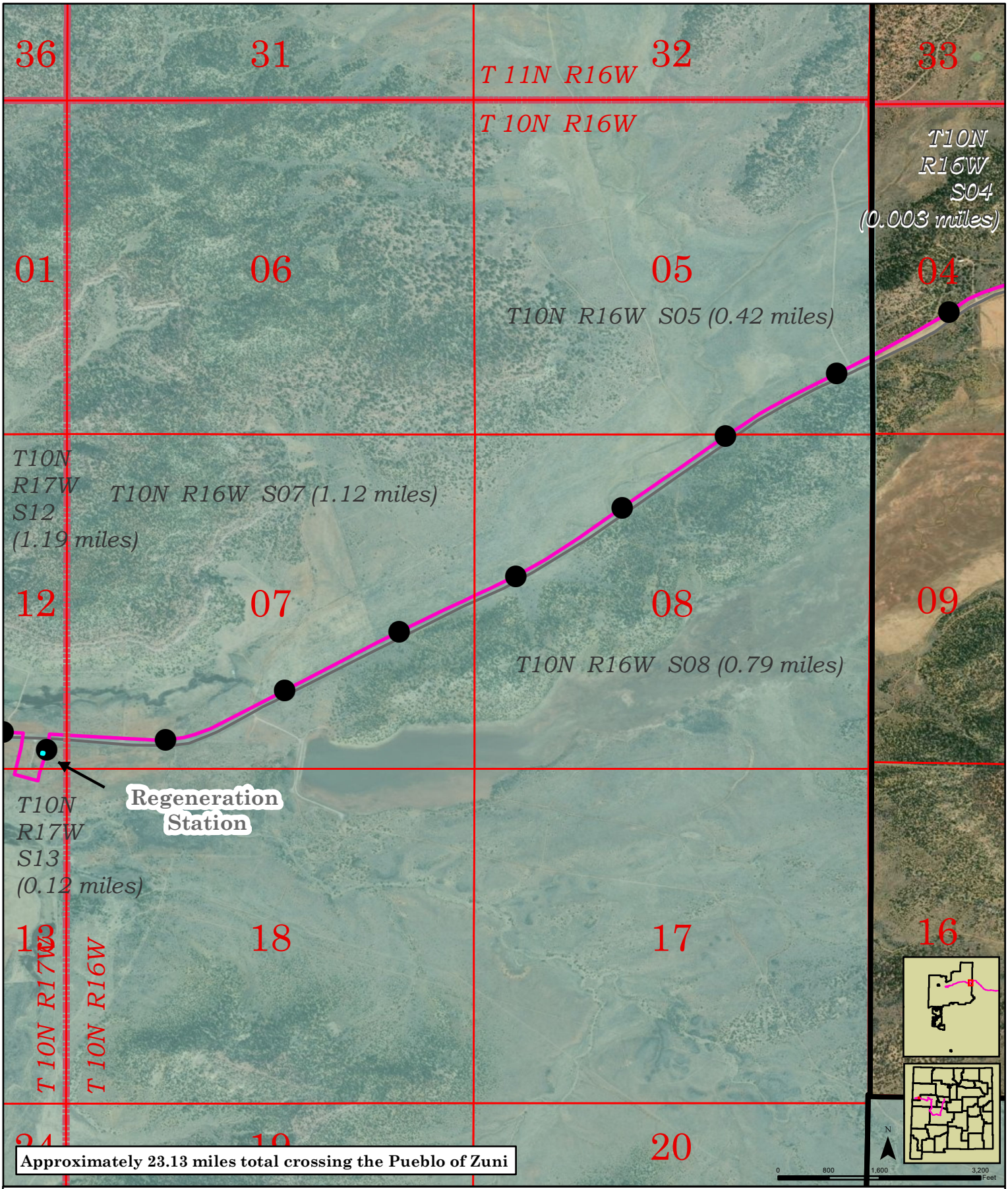
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- PEN Shelter 8/8/2024
- Handholes Updated 03/2025
- BLM PLS SSections
- BLM PLSS Township & Range
- SFIS PEN Fiber Line Updated 12/2024
- Through Zuni
- Roads
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 8 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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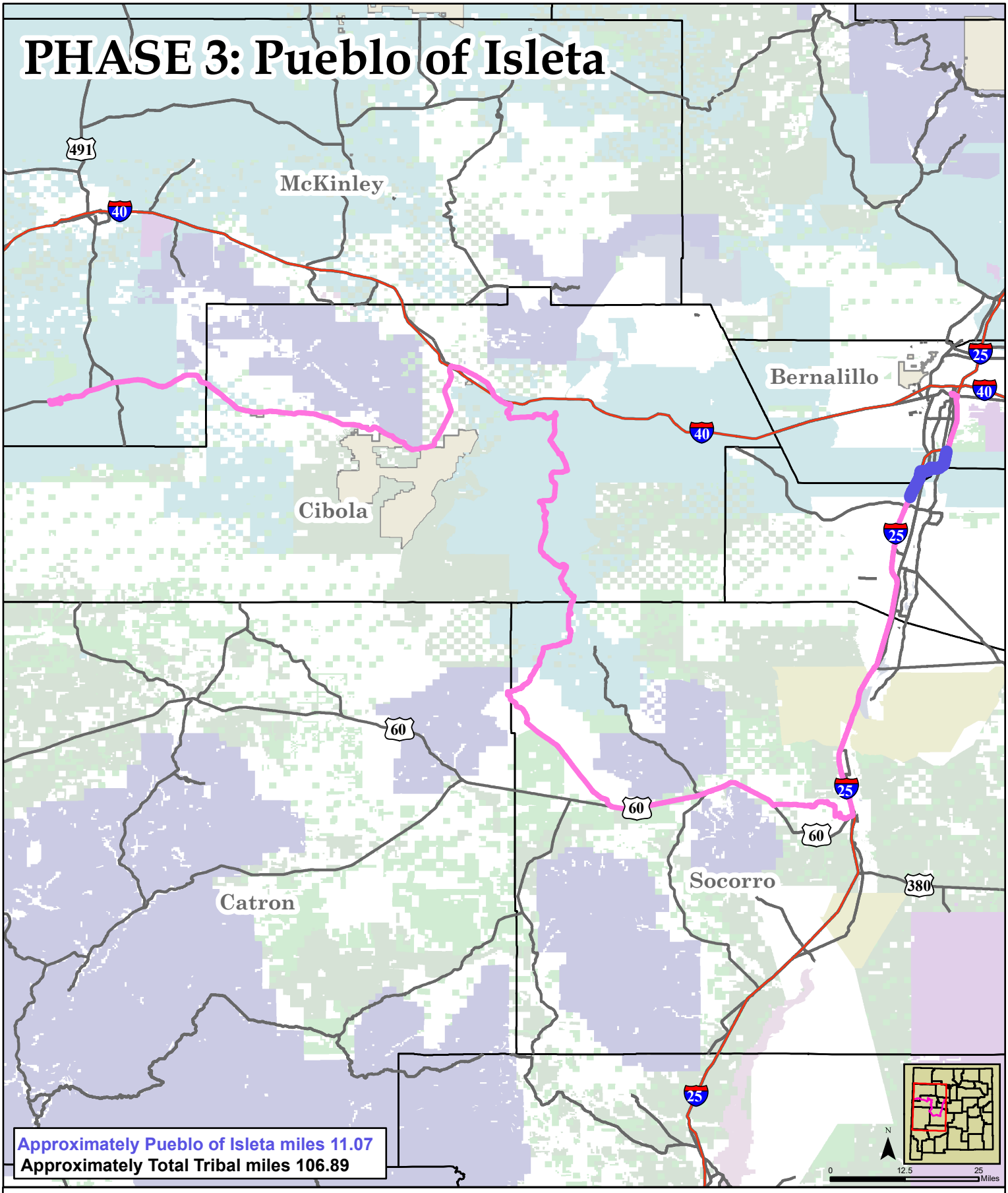
PEN Shelter 8/8/2024
Reservations Boundary
Handholes Updated 03/2025
BLM PLS SSections
BLM PLSS Township & Range
SFIS PEN Fiber Line Updated 12/2024
Through Zuni
Roads
Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 3: Pueblo of Isleta



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Isleta lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

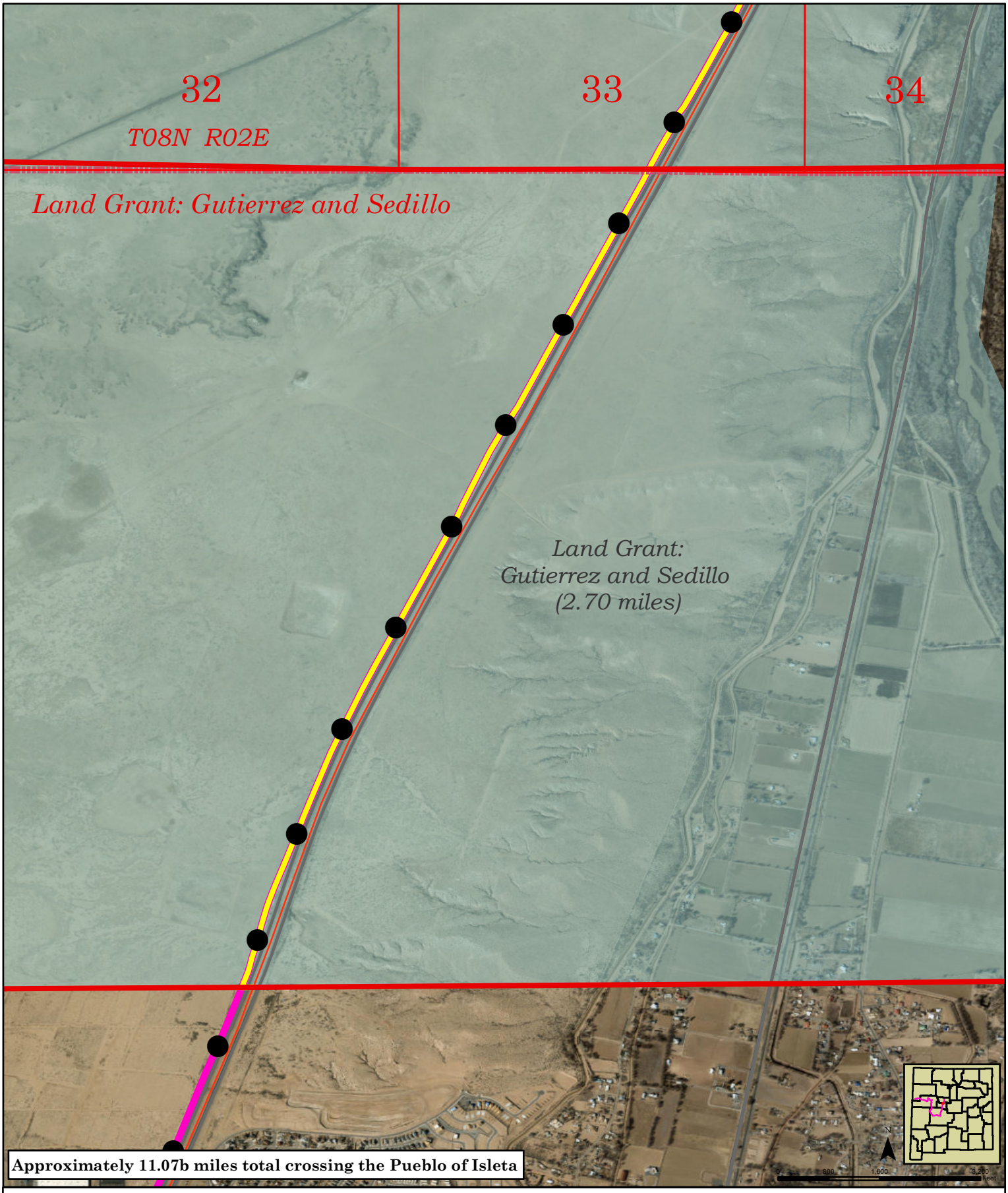
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Pueblo of Isleta
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\NDN

DRAWN BY: GIS Specialist, HWM on 02/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 1 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

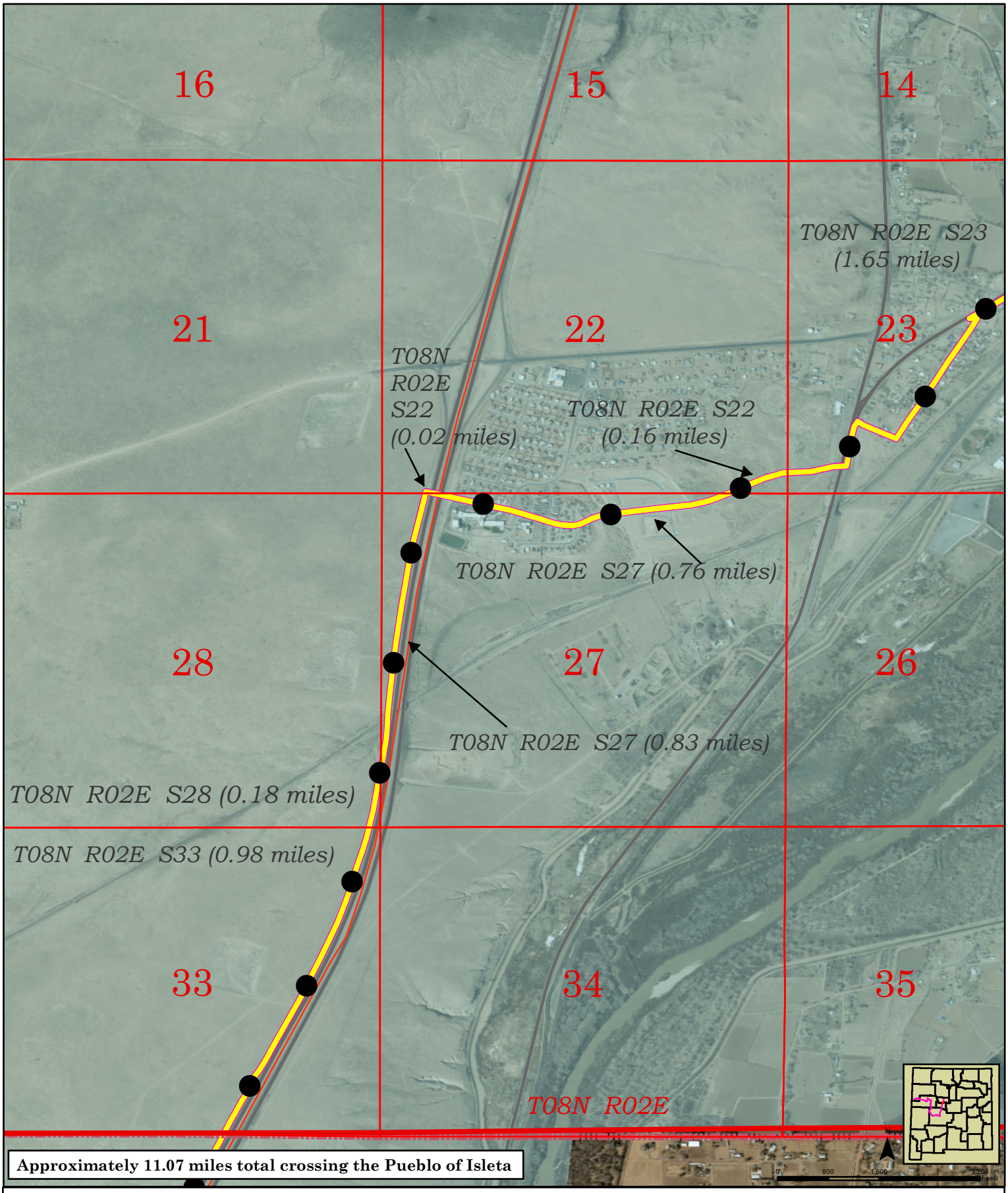
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 2 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

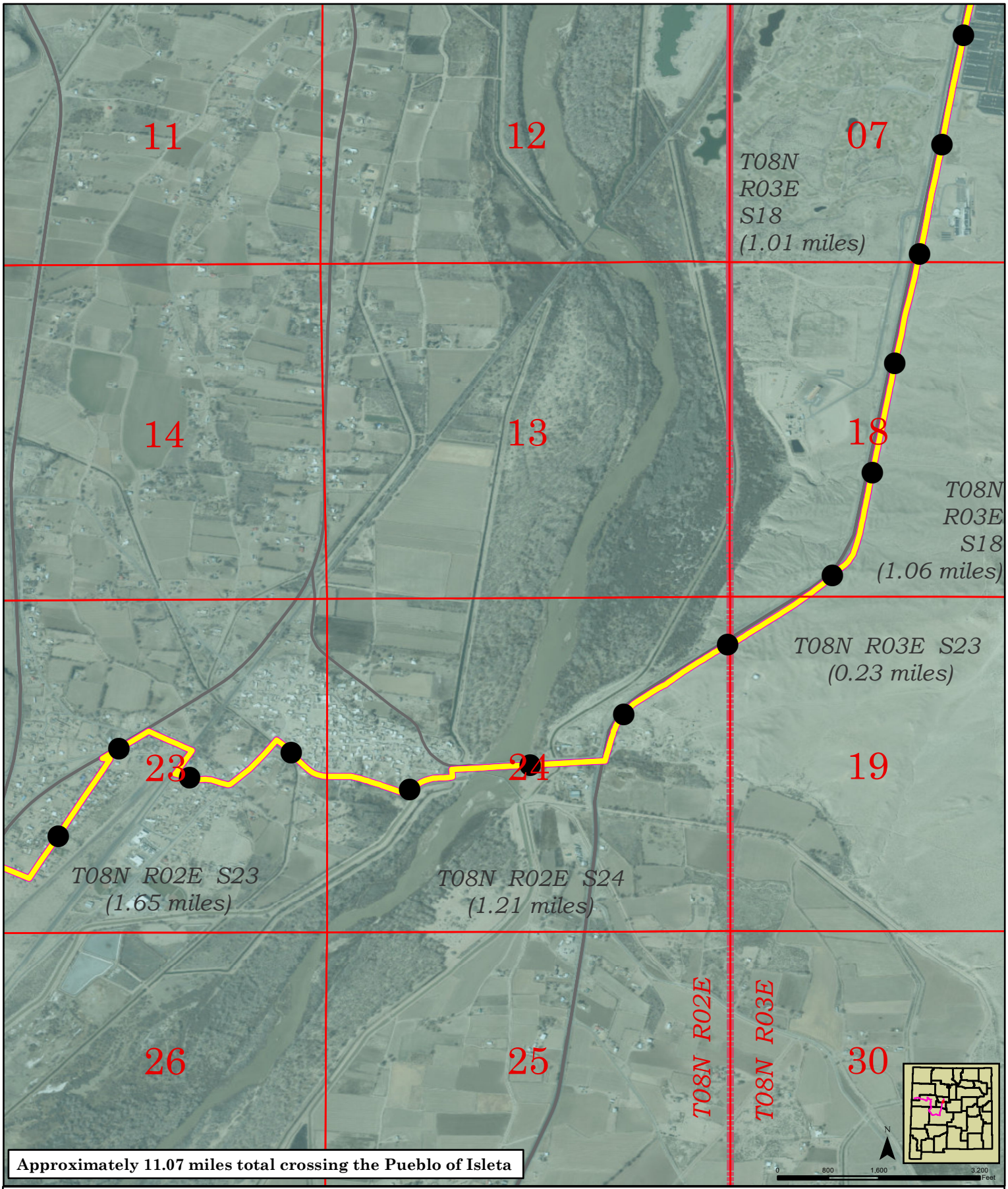
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 11.07 miles total crossing the Pueblo of Isleta

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 3 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

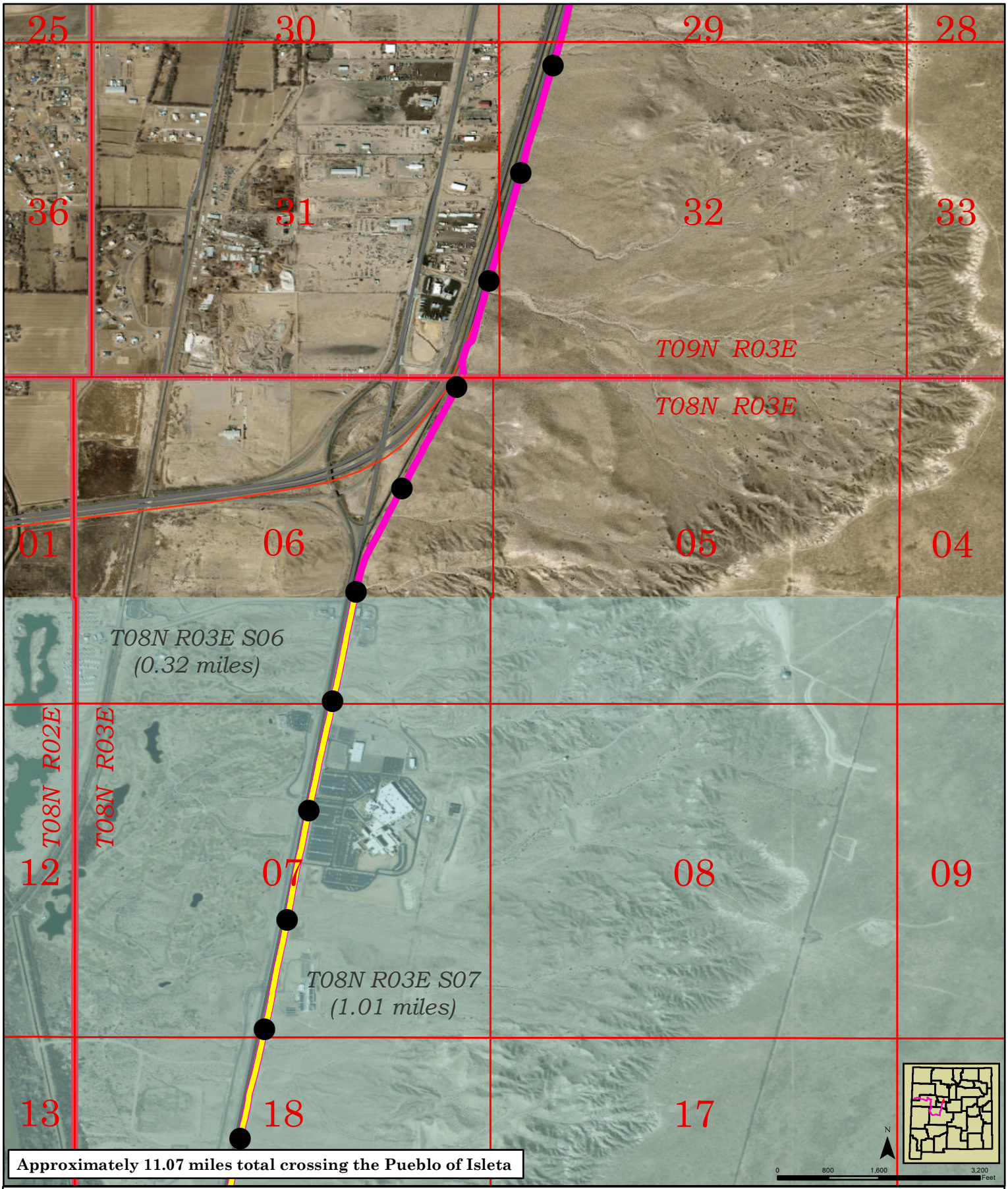
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 11.07 miles total crossing the Pueblo of Isleta

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 4 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

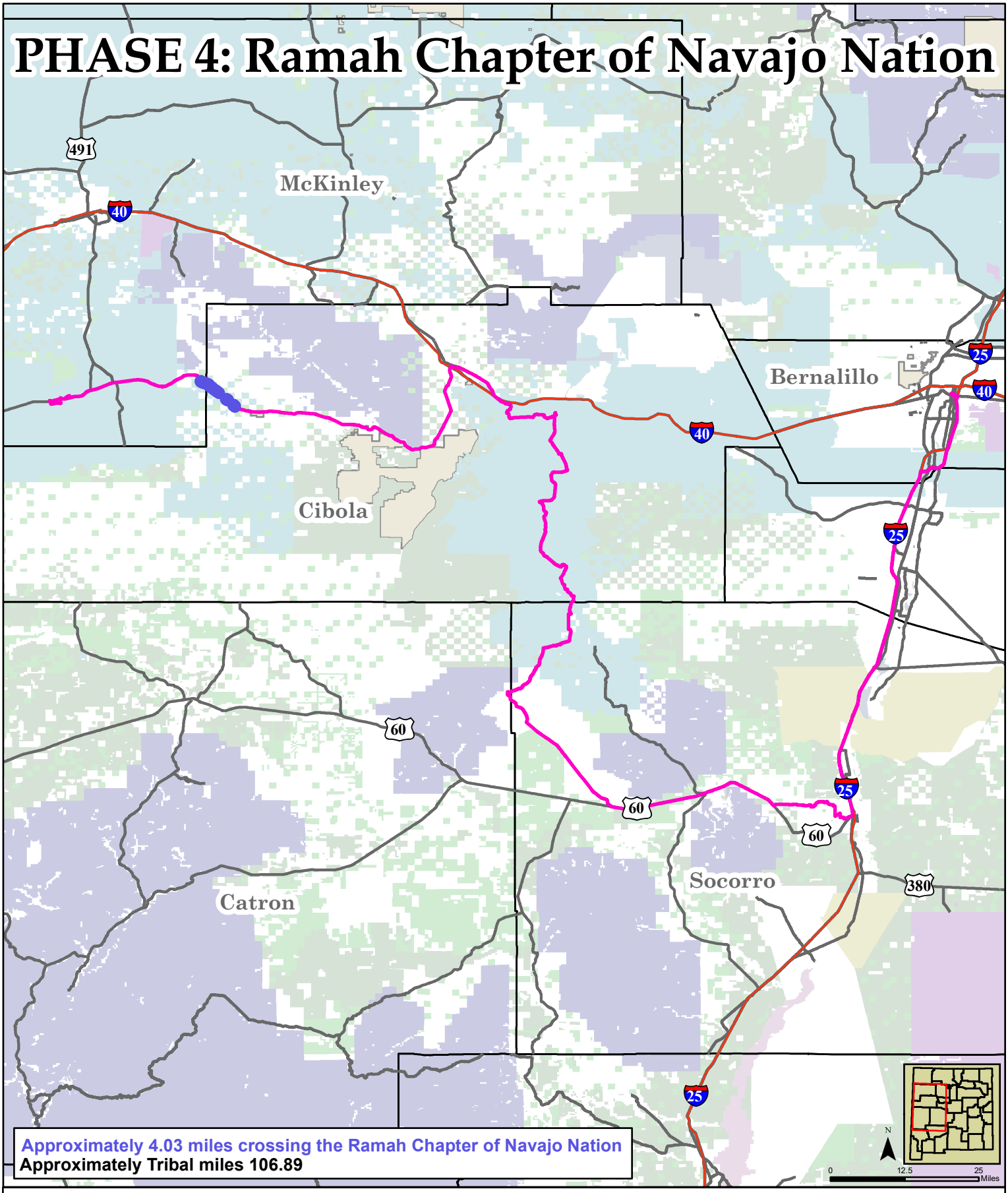
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 4: Ramah Chapter of Navajo Nation



Approximately 4.03 miles crossing the Ramah Chapter of Navajo Nation
Approximately Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Ramah lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Ramah Chapter of Navajo Nation
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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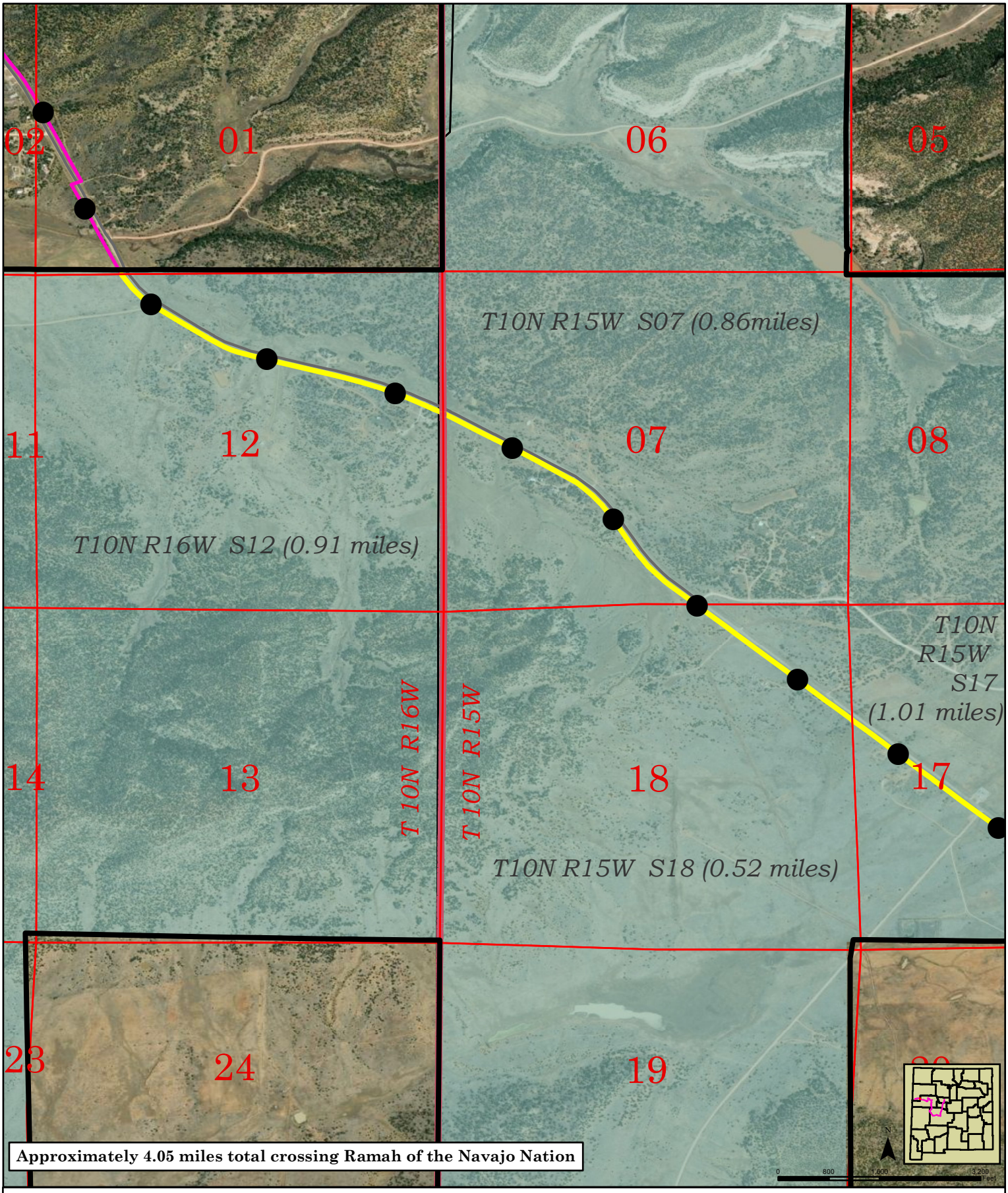
DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED: 05/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Ramah portion of the Navajo Nation. (map 1 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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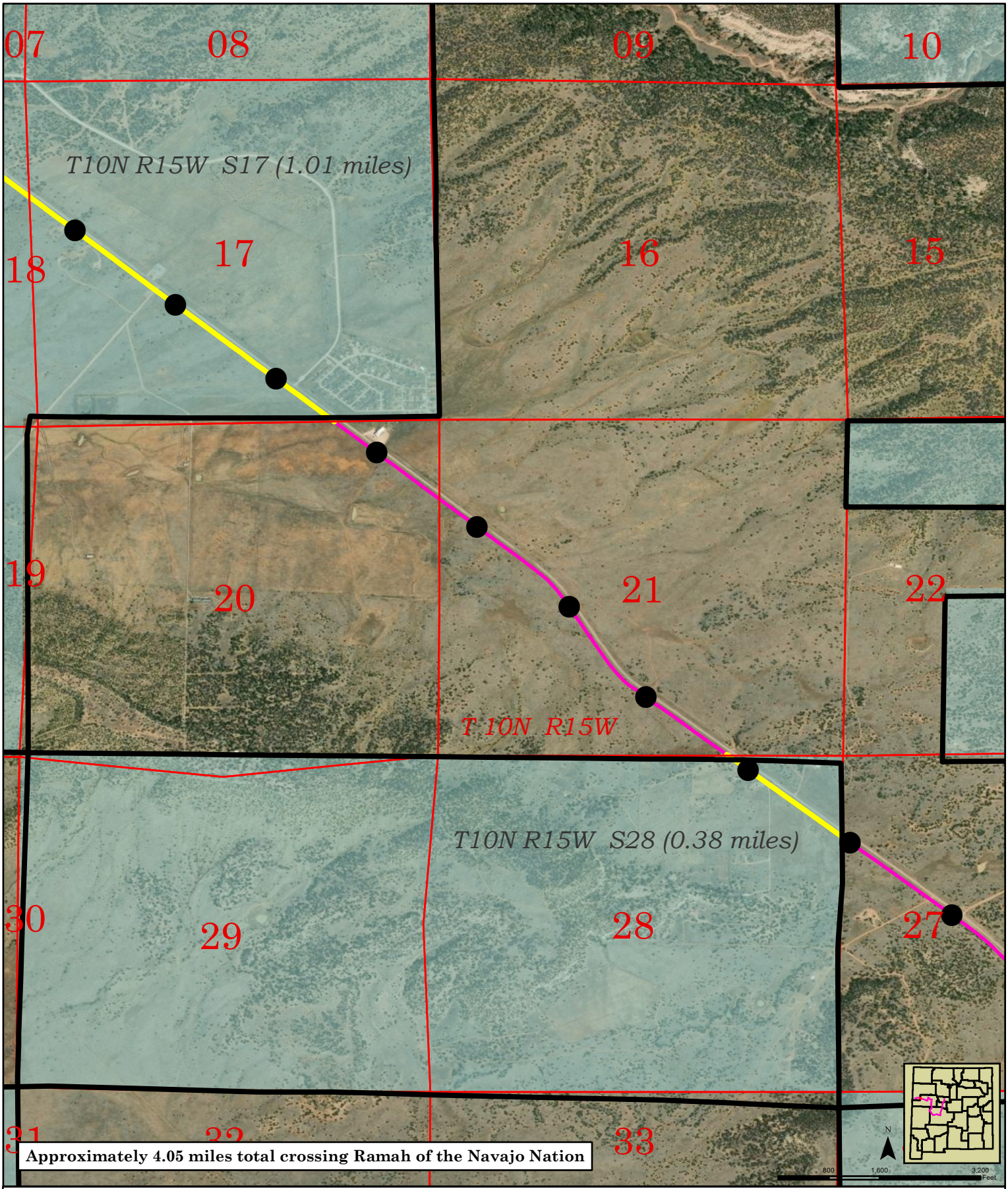
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Through Ramah
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Reservation Boundaries
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\NN\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Ramah portion of the Navajo Nation. (map 2 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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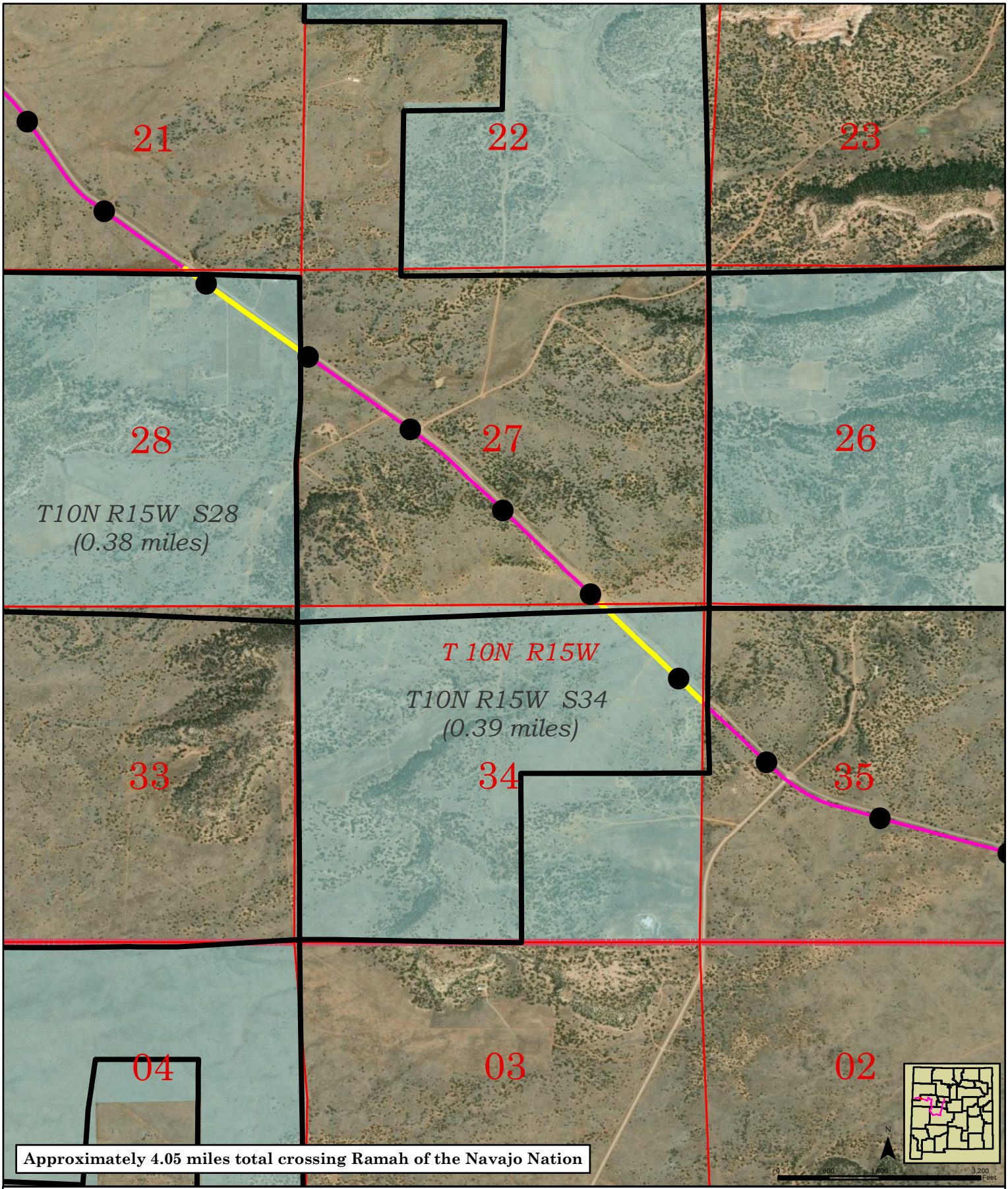
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Through Ramah
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Reservation Boundaries
- Tribal/Indian (l)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\NN\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Ramah portion of the Navajo Nation. (map 3 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

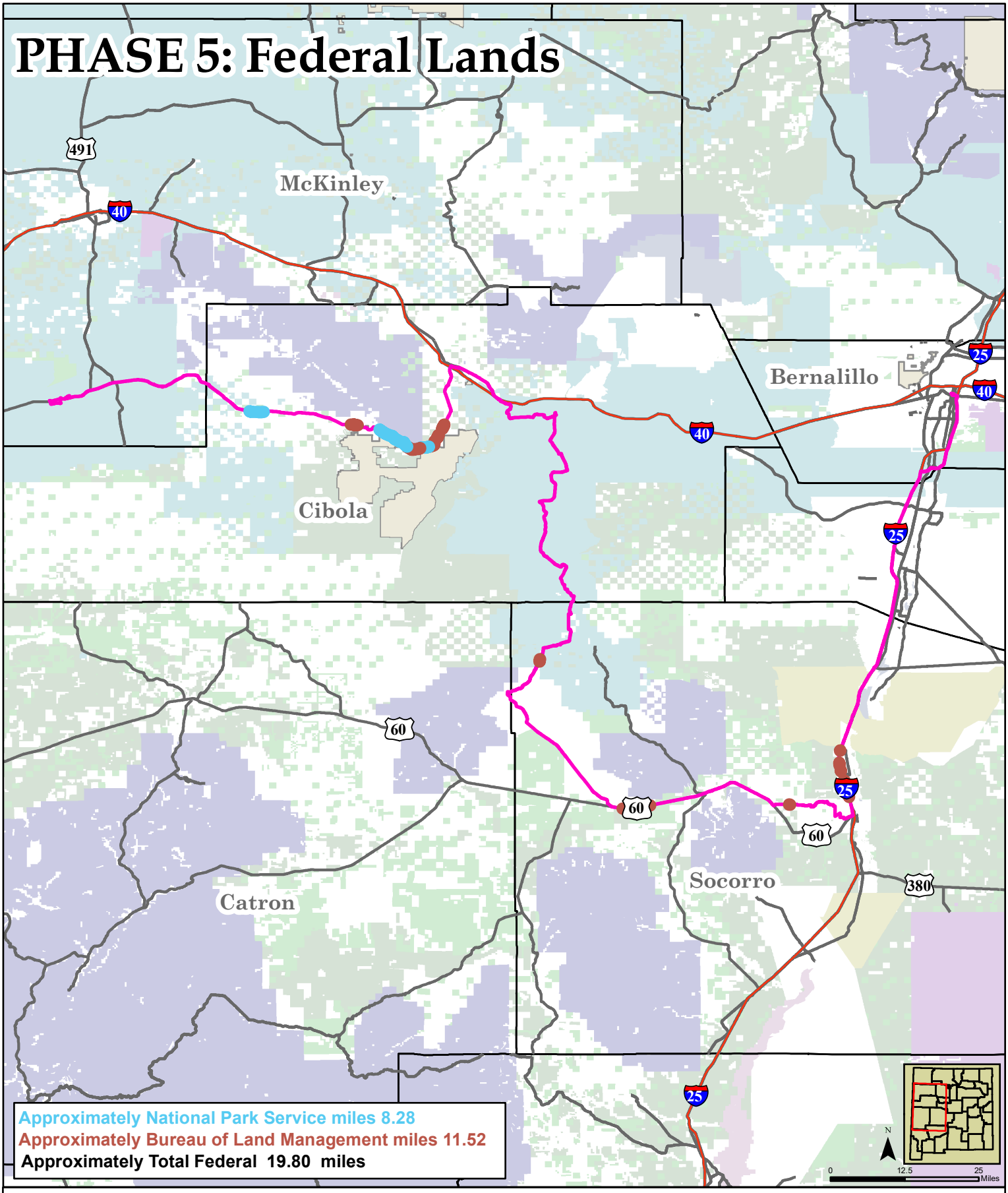
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Through Ramah
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Reservation Boundaries
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\NN\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 5: Federal Lands



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over federal lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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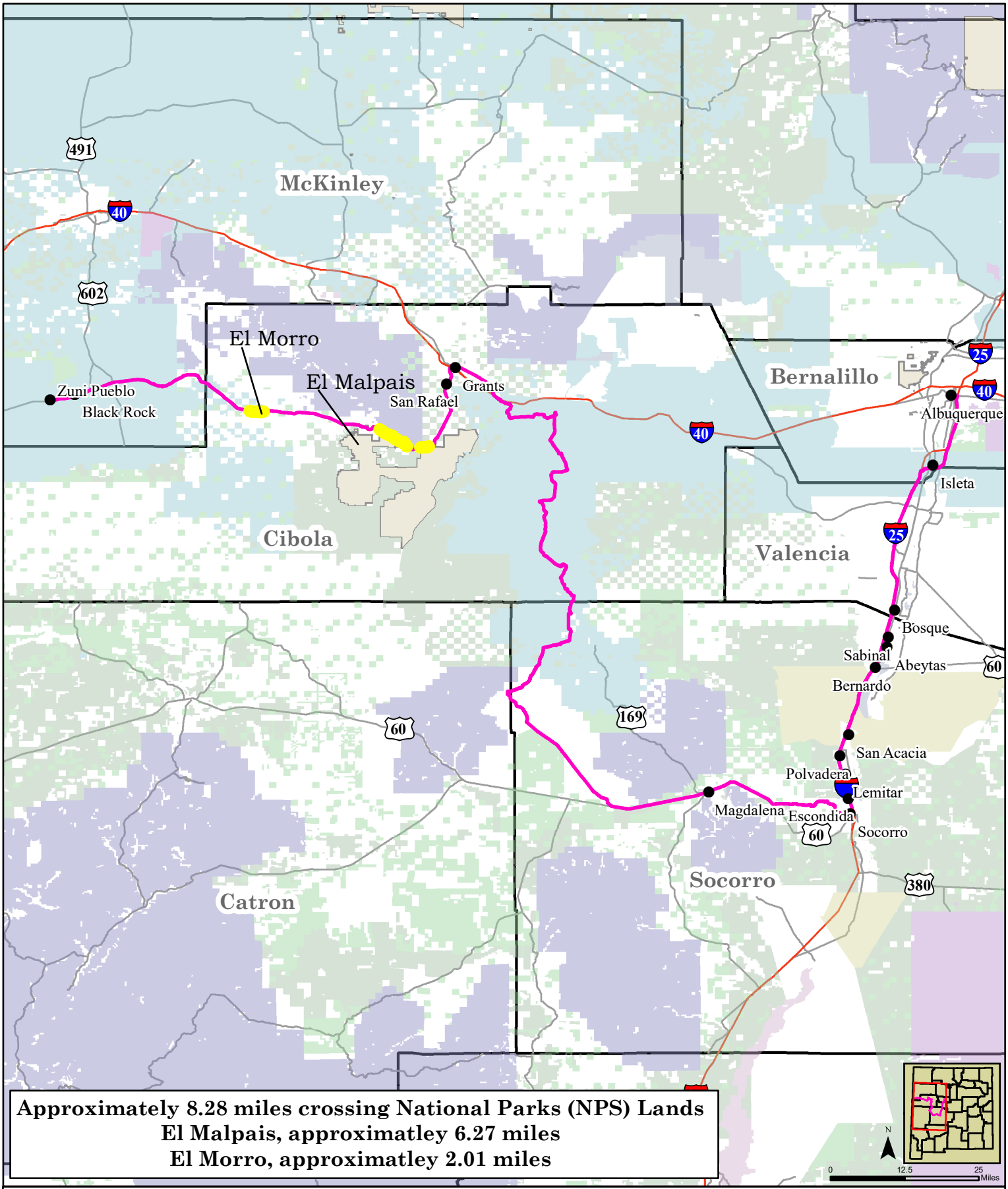
- Bureau of Land Management
- National Park Service
- FiberLineUPDATED12_2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Federal

DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED 05/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over NPS lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

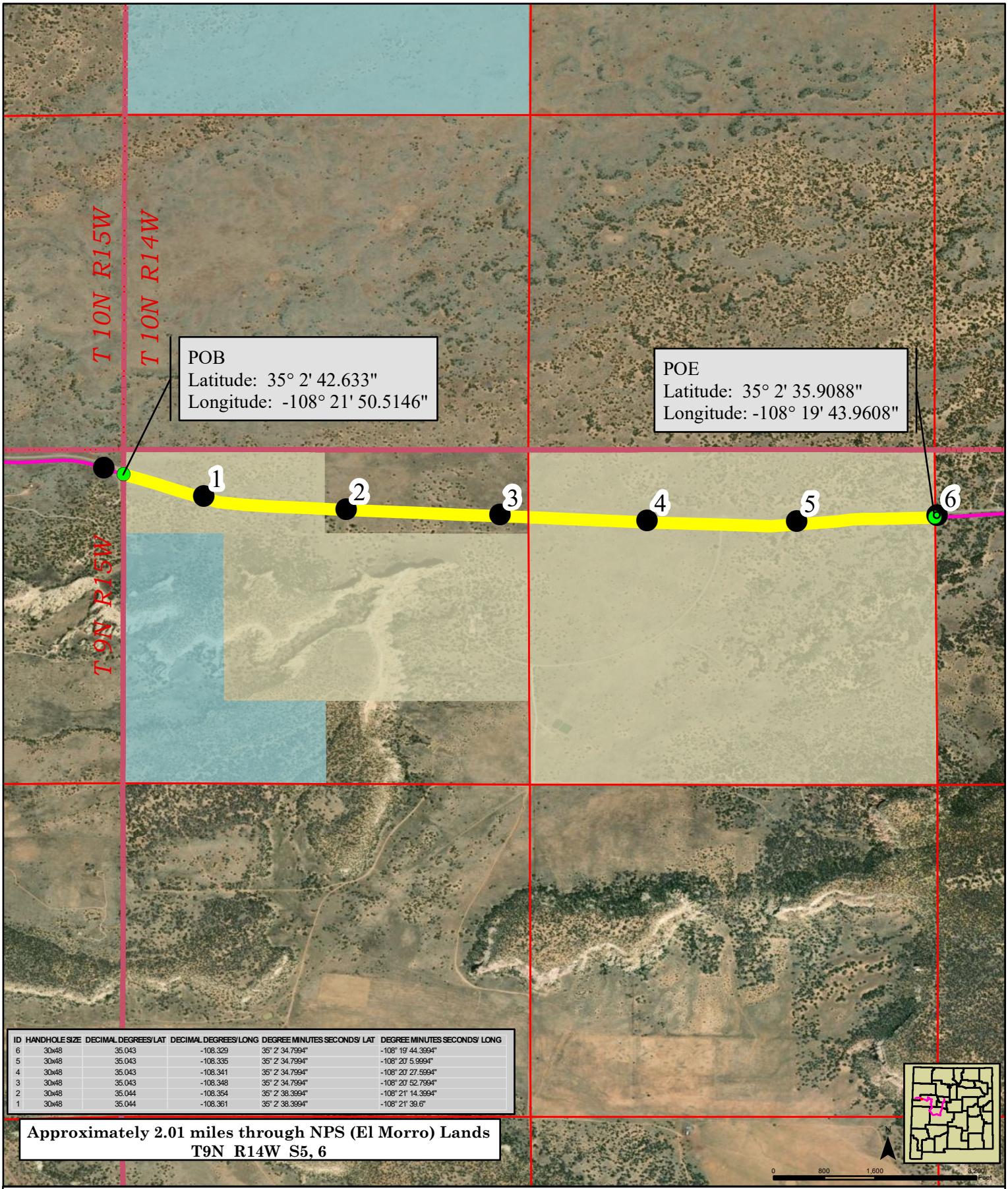
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Crossing NPS lands
- PEN Fiber Optic Line UPDATED 2_9_2024
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)
- Roads

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\FWS\MXDs\11x8.5 Size\Overall_FWS

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED 6/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/LAT	DECIMAL DEGREES/LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
6	30x48	35.043	-108.329	35° 2' 34.7994"	-108° 19' 44.3994"
5	30x48	35.043	-108.335	35° 2' 34.7994"	-108° 20' 5.9994"
4	30x48	35.043	-108.341	35° 2' 34.7994"	-108° 20' 27.5994"
3	30x48	35.043	-108.348	35° 2' 34.7994"	-108° 20' 52.7994"
2	30x48	35.044	-108.354	35° 2' 38.3994"	-108° 21' 14.3994"
1	30x48	35.044	-108.361	35° 2' 38.3994"	-108° 21' 39.6"

Approximately 2.01 miles through NPS (El Morro) Lands
T9N R14W S5, 6

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Morro National Monument).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

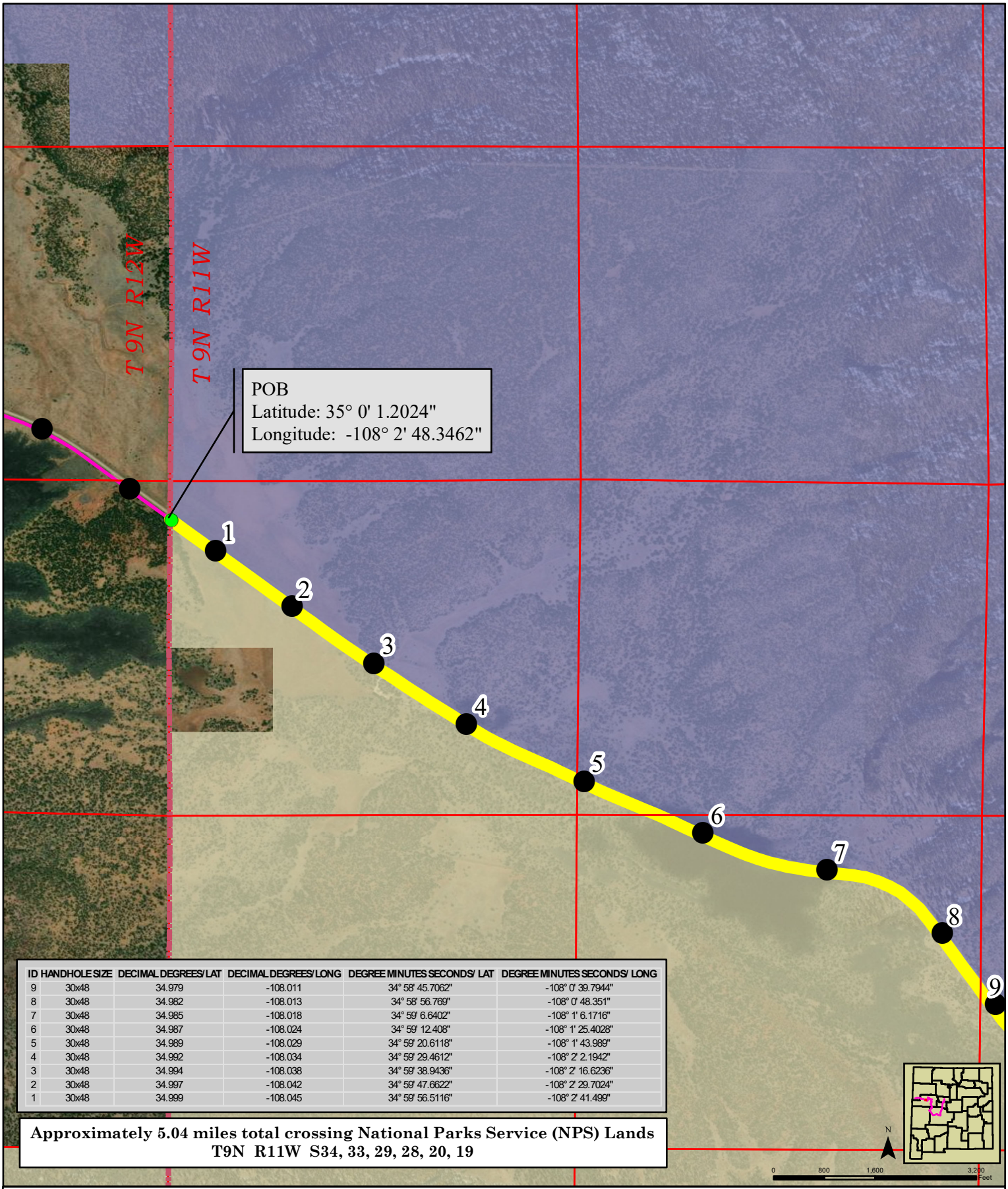
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Tribal/Indian (I)
National Park Service (NPS)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED: 6/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/ LAT	DECIMAL DEGREES/ LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
9	30x48	34.979	-108.011	34° 58' 45.7062"	-108° 0' 39.7944"
8	30x48	34.982	-108.013	34° 58' 56.769"	-108° 0' 48.351"
7	30x48	34.985	-108.018	34° 59' 6.6402"	-108° 1' 6.1716"
6	30x48	34.987	-108.024	34° 59' 12.408"	-108° 1' 25.4028"
5	30x48	34.989	-108.029	34° 59' 20.6118"	-108° 1' 43.989"
4	30x48	34.992	-108.034	34° 59' 29.4612"	-108° 2' 2.1942"
3	30x48	34.994	-108.038	34° 59' 38.9436"	-108° 2' 16.6236"
2	30x48	34.997	-108.042	34° 59' 47.6622"	-108° 2' 29.7024"
1	30x48	34.999	-108.045	34° 59' 56.5116"	-108° 2' 41.499"

Approximately 5.04 miles total crossing National Parks Service (NPS) Lands
T9N R11W S34, 33, 29, 28, 20, 19

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Malpais National Monument, Map 1 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

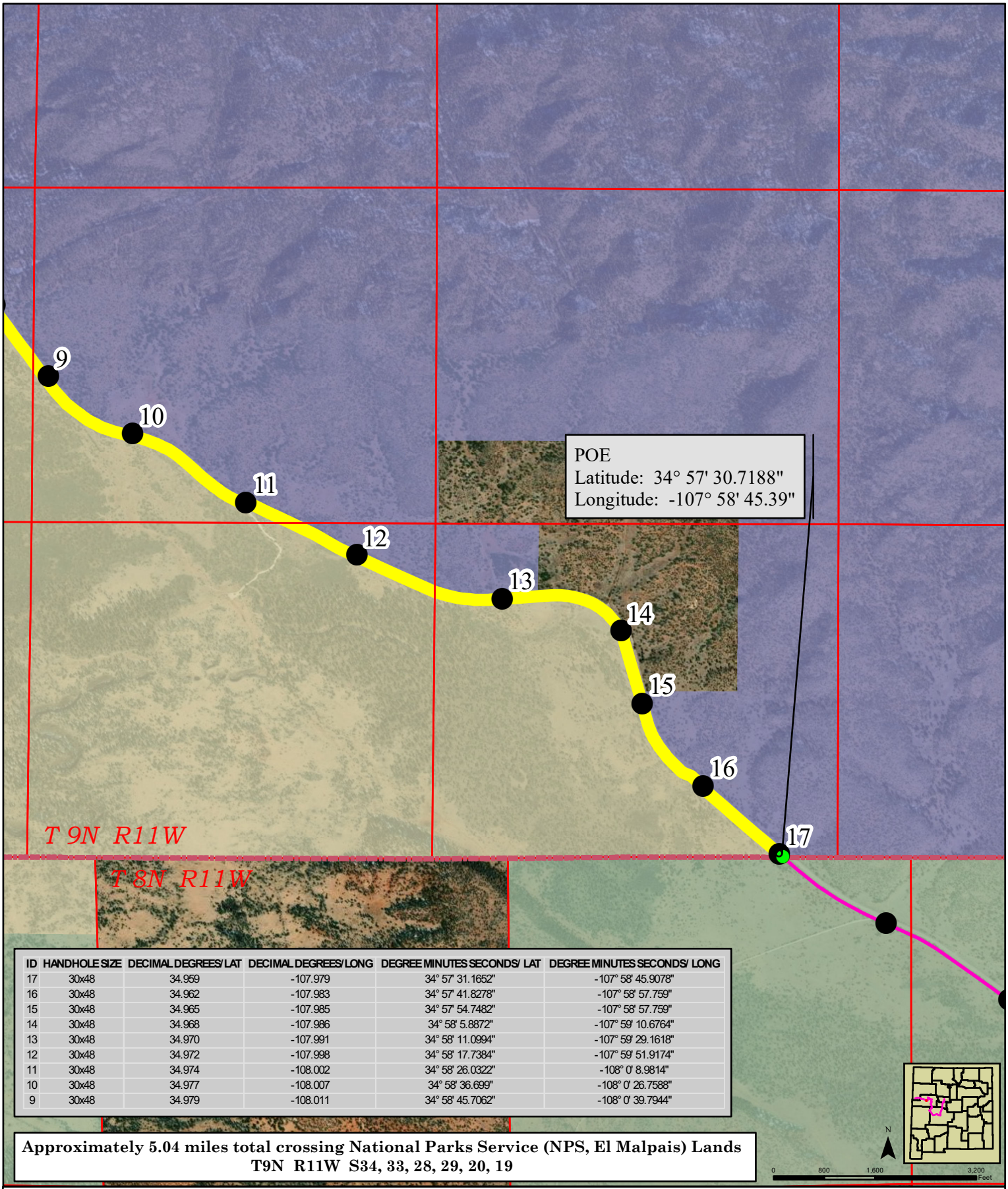
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2024
Roads
Forest Service (FS)
National Park Service (NPS)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATE: 6/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/ LAT	DECIMAL DEGREES/ LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
17	30x48	34.959	-107.979	34° 57' 31.1652"	-107° 58' 45.9078"
16	30x48	34.962	-107.983	34° 57' 41.8278"	-107° 58' 57.759"
15	30x48	34.965	-107.985	34° 57' 54.7482"	-107° 58' 57.759"
14	30x48	34.968	-107.986	34° 58' 5.8872"	-107° 59' 10.6764"
13	30x48	34.970	-107.991	34° 58' 11.0994"	-107° 59' 29.1618"
12	30x48	34.972	-107.998	34° 58' 17.7384"	-107° 59' 51.9174"
11	30x48	34.974	-108.002	34° 58' 26.0322"	-108° 0' 8.9814"
10	30x48	34.977	-108.007	34° 58' 36.699"	-108° 0' 26.7588"
9	30x48	34.979	-108.011	34° 58' 45.7062"	-108° 0' 39.7944"

Approximately 5.04 miles total crossing National Parks Service (NPS, El Malpais) Lands
T9N R11W S34, 33, 28, 29, 20, 19

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Malpais National Monument, Map 2 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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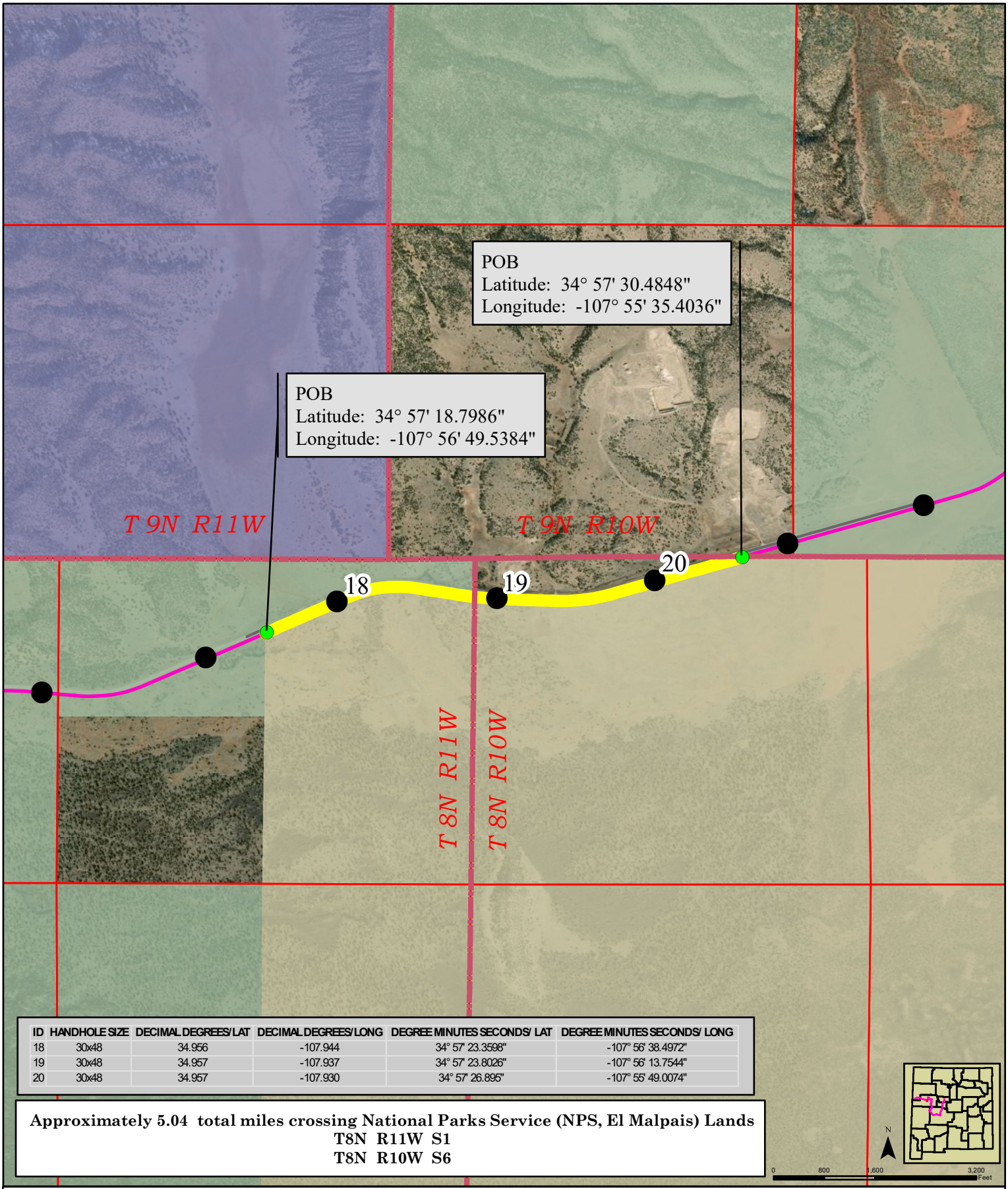
Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2025
Roads
Bureau of Land Management (BLM)
Forest Service (FS)
National Park Service (NPS)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED:06/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/ LAT	DECIMAL DEGREES/ LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
18	30x48	34.956	-107.944	34° 57' 23.3598"	-107° 56' 38.4972"
19	30x48	34.957	-107.937	34° 57' 23.8026"	-107° 56' 13.7544"
20	30x48	34.957	-107.930	34° 57' 26.895"	-107° 55' 49.0074"

Approximately 5.04 total miles crossing National Parks Service (NPS, El Malpais) Lands
T8N R11W S1
T8N R10W S6

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Malpais National Monument, Map 3 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

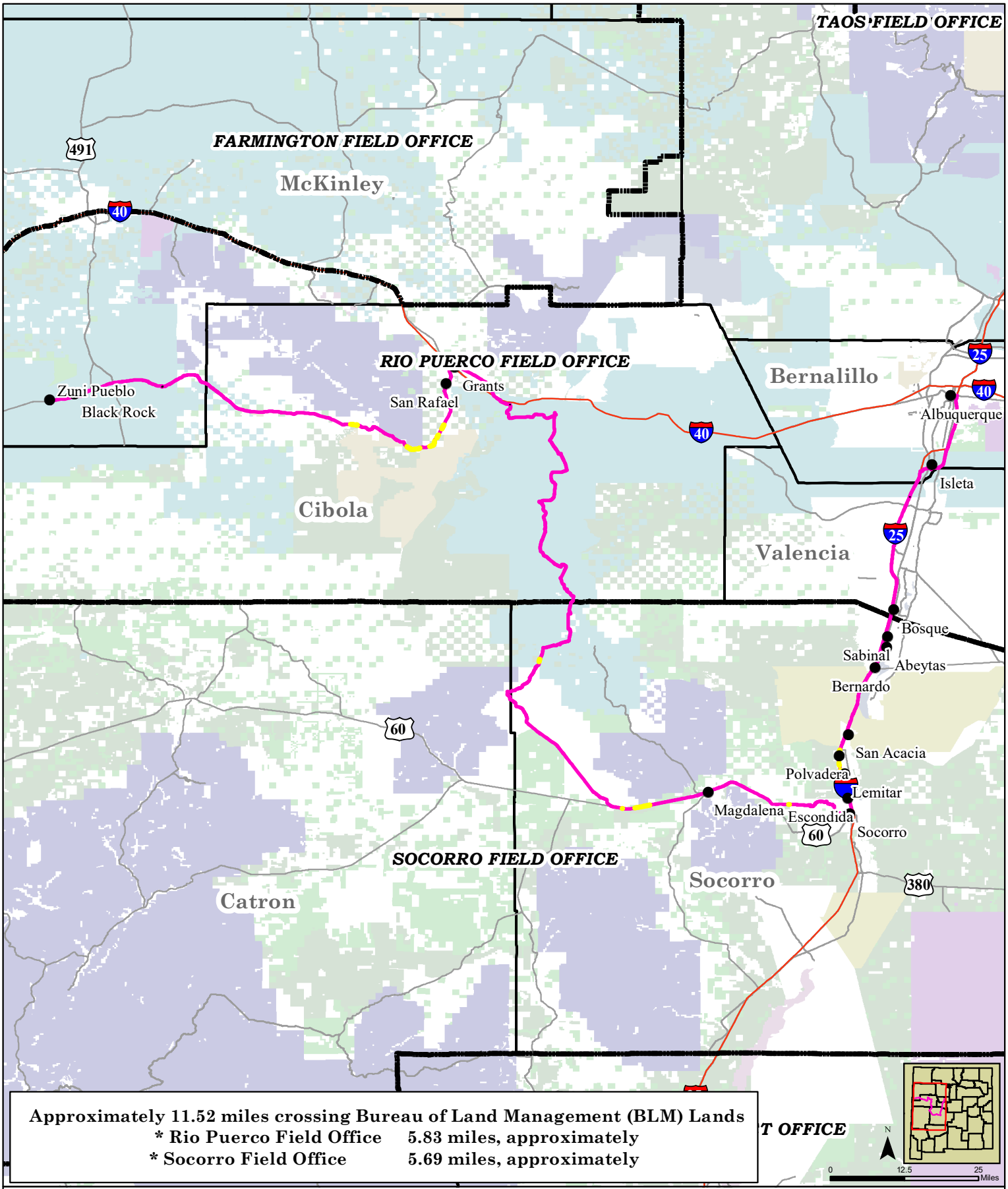
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Forest Service (FS)
National Park Service (NPS)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 Updated: 06/2025



Approximately 11.52 miles crossing Bureau of Land Management (BLM) Lands
*** Rio Puerco Field Office 5.83 miles, approximately**
*** Socorro Field Office 5.69 miles, approximately**

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over BLM lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

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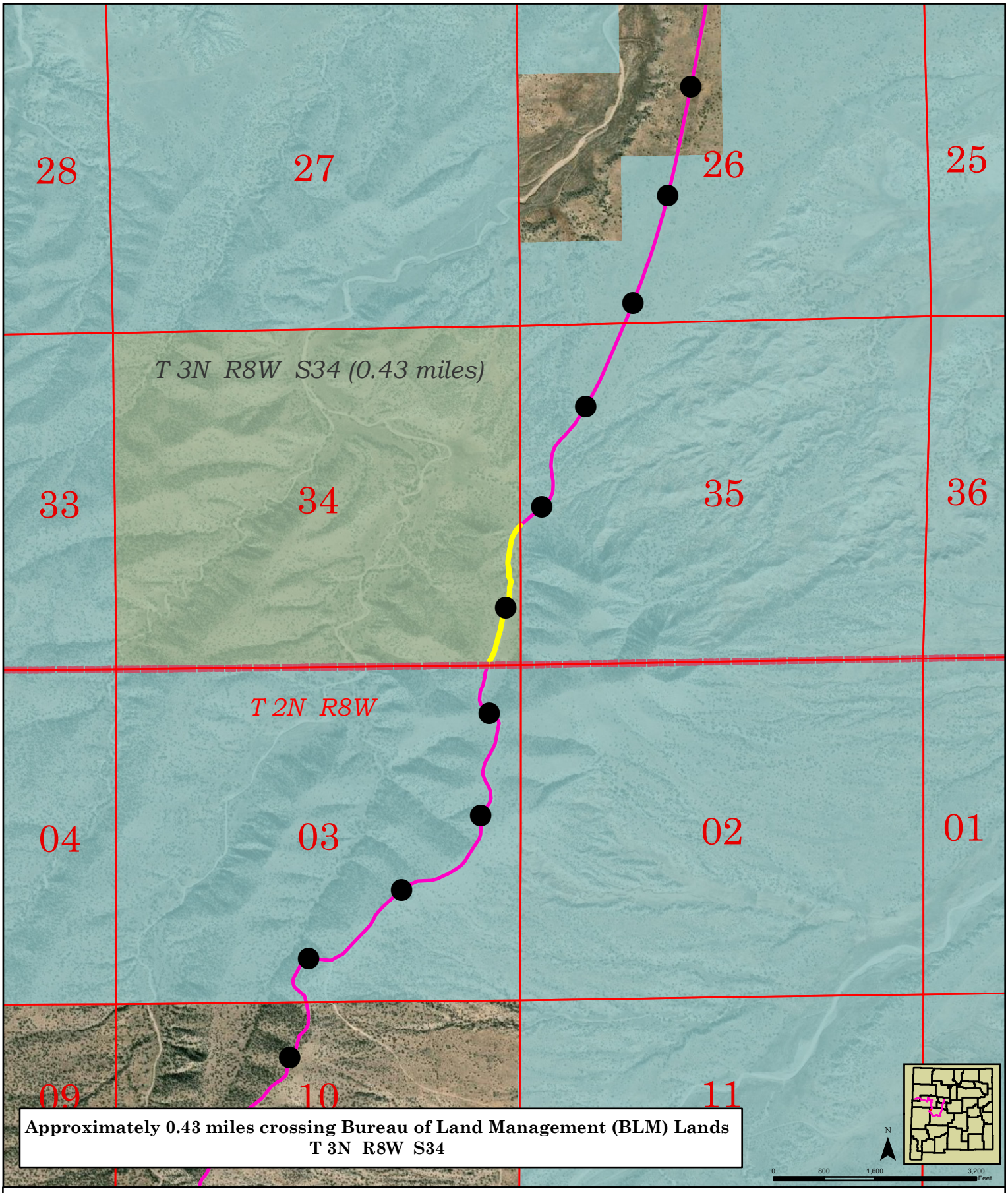
- PEN Fiber Regeneration Sites UPDATED 2_9_2024
- Crossing BLM Land
- PEN Fiber Optic Line UPDATED 2_9_2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size\Overall_BLM

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro, map 1 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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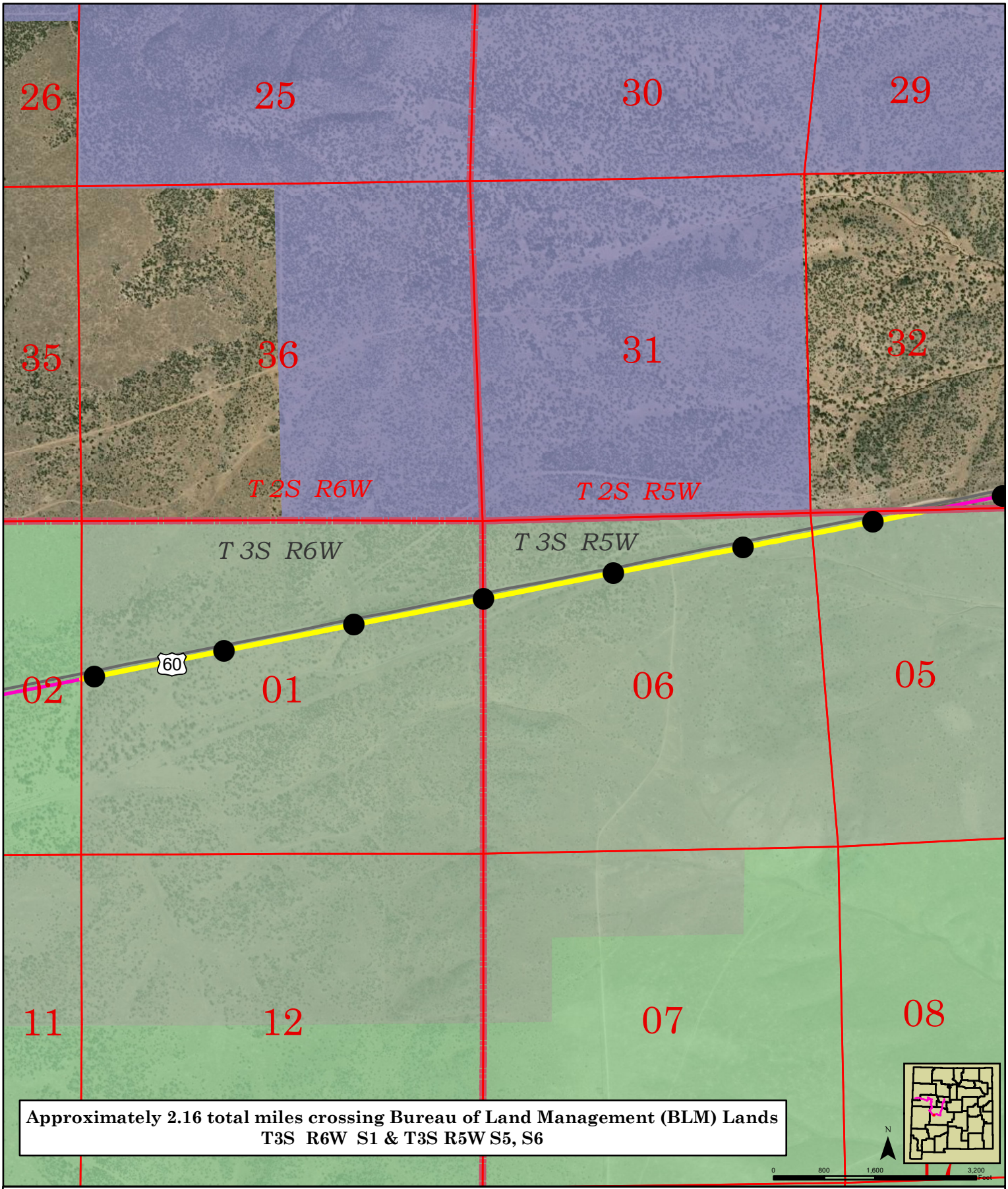
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Tribal/Indian (I)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro map 2 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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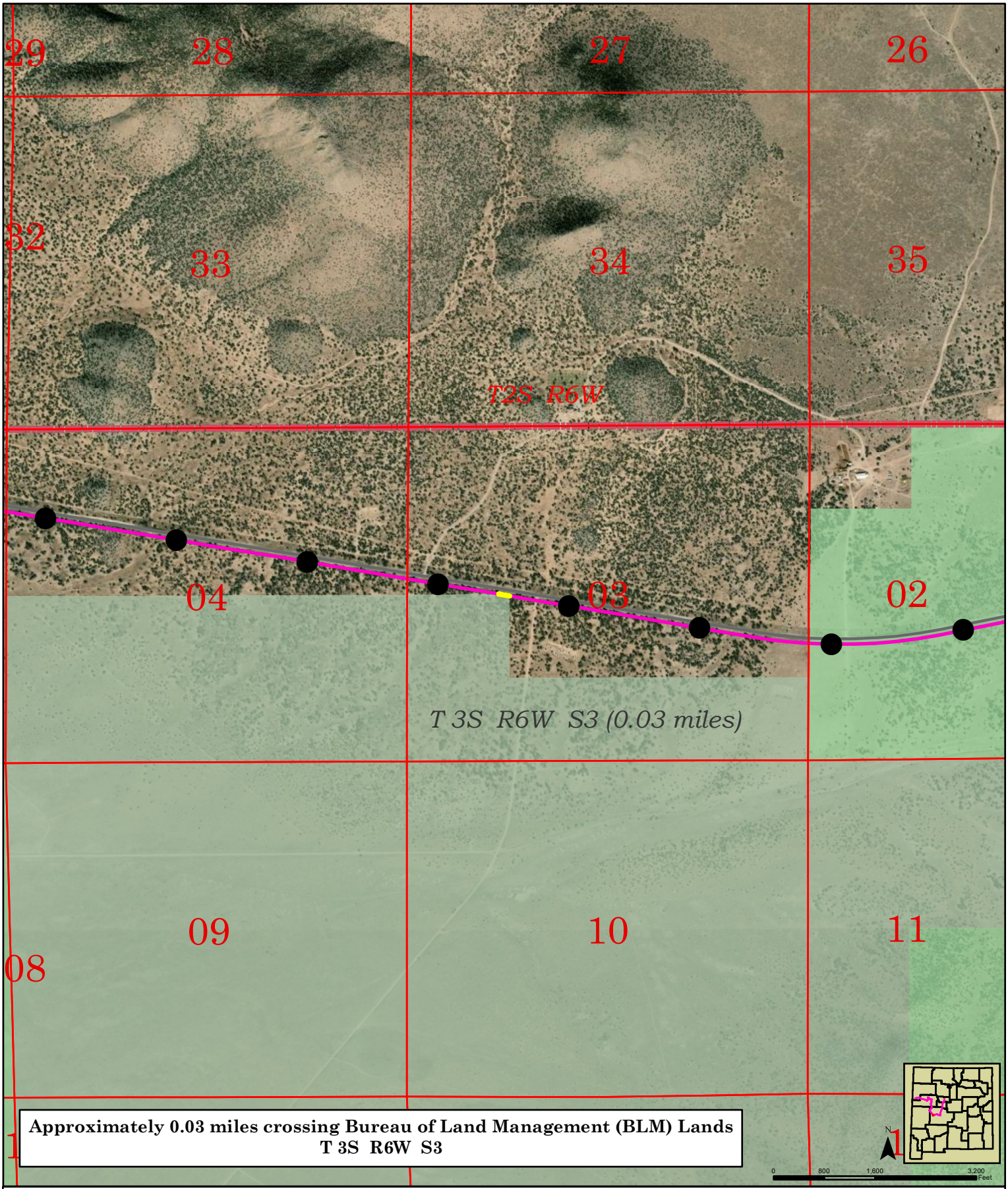
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Forest Service (FS)
- Private (P)
- State (S)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands. (Map 3 of 6)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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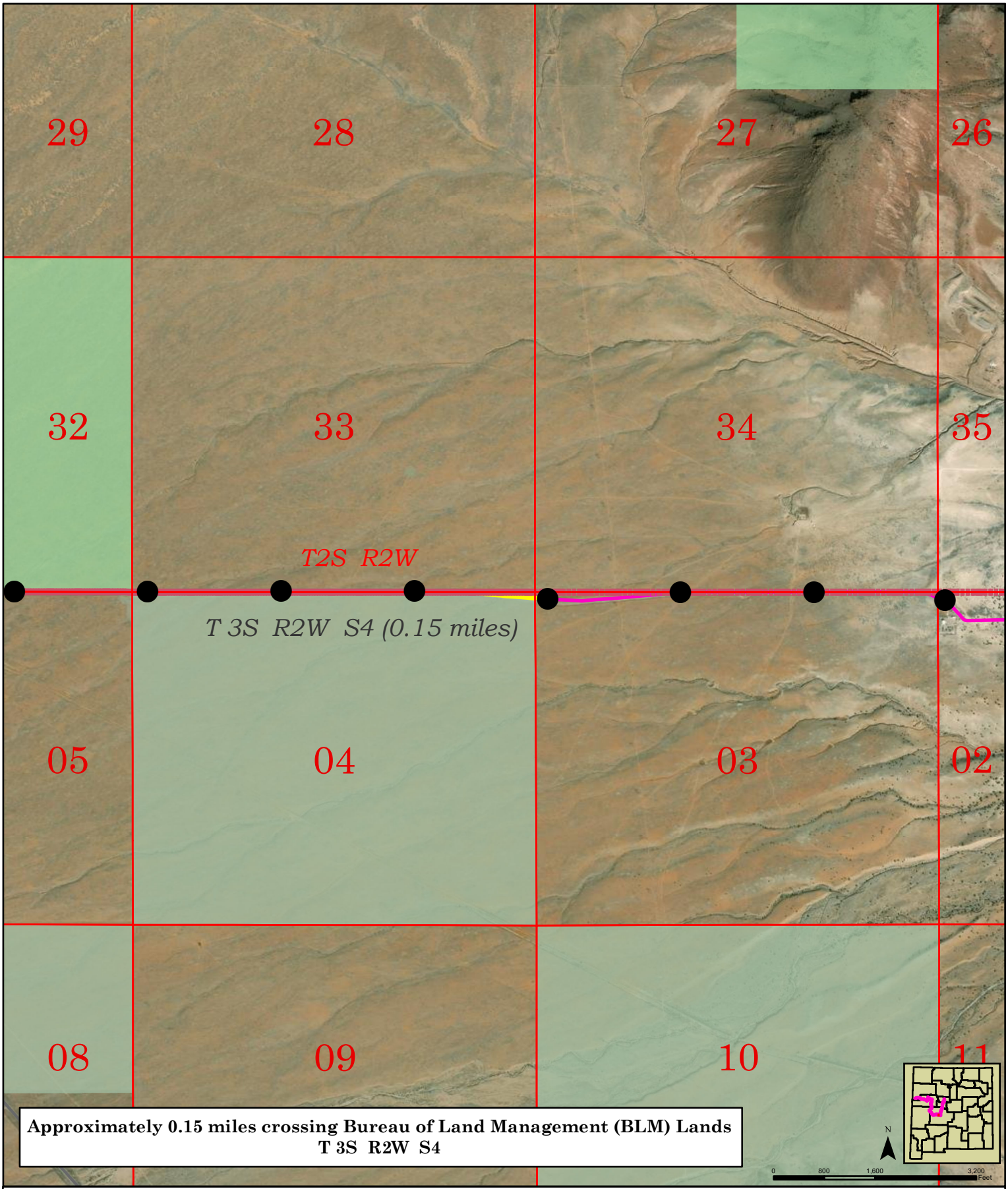
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Private (P)
- State (S)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.15 miles crossing Bureau of Land Management (BLM) Lands
T 3S R2W S4

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands. (Map 4 of 6)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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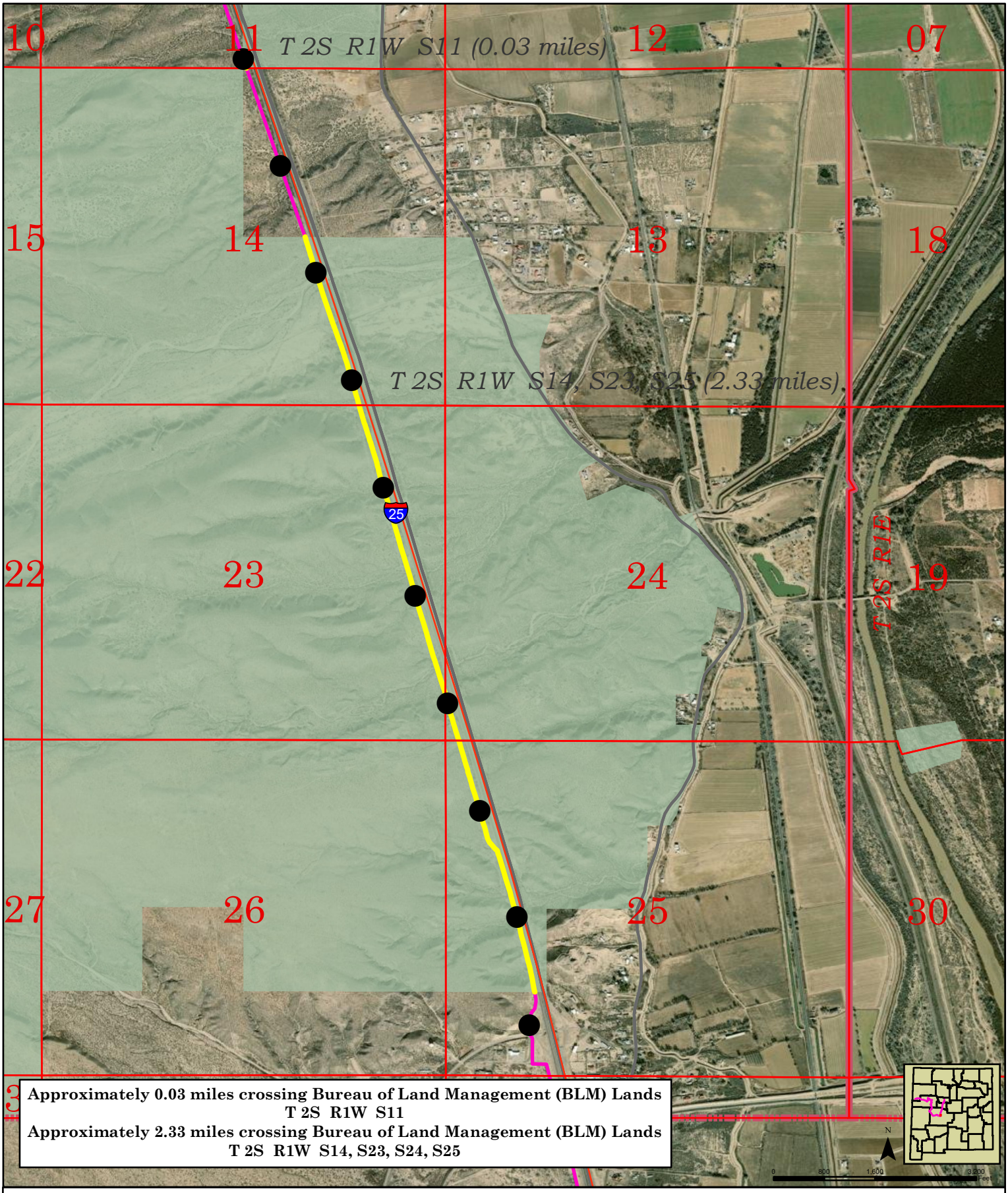
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Private (P)
- State (S)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.03 miles crossing Bureau of Land Management (BLM) Lands
T 2S R1W S11
Approximately 2.33 miles crossing Bureau of Land Management (BLM) Lands
T 2S R1W S14, S23, S24, S25

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro map 5 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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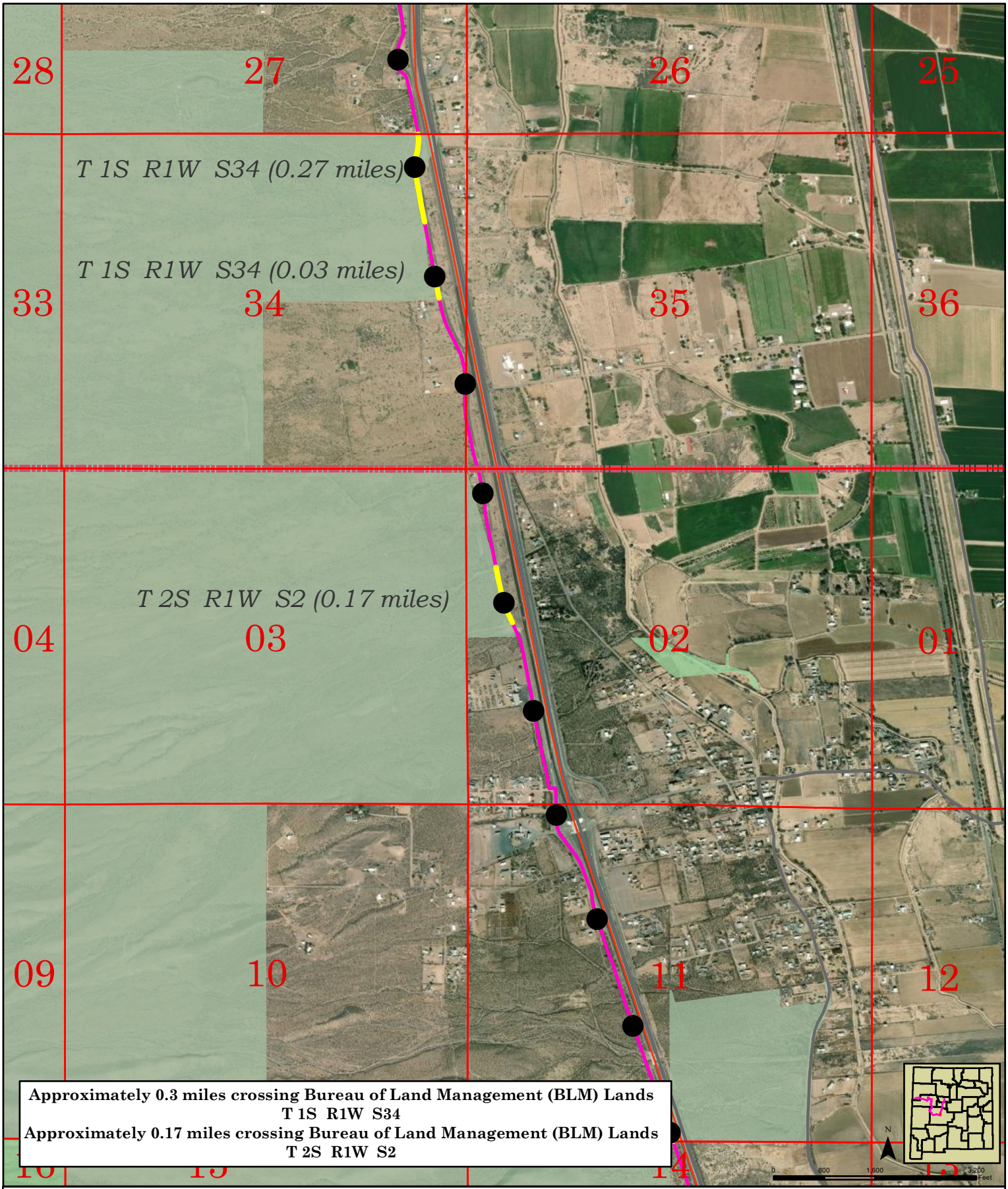
Handholes Updated 03/2025
Private (P)
Crossing BLM Land
PEN Fiber Optic Line 12_19_2023
Roads
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro, map 6 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Private (P)
- State (S)

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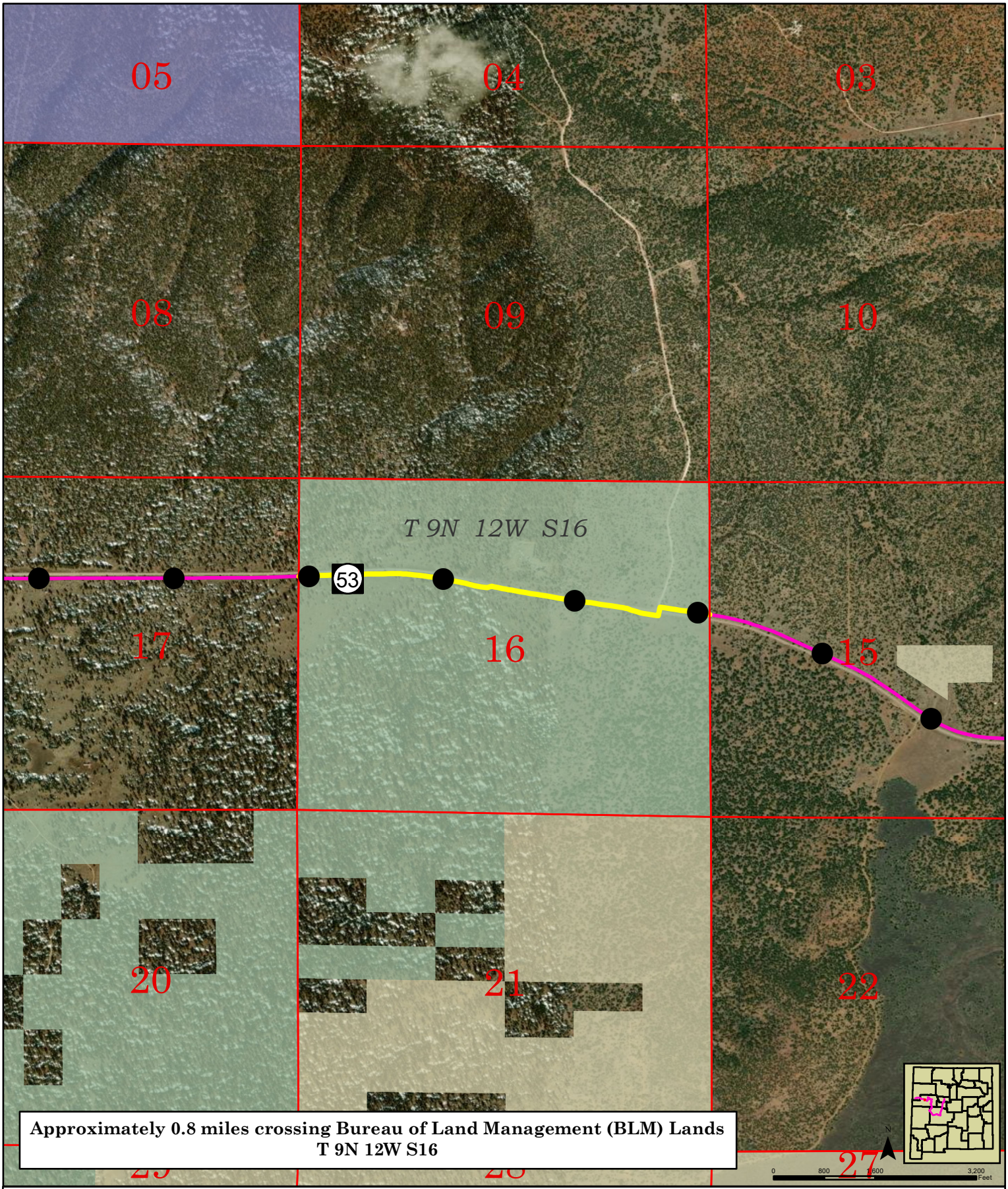
DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.8 miles crossing Bureau of Land Management (BLM) Lands
T 9N 12W S16

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puero, map 1 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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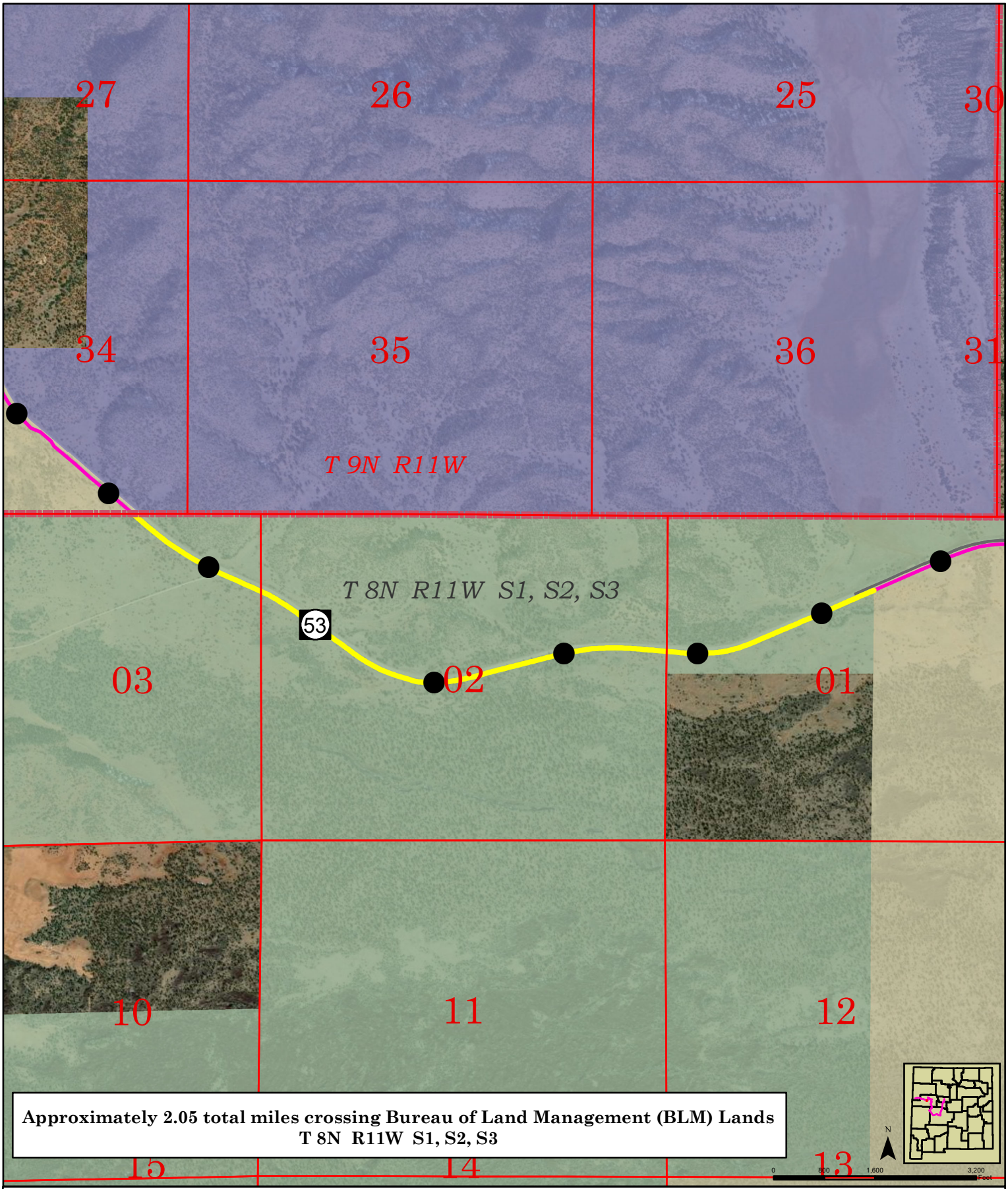
- Handholes Updated 03/2025
- PEN Fiber Line Updated12/2024
- Crossing BLM Land
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Forest Service (FS)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 2.05 total miles crossing Bureau of Land Management (BLM) Lands
T 8N R11W S1, S2, S3

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puero, map 2 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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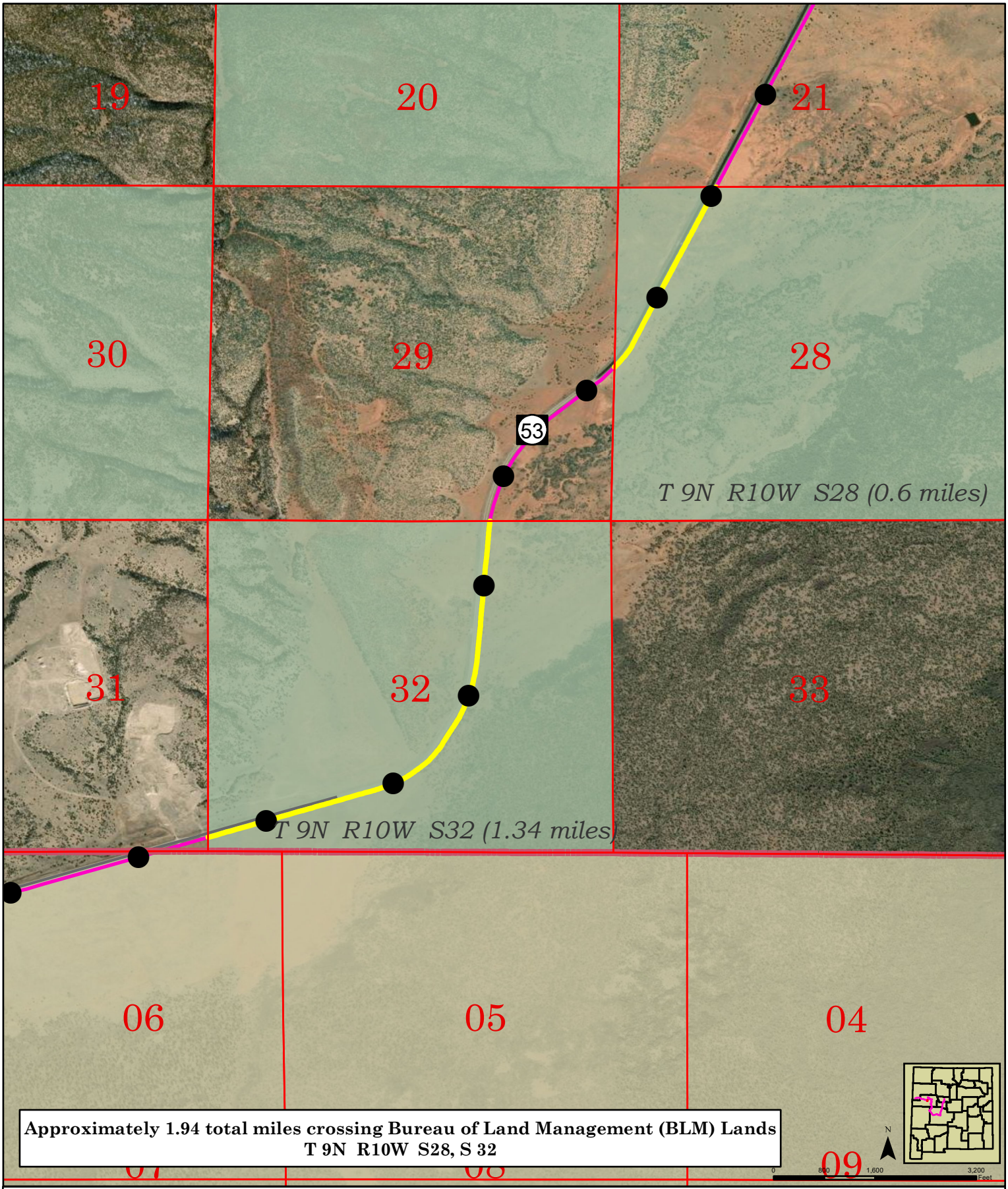
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Forest Service (FS)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puero map 3 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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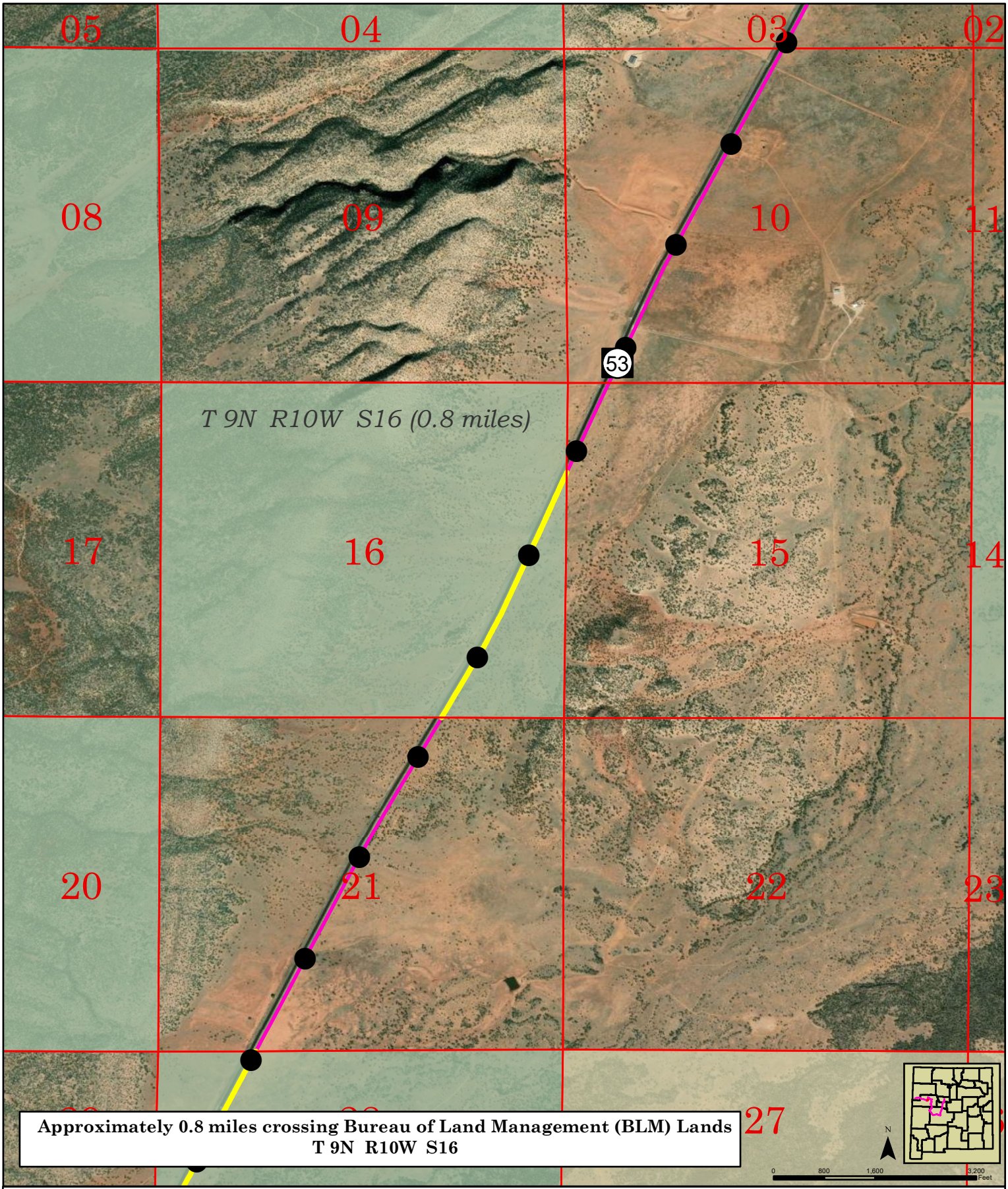
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.8 miles crossing Bureau of Land Management (BLM) Lands
T 9N R10W S16

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puerco map 4 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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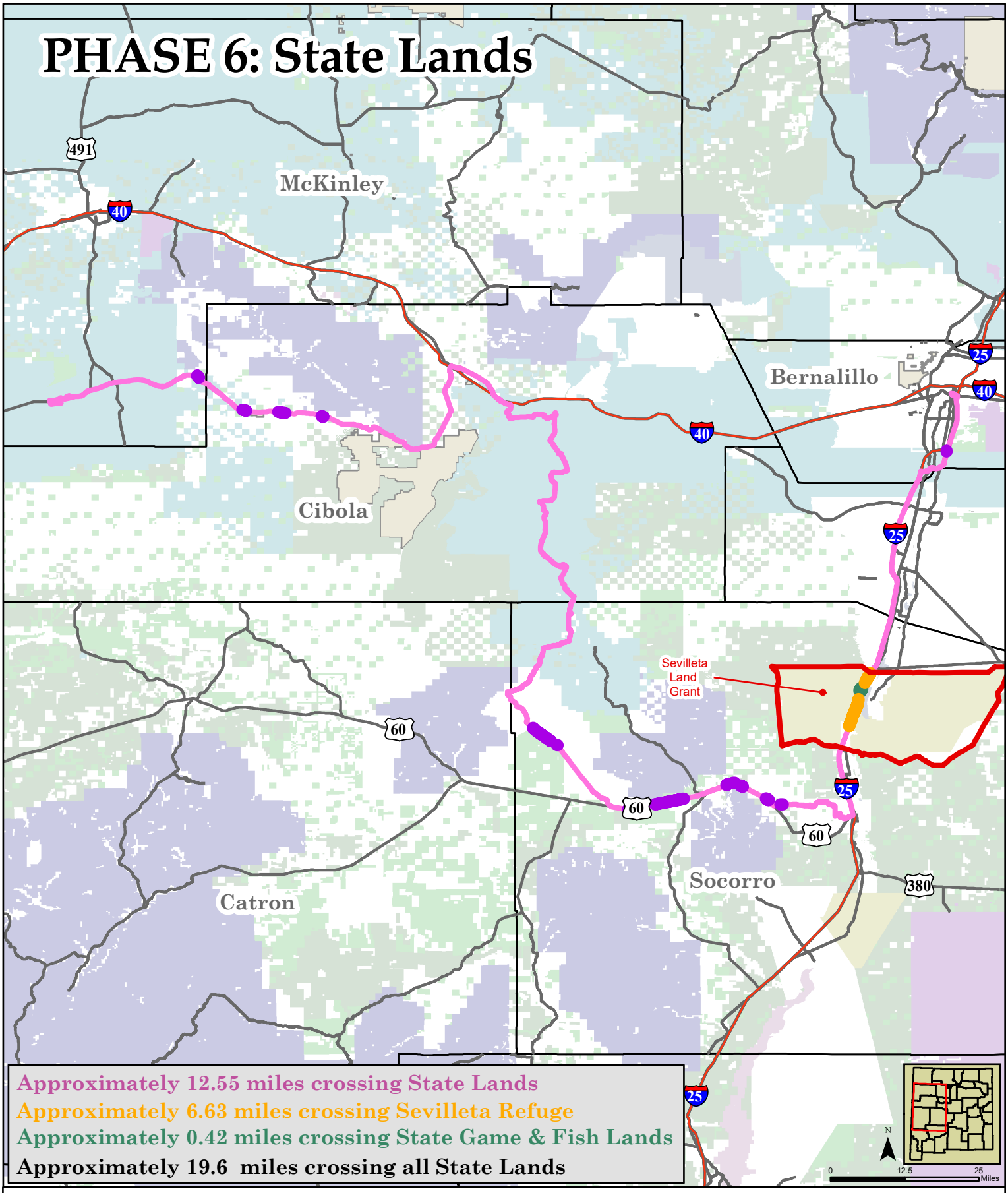
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLSS Township & Range
- BLM PLS SSections
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over state lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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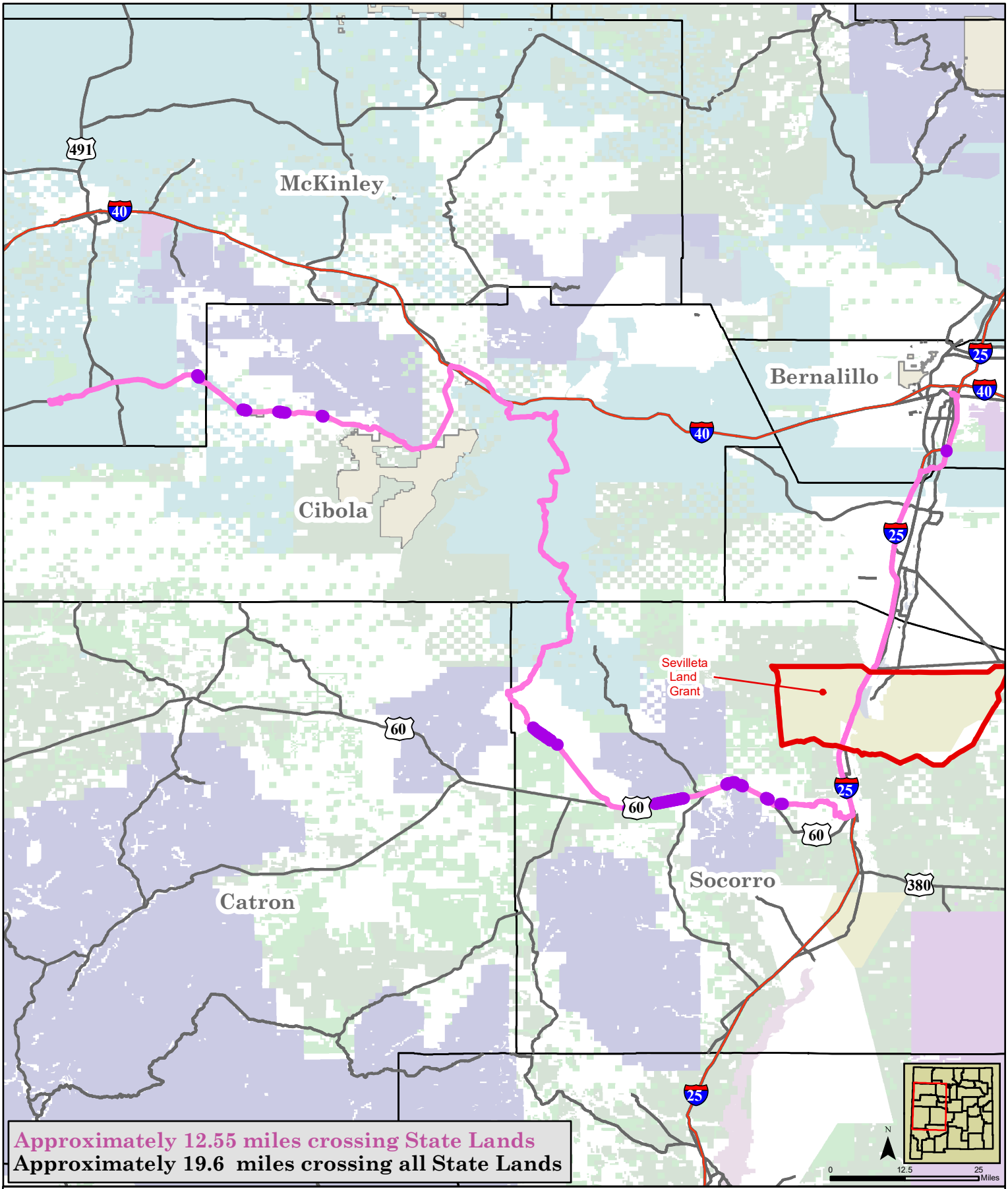
FWS, State Land Updated 5/2025
Through State Land
Through State Game and Fish Land
UPDATED PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State\Overall_State

DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED: 5/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over state lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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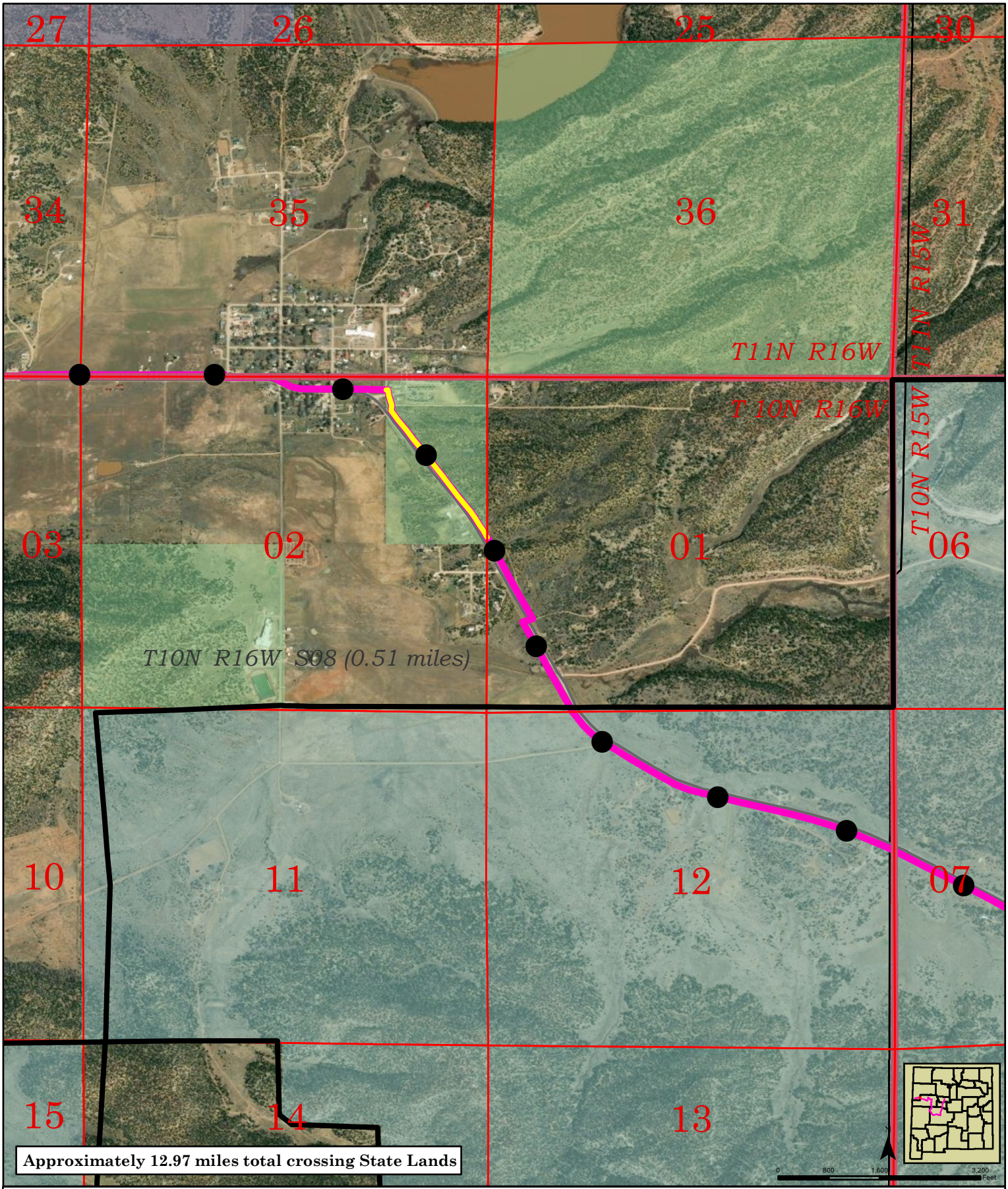
- Through State Land
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State\Overall_State

DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED: 5/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 1 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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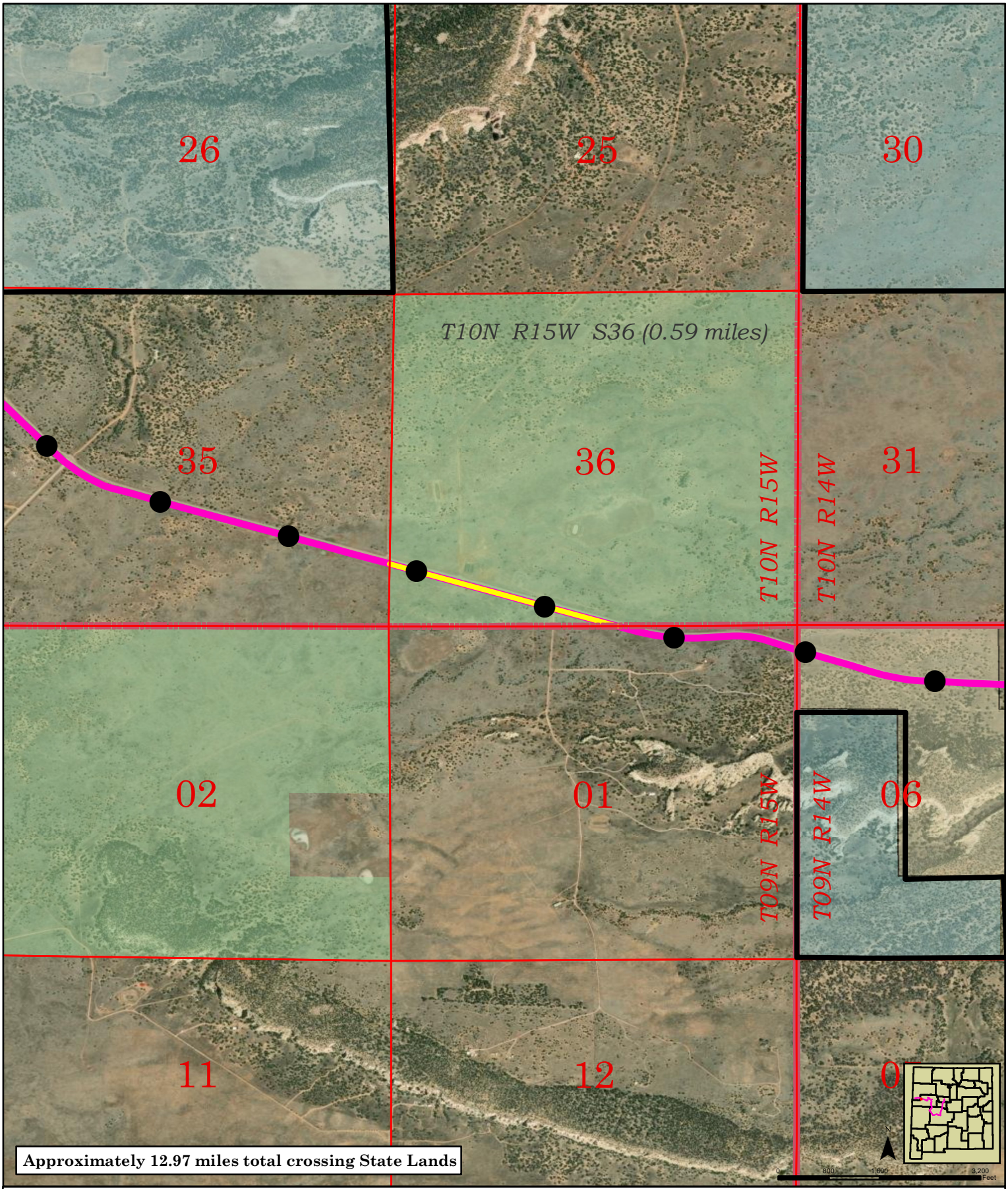
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)

Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 2 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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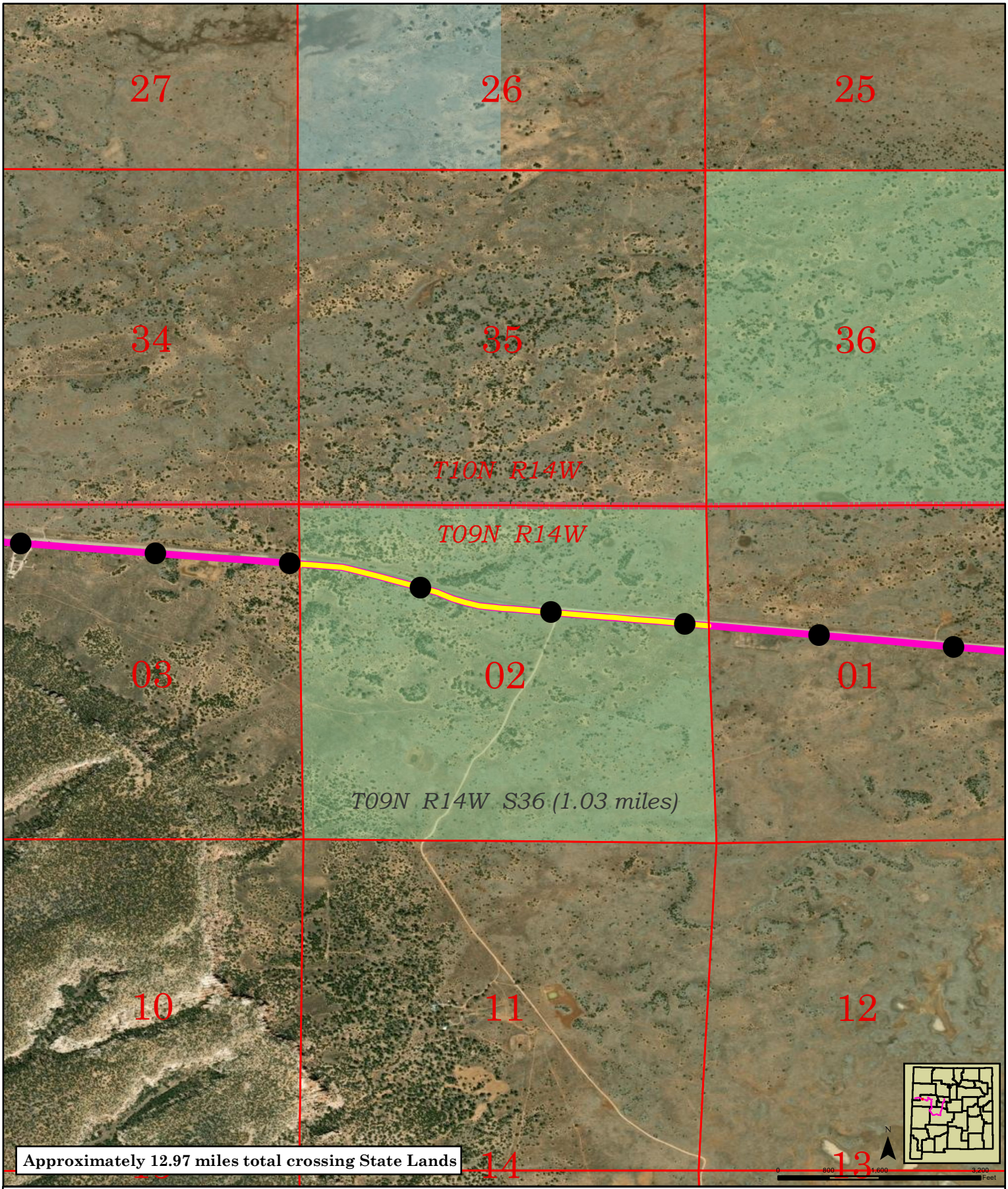
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 3 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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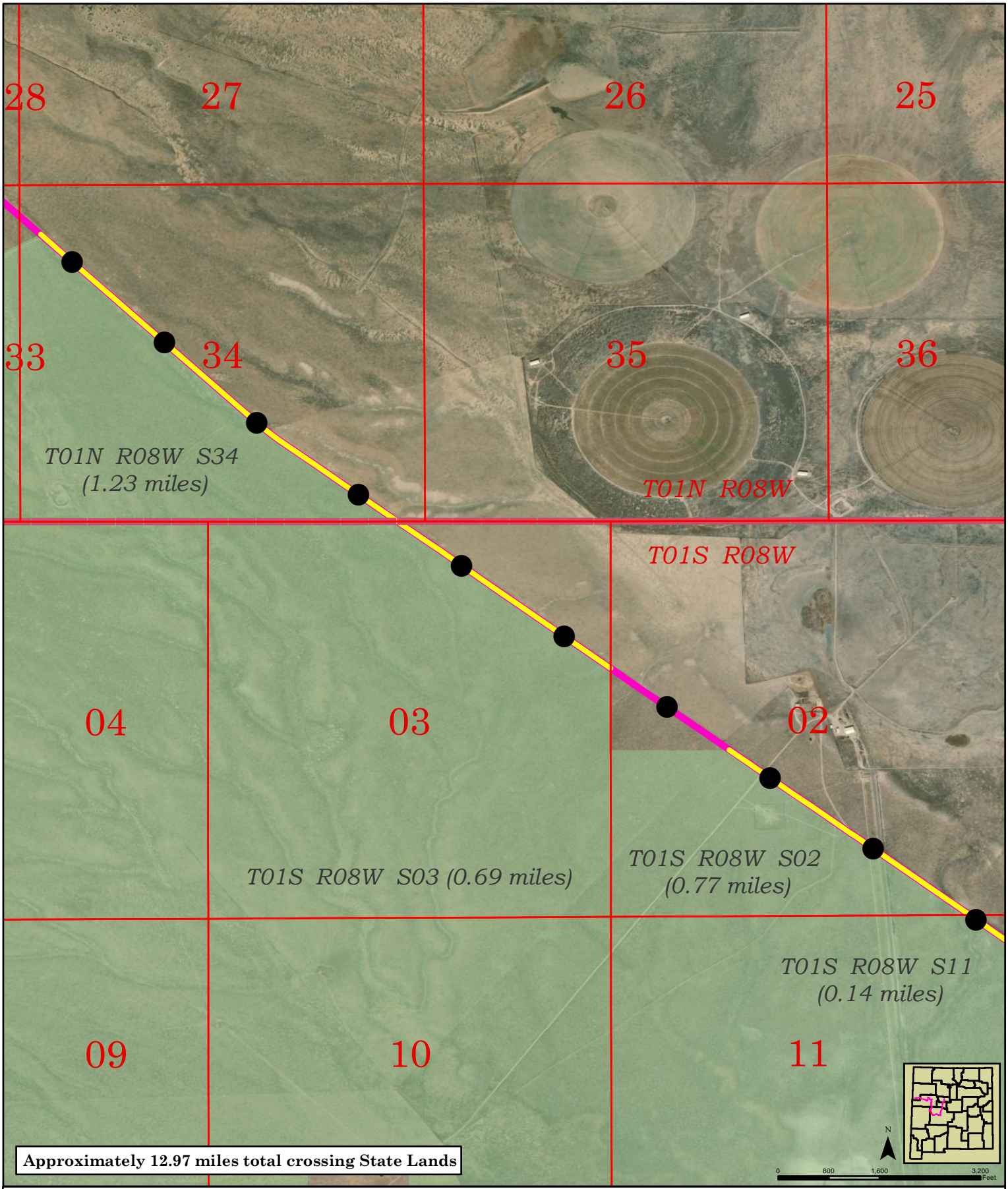
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 4 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

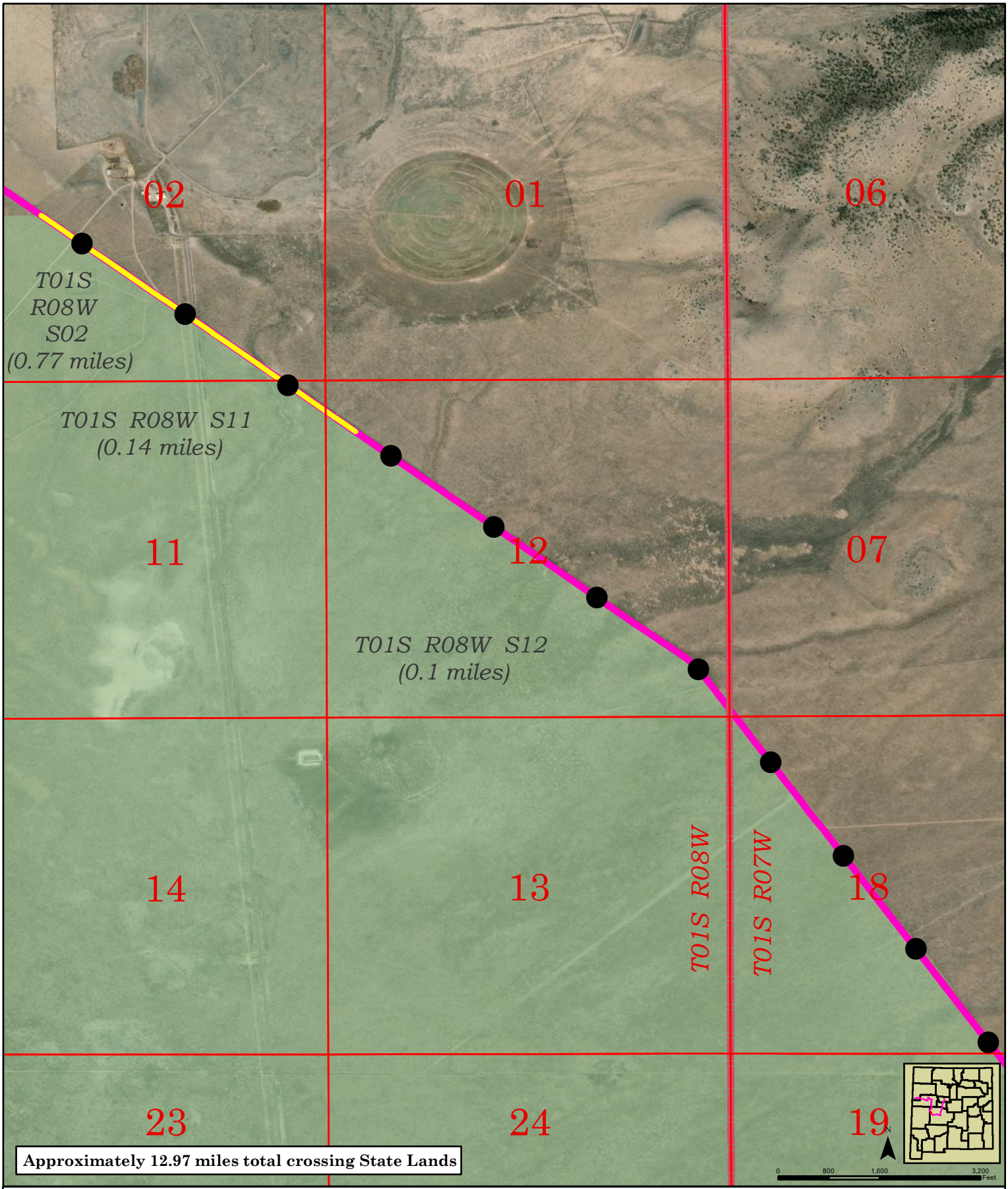
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 5 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

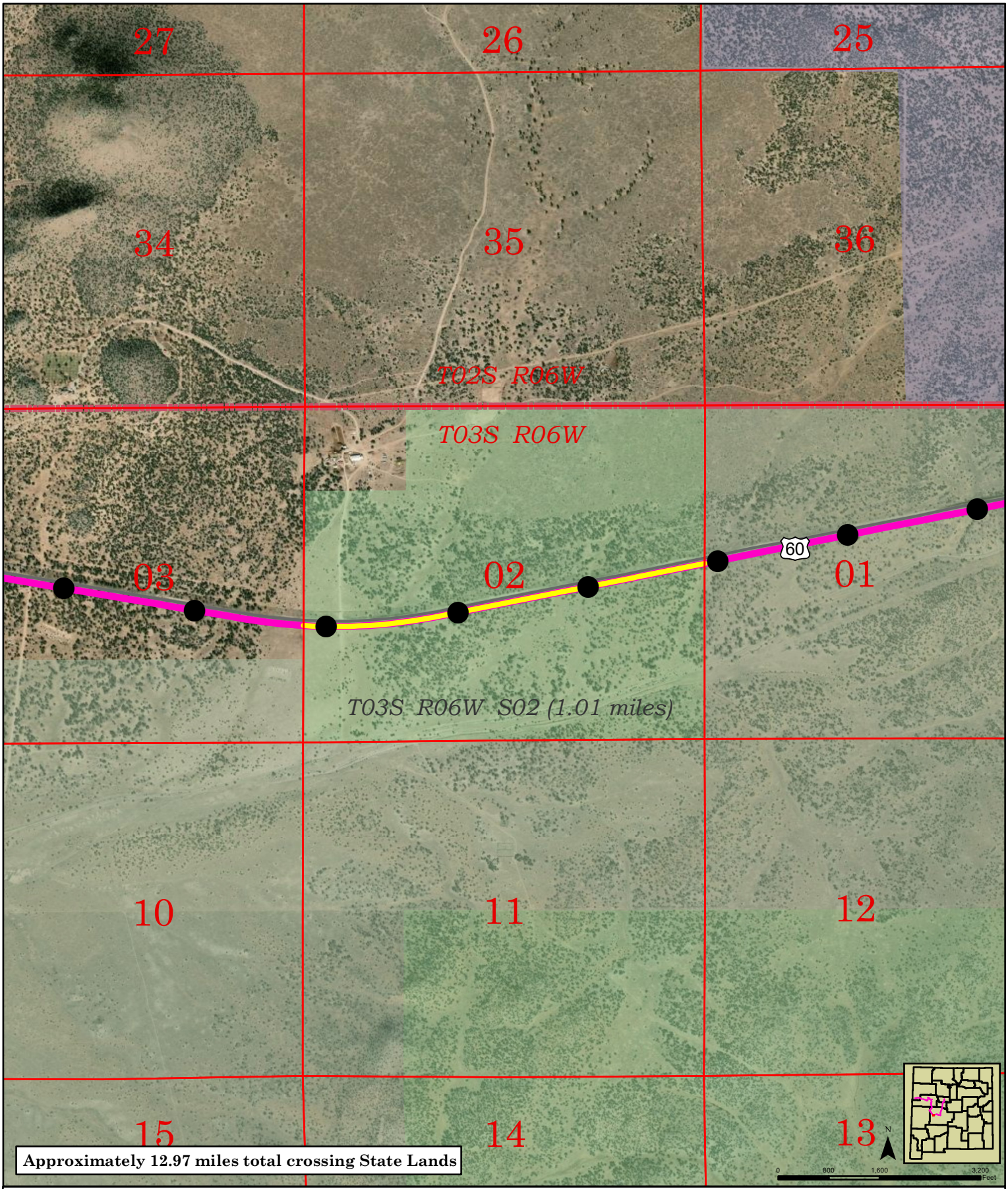
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 12.97 miles total crossing State Lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 6 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

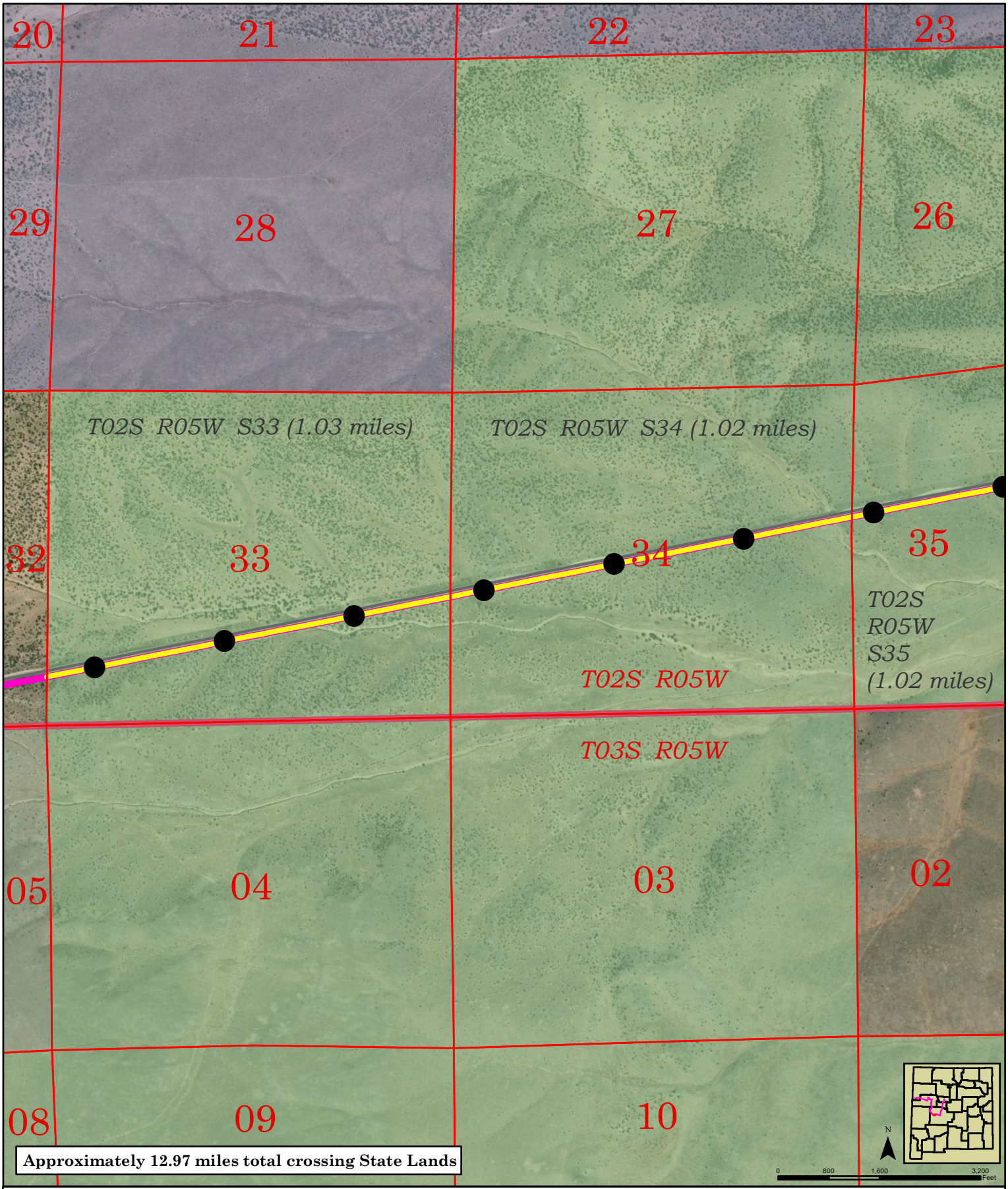
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 7 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

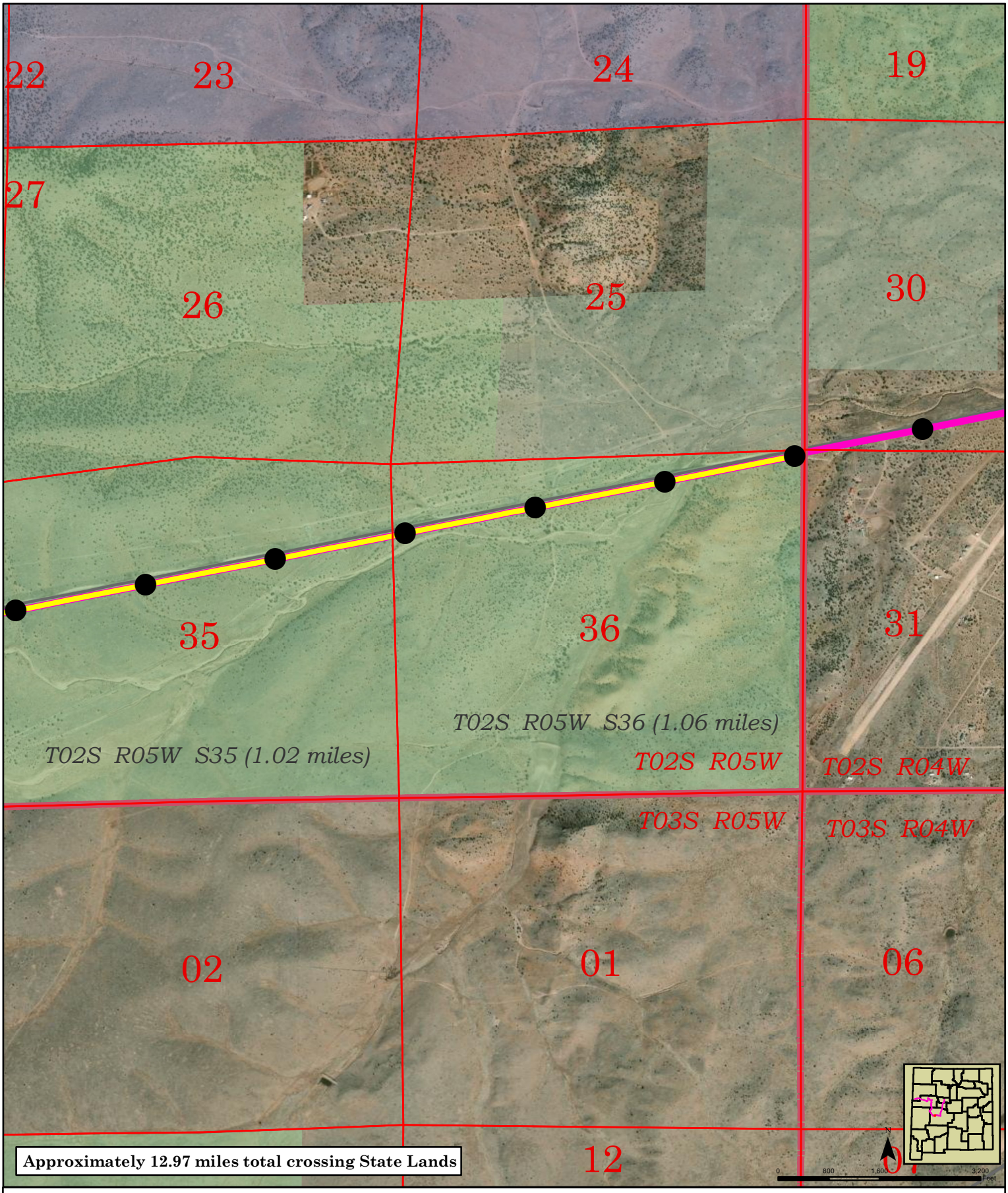
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 8 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

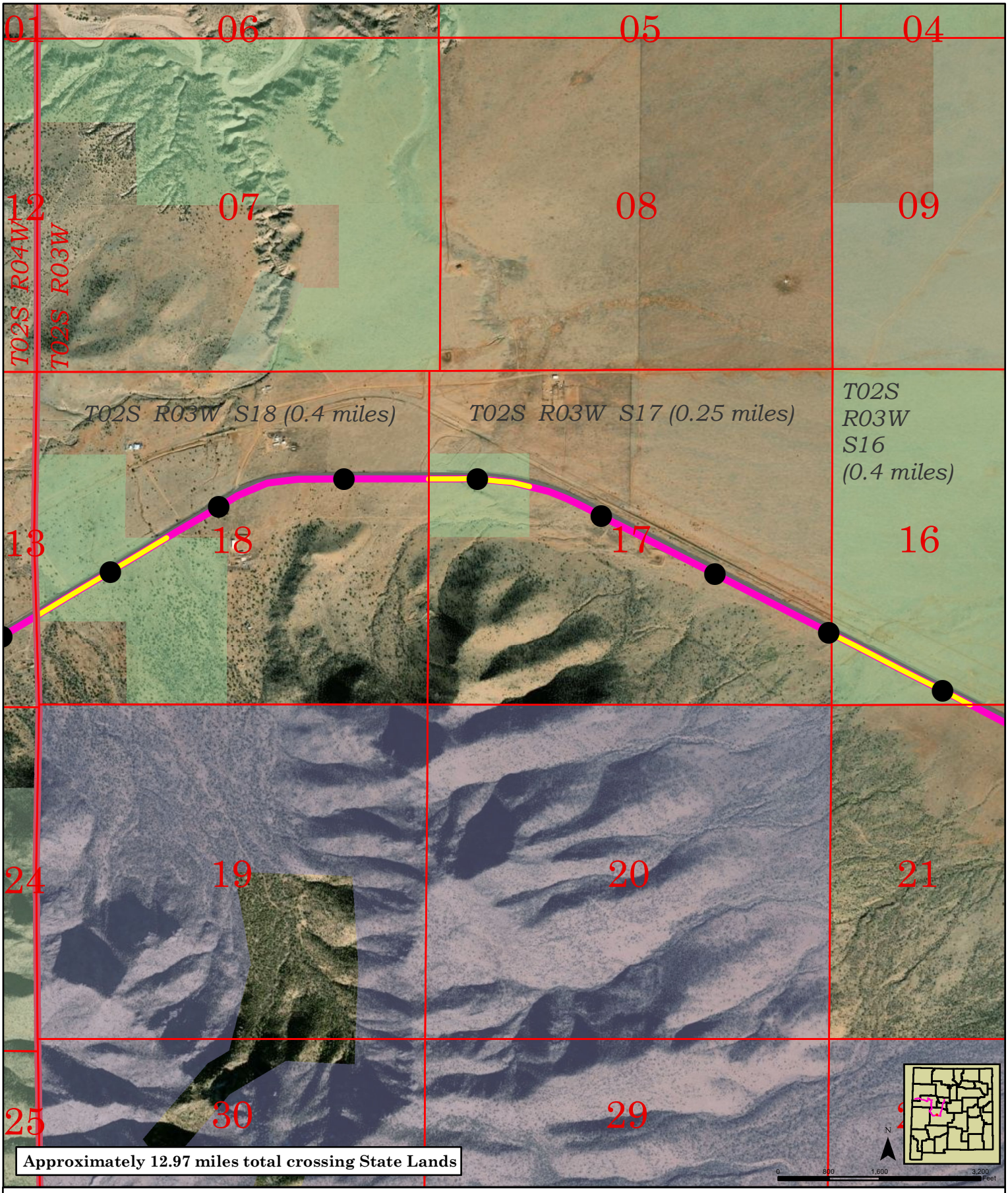
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmwent of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 9 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

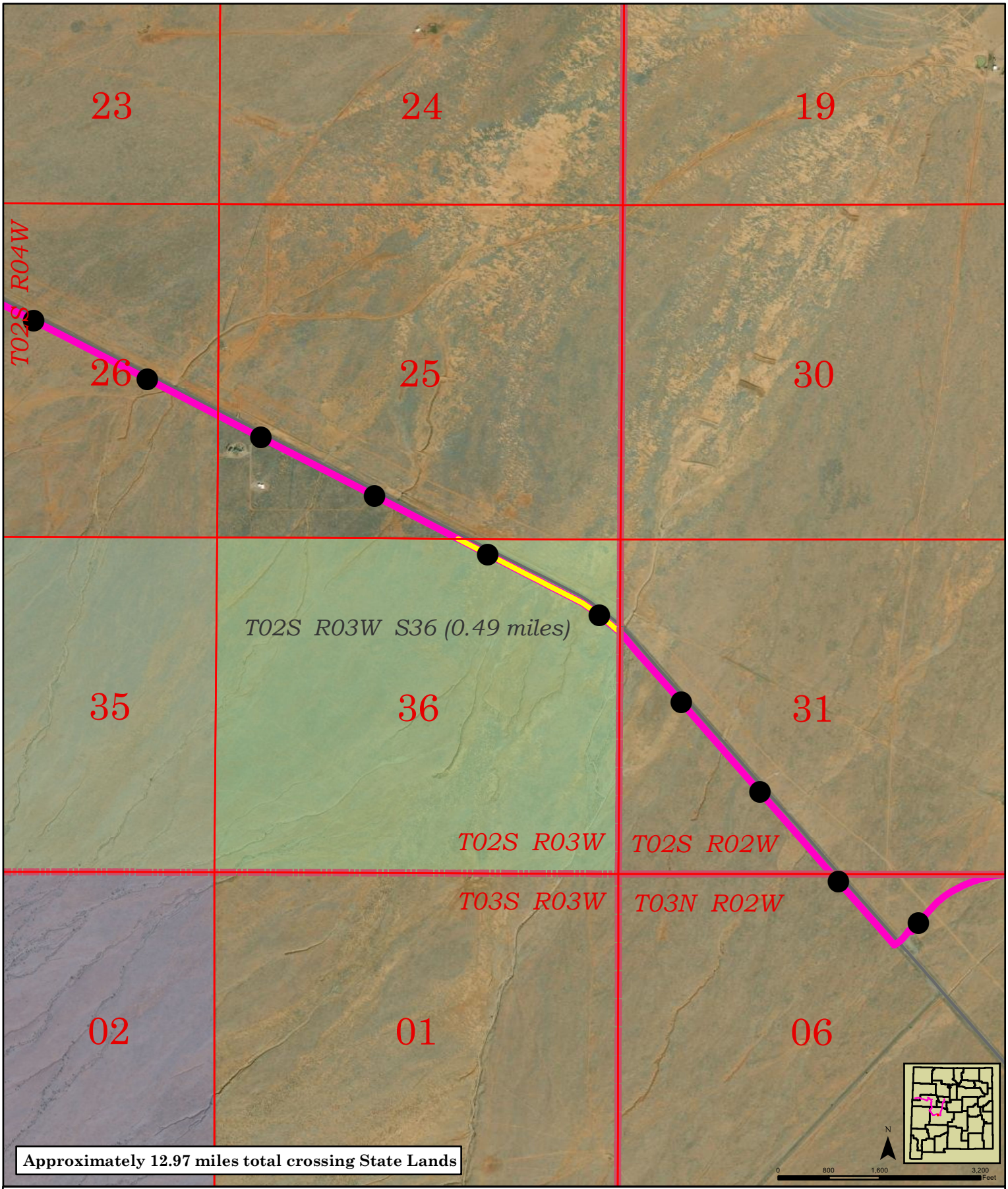
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)

Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 12.97 miles total crossing State Lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 10 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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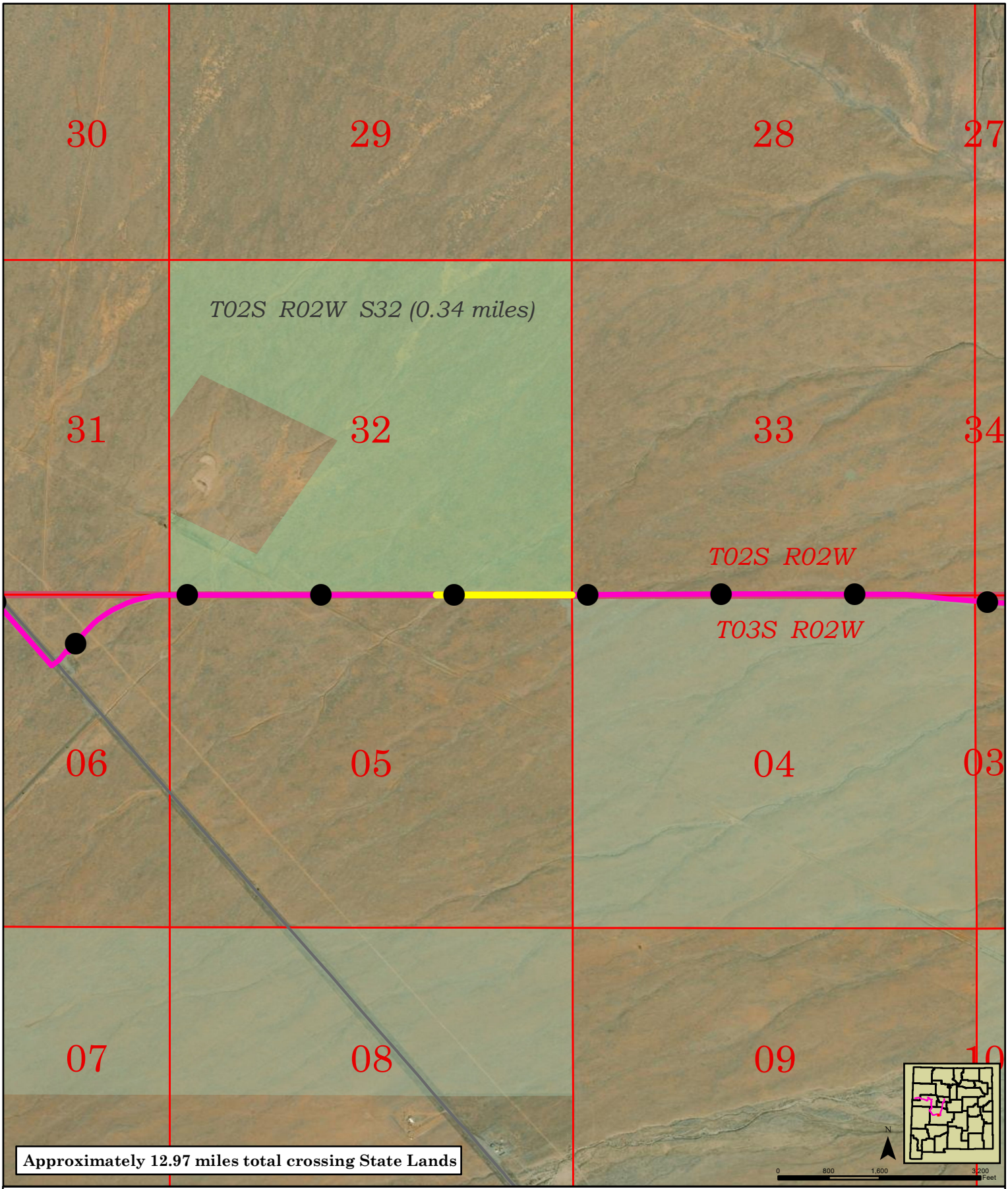
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)

Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 11 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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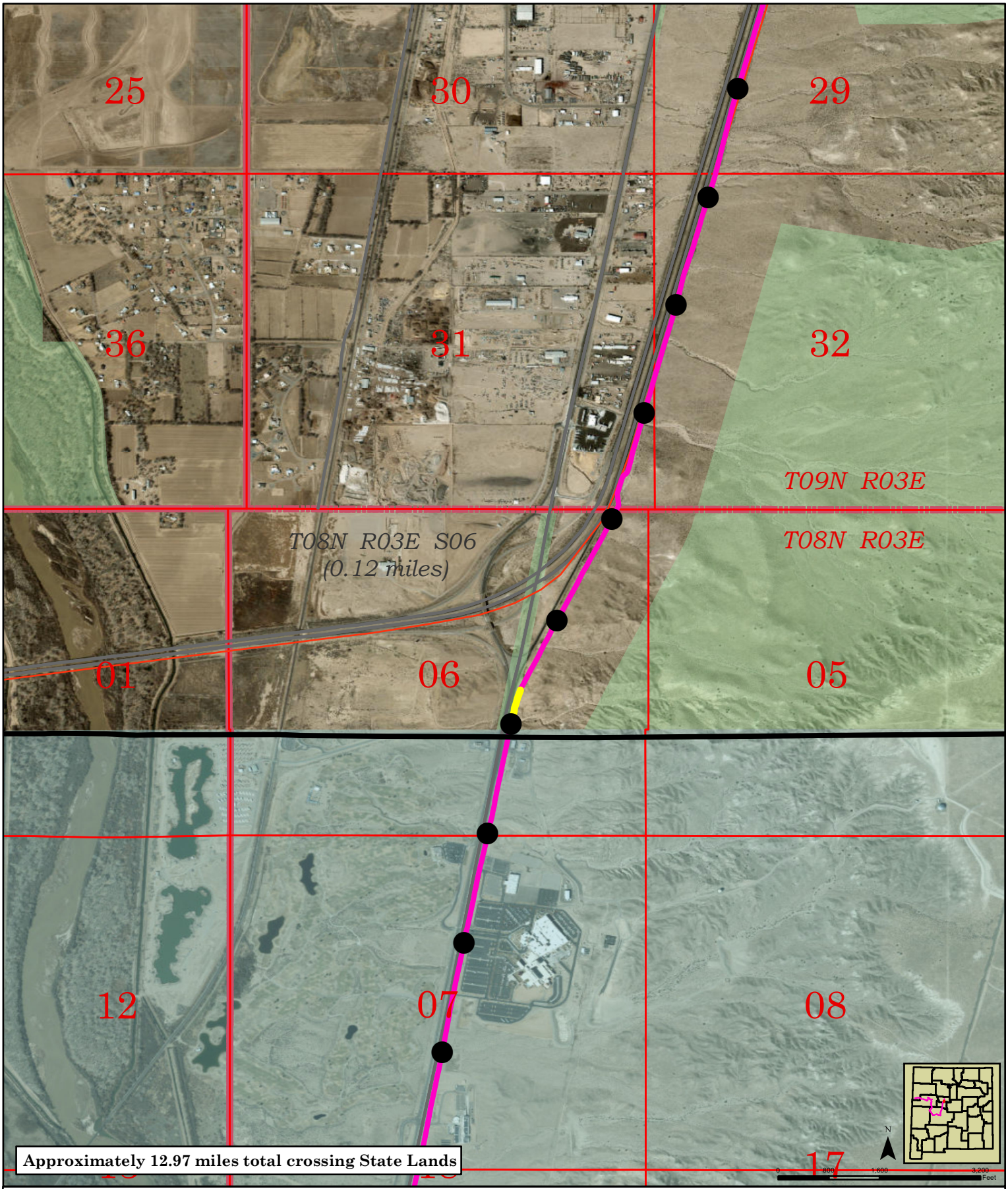
Reservations Boundary
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 12 of 12)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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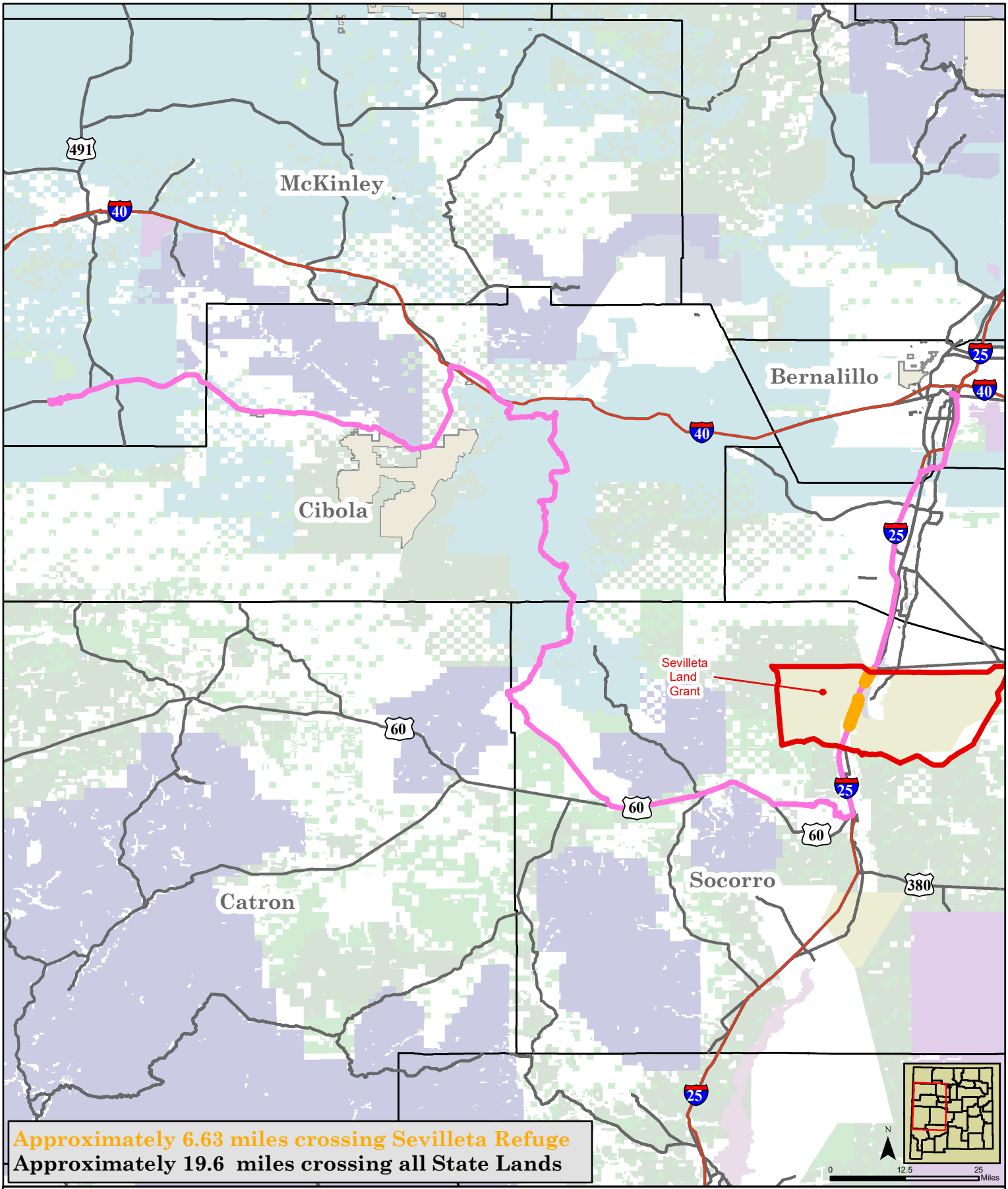
Reservations Boundary
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over state lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- FWS, State Land Updated 5/2025
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State\Overall_State

DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED: 5/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Sevilleta Refuge (Sevilleta Land Grant, map 3 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

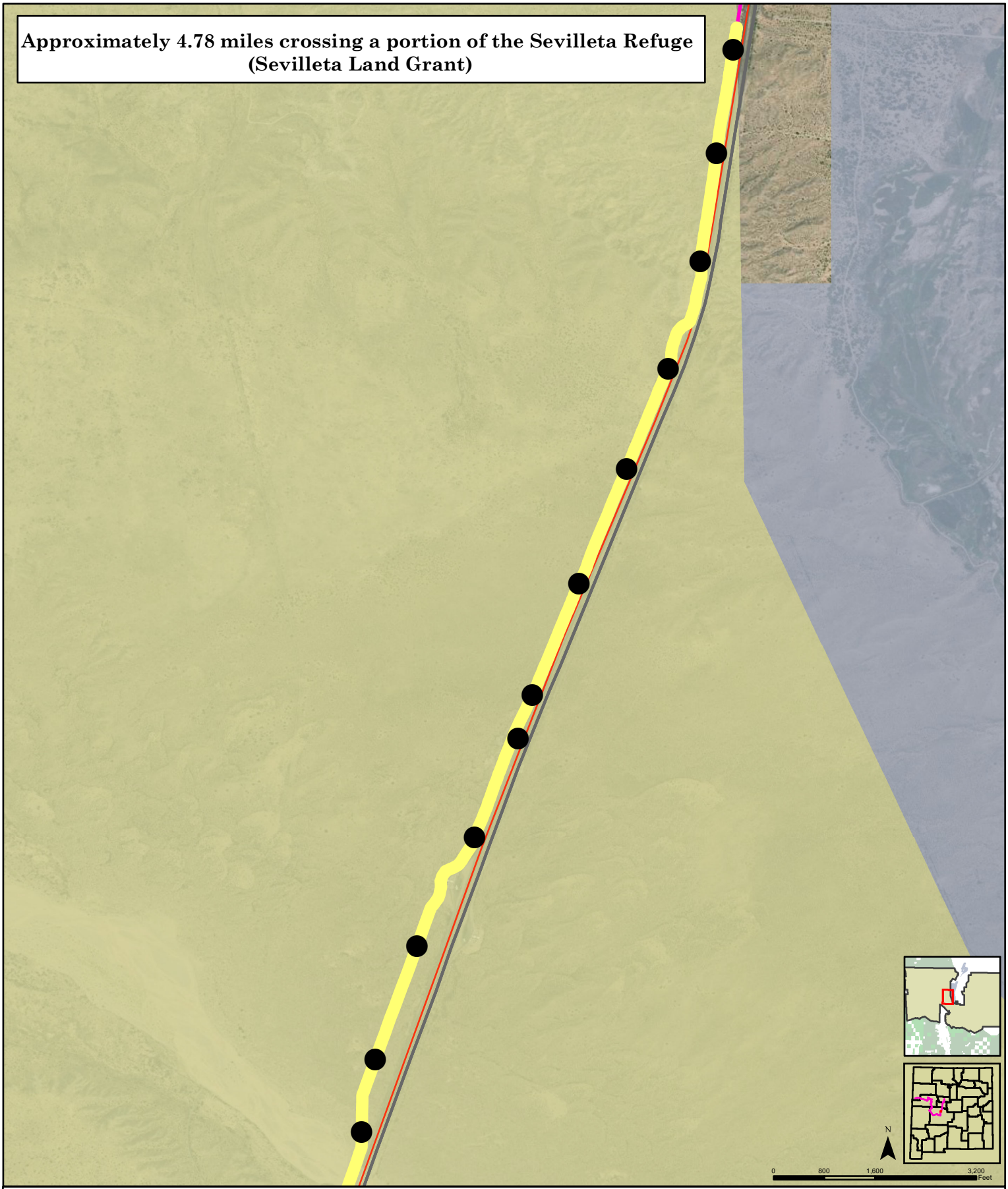
PEN Handholes
BLM PLSS Township
PLSS Sections
FWS
PEN Fiber Optic Line 12_19_2023
Roads
Fish & Wildlife Service (FWS)
Private (P)
State (S)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\FWL

DRAWN BY: GIS Specialist, HWM on 1/19/2024

Approximately 4.78 miles crossing a portion of the Sevilleta Refuge (Sevilleta Land Grant)



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Sevilleta Refuge (Sevilleta Land Grant, map 2 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Wests & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

PEN Handholes
BLM PLSS Township
PLSS Sections
FWS
PEN Fiber Optic Line 12_19_2023
Roads
Fish & Wildlife Service (FWS)
Private (P)
NM State Game & Fish (SGF)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\FWL\MXDs

DRAWN BY: GIS Specialist, HWM on 1/19/2024

Approximately 1.84 miles total crossing a portion of the Sevilleta Refuge (Sevilleta Land Grant)



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Sevilleta Refuge (Sevilleta Land Grant, map 1 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

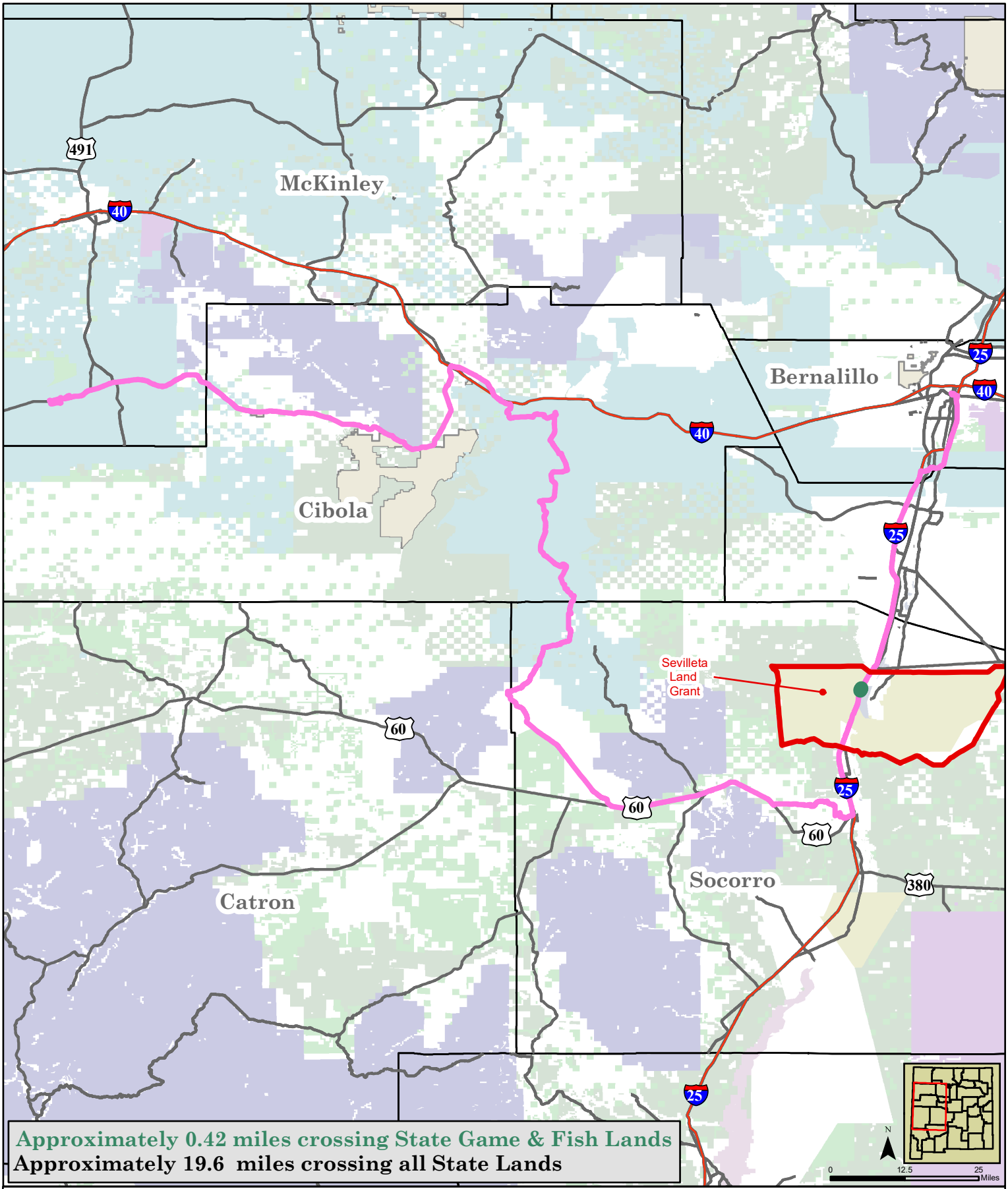
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

PEN Handholes
BLM PLSS Township
PLSS Sections
FWS
PEN Fiber Optic Line 12_19_2023
Roads
Fish & Wildlife Service (FWS)
Private (P)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\FWL\MXDs

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over state lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- hrough State Game and Fish Land
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State\Overall_State

DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED: 5/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over State Lands. (map 1 of 1)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Reservations Boundary
Handholes Updated 03/2025
ThroughStateLands
PEN Fiber Line Updateed12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range

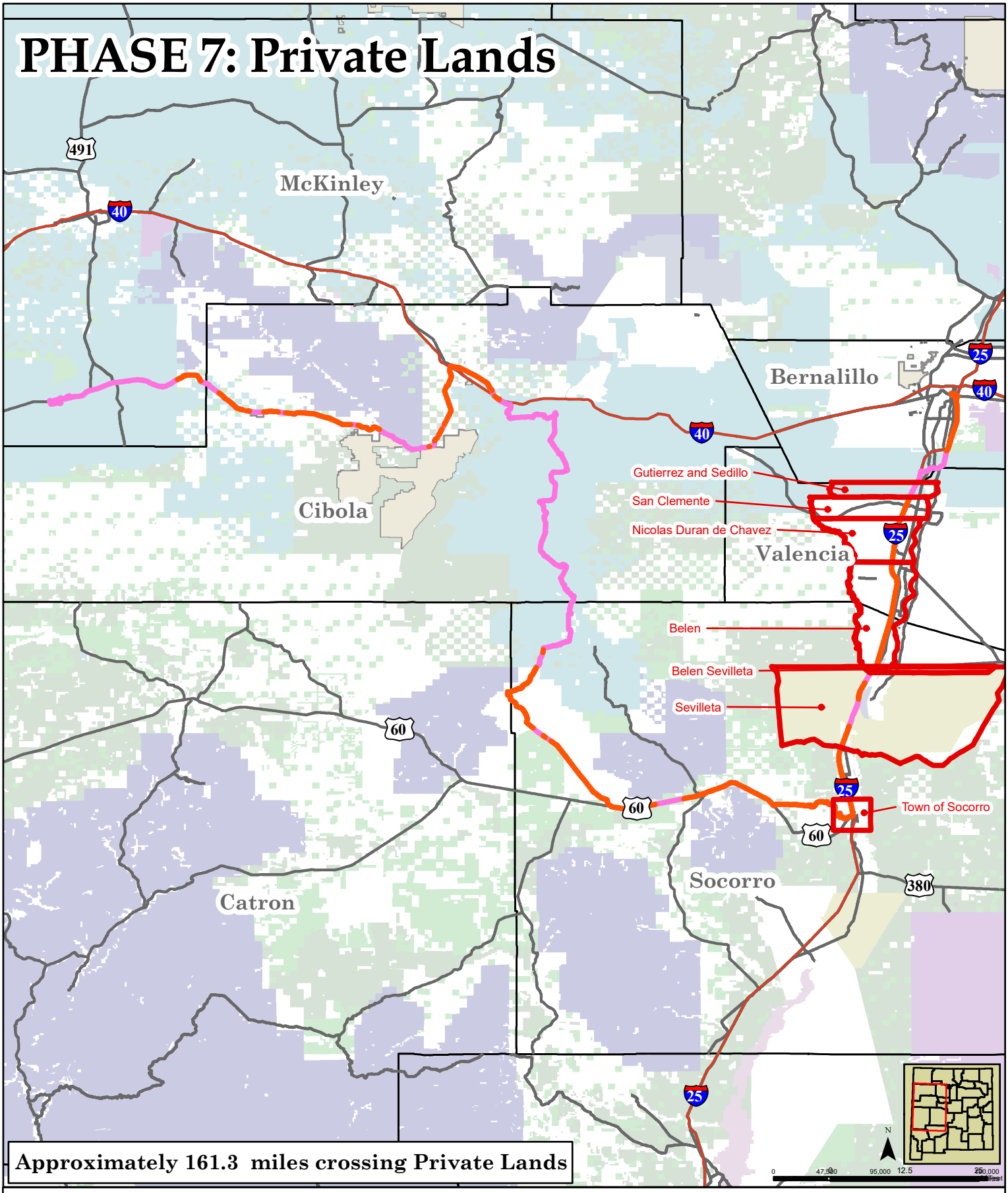
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)

Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 7: Private Lands



Approximately 161.3 miles crossing Private Lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over private lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

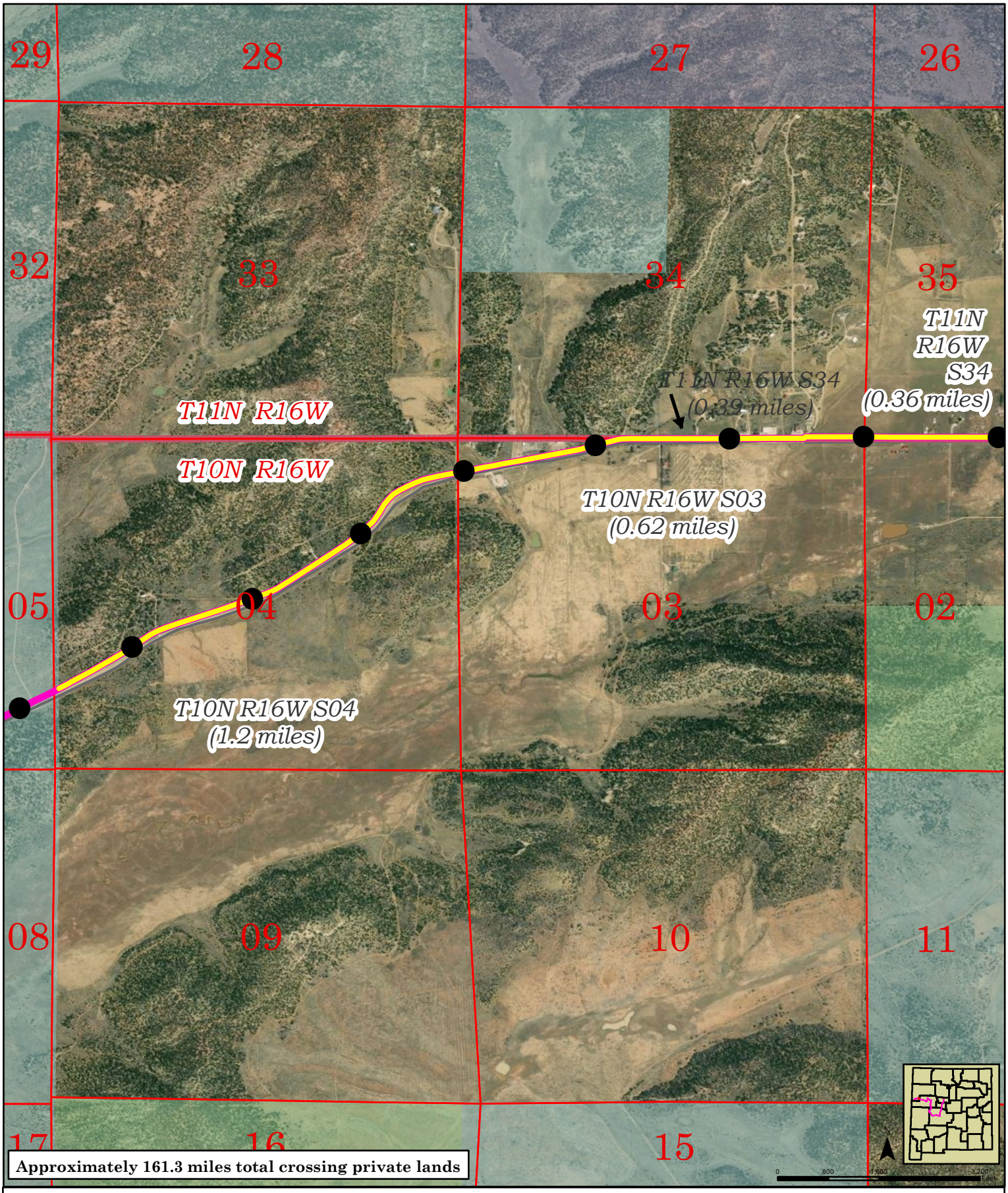
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Land Grants through Private Lands
- Through Private Lands
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Private\Overall_PrivateA

DRAWN BY: GIS Specialist, HWM on 02/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 1 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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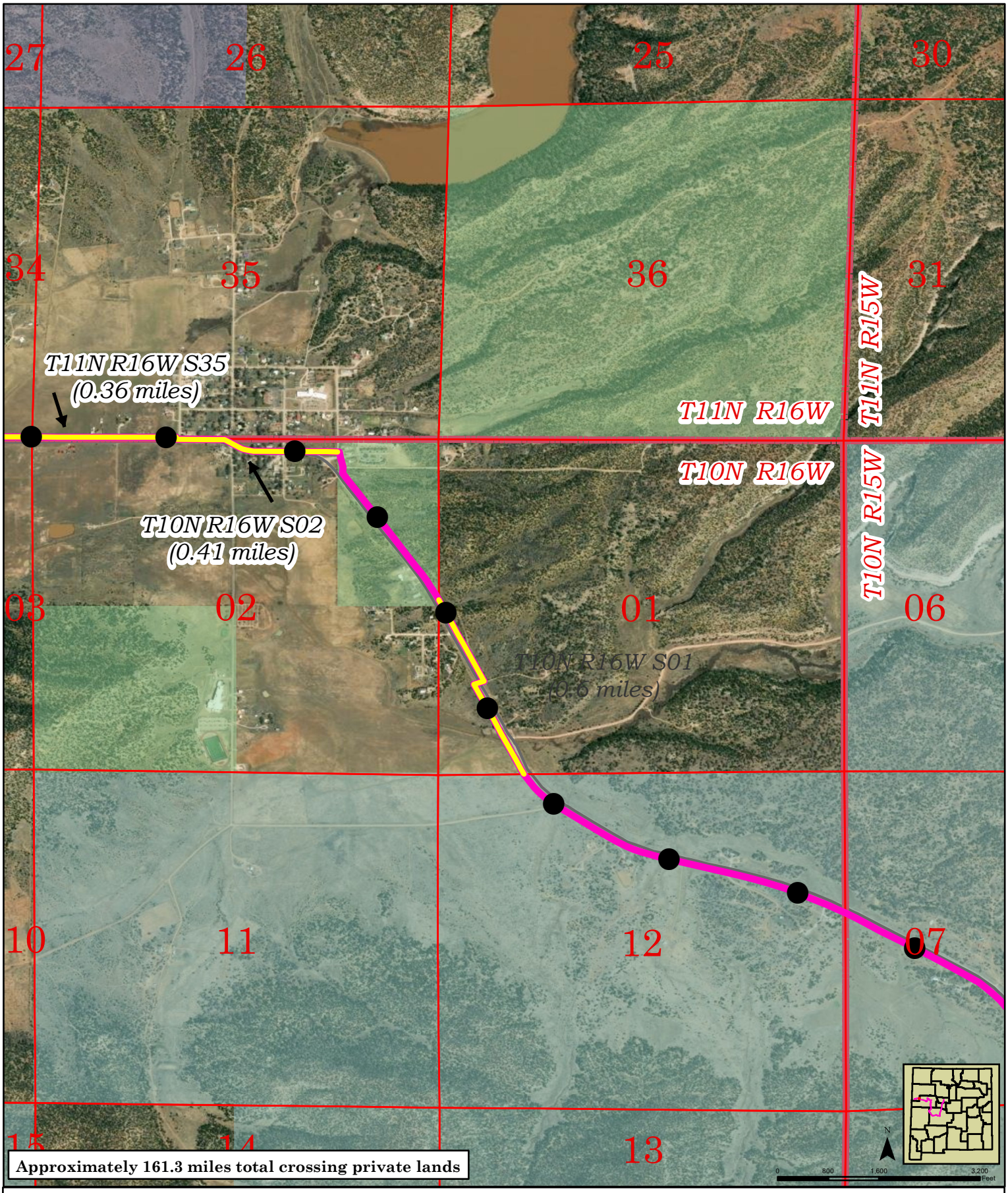
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 2 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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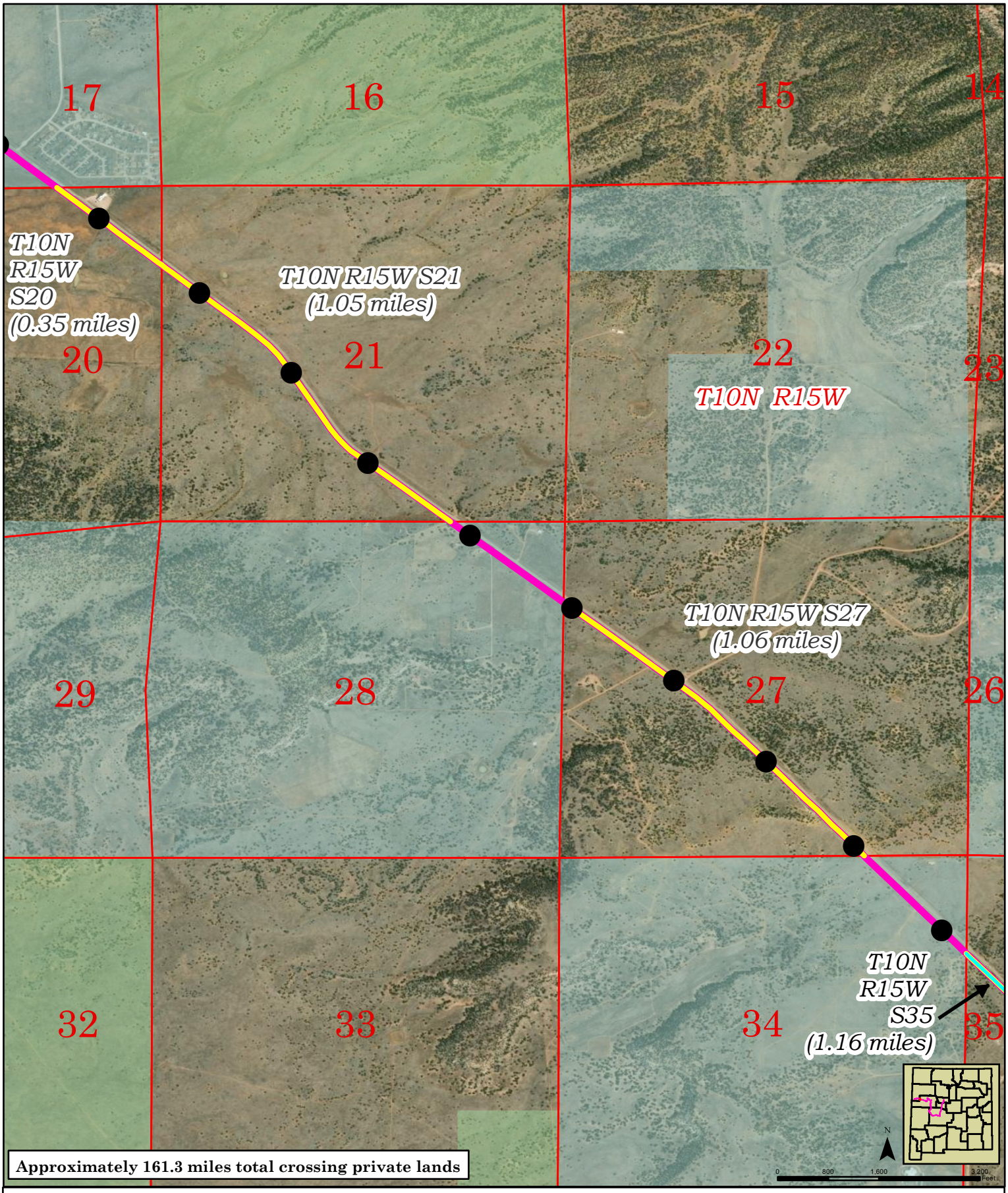
Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 3 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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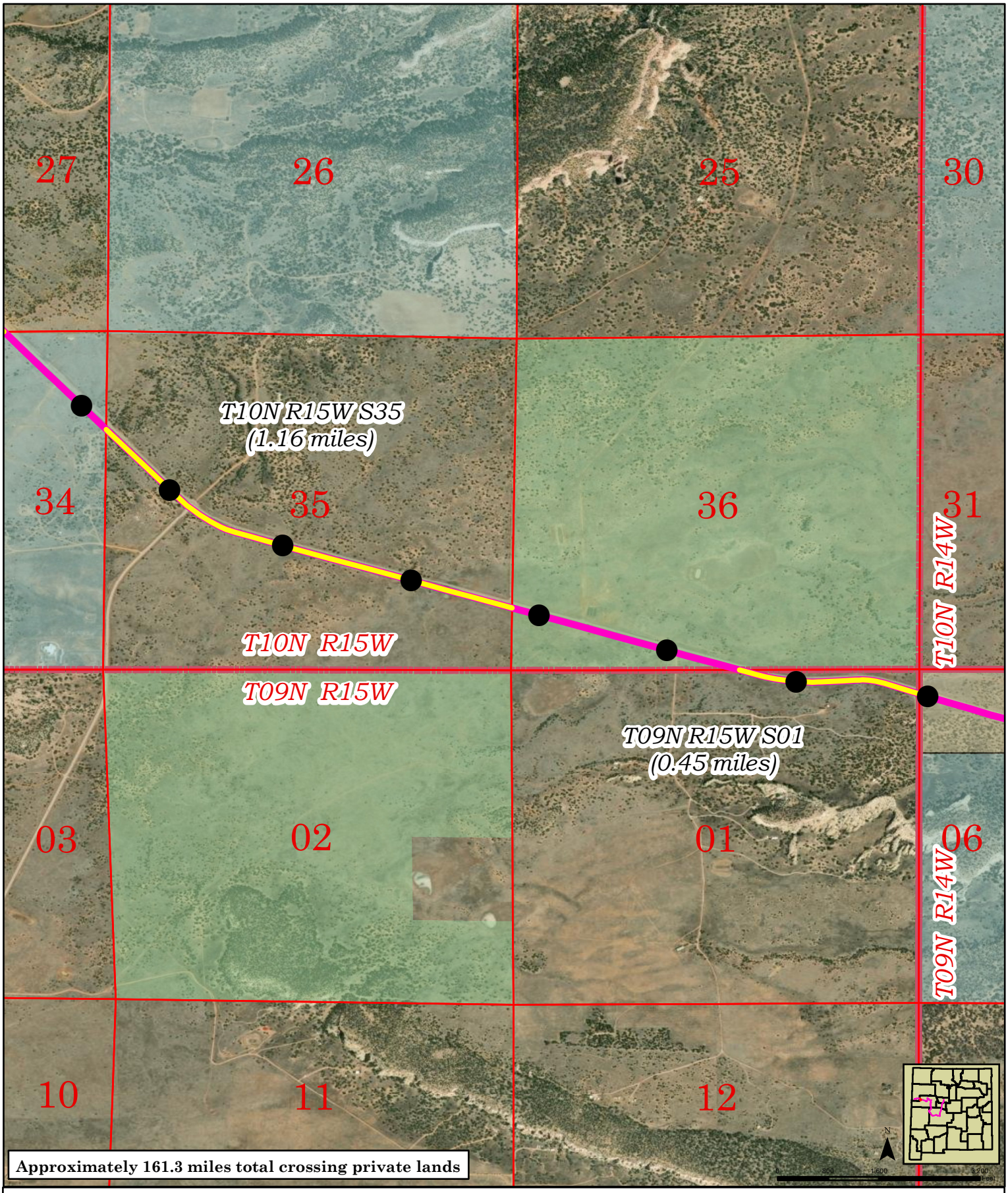
Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 4 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

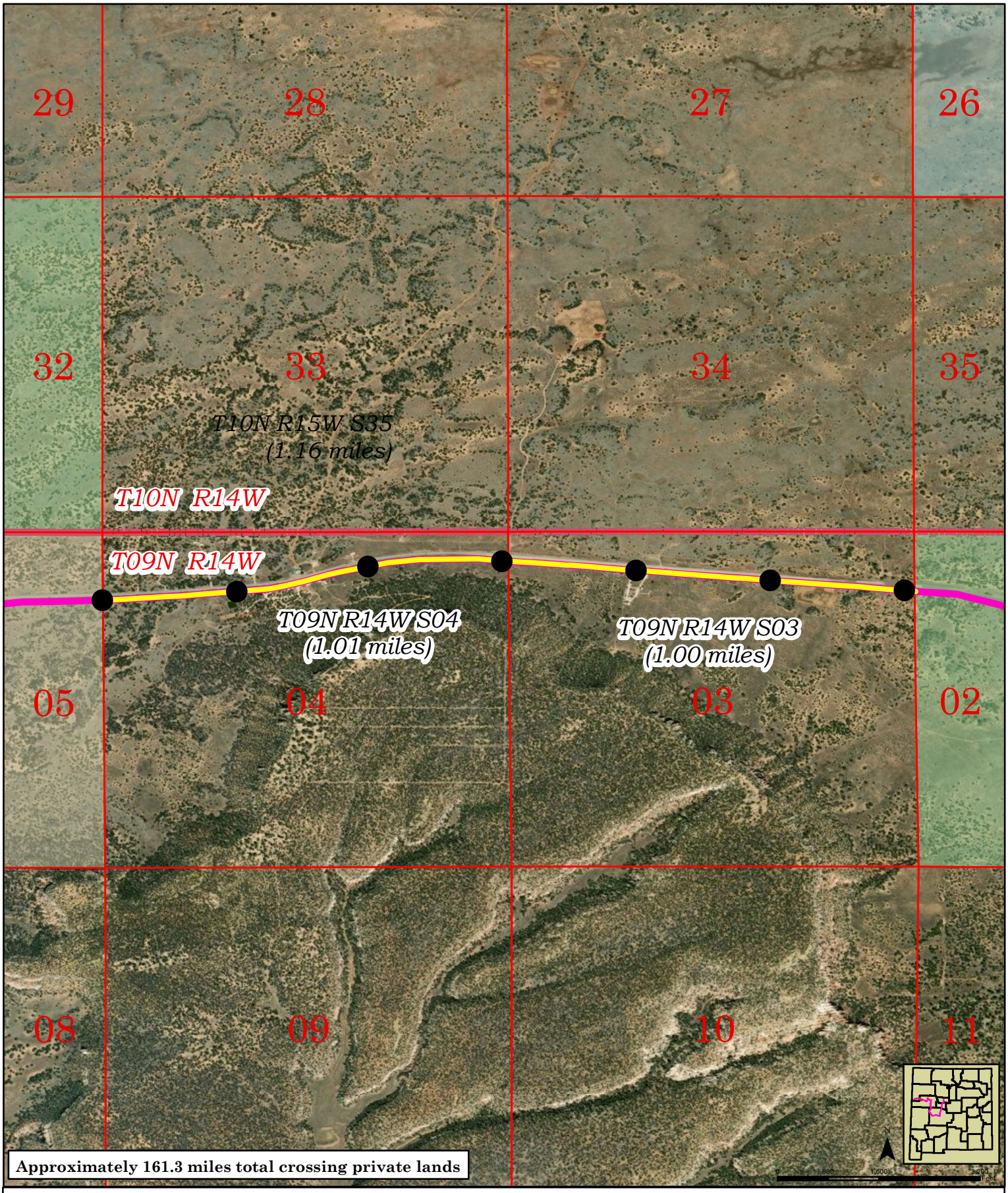
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 5 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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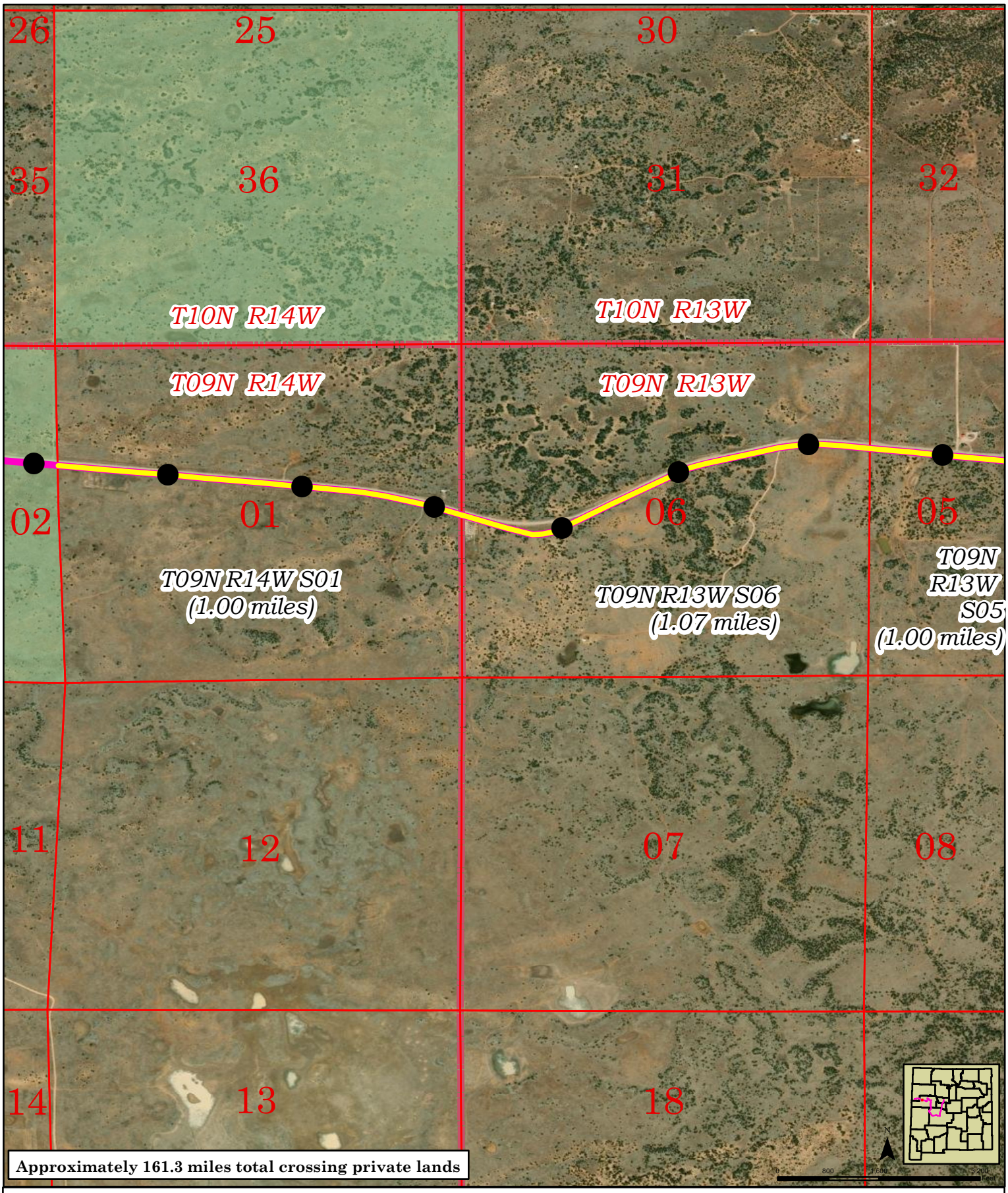
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 6 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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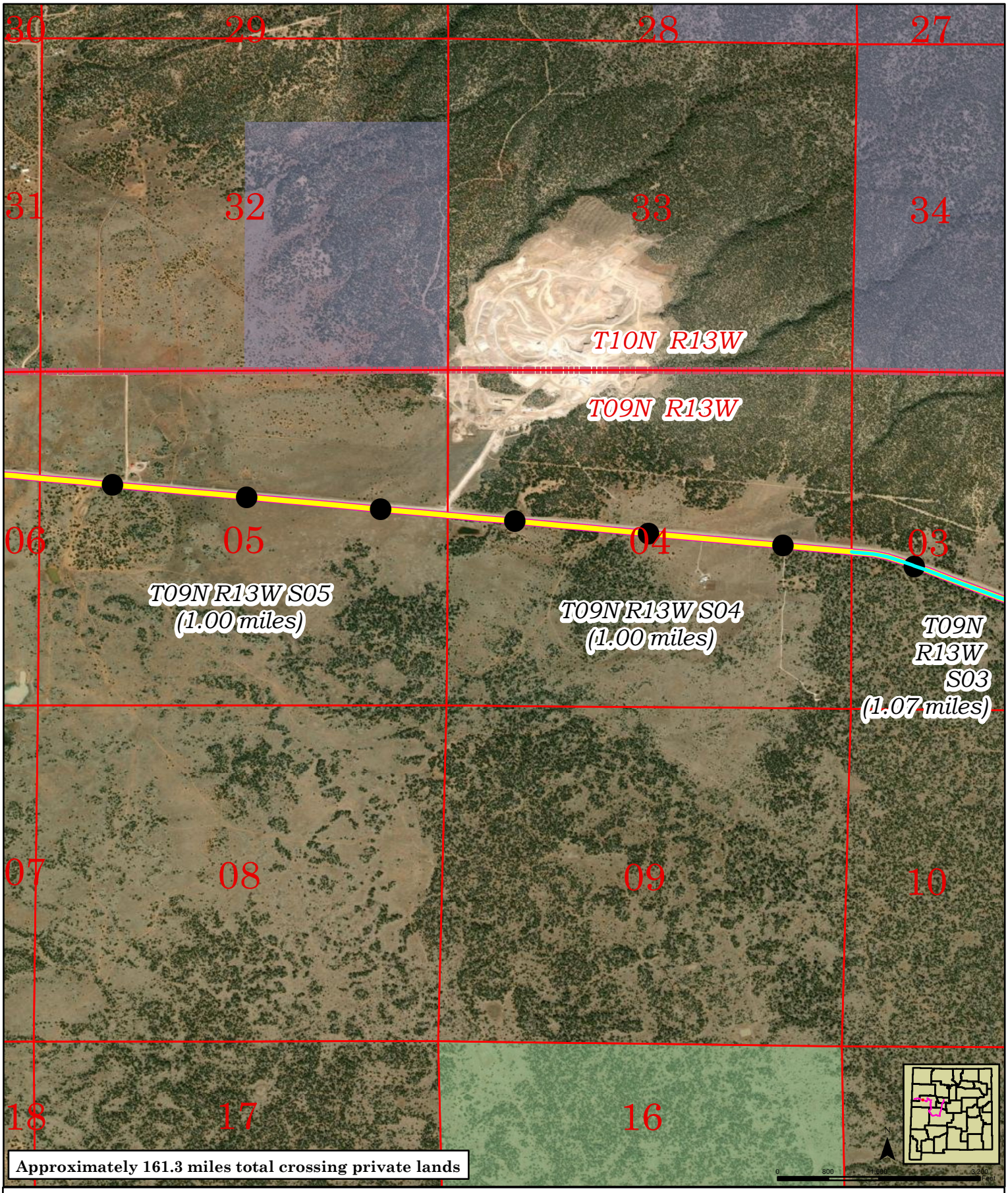
Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 7 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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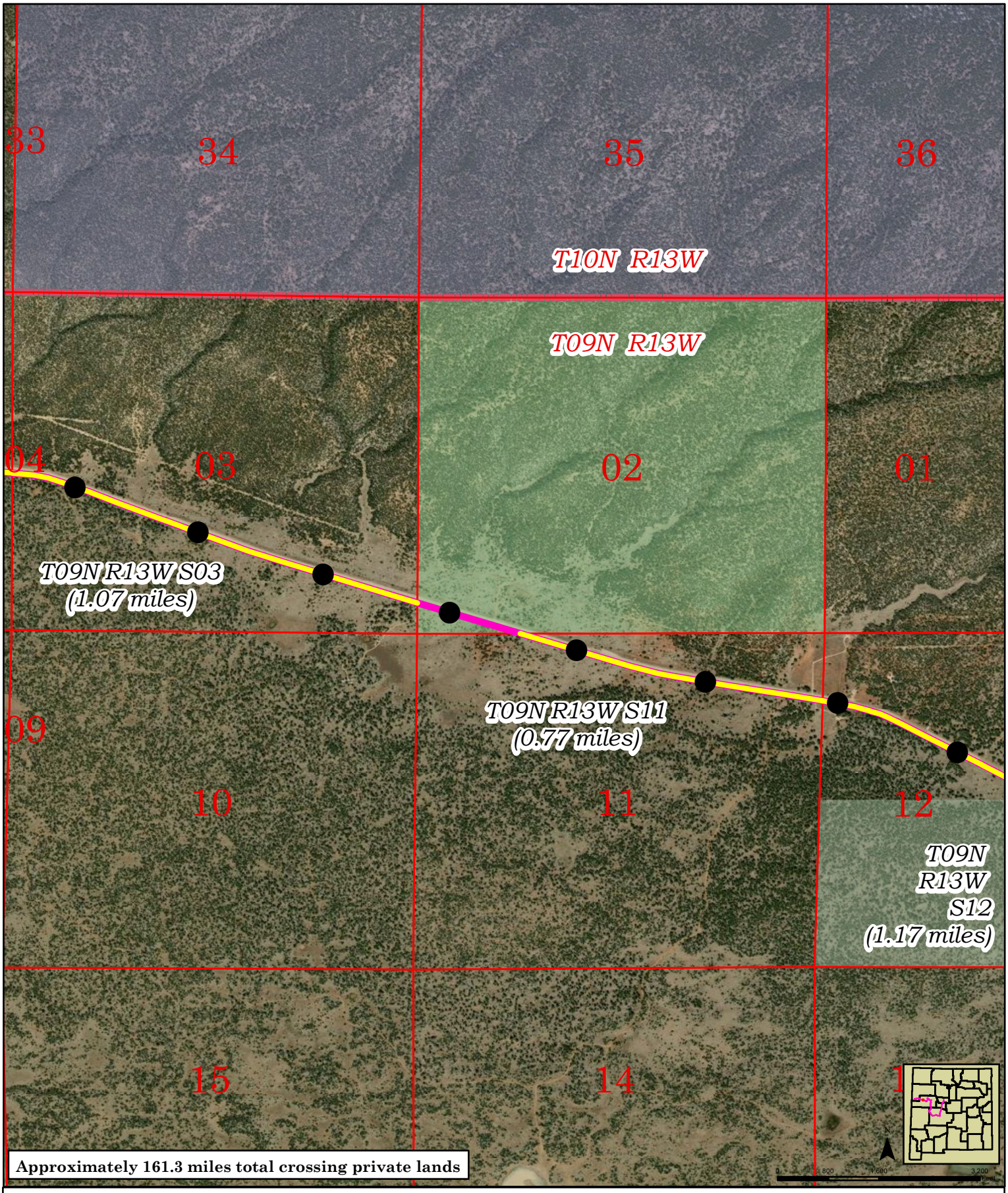
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 8 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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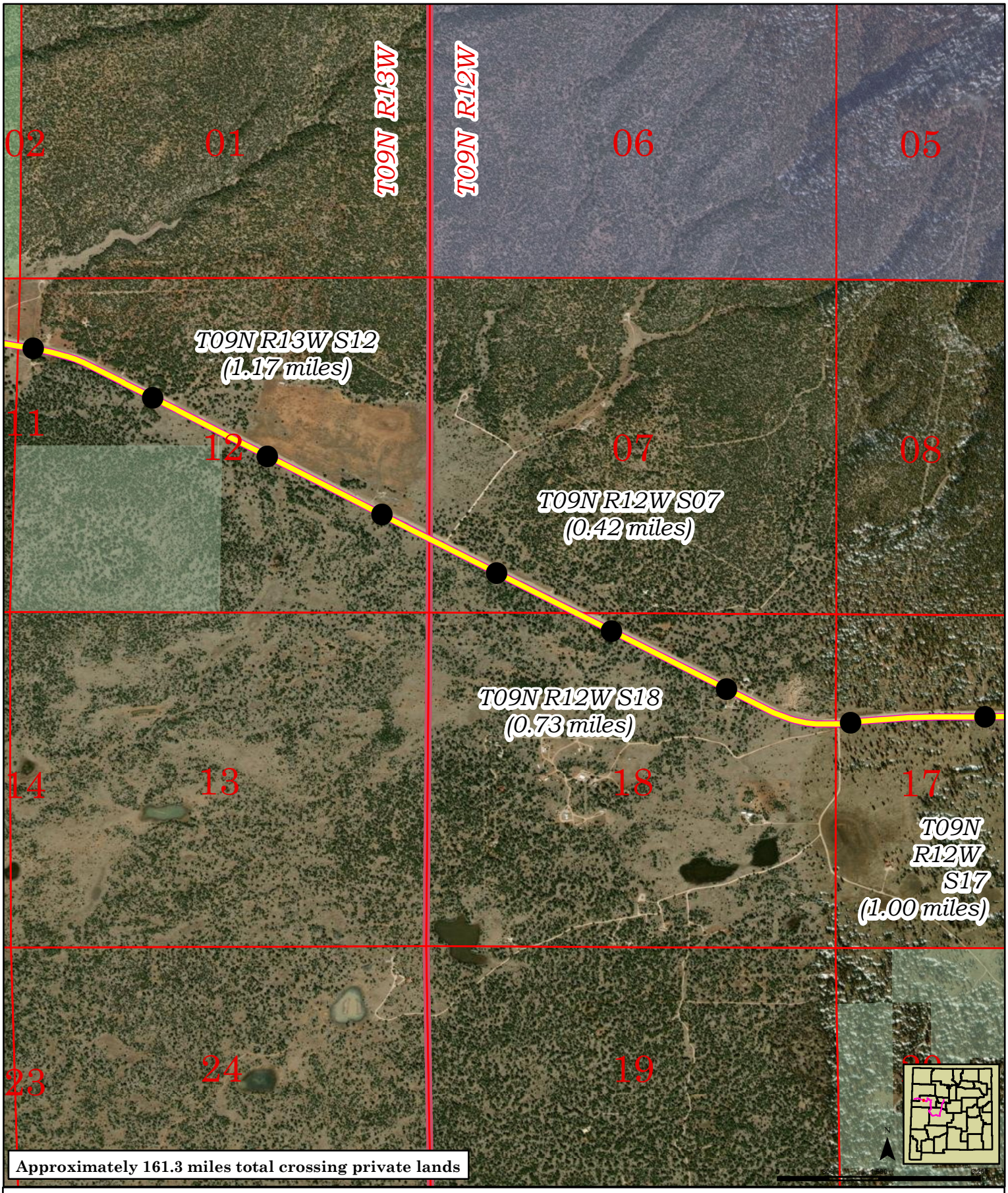
Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 9 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

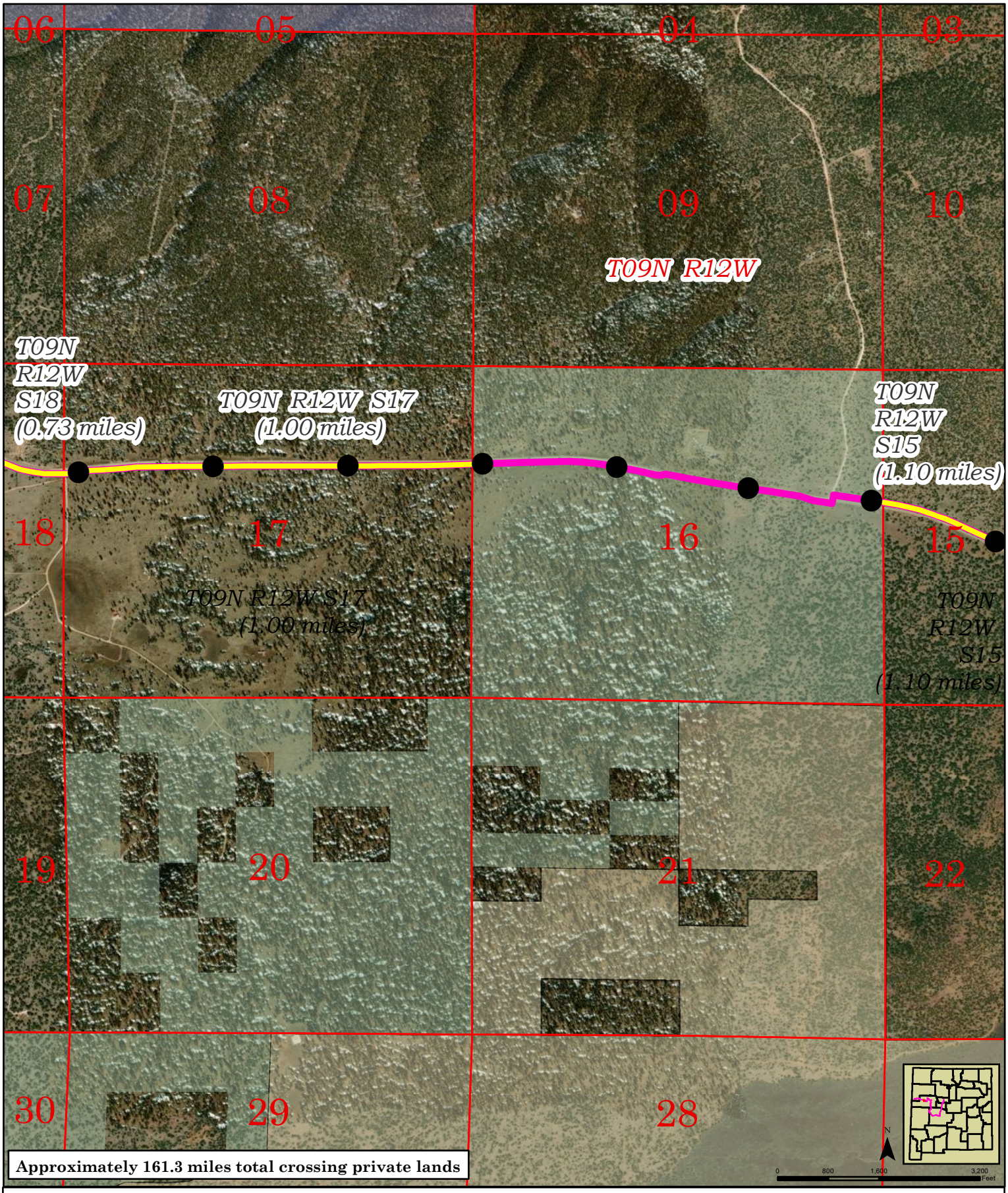
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 10 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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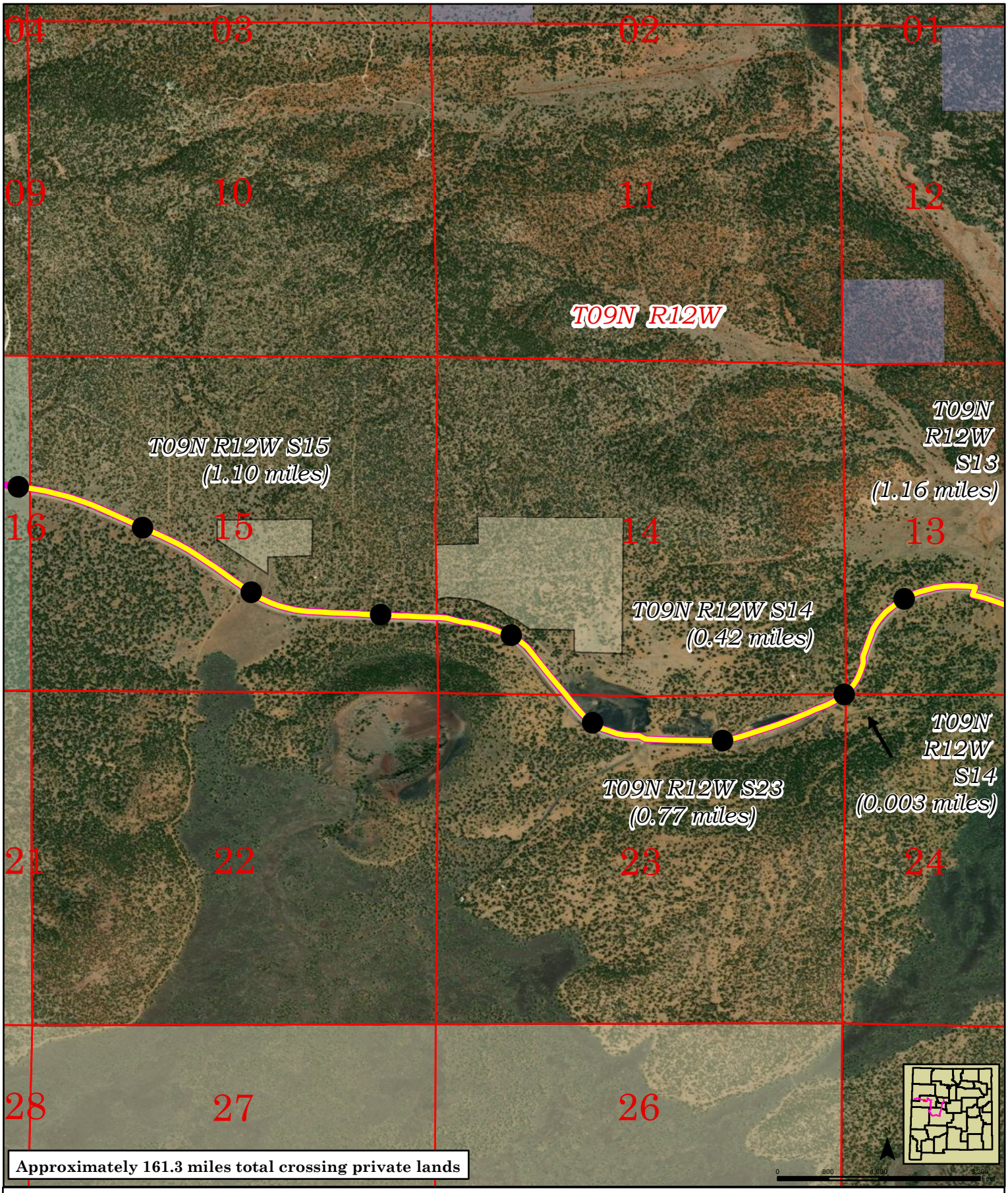
Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 11 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

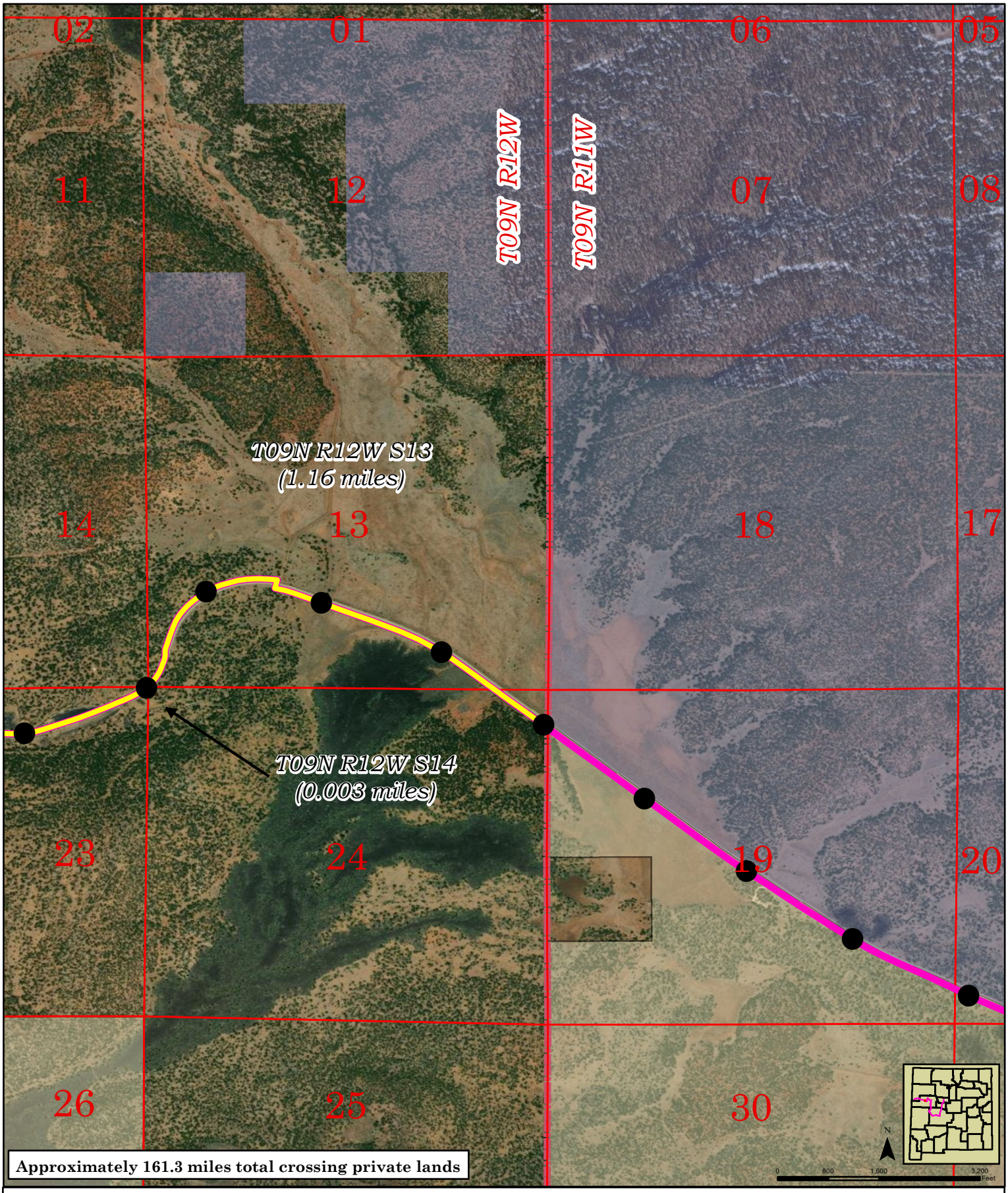
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 12 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

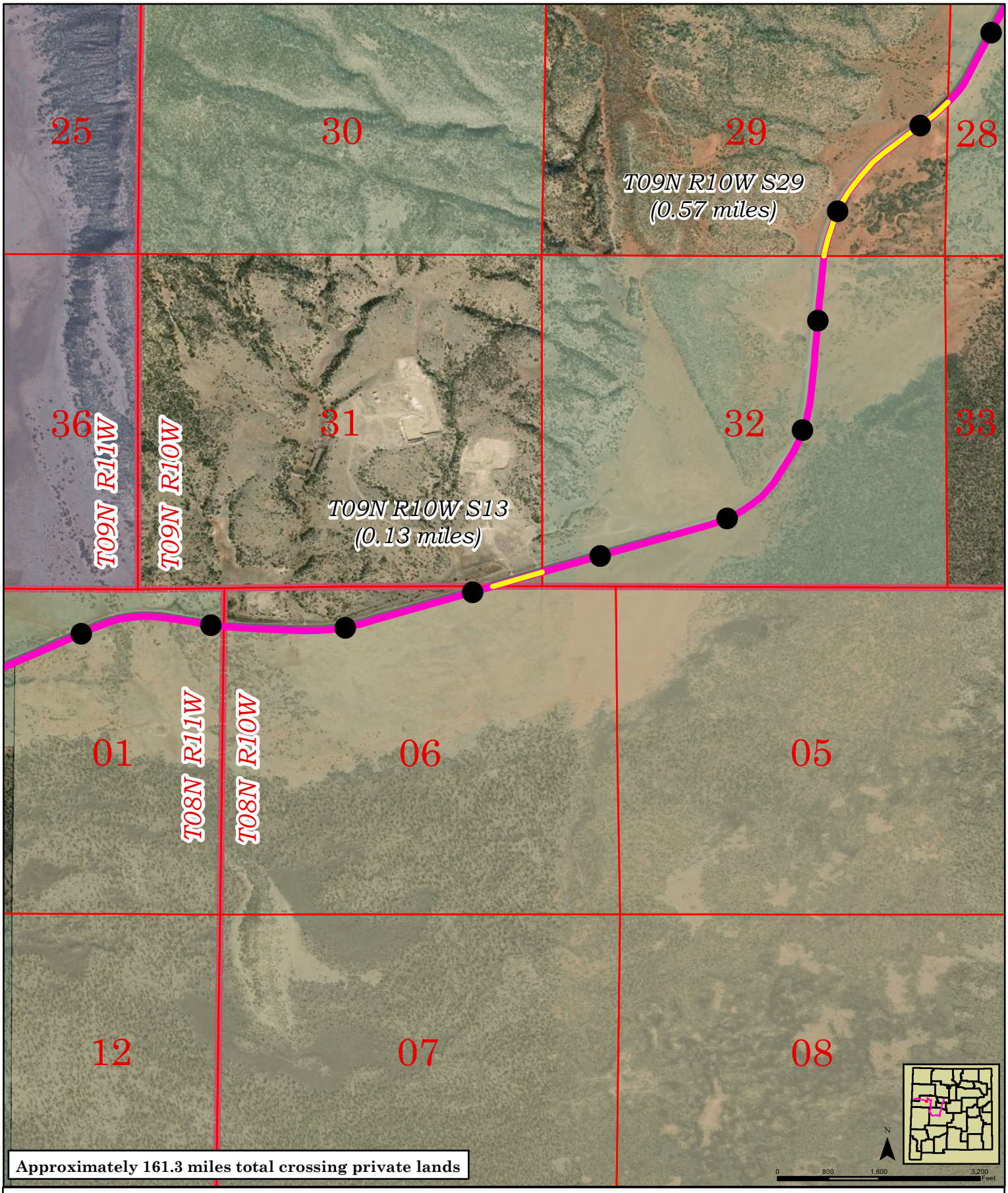
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 13 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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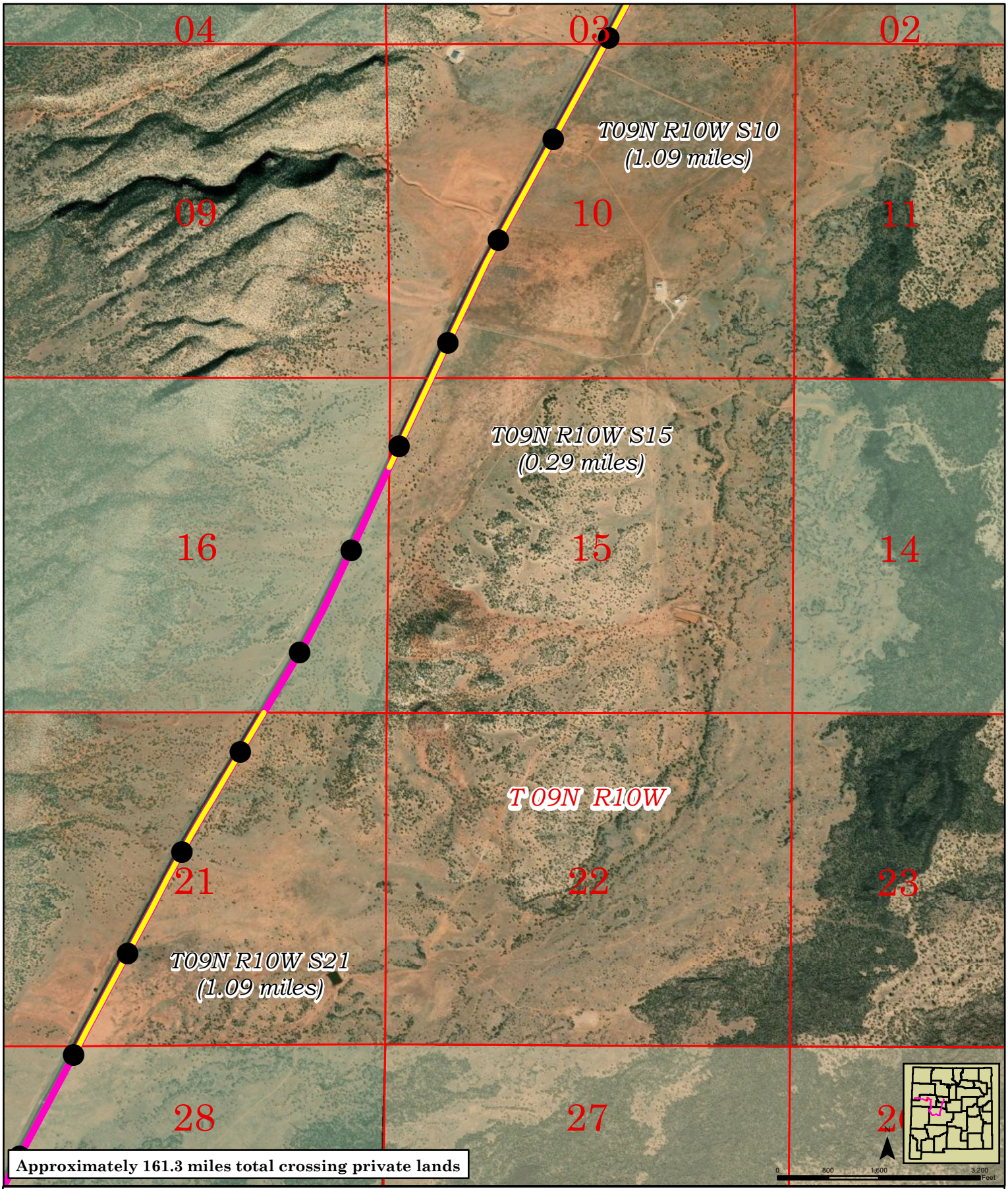
Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 14 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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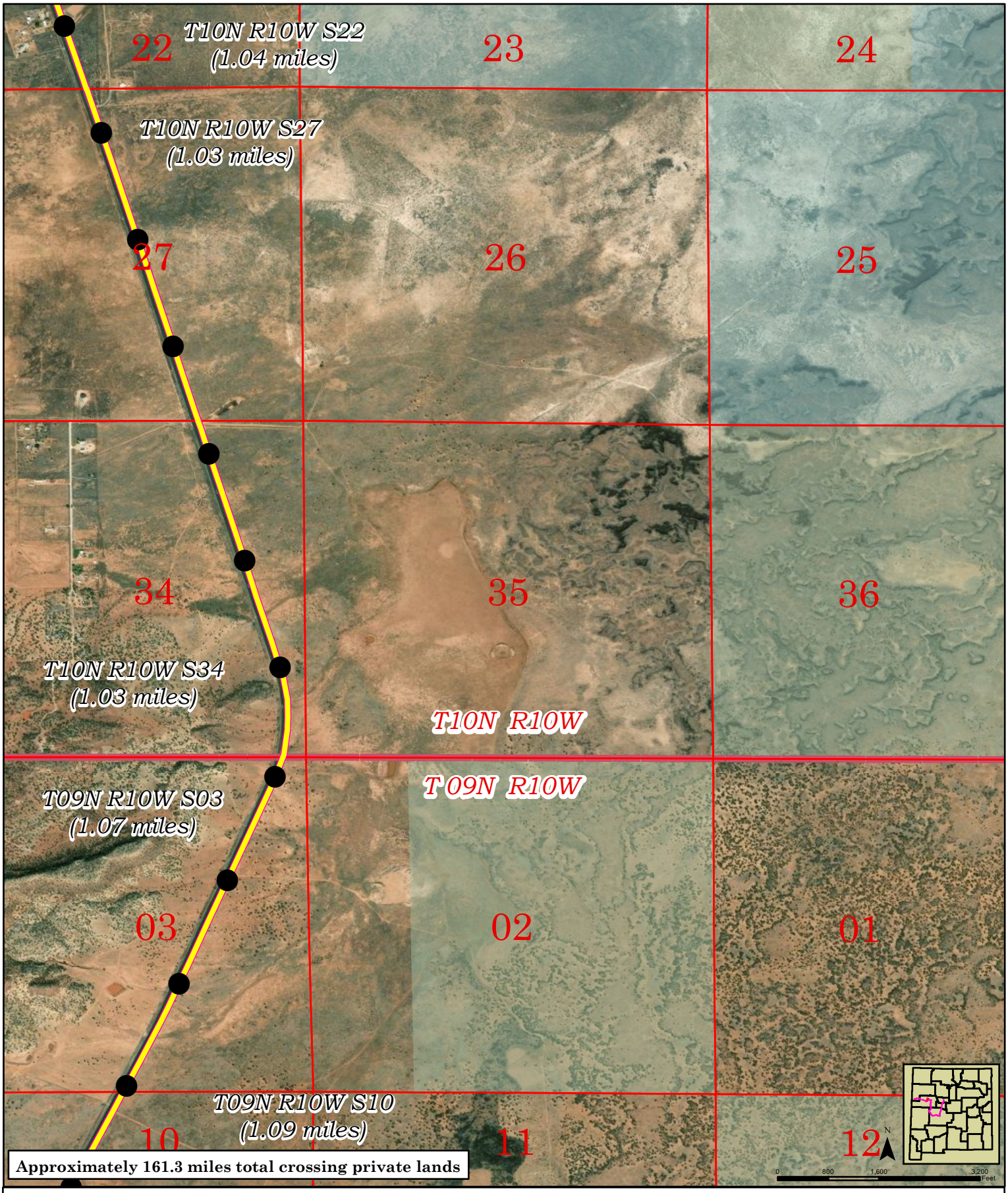

Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 15 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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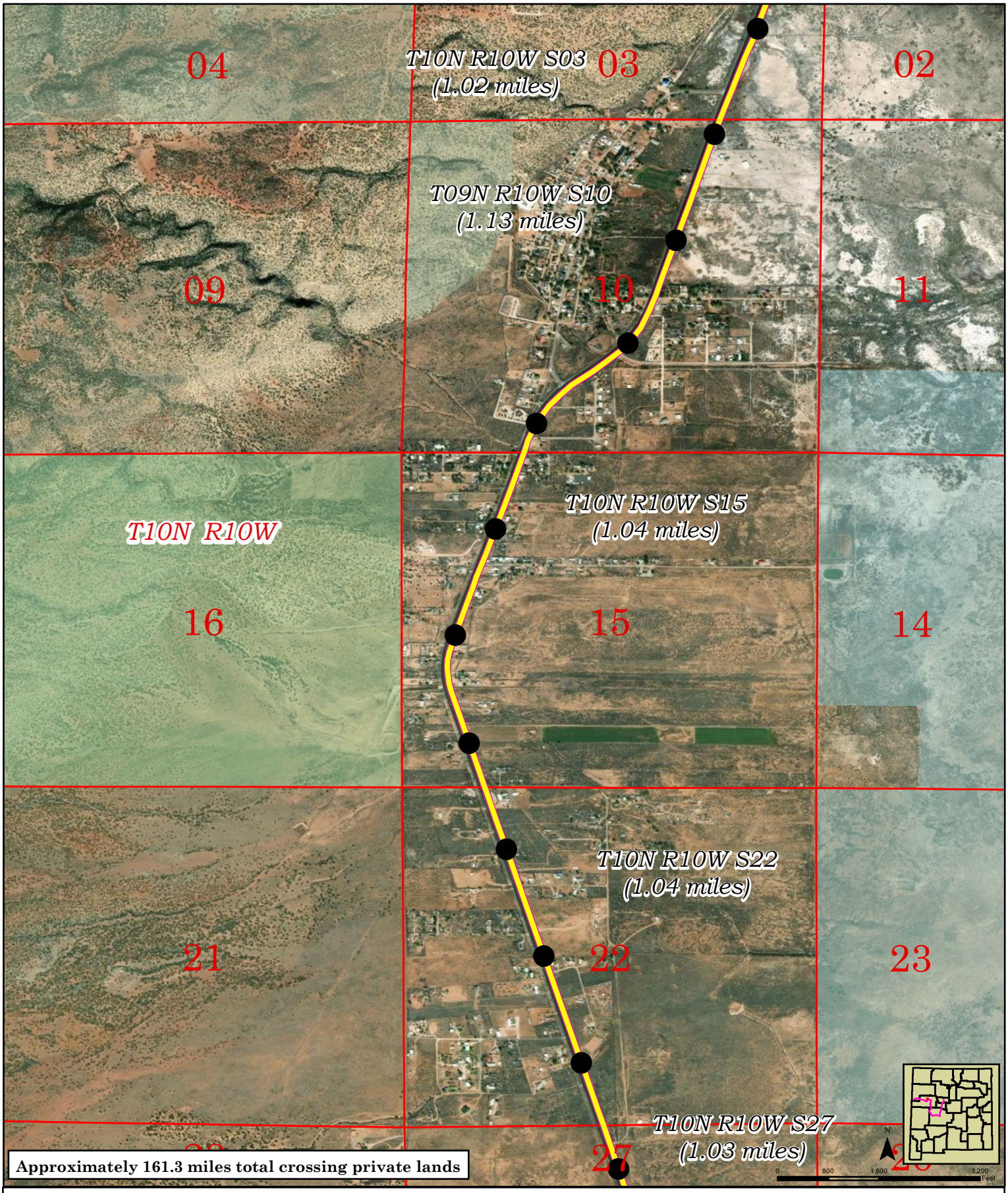

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 16 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 17 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 18 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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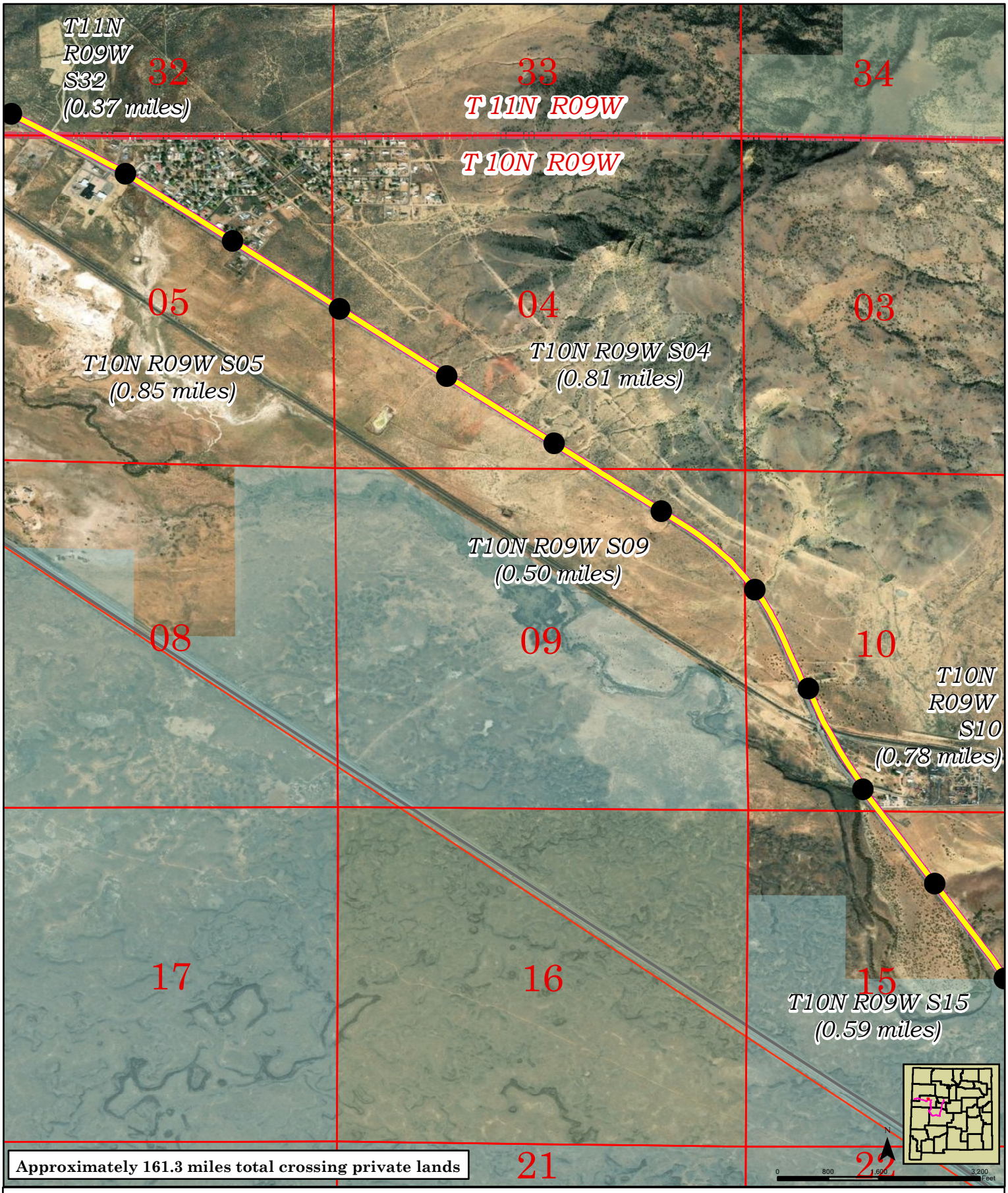
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 19 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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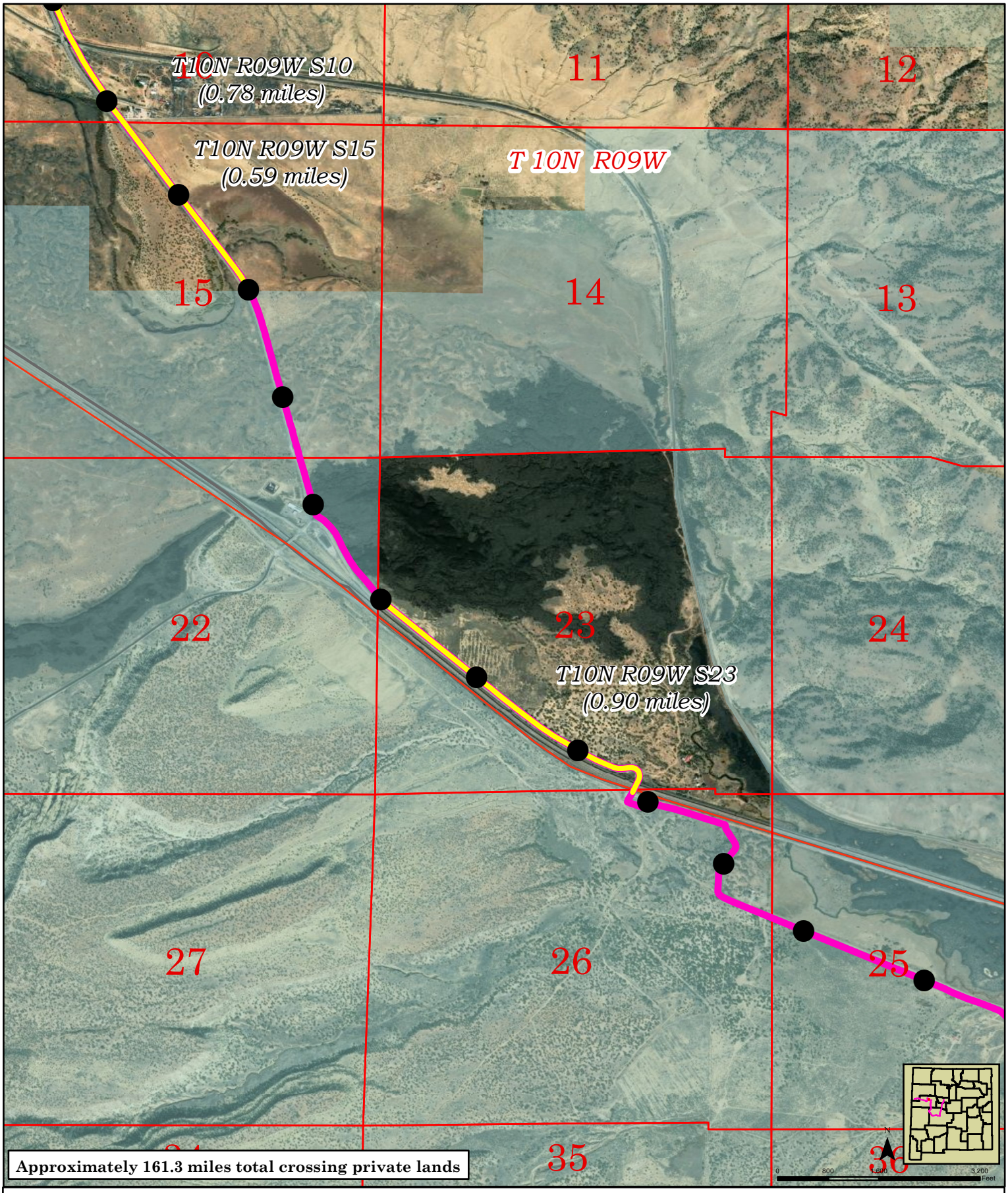

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 20 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Department of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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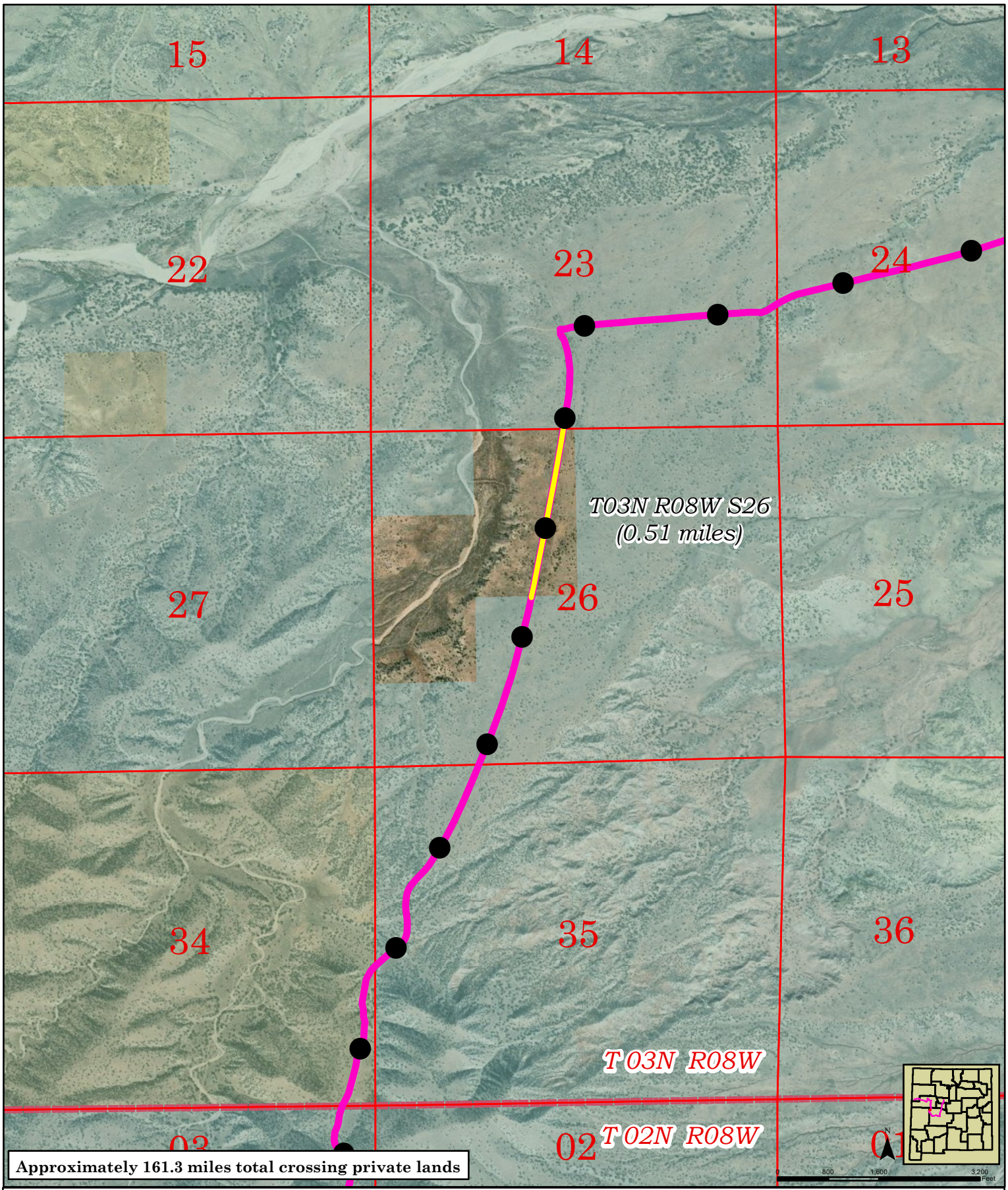
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 21 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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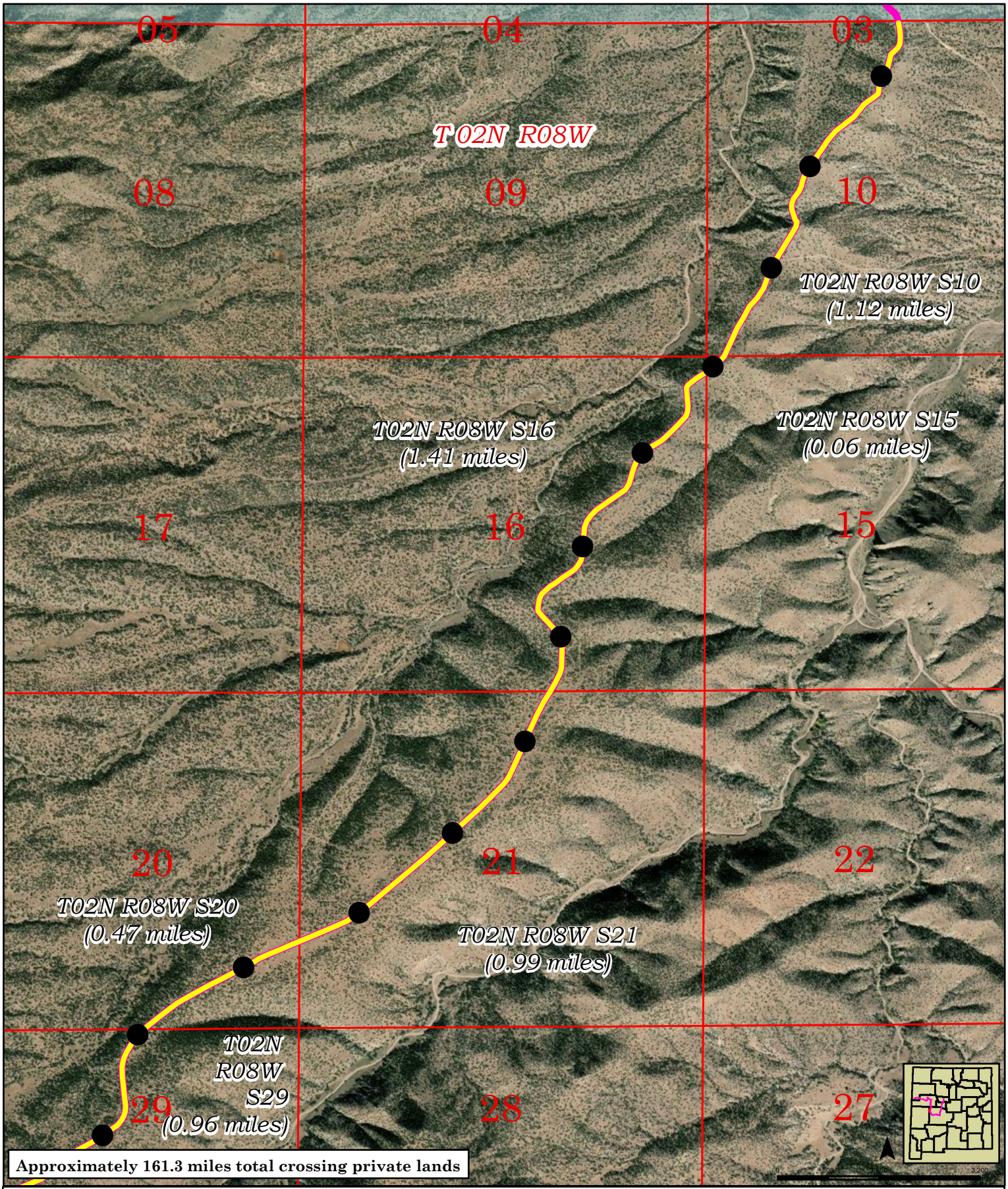

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 22 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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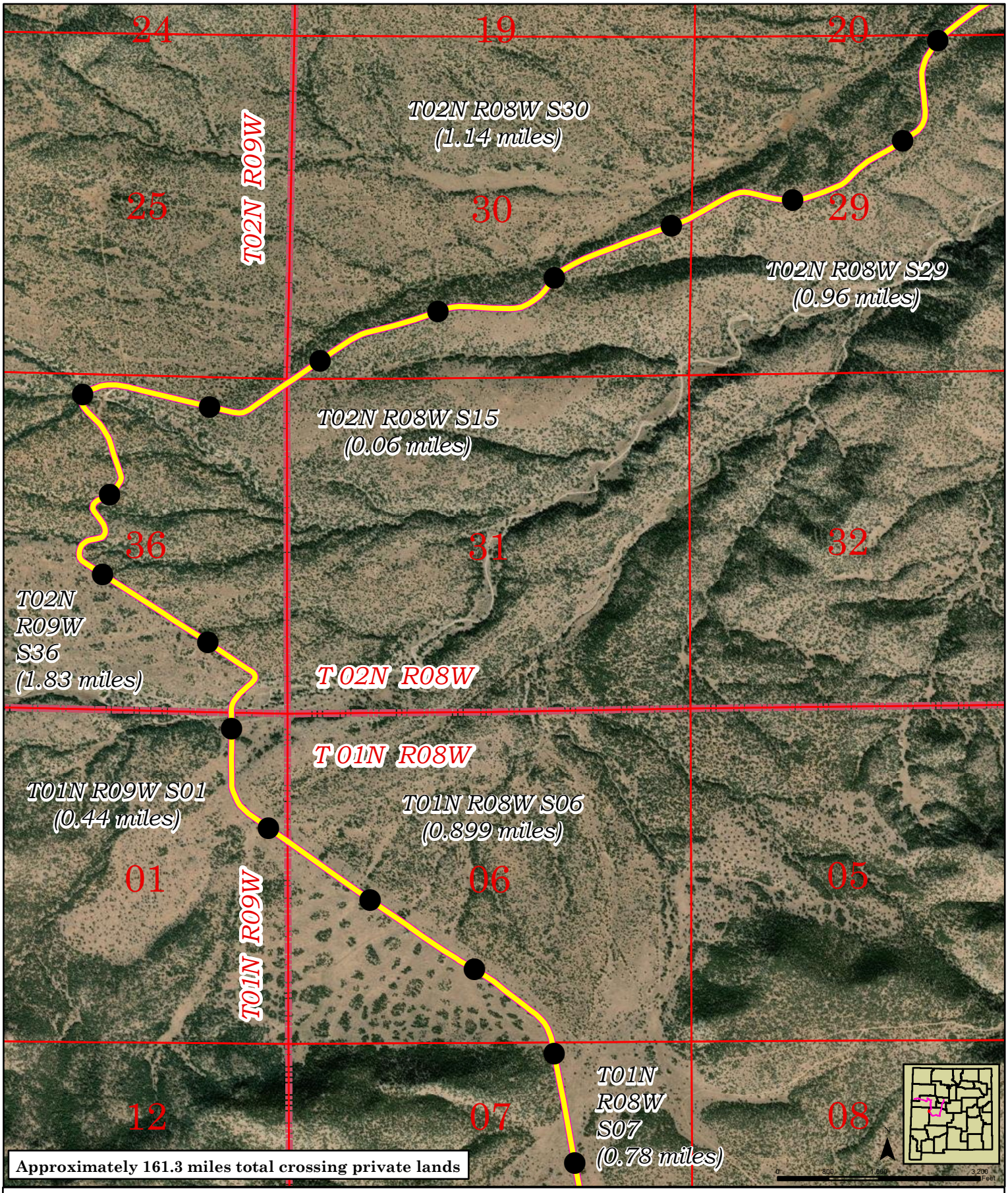

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 23 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
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BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
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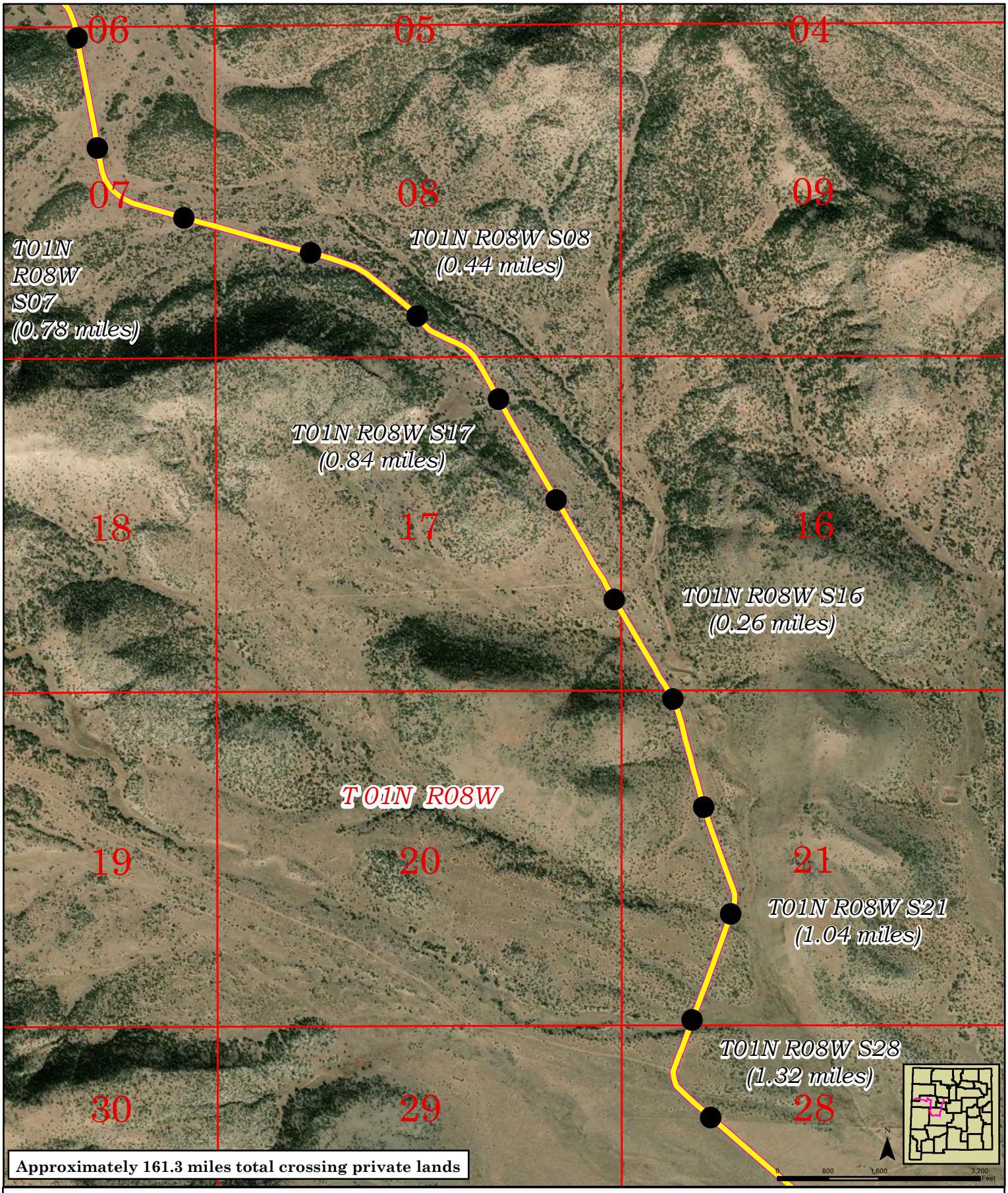

Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 24 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
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Tribal/Indian (I)
National Park Service (NPS)
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State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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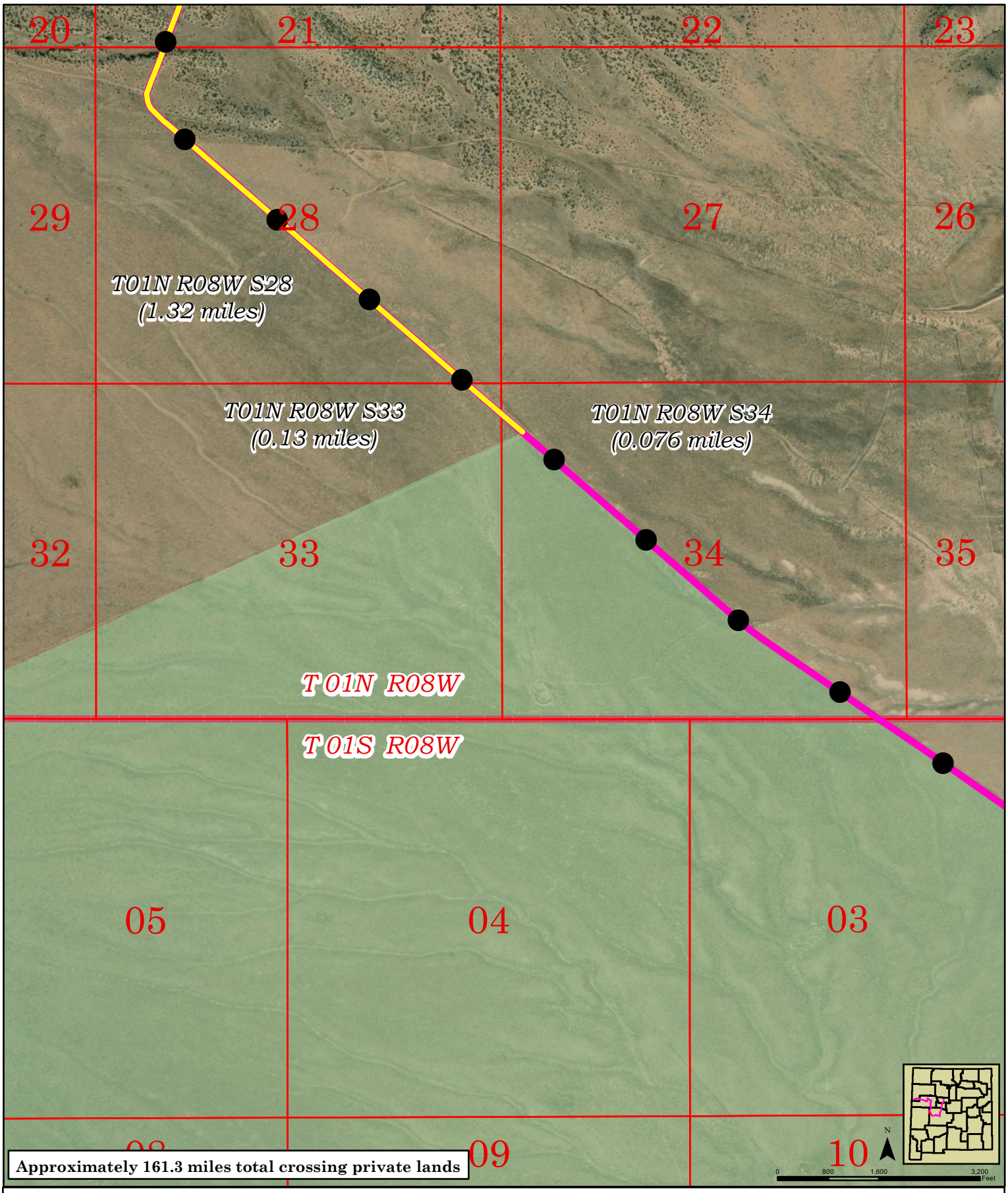

Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 25 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
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National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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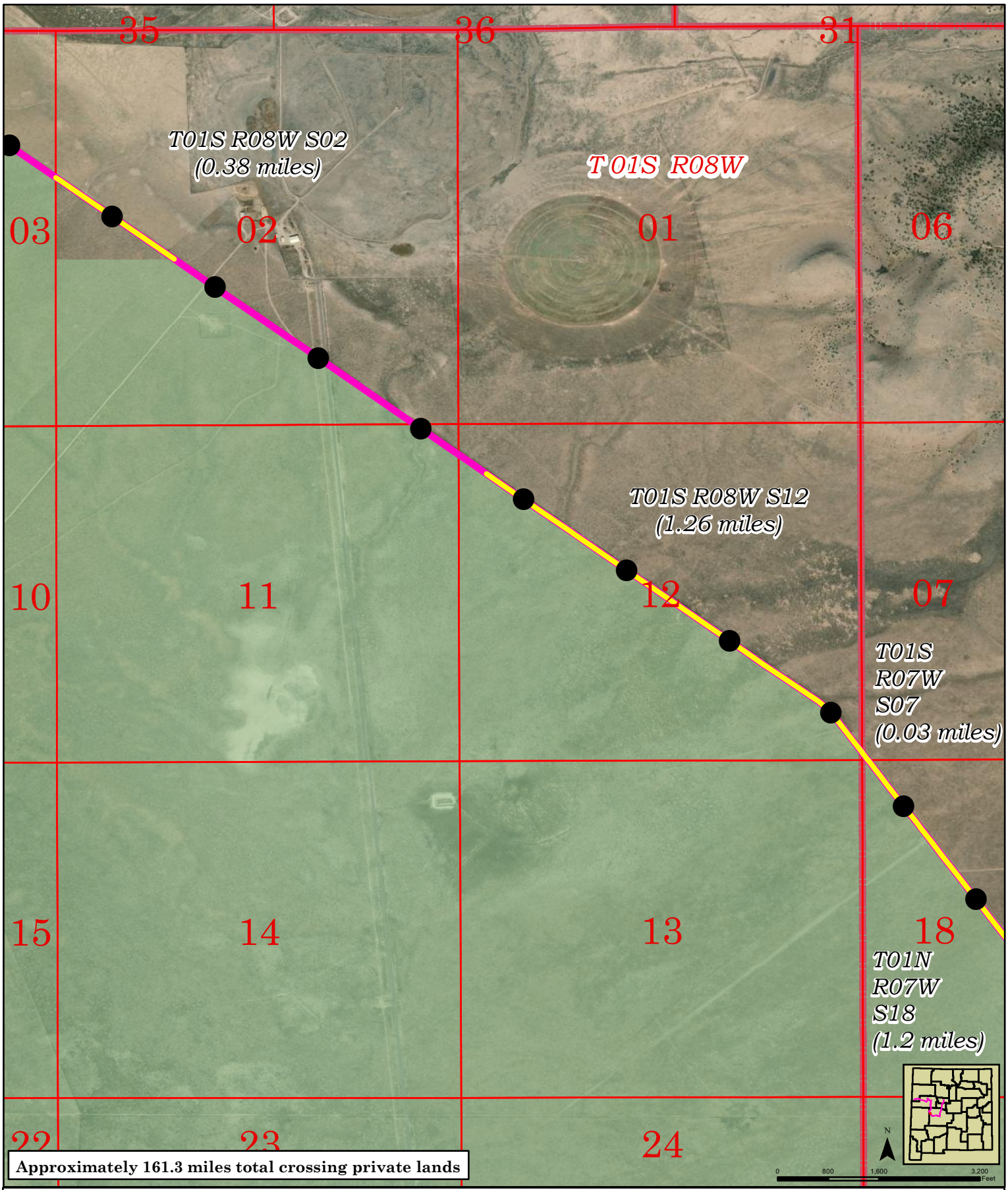
DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 26 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
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Department of Energy (DOE)
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National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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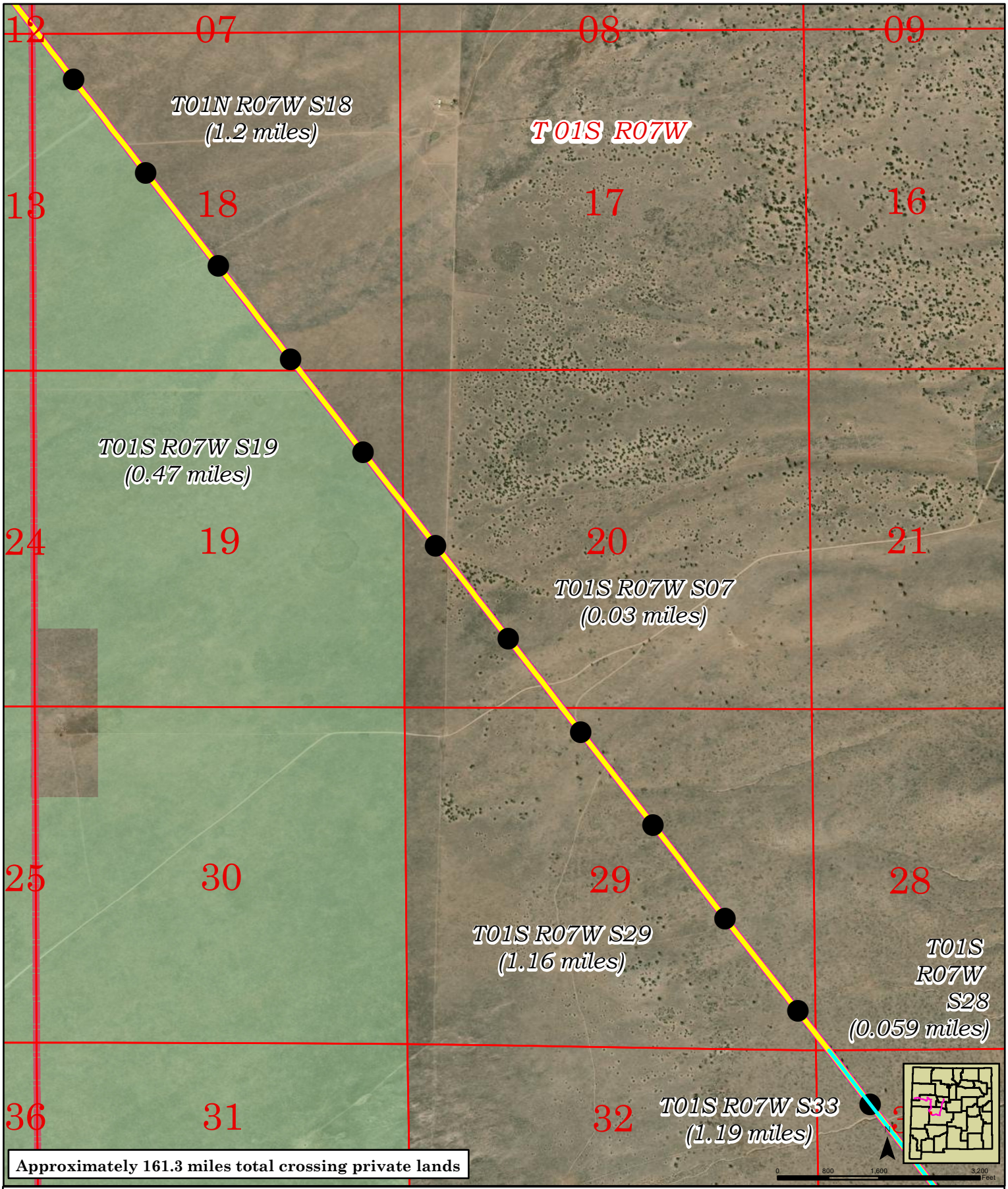

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 27 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
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Bureau of Land Management (BLM)
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Department of Energy (DOE)
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Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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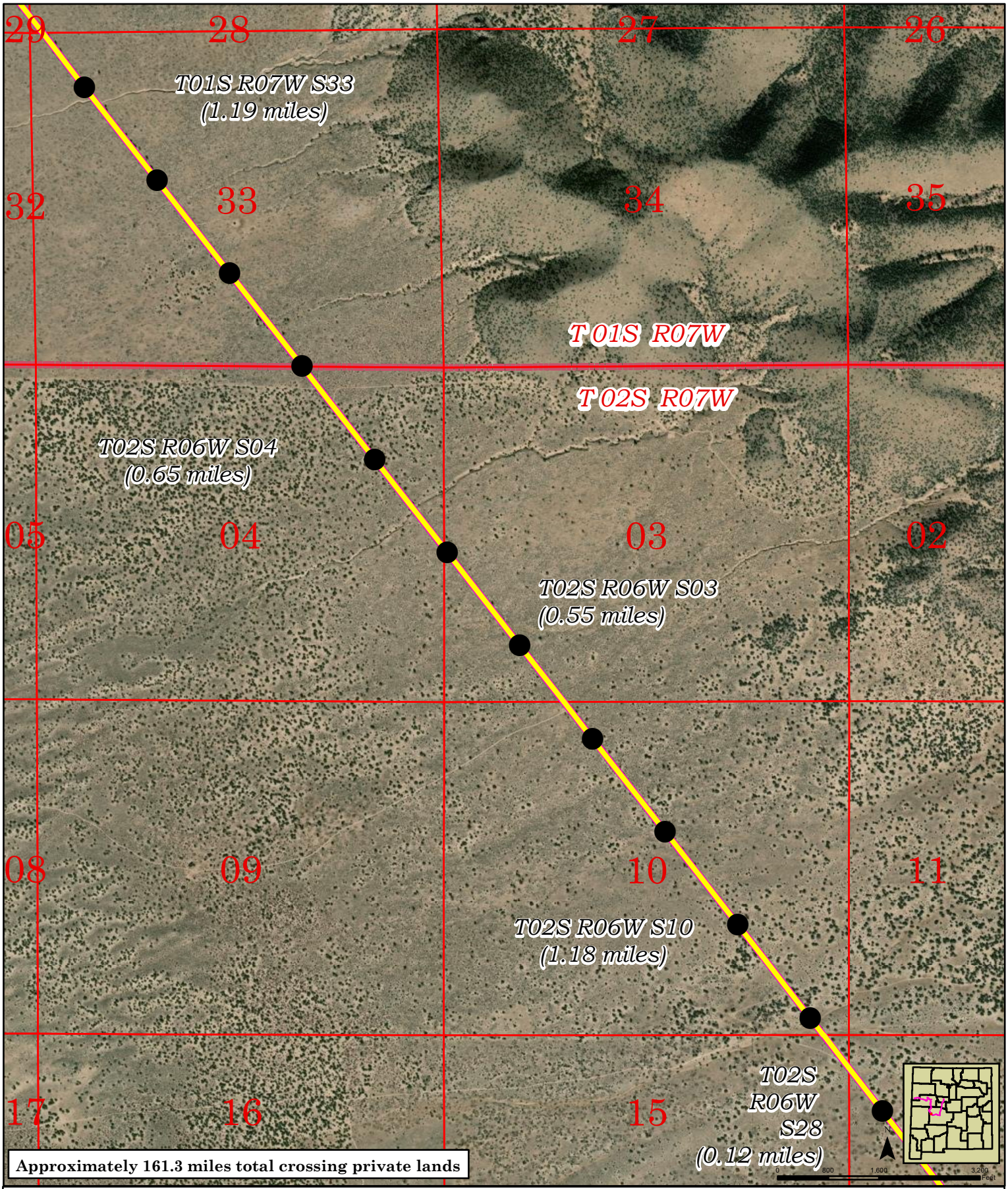

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 28 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
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BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
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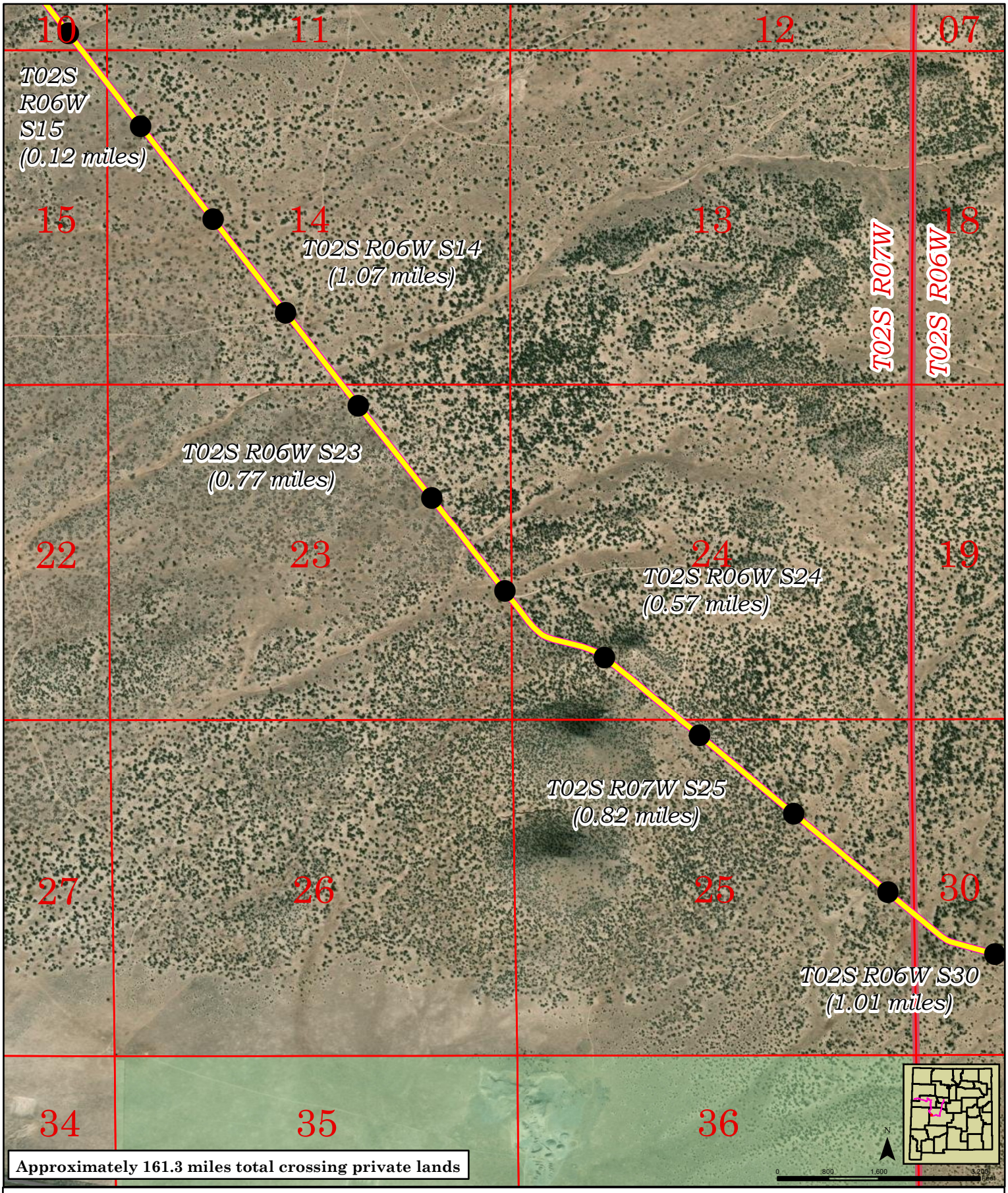

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 29 of 65)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

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Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
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Land Grant
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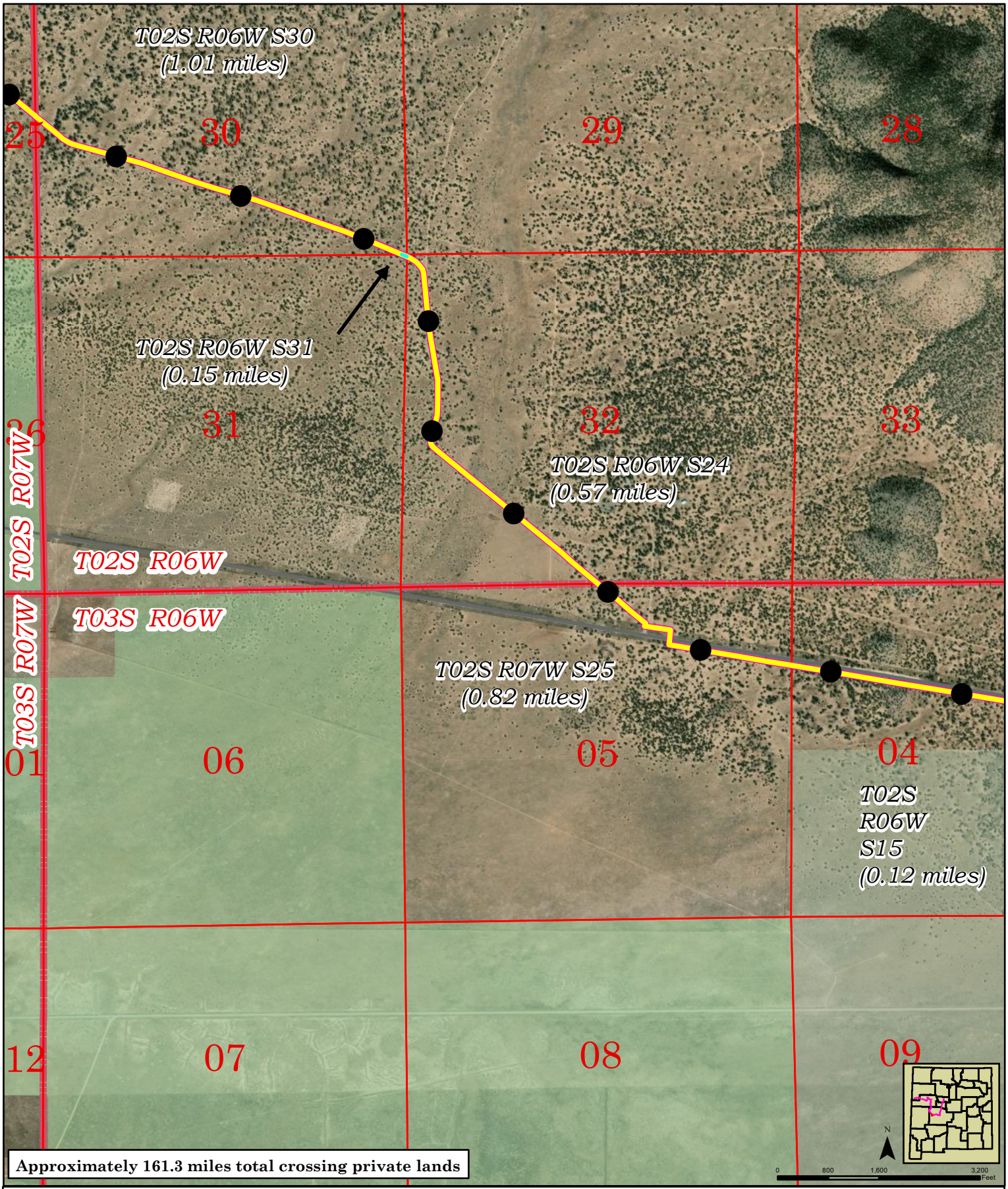

Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 30 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

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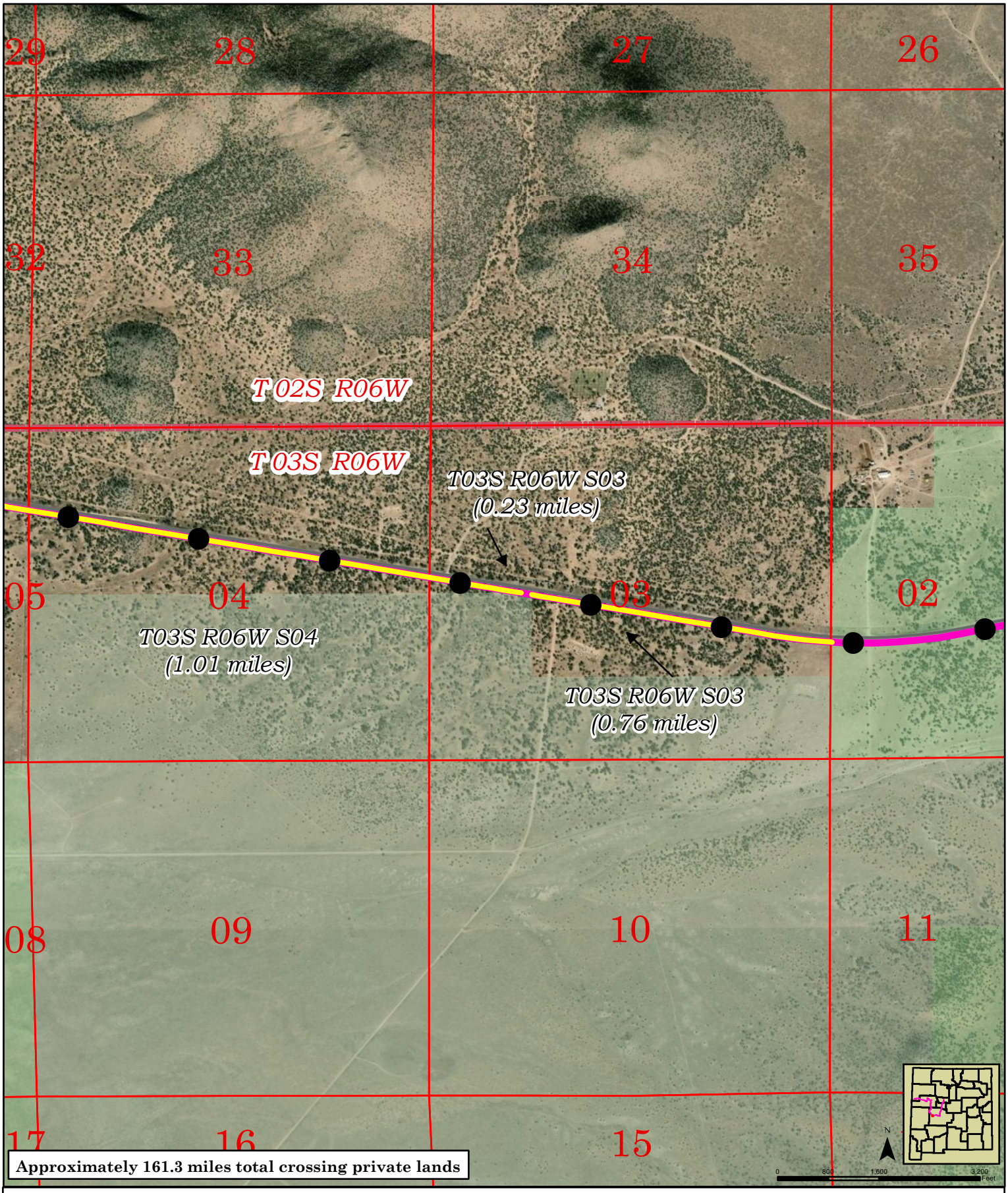

Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 31 of 64)

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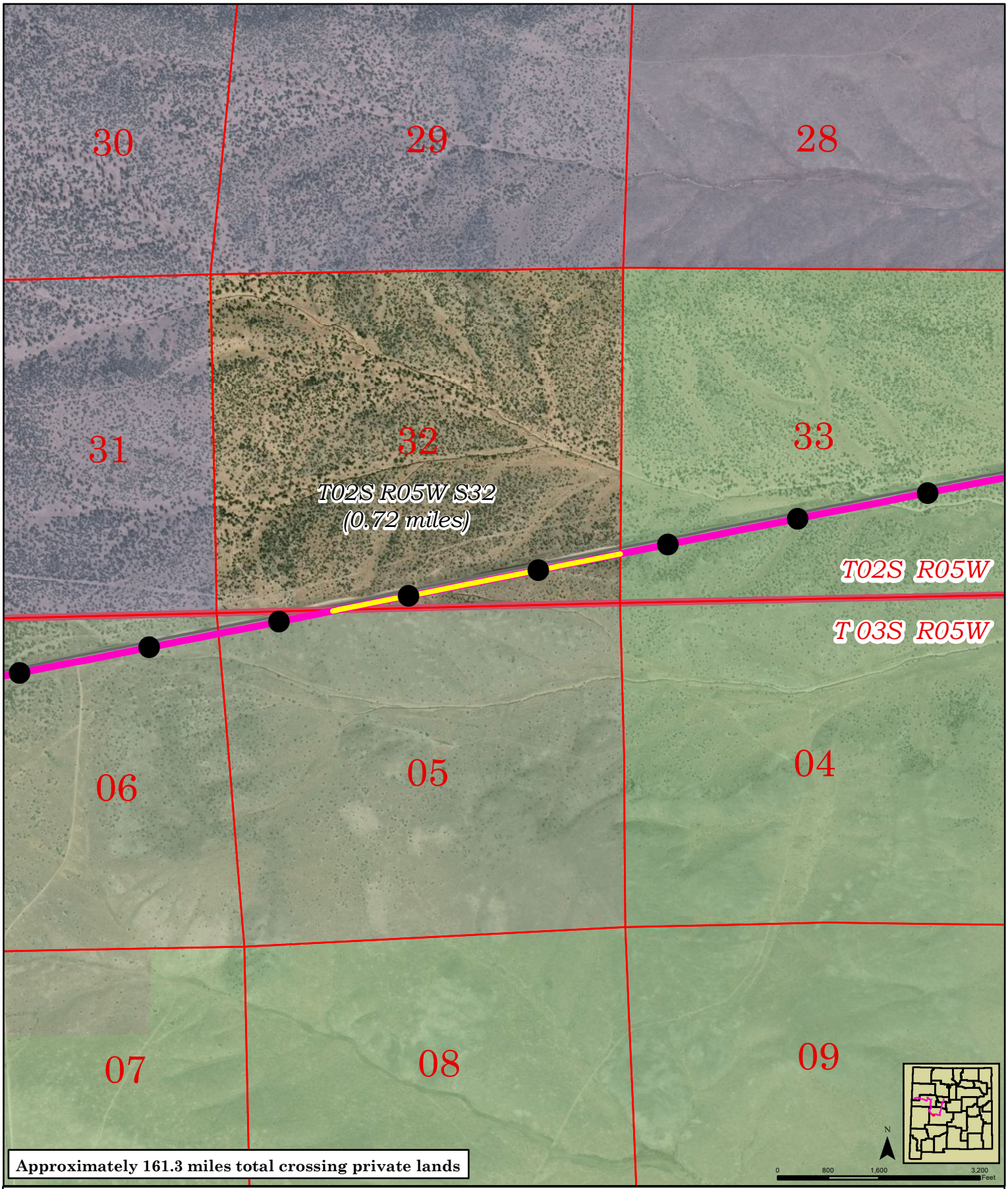

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 32 of 64)

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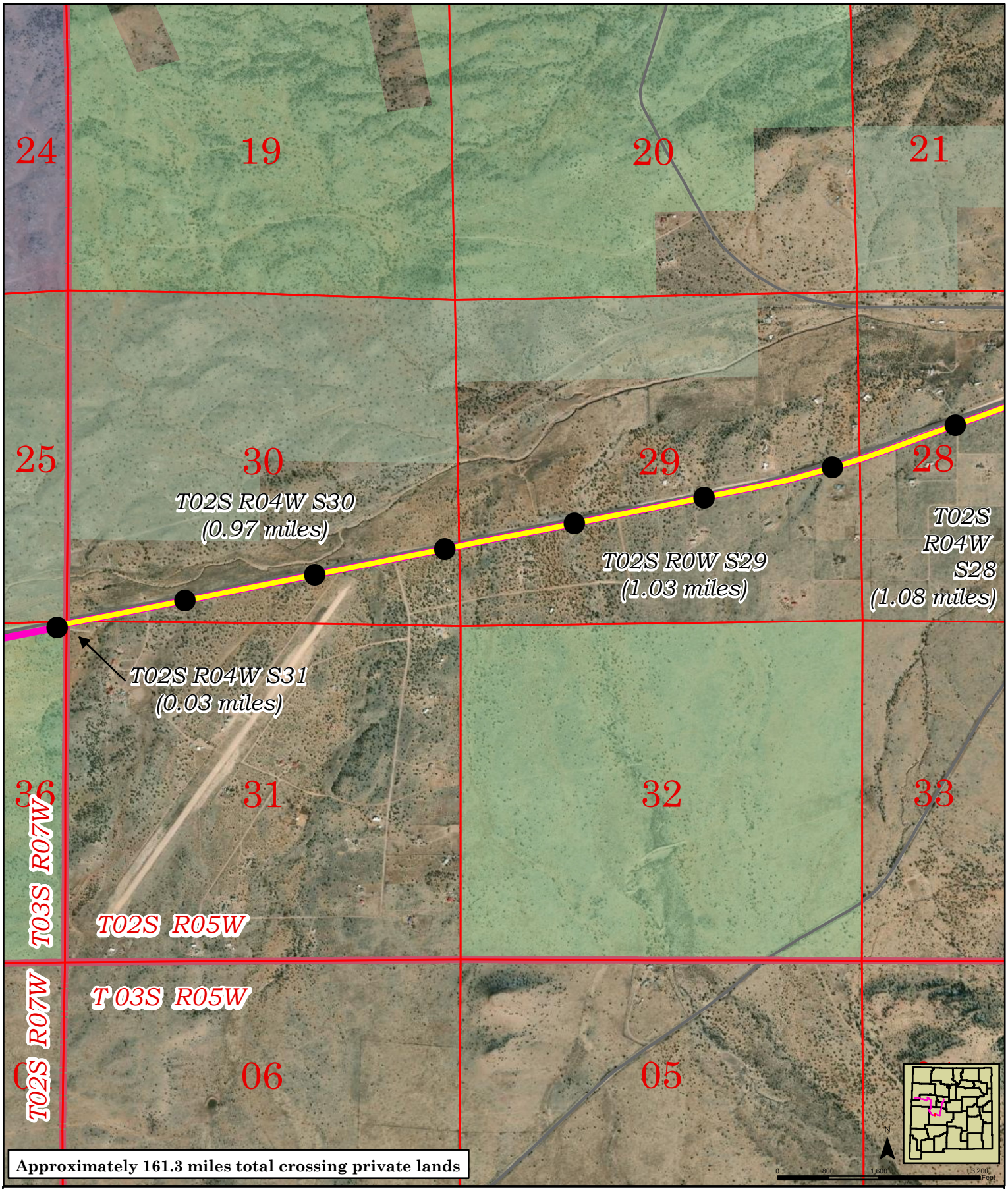

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 33 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

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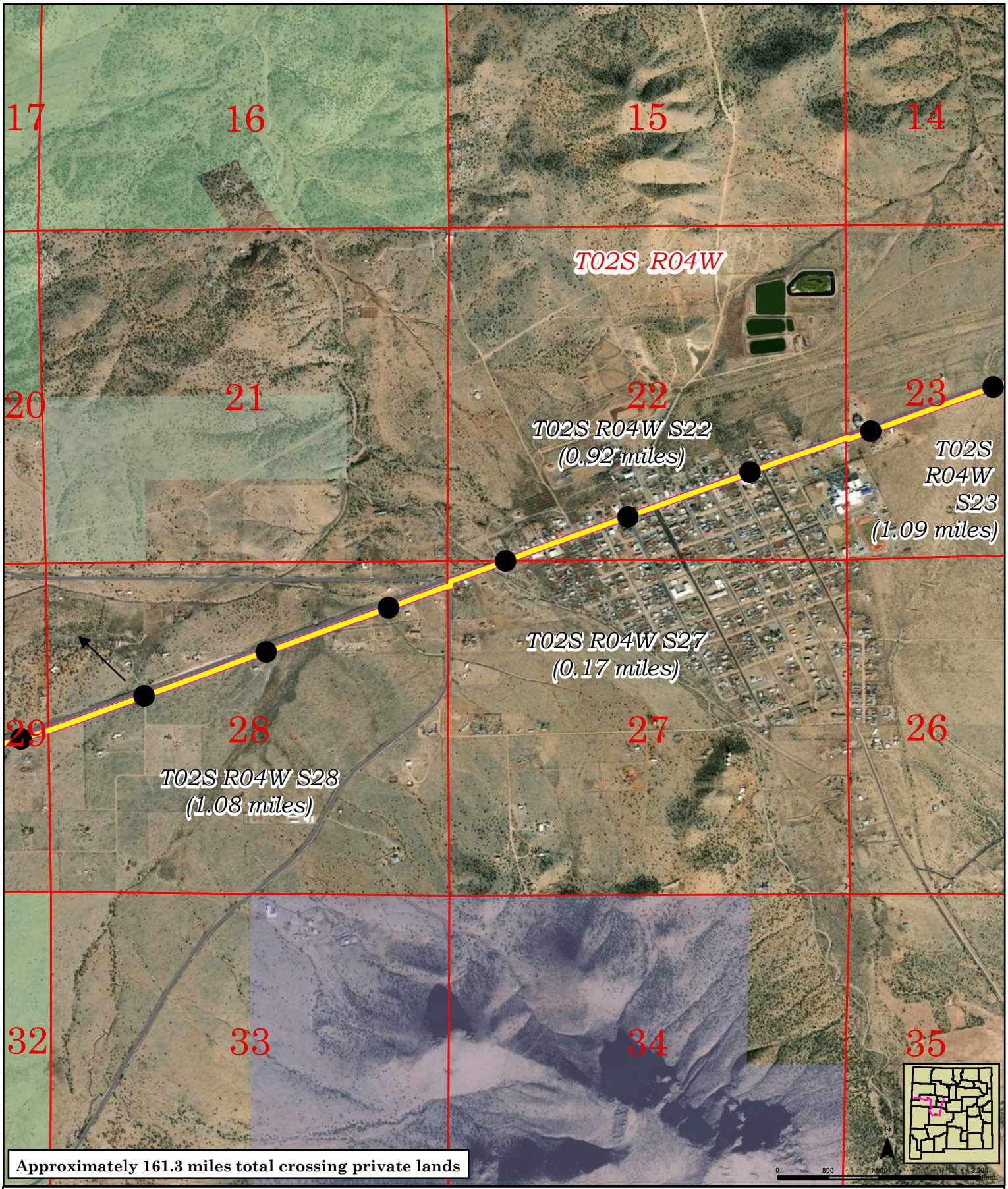

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 34 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

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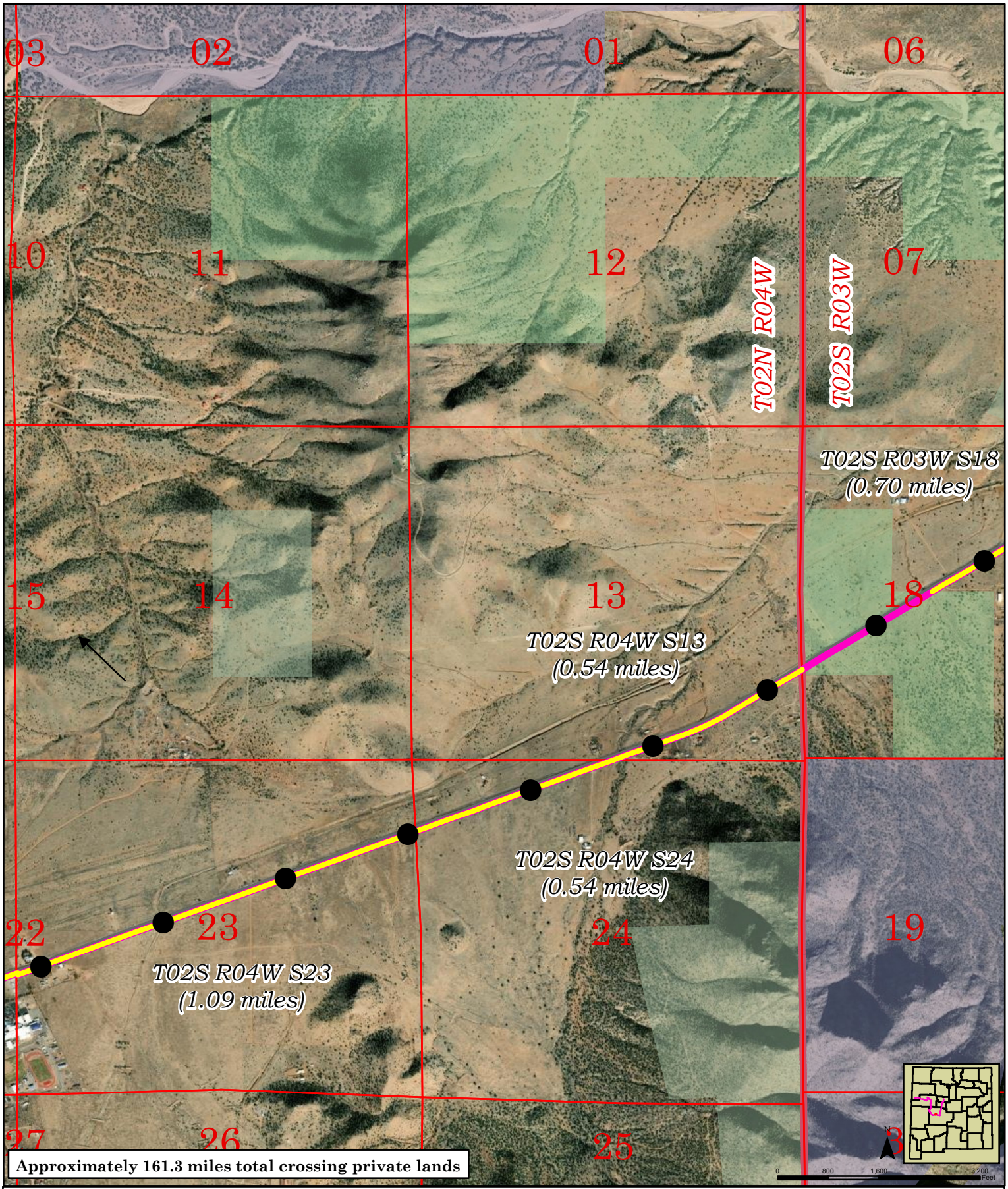

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 35 of 64)

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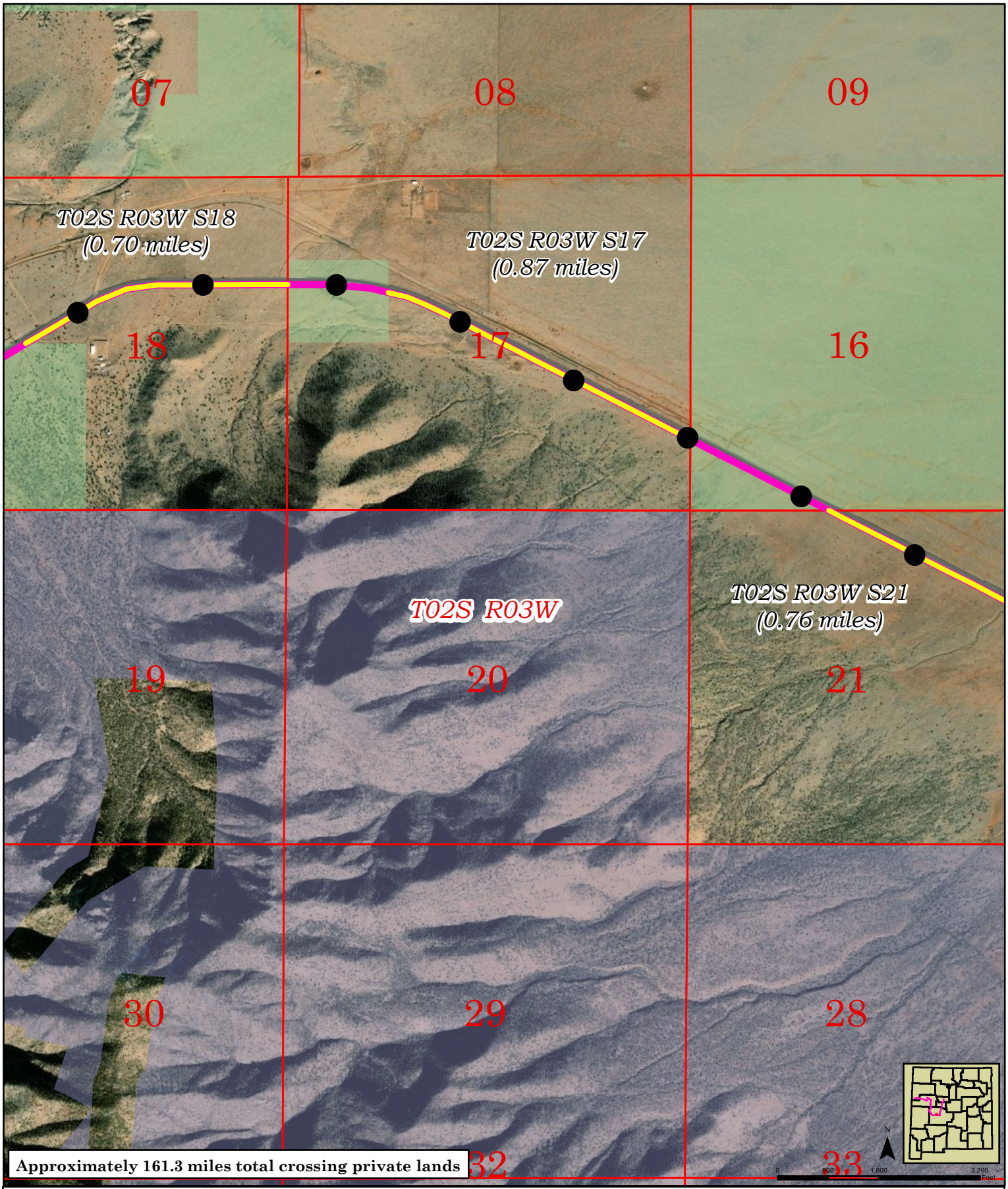

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 36 of 64)

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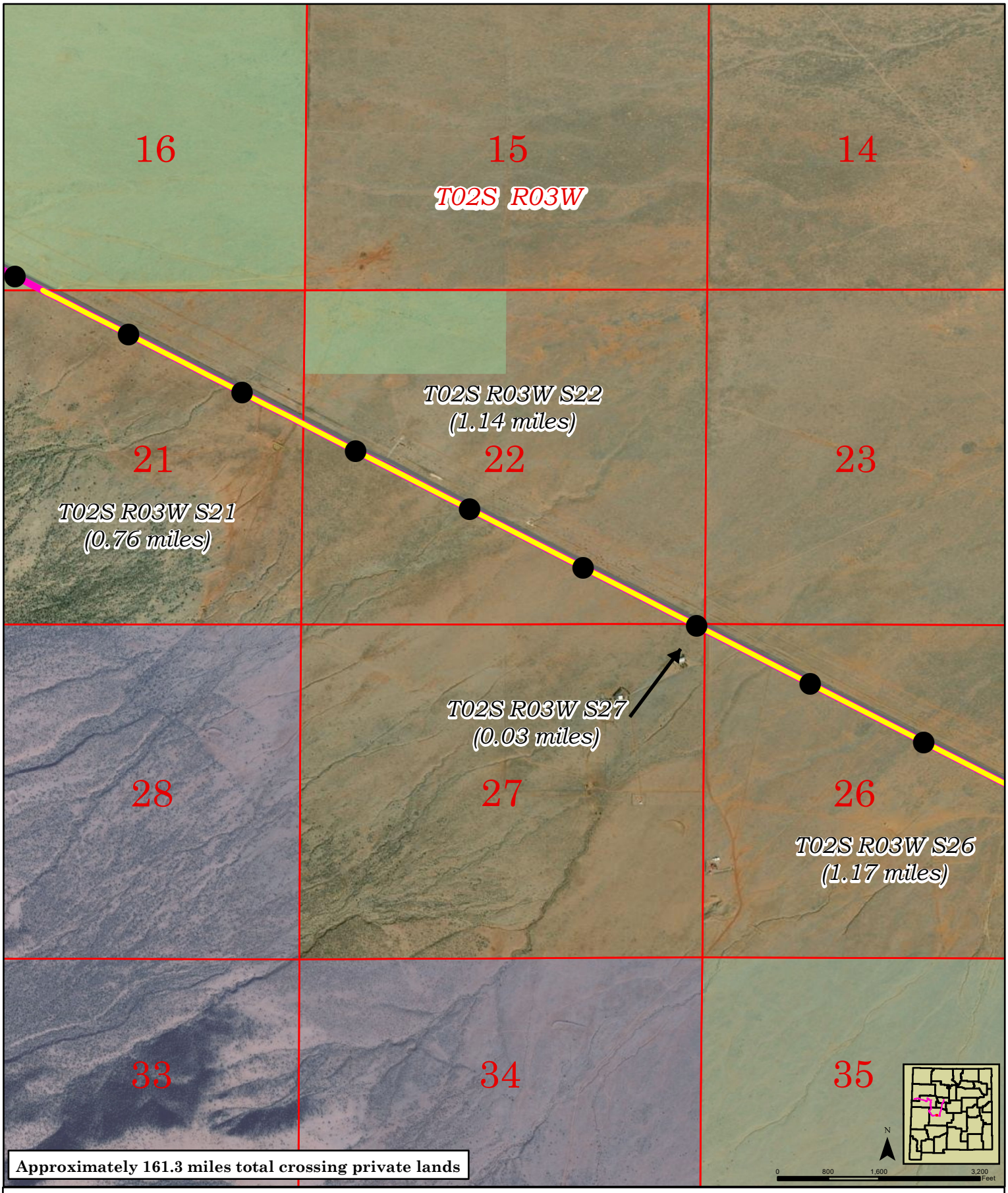

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 37 of 64)

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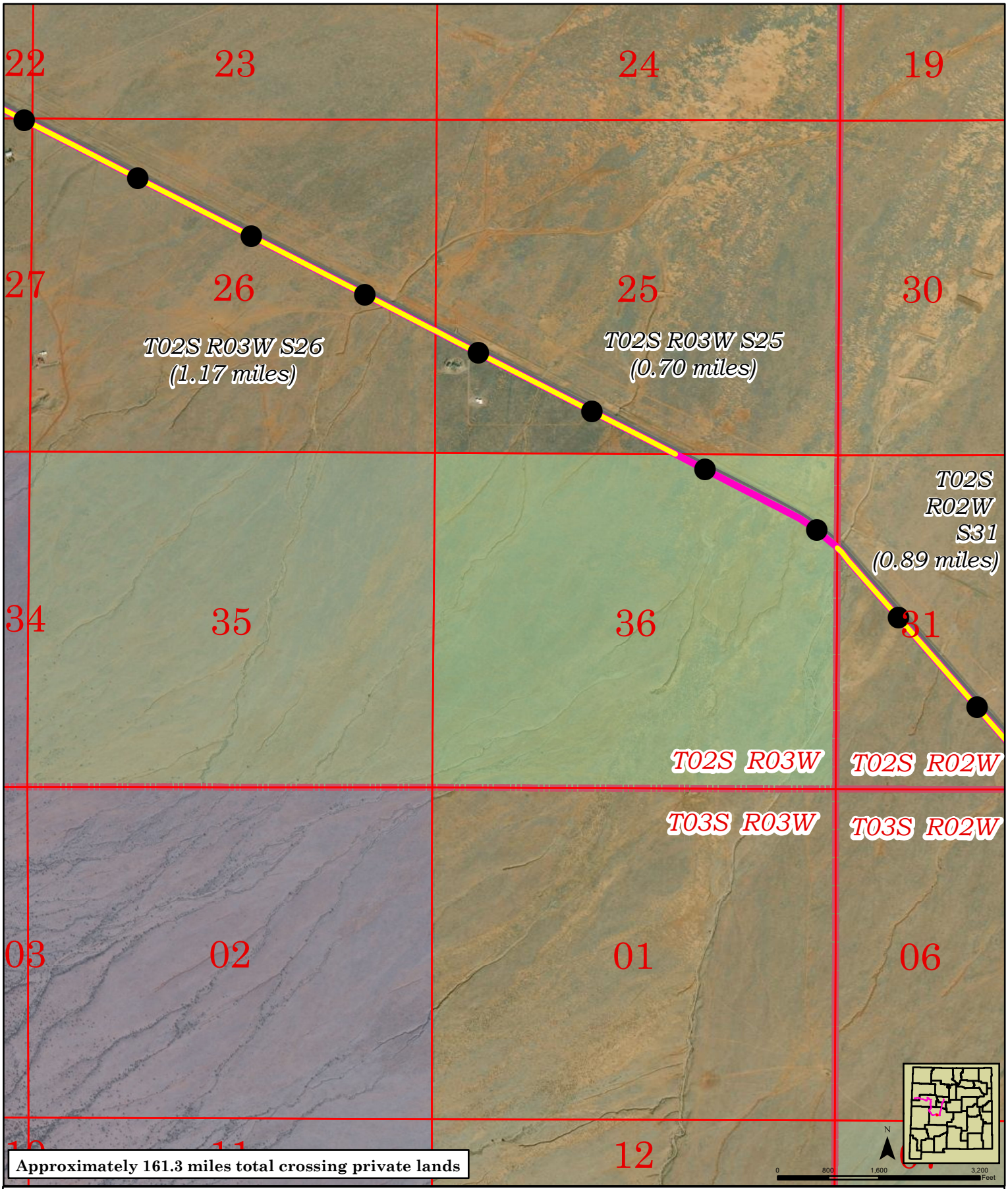

Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 38 of 64)

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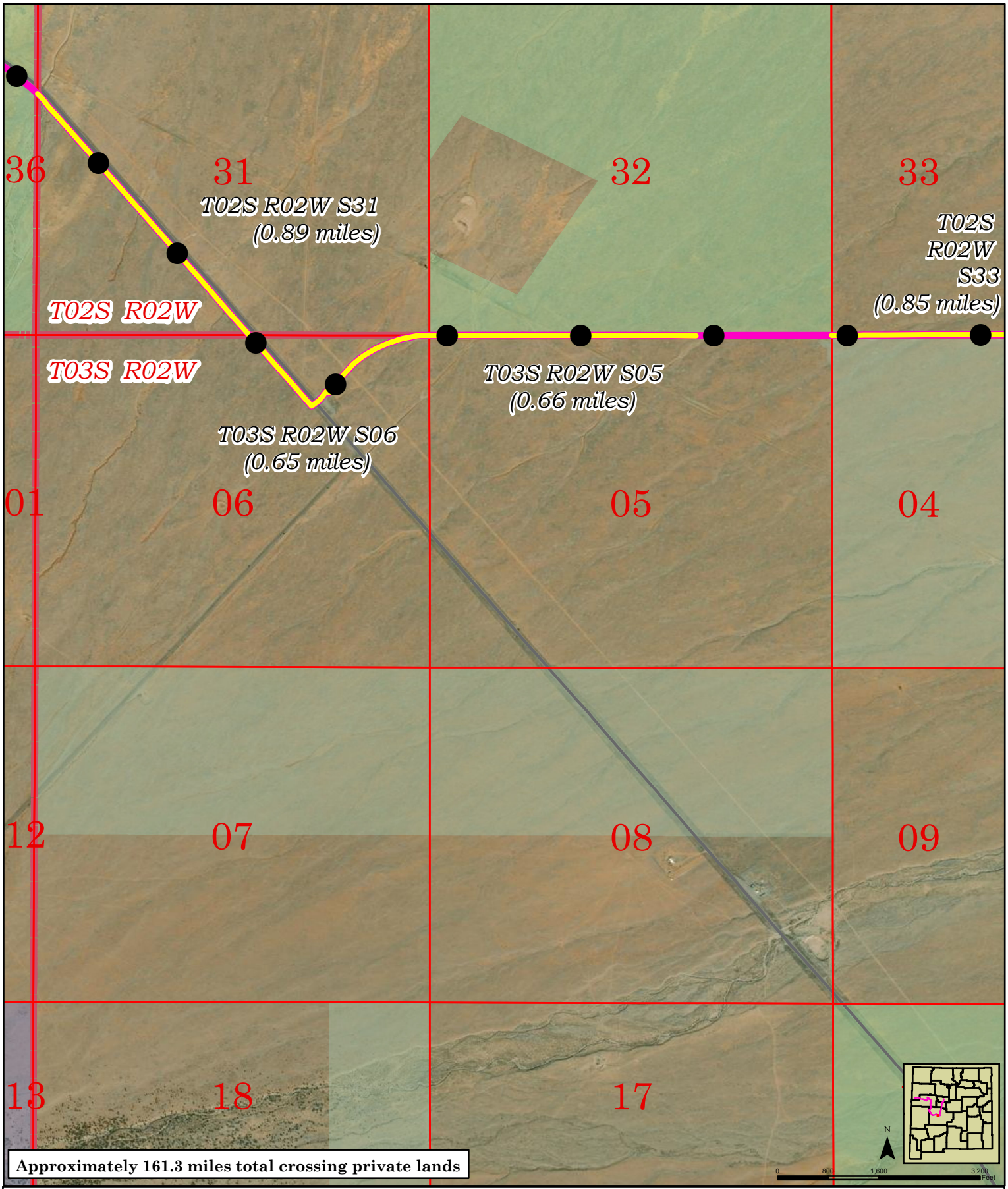

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 39 of 64)

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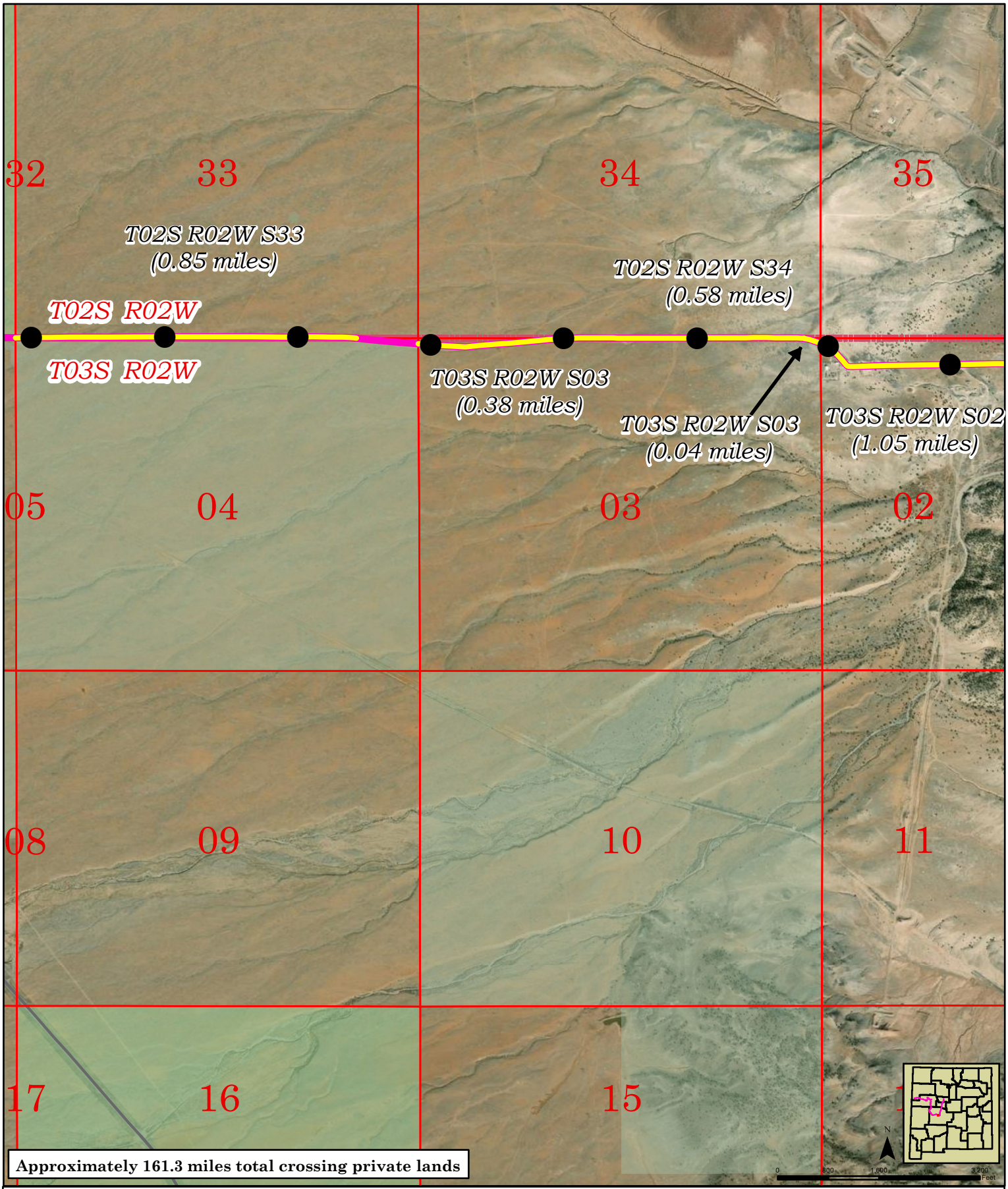

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 40 of 64)

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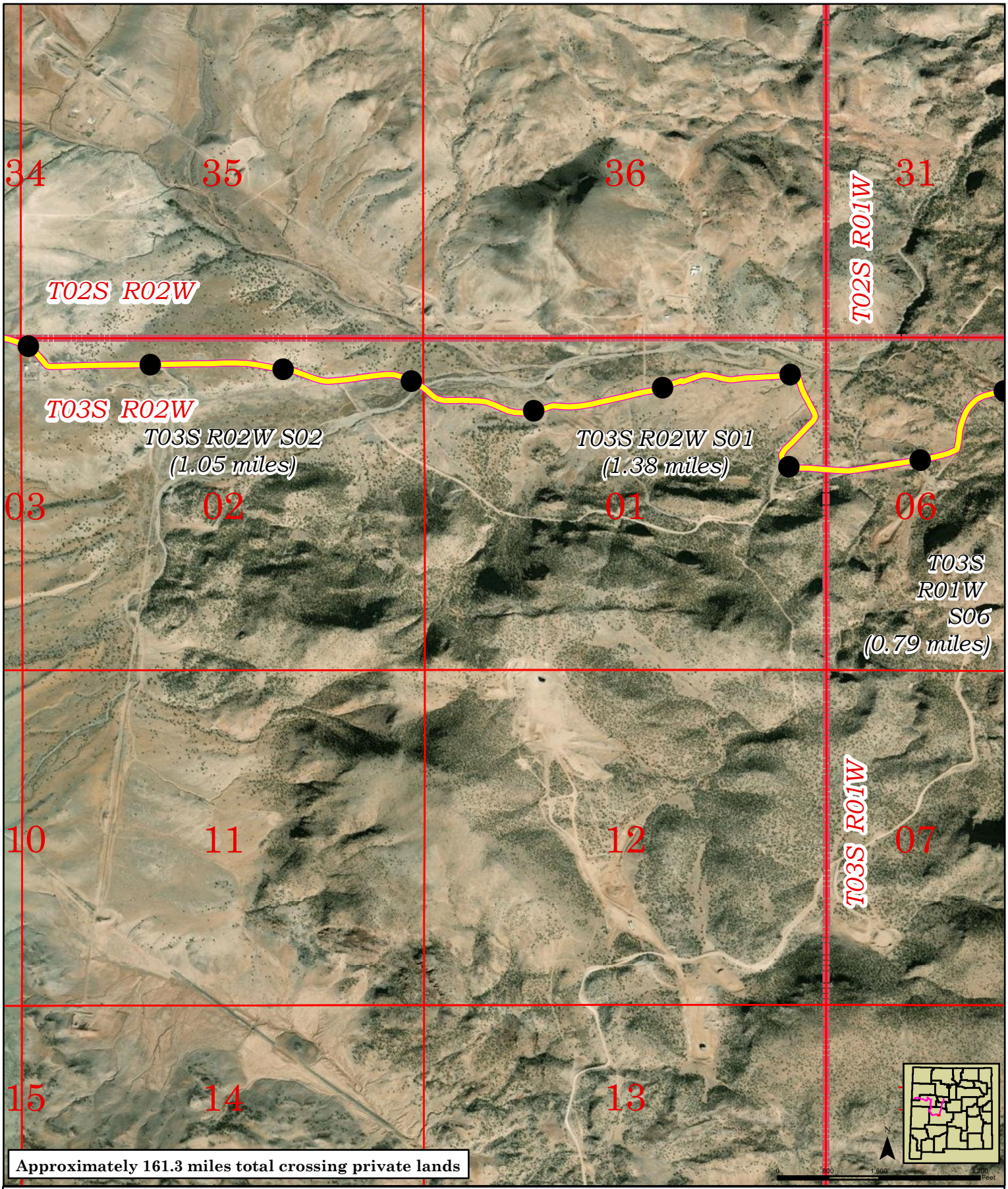

Pueblo Education Network (PEN) Fiber Optic Line

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Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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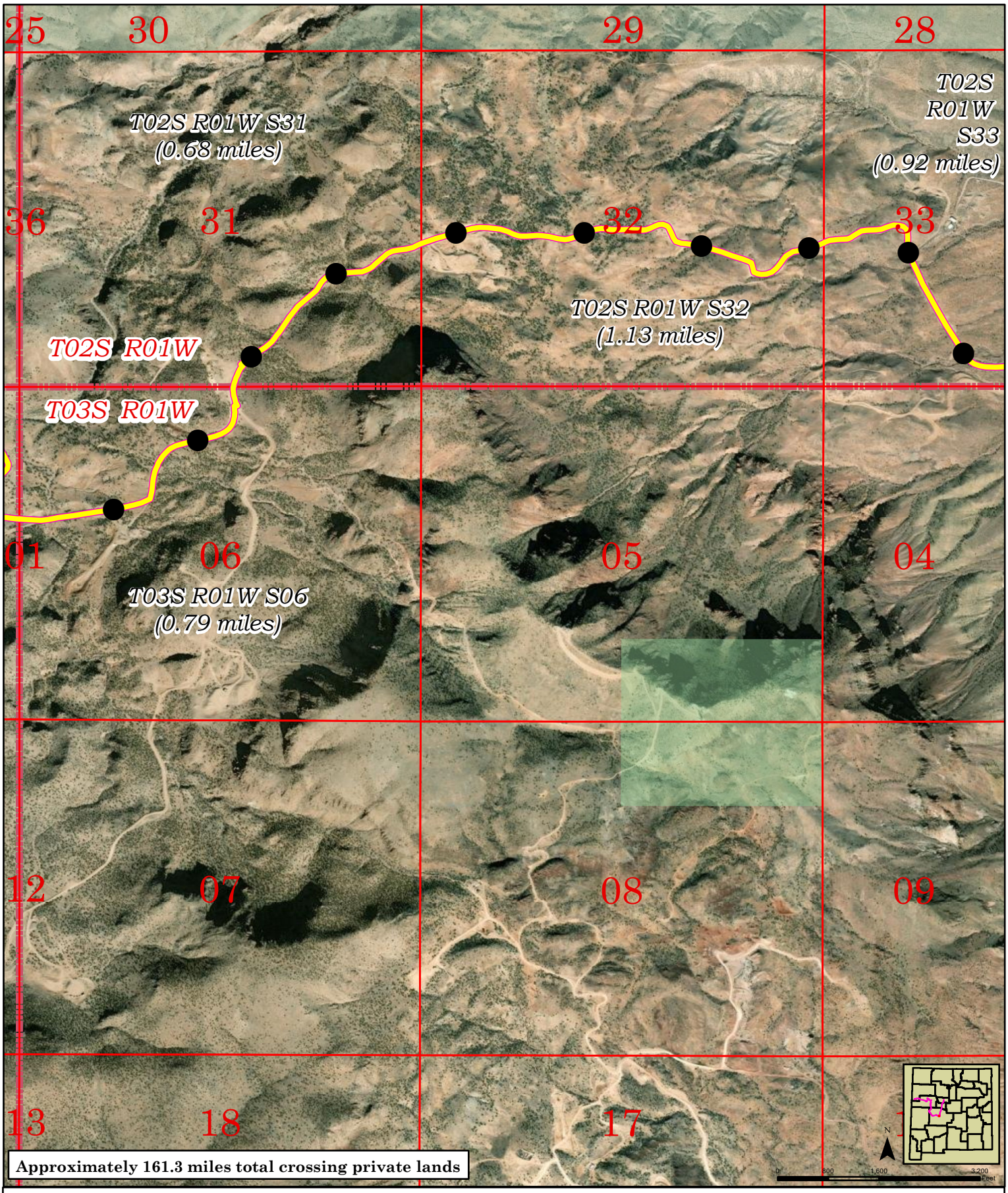
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 42 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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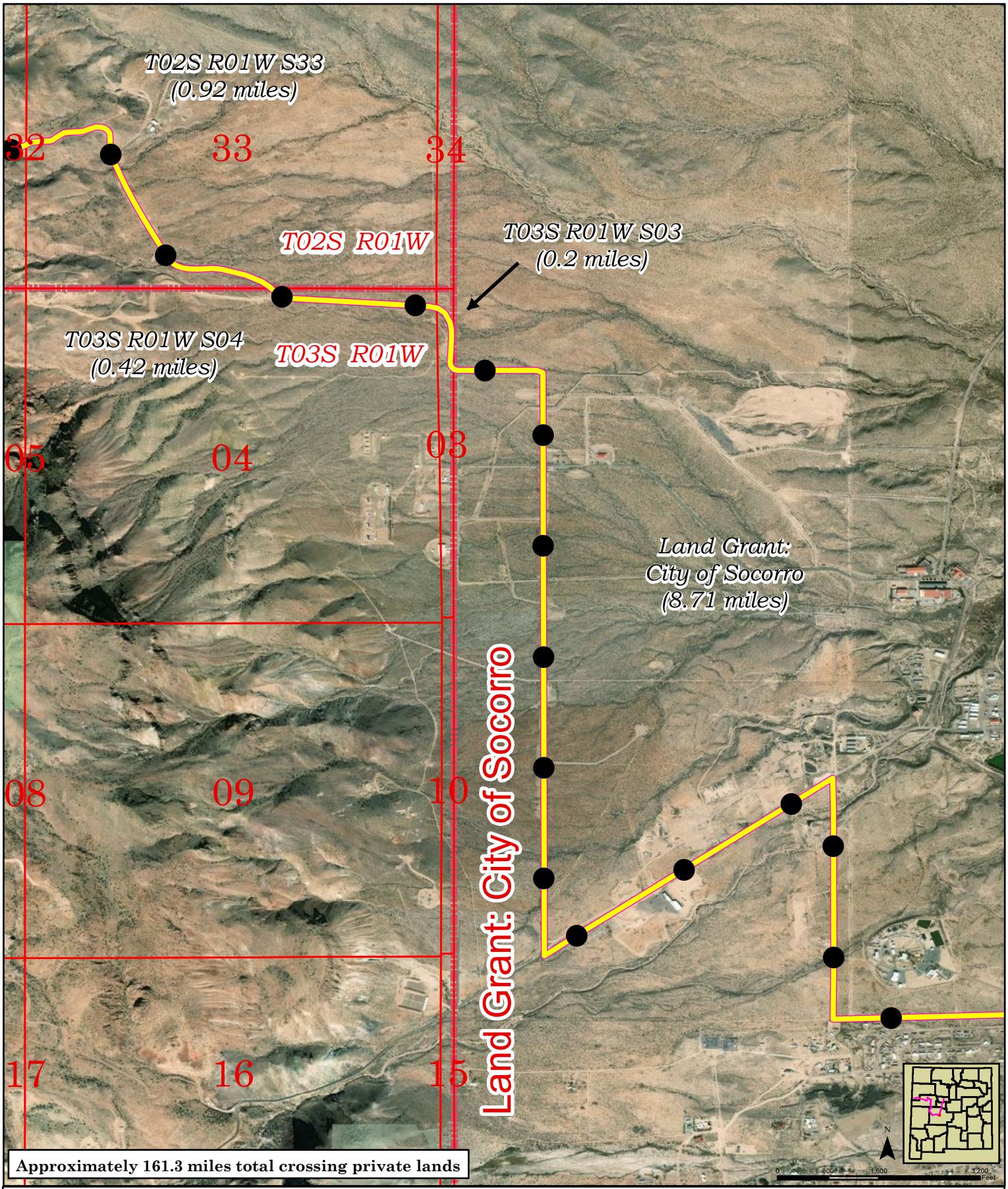
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 43 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 44 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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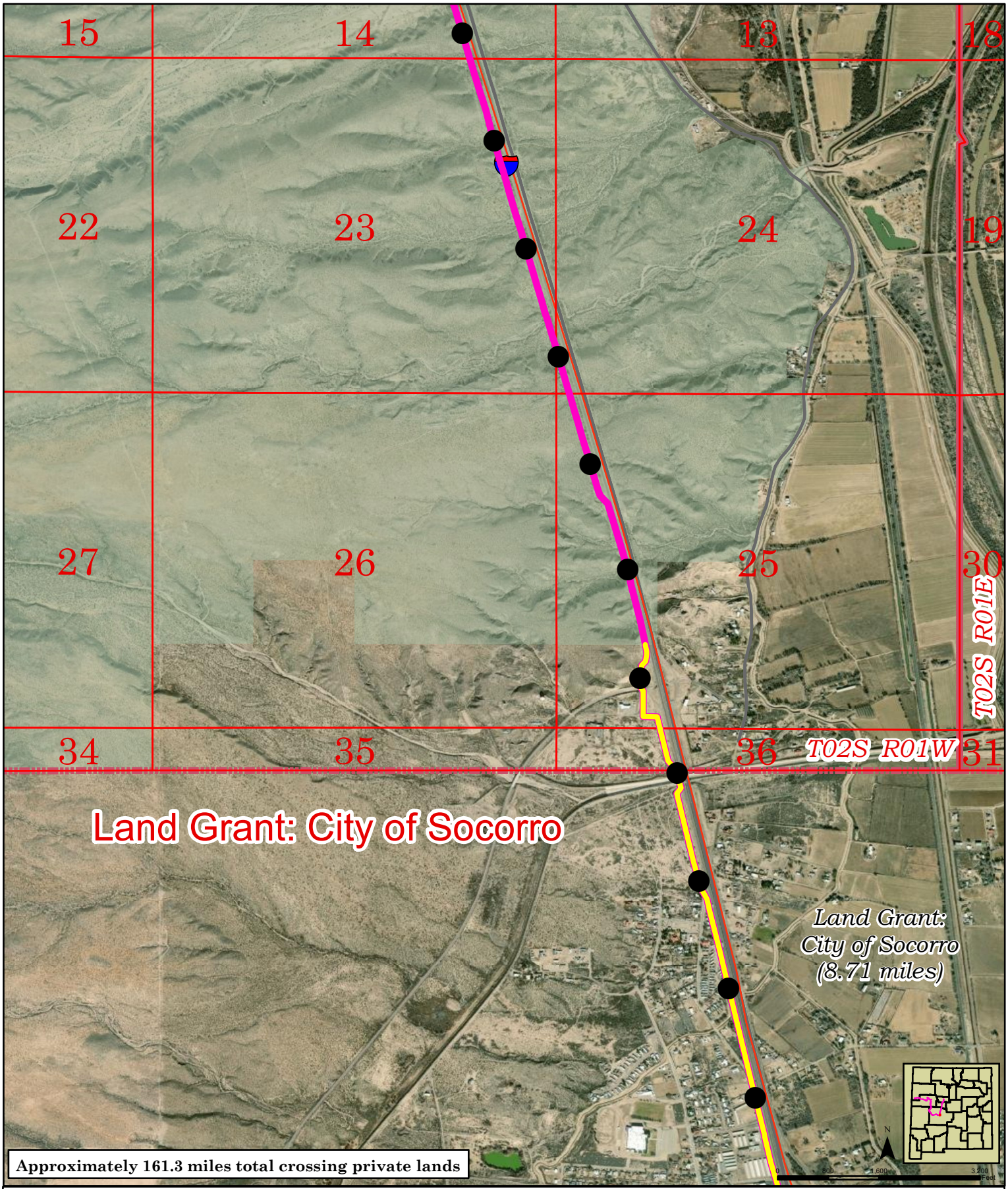
Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)

Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 45 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

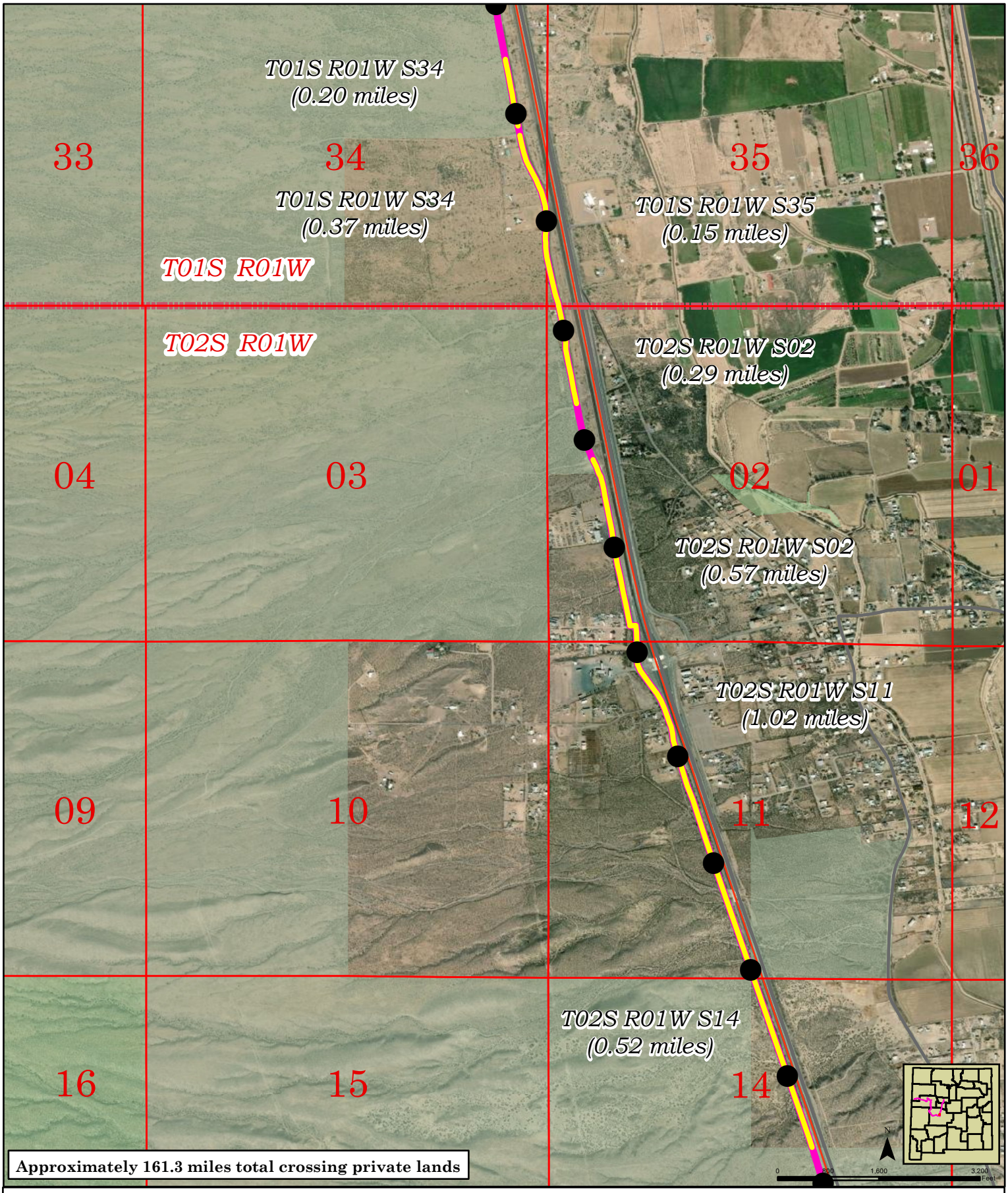
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 46 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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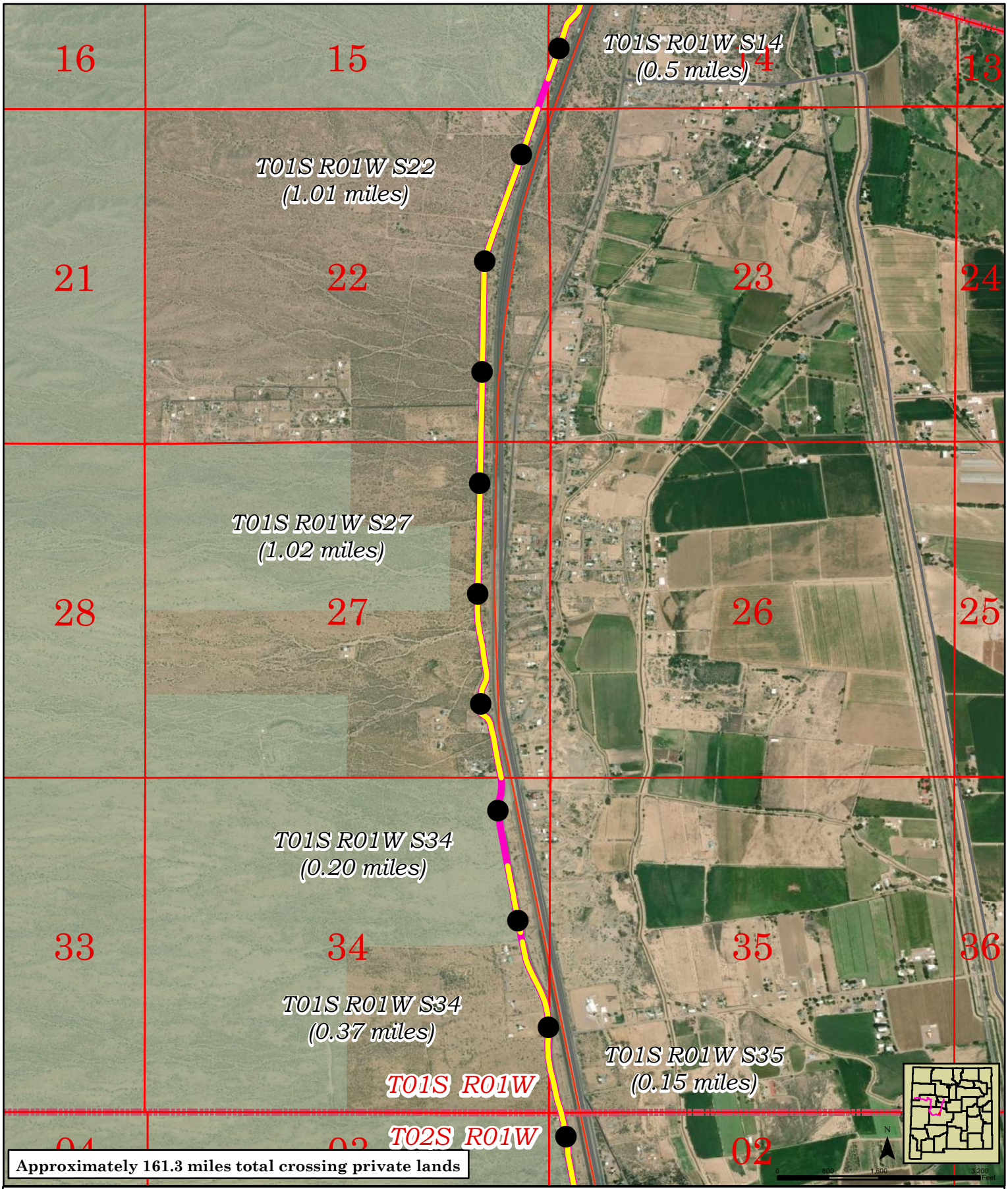
DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 47 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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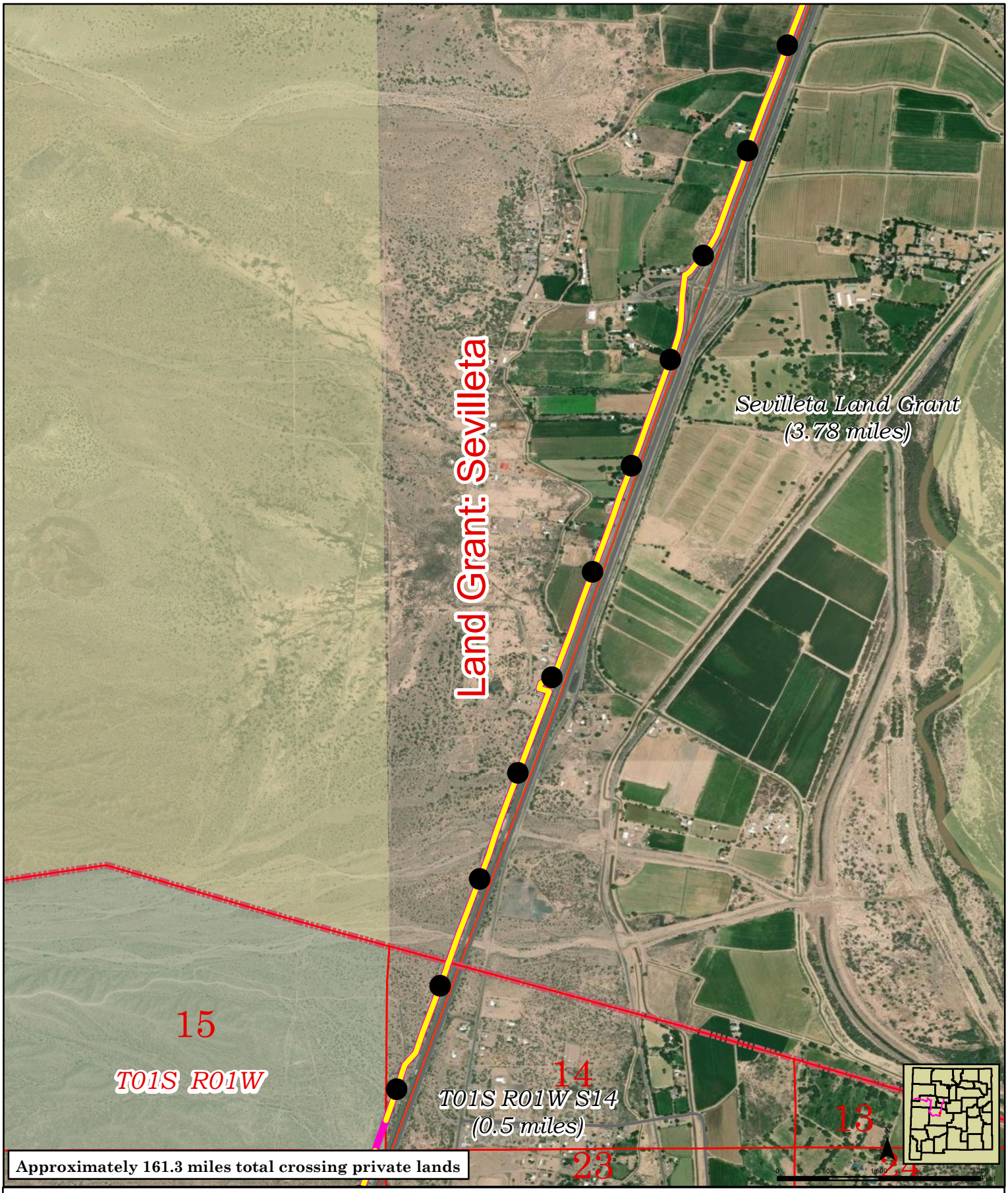
Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 48 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 49 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 50 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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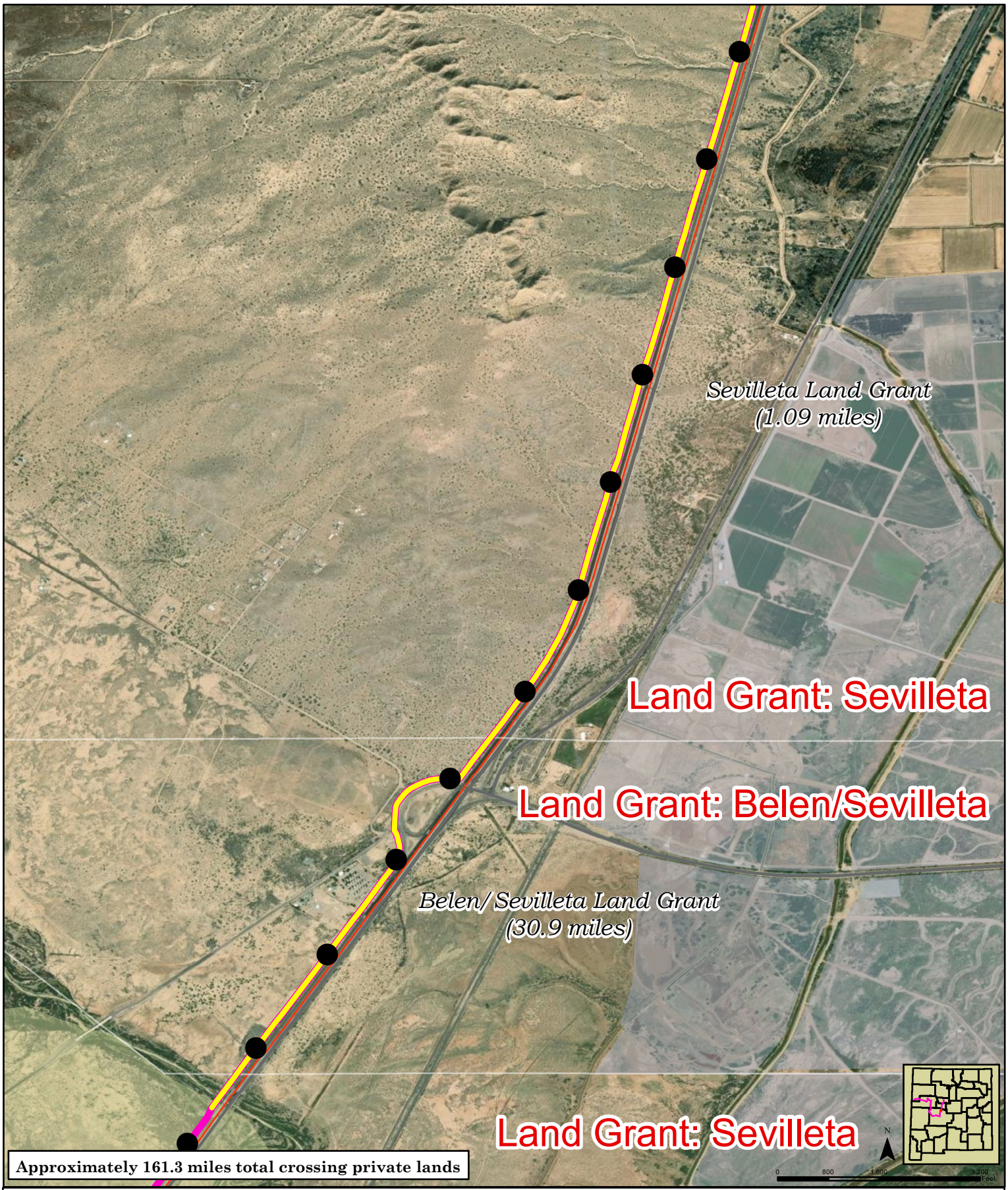
Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 51 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
LandGrantsOnly
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 52 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 53 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

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DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 54 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)

Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 55 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 56 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Department of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 57 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
LandGrantsOnly
Land Grant
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Department of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 58 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 59 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

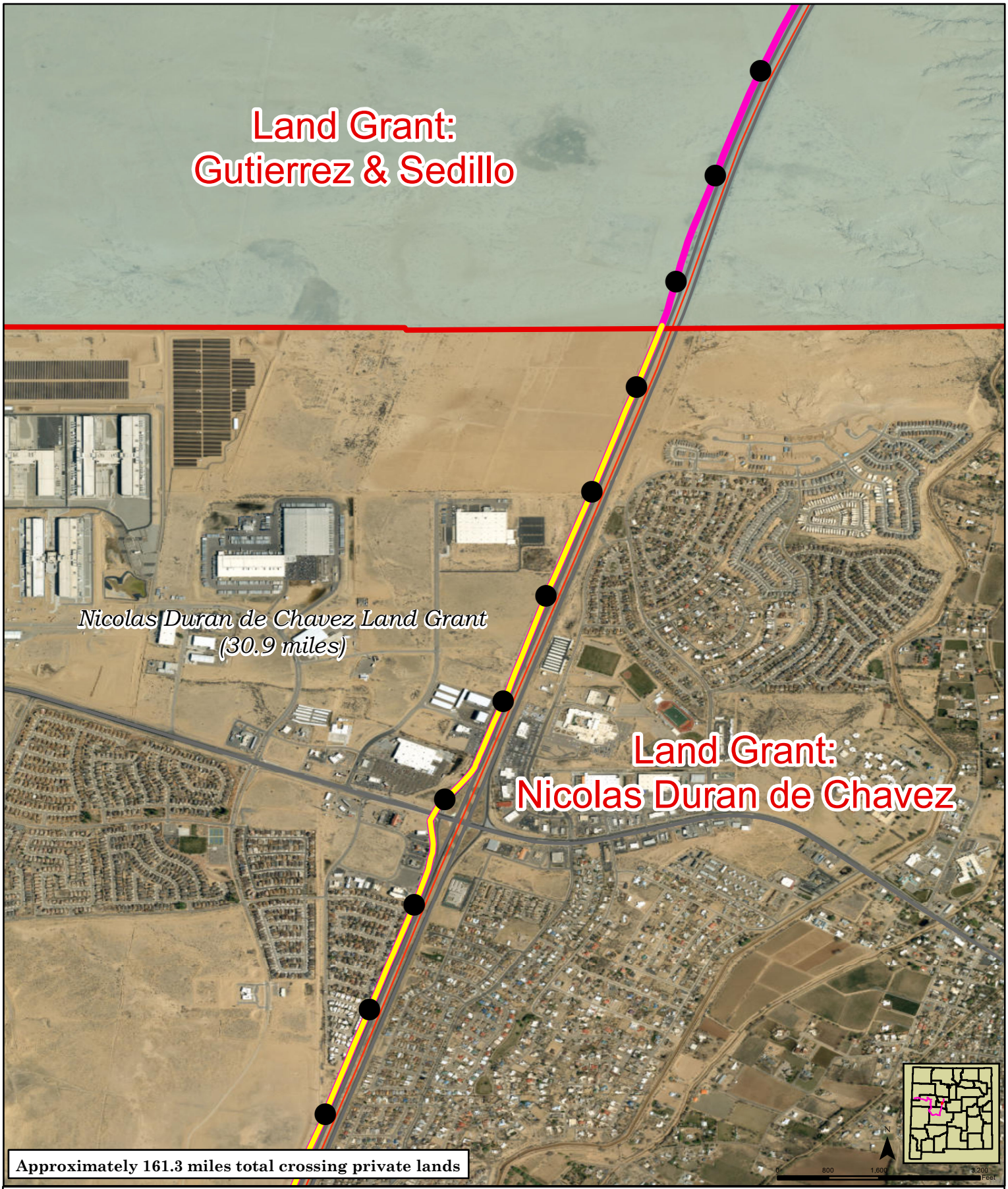
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclamation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 60 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

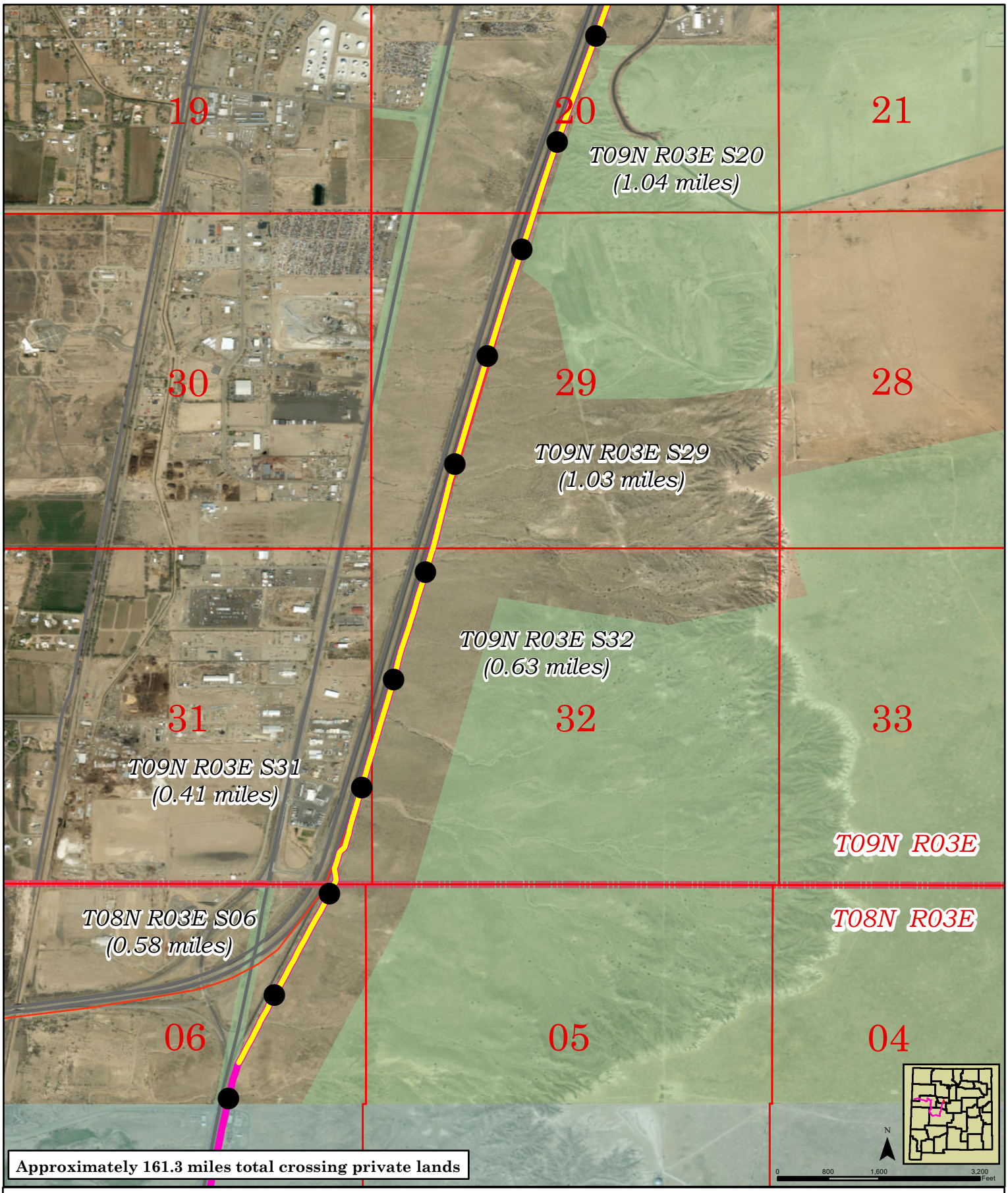
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 61 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

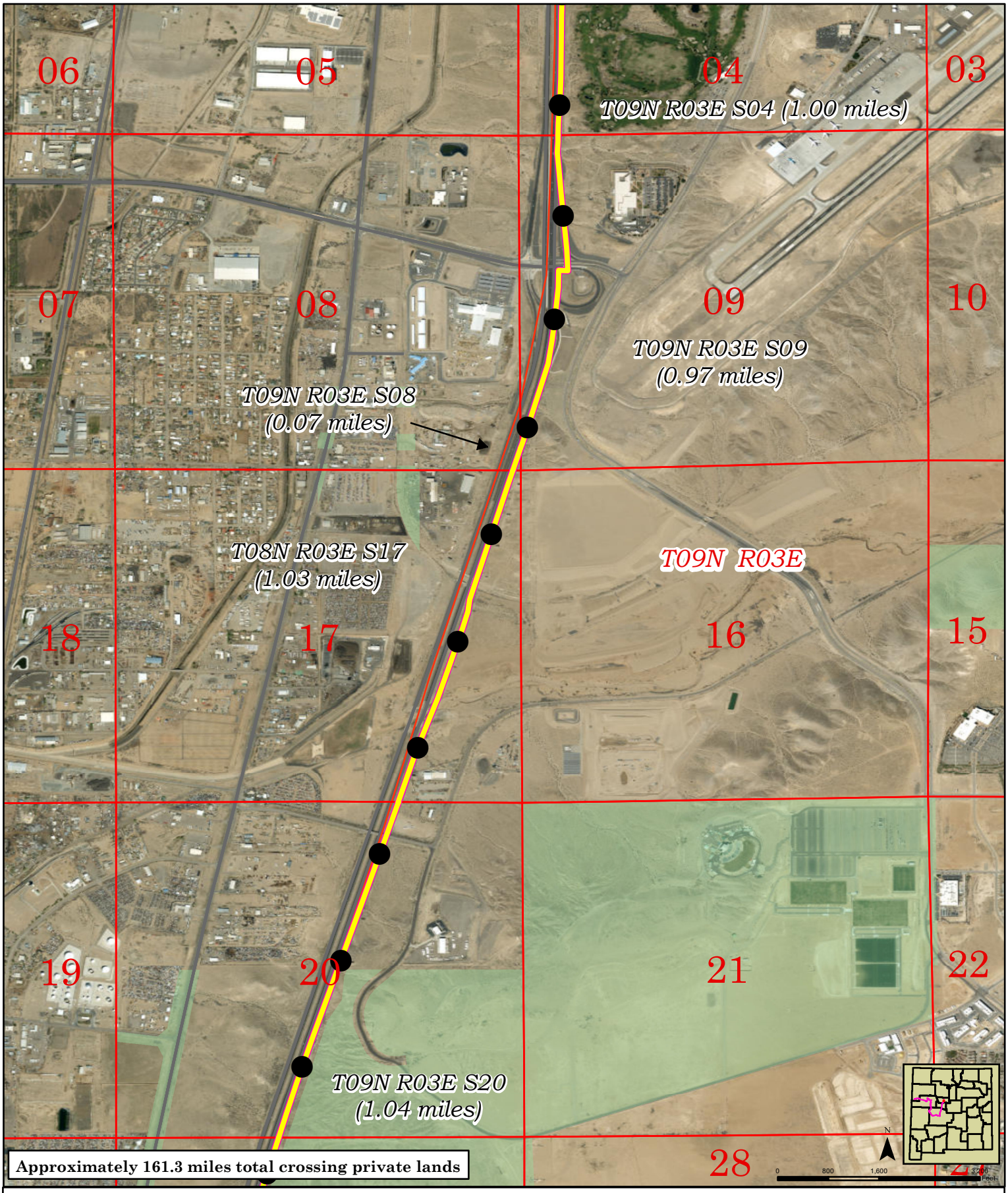
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 161.3 miles total crossing private lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 62 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

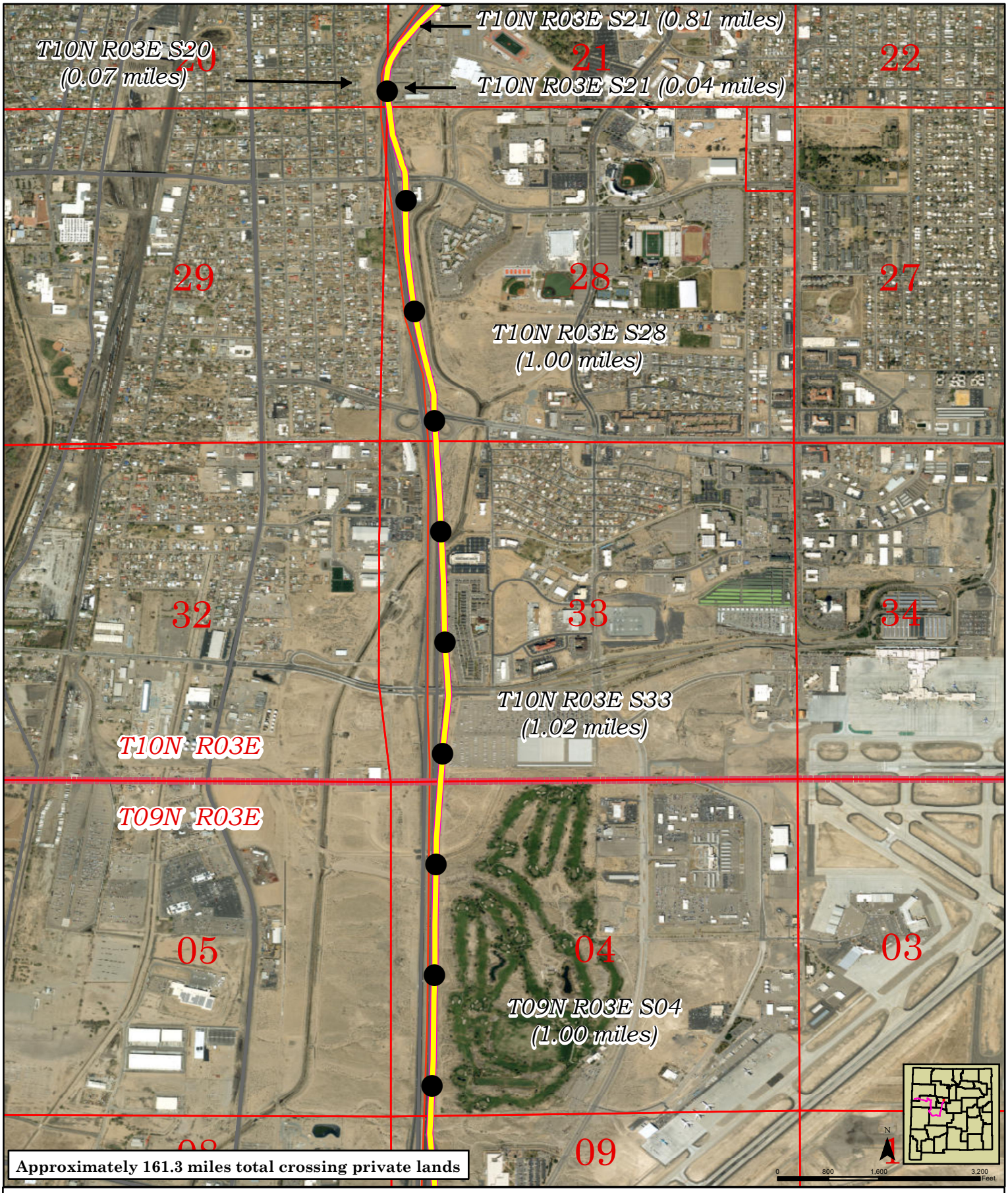
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 63 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

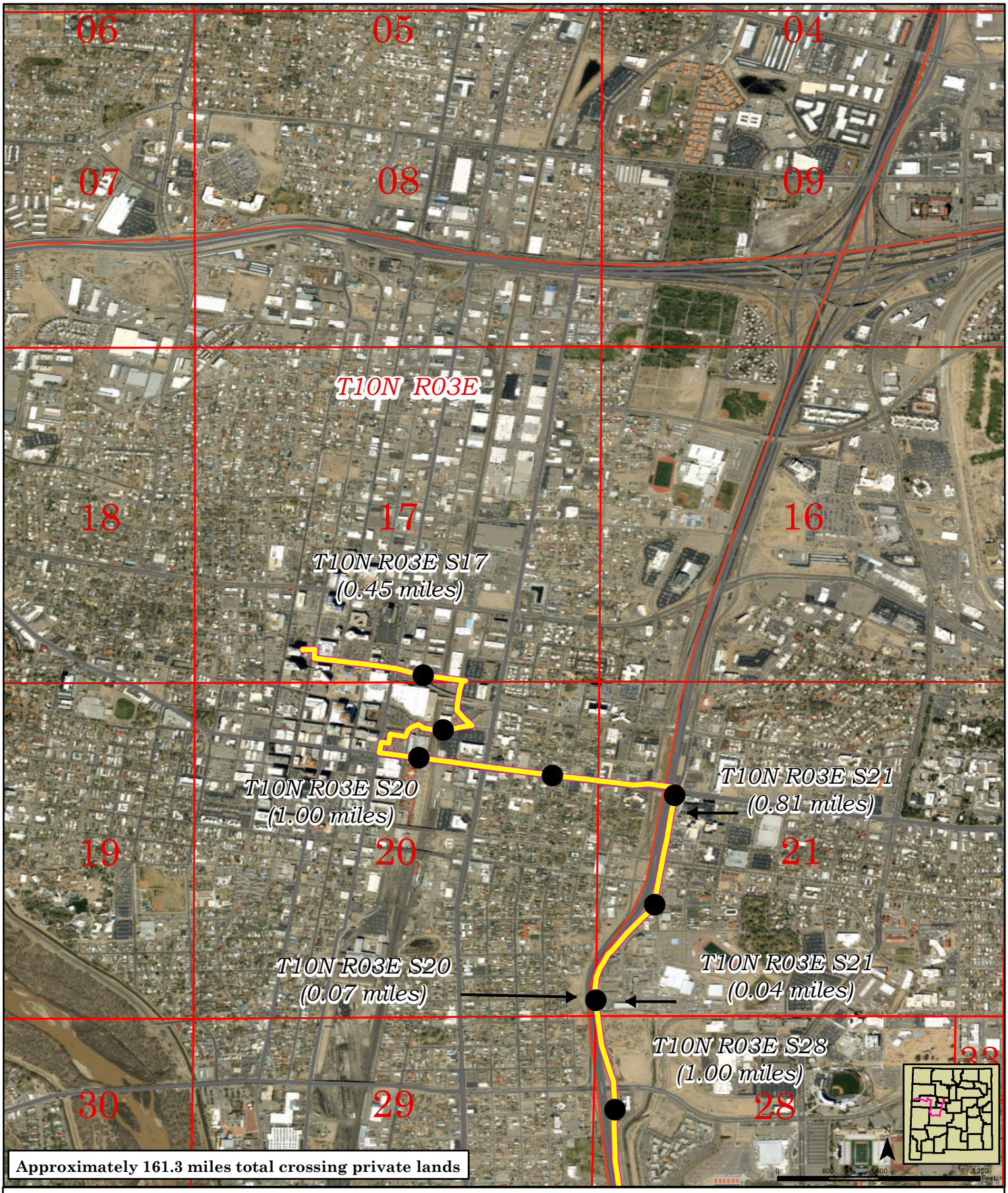
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range

Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the private lands. (map 64 of 64)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

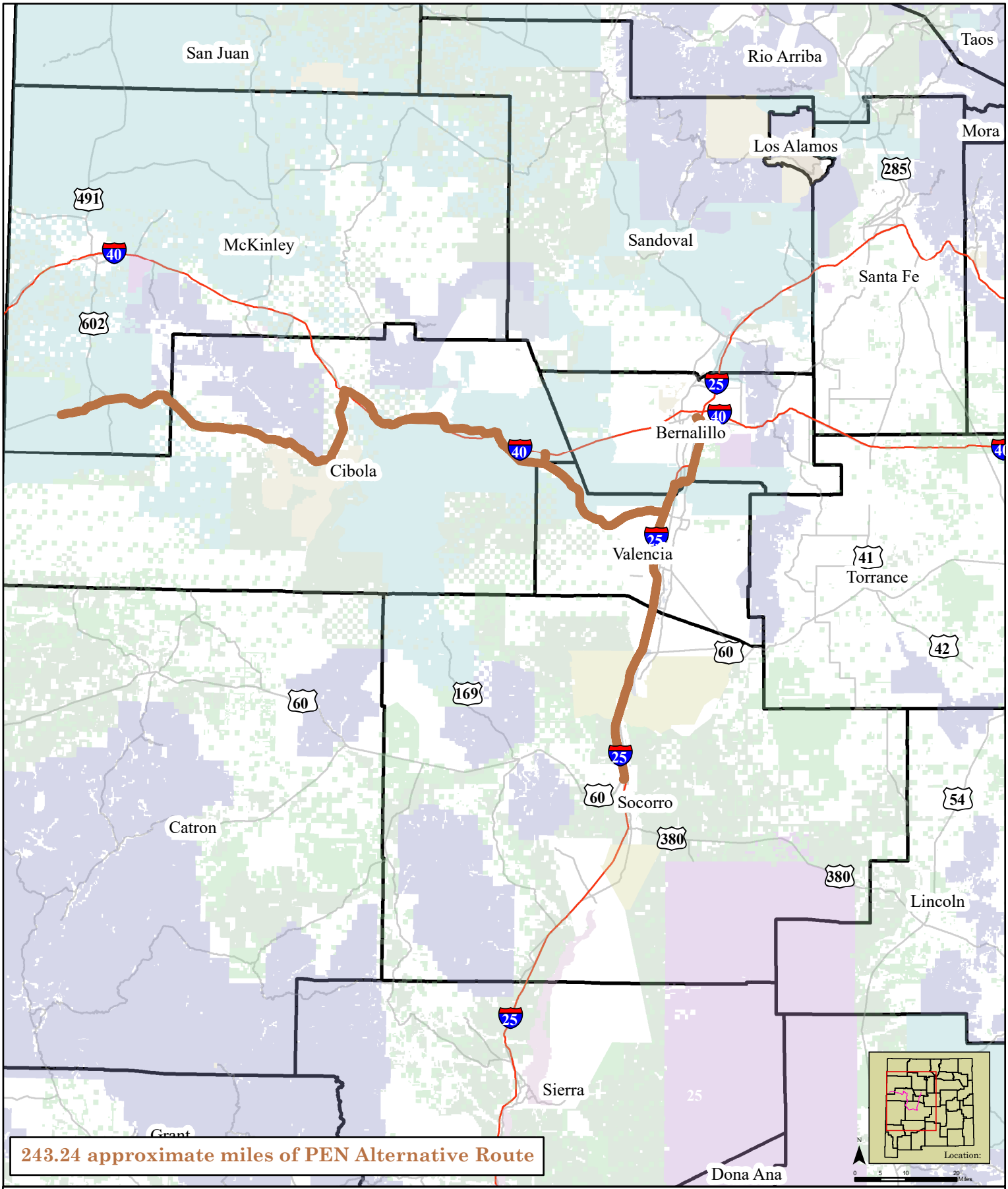
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

Handholes Updated 03/2025
PEN Shelter 8/8/2024
Through Private Land West SP
Through Private Land Central SP
SFIS PEN Fiber Line Updated 12/2024
Roads
Land Grant
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Private

DRAWN BY: GIS Specialist, HWM on 03/2025

[Appendix A-2: Alternative B – Alternative Considered]



Pueblo Education Network (PEN) Fiber Optic Line with Alternative Routes

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,574,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

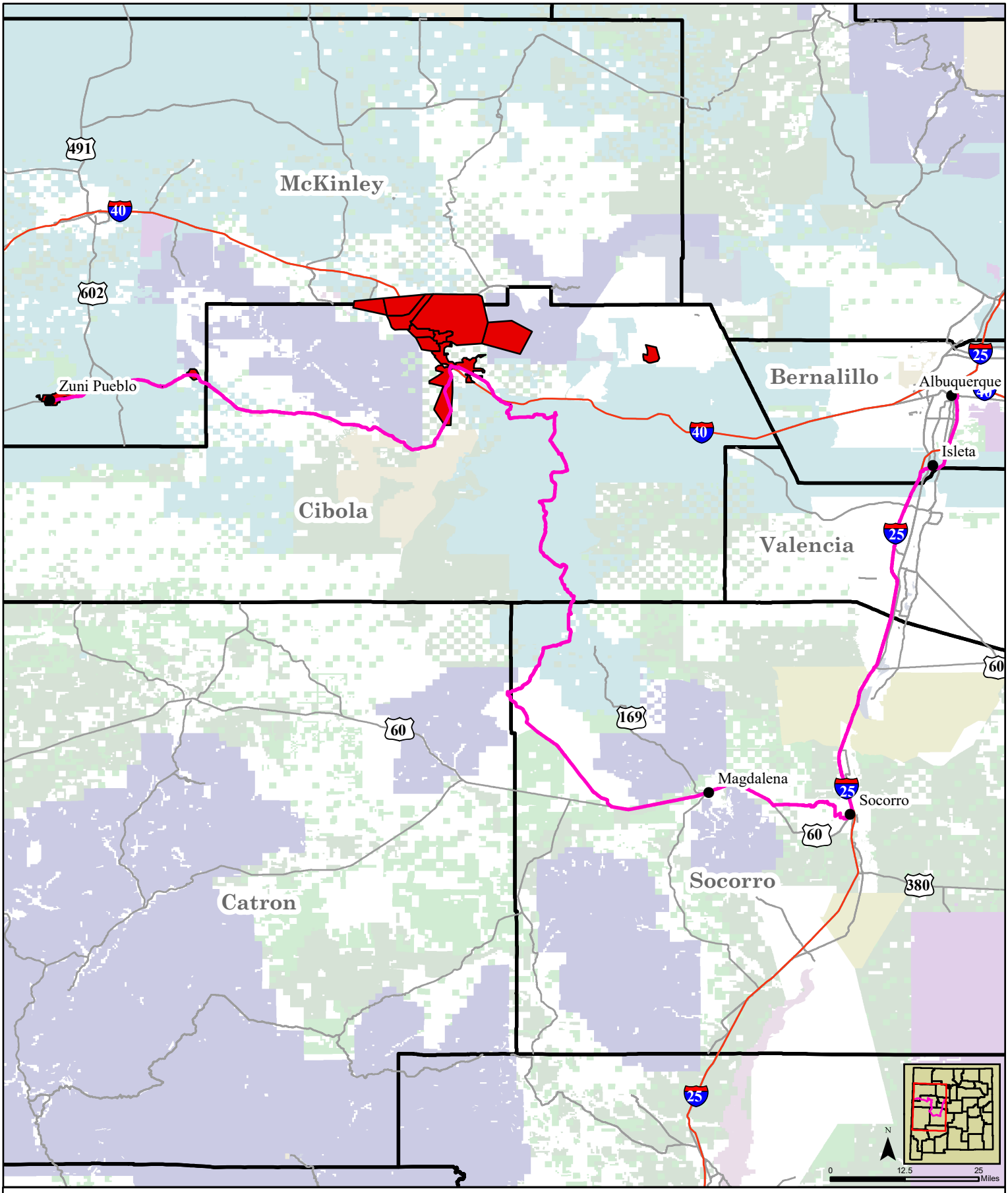
- Alternative Route
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\EA\GIS\Overall_2024_AlternativeRoute

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED: 6/2025

Appendix B

Other Service Provider and Service Area for Zuni, Ramah, and Grants



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line with Red Bolt broadband service areas.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

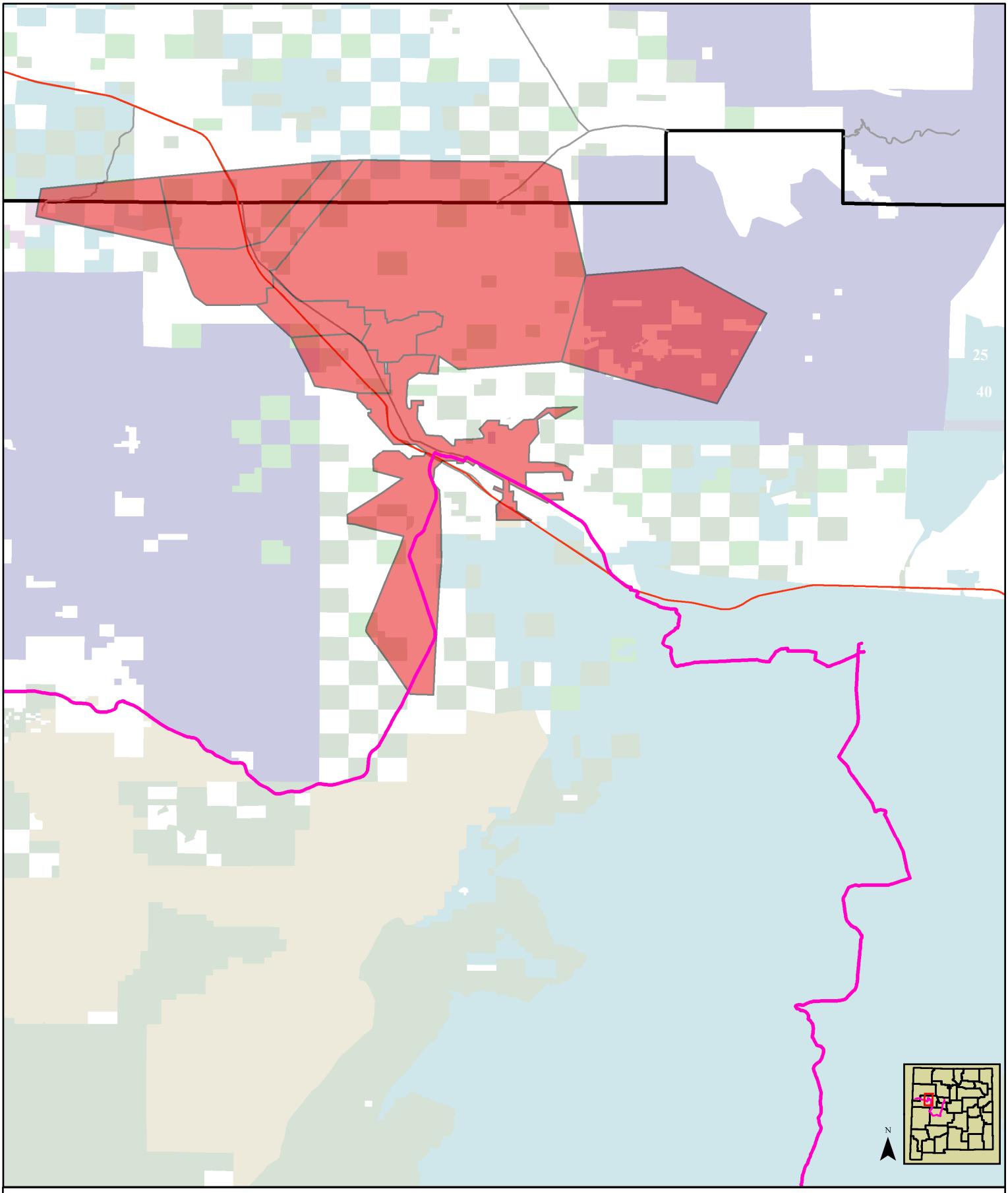
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Cities/Towns
- Interstate
- Roads
- PEN Fiber Optic Line UPDATED 2/9/2024
- Counties
- Red Bolt
- PEN Fiber Regeneration Sites
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line with Red Bolt broadband service area in Pueblo of Acoma and Grants area.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

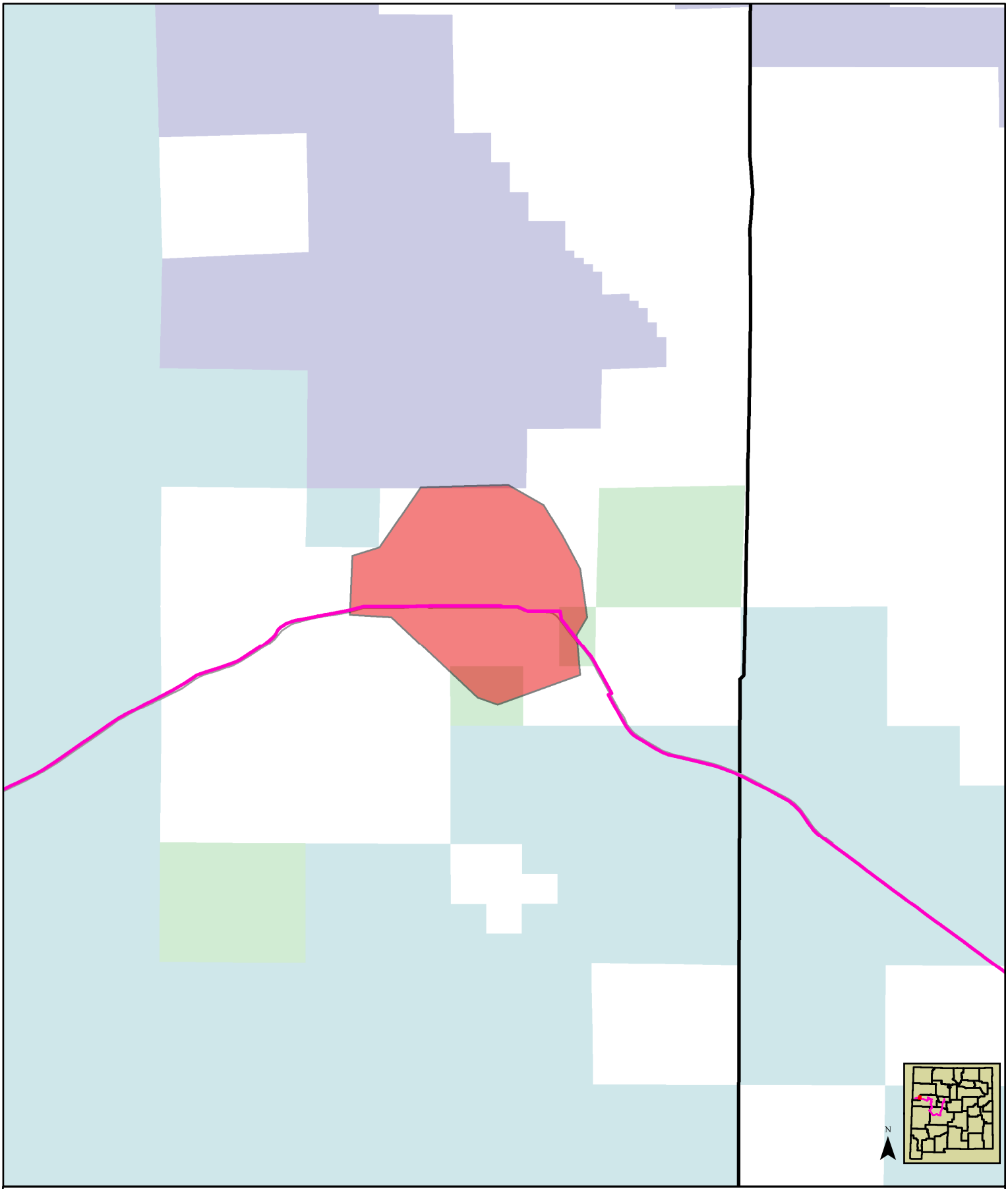
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:332,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Cities/Towns
- Interstate
- Roads
- PEN Fiber Optic Line UPDATED 2/9/2024
- Counties
- Red Bolt
- PEN Fiber Regeneration Sites
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Features\Red Bolt

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line with Red Bolt broadband service area in Ramah (Navajo Nation).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

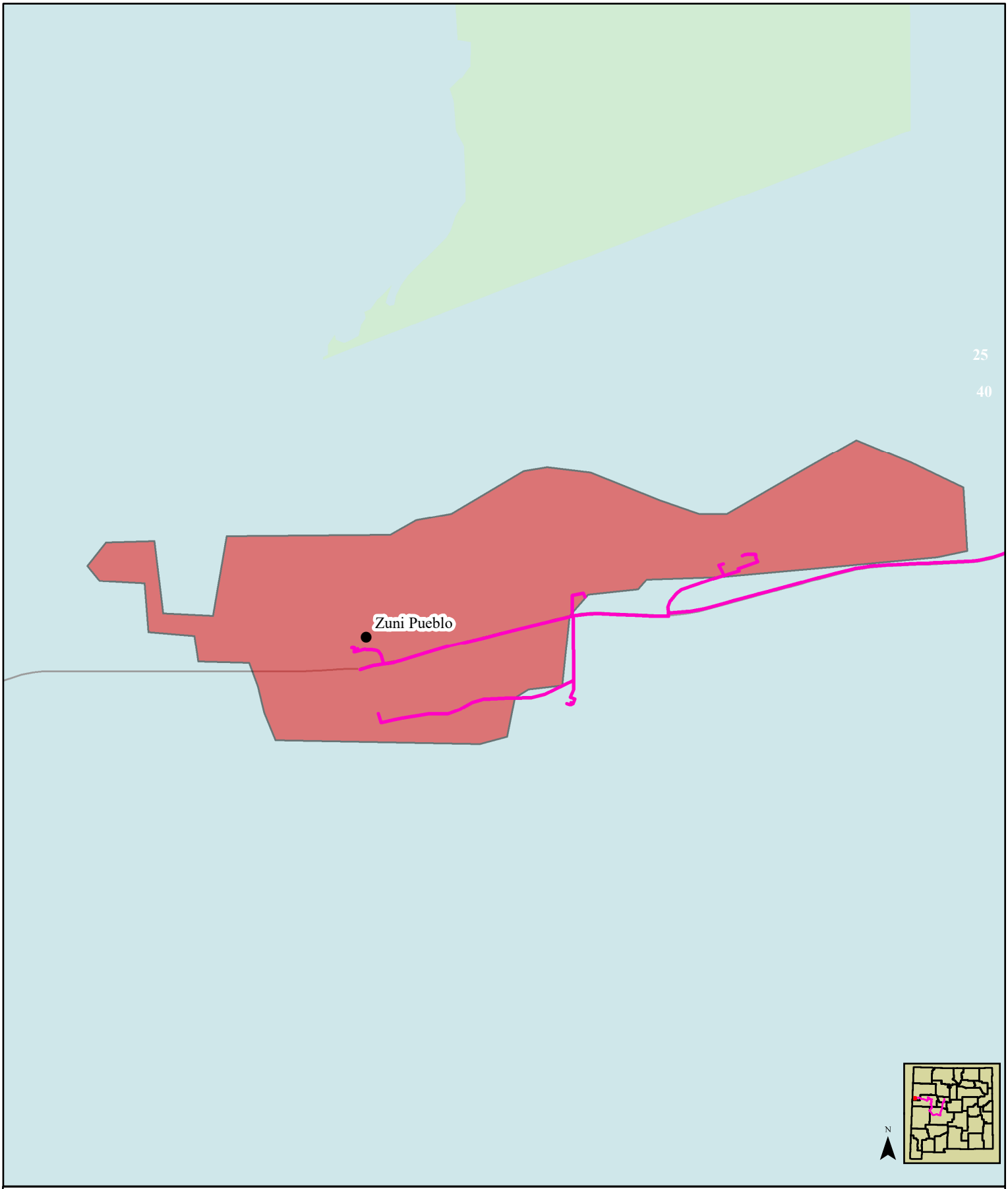
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:67,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Cities/Towns
- Interstate
- Roads
- PEN Fiber Optic Line UPDATED 2/9/2024
- Counties
- Red Bolt
- PEN Fiber Regeneration Sites
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Features\Red Bolt

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line with Red Bolt broadband service area in Pueblo of Zuni.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:67,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Cities/Towns
- Interstate
- UPDATED5_2024
- Roads
- Counties
- Red Bolt
- PEN Fiber Regeneration Sites
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Features\Red Bolt

DRAWN BY: GIS Specialist, HWM on 1/19/2024

Appendix C

Proposed Project Area via Public Land Survey System (PLSS)

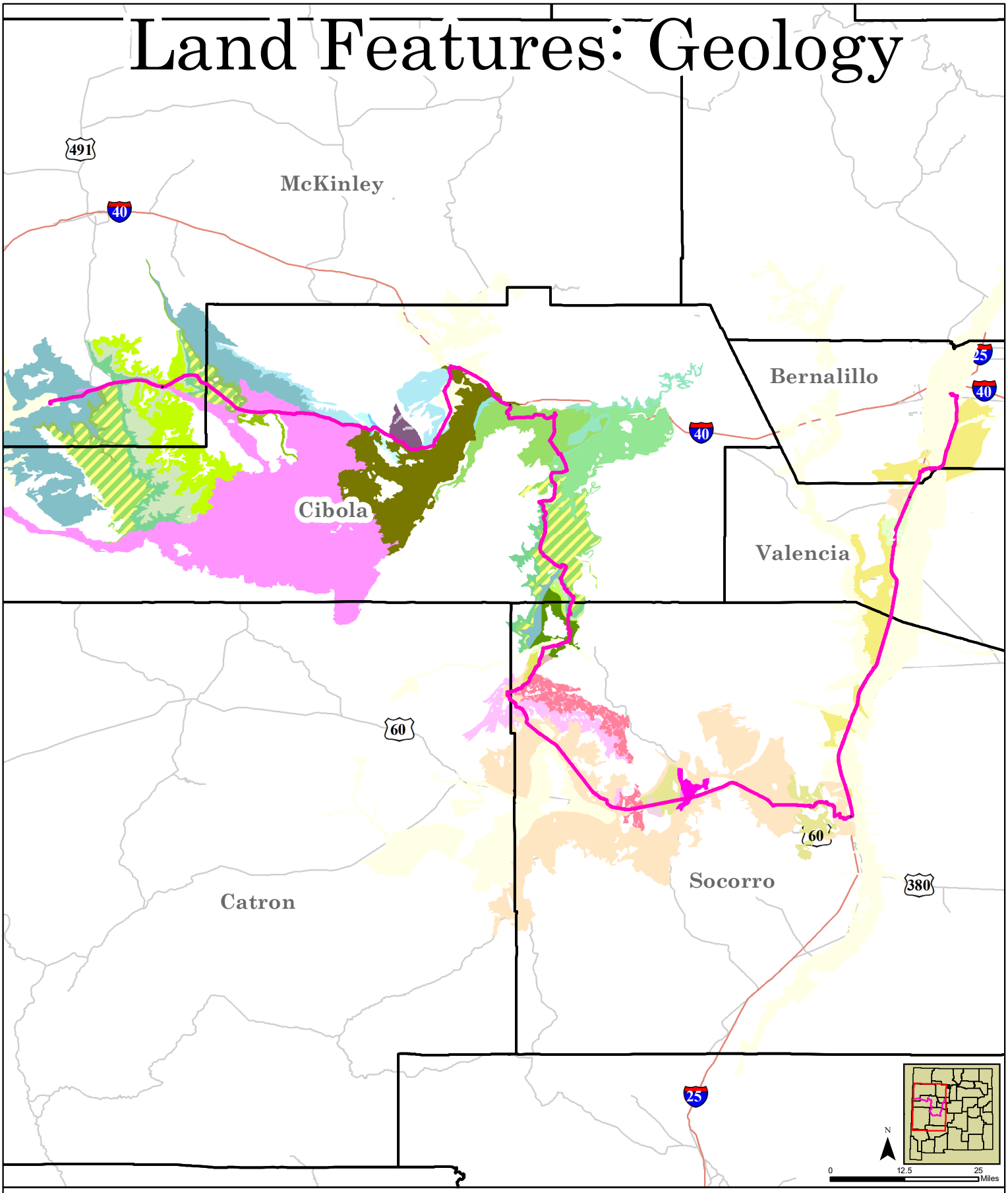
Township	Range	Section(s)
10 N	3 E	17, 20, 21, 28, 33
9 N	3 E	4, 9, 8, 17, 20, 29, 32, 31
8 N	3 E	6, 7, 18, 19
8 N	2 E	24, 23, 22, 27, 28, 33
-	-	Gutierrez/Sedillo Land Grant
-	-	San Clemente Land Grant
-	-	Belen Land Grant
-	-	Sevilleta Land Grant
1 S	1 W	14, 15, 22, 27, 34, 35
2 S	1 W	2, 11, 14, 23, 24, 25, 36, 33, 32, 31
-	-	Town of Socorro
3 S	1 W	3, 4, 6
3 S	2 W	1, 2, 3, 4, 5, 6
2 S	2 W	34, 33, 32, 31
2 S	3 W	36, 25, 26, 27, 22, 21, 16, 17, 18
2 S	4 W	13, 24, 23, 22, 27, 28, 29, 30, 31
2 S	5 W	36, 35, 34, 33, 32
3 S	5 W	5, 6
3 S	6 W	1, 2, 3, 4, 5
2 S	6 W	32, 31, 30
2 S	7 W	25, 24, 23, 14, 15, 10, 3, 4
1 S	7 W	33, 28, 29, 20, 19, 18, 7
1 S	8 W	12, 11, 2, 3
1 N	8 W	34, 33, 28, 21, 16, 17, 8, 7, 6
1 N	9 W	1
2 N	9 W	36
2 N	8 W	31, 30, 29, 20, 21, 16, 15, 10, 3
3 N	8 W	34, 35, 26, 23, 24
3 N	7 W	19, 18, 17, 16, 9, 4, 5
4 N	7 W	32, 33, 29, 28, 21, 16, 9, 3, 4, 5
5 N	7 W	34, 33, 32, 29, 20, 17, 8, 18, 7
5 N	8 W	12, 1, 2
6 N	8 W	35, 26, 23, 14, 13, 11, 12, 1, 2
7 N	8 W	35, 36, 25, 26, 23, 24, 13
7 N	7 W	18, 7, 6
8 N	8 W	36, 25
8 N	7 W	31, 30, 29, 28, 21, 20, 17, 8, 7, 6
9 N	7 W	31, 30, 19, 18, 7, 6
9 N	8 W	36, 25, 1, 12, 11, 2, 3, 10, 4, 5, 8, 7, 6
9 N	9 W	1
10 N	8 W	31, 30
10 N	9 W	36, 25, 26, 23, 22, 15, 10, 9, 4, 5
11 N	9 W	32, 31
11 N	10 W	36, 25, 26, 27, 34
10 N	10 W	3, 10, 15, 22, 27, 34
9 N	10 W	3, 10, 15, 16, 21, 28, 29, 32, 31
8 N	10 W	6
8 N	11 W	1, 2, 3
9 N	11 W	34, 33, 28, 29, 20, 19
9 N	12 W	24, 13, 23, 14, 15, 16, 17, 18, 7
9 N	13 W	12, 11, 2, 3, 4, 5, 6
9 N	14 W	1, 2, 3, 4, 5, 6
9 N	15 W	1
10 N	15 W	36, 35, 34, 27, 28, 21, 20, 17, 18, 7
10 N	16 W	12, 1, 2, 3, 4, 5, 8, 7
11 N	16 W	35, 34
10 N	17 W	12, 11, 10, 3, 4, 5, 8, 7
10 N	18 W	12, 11, 10, 15, 16, 17, 20, 19
10 N	19 W	24, 23, 26, 27, 28

Appendix D

Compiled Maps and Data of Resources within Proposed Project Area

[Appendix D-1: Geologic Features within the Proposed Project Area]

Land Features: Geology



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over land features.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,352,000

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PEN Fiber Regeneration Sites UPDATED 2_9_2024
PEN Fiber Optic Line UPDATED 2_9_2024
Roads
Geology
GeoID
J
Jm
Jsr
Jz
Jze
Kcc
Kd
Kgm
Kmd
Kmr
Kpg
Kth
Pa
Pg
Psa
Py
QTs
Qa
Qb
Qbo
Ql
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^c

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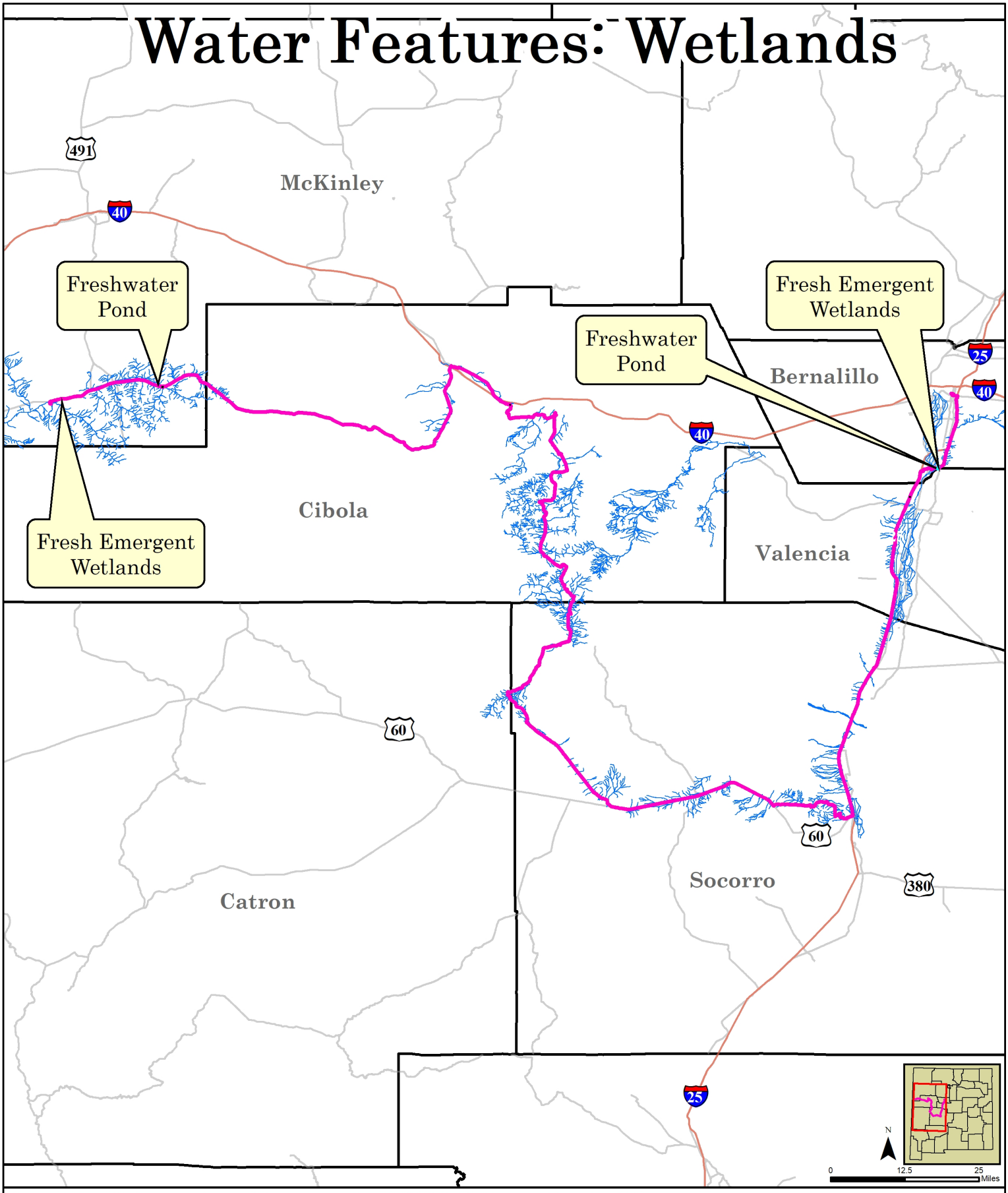
DRAWN BY: GIS Specialist, HWM on 3/25/2024

[Appendix D-2: USFWS NWI Wetlands within Proposed Project Area]

Wetland Type	Number of Intersections w/ Proposed Project Area	Wetland Category
PEM1A	1	Freshwater Emergent Wetland
PEM1B	1	Freshwater Emergent Wetland
PEM1C	1	Freshwater Emergent Wetland
PEM1/SS1Ah	1	Freshwater Emergent Wetland
PUBF	1	Freshwater Pond
PUBHh	1	Freshwater Pond
R2UBFx	1	Riverine
R2UBHx	1	Riverine
R3UB2G	1	Riverine
R3UB3H	1	Riverine
R4SB3Ax	1	Riverine
R4SB3Cx	2	Riverine
R4SB3J	93	Riverine
R4SB3Jx	29	Riverine
R4SB4C	1	Riverine
R4SB4J	7	Riverine
R4SB7J	9	Riverine
R4SB7Jx	5	Riverine
R4SBC	43	Riverine
R4SBJ	92	Riverine
R5UBFx	1	Riverine
Source: USFWS National Wetlands Inventory		

Water Features: Wetlands



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over water features.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,352,000

- PEN Fiber Regeneration Sites UPDATED 2_9_2024
- PEN Fiber Optic Line UPDATED 2_9_2024

Roads

Wetland Types

Freshwater Emergent Wetland

Freshwater Pond

Riverine

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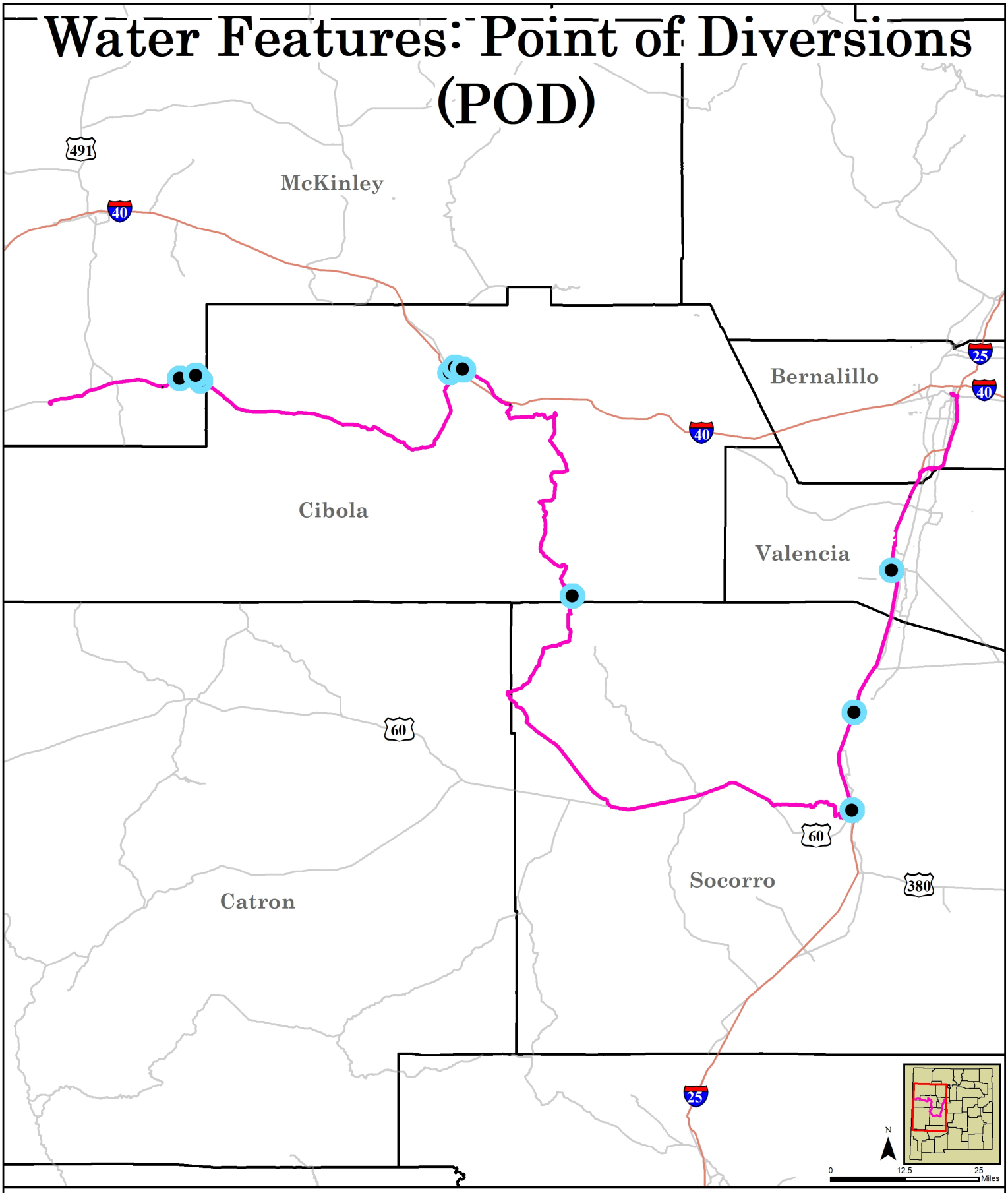
DRAWN BY: GIS Specialist, HWM on 3/25/2024

[Appendix D-3: NM OSE POD Locations within Proposed Project Area]

POD Name	Well Depth (ft)	Approx. Location (NAD83UTM (meters))		POD Use
		X	Y	
RG-A1575-POD 15	40	345898.4	3863925.8	Construction De-watering
RG-A1575-POD 7	45	345852.7	3863925.6	Construction De-watering
RG-00537 S-2	-	335360.5	3836465.8	Domestic, Industrial, Commercial
RG-95859 POD 2	20	325252.9	3771815.7	Monitoring
RG-95515 POD 6	15	325265	3771726.5	Monitoring
RG-40678 POD 1	225	263736.4	3831116.5	Livestock
B-01885 POD 4	20	241112.1	3892999	Monitoring
B-01714 POD5	15	240927.1	3893122.6	Monitoring
B-01714 POD 2	13	240881.7	3893152.4	Monitoring
B-00074	40	239721	3893522	Municipal
B-01728 POD 61	59	239254	3893746	Exploration
G-02380	650	182510.2	3891806.1	Livestock
G-03017-POD 10	50	181611.9	3893366	Monitoring
G-03017-POD 4	50	181584.4	3893368.2	Monitoring
G-03017-POD 14	41	181575.2	3893365.8	Monitoring
G-03017-POD 17	42	181572.1	3893366	Monitoring
G-03017-POD 16	50	181569.5	3893368.4	Monitoring
G-03017-POD 5	50	181560.7	3893366.9	Monitoring
G-03017-POD 3	40	181542.4	3893365.7	Monitoring
G-03017-POD 11	50	181527.9	3893362.8	Monitoring
G-03017-POD 1	38	181497.1	3893366.9	Monitoring
G-01573	225	177891	3892668	Domestic
Source: NM Office of the State Engineer – Point of Diversion (2024)				

G=Gallup Basin; B=Bluewater Basin; RG=Rio Grande Basin

Water Features: Point of Diversions (POD)



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over water features.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,352,000

PODs

PEN Fiber Regeneration Sites UPDATED 2_9_2024

PEN Fiber Optic Line UPDATED 2_9_2024

Roads

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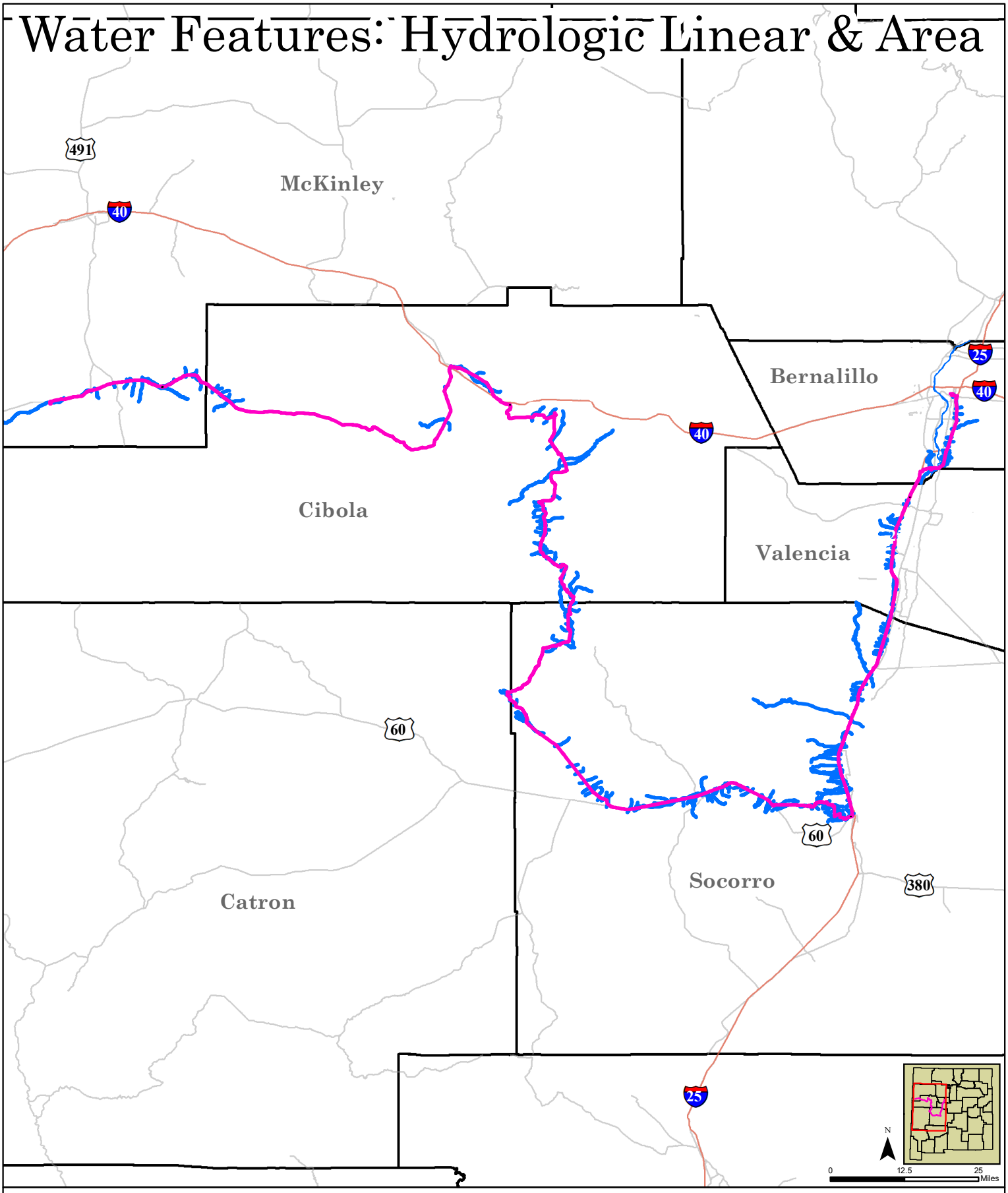
DRAWN BY: GIS Specialist, HWM on 3/25/2024

[Appendix D-4: 100-Year Floodplains within Proposed Project Area]

Water Features: Hydrologic Linear & Area



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over water features.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,352,000

- PEN Fiber Regeneration Sites UPDATED 2_9_2024
- PEN Fiber Optic Line UPDATED 2_9_2024
- Valencia_Area
- Bernalillo_Area
- Roads

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DRAWN BY: GIS Specialist, HWM on 3/25/2024

[Appendix D-5: Email From USACE Regarding Section 404 Requirements for the SFIS PEN NTIA Grant]

Subject: Sections 404 & 408 Actions for the SFIS PEN Project on Permitting Dashboard
Date: Friday, May 9, 2025 at 8:11:25 AM Mountain Daylight Time
From: Fitzpatrick, Joshua
To: Crosson, Steven B (Brad) CIV USARMY CESPA (USA), Phoebe Suina, Michael K Manuelito, Teran Villa, Christel White, Luna, Forrest D CIV USARMY CESPA (USA), McMahan, Joseph A CIV USARMY HQ (USA), Craig Litteken, Rutyna, Theron, Nunez, Juan
CC: Kubinec, Sarrah C CIV USARMY CESPA (USA), Schroeder, Christina L CIV USARMY CESPA (USA)
Attachments: image004.png, image005.png, image006.png, image007.png

External (jfitzpatrick@ntia.gov)

Report This Email

Hi Craig:

I have cancelled the section 404/10 action on the permitting dashboard fort the FAST-41 SFIS PEN project due to avoidance of WOUS features across the entire project reach.

I have also added the Section 408 action to the permitting dashboard for the SFIS PEN project. Agreed upon milestone dates between SFIS and USACE in a 4/30/25 meeting are below and reflected on the permitting dashboard:

Section 408 Permit

MILESTONE	N/A	ORIGINAL TARGET DATE	CURRENT TARGET DATE	REASON FOR DATE CHANGE	MILESTONE COMPLETE?
Initial application submitted (Applicant Action)		mm/dd/yyyy	07/15/2025	– None –	
Completeness Determination (Agency Action)	☑	mm/dd/yyyy	mm/dd/yyyy	– None –	
Complete application submitted (Applicant Action)		mm/dd/yyyy	10/15/2025	– None –	
Issuance of Decision (Agency Action)		mm/dd/yyyy	01/15/2026	– None –	

Both of these actions are in “needs review” status for you to push forward.

Please let me know if you need anything else.

Thank you,

Josh Fitzpatrick
Environmental Program Officer
Office of Internet Connectivity and Growth

(202) 834-3123
jfitzpatrick@ntia.gov
1401 Constitution Ave., NW
Washington, DC 20230

National Telecommunications and Information Administration

From: Crosson, Steven B (Brad) CIV USARMY CESPA (USA) <Steven.B.Crosson@usace.army.mil>
Sent: Thursday, May 8, 2025 1:58 PM
To: Fitzpatrick, Joshua <jfitzpatrick@ntia.gov>; Phoebe Suina <PhoebeSuina@high-watermark.com>; Michael K Manuelito <mkmanuelito@sfis.k12.nm.us>; Teran Villa <teranvilla@high-watermark.com>; Christel White <ChristelWhite@high-watermark.com>; Luna, Forrest D CIV USARMY CESPA (USA) <Forrest.Luna@usace.army.mil>; McMahan, Joseph A CIV

USARMY HQ (USA) <Joseph.A.Mcmahan@usace.army.mil>; Craig Litteken <craig.litteken@permitting.gov>; Rutyna, Theron <trutyna@ntia.gov>
Cc: Kubinec, Sarrah C CIV USARMY CESPA (USA) <Sarrah.C.Kubinec@usace.army.mil>; Schroeder, Christina L CIV USARMY CESPA (USA) <Christina.L.Schroeder@usace.army.mil>
Subject: RE: Section 404 Requirements for the SFIS PEN NTIA Grant

Yes. If the applicant is certain they are avoiding all impacts to WOTUS, then cancelling the 404 action from the dashboard seems appropriate to me.

S. Brad Crosson
Chief, Northwest Colorado Branch
Acting Chief, Southern Colorado Branch
Section 408 Coordinator
Albuquerque District, Regulatory Division
US Army Corps of Engineers

☎ Office: 970-243-1199 ext 1016
Cell: 970-837-6530
steven.b.crosson@usace.army.mil

From: Fitzpatrick, Joshua <jfitzpatrick@ntia.gov>
Sent: Thursday, May 8, 2025 12:49 PM
To: Phoebe Suina <PhoebeSuina@high-watermark.com>; Michael K Manuelito <mkmanuelito@sfis.k12.nm.us>; Teran Villa <teranvilla@high-watermark.com>; Christel White <ChristelWhite@high-watermark.com>; Crosson, Steven B (Brad) CIV USARMY CESPA (USA) <Steven.B.Crosson@usace.army.mil>; Luna, Forrest D CIV USARMY CESPA (USA) <Forrest.Luna@usace.army.mil>; McMahan, Joseph A CIV USARMY HQ (USA) <Joseph.A.Mcmahan@usace.army.mil>; Craig Litteken <craig.litteken@permitting.gov>; Rutyna, Theron <trutyna@ntia.gov>
Subject: [Non-DoD Source] RE: Section 404 Requirements for the SFIS PEN NTIA Grant

Hi Brad:

Per below, through further project design it was determined that the FAST-41 covered Santa Fe Indian School Pueblo Education Network project no longer require a Section 404/10 authorization from USACE due to avoidance measures. Do you want me to cancel that action from the permitting dashboard? I will be placing the Section 408 dates on the permitting dashboard soon that we had discussed the other day.

Please let me know your thoughts.

Thank you,

National Telecommunications and Information Administration

Josh Fitzpatrick
Environmental Program Officer
Office of Internet Connectivity and Growth

(202) 834-3123
jfitzpatrick@ntia.gov
1401 Constitution Ave., NW
Washington, DC 20230

From: Phoebe Suina <PhoebeSuina@high-watermark.com>
Sent: Thursday, May 8, 2025 12:11 PM
To: Michael K Manuelito <mkmanuelito@sfis.k12.nm.us>; Teran Villa <teranvilla@high-watermark.com>; Christel White <ChristelWhite@high-watermark.com>; Fitzpatrick, Joshua <jfitzpatrick@ntia.gov>
Subject: Section 404 Requirements for the SFIS PEN NTIA Grant

Good Morning Manny,
I am just writing to confirm that, based upon our environmental reviews of Waters of the United States (WOTUS) and potential wetland areas that might be along the proposed SFIS PEN fiber path, there will NOT be a need for Section 404 permitting. For any "potential" river or water crossing, the Environmental Assessment will document that those areas will be bored underneath. This will eliminate and/or mitigate any Dredge and Fill activities near or within the regulatory footprint of a WOTUS or wetland area.
I am also copying Josh Fitzpatrick on this email to document this assessment and analysis. This will support NTIA in their updating of the FAST-41 dashboard accordingly. Please let Teran or I know if you have any questions or need further information.

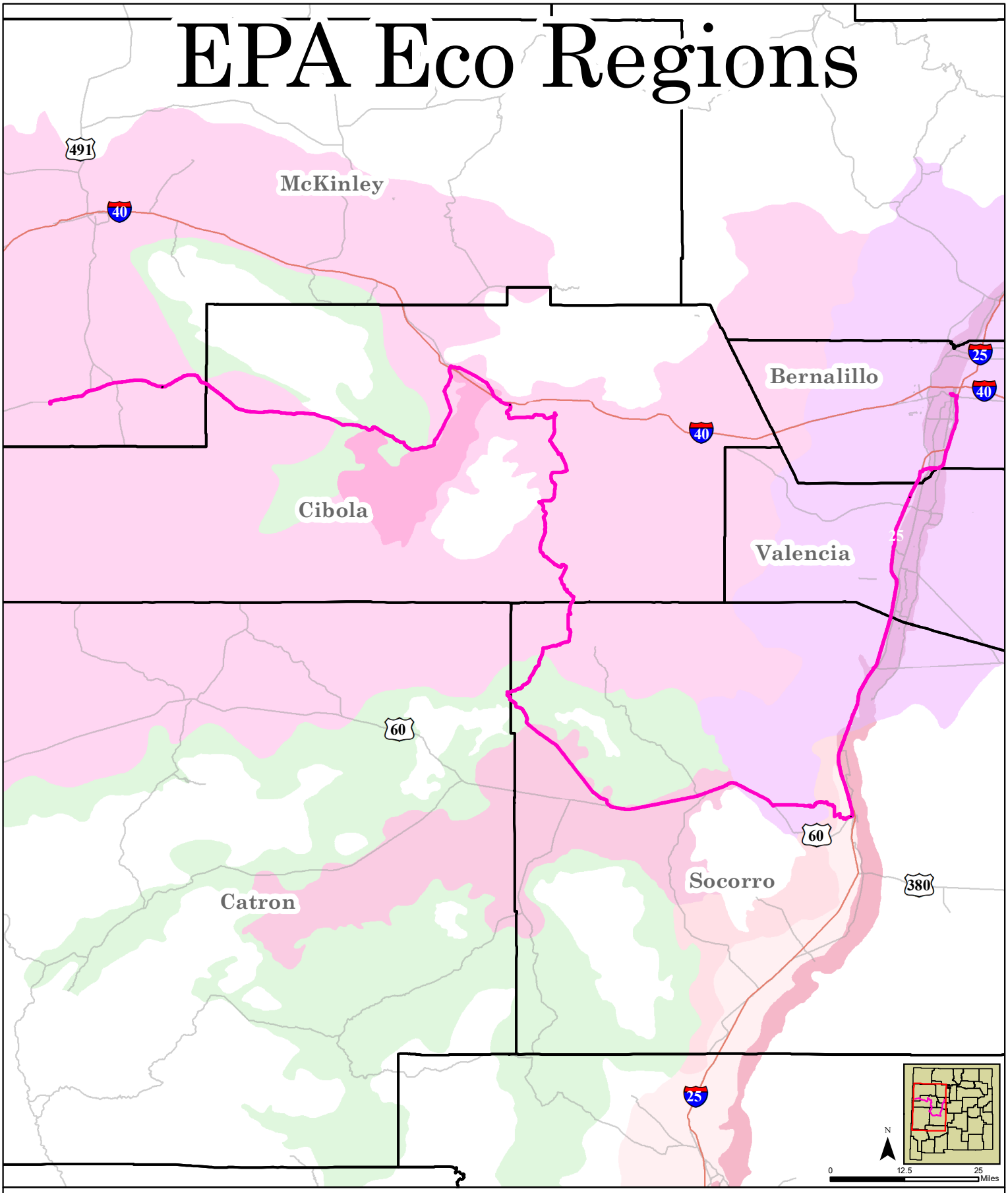
Kindest Regards,

Phoebe K. Suina
Email: phoebesuina@high-watermark.com
(older email address still works through our email migration)
phoebe@high-watermark.com
Phone: 505-350-7731
Website: www.highwatermarkllc.com

HIGH WATER MARK, LLC

[Appendix D-6: EPA Level IV Ecoregions Identified within the Proposed Project Area]

EPA Eco Regions



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over EPA Eco Regions.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,352,000

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- PEN Fiber Regeneration Sites UPDATED 2_9_2024
- PEN Fiber Optic Line UPDATED 2_9_2024
- Roads
- 22g Rio Grande Floodplain
- 22j Semiarid Tablelands
- 22k Lava Malpais
- 22l Plains of San Agustin
- 22m Albuquerque Basin
- 23e Conifer Woodlands and Savannas
- 24a Chihuahuan Basins and Playas
- 24b Chihuahuan Desert Grasslands
- 24f Rio Grande Floodplain

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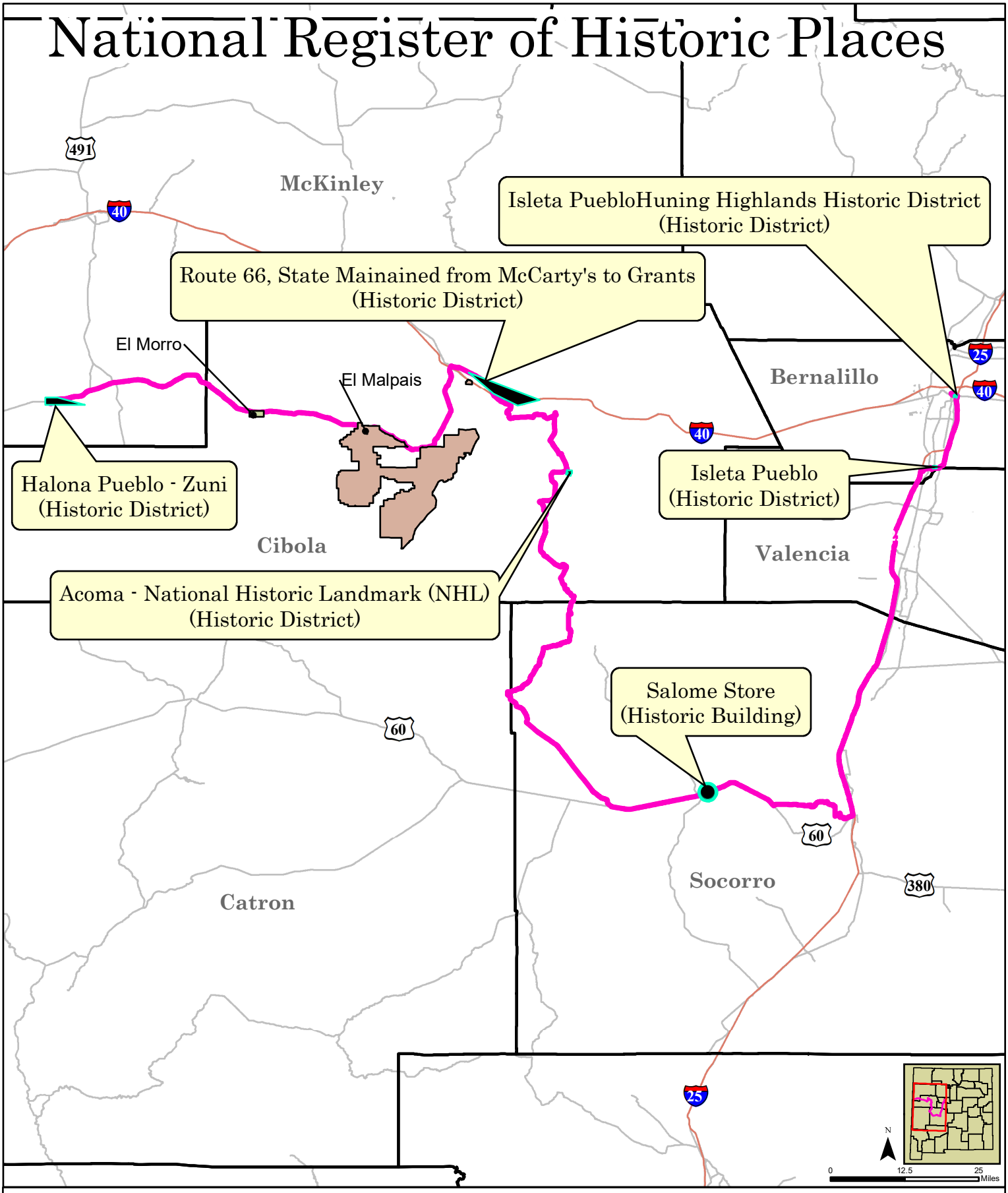
DRAWN BY: GIS Specialist, HWM on 3/25/2024

[Appendix D-7: National Register of Historic Places (NRHP) within the Proposed Project Area]

National Register of Historic Places



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) fiber line that crosses over National Register of Historic Places

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,352,000

PEN Fiber Optic Line UPDATED 2_9_2024

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DRAWN BY: GIS Specialist, HWM on 3/25/2024 Updated: 5/30/2024

Appendix E

Custom Soil Resource Report via NRCS Web Soil Survey

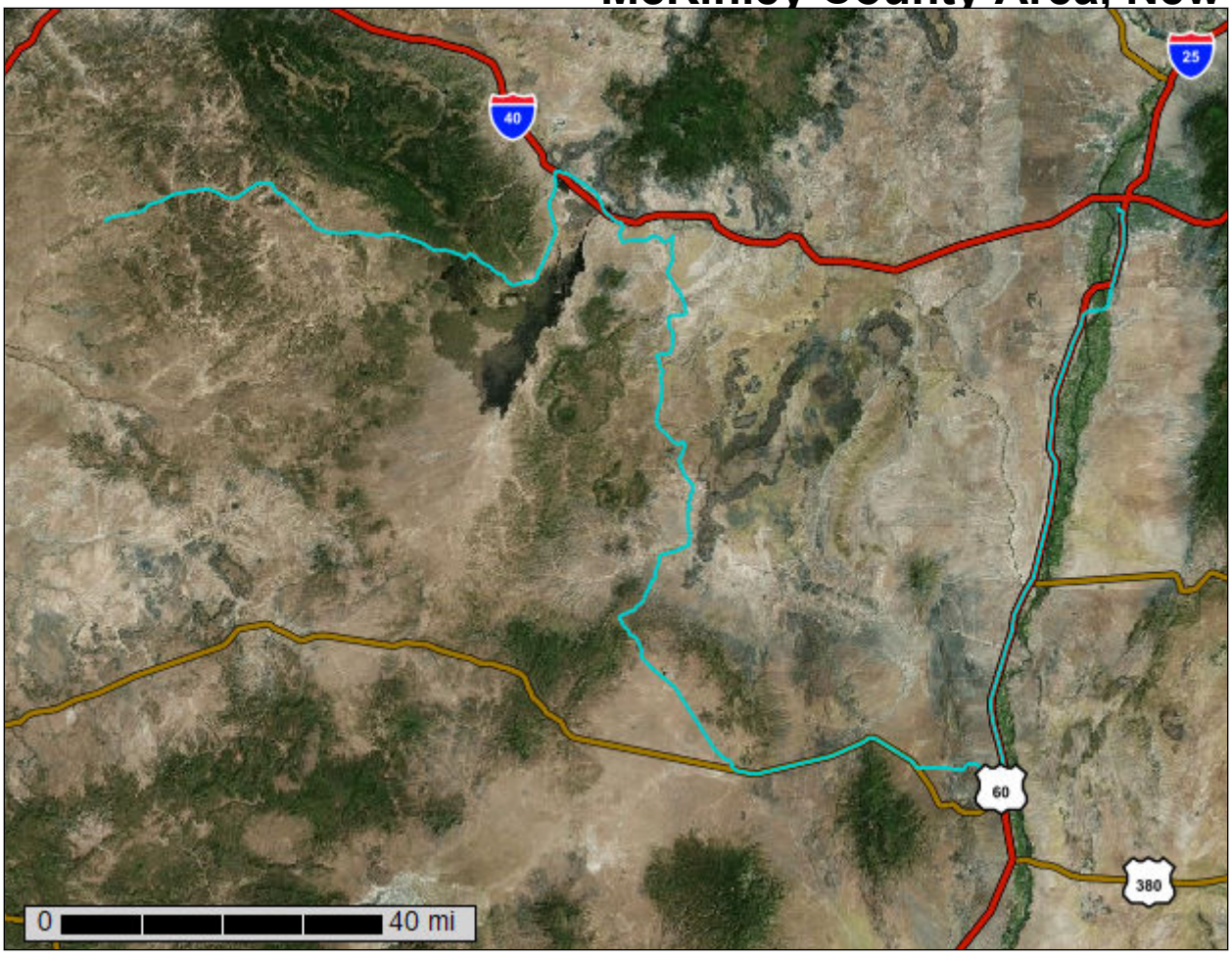
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico; Catron County, New Mexico, Northern Part; Cibola Area, New Mexico, Parts of Cibola, McKinley, and Valencia Counties; Cibola National Forest Area, New Mexico, Parts of Catron, Cibola, McKinley, Sandoval, Sierra and Socorro Counties; McKinley County Area, New



February 16, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

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How Soil Surveys Are Made.....5
Soil Map..... 8
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Legend.....10
Map Unit Legend..... 12
References.....19

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at scales ranging from 1:24,000 to 1:48,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bernalillo County and Parts of Sandoval and Valencia Counties, New Mexico
Survey Area Data: Version 18, Sep 7, 2023

Soil Survey Area: Catron County, New Mexico, Northern Part
Survey Area Data: Version 18, Sep 7, 2023

Soil Survey Area: Cibola Area, New Mexico, Parts of Cibola, McKinley, and Valencia Counties
Survey Area Data: Version 19, Sep 7, 2023

Soil Survey Area: Cibola National Forest Area, New Mexico, Parts of Catron, Cibola, McKinley, Sandoval, Sierra and Socorro Counties
Survey Area Data: Version 5, Sep 7, 2023

Soil Survey Area: McKinley County Area, New Mexico, McKinley County and Parts of Cibola and San Juan Counties
Survey Area Data: Version 18, Sep 7, 2023

Soil Survey Area: Socorro County Area, New Mexico
Survey Area Data: Version 19, Sep 7, 2023

MAP LEGEND

MAP INFORMATION

Soil Survey Area: Valencia County, New Mexico, Eastern Part
Survey Area Data: Version 18, Sep 7, 2023

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 1, 1999—Dec 31, 2003

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Af	Agua loam MLRA 42	0.6	0.0%
BCC	Bluepoint loamy fine sand, 1 to 9 percent slopes	30.0	2.0%
BKD	Bluepoint-Kokan association, hilly	32.6	2.2%
Cu	Cut and fill land	12.8	0.9%
GA	Gila fine sandy loam	1.1	0.1%
Gb	Gila loam, 0 to 1 percent slopes mlra 42-1	3.5	0.2%
Gk	Glendale loam MLRA 42	1.6	0.1%
Gm	Glendale clay loam, 0 to 1 percent slopes MLRA 42.1	1.2	0.1%
TP	Torrifluvents, frequently flooded	0.5	0.0%
VF	Vinton and Brazito soils, occasionally flooded	0.2	0.0%
WM	Wink-Madurez association	13.3	0.9%
Subtotals for Soil Survey Area		**97.5**	**6.6%**
Totals for Area of Interest		**1,479.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
382	Datil gravelly fine sandy loam, 1 to 6 percent slopes	8.4	0.6%
655	Majada-Lapdun very cobbly loams, 1 to 8 percent slopes	2.6	0.2%
Subtotals for Soil Survey Area		**11.0**	**0.7%**
Totals for Area of Interest		**1,479.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10	Lava flows	3.2	0.2%
20	Penistaja fine sandy loam, 1 to 3 percent slopes	16.9	1.1%
25	Hickman-Catman complex, 1 to 6 percent slopes	0.8	0.1%
30	Warm Springs loam, 0 to 2 percent slopes	3.9	0.3%
50	Venadito clay loam, 0 to 1 percent slopes	17.5	1.2%
51	Venadito sandy clay loam, 0 to 1 percent slopes	0.4	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
60	Sparank clay loam, 1 to 3 percent slopes	2.6	0.2%
61	Sparham clay loam, 0 to 2 percent slopes	3.8	0.3%
72	Catman variant clay loam, 1 to 3 percent slopes	3.9	0.3%
73	Catman sandy clay loam, 1 to 3 percent slopes	1.2	0.1%
75	Hickman sandy clay loam, 1 to 3 percent slopes	3.2	0.2%
100	Manzano loam, 1 to 5 percent slopes	5.0	0.3%
130	Laporte-Rock outcrop complex, 3 to 20 percent slopes	4.9	0.3%
200	Penistaja fine sandy loam, 2 to 10 percent slopes	31.2	2.1%
205	Ildefonso very gravelly sandy loam, 3 to 15 percent slopes	0.5	0.0%
218	Viuda-Penistaja-Rock outcrop complex, 1 to 10 percent slopes	12.9	0.9%
251	Skyvillage-Rock outcrop-Bond complex, 3 to 40 percent slopes	1.2	0.1%
257	Sparank-San Mateo complex, 0 to 5 percent slopes	34.9	2.4%
259	Mikim loam, 1 to 5 percent slopes	24.6	1.7%
330	Moreno loam, 1 to 10 percent slopes	0.0	0.0%
406	Poley-Rock outcrop complex, 2 to 25 percent slopes	0.4	0.0%
424	Mespun-Palma association, 1 to 12 percent slopes	5.7	0.4%
446	Harvey-Oelop association, 0 to 5 percent slopes	1.9	0.1%
485	Rock outcrop-Mion complex, 15 to 65 percent slopes	5.9	0.4%
487	Mion-Badland complex, 20 to 65 percent slopes	2.5	0.2%
505	Flugle-Goesling loamy fine sands, 1 to 8 percent slopes	57.8	3.9%
514	Raton-Rock outcrop complex, 1 to 10 percent slopes	1.5	0.1%
515	Rock outcrop-Vessilla-Mion complex, 3 to 55 percent slopes	12.9	0.9%
520	Celacy-Atarque complex, 1 to 10 percent slopes	29.4	2.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
522	Bandera association, 15 to 45 percent slopes	10.9	0.7%
523	Charo-Raton complex, 1 to 10 percent slopes	11.5	0.8%
525	Catman-Silkie association, 1 to 10 percent slopes	30.6	2.1%
535	Millpaw loam, 0 to 5 percent slopes	0.3	0.0%
536	McGaffey loam, 1 to 5 percent slopes	22.1	1.5%
550	Nogal-Galestina sandy loams, 1 to 10 percent slopes	4.5	0.3%
555	Pinitos-Ribera sandy loams, 1 to 10 percent slopes	0.0	0.0%
560	Flugle-Teco association, 1 to 8 percent slopes	35.8	2.4%
575	Teco-Atarque association, 1 to 8 percent slopes	50.0	3.4%
576	Teco sandy loam, 2 to 5 percent slopes	4.6	0.3%
577	Cabezon-Montecito-Rock outcrop association, 1 to 10 percent slopes	10.7	0.7%
581	Laporte-Vessilla complex, 3 to 15 percent slopes	7.2	0.5%
586	Venadito-Teco association, 0 to 10 percent slopes	16.2	1.1%
620	Aparejo-Venadito complex, 1 to 5 percent slopes	2.8	0.2%
625	Hagerman-Bond association, 1 to 10 percent slopes	50.5	3.4%
Subtotals for Soil Survey Area		**548.6**	**37.1%**
Totals for Area of Interest		**1,479.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available	24.5	1.7%
Subtotals for Soil Survey Area		**24.5**	**1.7%**
Totals for Area of Interest		**1,479.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
30	Orlie-Tinian complex, 1 to 6 percent slopes	6.4	0.4%
42	Suwanee clay loam, 0 to 2 percent slopes	2.9	0.2%
47	Conchovar clay loam, 0 to 1 percent slopes	0.2	0.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
49	Concho clay loam, 0 to 2 percent slopes	4.4	0.3%
53	Hawaikuh clay loam, 0 to 2 percent slopes	3.7	0.3%
60	Redpen sandy clay loam, 0 to 2 percent slopes	6.0	0.4%
225	Aquima-Hawaikuh complex, 1 to 5 percent slopes	10.6	0.7%
310	Parkelei sandy loam, 1 to 8 percent slopes	11.7	0.8%
315	Flugle-Fragua complex, 1 to 10 percent slopes	6.1	0.4%
320	Parkelei-Fraguni complex, 1 to 8 percent slopes	3.2	0.2%
335	Venadito clay, 1 to 3 percent slopes	0.9	0.1%
352	Zia sandy loam, 1 to 5 percent slopes	6.9	0.5%
353	Mido loamy fine sand, 1 to 6 percent slopes	2.0	0.1%
360	Hosta-Concho association, 0 to 5 percent slopes	28.4	1.9%
575	Ramah-Pescado association, 1 to 8 percent slopes	5.6	0.4%
Subtotals for Soil Survey Area		**99.0**	**6.7%**
Totals for Area of Interest		**1,479.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
11	Armijo clay, 0 to 1 percent slopes	1.1	0.1%
14	Saneli clay, 0 to 1 percent slopes	1.2	0.1%
22	Glendale clay loam, 0 to 1 percent slopes	3.5	0.2%
37	Agua clay loam, 0 to 1 percent slopes	0.5	0.0%
44	Anthony sandy loam, 0 to 1 percent slopes	1.0	0.1%
48	Anthony variant sandy clay loam, 0 to 1 percent slopes	1.3	0.1%
50	Brazito fine sandy loam, 0 to 1 percent slopes	0.6	0.0%
52	Saneli clay, thin surface, 0 to 1 percent slopes	2.6	0.2%
88	Whitlock-Pajarito-Nations complex, 1 to 8 percent slopes	4.3	0.3%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
111	Armijo-Urban land complex, 0 to 1 percent slopes	2.5	0.2%
114	Saneli-Urban land complex, 0 to 1 percent slopes	4.1	0.3%
116	Caliza variant-Urban land complex, 1 to 5 percent slopes	10.8	0.7%
118	Arizo very stony loamy sand, 1 to 3 percent slopes	1.6	0.1%
120	Adelino variant-Caliza very stony sandy loams, 15 to 50 percent slopes	2.1	0.1%
124	Caliza very gravelly sandy loam, 1 to 7 percent slopes	1.7	0.1%
128	Turney variant gravelly sandy loam, 1 to 7 percent slopes	4.6	0.3%
214	Saneli clay, occasionally flooded, 0 to 1 percent slopes	0.2	0.0%
222	Glendale clay loam, occasionally flooded, 0 to 1 percent slopes	0.2	0.0%
244	Anthony sandy loam, occasionally flooded, 0 to 1 percent slopes	0.5	0.0%
250	Brazito fine sandy loam, occasionally flooded, 0 to 1 percent slopes	1.7	0.1%
401	Motoqua-Rock outcrop complex, 10 to 45 percent slopes	5.4	0.4%
403	Puertecito-Rock outcrop complex, 5 to 55 percent slopes	18.4	1.2%
404	Motoqua, cool-Rock outcrop complex, 15 to 50 percent slopes	1.4	0.1%
410	Clovis-Penistaja association, 1 to 10 percent slopes	29.9	2.0%
419	Navajo-Alicia association, 0 to 4 percent slopes	2.5	0.2%
421	Glenberg-Riverwash association, 0 to 5 percent slopes	7.0	0.5%
424	Manzano silt loam, 1 to 3 percent slopes	7.5	0.5%
425	Sparank silty clay loam, 0 to 2 percent slopes	6.1	0.4%
445	Millett-Sedillo complex, 1 to 15 percent slopes	60.6	4.1%
449	Cascajo very gravelly sandy loam, 15 to 30 percent slopes	1.2	0.1%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
452	Telescope-Royosa association, 1 to 3 percent slopes	7.0	0.5%
455	Datil sandy loam, 3 to 15 percent slopes	3.3	0.2%
460	Lapdun-Datil association, 5 to 30 percent slopes	59.3	4.0%
472	Abrazo-Motoqua, cool-Rock outcrop complex, 10 to 50 percent slopes	1.3	0.1%
478	Royosa-Loarc association, 1 to 5 percent slopes	38.3	2.6%
479	Augustine fine sandy loam, 1 to 6 percent slopes	34.4	2.3%
484	Mion-San Mateo-Rock outcrop association, 1 to 10 percent slopes	35.8	2.4%
491	Riverwash	2.1	0.1%
510	Guy-Dioxice-Pena association, 1 to 8 percent slopes	1.6	0.1%
530	Loarc loamy sand, 1 to 12 percent slopes	28.5	1.9%
556	Loarc-Datil-Majada association, 2 to 12 percent slopes	24.7	1.7%
585	Rock outcrop-Travessilla complex, 1 to 10 percent slopes	4.8	0.3%
620	Bluepoint loamy fine sand, 1 to 9 percent slopes	56.4	3.8%
621	Arizo-Riverwash complex, 0 to 5 percent slopes	15.8	1.1%
648	Armijo-Glendale-Bluepoint association, 0 to 3 percent slopes	13.0	0.9%
649	Nickel-Caliza very gravelly sandy loams, 1 to 30 percent slopes	35.5	2.4%
655	Nolam gravelly sandy loam, 1 to 7 percent slopes	17.9	1.2%
660	Dune land	6.6	0.4%
690	Bluepoint-Caliza complex, 1 to 30 percent slopes	11.1	0.8%
786	Rock outcrop-Badland complex, 25 to 100 percent slopes	1.7	0.1%
Subtotals for Soil Survey Area		**585.0**	**39.5%**
Totals for Area of Interest		**1,479.3**	**100.0%**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BK	Bluepoint loamy sand, hilly	3.5	0.2%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bm	Bluepoint loamy fine sand, 1 to 3 percent slopes	22.5	1.5%
Bn	Bluepoint loamy fine sand, 1 to 9 percent slopes	0.7	0.0%
BO	Bluepoint loamy fine sand, 1 to 9 percent slopes	37.1	2.5%
BP	Bluepoint loamy fine sand, hummocky	23.6	1.6%
Br	Bluepoint sandy clay loam, 1 to 3 percent slopes	2.5	0.2%
CE	Caliza-Bluepoint complex, 1 to 25 percent slopes	0.7	0.0%
Gd	Gila loam, 0 to 1 percent slopes mlra 42-1	0.3	0.0%
Gk	Gila clay loam	0.3	0.0%
MK	Madurez-Wink association, undulating	5.1	0.3%
Rv	Riverwash	0.2	0.0%
Vd	Vinton loamy fine sand	1.2	0.1%
Vg	Vinton loam	1.0	0.1%
WU	Wink-Madurez association, gently sloping	14.9	1.0%
Subtotals for Soil Survey Area		**113.7**	**7.7%**
Totals for Area of Interest		**1,479.3**	**100.0%**

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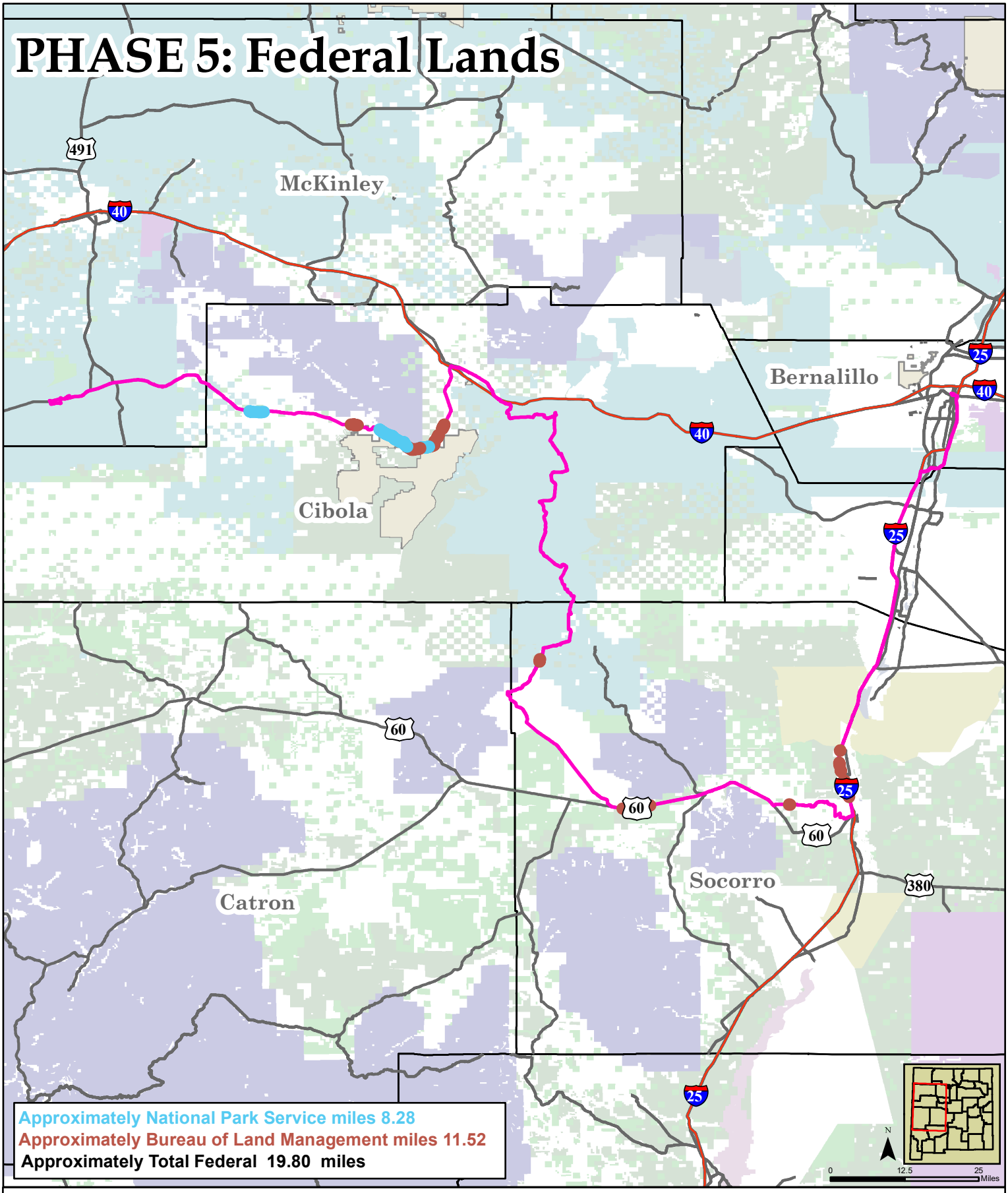
Appendix F

Federal Cooperating Agency Maps (NPS, BLM, BIA)

PHASE 5: Federal Lands



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over federal lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

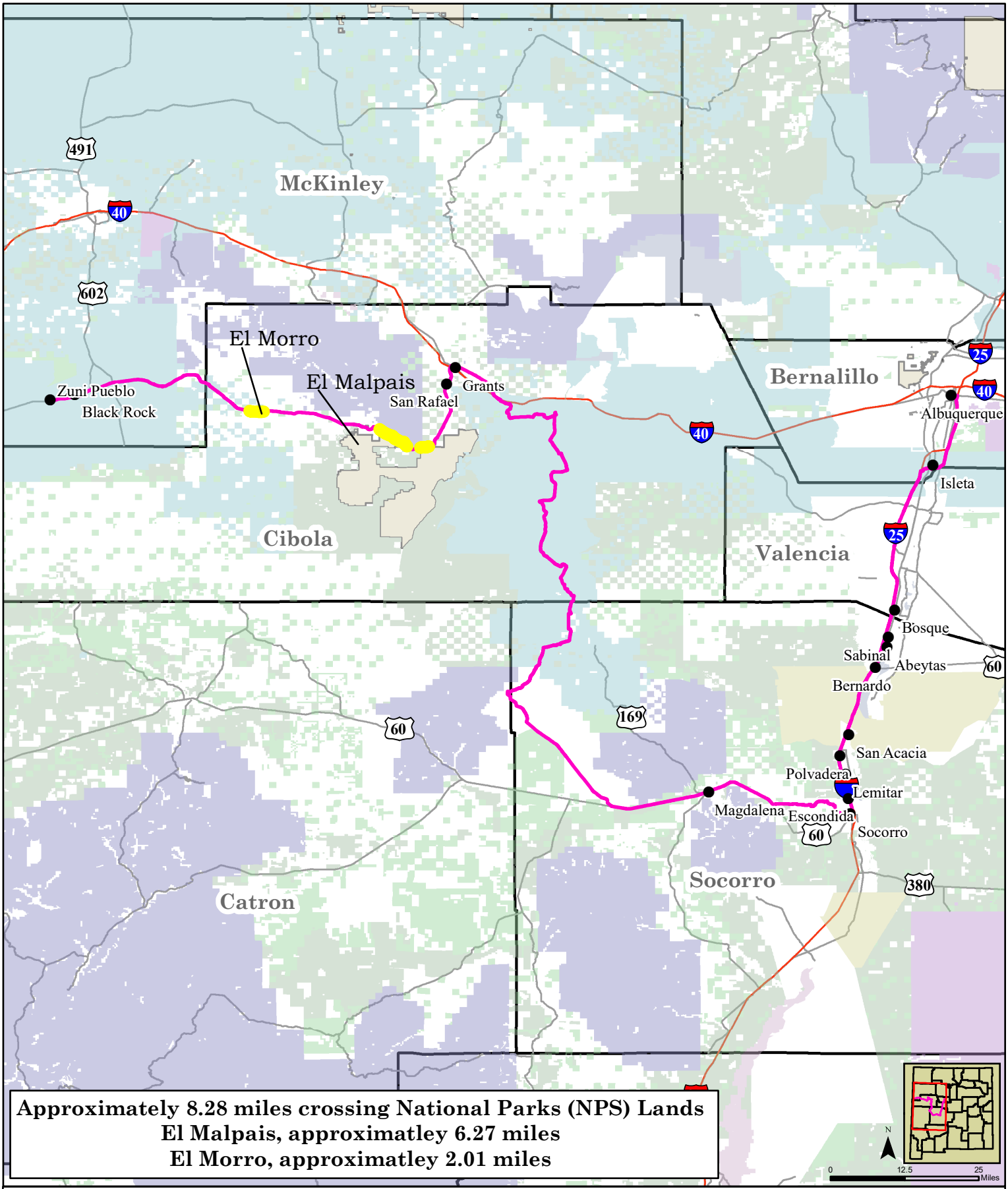
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

Bureau of Land Management
National Park Service
FiberLineUPDATED12_2024
Roads
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Federal

DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED 05/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over NPS lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

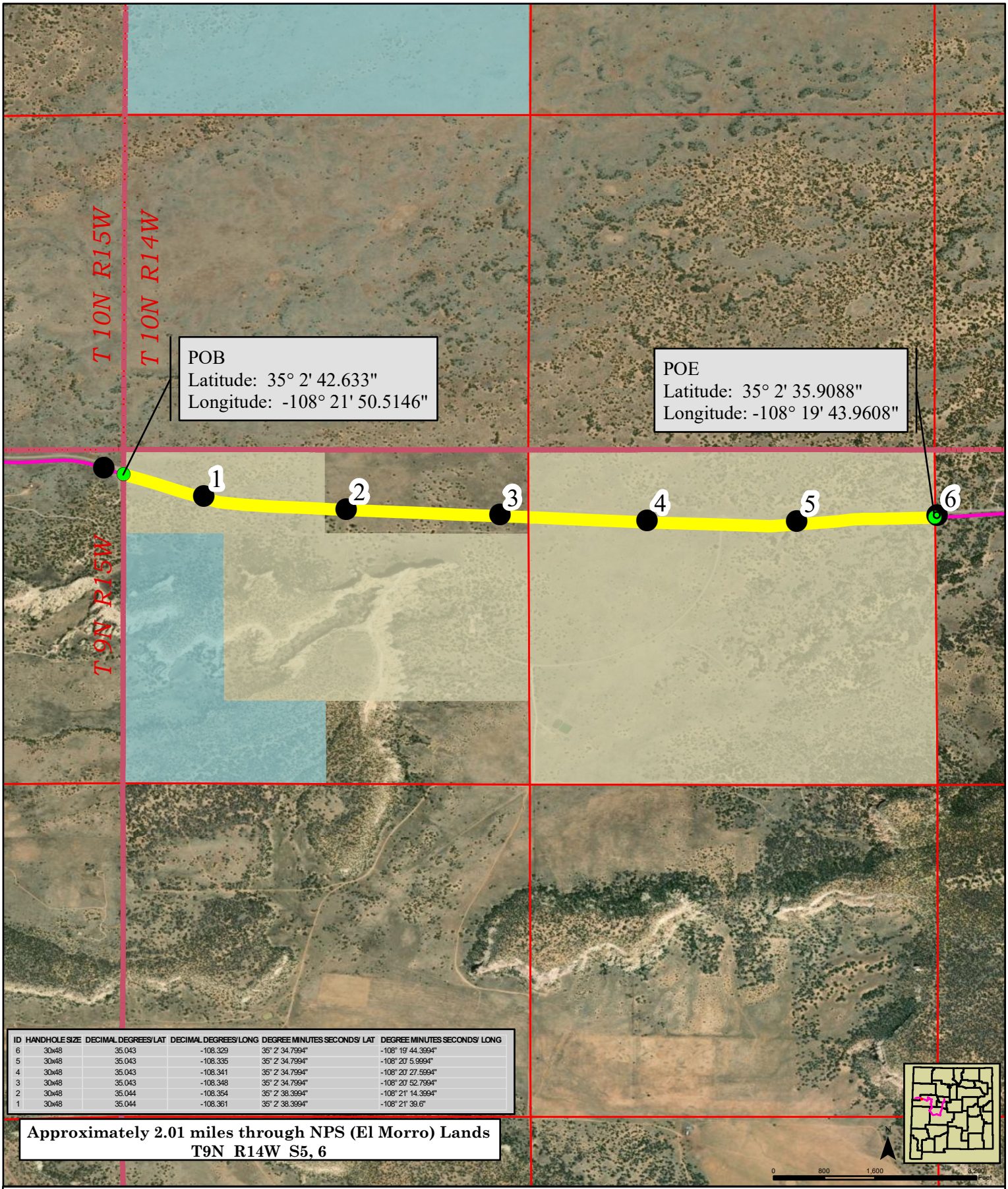
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Crossing NPS lands
- PEN Fiber Optic Line UPDATED 2_9_2024
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)
- Roads

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\FWS\MXDs\11x8.5 Size\Overall_FWS

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED 6/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/LAT	DECIMAL DEGREES/LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
6	30x48	35.043	-108.329	35° 2' 34.7994"	-108° 19' 44.3994"
5	30x48	35.043	-108.335	35° 2' 34.7994"	-108° 20' 5.9994"
4	30x48	35.043	-108.341	35° 2' 34.7994"	-108° 20' 27.5994"
3	30x48	35.043	-108.348	35° 2' 34.7994"	-108° 20' 52.7994"
2	30x48	35.044	-108.354	35° 2' 38.3994"	-108° 21' 14.3994"
1	30x48	35.044	-108.361	35° 2' 38.3994"	-108° 21' 39.6"

Approximately 2.01 miles through NPS (El Morro) Lands
T9N R14W S5, 6

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Morro National Monument).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

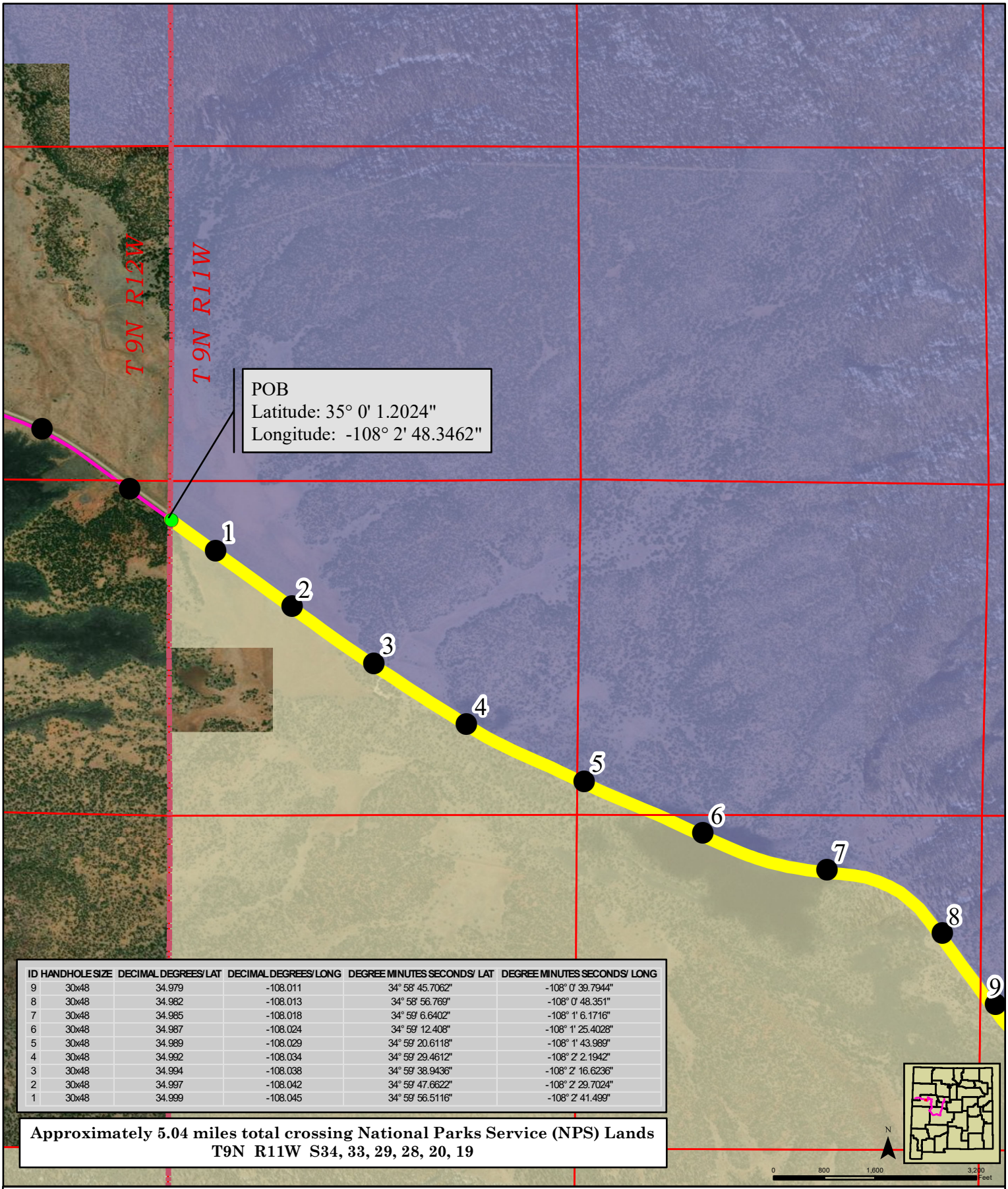
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Tribal/Indian (I)
National Park Service (NPS)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED: 6/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/ LAT	DECIMAL DEGREES/ LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
9	30x48	34.979	-108.011	34° 58' 45.7062"	-108° 0' 39.7944"
8	30x48	34.982	-108.013	34° 58' 56.769"	-108° 0' 48.351"
7	30x48	34.985	-108.018	34° 59' 6.6402"	-108° 1' 6.1716"
6	30x48	34.987	-108.024	34° 59' 12.408"	-108° 1' 25.4028"
5	30x48	34.989	-108.029	34° 59' 20.6118"	-108° 1' 43.989"
4	30x48	34.992	-108.034	34° 59' 29.4612"	-108° 2' 2.1942"
3	30x48	34.994	-108.038	34° 59' 38.9436"	-108° 2' 16.6236"
2	30x48	34.997	-108.042	34° 59' 47.6622"	-108° 2' 29.7024"
1	30x48	34.999	-108.045	34° 59' 56.5116"	-108° 2' 41.499"

Approximately 5.04 miles total crossing National Parks Service (NPS) Lands
T9N R11W S34, 33, 29, 28, 20, 19

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Malpais National Monument, Map 1 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

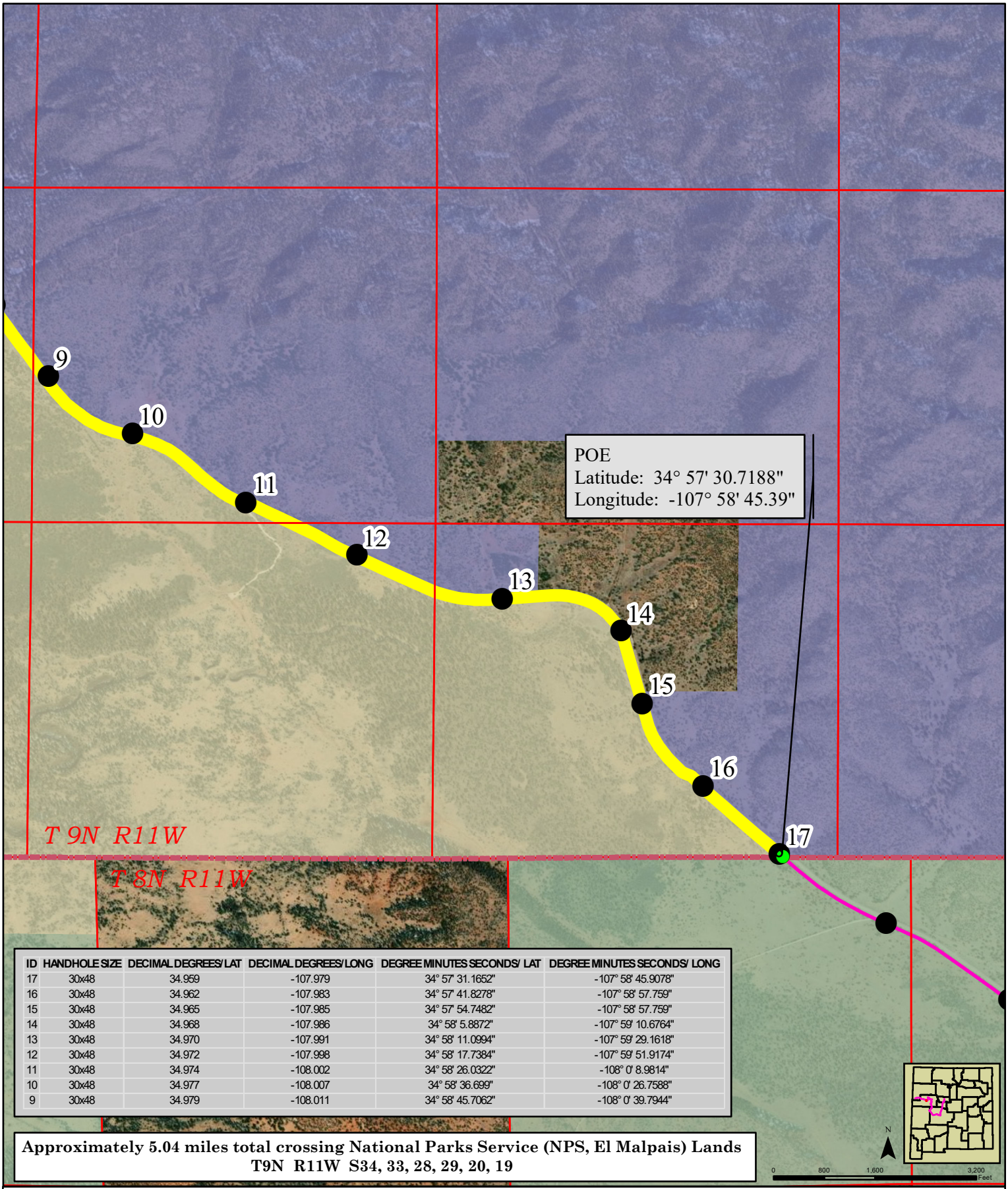
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2024
Roads
Forest Service (FS)
National Park Service (NPS)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATE: 6/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/ LAT	DECIMAL DEGREES/ LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
17	30x48	34.959	-107.979	34° 57' 31.1652"	-107° 58' 45.9078"
16	30x48	34.962	-107.983	34° 57' 41.8278"	-107° 58' 57.759"
15	30x48	34.965	-107.985	34° 57' 54.7482"	-107° 58' 57.759"
14	30x48	34.968	-107.986	34° 58' 5.8872"	-107° 59' 10.6764"
13	30x48	34.970	-107.991	34° 58' 11.0994"	-107° 59' 29.1618"
12	30x48	34.972	-107.998	34° 58' 17.7384"	-107° 59' 51.9174"
11	30x48	34.974	-108.002	34° 58' 26.0322"	-108° 0' 8.9814"
10	30x48	34.977	-108.007	34° 58' 36.699"	-108° 0' 26.7588"
9	30x48	34.979	-108.011	34° 58' 45.7062"	-108° 0' 39.7944"

Approximately 5.04 miles total crossing National Parks Service (NPS, El Malpais) Lands
T9N R11W S34, 33, 28, 29, 20, 19

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Malpais National Monument, Map 2 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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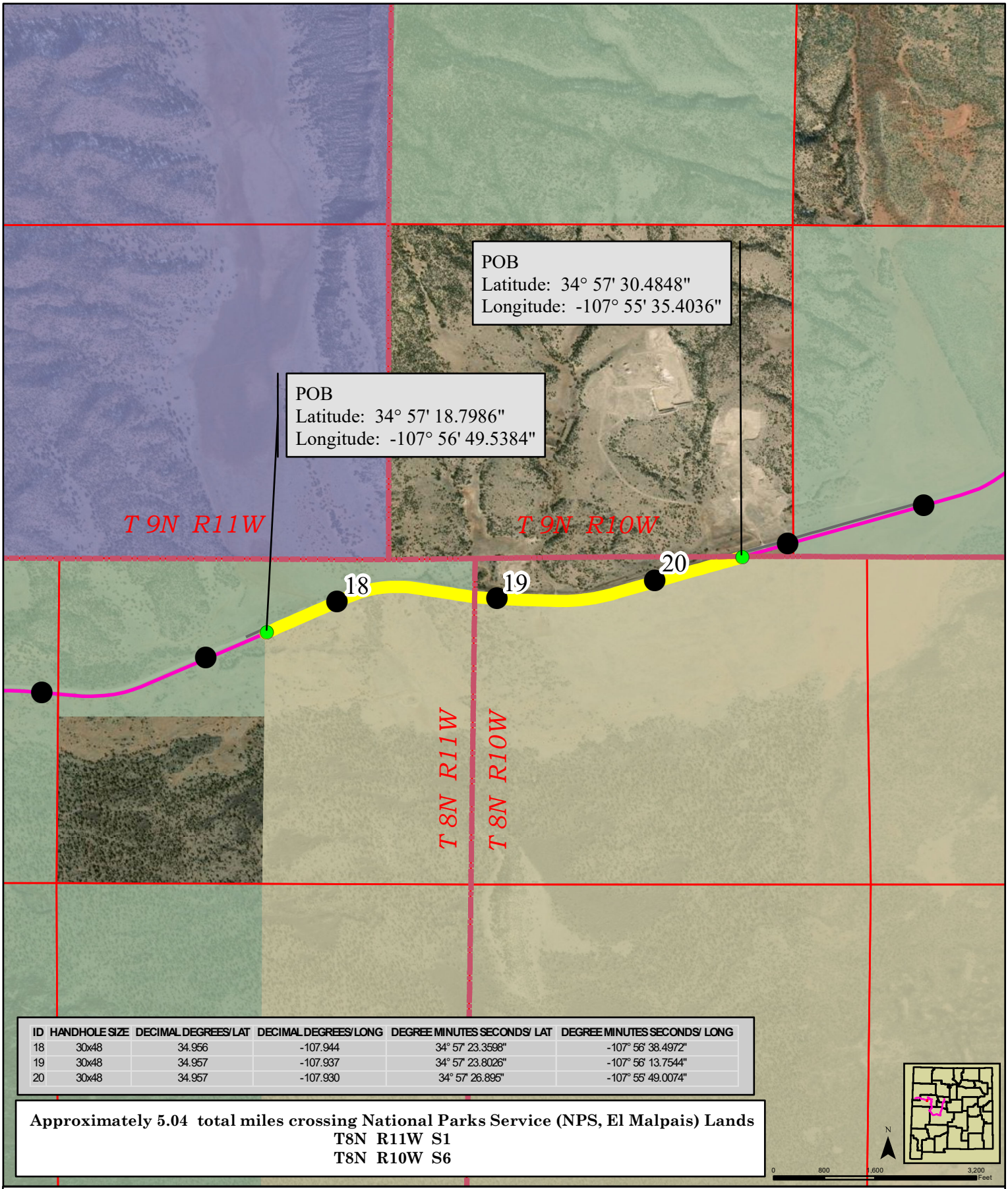
Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2025
Roads
Bureau of Land Management (BLM)
Forest Service (FS)
National Park Service (NPS)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 UPDATED:06/2025



ID	HANDHOLE SIZE	DECIMAL DEGREES/ LAT	DECIMAL DEGREES/ LONG	DEGREE MINUTES SECONDS/ LAT	DEGREE MINUTES SECONDS/ LONG
18	30x48	34.956	-107.944	34° 57' 23.3598"	-107° 56' 38.4972"
19	30x48	34.957	-107.937	34° 57' 23.8026"	-107° 56' 13.7544"
20	30x48	34.957	-107.930	34° 57' 26.895"	-107° 55' 49.0074"

Approximately 5.04 total miles crossing National Parks Service (NPS, El Malpais) Lands
T8N R11W S1
T8N R10W S6

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over NPS lands (El Malpais National Monument, Map 3 of 3).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Point of Beginning (POB) & Point of End (POE)
PEN Handholes
BLM PLSS Township
BLM PLSS Section
Crossing NPS lands
PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Forest Service (FS)
National Park Service (NPS)

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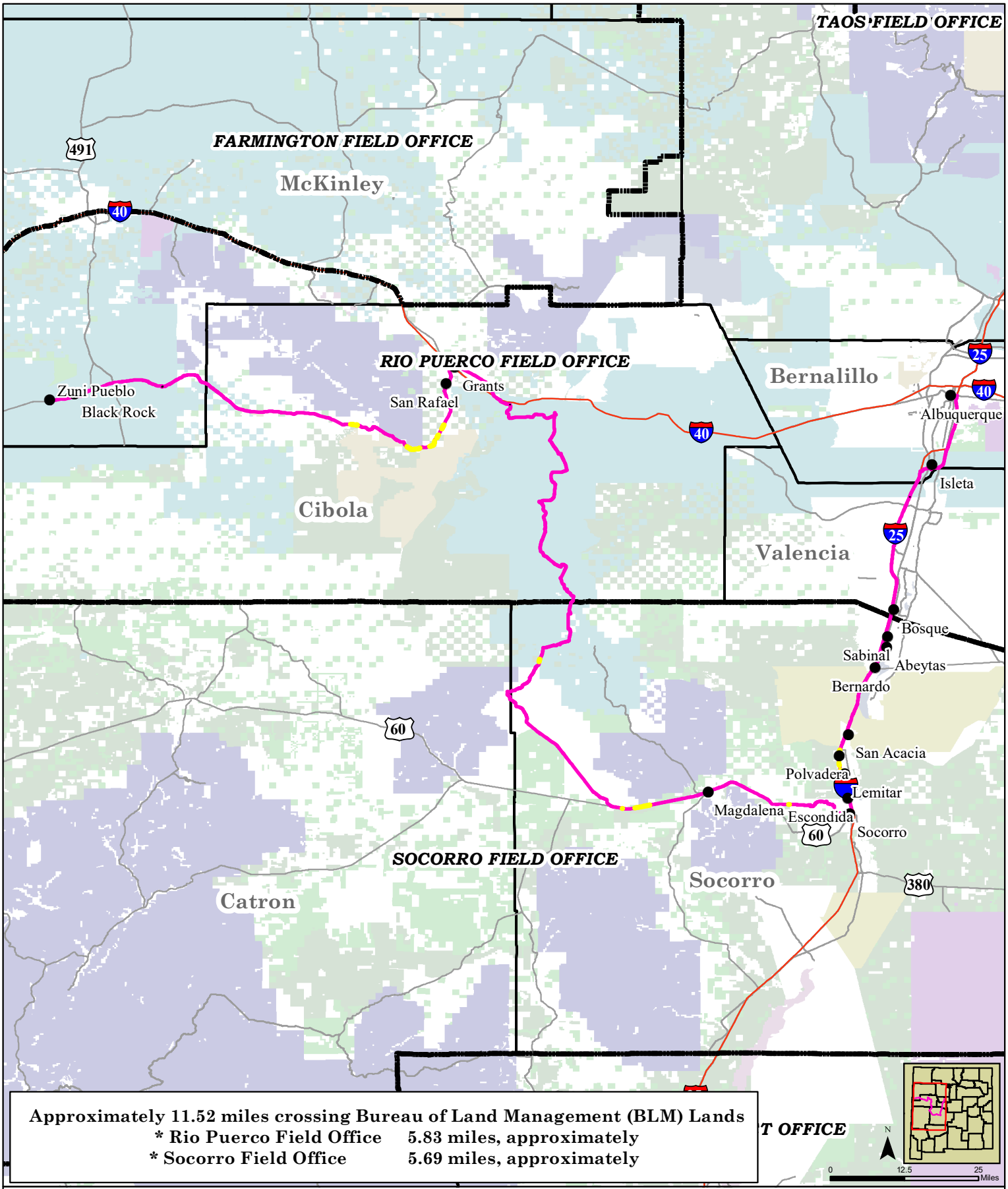
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\NPS\MXDs\El Malpais

DRAWN BY: GIS Specialist, HWM on 1/19/2024 Updated: 06/2025



Approximately 11.52 miles crossing Bureau of Land Management (BLM) Lands
*** Rio Puerco Field Office 5.83 miles, approximately**
*** Socorro Field Office 5.69 miles, approximately**

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over BLM lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

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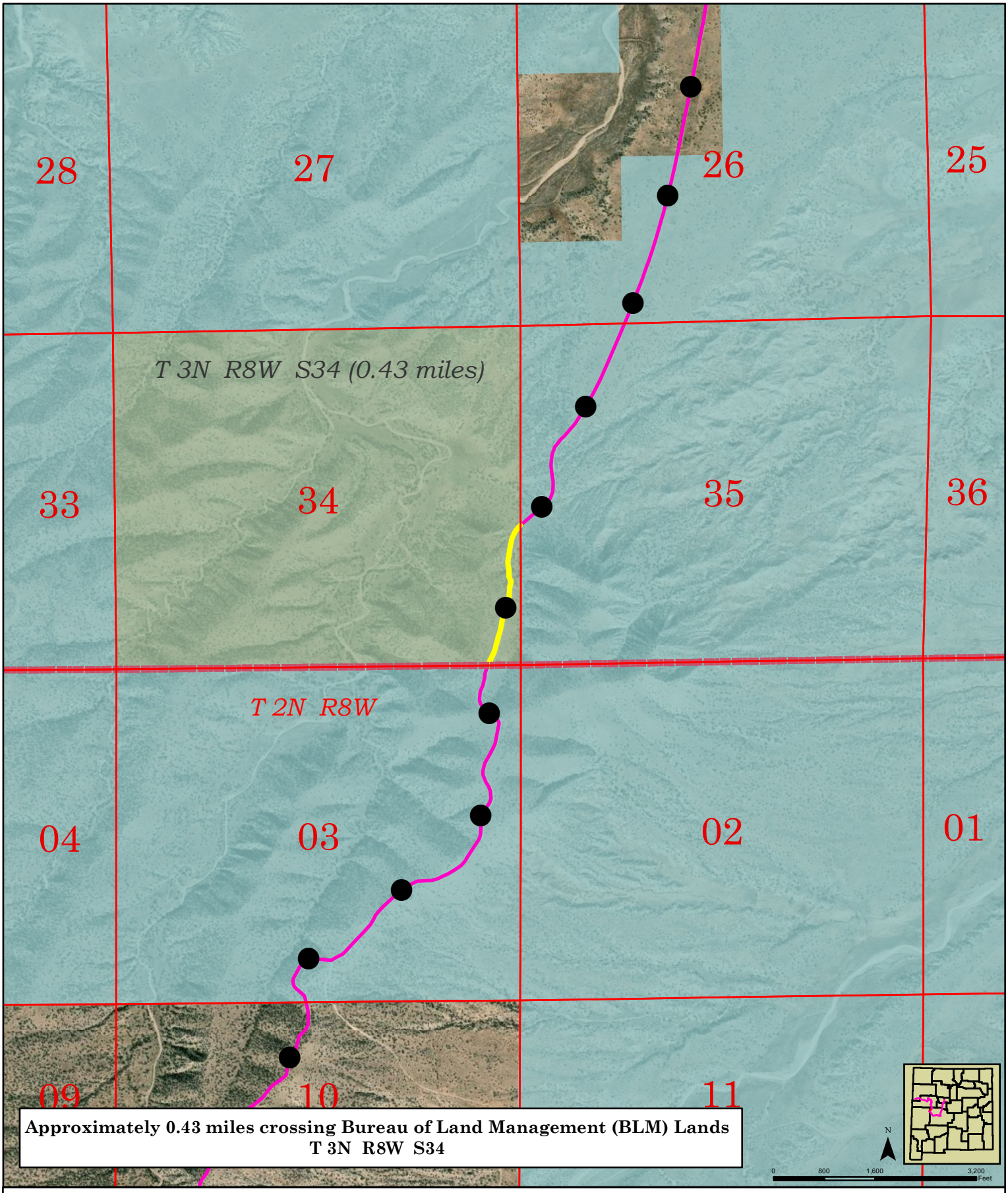
- PEN Fiber Regeneration Sites UPDATED 2_9_2024
- Crossing BLM Land
- PEN Fiber Optic Line UPDATED 2_9_2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size\Overall_BLM

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro, map 1 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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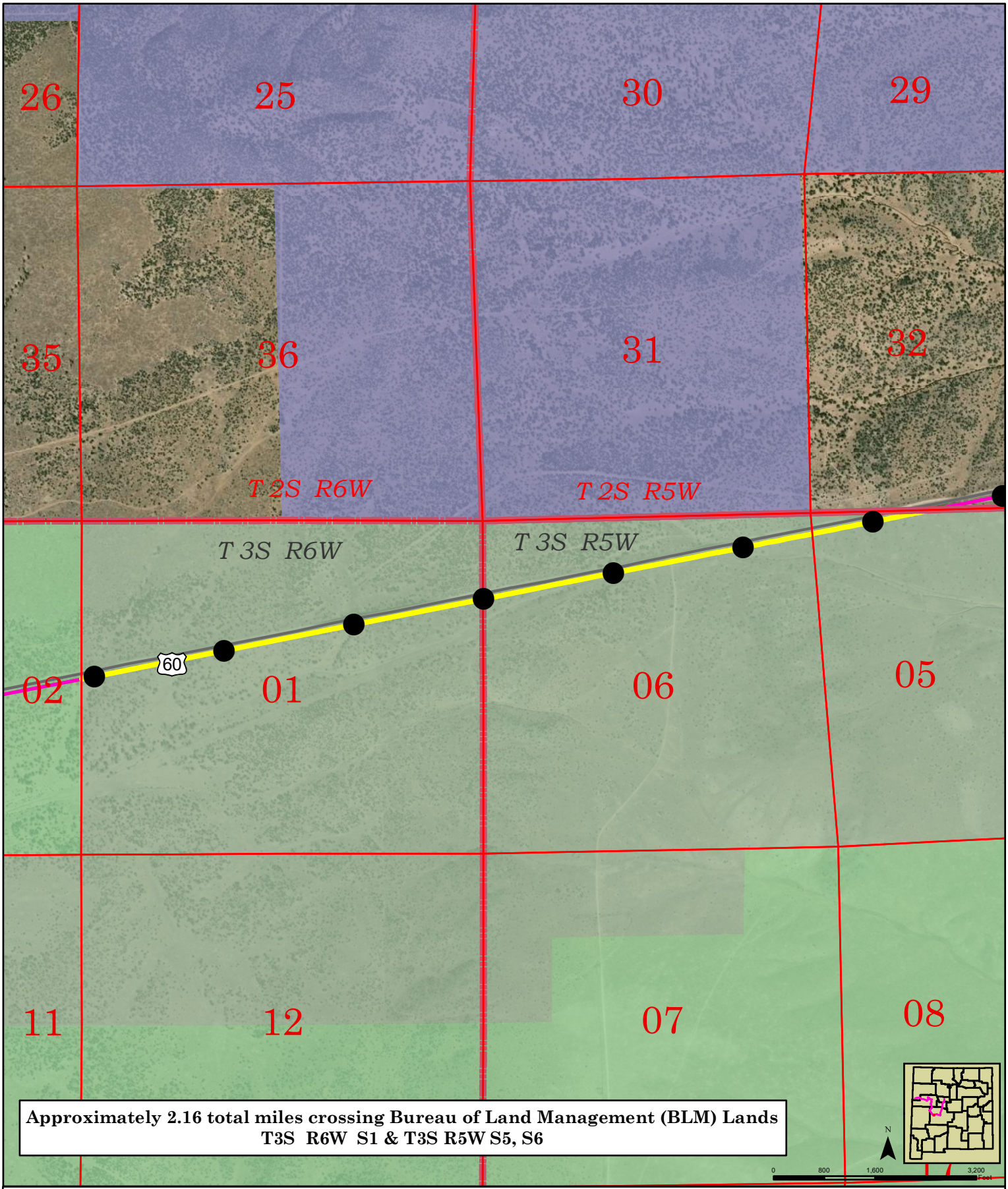
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Tribal/Indian (I)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro map 2 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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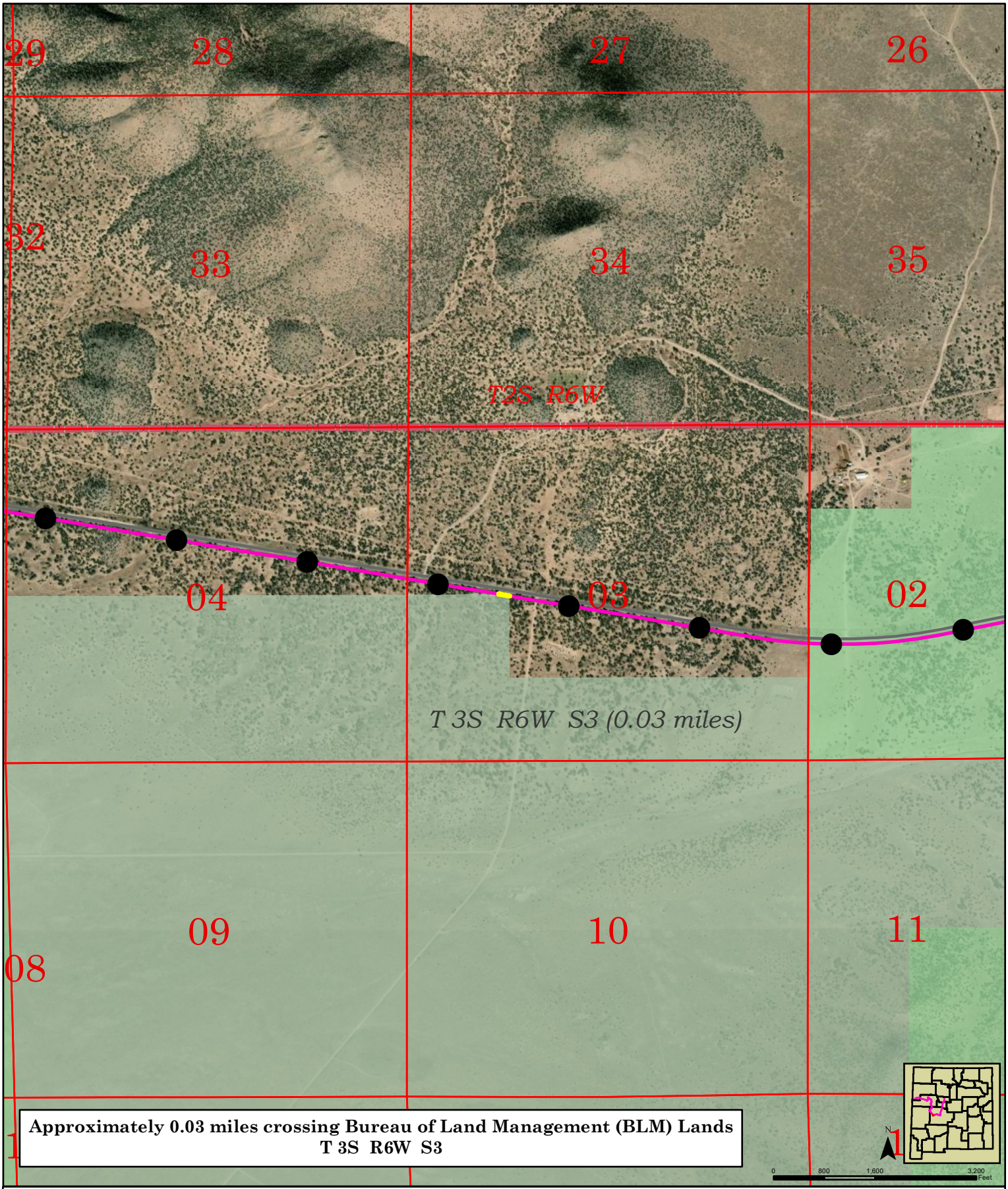
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Forest Service (FS)
- Private (P)
- State (S)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands. (Map 3 of 6)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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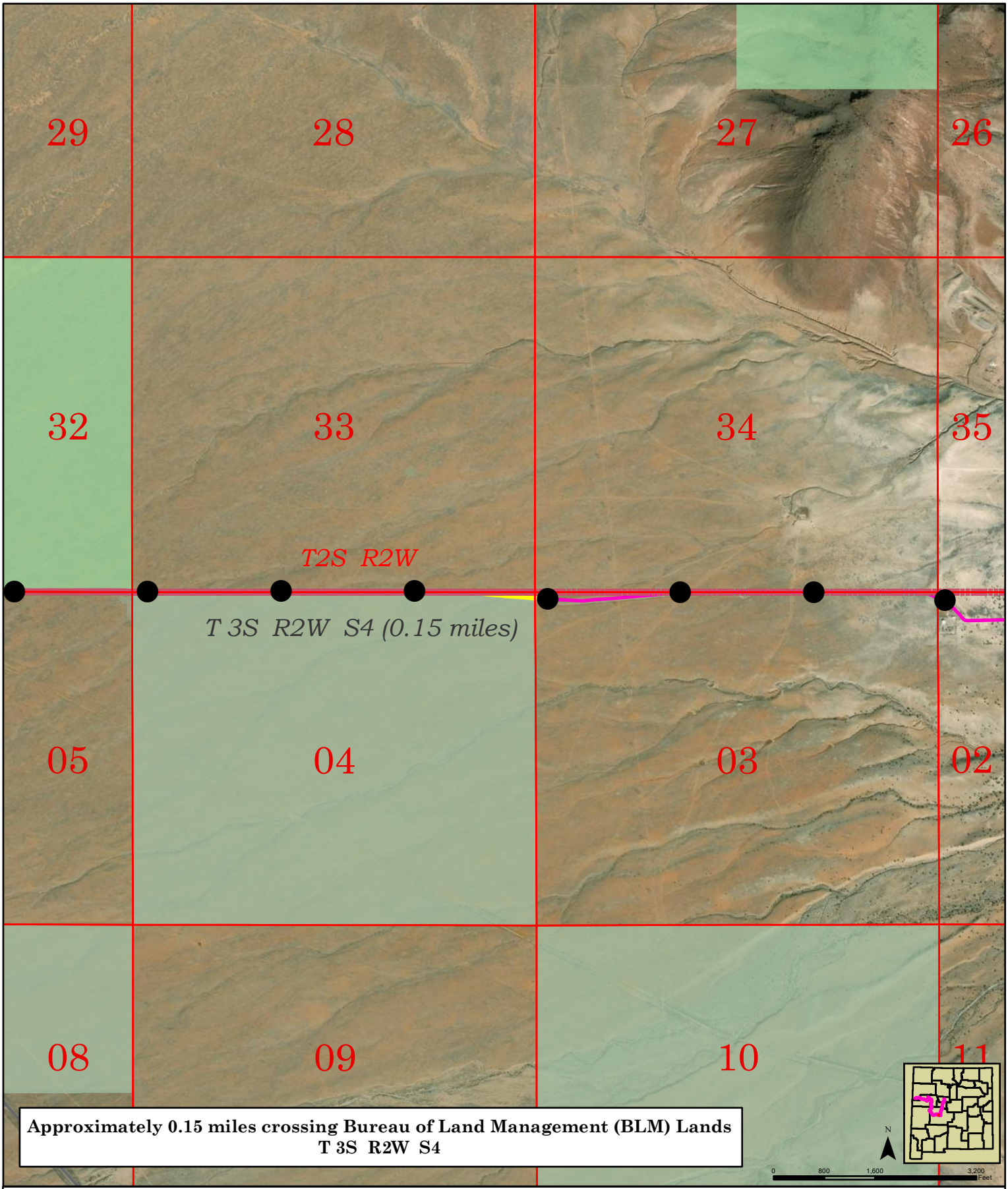
Handholes Updated 03/2025
Crossing BLM Land
PEN Fiber Optic Line 12_19_2023
Roads
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)
Private (P)
State (S)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.15 miles crossing Bureau of Land Management (BLM) Lands
T 3S R2W S4

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands. (Map 4 of 6)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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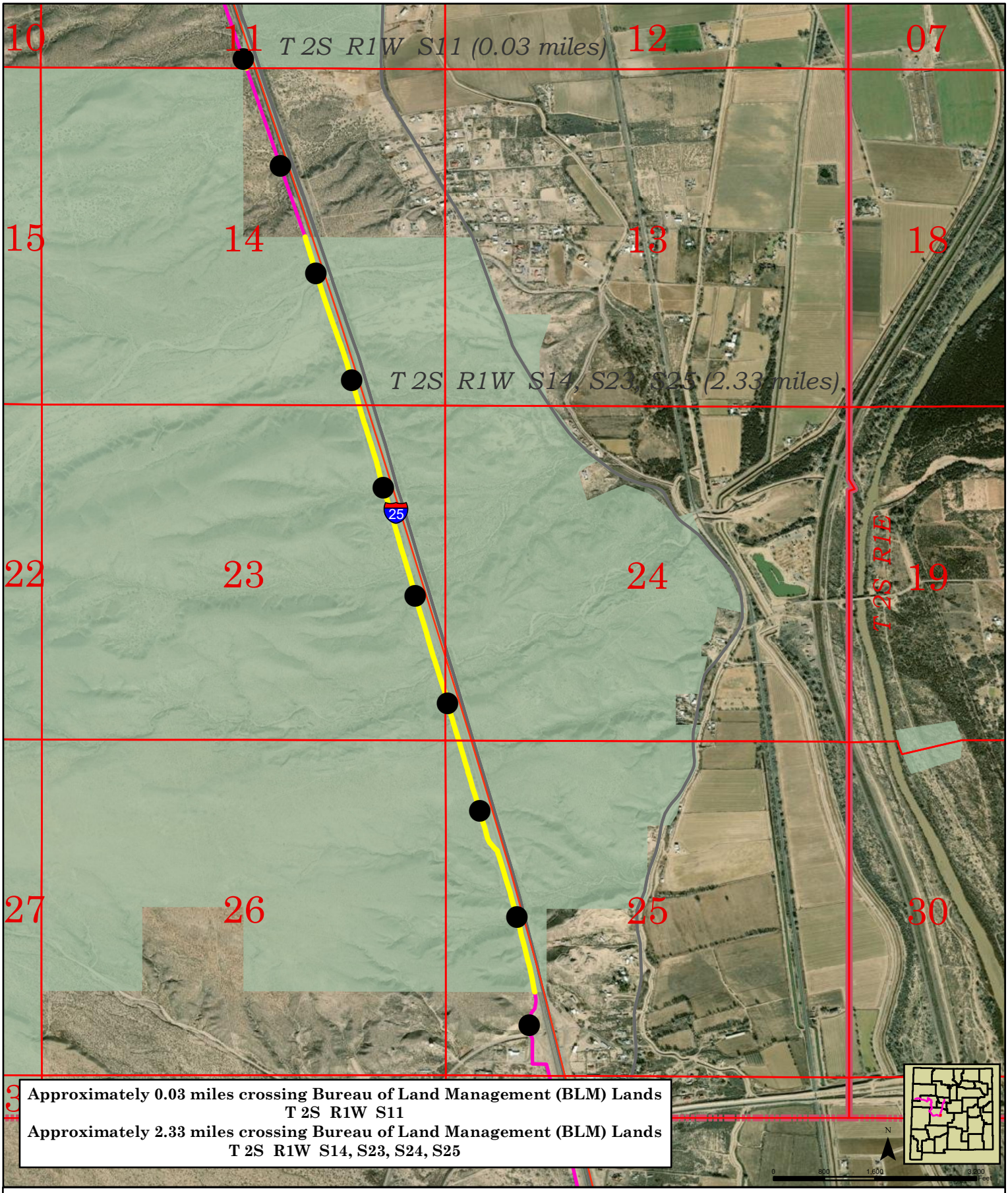
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Private (P)
- State (S)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.03 miles crossing Bureau of Land Management (BLM) Lands
T 2S R1W S11
Approximately 2.33 miles crossing Bureau of Land Management (BLM) Lands
T 2S R1W S14, S23, S24, S25

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro map 5 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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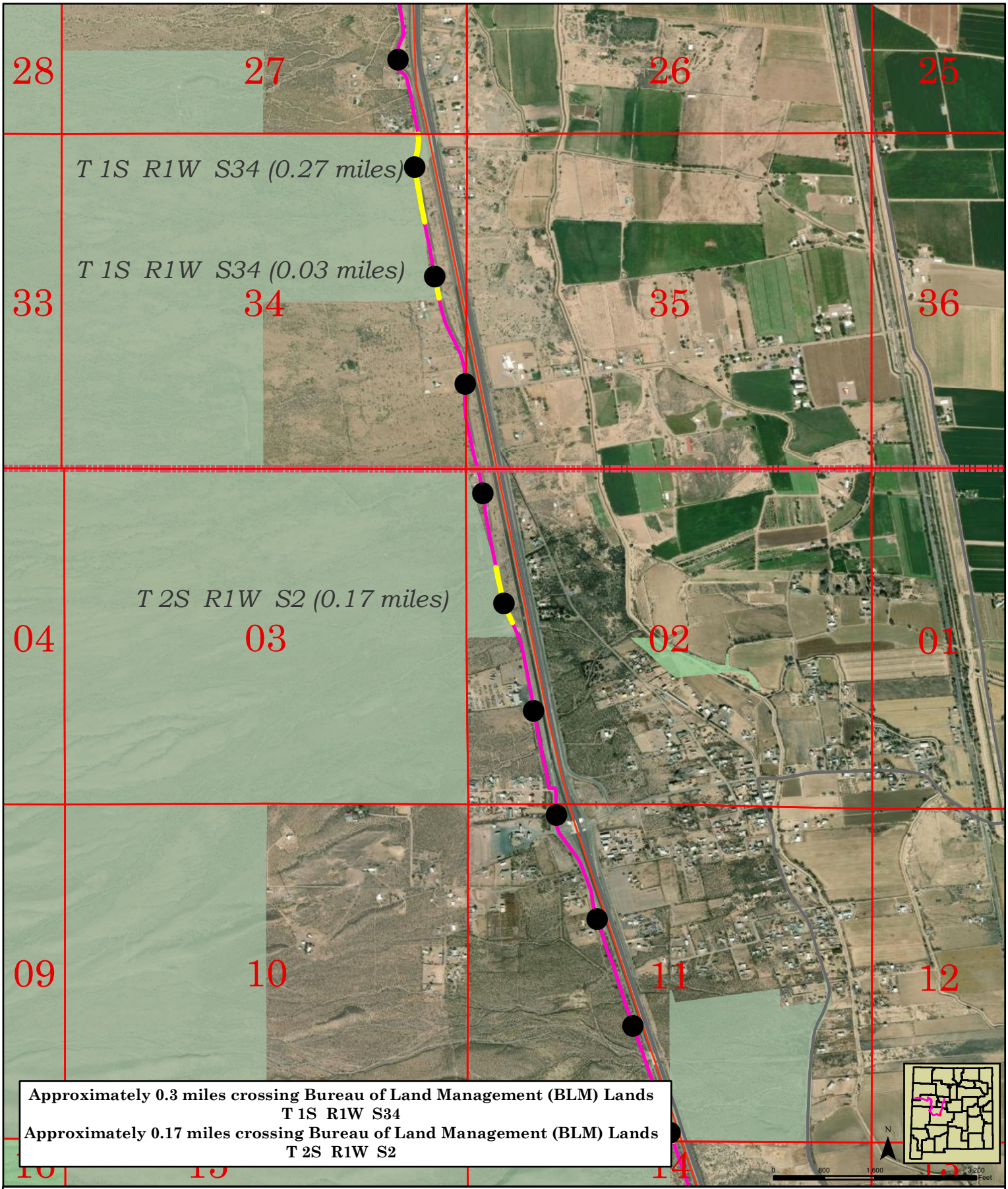
Handholes Updated 03/2025
Private (P)
Crossing BLM Land
PEN Fiber Optic Line 12_19_2023
Roads
BLM PLS SSections
BLM PLSS Township & Range
Bureau of Land Management (BLM)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Socorro, map 6 of 6).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Private (P)
- State (S)

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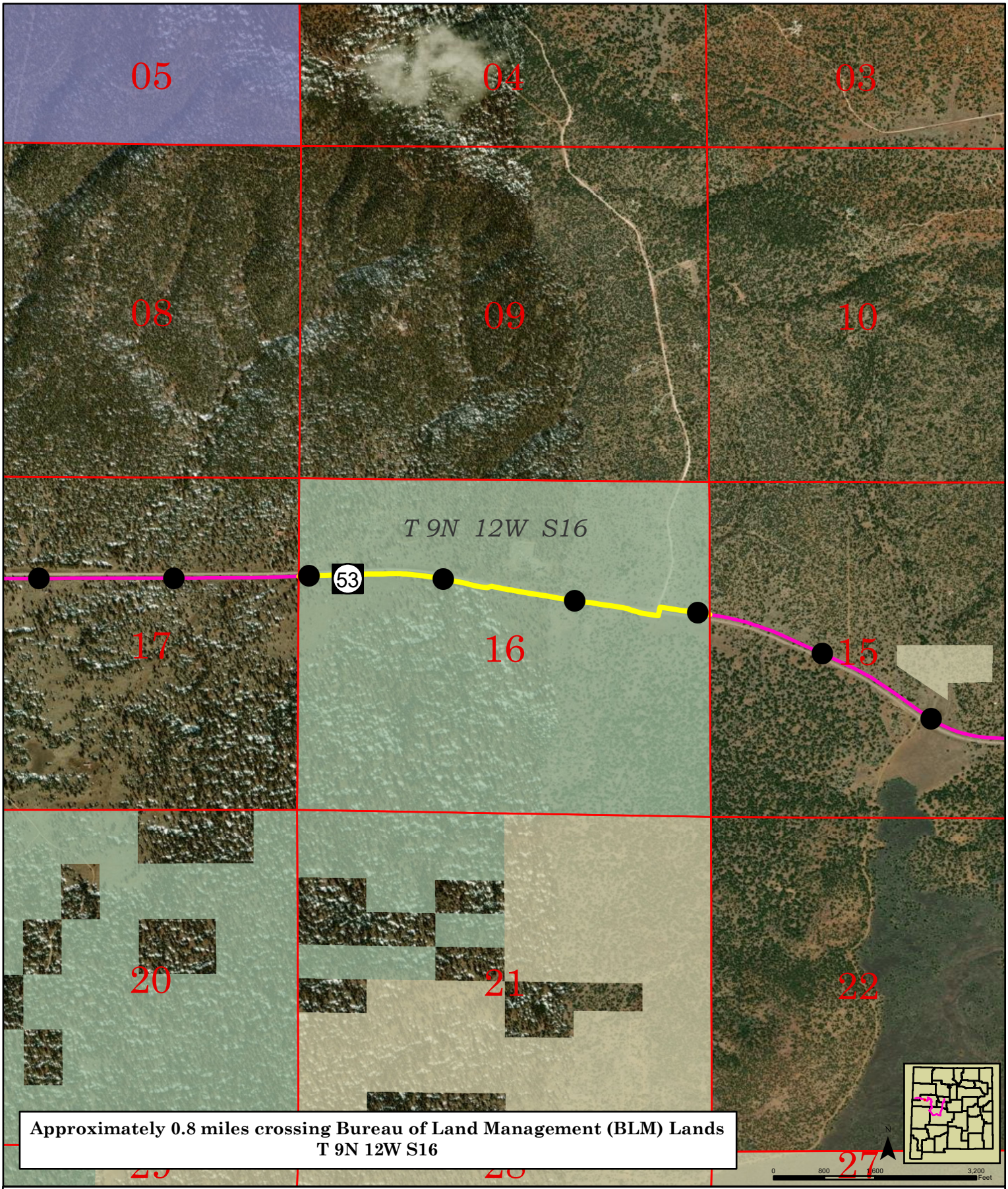
DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.8 miles crossing Bureau of Land Management (BLM) Lands
T 9N 12W S16

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puero, map 1 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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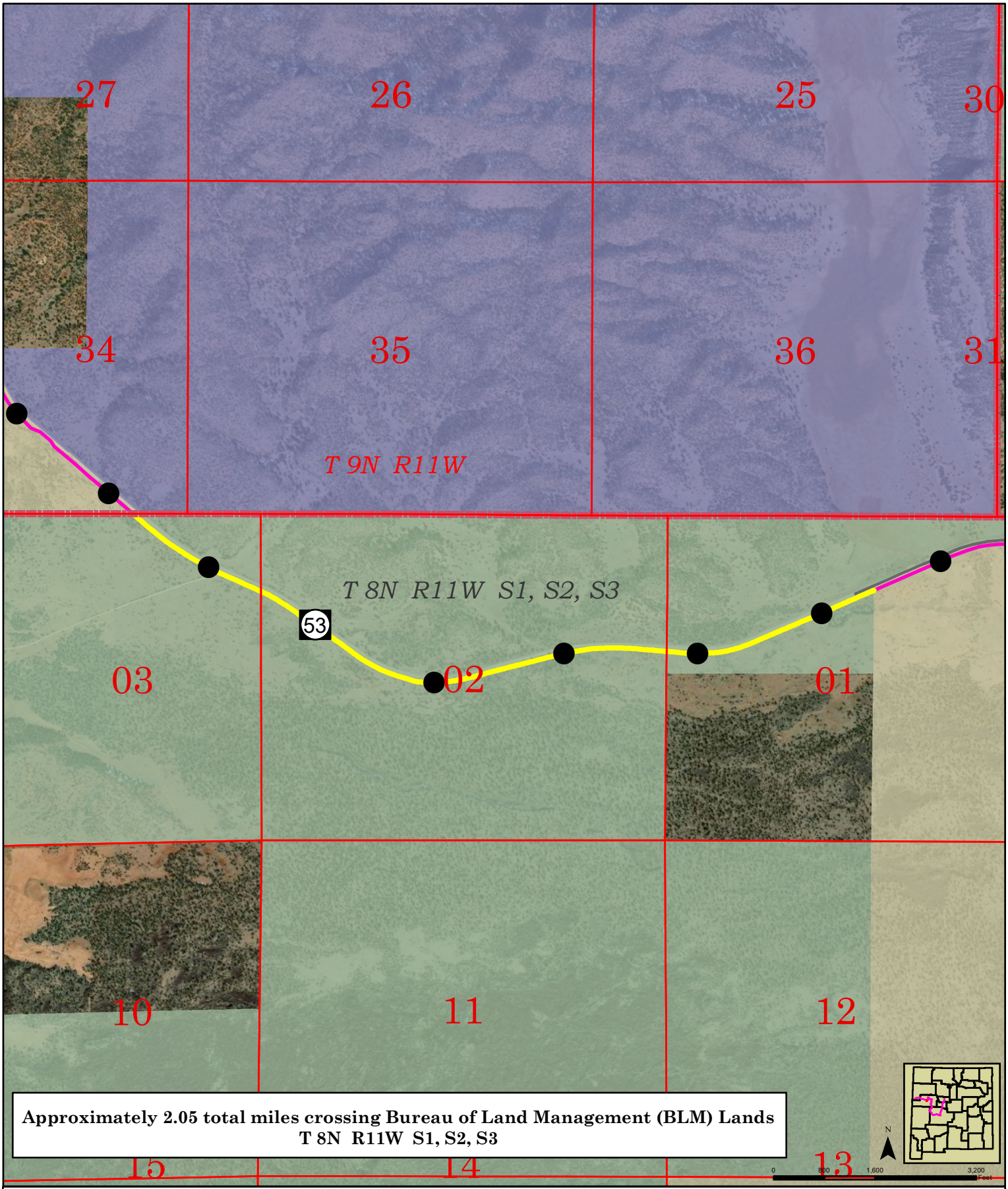
- Handholes Updated 03/2025
- PEN Fiber Line Updated12/2024
- Crossing BLM Land
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Forest Service (FS)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 2.05 total miles crossing Bureau of Land Management (BLM) Lands
T 8N R11W S1, S2, S3

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puero, map 2 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

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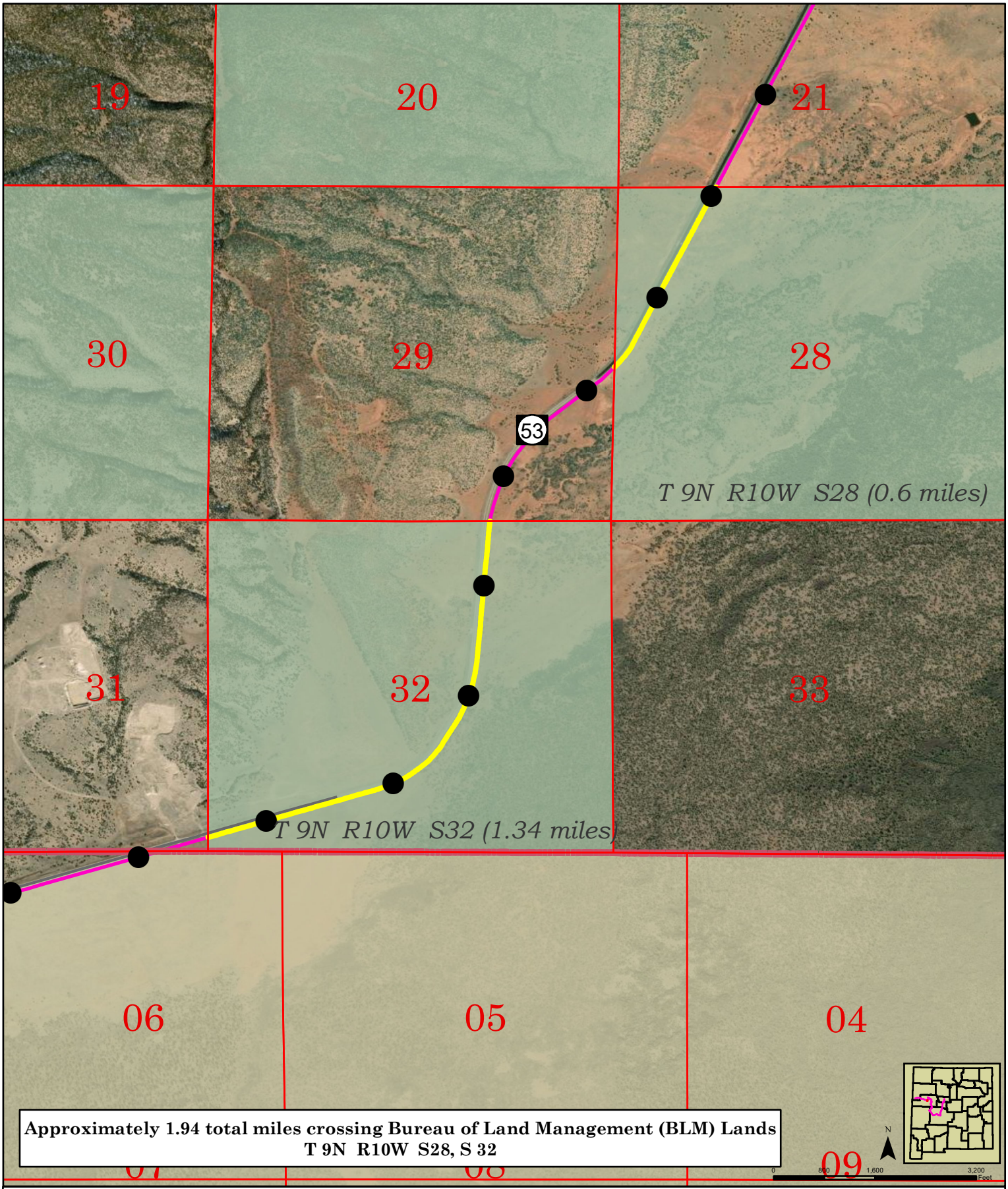
- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- Forest Service (FS)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puero map 3 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

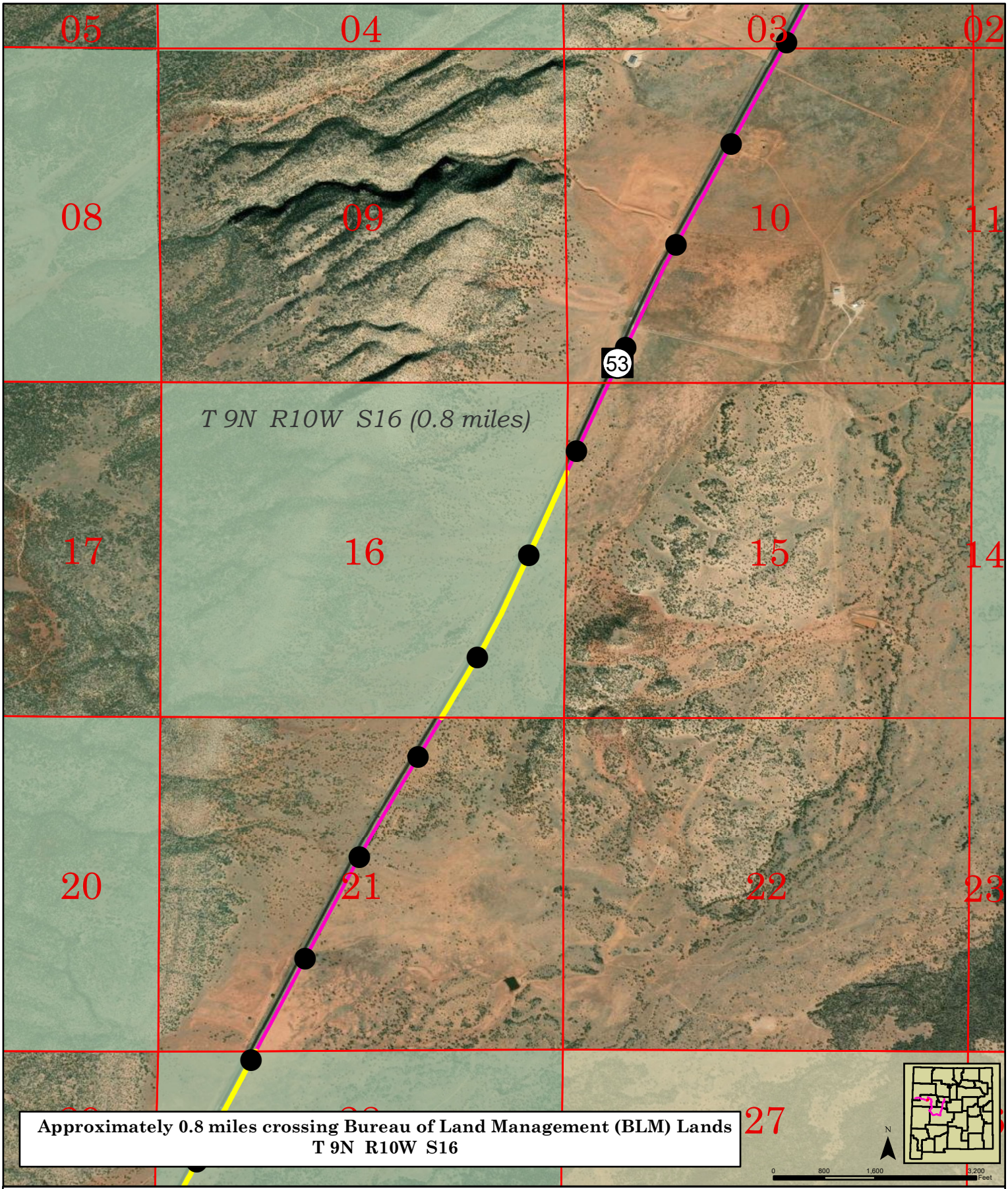
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024



Approximately 0.8 miles crossing Bureau of Land Management (BLM) Lands
T 9N R10W S16

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over BLM lands (Rio Puerco map 4 of 4).

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West & Central (US Feet) Scale:1:24,000

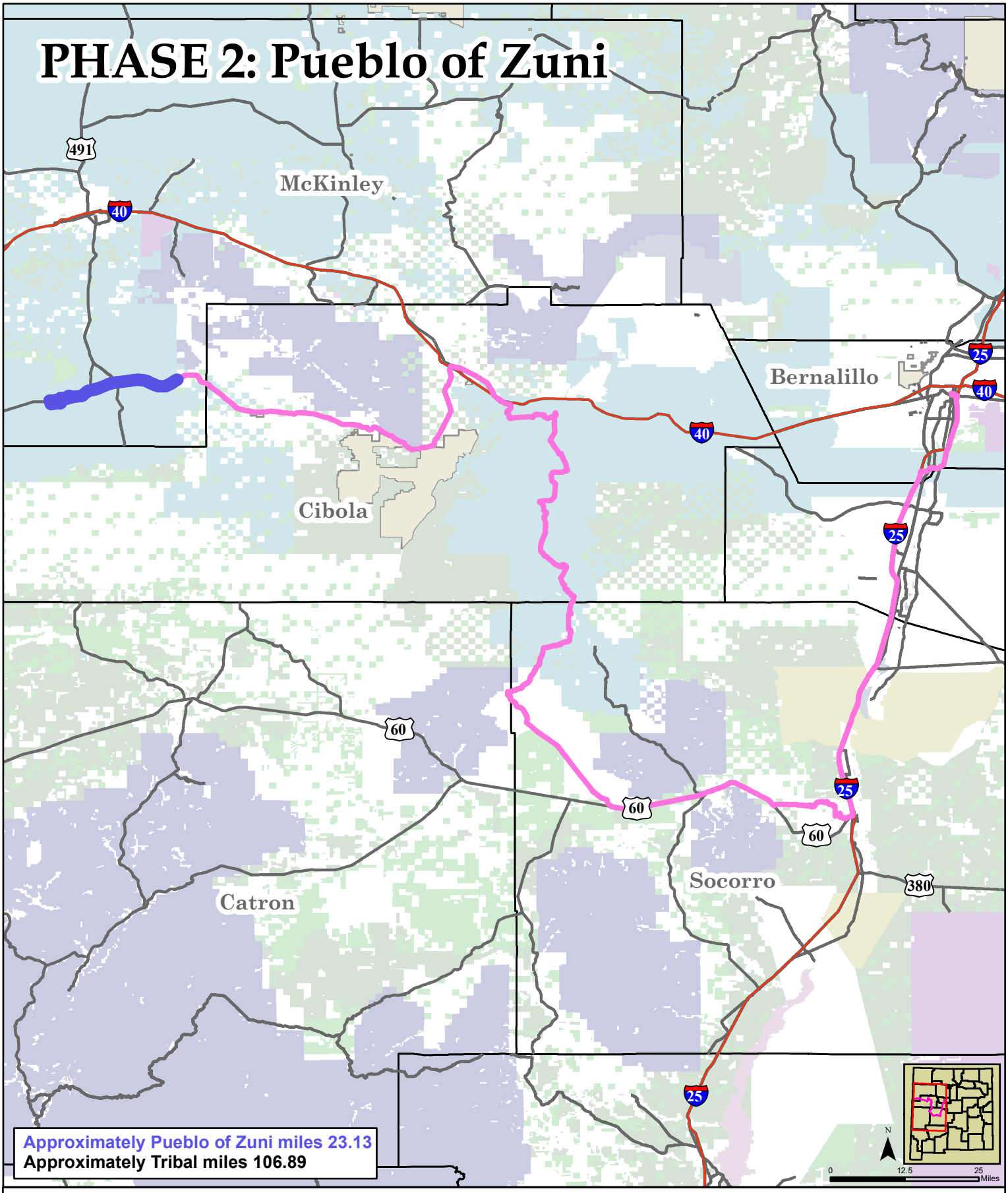
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- Crossing BLM Land
- PEN Fiber Optic Line 12_19_2023
- Roads
- BLM PLSS Township & Range
- BLM PLS SSections
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Private (P)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\EA_UPDATED\Josh\Federal Mapping\GIS\BLM\MXDs\11x8.5 Size

DRAWN BY: GIS Specialist, HWM on 1/19/2024

PHASE 2: Pueblo of Zuni



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Zuni lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

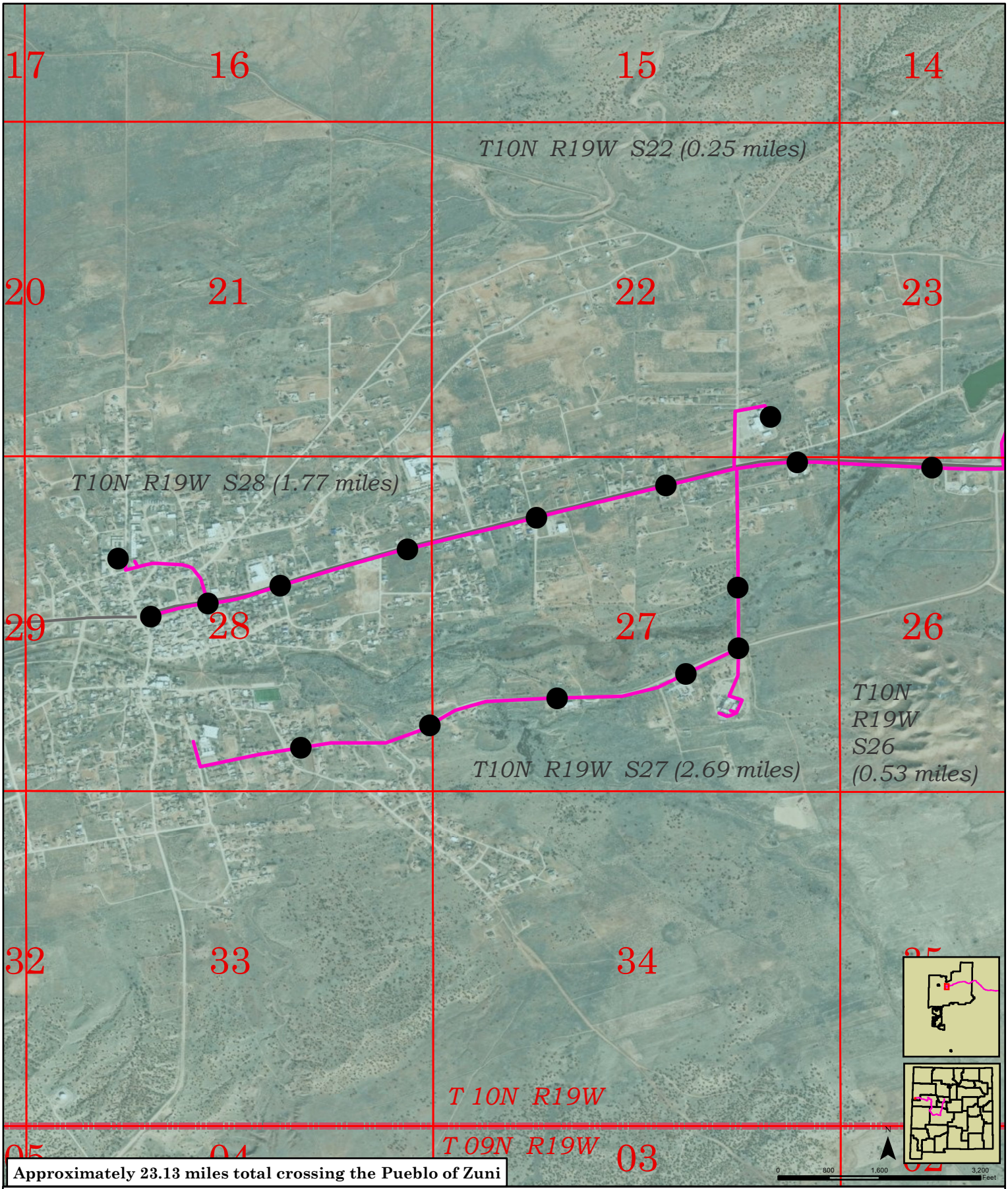
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Pueblo of Zuni
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\NDN

DRAWN BY: GIS Specialist, HWM on 02/2025



Approximately 23.13 miles total crossing the Pueblo of Zuni

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 1 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

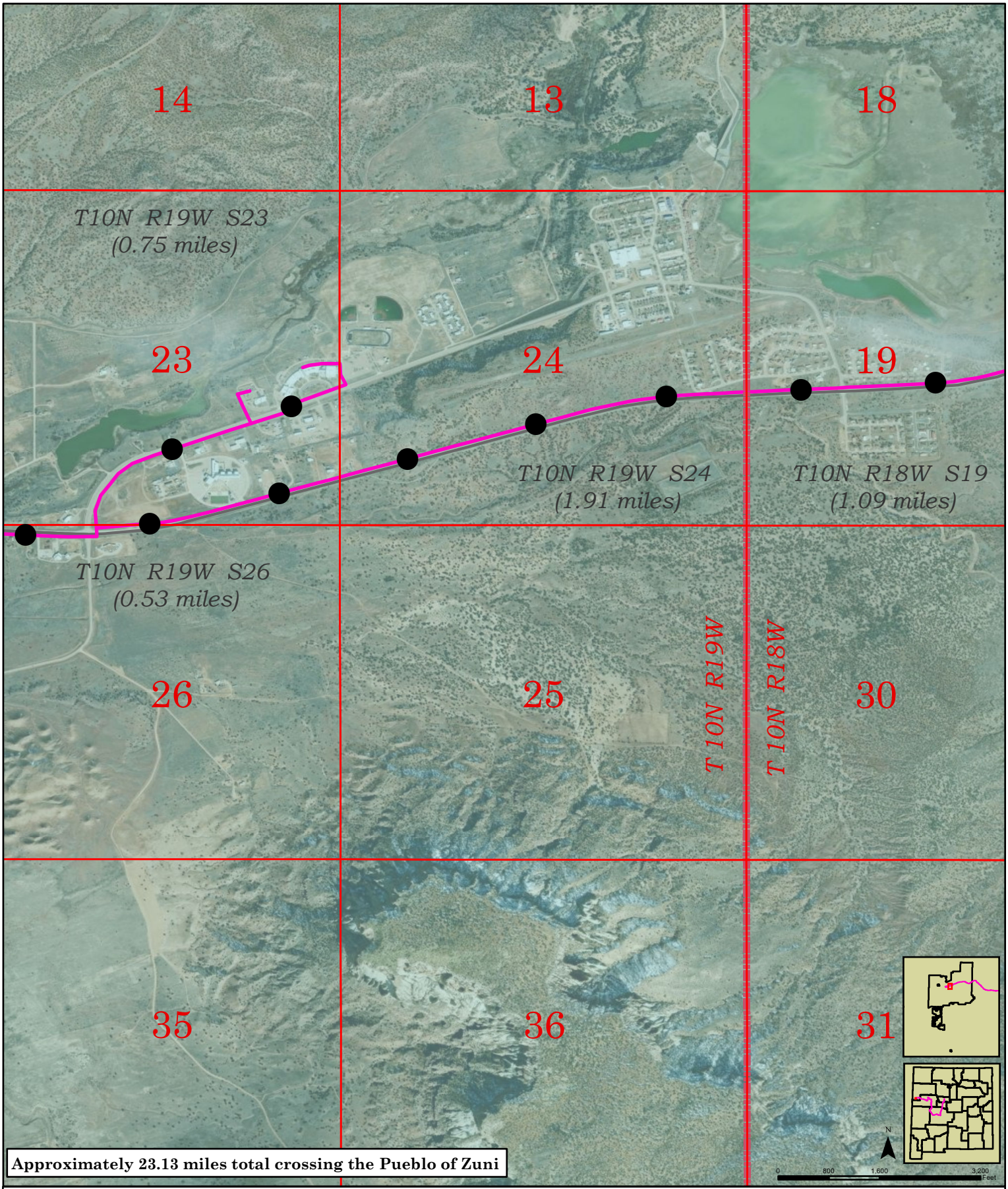
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
SFIS PEN Fiber Line Updated 12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 2 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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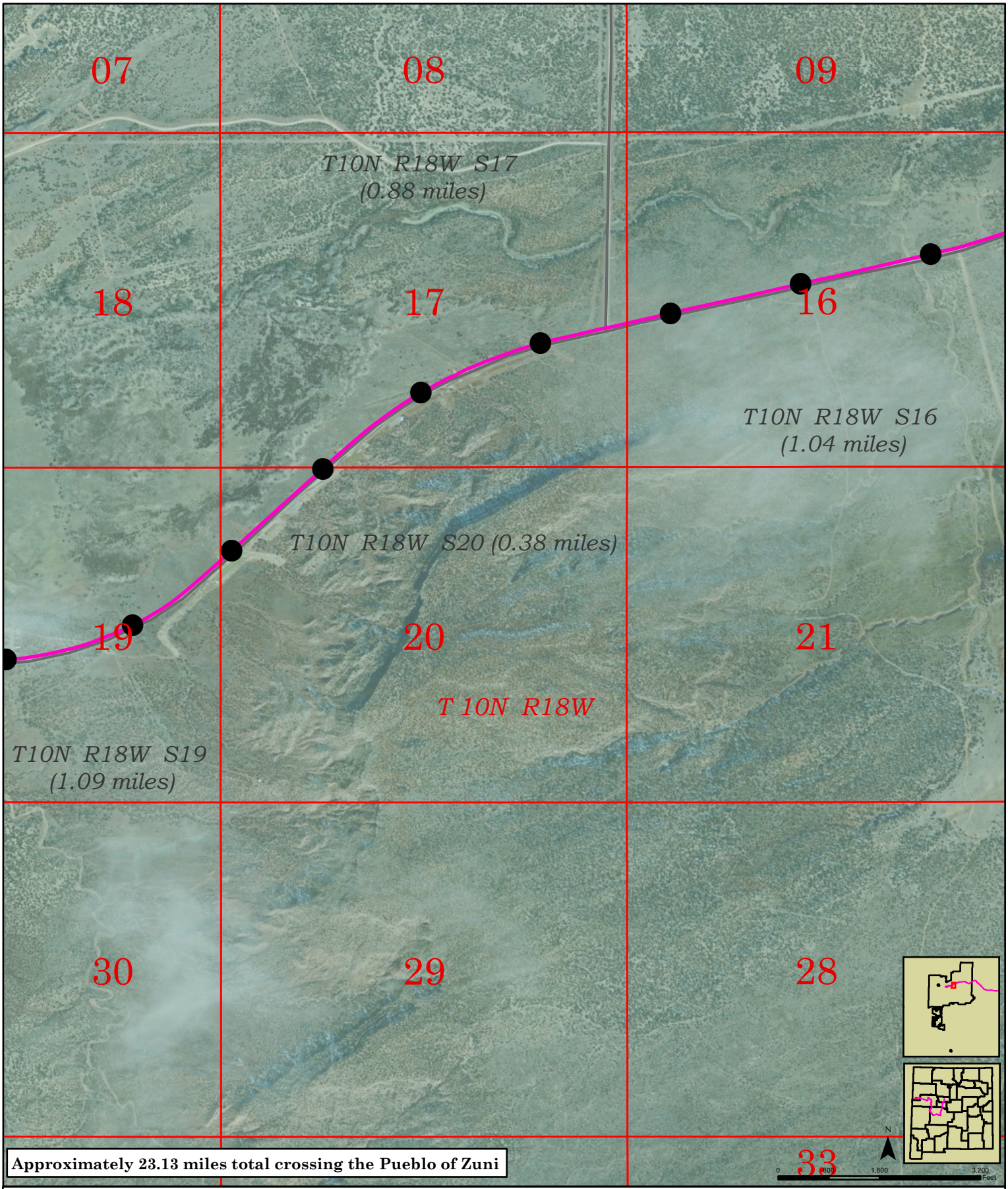
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 3 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
SFIS PEN Fiber Line Updated 12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

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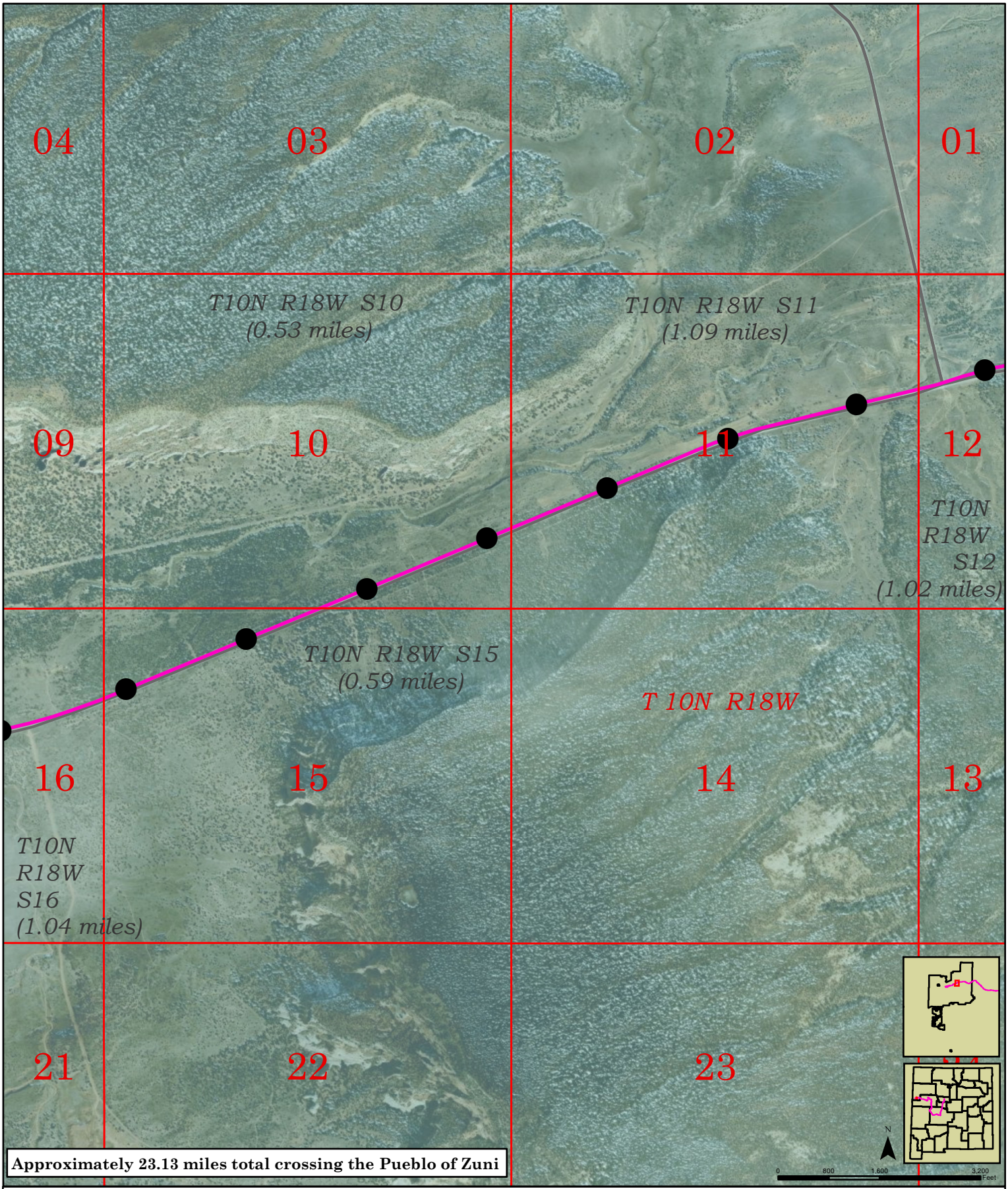
DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 23.13 miles total crossing the Pueblo of Zuni

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 4 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
SFIS PEN Fiber Line Updated 12/2024
Roads
BLM PLS SSections
BLM PLSS Township & Range
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

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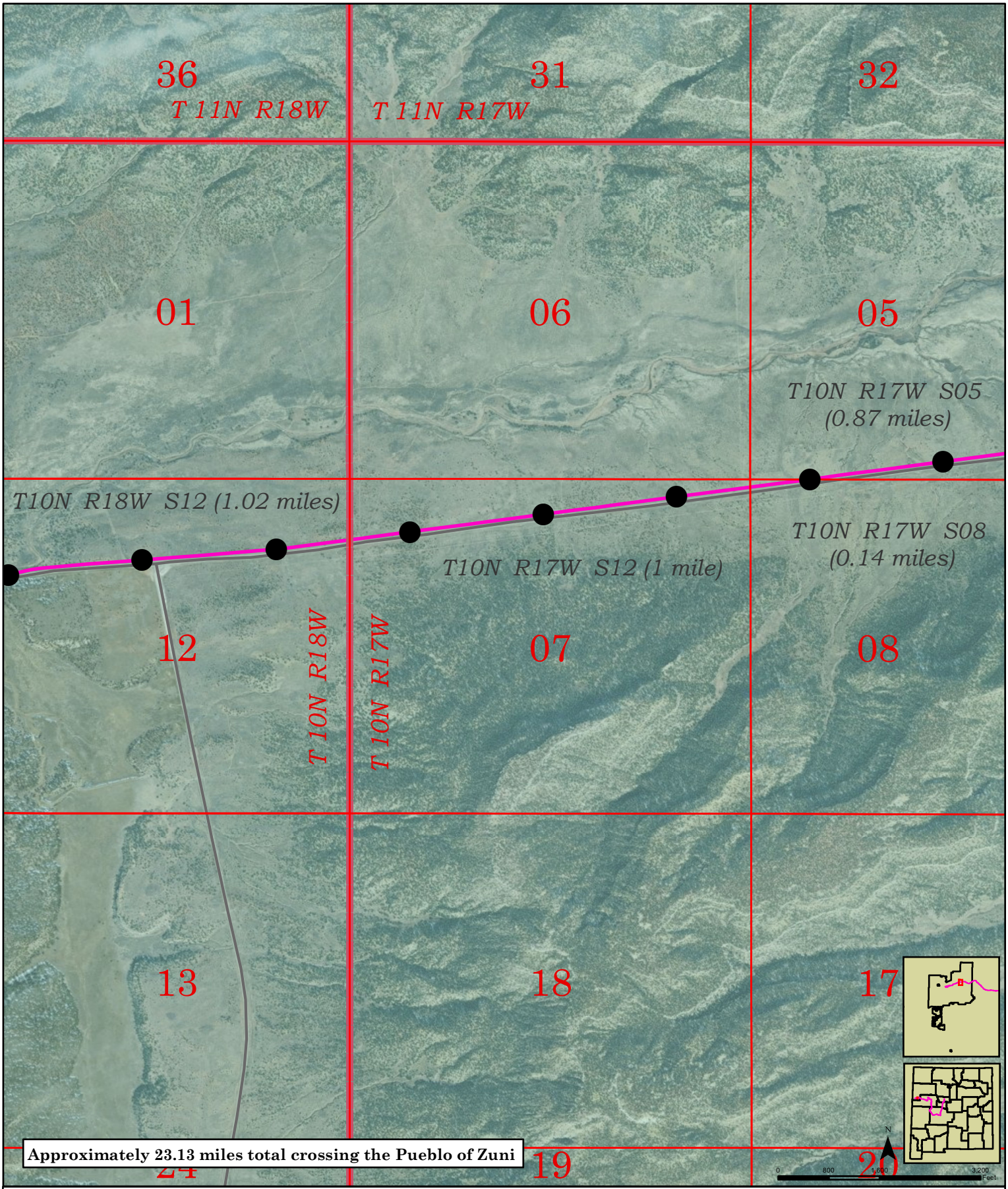
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 5 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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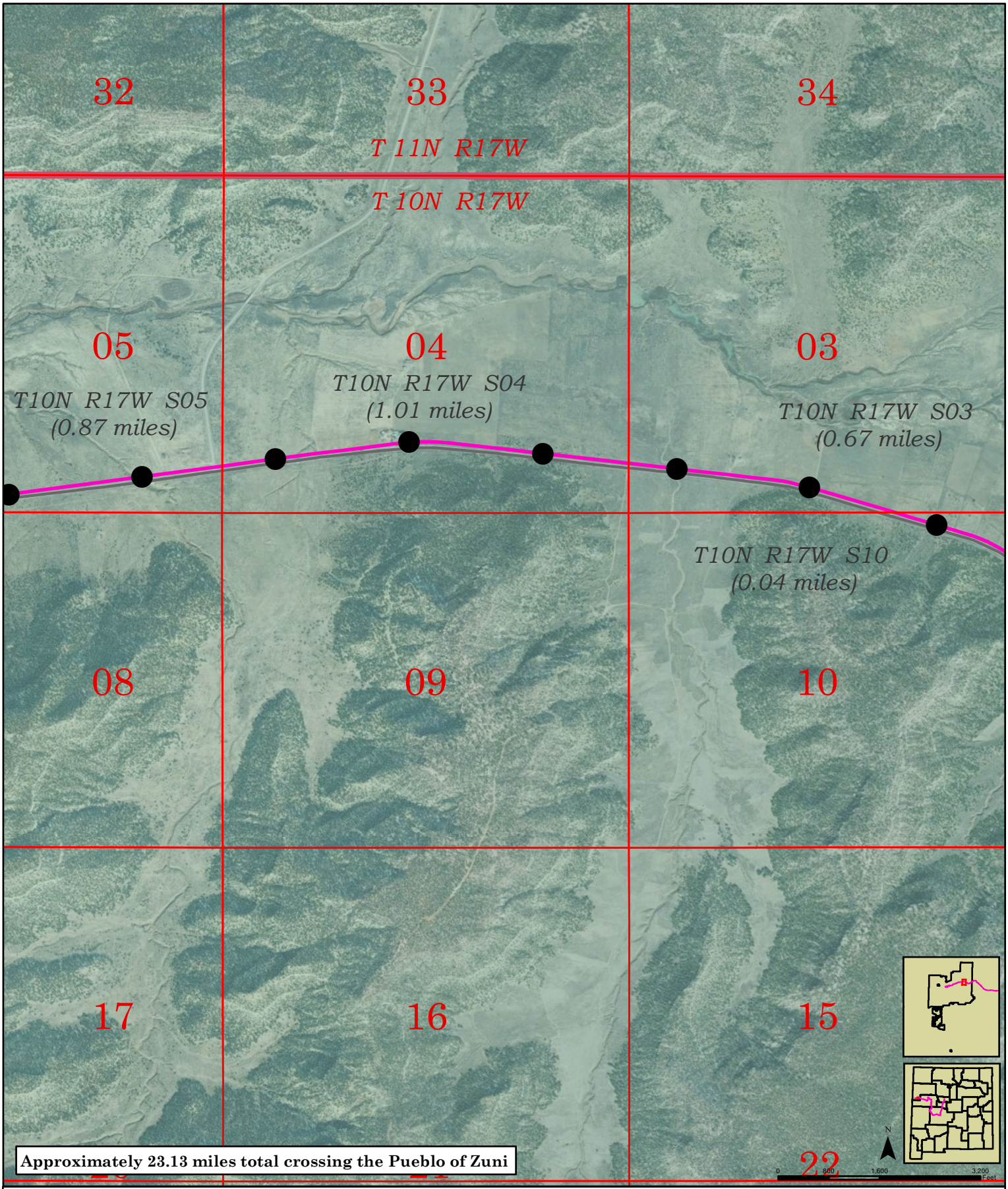
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 6 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

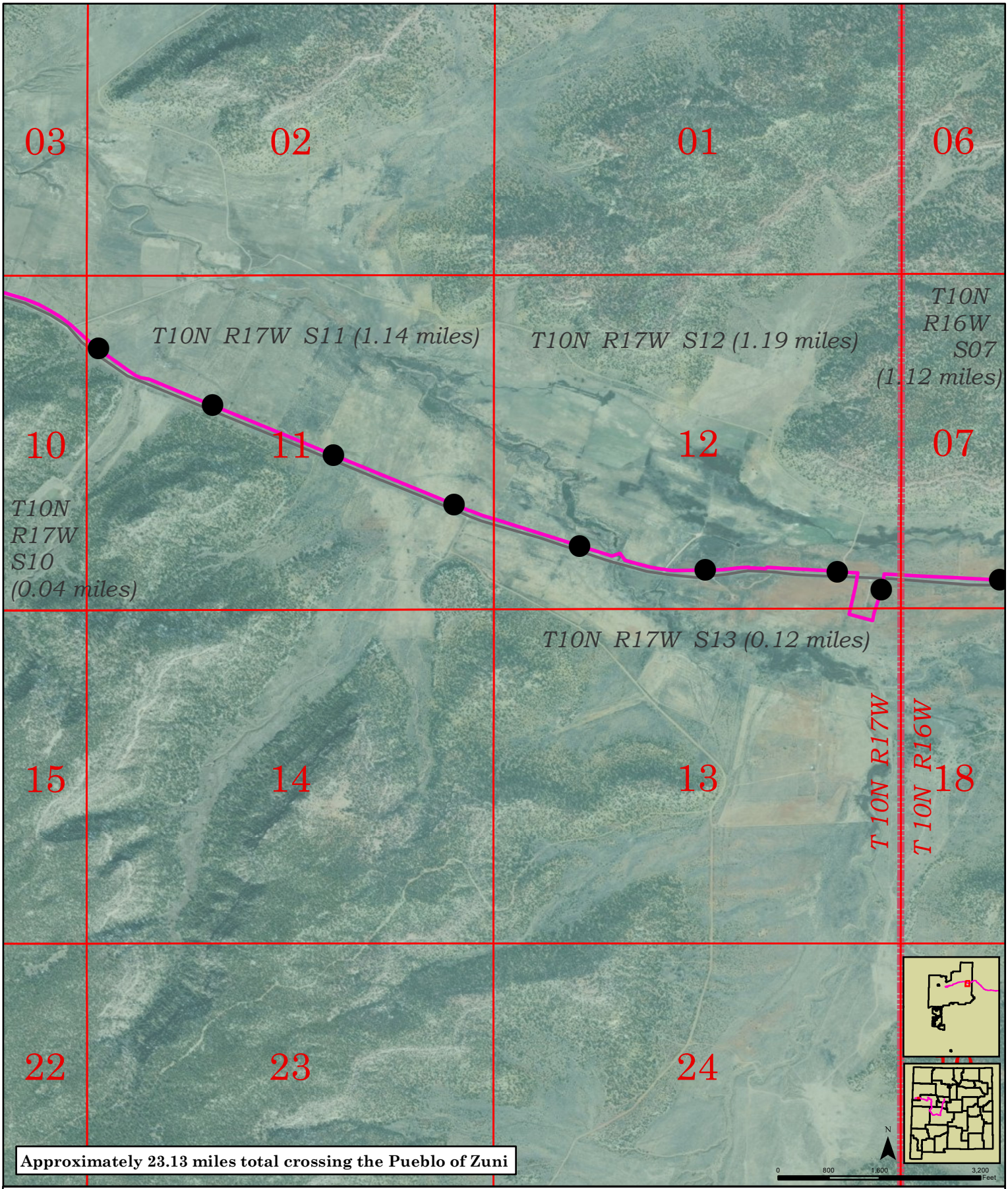
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 7 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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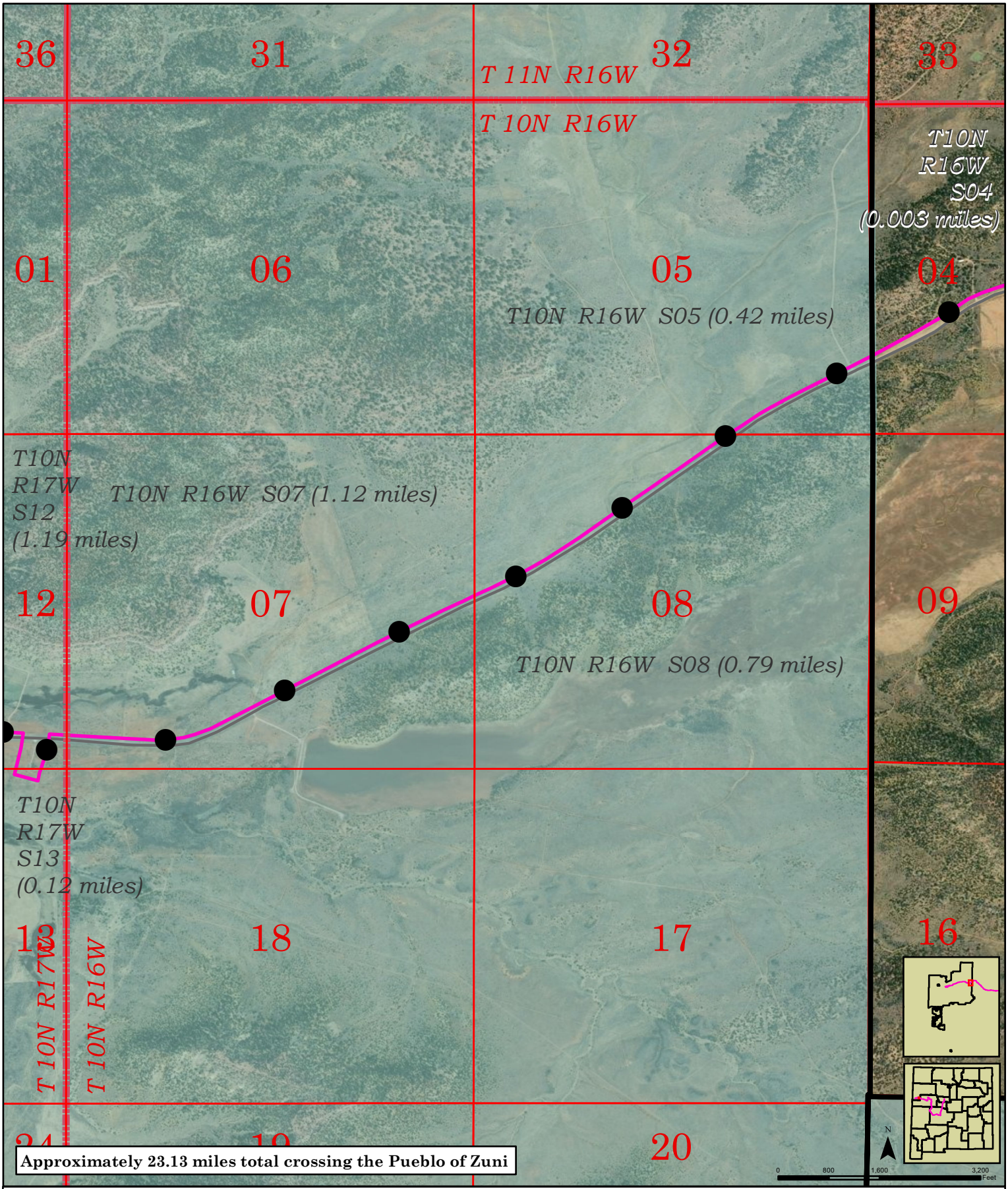
- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Zuni. (map 8 of 8)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

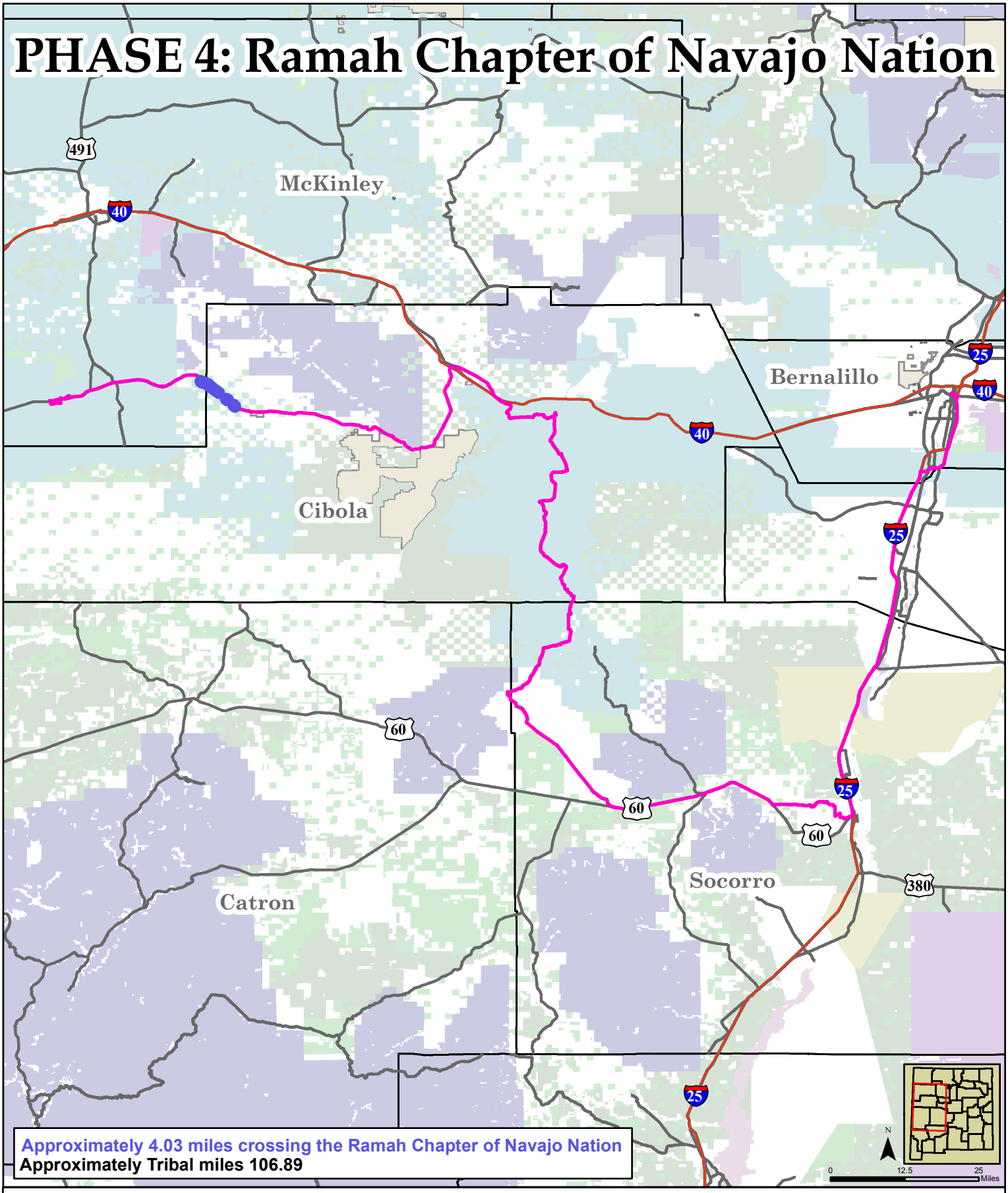
Handholes Updated 03/2025
SFIS PEN Fiber Line Updated 12/2024
Roads
Reservations Boundary
BLM PLS SSections
BLM PLSS Township & Range
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Zuni\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 4: Ramah Chapter of Navajo Nation



Approximately 4.03 miles crossing the Ramah Chapter of Navajo Nation
Approximately Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Ramah lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Ramah Chapter of Navajo Nation
- SFIS PEN Fiber Line Updated 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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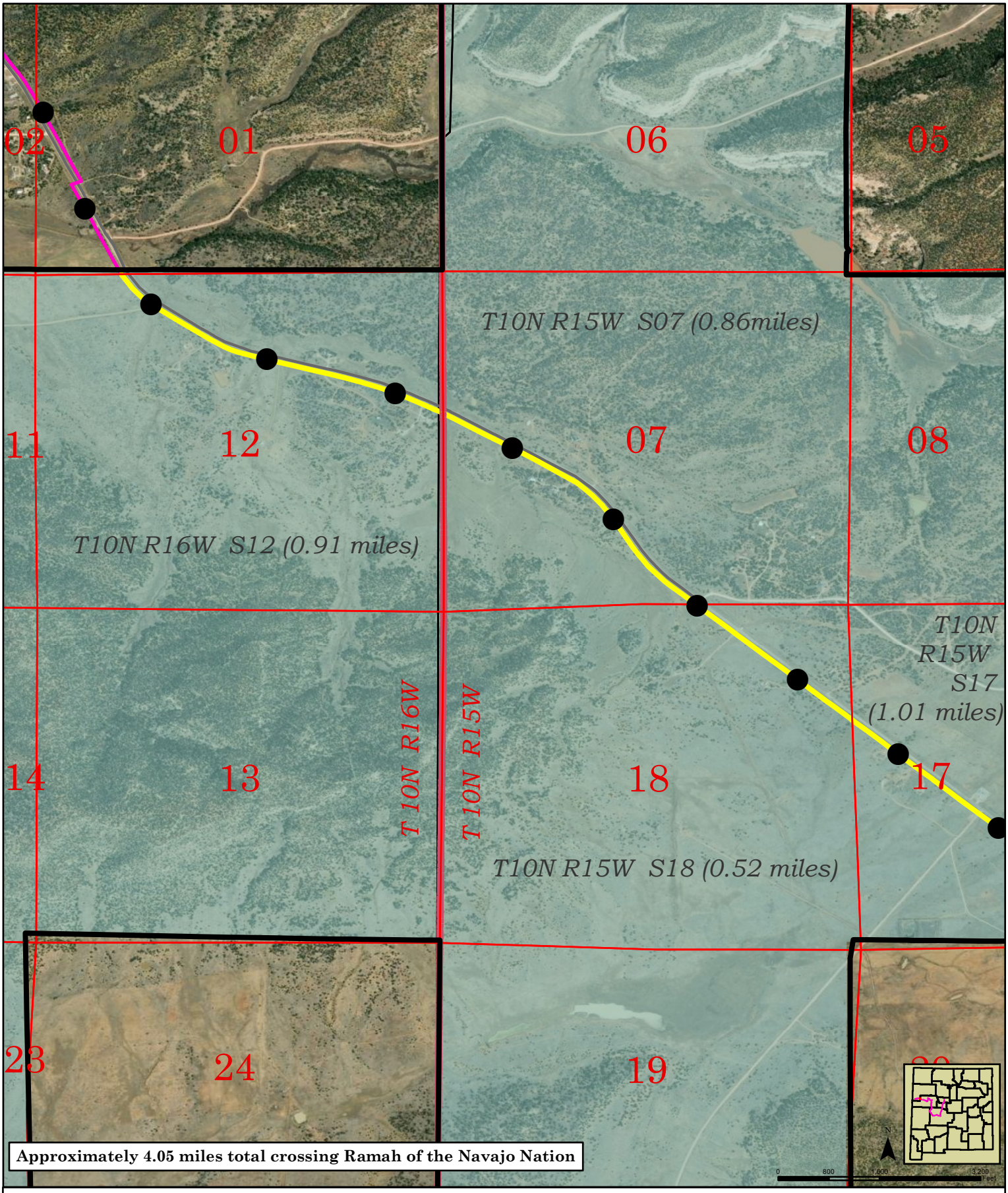
DRAWN BY: GIS Specialist, HWM on 02/2025 UPDATED: 05/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Ramah portion of the Navajo Nation. (map 1 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

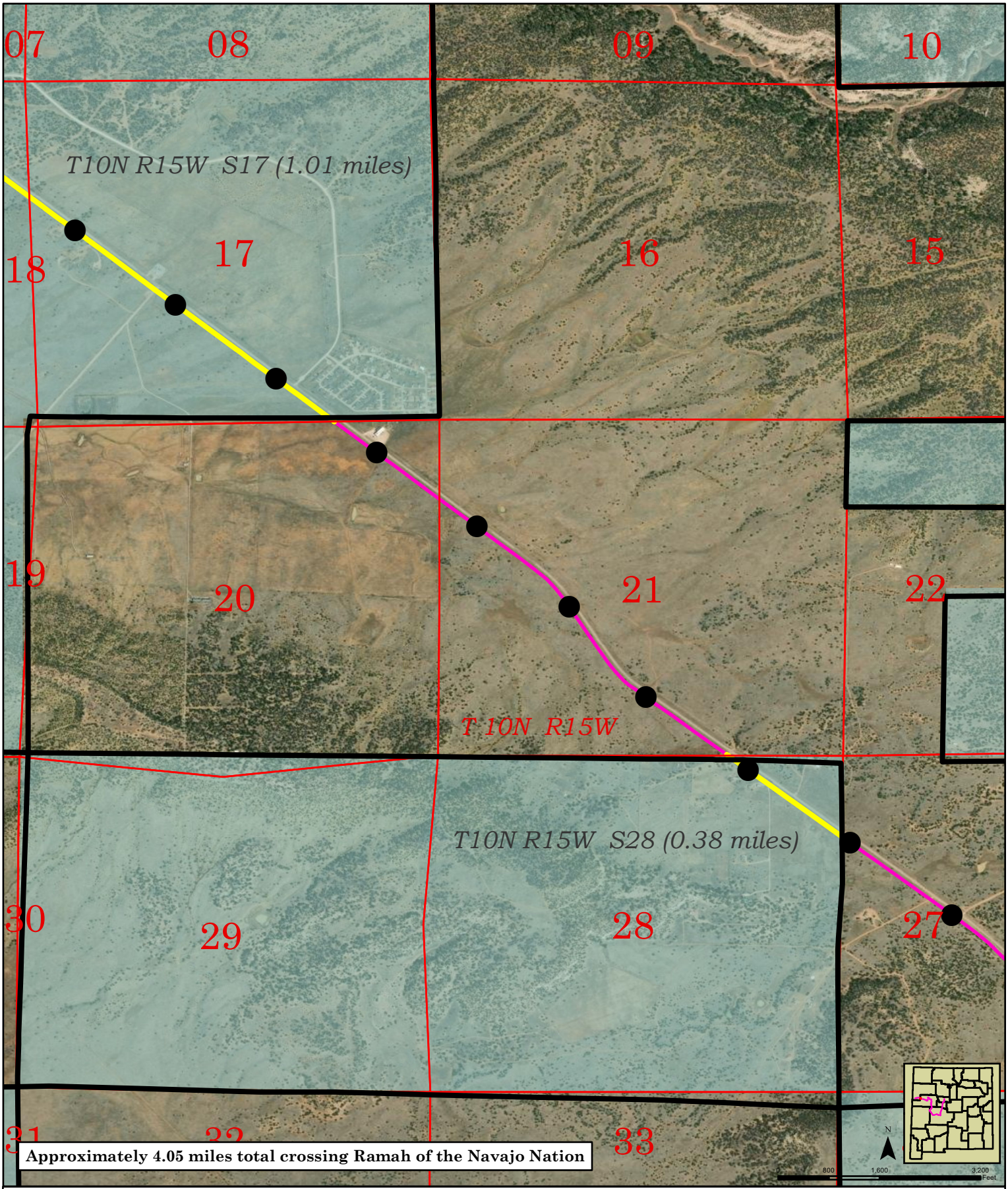
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Through Ramah
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Reservation Boundaries
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\NN\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Ramah portion of the Navajo Nation. (map 2 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

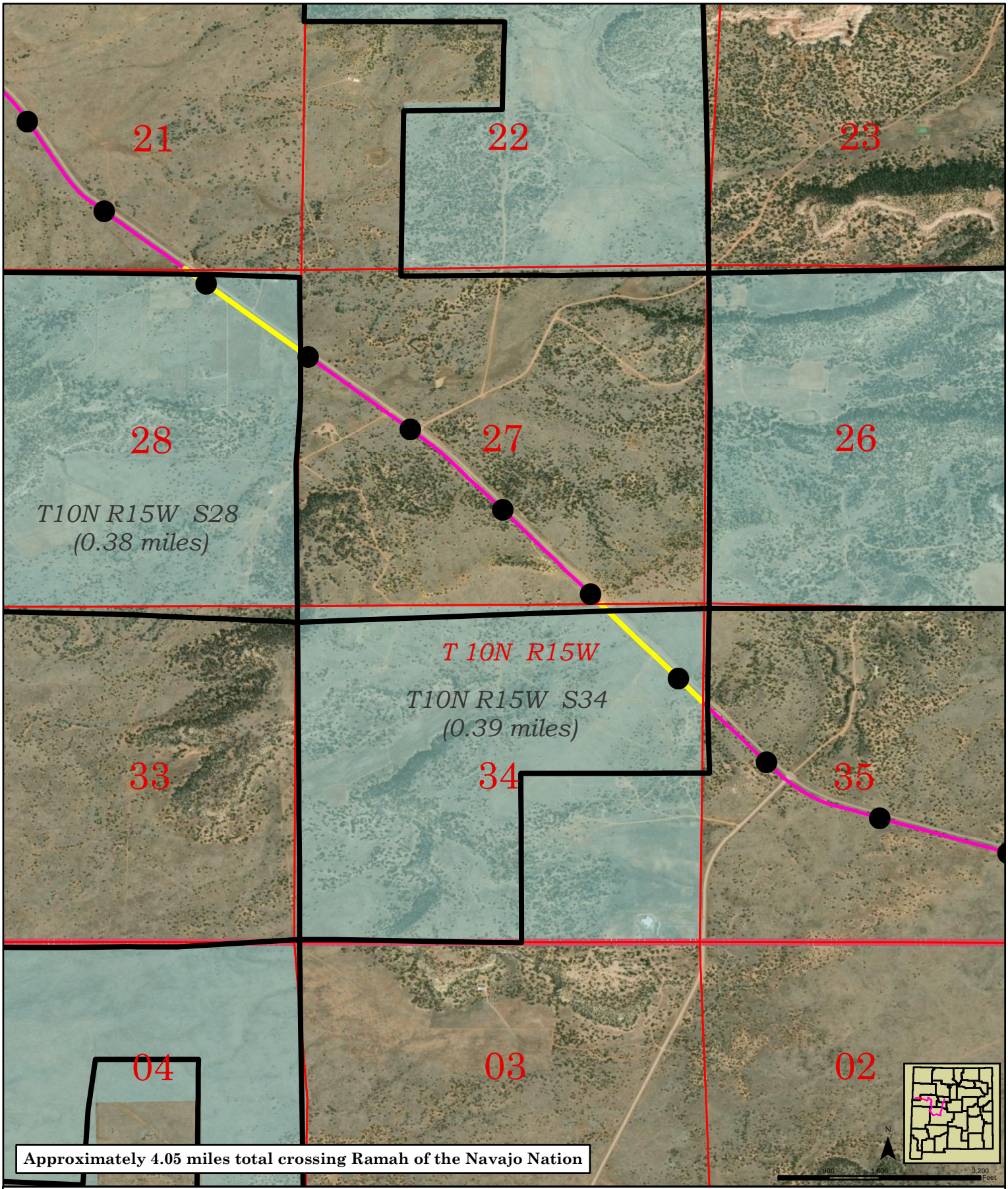
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Through Ramah
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Reservation Boundaries
- Tribal/Indian (l)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\NN\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Ramah portion of the Navajo Nation. (map 3 of 3)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

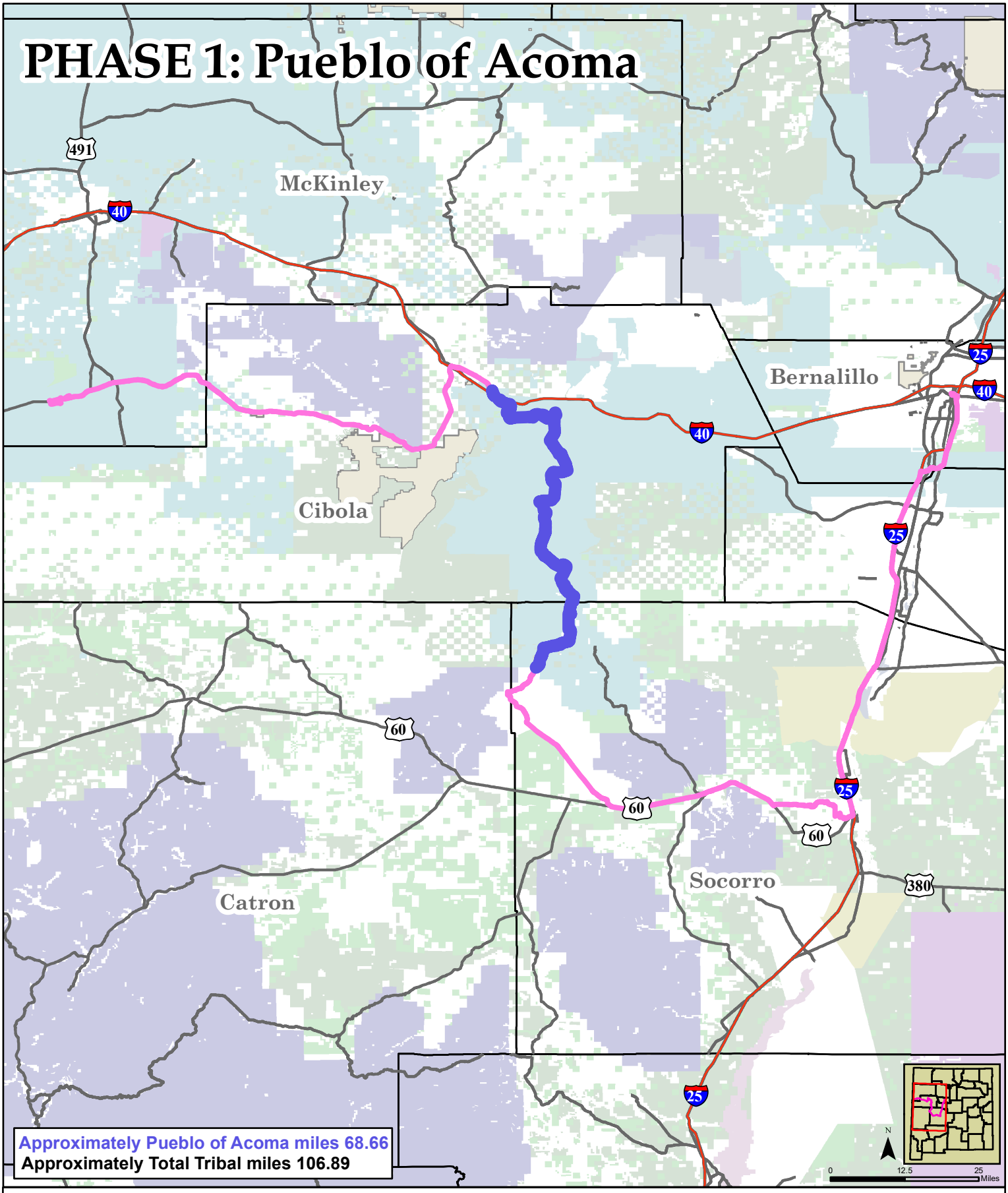
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- Through Ramah
- Roads
- BLM PLS SSections
- BLM PLSS Township & Range
- Reservation Boundaries
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\NN\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 1: Pueblo of Acoma



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Acoma lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Pueblo of Acoma
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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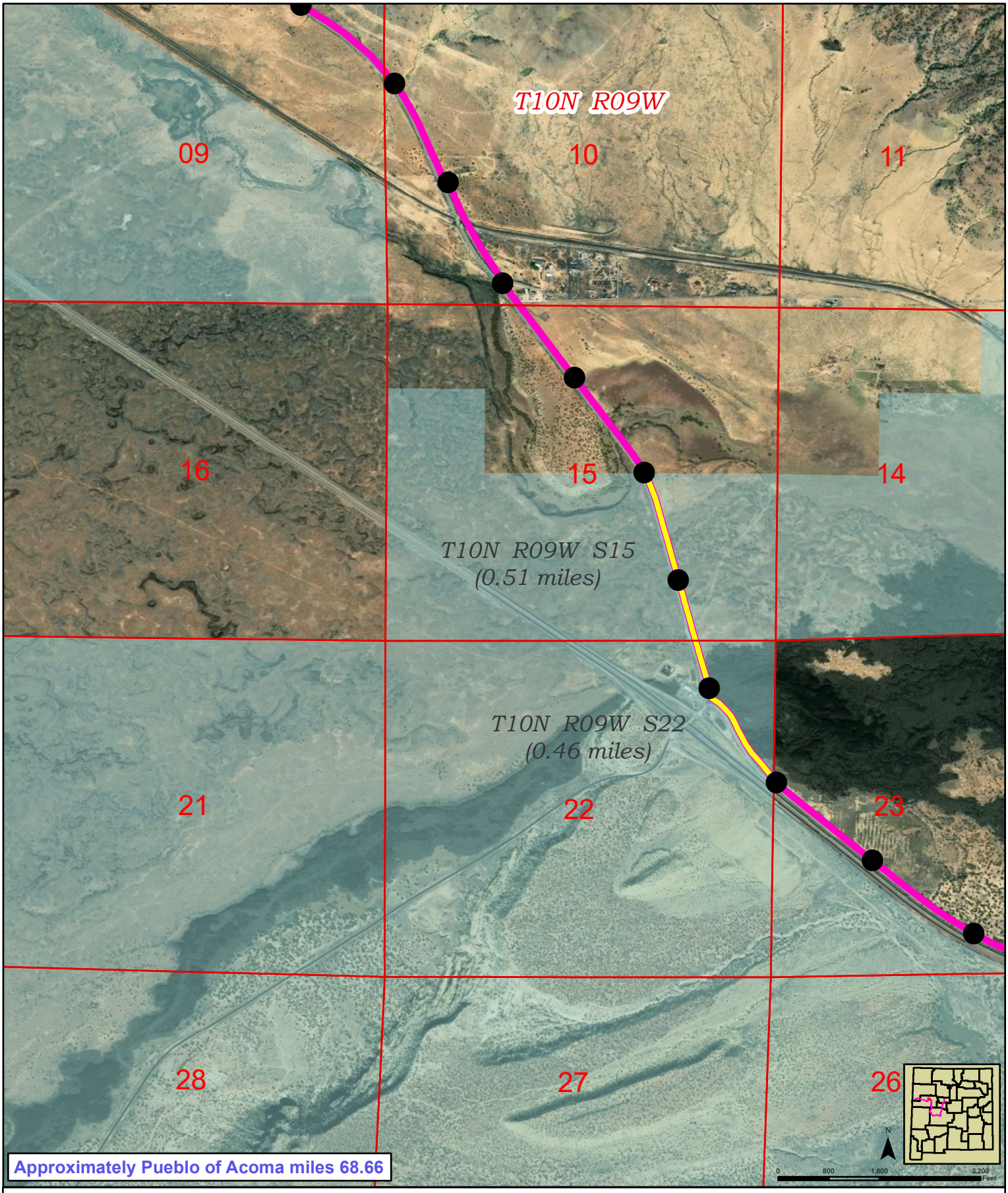


Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 1 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

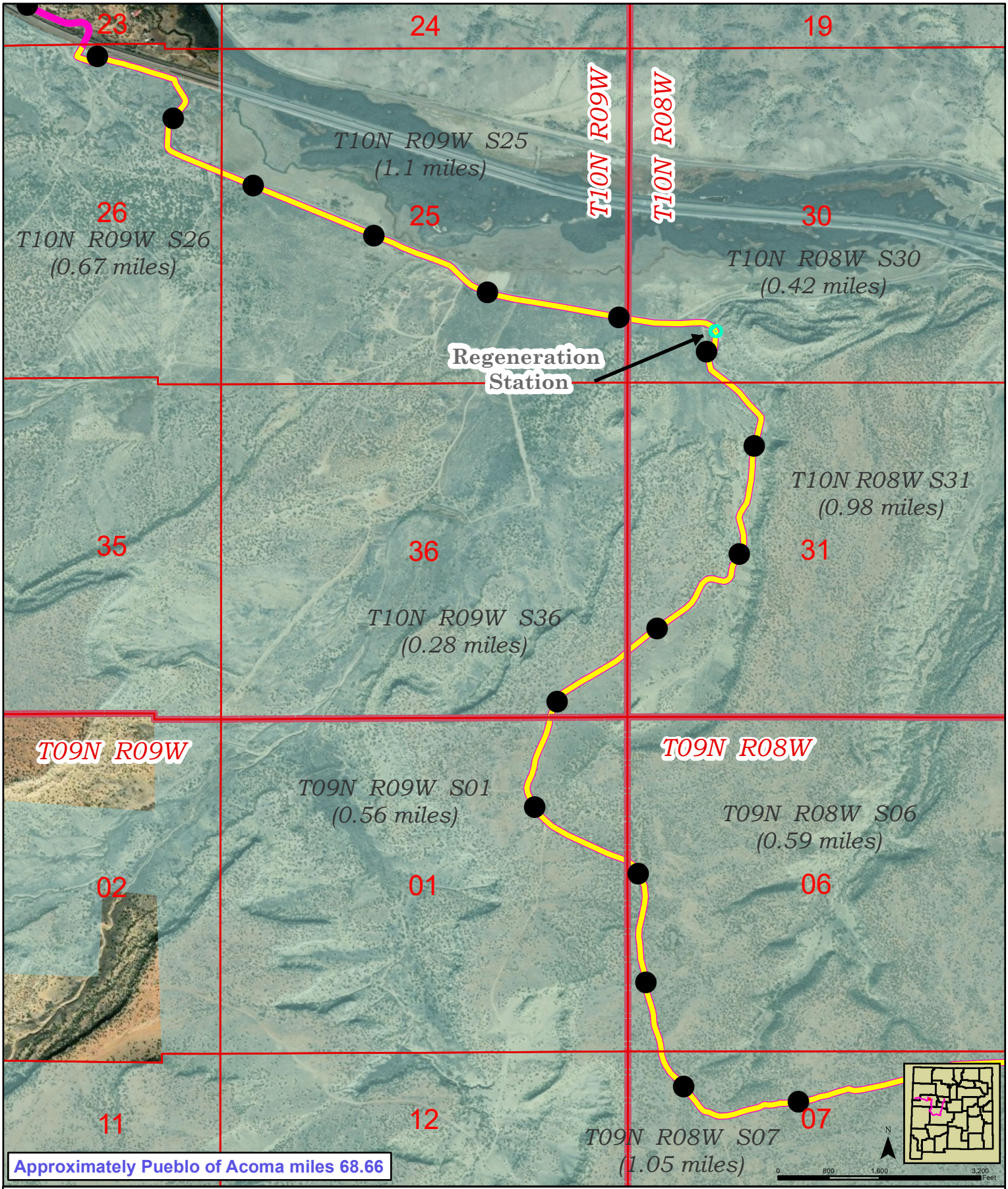
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 2 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

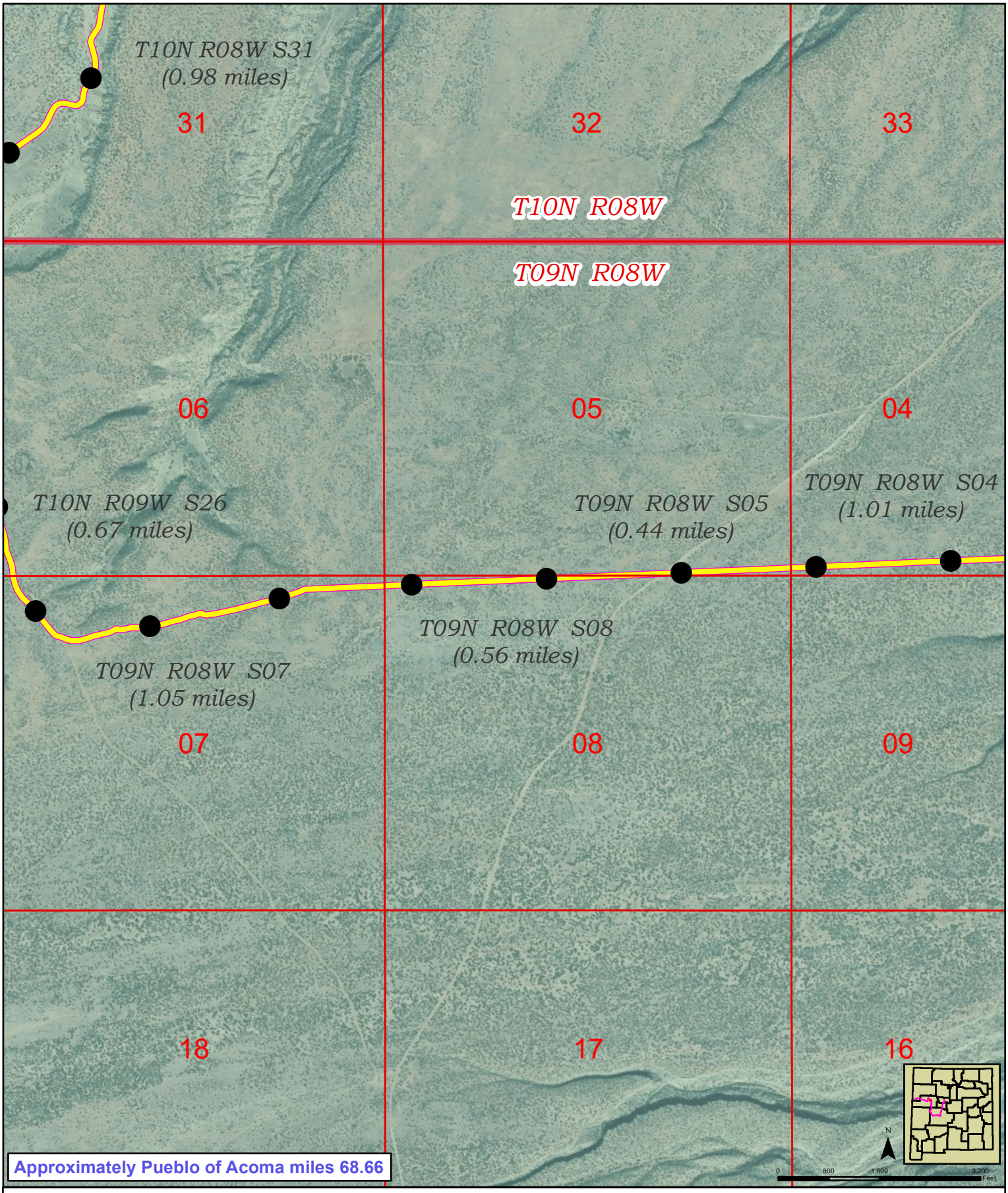
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 3 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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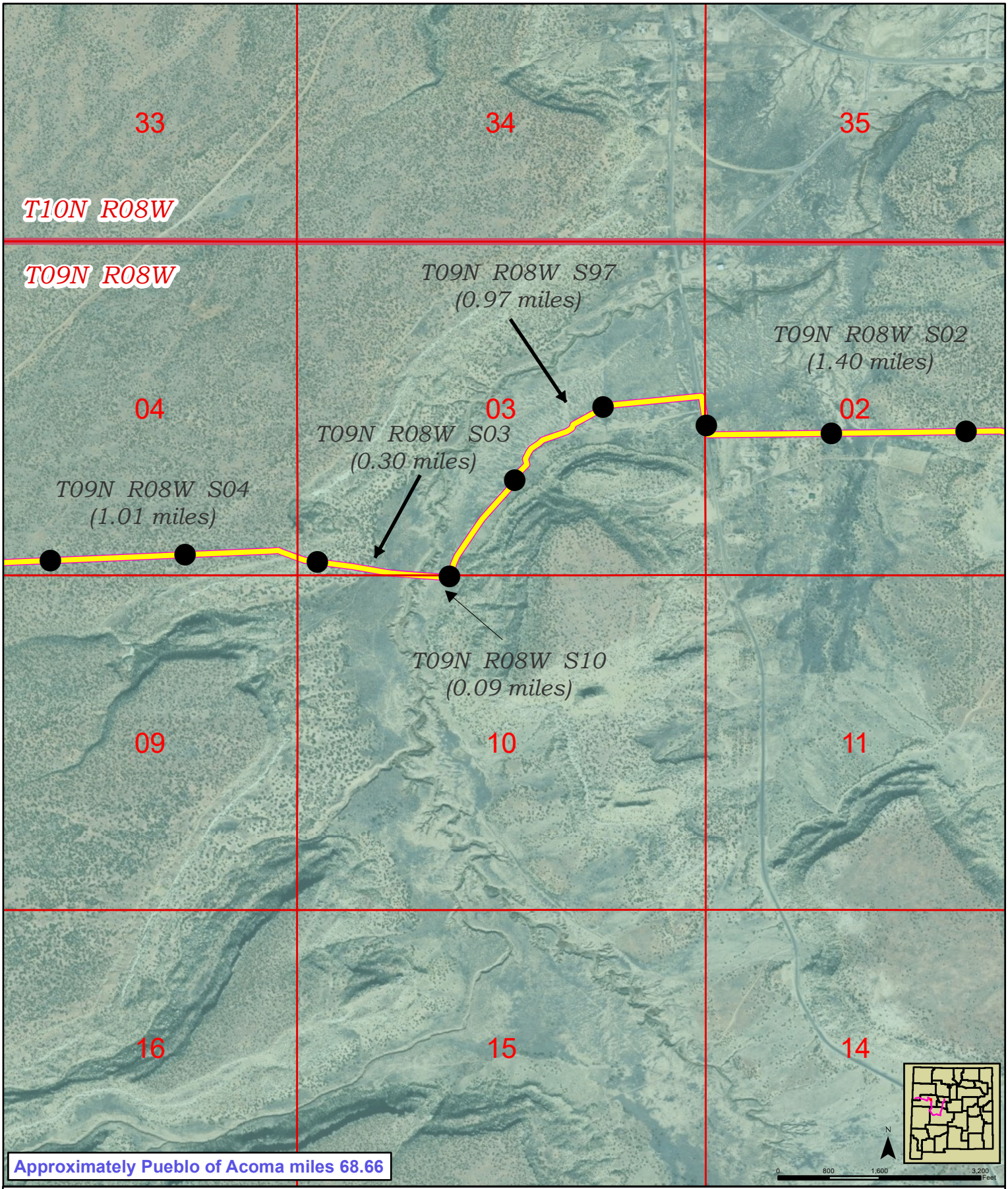
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 4 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

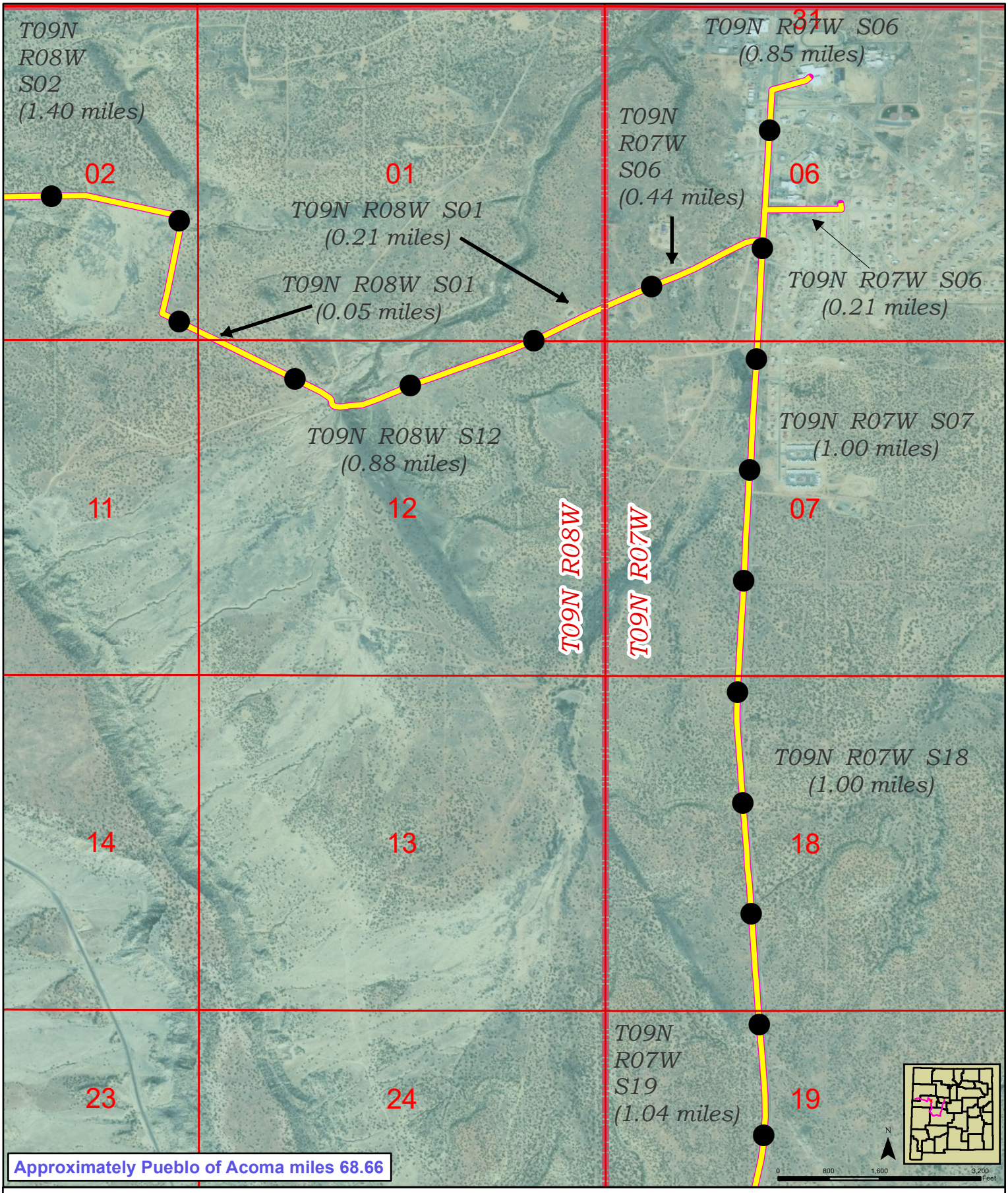
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 5 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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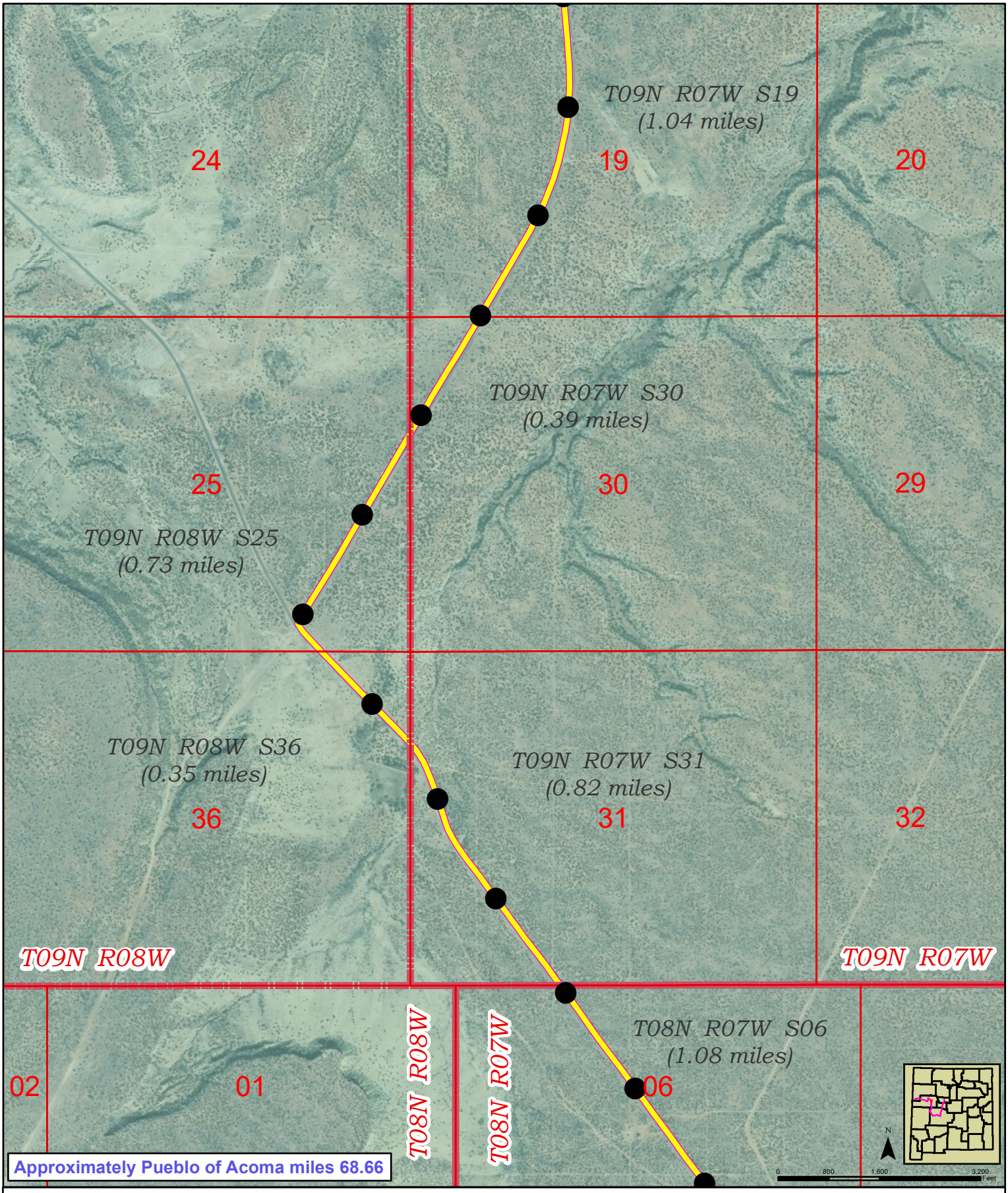
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 6 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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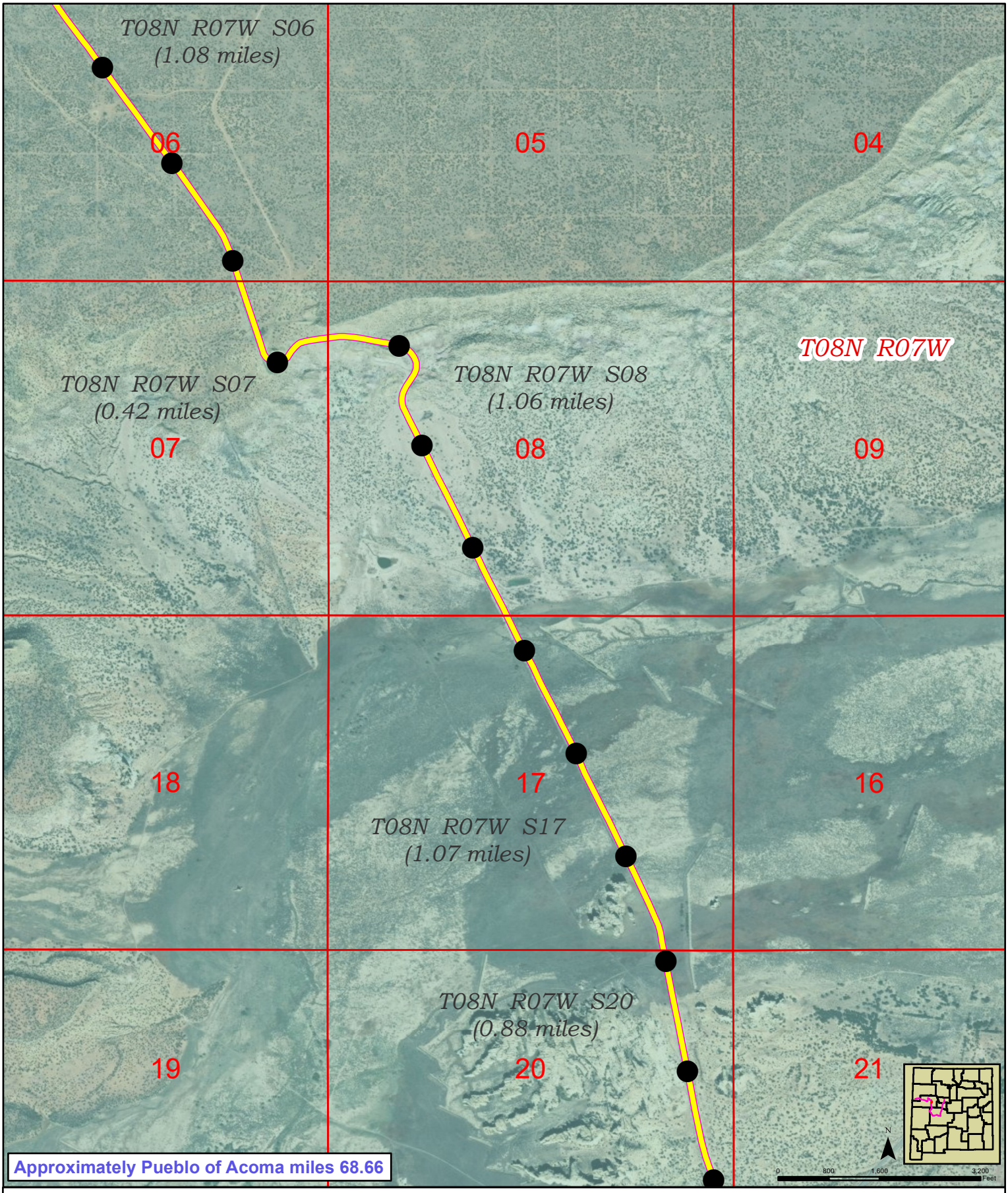
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 7 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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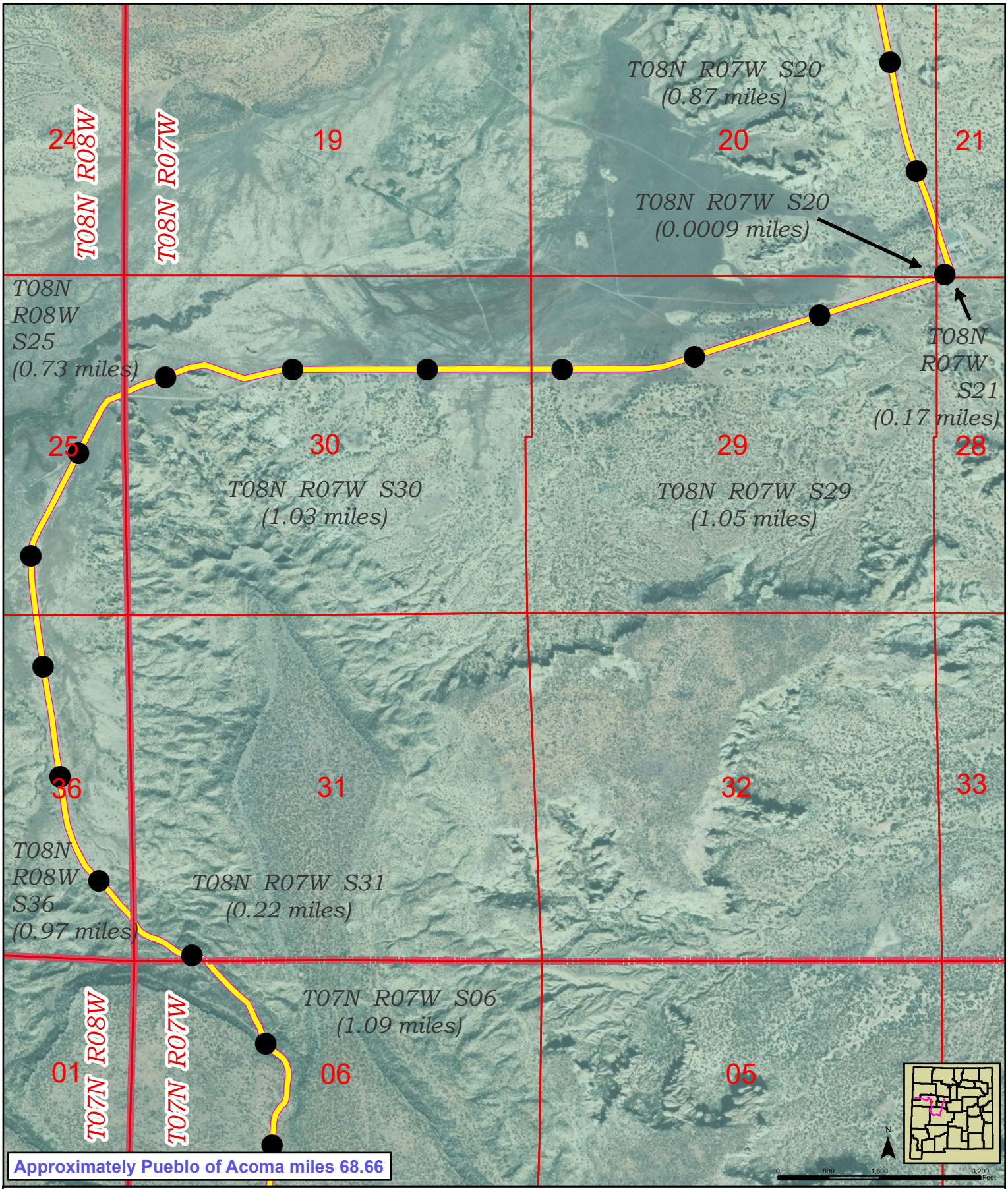
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 8 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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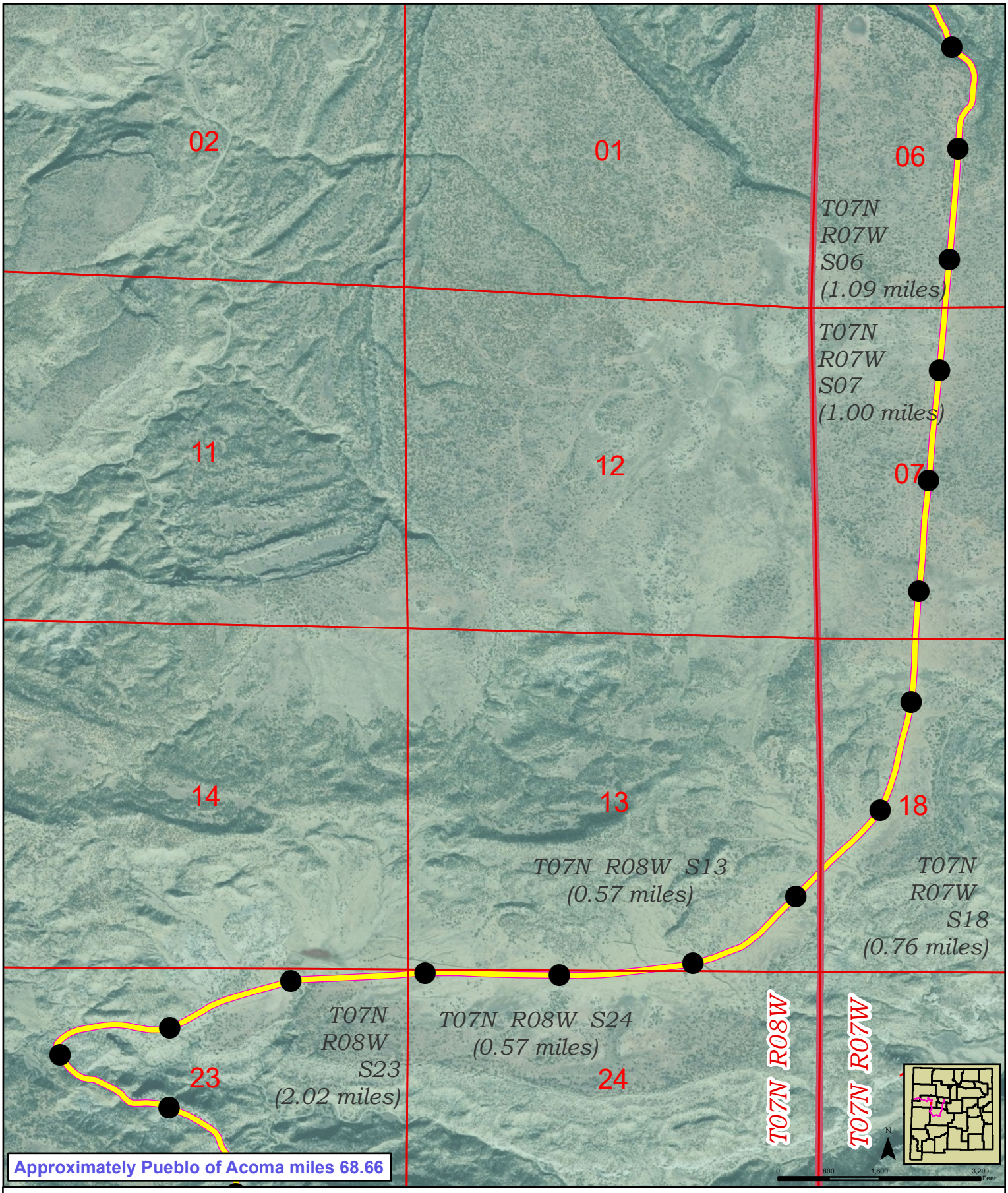
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 9 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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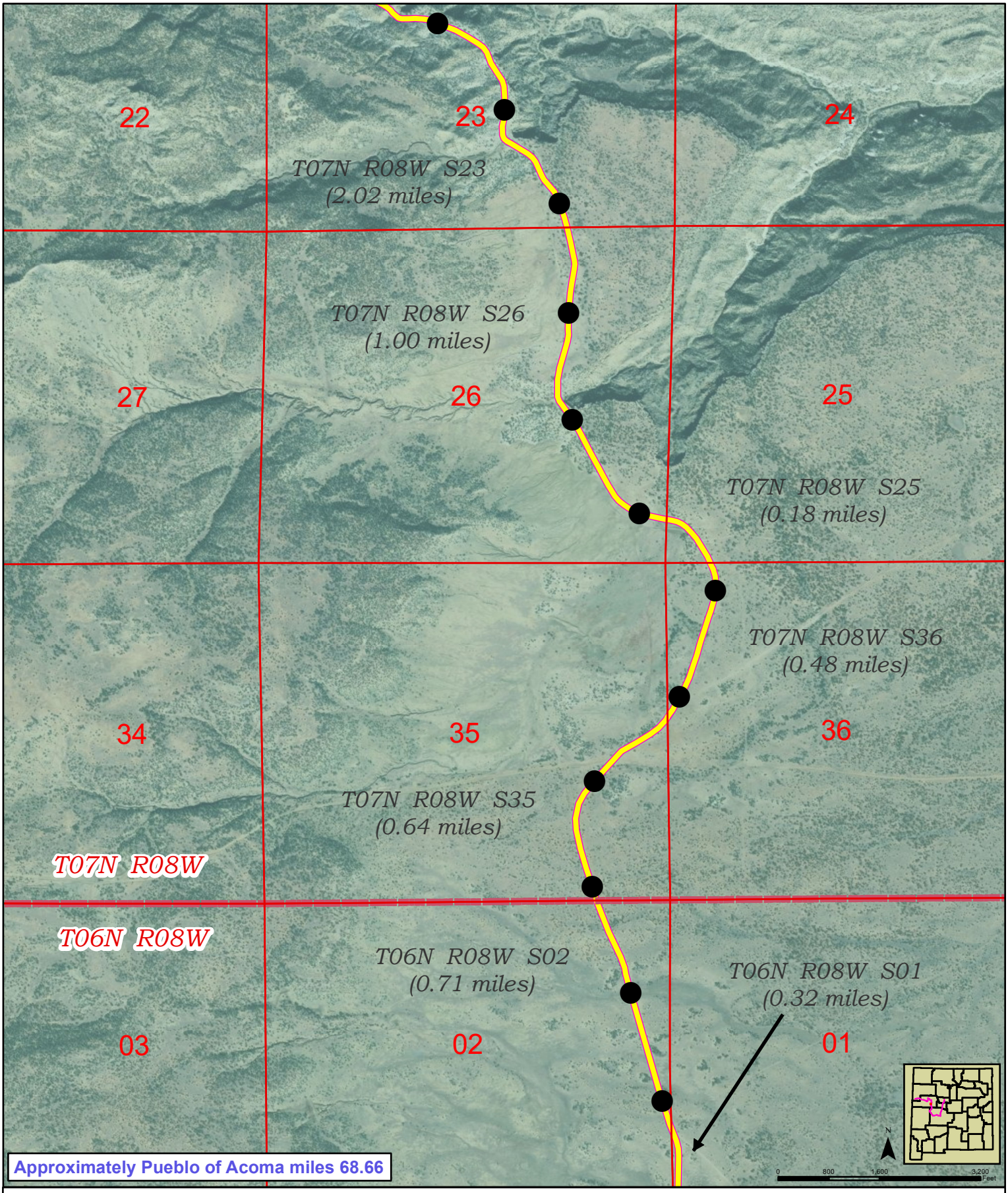
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 10 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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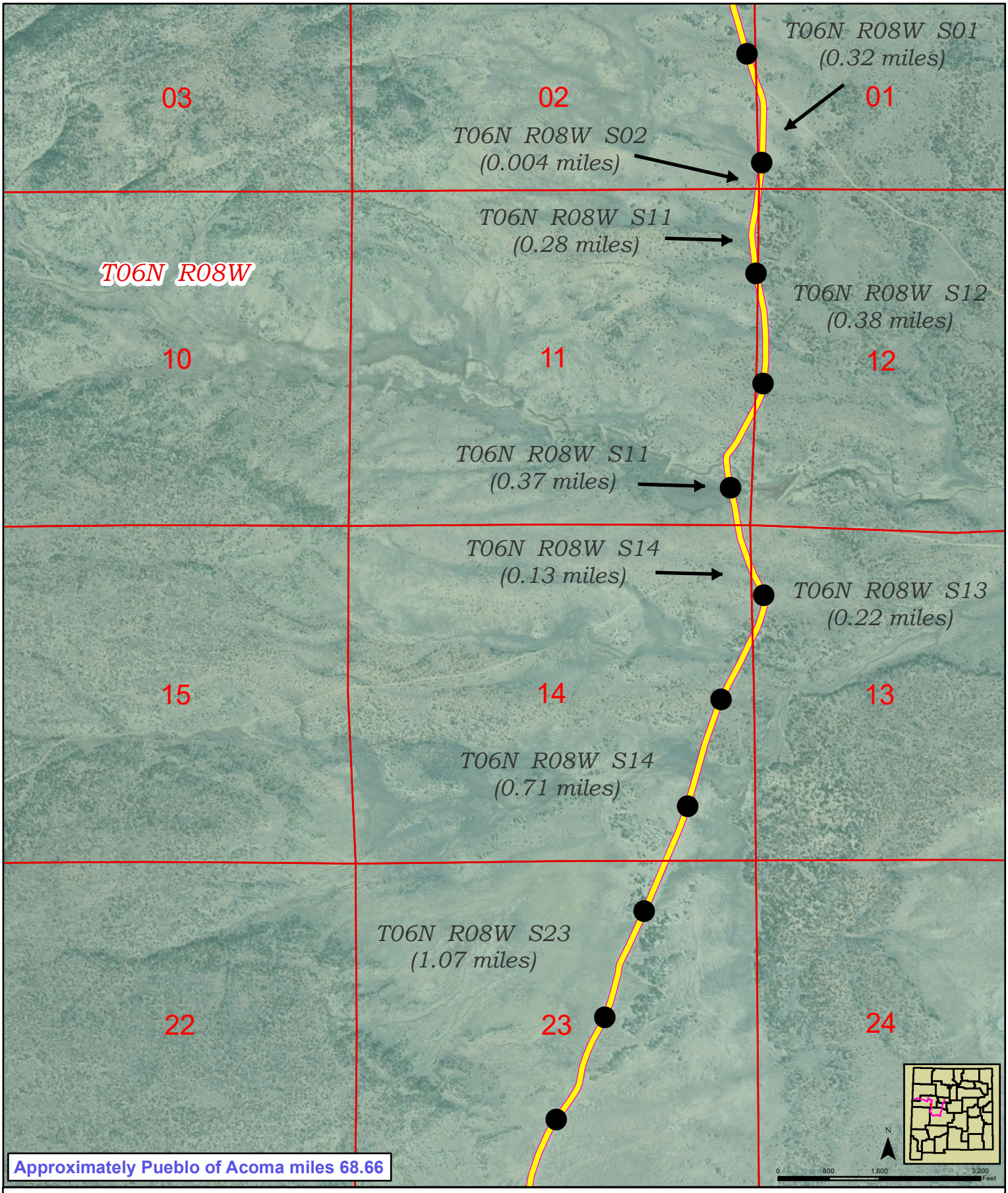
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 11 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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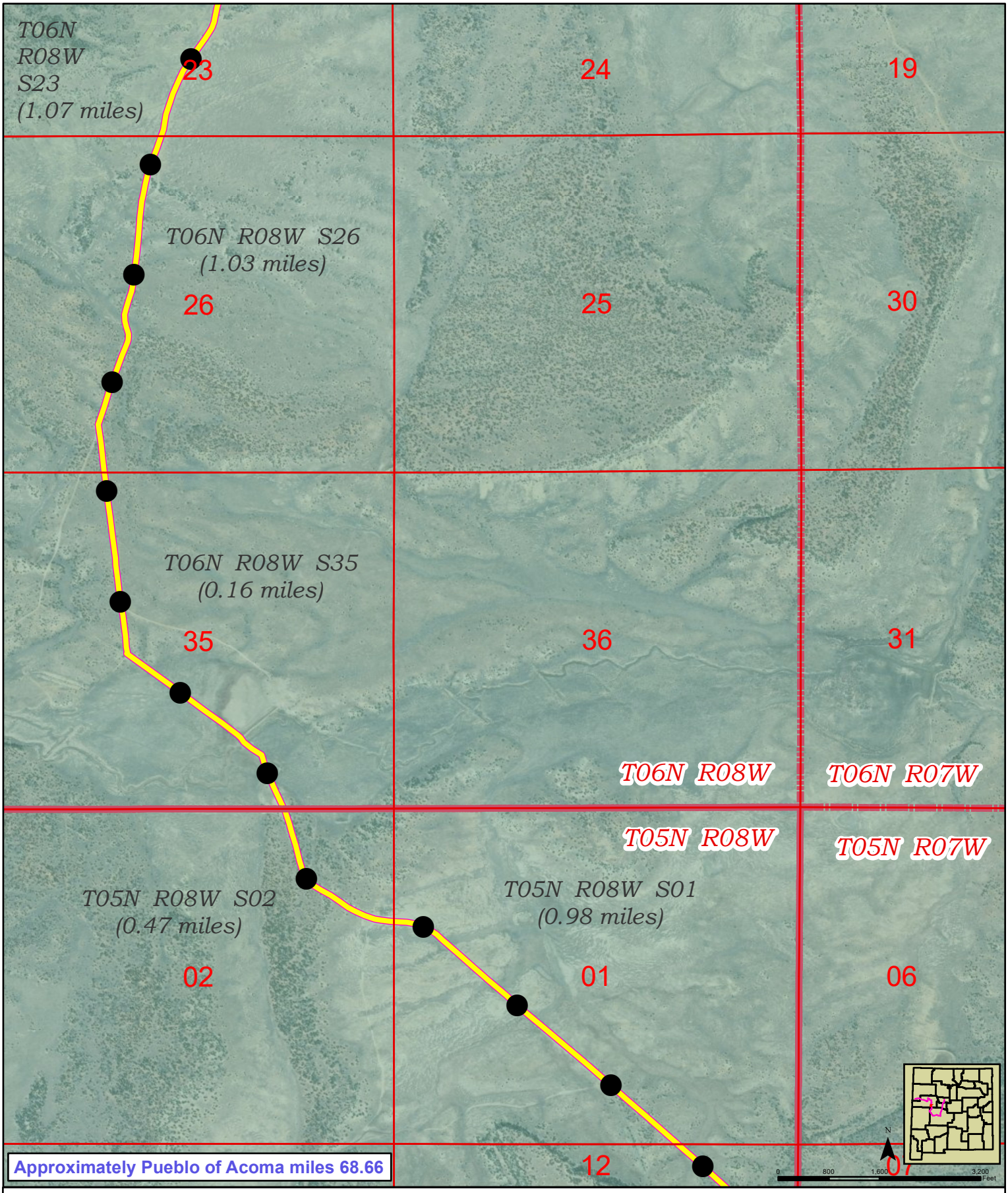
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 12 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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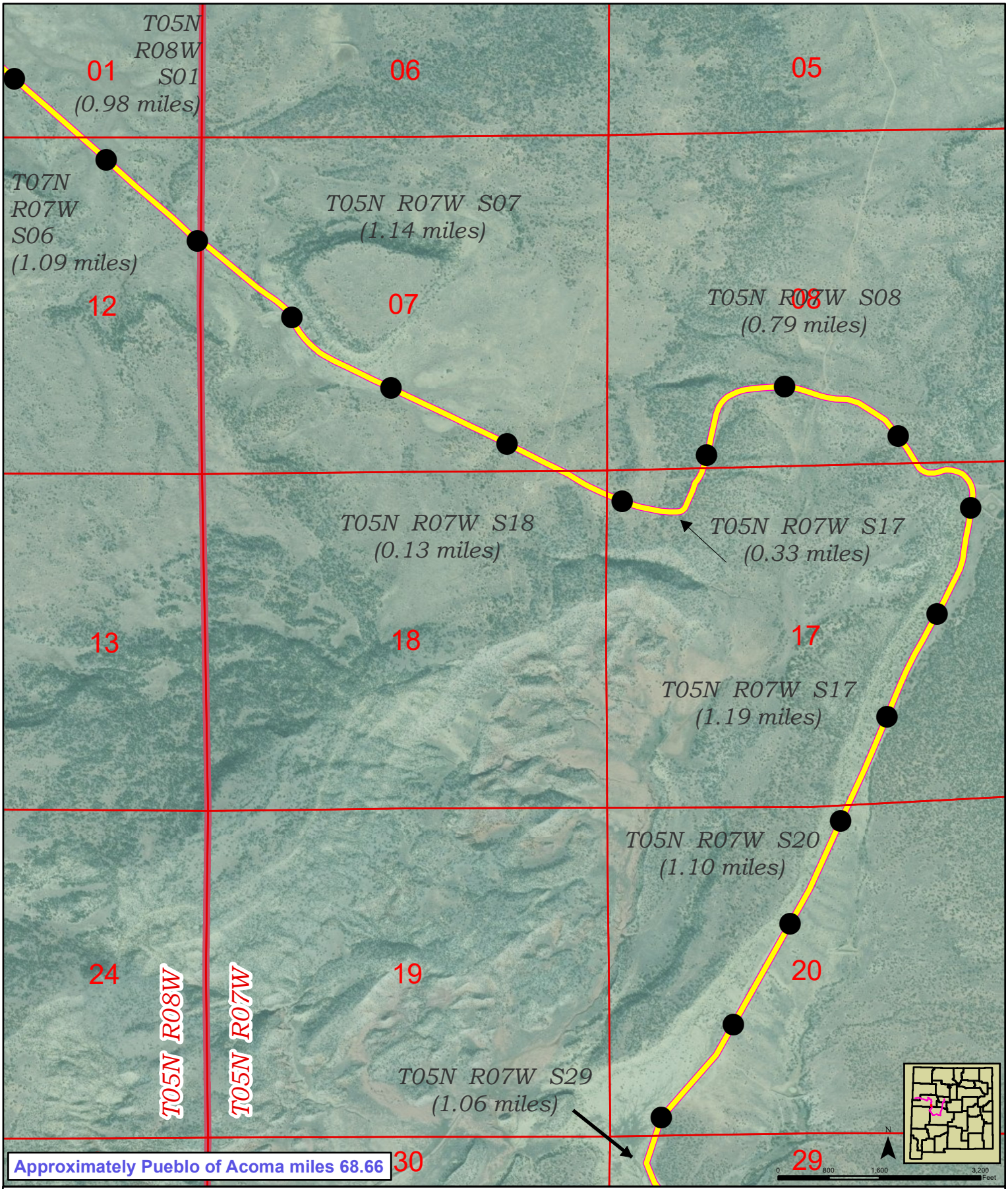
- Handholes Updated 03/2025
- Through Acoma Pueblo
- SFIS PEN Fiber Line Updated 12/2024
- BLM PLSS Sections
- BLM PLSS Township
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 13 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

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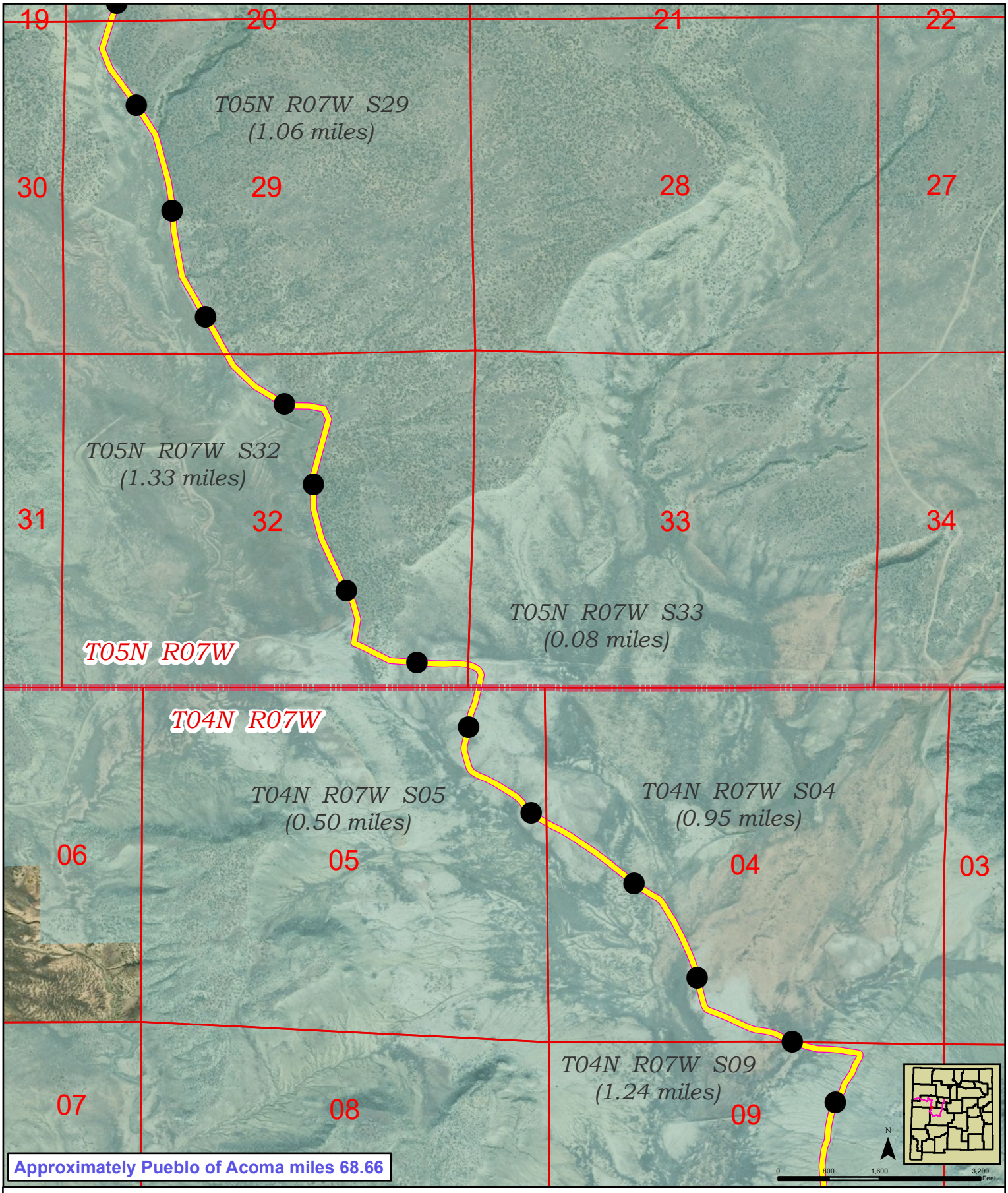

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 14 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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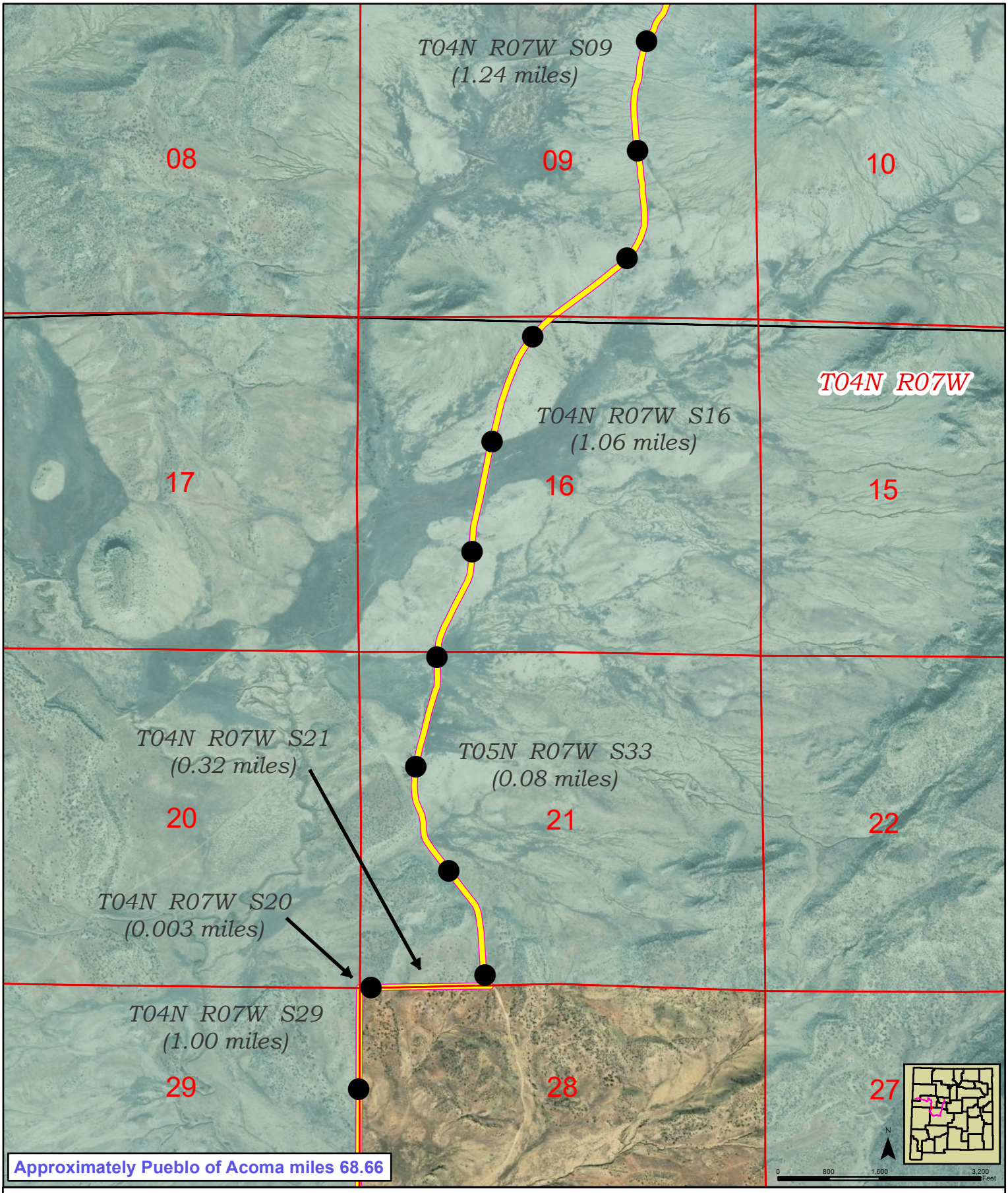
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 15 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

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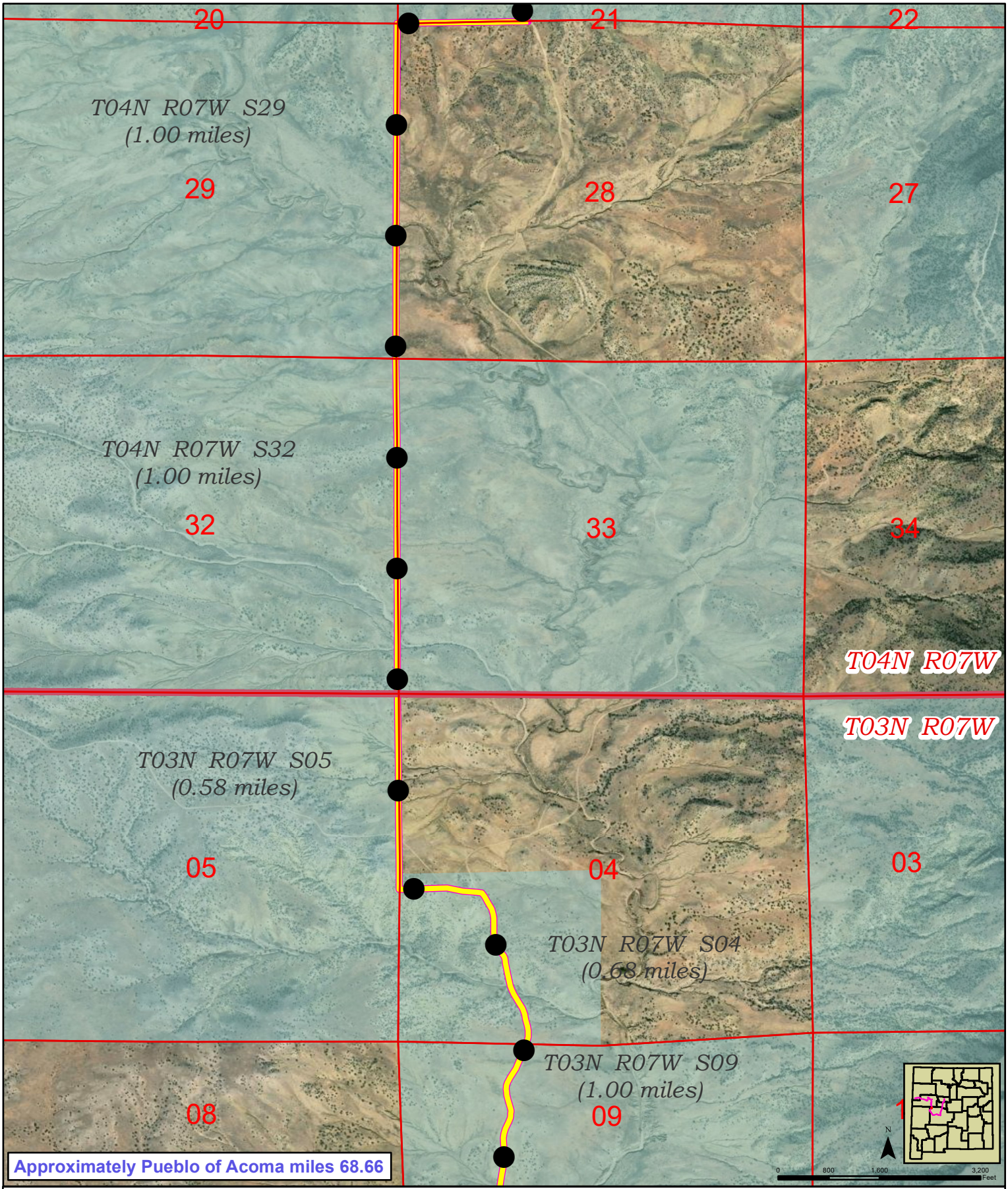
Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 16 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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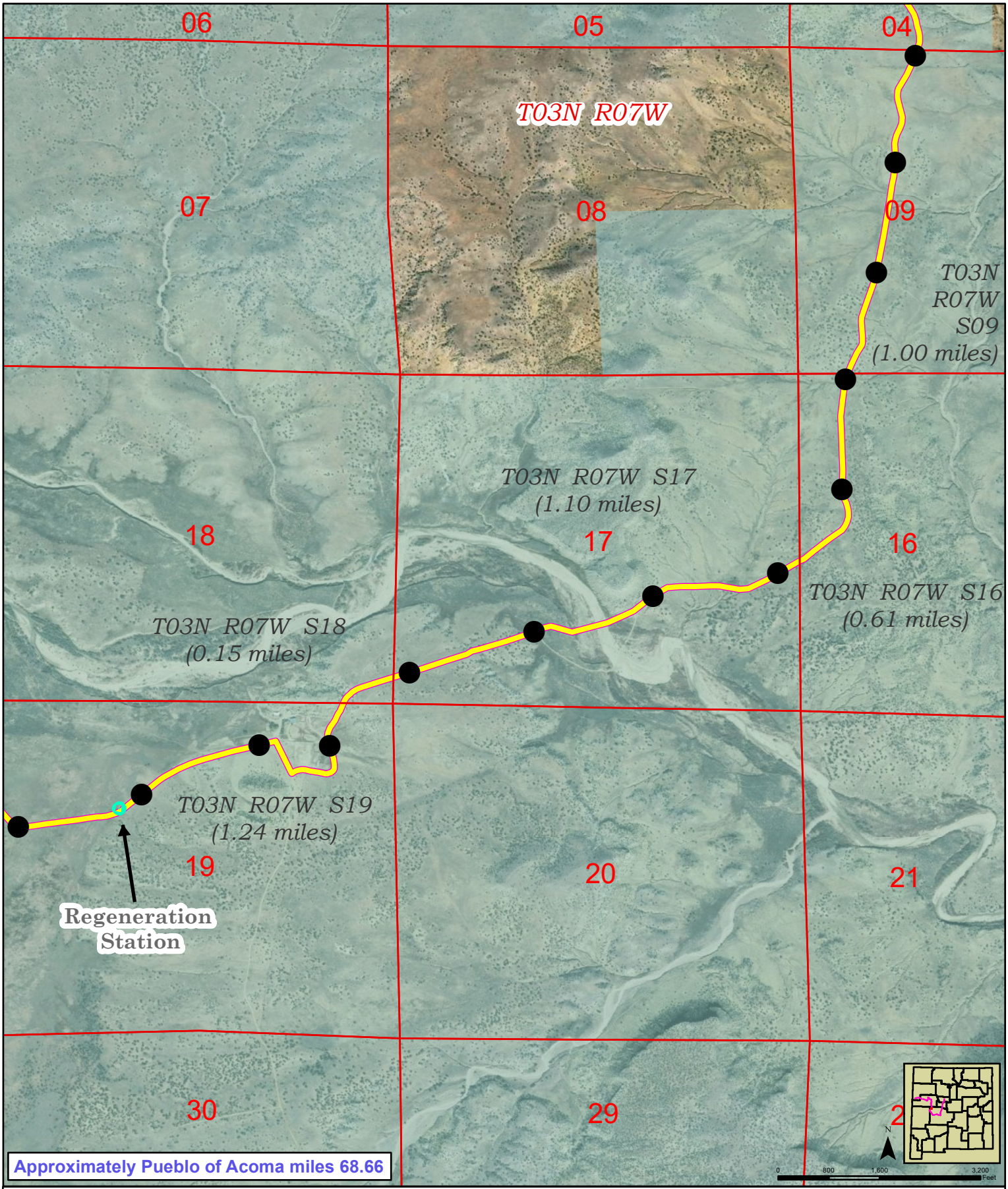
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 17 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

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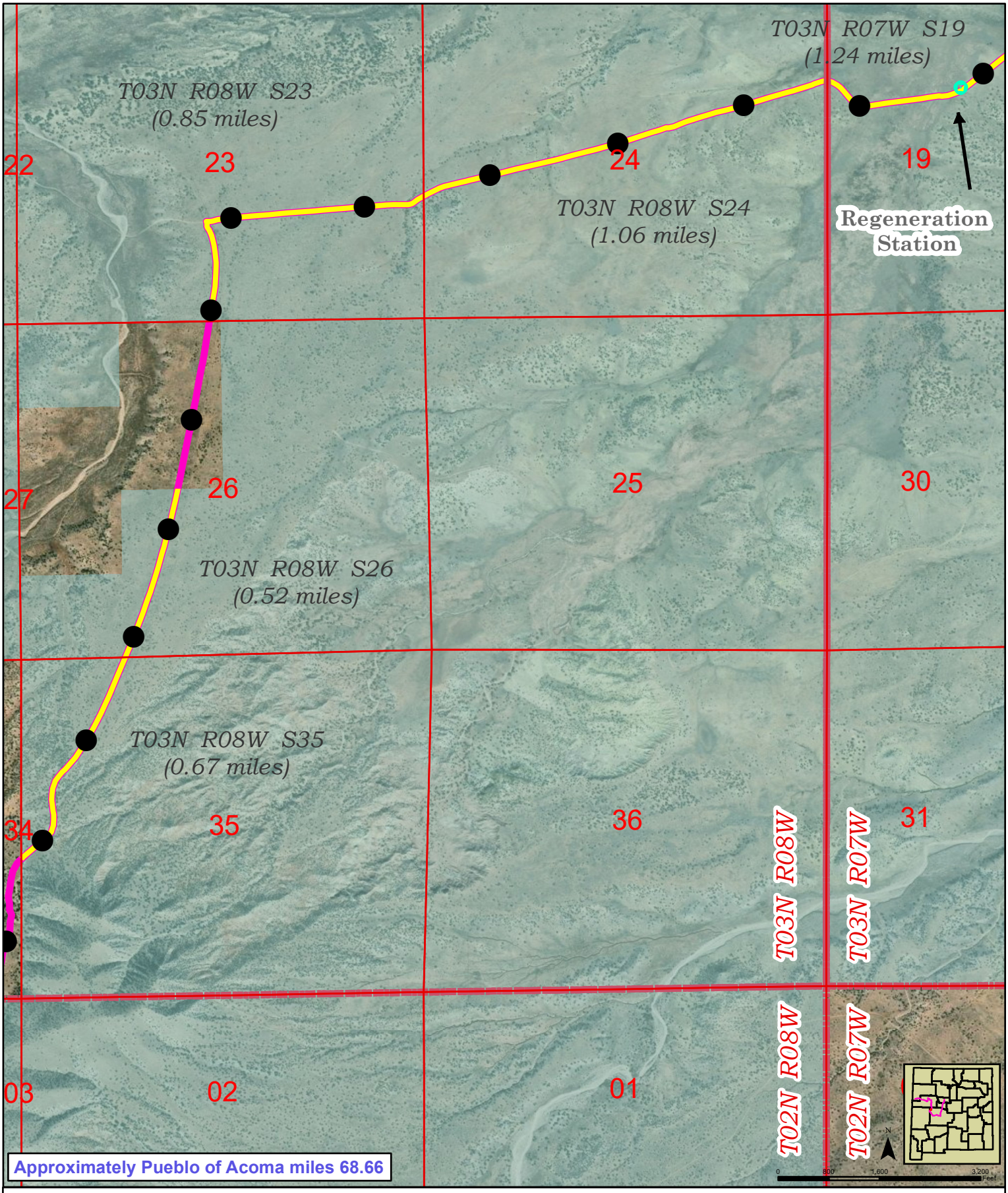
DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 18 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

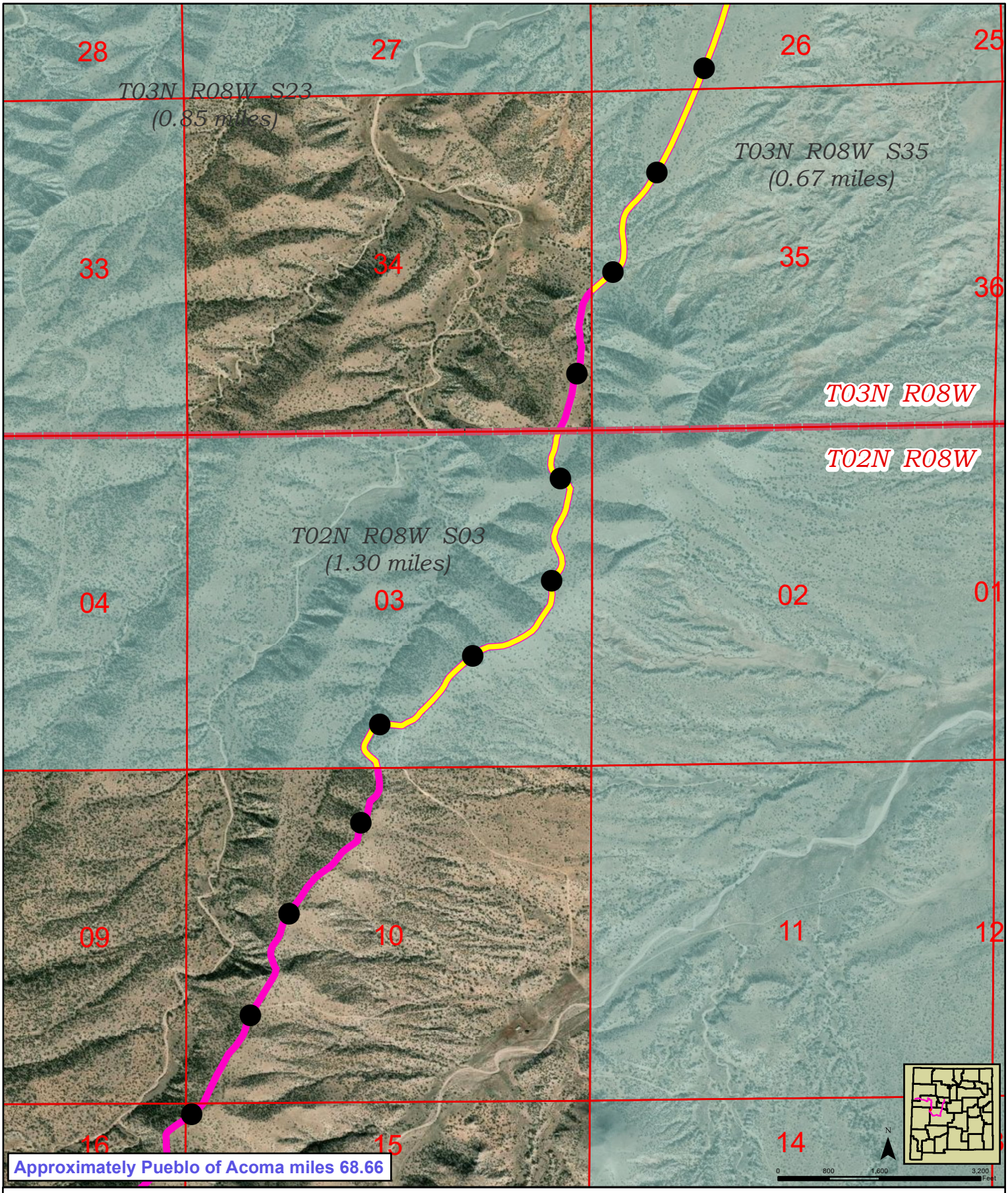
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Acoma. (map 19 of 19)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico West (US Feet) Scale:1:24,000

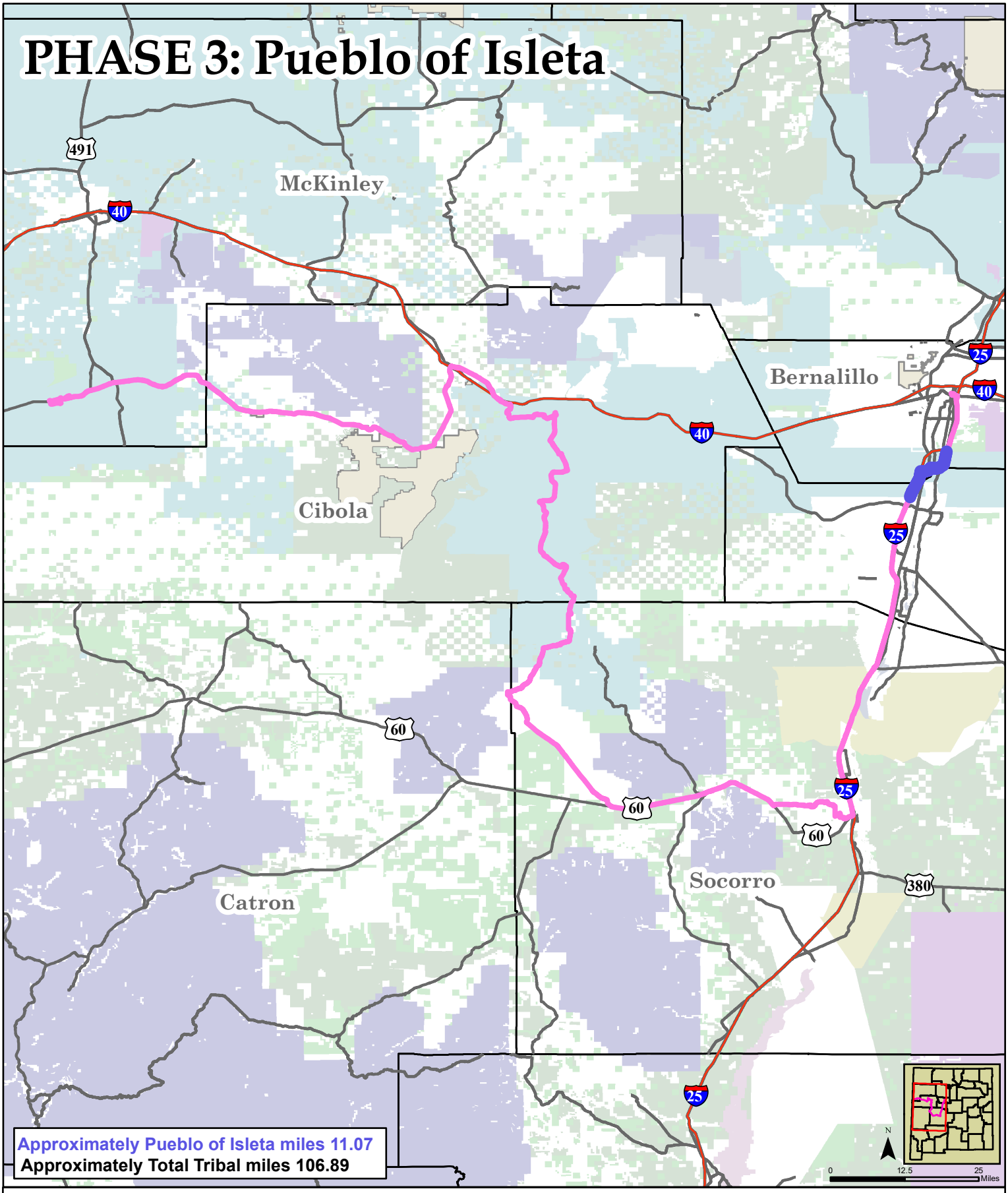
Handholes Updated 03/2025
Through Acoma Pueblo
SFIS PEN Fiber Line Updated 12/2024
BLM PLSS Sections
BLM PLSS Township
Tribal/Indian (I)

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Acoma\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

PHASE 3: Pueblo of Isleta



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Isleta lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Pueblo of Isleta
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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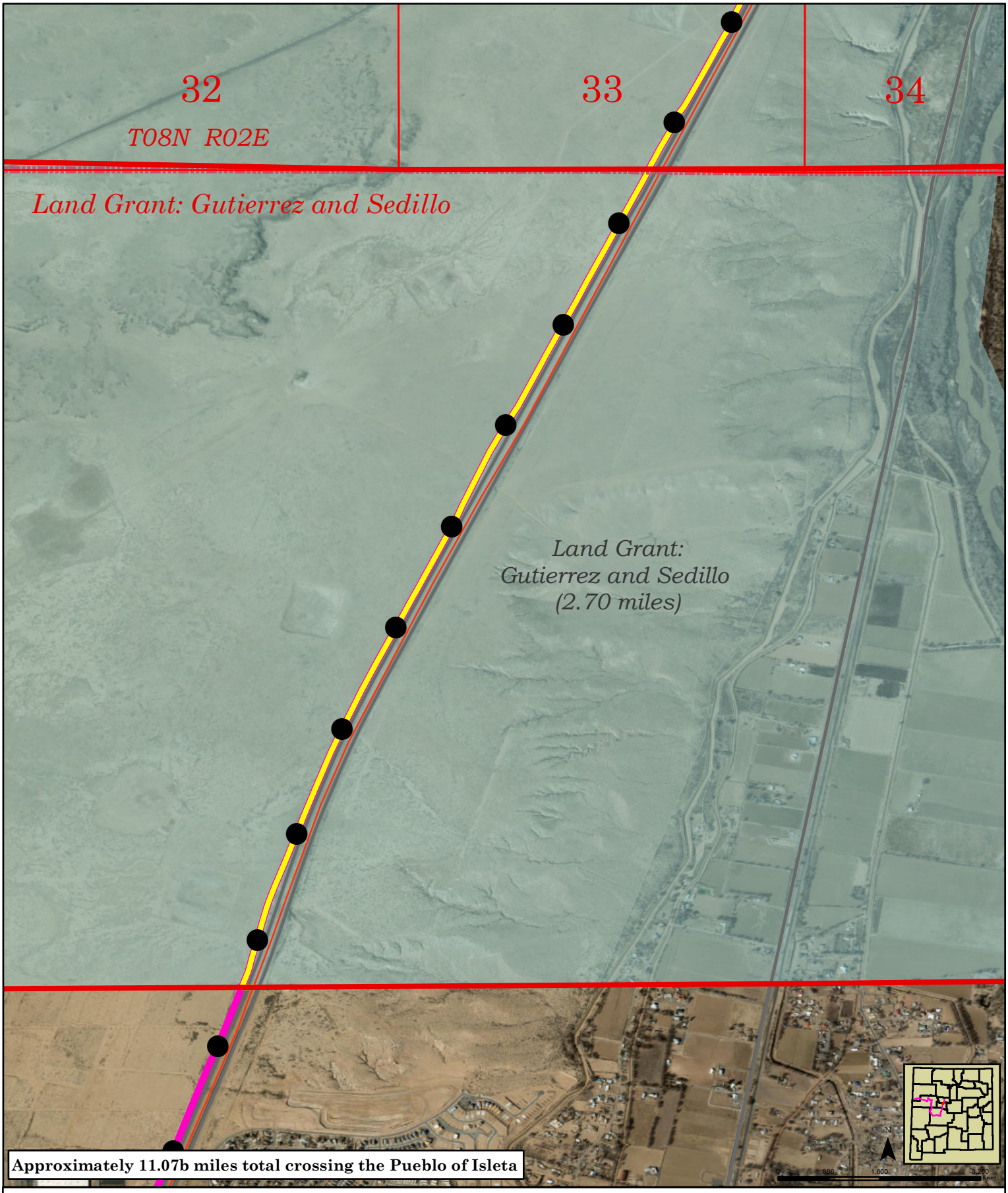
DRAWN BY: GIS Specialist, HWM on 02/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 1 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

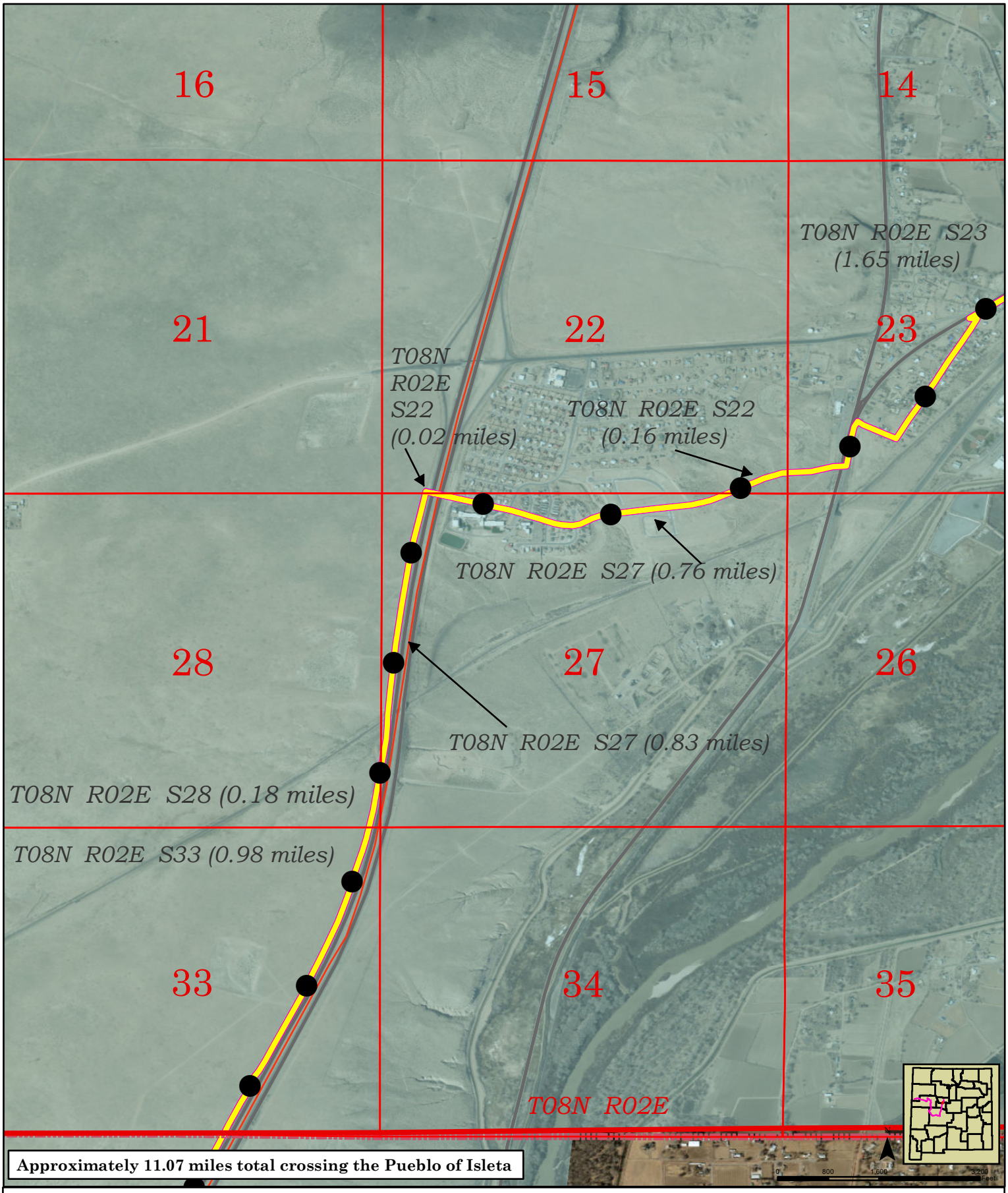
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 2 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

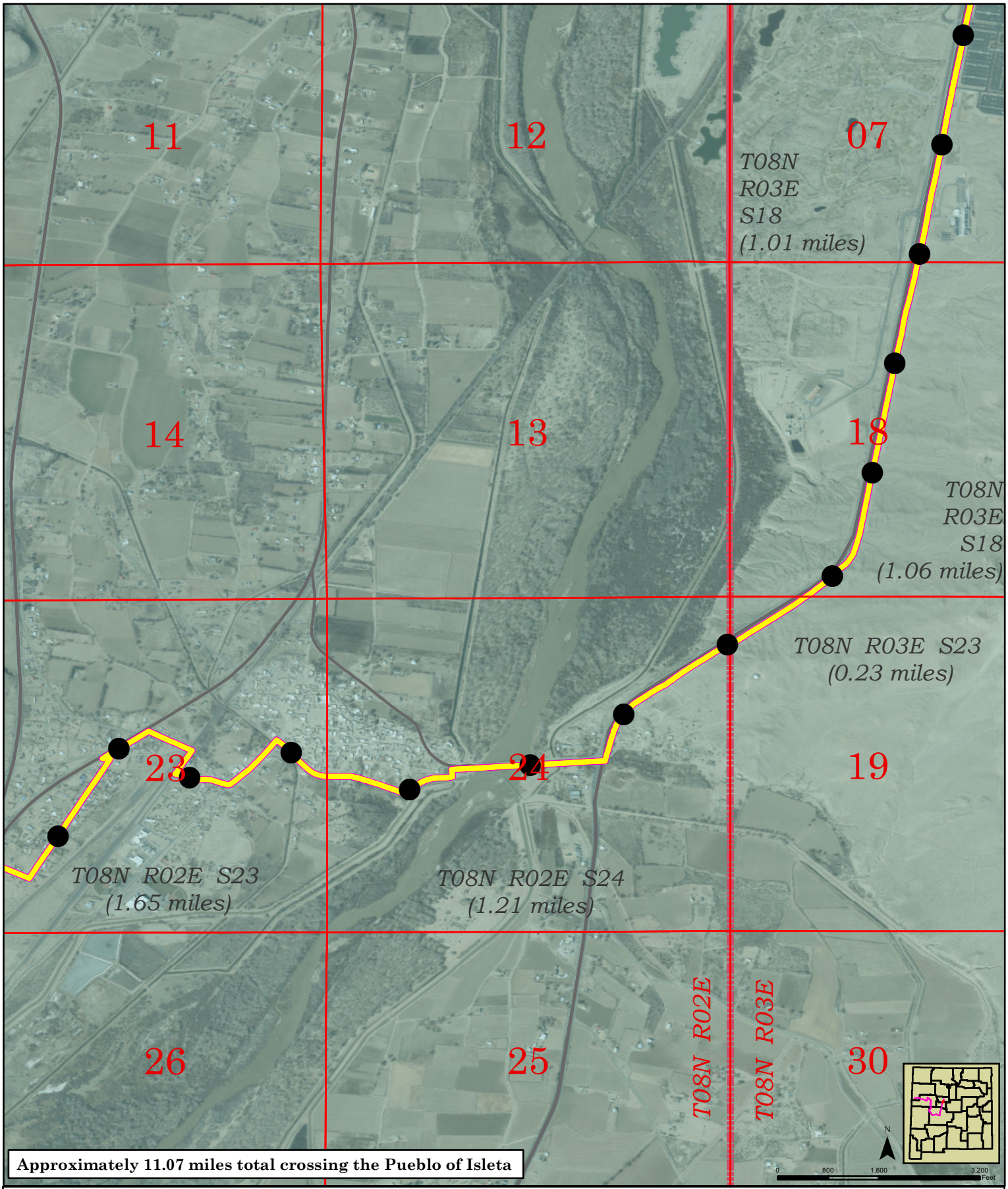
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 11.07 miles total crossing the Pueblo of Isleta

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 3 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

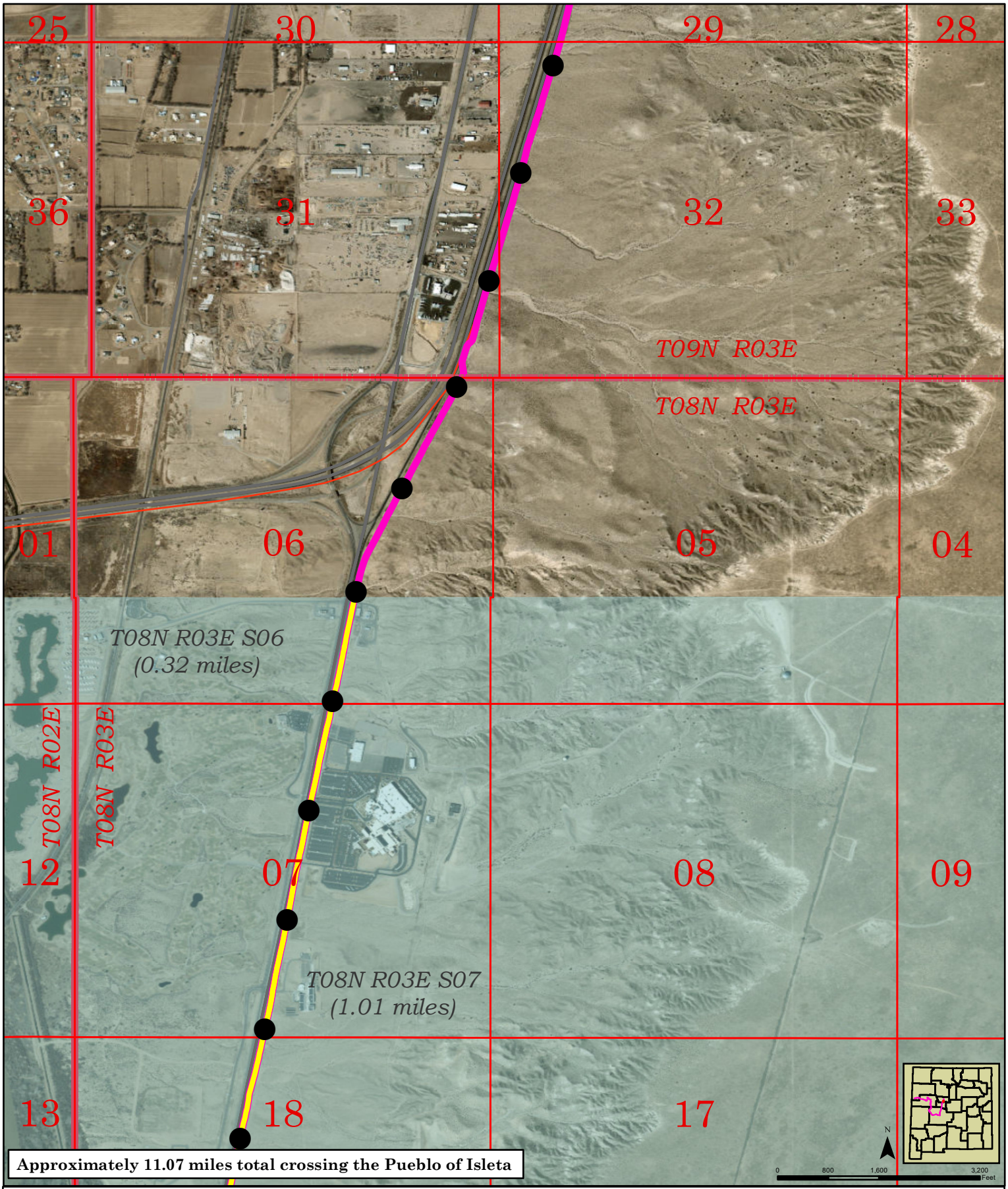
COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025



Approximately 11.07 miles total crossing the Pueblo of Isleta

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict the location that the PEN fiber lines crosses over the Pueblo of Isleta. (map 4 of 4)

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central (US Feet) Scale:1:24,000

DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

- Handholes Updated 03/2025
- SFIS PEN Fiber Line Updated 12/2024
- ThroughIsleta
- Roads
- Land Grant
- BLM PLS SSections
- BLM PLSS Township & Range
- Tribal/Indian (I)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Tribes\Isleta\GIS\Anne

DRAWN BY: GIS Specialist, HWM on 03/2025

Appendix G

Flood Insurance Rate Map Data within Proposed Project Area via FEMA National Flood Hazard Layer

Jurisdiction	FIRM Panel	FIRM Zone Intercepting PEN Line	Notes
City of Albuquerque	35001C0334G	AO (Depth 1)	1% Annual Chance Flood Hazard
	35001C0342G	X (shaded)	Area of minimal flood hazard
		AE (EL 5063)	1% Annual Chance Flood Hazard. Base flood elevation given, valued at 5063 ft.
	35001C0344G	No intercept	No flood hazard present
Bernalillo County Unincorporated Areas	35001C0344G	X (shaded)	0.2% Annual Chance Flood Hazard
		AE *	1% Annual Chance Flood Hazard
	35001C0535G	No intercept	No flood hazard present
City of Albuquerque	35001C0535G	A (4 Locations)	1% Annual Chance Flood Hazard
	35001C0533H	No intercept	No flood hazard present
Bernalillo County Unincorporated Areas	35001C0533H	AE (EL 5023)	1% Annual Chance Flood Hazard. Base flood elevation given, valued at 5023 ft.
		AE (EL 5031)	1% Annual Chance Flood Hazard. Base flood elevation given, valued at 5031 ft.
City of Albuquerque	35001C0533H	AE (EL 5031)	1% Annual Chance Flood Hazard. Base flood elevation given, valued at 5031 ft.
		AE (EL 5033)	1% Annual Chance Flood Hazard. Base flood elevation given, valued at 5033 ft.
		AE (EL 5030)	1% Annual Chance Flood Hazard. Base flood elevation given, valued at 5030 ft.
Pueblo of Isleta	35001C0533H	No intercept	No flood hazard present
	35001C0550H	A (3 Locations)	1% Annual Chance Flood Hazard
	35061C0075E	A	1% Annual Chance Flood Hazard
	35001C0750H	No intercept	No flood hazard present
	35061C0230E	No intercept	No flood hazard present
	35061C0210E	No intercept	No flood hazard present
Valencia County	35061C0210E	No intercept	No flood hazard present
Village of Los Lunas	35061C0210E	No intercept	No flood hazard present
	35061C0220E	A	1% Annual Chance Flood Hazard
Valencia County	35061C0220E	A	1% Annual Chance Flood Hazard
		AE	1% Annual Chance Flood Hazard. Base flood elevation within the range 4919.9 ft - 4922.8 ft
		AE	1% Annual Chance Flood Hazard. Base flood elevation within the range 4915.7 ft - 4918.1 ft
	35061C0385E	AE	1% Annual Chance Flood Hazard. Base flood elevation within the range 4887.5 ft - 4897.9 ft
		AE	1% Annual Chance Flood Hazard. Base flood elevation within the range 4886.2 ft - 4889.8 ft
		AE	1% Annual Chance Flood Hazard. Base flood elevation within the range 4883.6 ft - 4888.8 ft
	35061C0395E	No intercept	No flood hazard present
City of Belen	35061C0395E	No intercept	No flood hazard present
Valencia County	35061C0395E	No intercept	No flood hazard present
	35061C0560E	No intercept	No flood hazard present
	35061C0575E	No intercept	No flood hazard present
Socorro County Unincorporated Areas	35053C0200C	A (4 Locations)	1% Annual Chance Flood Hazard
	35053C0425C	A (9 Locations)	1% Annual Chance Flood Hazard
	35053C0700C	D	Panel Not Available - Sevilleta
	35053C0675C	D	Panel Not Available - Sevilleta
	35053C1050C	A (8 Locations)	1% Annual Chance Flood Hazard
	35053C1410C	A (2 Locations)	1% Annual Chance Flood Hazard
City of Socorro	35053C1410C	X (shaded) (2 Locations) *	Area with reduced flood risk due to levee
		AE	1% Annual Chance Flood Hazard. Base flood elevation within the range 4595 ft - 4598 ft
		A	1% Annual Chance Flood Hazard
	35053C1420C	X (shaded) *	Area with reduced flood risk due to levee

Jurisdiction	FIRM Panel	FIRM Zone Intercepting PEN Line	Notes
		A (5 Locations)	1% Annual Chance Flood Hazard
Socorro County Unincorporated Areas	35053C1425C	A (2 Locations)	1% Annual Chance Flood Hazard
	35053C1400C	D	Panel Not Available - West of NMT
	35053C1000C	D	Panel Not Available - NE of Magdalena
	35053C0990C	A	1% Annual Chance Flood Hazard
Village of Magdalena	35053C0990C	A	1% Annual Chance Flood Hazard
	35053C1355C	A (3 Locations)	1% Annual Chance Flood Hazard
	35053C1335C	A (2 Locations)	1% Annual Chance Flood Hazard
Socorro County Unincorporated Areas	35053C1335C	A (4 Locations)	1% Annual Chance Flood Hazard
	35053C1350C	A (2 Locations)	1% Annual Chance Flood Hazard
	35053C1325C	D	Panel Not Available
	35053C1300C	D	Panel Not Available
	35053C0925C	D	Panel Not Available
	35053C0900C	D	Panel Not Available
	35053C0525C	D	Panel Not Available
Catron County	UNMAPPED_350004	No intercept	Panel Not Available
Socorro County Unincorporated Areas	35053C0250C	D	Panel Not Available
Pueblo of Acoma	35053C0250C	D	Panel Not Available
Socorro County Unincorporated Areas	35053C0250C	D	Panel Not Available
Pueblo of Acoma	35053C0250C	D	Panel Not Available
	35053C0275C	A (2 Locations)	
	35053C0050C	D	Panel Not Available
Acoma Indian Reservation	35006C2400C	No intercept	No flood hazard present
	35006C2000C	A	1% Annual Chance Flood Hazard
	35006C1975C	A (2 Locations)	1% Annual Chance Flood Hazard
		D	Panel Not Available
	35006C1575C	D	Panel Not Available
	35006C1600C	D	Panel Available, but not all surveyed. Categorized as "Zone D"
	35006C1150C	D	Panel Not Available
	35006C1175C	D	Panel Not Available
Cibola County Unincorporated Areas	35006C1175C	D	Panel Not Available
	35006C1150C	D	Panel Not Available
	35006C1175C	D	Panel Not Available
	35006C0750C	D	Panel Available, but not all surveyed. Categorized as "Zone D"
	35006C0725C	D	Panel Available, but not all surveyed. Categorized as "Zone D"
Acoma Indian Reservation	35006C0725C	D	Panel Available, but not all surveyed. Categorized as "Zone D"
		A	1% Annual Chance Flood Hazard
Cibola County Unincorporated Areas	35006C0700C	A (2 Locations)	1% Annual Chance Flood Hazard
	35006C0420C	A	1% Annual Chance Flood Hazard
City of Grants	35006C0414C	X (shaded) (6 Locations)	0.2% Annual Chance Flood Hazard
		AE (3 Locations) *	1% Annual Chance Flood Hazard. Base flood elevation within the range 6418.8 ft - 6426.0 ft
	35006C0413C	X (shaded) (5 Locations)	0.2% Annual Chance Flood Hazard
		AE (3 Locations) *	1% Annual Chance Flood Hazard. Base flood elevation within the range 6452.3 ft - 6482.9 ft
	35006C0395C	No intercept	No flood hazard present
Cibola County Unincorporated Areas	35006C0395C	No intercept	No flood hazard present
	35006C0413C	No intercept	No flood hazard present
	35006C0680C	No intercept	No flood hazard present
	35006C0675C	No intercept	No flood hazard present
	35006C0700C	No intercept	No flood hazard present

Jurisdiction	FIRM Panel	FIRM Zone Intercepting PEN Line	Notes
	35006C1100C	A (5 Locations)	1% Annual Chance Flood Hazard
	35006C1075C	A (5 Locations)	1% Annual Chance Flood Hazard
	35006C0650C	A (3 Locations)	1% Annual Chance Flood Hazard
	35006C0625C	No intercept	No flood hazard present
	35006C0600C	D	Panel Not Available
Ramah Navajo Indian Reservation	35006C0600C	D	Panel Not Available
	35006C0575C	D	Panel Not Available
Navajo Reservation and Trust Lands	35031C2875E	X (unshaded)	Area of minimal flood hazard
McKinley County	35031C2875E	X (unshaded)	Area of minimal flood hazard
	35031C2725E	X (unshaded)	Area of minimal flood hazard
State of New Mexico	35031C2725E	X (unshaded)	Area of minimal flood hazard
McKinley County	35031C2725E	X (unshaded)	Area of minimal flood hazard
	35031C2700E	X (unshaded)	Area of minimal flood hazard
	35031C2850E	X (unshaded)	Area of minimal flood hazard
Pueblo of Zuni	35031C2850E	A (2 Locations)	1% Annual Chance Flood Hazard
	35031C2825E	A (2 Locations)	1% Annual Chance Flood Hazard
	35031C2785E	A	1% Annual Chance Flood Hazard
	35031C2780E	AO (Depth 1)	1% Annual Chance Flood Hazard
		X (shaded)	0.2% Annual Chance Flood Hazard
		AE (2 Locations)	1% Annual Chance Flood Hazard. Base flood elevation within the range 6302.9 ft - 6308.9 ft
		AE *	1% Annual Chance Flood Hazard. Base flood elevation within the range 6302.9 ft - 6308.9 ft
		AE *	1% Annual Chance Flood Hazard. Base flood elevation within the range 6275.2 ft - 6277.5 ft
		X (shaded)	0.2% Annual Chance Flood Hazard
		AO (Depth 2)	1% Annual Chance Flood Hazard
		X (shaded)	0.2% Annual Chance Flood Hazard
Source: FEMA – National Flood Hazard Layer (NFHL) Viewer			

*Regulatory Floodway Present

FIRM Zone	Total Count	FIRM Zone Description
A	30	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. No depths or elevations are shown within these zones.
AE	18	Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. The base floodplain where base flood elevations are provided.
AO (Depth 1)	2	Areas of shallow flooding with average depths between 1.0 and 1.5 feet.
AO (Depth 2)	1	Areas of shallow flooding with average depths between 1.5 and 2.5 feet.
D	28	Areas with possible, but undetermined, flood hazards. NO flood hazard analysis has been conducted. Flood insurance rates are commensurate with the uncertainty of the flood risk.
X (shaded)	9	Areas between the limits of the base flood and the 0.2% annual chance (or 500-year) flood. Areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile. Areas protected by levees from 1% annual chance of flooding.
X (unshaded)	7	500-year floodplain. Area with minimal flood hazard.
Source: Description from FEMA Flood Map Service Center		

Appendix H

USFWS Section 7 Consultation, Biological Assessment for SFIS Pueblo Education Network, IPaC Report

United States Department of the Interior

FISH AND WILDLIFE SERVICE

New Mexico Ecological Services Field Office
2105 Osuna Road NE
Albuquerque, New Mexico 87113
Telephone 505-346-2525 Fax 505-346-2542
www.fws.gov/southwest/es/newmexico/

May 20, 2024

Cons# 2024-0050246

Joshua Fitzpatrick
Environmental Program Officer
National Telecommunications and Information Administration
U.S. Department of Commerce
1401 Constitution Ave., N.W.
Washington, D.C. 20230

Dear Joshua Fitzpatrick:

Thank you for your letter dated March 25, 2024, requesting informal consultation with the U.S. Fish and Wildlife Service (Service) for the Santa Fe Indian School Pueblo Education Network Project occurring within McKinley, Cibola, Catron, Socorro, Valencia, and Bernalillo counties, New Mexico, pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.) (Act), as amended. Your letter included a biological assessment, dated March 2024, which is incorporated by reference, that analyzed the effects of the proposed project on the endangered New Mexico meadow jumping mouse (*Zapus hudsonius luteus*; "jumping mouse"), threatened Mexican spotted owl (*Strix occidentalis lucida*; "owl"), endangered southwestern willow flycatcher (*Empidonax traillii extimus*; "flycatcher"), threatened yellow-billed cuckoo (*Coccyzus americanus*; "cuckoo"), endangered Rio Grande silvery minnow (*Hybognathus amarus*; "minnow"), endangered Zuni bluehead sucker (*Catostomus discobolus yarrowi*; "sucker"); threatened Pecos sunflower (*Helianthus paradoxus*), and threatened Zuni fleabane (*Erigeron rhizomatus*). You concluded that the implementation of the proposed project "*may affect, is not likely to adversely affect*" all the above listed species. Your biological assessment also analyzed the effects of the proposed project on the three following populations of the Mexican wolf (*Canis lupus baileyi*; "wolf"): the endangered (located north of Interstate 40 in New Mexico), non-essential experimental (located south of Interstate 40 in New Mexico on lands not managed as National Wildlife Refuges or managed by the National Park Service), and threatened (non-essential experimental population located south of Intestate 40 in New Mexico on National Wildlife Refuge and National Park Service lands). You determined that the proposed action "*may affect, is not likely to adversely affect*" the endangered and threatened

populations of the wolf and "*may affect, is not likely to jeopardize*" the non-essential experimental population.

Your biological assessment also determined that the proposed project would have "*no effect*" on the non-essential experimental population of the northern Aplomado falcon (*Falco femoralis septentrionalisi*), endangered piping plover (*Charadrius melodus*), threatened Chiricahua leopard frog (*Rana chiricahuensis*), endangered loach minnow (*Tiaroga cobitis*), endangered spikedace (*Meda flugida*), endangered Socorro isopod (*Thermosphaeroma thermophilus*), threatened Wright's marsh thistle (*Cirsium wrightii*), and threatened American Hart's-tongue fern (*Asplenium scolopendrium var. Americanum*) as these species are not known to occur in the affected area. Although the Act does not require Federal agencies to consult if the action agency determines their actions will have "*no effect*" on threatened or endangered species or critical habitat (50 CFR 402.12), we appreciate your consideration for the conservation of these species and notification of your "*no effect*" determinations.

Proposed Project

The National Telecommunications and Information Administration proposes to install a 324-mi. (521-km) long fiber optic network within rights-of-way (ROW) of various existing New Mexico Department of Transportation (NMDOT) roadways to provide broadband internet to the Zuni, Acoma, and Isleta Pueblos. The general pathway of the fiber optic network, from west to east, is as follows: from Zuni Pueblo along Highway 53 to Grants, from Grants along Interstate 40 to Highland Meadows, from Highland Meadows along Highway 169 to Magdalena, from Magdalena along Highway 60 to Socorro, from Socorro along Interstate 25 to Isleta Pueblo, from Isleta Pueblo along Highway 147, Highway 47, and Interstate 25 to Albuquerque. Project implementation is anticipated to last approximately 500 business days with approximately 0.65 mi. (1.05 km) of fiber optic cable being laid per business day.

Depending upon site conditions, the fiber optic cable will be installed using plowing, trenching, or directional boring methods using cable plows, backhoes, directional drills, a semi-sized vehicle for transporting heavy equipment, and various 1-ton sized vehicles. Project activities will occur entirely within the 40-ft. wide (12-m) ROW of existing roads while installation of the fiber optic network is anticipated to impact only 5 ft. (1.5 m) of soil on either side of the project alignment. Conduit for the fiber optic line will be installed at an average depth of 3 ft. (1 m) unless deviation is required to accommodate special circumstances (i.e., crossing waterways, avoidance of natural resources). Efforts will be taken to avoid impacts to trees and vegetation during project implementation and revegetation, according to Section 632 of the NMDOT Standard Specifications for Highway and Bridge Construction, will occur post-project implementation at locations where disturbances are visually detectable.

Where the project alignment intersects water bodies, directional boring methods will be used to install the fiber optic cable underneath the water bodies including locations at the Rio Grande (one crossing), the Zuni River (two crossings), the Rio Pescado and its various tributaries (six crossings), as well as several small, unnamed creeks and arroyos. The crossing of the Rio Grande will occur in the Pueblo of Isleta adjacent to the existing Highway 147 bridge. Boring will begin and end at locations 220-390 ft. (67-119 m) away from the water's edge and will cross under the Rio Grande at a depth of approximately 27 ft. (8 m). The Zuni River will be crossed twice, once along the existing Pia Mesa Road bridge in the central portion of Zuni Pueblo and once adjacent to the existing Highway 53 bridge

in the eastern portion of Zuni Pueblo. At the central crossing, the only water body crossing where directional boring methods will not be used for installation, the fiber optic cable conduit will be installed along the vertical handrail of the bridge. At the eastern crossing, boring will begin and end at locations 200-250 ft. (61-76 m) from the center of the water and will cross under the Zuni River at an approximate depth of 8-10 ft. (2.4-3 m). Crossings of the Rio Pescado and its tributaries as well as unnamed creeks and arroyos will be implemented in a similar manner as boring activities underneath the Zuni River at the eastern location of Zuni Pueblo. Sediment control devices (e.g., silt fencing) will be employed according to Section 604.3.6 of the NMDOT Specifications for Highway and Bridge Construction to prevent eroded soil from entering waterways.

Three regeneration sites will be built along the project alignment within the ROW (one at Isleta Pueblo, one at Acoma Pueblo, and one at Zuni Pueblo) while a fourth existing regeneration site at New Mexico Tech in Socorro will require only fiber installation. Regeneration sites consist of one-story buildings with a footprint of approximately 100 $ft.^2$ (30 m^2) used to house necessary components for the fiber optic network. Regeneration sites were chosen to minimize disturbance of existing vegetation. Underground enclosures, referred to as handholds, that will allow access to the fiber optic cable for future maintenance will be installed every 1,750 ft. (533 m) at the same time as installation of the cable. Efforts will be taken to avoid the removal of trees and vegetation within the action area and, where any disturbances are visible, revegetation using Class A seeding and respective seed mixes according to Section 632 of the NMDOT Standard Specifications for Highway and Bridge Construction will occur post-project implementation.

<u>New Mexico Meadow Jumping Mouse</u>

You determined that the proposed action "*may affect, is not likely to adversely* affect" the jumping mouse. While potentially suitable jumping mouse habitat occurs roughly adjacent to the project alignment along the Rio Grande River, the project alignment falls primarily outside of suitable upland and riparian habitat for the jumping mouse. The only intersection of the project alignment with potentially suitable jumping mouse habitat occurs at the crossing of the Rio Grande River at the Pueblo of Isleta. A single jumping mouse was detected in 2005 along the Rio Grande River within the Pueblo of Isleta. Where the project alignment intersects the Rio Grande River, a portion of the fiber optic cable (1,100 ft. [335 m] of cable at maximum) will be installed underneath the Rio Grande River using directional boring equipment at a disturbed riparian location adjacent to the existing Highway 147 bridge during the jumping mouse inactive period.

The primary disturbance from the proposed project to the jumping mouse will be in the form of vibrations and increased noise from the use of boring equipment in a riparian area that may awaken individual jumping mice hibernating underground in nearby burrows. However, jumping mouse individuals typically do not hibernate in areas that experience human disturbance and lack vegetation, such as those areas around the Highway 147 bridge. Hibernacula of the New Mexico meadow jumping mice as well as other subspecies of meadow jumping mice are generally located under vegetation. Areas upstream and downstream of the Highway 147 bridge support potentially suitable and less disturbed habitat but the area immediately around the bridge experiences vehicular disturbance and lacks appropriate habitat components for jumping mice.

We concur with your determination that the proposed project "*may affect, is not likely to adversely affect*" the jumping mouse due to the low likelihood that individuals are present in low-quality jumping mouse habitat supported at the Rio Grande River crossing and as boring activities will affect only riparian locations where jumping mouse hibernacula are highly unlikely to occur. Boring activities will begin and end at locations where little vegetation grows due to the presence of multiple vehicular paths used to access the dam structure south of the bridge and boring equipment will travel at a depth of approximately 27 ft. (8 m) below the surface far below the depth of underground jumping mice hibernacula. In the unlikely event that jumping mice do hibernate in the disturbed area near the Highway 147 bridge where the proposed project will take place, it would be even more improbable that boring activities will occur in close enough proximity to jumping mouse burrows to rouse individuals from hibernation.

Mexican Spotted Owl

You also made an effect determination for the proposed action of "*may affect, is not likely to adversely affect*" the owl. The project alignment crosses through potentially suitable forested owl habitat at various locations west of Socorro. The action area of the proposed project does not intersect with any owl Protected Activity Centers or with owl critical habitat. Only fiber optic cable installation activities will occur within potentially suitable owl habitat.

Primary disturbance to the owl will be in the form of increased human presence and the use of heavy machinery within the existing roadways' ROW, leading to increased noise disturbance that may affect individual owls present in the area. Disturbed areas, such as the ROW of roadways in which the proposed project will take place, typically do not support specific habitat components (i.e., mature forest stands with complex structure or steep canyon habitats) required for owl roosting and nesting activities. It is more likely that potential owl habitat within the action area of the proposed project only supports owl foraging and dispersal activities. Disturbance could also take the form of use of heavy machinery within the roadway's ROW could result in the removal of vegetation used by owl prey species, limiting the amount of suitable foraging habitat for owl individuals.

We concur with your determination that the proposed project "*may affect, is not likely to adversely affect*" the owl as it is unlikely that any owl habitat, other than foraging and dispersal habitat, occurs within the action area and temporary daytime noise disturbance will not inhibit foraging and dispersal activities of owls. To ensure that noise disturbance will not impact the breeding or nesting activities of individual owls, nest/roost owl habitat will be identified prior to project implementation and no work will be done in these areas during the owl breeding season (March 1-August 31). Results of habitat surveys will be provided to the New Mexico Ecological Services Field Office prior to the start of construction, and we will provide further guidance on how work is to proceed to avoid impacts to the owl if special circumstances arise. Additionally, efforts will be taken to avoid the removal of vegetation within any type of owl habitat and revegetation activities will occur post-project implementation.

Southwestern Willow Flycatcher and Yellow-Billed Cuckoo

For both the flycatcher and cuckoo, you determined that the proposed action "*may affect, is not likely to adversely affect*" the two species. Both species are known to occur within certain riparian habitats

of the Rio Grande River adjacent to the project alignment and may possibly occur within certain riparian habitats of rivers west of the Rio Grande (e.g., Zuni River and Rio Pescado). While most of the project alignment occurs outside of riparian habitat used by the two species, the fiber optic cable will be installed using directional boring methods at multiple locations to cross the Rio Grande, Zuni, and Rio Pescado rivers and, at one location at the center of Zuni Pueblo, the cable will be installed alongside an existing bridge. The action area of the proposed project does not intersect critical habitat of either species.

Primary disturbance to the flycatcher and cuckoo will be in the form of increased human presence and the use of heavy machinery in upland areas adjacent to and within suitable flycatcher and cuckoo riparian habitat, leading to increased noise disturbance that may affect individual flycatchers and cuckoos present in the area.

We concur with your determinations that the proposed project "*may affect, is not likely to adversely affect*" the flycatcher and cuckoo as all work within 0.25 mi. (0.4 km) of suitable flycatcher and cuckoo habitat will be conducted outside of both species' breeding seasons (May 1-September 1) when flycatcher and cuckoo individuals are either not present in the action area or are actively migrating. Efforts will be taken to avoid the removal of vegetation within flycatcher and cuckoo habitat and revegetation activities will occur post-project implementation. The methods chosen for installing the fiber optic cable at water crossings (i.e., within riparian areas) naturally lend themselves to avoid the disruption of vegetation thus significant disturbance of riparian plants used by the flycatcher and cuckoo is not expected.

Rio Grande Silvery Minnow

You determined that the proposed project "*may affect, is not likely to adversely affect*" the minnow. The minnow occurs within the Rio Grande River adjacent to the project alignment in certain locations. The only location where the project alignment intersects with minnow habitat is the crossing of the Rio Grande River at Isleta Pueblo near the Highway 147 bridge where directional boring equipment will be used to install the fiber optic cable underneath the river. The action area of the proposed project does not intersect minnow critical habitat.

Primary disturbance to the minnow will be caused by the use of directional boring machinery near and underneath the Rio Grande River resulting in increased noise and vibrations that may affect individual minnows.

We concur with your determination that the proposed project "*may affect, is not likely to adversely affect*" the minnow as directional boring activities under the Rio Grande River will be conducted during fall and early spring months outside of the species' spawning season and when sensitive life stages are present (April 15-September 1). Use of sediment control devices will prevent inputs of sediment resulting from the proposed action into the Rio Grande River.

Zuni Bluehead Sucker

You also made an effect determination of "*may affect, is not likely to adversely affect*" the sucker. The sucker occurs within the Zuni and Rio Pescado rivers adjacent to the project alignment in certain

locations. The project alignment crosses the Zuni River at two locations and the Rio Pescado and its various tributaries at six locations; these crossings will be accomplished primarily using a directional boring method and, at one location at the center of Zuni Pueblo, the fiber optic cable will be adhered to the side of an existing bridge. The action area of the proposed project does not intersect sucker critical habitat.

Primary disturbance to the sucker will be caused by the installation of the fiber optic line using trenching, plowing, or boring methods resulting in the creation of sediment that may wash into the Zuni and Rio Pescado rivers during precipitation events.

We concur with your determination that the proposed project "*may affect, is not likely to adversely affect*" the sucker as the following conservation measures will be enacted to avoid increased inputs of sediment to the Zuni and Rio Pescado rivers: use of sediment control devices will prevent inputs of sediment resulting from the proposed action from entering sucker habitat year-round and, if necessary, sediment-generating activities will not occur within 0.25 mi. (0.4 km) of the two rivers during the sucker's spawning season (late April-early June).

Pecos Sunflower and Zuni fleabane

For both the Pecos sunflower and Zuni fleabane, you determined that the proposed action "*may affect, is not likely to adversely affect*" the two species. The project alignment intersects potential Pecos sunflower wetland habitat at locations near Grants and near La Joya and San Geronimo. The project alignment intersects potential Zuni fleabane habitat at locations between the Pueblo of Acoma and the intersection of the alignment with Highway 60.

Primary disturbance to the both the Pecos sunflower and Zuni fleabane will be caused by the use of heavy machinery within the existing roadways' ROW when employing plowing or trenching methods to install the fiber optic cable resulting in soil disruption. Soil disrupting activities conducted within suitable Pecos sunflower or Zuni fleabane habitat where individuals of these species are present, may result in damage or the total removal of individuals.

We concur with your determinations that the proposed project "*may affect, will not adversely affect*" the Pecos sunflower and Zuni fleabane as individuals of these species will be identified and effectively avoided during project implementation according to the following conservation measures. Pre-construction habitat assessment surveys will be conducted to identify potential Pecos sunflower and Zuni fleabane habitat within the action area of the proposed project. If potential habitat for either species is identified, directional boring methods will occur at a depth where no roots are present (a minimum of 5 ft. (1.5 m)) and in a manner to avoid any surface disturbance (including direct modification of the surface, creation of structural instability, or other effects) to potential Zuni fleabane or Pecos sunflower habitat. Results of habitat surveys and species-specific surveys will be provided to the New Mexico Ecological Services Field Office prior to the start of construction, and we will provide further guidance on how work is to proceed to avoid impacts to listed species if special circumstances arise.

Mexican Wolf

For the endangered and threatened populations of the wolf, located north of Interstate 40 and south of Interstate 40 on National Wildlife Refuge and National Park Service lands respectively, you determined that the proposed project "*may affect, is not likely to adversely affect*" each population. The wolf is a wide-ranging species, occupying primarily forested habitat, but may utilize habitat types found along the entirety of the project alignment.

Primary disturbance to the wolf will be in the form of increased human presence and the use of heavy machinery within the existing roadways' ROW, leading to increased noise disturbance that may affect individual wolves present in the area. Noise disturbance may cause individual wolves to temporarily move to undisturbed areas causing individuals to expend energy.

We concur with your determinations that the proposed project "*may affect, is not likely to adversely affect*" the endangered and threatened populations of the wolf as the species is highly vagile and can easily avoid affected areas during project implementation without detriment to an individual. It is unlikely that roadside verges regularly experiencing human activity provide high-quality habitat for most wolf activities, particularly during daylight hours when the proposed project will be implemented. The ROW of well-traveled roadways are suitable primarily for only wolf dispersal while nearby, less-disturbed habitats support more stationary wolf activities.

For the nonessential experimental population of the wolf, located below Interstate 40 in New Mexico on lands not managed as National Wildlife Refuges or managed by the National Park Service, you made an effects determination of "*may affect, is not likely to jeopardize the continued existence of"* the wolf. The wolf is listed in New Mexico south of Interstate 40 as an experimental, nonessential population under section 10(j) of the Act. For section 7 consultation purposes, any nonessential experimental population located outside of a National Park or National Wildlife Refuge System is treated as a proposed species.

We concur with your determination that the proposed project "*may affect, is not likely to jeopardize the continued existence*" of the nonessential experimental population of the wolf based on the designation of the wolves in the area as nonessential to the survival of the species as well as the high vagility of the species and its ability to avoid affected areas during project implementation.

Conclusion

This concludes informal section 7 consultation with the Service for the Santa Fe Indian School Pueblo Education Network Project. Please contact our office if: 1) new information reveals changes to the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, 2) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not previously considered, or 3) a new species is listed, or critical habitat designated that may be affected by the action.

Thank you for your concern for threatened and endangered species and New Mexico's wildlife resources. If you have questions, please contact Alana Simmons of my staff, at the letterhead address or by electronic mail at alana_simmons@fws.gov.

Sincerely,

SHAWN SARTORIUS Digitally signed by SHAWN SARTORIUS Date: 2024.05.20 15:30:00 -06'00'

Shawn Sartorius

Field Supervisor

cc (electronic):
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Biological Assessment for the Santa Fe Indian School Pueblo Education Network

Middle Mile Broadband Project

May 2024

Prepared for:

U.S. Fish & Wildlife Service – NM Ecological Services Field Office
National Telecommunication and Information Administration

Prepared by:

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Project Location – PLSS

The following are the township, range, and sections which the proposed action travels through via Public Land Survey System (PLSS).

Township	Range	Section(s)
10 N	3 E	17, 20, 21, 28, 33
9 N	3 E	4, 9, 8, 17, 20, 29, 32, 31
8 N	3 E	6, 7, 18, 19
8 N	2 E	24, 23, 22, 27, 28, 33
-	-	Gutierrez/Sedillo Land Grant
-	-	San Clemente Land Grant
-	-	Belen Land Grant
-	-	Sevilleta Land Grant
1 S	1 W	14, 15, 22, 27, 34, 35
2 S	1 W	2, 11, 14, 23, 24, 25, 36, 33, 32, 31
-	-	Town of Socorro
3 S	1 W	3, 4, 6
3 S	2 W	1, 2, 3, 4, 5, 6
2 S	2 W	34, 33, 32, 31
2 S	3 W	36, 25, 26, 27, 22, 21, 16, 17, 18
2 S	4 W	13, 24, 23, 22, 27, 28, 29, 30, 31
2 S	5 W	36, 35, 34, 33, 32
3 S	5 W	5, 6
3 S	6 W	1, 2, 3, 4, 5
2 S	6 W	32, 31, 30
2 S	7 W	25, 24, 23, 14, 15, 10, 3, 4
1 S	7 W	33, 28, 29, 20, 19, 18, 7
1 S	8 W	12, 11, 2, 3
1 N	8 W	34, 33, 28, 21, 16, 17, 8, 7, 6
1 N	9 W	1
2 N	9 W	36
2 N	8 W	31, 30, 29, 20, 21, 16, 15, 10, 3
3 N	8 W	34, 35, 26, 23, 24
3 N	7 W	19, 18, 17, 16, 9, 4, 5
4 N	7 W	32, 33, 29, 28, 21, 16, 9, 3, 4, 5
5 N	7 W	34, 33, 32, 29, 20, 17, 8, 18, 7
5 N	8 W	12, 1, 2
6 N	8 W	35, 26, 23, 14, 13, 11, 12, 1, 2
7 N	8 W	35, 36, 25, 26, 23, 24, 13
7 N	7 W	18, 7, 6
8 N	8 W	36, 25
8 N	7 W	31, 30, 29, 28, 21, 20, 17, 8, 7, 6
9 N	7 W	31, 30, 19, 18, 7, 6
9 N	8 W	36, 25, 1, 12, 11, 2, 3, 10, 4, 5, 8, 7, 6
9 N	9 W	1
10 N	8 W	31, 30
10 N	9 W	36, 25, 26, 23, 22, 15, 10, 9, 4, 5
11 N	9 W	32, 31
11 N	10 W	36, 25, 26, 27, 34
10 N	10 W	3, 10, 15, 22, 27, 34
9 N	10 W	3, 10, 15, 16, 21, 28, 29, 32, 31
8 N	10 W	6
8 N	11 W	1, 2, 3
9 N	11 W	34, 33, 28, 29, 20, 19
9 N	12 W	24, 13, 23, 14, 15, 16, 17, 18, 7
9 N	13 W	12, 11, 2, 3, 4, 5, 6
9 N	14 W	1, 2, 3, 4, 5, 6
9 N	15 W	1
10 N	15 W	36, 35, 34, 27, 28, 21, 20, 17, 18, 7
10 N	16 W	12, 1, 2, 3, 4, 5, 8, 7
11 N	16 W	35, 34
10 N	17 W	12, 11, 10, 3, 4, 5, 8, 7
10 N	18 W	12, 11, 10, 15, 16, 17, 20, 19
10 N	19 W	24, 23, 26, 27, 28

Project Location – USGS (7.5 Minute Quadrangle)

The following are the 7.5 Minute Quadrangle maps which the proposed action travels through via United States Geologic Survey (USGS) topoBuilder Application v: 1.5.6.

Bernalillo County	
Albuquerque West	Los Lunas
Isleta	-
Valencia County	
Los Lunas	Belen
Dalies	Veguita
Socorro County	
Veguita	Arroyo Landavaso
Abeytas	Tres Montosas
La Joya	Arrowhead Well
San Acacia	Lion Mountain
Lemitar	Lion Mountain NW
Socorro	Dog Springs
Water Canyon	D Cross Mountain
Magdalena	Table Mountain
Granite Mountain	Pueblo Viejo Mesa
Catron County	
Dog Springs	-
Cibola County	
Broom Mountain	Grants
Mecate Meadow	Milan
Blue Mesa	San Rafael
East Mesa	Arrosa Ranch
Crow Point	Ice Caves
Acoma Pueblo	Paxton Springs
Cubero	Valle Largo
McCarty's	El Morro
Grants SE	Togeye Lake
McKinley County	
Togeye Lake	Pescado
Ramah	Horsehead Canyon
Burned Timber Canyon	Zuni

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Appendix

1: Information for Planning and Consultation (IPaC) Resource List for SFIS PEN

A. Introduction

The purpose of this biological assessment is to evaluate the impacts of the proposed action, the Santa Fe Indian School (SFIS) Pueblo Education Network (PEN) Middle Mile Broadband Project, on any surrounding threatened, endangered, proposed, or sensitive species. The proposed action involves the construction of a 324-mile broadband fiber optic network through multiple counties and tribal communities across central and west central New Mexico. This biological assessment is prepared in accordance with legal requirements set forth by Section 7 of the Endangered Species Act (16 U.S.C. 1536.c) and follows the standards established by National Telecommunications and Information Administration (NTIA), a branch within U.S. Department of Commerce, National Environmental Protection Act (NEPA) guidance.

B. Description of the Proposed Action

Two major components of the SFIS PEN (which share the same footprint) include: 1) constructing a Middle Mile Fiber Optic Network, and 2) connecting education facilities to a regional Internet exchange located in Albuquerque, NM. The Middle Mile Fiber Optic Network is composed of a 324-mile broadband line that traverse through the following tribal communities: Pueblo of Isleta, Pueblo of Acoma, Ramah Navajo Indian Reservation, and Pueblo of Zuni. Municipalities within the proposed action path include: the City of Albuquerque, Village of Los Lunas, City of Belen, City of Socorro, Village of Magdalena, and the City of Grants. This proposed broadband line serves as an addition to recently installed broadband infrastructure, including a 160-mile line in central New Mexico. The 324-mile PEN broadband line will be a Single Mode SMF-28e cable encased within a 1 ¼-inch High Density Polyethylene conduit.

The total project completion timeline is estimated to be approximately 500 business days. Factors that may extend the project's work are weather, terrain, and environmentally sensitive areas. Conduit will be placed at a minimum depth of 36 inches below ground surface with special depth adjustments to avoid existing utilities, and cross arroyos, highways, or waterways. If within the proposed action boundaries, efforts will be made to avoid vegetation removal to avoid disturbing potential species' habitat.

Depending on site conditions, construction activities for PEN installation include directional boring/drilling, and trenching. The trenching method utilizes a backhoe or mini excavator to remove soil for conduit installation. Directional drilling occurs at road/highway/waterway crossings or areas where terrain will not allow for trenching. Directional boring is a specialized installation method to install cables, pipes, and utility lines underground with minimal disturbance to the ground surface over an established distance. This technique uses a directional boring machine to drill a pilot hole with a drill head then pull the conduit through the pilot hole for installation. The directional boring method is the primary method of installation for the proposed action. Overall, this method minimizes ground disturbance and allows for mitigation or avoidance of impacts on the environment or other key features.

The proposed action crosses two major waterways:

- Directional boring at the Rio Grande will start and end at locations between 220 to 390 feet away from the water's edge to a depth of approximately 27 feet below the riverbed, depending on site conditions.
- The anticipated PEN installation location occurs on two bridge crossings (Hwy 53 east of Zuni Pueblo and County Rd. 8 in central Zuni Pueblo) of the ephemeral Zuni River: 1) on the central and 2) eastern portions of Zuni Pueblo.
    1) Hwy 53. Bridge – The PEN installation on the central bridge location occurs on the bridge infrastructure itself. Directional boring activities occur up to an existing light pole on the east side of the bridge, where the conduit will transition from underground to above ground and from plastic to steel material. The conduit will then be installed by bolting strap/clamp type attachments to the lower portion of every vertical handrail on the bridge. Although, depending on site conditions and landowners, selection of the most feasible installation method (bridge attachments or directional boring) will occur by the time of construction.
    2) County Rd. 8 Bridge – The method of directional boring occurs on the eastern bridge of the Pueblo. The locations of the boring activities occur between 200 to 250 feet away from the center of the waterway. The boring depth occurs between 8 to 10 feet. From north to south, the distance from the bridge to the boring location occurs at approximately 19 feet.

The construction equipment anticipated to be used are backhoes, directional drills, cable plows, semi-sized vehicles for transporting heavy equipment, and various 1-ton sized vehicles.

The proposed project area is within pre-disturbed lands within a combination of NM Department of Transportation Right-of-Way (ROW) areas and Tribal ROWs. One major stretch of the project area occurs from Albuquerque to Socorro along Interstate- 25. Another major stretch of the proposed project occurs from Magdalena to the Pueblo of Acoma. While many stretches of this route will be in the 'backcountry' of Acoma, installation of the fiber line will vary (based on site characteristics and heavy equipment accessibility) from the edge of the road to the edge of the ROW. Encountering wildlife within an existing ROW will be minimal. All construction activities (directional boring and/or trenching) will occur within the proposed project boundaries. NOTE: Each of these construction methods provides varying footprints for ground disturbances.

Implementation of best management practices (BMPs) during construction will occur. NMDOT Standard Specifications for Highway and Bridge Construction (2019) will govern construction activities.

- BMPs could include straw waddles, silt fences, and other temporary erosion and sediment control measures.
- Stormwater Pollution Prevention Plan (SWPPP) inspections.
- Monitoring and observation during construction activities will occur.

C. Description of Proposed Action Area

The proposed project area is defined as: the total length of the PEN (324-miles) with a width of 20-feet from the centerline of the roadway (40-feet total width). The proposed action area consists of 2 major footprints: 1) the total lineage of broadband fiber (324 miles) and 2) the foundation for a shelter for fiber optic regeneration. There will be a total of 4 Regeneration Sites along the proposed project path at the approximate locations: southern border within Isleta Pueblo boundary near Los Lunas, New Mexico Tech Grad site location (already established – no building required), within Acoma Pueblo on the corner of Anzac Rd. and Airport Rd., and Zuni Pueblo along Hwy 53 across BIA-12. Figure 1 displays the proposed action area.

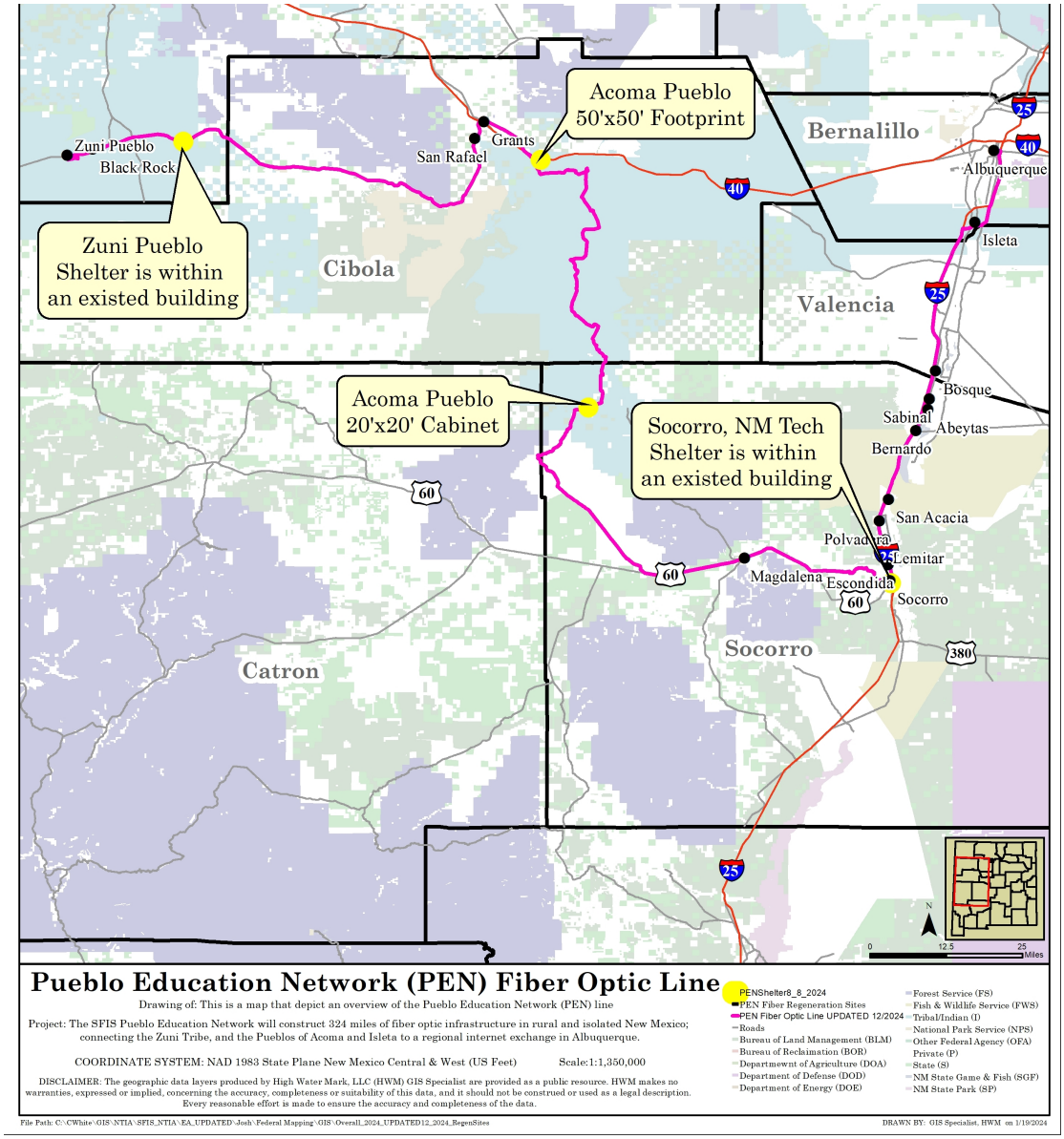

Figure 1: SFIS PEN (Proposed Action Area) and Regeneration Sites

New Mexico soils support a diverse group of plant species over various ecosystems and landscapes that range from desert, forestland, low plains, to mountainous regions. The US Environmental Protection Agency created a map layer depicting ecoregions across the nation. Ecoregions denote areas of similar ecosystems (type, quality, and quantity of environmental resources). Figure 2 displays the ecoregions within the proposed action area, with further details in Table 1.

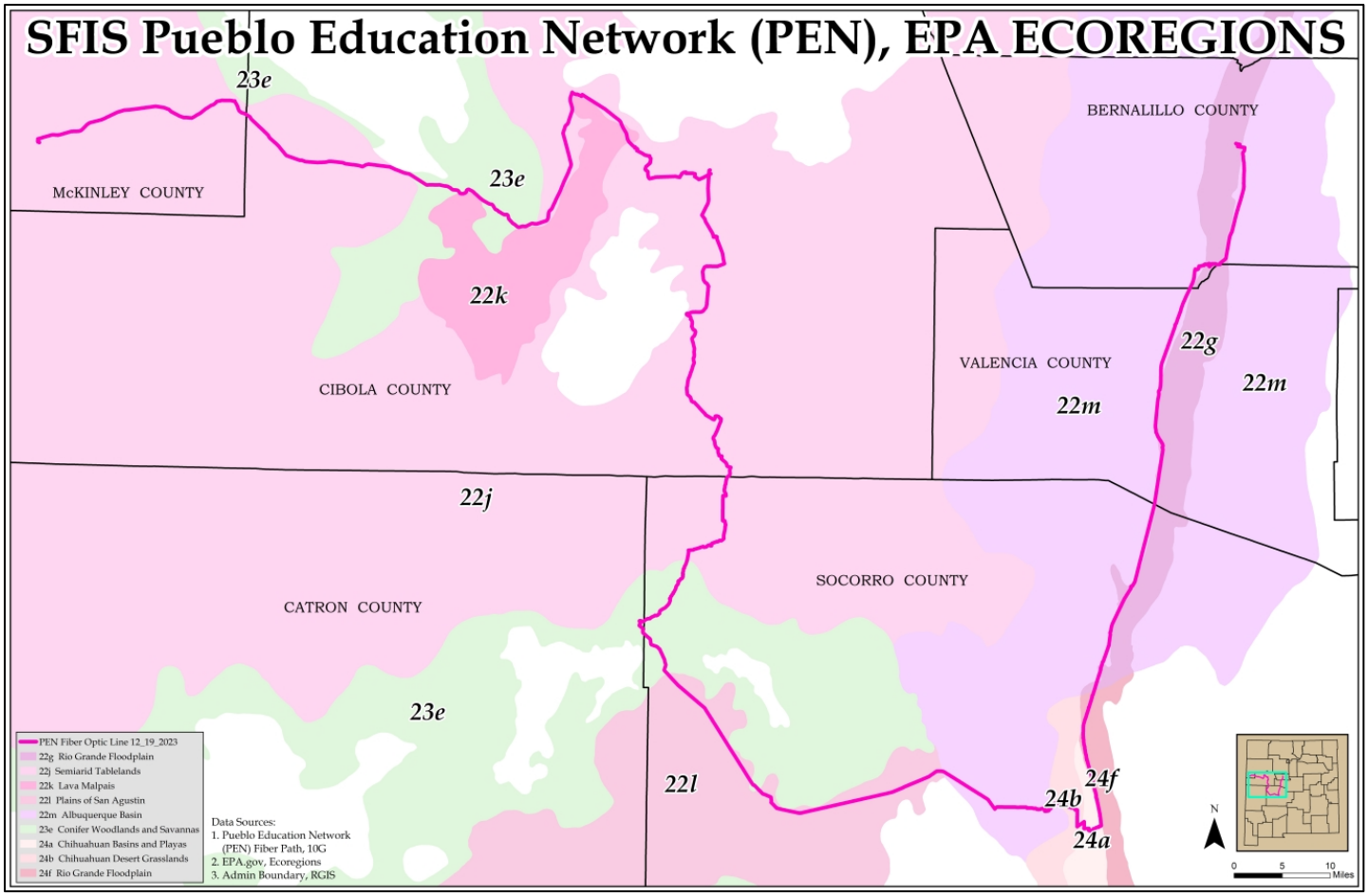

Figure 2: SFIS PEN (Proposed Action Area) overlayed with EPA Ecoregions

Table 1: EPA Ecoregions within the Proposed Action Area

Level IV EPA Ecoregion	Ecoregion Description and Related Vegetation
22g – Rio Grande Floodplain	Bosque of cottonwood and willow with understories of coyote willow, NM olive, false indigo, and seepwillow widely replaced by invasive saltcedar and Russian olive.
22j – Semiarid Tablelands	Scattered juniper and pinyon-juniper woodland, with alkali sacaton, shadscale, fourwing saltbrush, mixed gramas, western wheatgrass, and some winterfat.
22k – Lava Malpais	Some grasses of blue grama and sideoats grama; shrubs of Apache plume and NM olive; some stunted pinyon pine, Douglas-fir, and ponderosa pine. Some plants are indicative of a "mesic island" i.e., moister than the land around it. Ferns may grow in small cracks in shady exposures.
22l – Plains of San Augustin	**In low areas:** alkali sacaton, fourwing saltbush, and greasewood. Some western wheatgrasses, blue grama, sand dropseed, vine-mesquite. **On higher slopes:** juniper and some pinyon.
22m – Albuquerque Basin	Sand scrub and desert grassland including black grama, sand dropseed, mesa dropseed, blue grama, galleta, sand sage, alkali sacaton, and threeawns.
23e – Conifer Woodlands and Savannas	Pinyon-juniper woodlands with one-seed juniper, alligator juniper, Rocky Mountain juniper at higher elevations, pinyon pine, blue grama, junegrass, galleta, and bottlebrush squirrel tail. Some areas with Gambel oak, Utah juniper, big sagebrush (in Chuska Mtns.), ponderosa pine, mountain muhly, and Arizona fescue (at highest elevations). Lower and drier sites are areas of yucca and opuntia.
24a – Chihuahuan Basins and Playas	**Saline flats and alkaline playa margins:** fourwing saltbush, seepweed, pickleweed, and alkali sacaton. **Gypsum land:** gyp grama, gyp mentzelia, and Torrey ephedra. **Desert shrub land:** creosote bush, tarbush, yuccas, sand sage, viscid acacia, tasajillo, lechuguilla, mesquite, and ceniza.
24b – Chihuahuan Desert Grasslands	**Low elevations:** black, blue, and side oats grama, dropseeds, and bush muhly, with scattered creosotebush, acacias, beargrass, and cacti. **Ancient lakebeds and alluvial areas:** some black grama grass, tobosa grass, tarbush. **Mountain grassland:** side oats grama, silver bluestem, threeawns, scattered yuccas, lechuguilla, sotol, and junipers.
24f – Rio Grande Floodplain	Cottonwood-willow, velvet ash, screwbean mesquite, seep willow, alkali sacaton, skunk bush, creosote bush, and invasive salt cedar.
Source: ecologicalregions.info	

D. Current Management Direction

The New Mexico Department of Transportation (NMDOT) Standard Specifications for Construction of Roads and Bridges (2019) will govern the construction activities of the PEN.

E. Species (Threatened, Endangered, Candidate)

Tables 2 and 3 list the species identified from the USFWS Information for Planning and Consultation (IPaC) Resource List collected for the proposed action area. The IPaC Resource List is attached as Appendix 1. The listing status, occurrence within action area, and determination is provided for each of these species. NOTE: No further analysis provided for species with no known occurrence within the proposed action area.

Table 2: Occurrence of Species near the Proposed Action Area

Common Name	Scientific Name	Occurrence	Determination
Mexican Wolf (E)	*Canis lupus baileyi*	Known to occur in action area	See Table 5
Mexican Wolf (EXPN)	*Canis lupus baileyi*	Known to occur in action area	See Table 5
New Mexico Meadow Jumping Mouse (E)	*Zapus hudsonius luteus*	Known to occur in action area	See Table 5
Mexican Spotted Owl (T)	*Strix occidentalis lucida*	Known to occur in action area	See Table 5
Northern Aplomado Falcon (EXPN)	*Falco femoralis septentrionalis*	NO known occurrence in action area	No Effect
Piping Plover (T)	*Charadrius melodus*	NO known occurrence in action area	No Effect
Southwestern Willow Flycatcher (E)	*Empidonax traillii extimus*	Known to occur in action area	See Table 5
Yellow-billed Cuckoo (T)	*Coccyzus americanus*	Known to occur in action area	See Table 5
Chiricahua Leopard Frog (T)	*Rana chiricahuensis*	NO known occurrence in action area	No Effect
Loach Minnow (E)	*Tiaroga cobitis*	NO known occurrence in action area	No Effect
Rio Grande Silvery Minnow (E)	*Hybognathus amarus*	Known to occur in action area	See Table 5
Spikedace (E)	*Meda fulgida*	NO known occurrence in action area	No Effect
Zuni Bluehead Sucker (E)	*Catostomus discobolus yarrow*	Known to occur in action area	See Table 5
Socorro Isopod (E)	*Thermosphaeroma thermophilus*	NO known occurrence in action area	No Effect
Pecos (=puzzle, =paradox) Sunflower (T)	*Helianthus paradoxus*	Known to occur in action area	See Table 5
Wright's Marsh Thistle (T)	*Cirsium wrightii*	NO known occurrence in action area	No Effect
Zuni Fleabane (T)	*Erigeron rhizomatus*	Known to occur in action area	See Table 5
American Hart's-tongue Fern (T)	*Asplenium scolopendrium var. americanum*	NO known occurrence in action area	No Effect
Monarch Butterfly (C)	*Danaus plexippus*	NO known occurrence in action area	No Effect
Species list from IPaC Resource List – Retrieved on Feb. 15, 2024			

E=Endangered, T=Threatened, EXPN=Experimental Population/Non-essential, C=Candidate

Table 3: Migratory Birds

Common Name	Scientific Name	Breeding Season
Baird's Sparrow	*Ammodramus bairdii*	Breeds elsewhere
Bald Eagle	*Haliaeetus leucocephalus*	Oct 15 to Aug 31
Bendire's Thrasher	*Toxostoma bendirei*	Mar 15 to Jul 31
Black Swift	*Cypseloides niger*	Jun 15 to Sep 10
Black-chinned Sparrow	*Spizella atrogularis*	Apr 15 to Jul 31
Black-throated Gray Warbler	*Dendroica nigrescens*	May 1 to Jul 20
California Gull	*Larus californicus*	Mar 1 to Jul 31
Cassin's Finch*	*Carpodacus cassinii*	May 15 to Jul 15
Cassin's Sparrow	*Aimophila cassinii*	Aug 1 to Oct 10

Common Name	Scientific Name	Breeding Season
Chestnut-collared Longspur	*Calcarius ornatus*	Breeds elsewhere
Clark's Grebe	*Aechmophorus clarkii*	Jun 1 to Aug 31
Clark's Nutcracker	*Nucifraga columbiana*	Jan 15 to Jul 15
Eastern Meadowlark	*Sturnella magna*	Apr 25 to Aug 31
Evening Grosbeak	*Coccothraustes vespertinus*	May 15 to Aug 10
Ferruginous Hawk	*Buteo regalis*	Mar 15 to Aug 15
Flammulated Owl	*Otus flammeolus*	May 10 to Aug 15
Golden Eagle	*Aquila chrysaetos*	Jan 1 to Aug 31
Grace's Warbler	*Dendroica graciae*	May 20 to Jul 20
Lesser Yellowlegs	*Tringa flavipes*	Breeds elsewhere
Lewis's Woodpecker	*Melanerpes lewis*	Apr 20 to Sep 30
Long-billed Curlew	*Numenius americanus*	Breeds elsewhere
Long-eared Owl	*asio otus*	Mar 1 to Jul 15
Mexican Whip-poor-will	*Antrostomus arionae*	May 1 to Aug 20
Mountain Plover	*Charadrius montanus*	Apr 15 to Aug 15
Olive-sided Flycatcher	*Contopus cooperi*	May 20 to Aug 31
Pectoral Sandpiper	*Calidris melanotos*	Breeds elsewhere
Pinyon Jay	*Gymnorhinus cyanocephalus*	Feb 15 to Jul 15
Red-faced Warbler	*Cardellina rubrifrons*	May 10 to Jul 15
Rufous-winged Sparrow	*Aimophila carpalis*	Jun 15 to Sep 30
Sprague's Pipit	*Anthus spragueii*	Breeds elsewhere
Virginia's Warbler	*Vermivora virginiae*	May 1 to Jul 31
Western Grebe	*aechmophorus occidentalis*	Jun 1 to Aug 31
Migratory Birds from IPaC Resource List – Retrieved on Feb. 15, 2024		

According to the Information for Planning and Consultation (IPaC) report collected for the proposed action, the period of February through September is not ideal for construction activities as most migratory birds in the proposed action area are using adjacent habitat for migratory refueling, establishing breeding territory, or actively breeding. If construction requires a consistent work schedule year- round (as anticipated), continued coordination amongst USFWS, the PEN team, and contractors will occur to mitigate ecosystem disturbance, and determine which areas along the proposed action area can continue.

E.1 Critical Habitat

There are no threatened or endangered species with current "Critical Habitat" within the proposed project area, according to the USFWS IPaC report.

E.2 Bald & Golden Eagles

In addition to the Endangered Species Act, additional responsibilities under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act were enacted for protection from potential project impacts. Prohibited activity includes harming migratory birds and/or eagles, unless permitted by USFWS (50 CFR 10.12 and 16 USC 668(a)).

F. Accounts and Status of the Species near the Proposed Action Area

Below are accounts and respective status of federally listed species known to occur near the proposed action area.

New Mexico Meadow Jumping Mouse (*Zapus hudsonius luteus*)[1]

- Habitat Description, Location, and Biology/Ecology
  - Riparian communities along rivers and streams, springs and wetlands, or canals and ditches – that contain persistent emergent herbaceous wetlands, scrub-shrub riparian areas, flowing water, and tall/dense herbaceous riparian vegetation up to 24 inches in height.
  - Based on information from USFWS Environmental Conservation Online System (ECOS), this species will primarily occur along the Rio Grande (with a maximum distance travelled between two successive points by radio collared NM meadow jumping mice in Bosque del Apache NWR was 2,441 ft. – with daily movements were less than 328 ft.
  - This species is nocturnal, but occasionally diurnal. This species is active only during the growing seasons of grasses and forbs. During this time, the mouse accumulates fat reserves by consuming seeds. This species hibernates for about 9 months out of the year. According to ECOS, there is little information regarding this species' breeding season, but FWS estimates the beginning of July or August.
- Species Status
  - Listed as 'Endangered' on 06/10/2014 by USFWS.

Mexican Spotted Owl (*Strix occidentalis lucida*)[2]

- Habitat Description, Location, and Biology/Ecology
  - Owl foraging habitat includes a wide variety of forest conditions, canyon bottoms, cliff faces, tops of canyon rims, and riparian areas. "Forests used for roosting and nesting often contain mature or old growth stands with complex structure (USDI FWS 1995:26). Forests used by spotted owls are typically uneven-aged, are multistoried, and have high canopy cover (USDI FWS 1995:27). In these areas, nest trees are typically large (average diameter of nest trees is 61cm [24 in]), although owls roost in both large and small trees (Ganey 1988, Seamans and Gutiérrez 1995, Willey 1998b, Ganey et al. 2000, May and Gutiérrez 2002, May et al. 2004). Tree species used for nesting vary among areas and cover types, but Douglas-fir is the most common nest tree in many areas (SWCA, Inc. 1992, Willey 1998b)."[3]
  - The critical habitat identified by USFWS lies within the Cibola National Forest along the Zuni Mountains. Most adults remain in the same territory year after year. Juveniles leave

[1] https://ecos.fws.gov/ecp/species/7965
[2] https://ecos.fws.gov/ecp/species/8196
[3] U.S. Fish & Wildlife Service. 2012. Final Recovery Plan for the Mexican Spotted Owl (Strix occidentalis lucida), First Revision. U.S. Fish & Wildlife Service. Albuquerque, New Mexico, USA. 413 pp.

their natal territory in September, but typically establish themselves nearby. Mated pairs defend a breeding territory at least during the nesting season (March through August).
    - Human activity in or near nesting, roosting, or foraging sites may result in abandonment of an area, and indirectly may affect habitat parameters from trampling, vegetation removal, or increased fire risk.
- Species Status
    - Listed as 'Threatened' on 03/16/1993 by USFWS.

Southwestern Willow Flycatcher (*Empidonax trailii extimus*)[4]

- Habitat Description, Location, and Biology/Ecology
    - For nesting, dense riparian areas with microclimatic conditions dictated by the local surroundings are necessary.
    - The critical habitat identified by USFWS lies along the path of the Rio Grande. There is only one portion of the proposed PEN that crosses the Rio Grande, within Isleta Pueblo. This crossing will not cause harm to any existing riparian areas due to the fiber line installation occurring via directional drilling under the Rio Grande. Setbacks for drilling operations occur between 220 to 390 feet from the water's edge. Although to set up the directional drilling, a pit would need to be excavated for seamless operation. Since the flycatcher typically breeds in the summer months. Construction can occur the rest of the year.
    - Loss and degradation of dense riparian habitats are the primary habitat threat to this species. Human disturbances at nesting sites may result in nest abandonment.
- Species Status
    - Listed as 'Endangered' on 02/27/1995 by USFWS.

Yellow-billed Cuckoo (*Coccyzus americanus*)[5]

- Habitat Description, Location, and Biology/Ecology
    - Habitats of this species typically include wooded areas with dense cover and water nearby. In the west, nests occur along streams and rivers.
    - The critical habitat identified by USFWS lies along the path of the Rio Grande. There is only one portion of the proposed PEN that crosses the Rio Grande, within Isleta Pueblo. This crossing will not cause harm to any existing riparian areas due to the fiber line installed approximately 27 feet below the river. Although to set up the directional drilling, a pit would need to be excavated for seamless operation. Construction activities will not affect breeding season.
    - The conversion of riparian habitat to farmland and housing led to population declines in the West. As long-distance, nocturnal migrants, this species is also vulnerable to collisions with tall buildings, cell towers, radio antennas, wind turbines, and other structures.

[4] https://ecos.fws.gov/ecp/species/6749
[5] https://ecos.fws.gov/ecp/species/3911

- Species Status
  - Listed as 'Threatened' on 10/03/2014 by USFWS.

Rio Grande Silvery Minnow (*Hybognathus amarus*)[6]

- Habitat Description, Location, and Biology/Ecology
  - "In general, the species is most often found in areas of low or moderate water velocity (e.g., eddies formed by debris piles, pools, backwaters, and embayments) and is rarely found in habitats with high water velocities, such as main channel runs, which are often deep and swift (Dudley and Platania 1997, Watts et al. 2002, Remshardt 2007)."[7]
  - Currently, this species is known to occur in one portion of the middle Rio Grande (a 174 mile stretch of river from Cochiti Dam to Elephant Butte Reservoir).
  - Surface and groundwater withdrawal would affect the direct loss of habitat to any aquatic species. The proposed PEN will not cause any surface or groundwater withdrawal (via sedimentation issues potentially caused by directional drilling) that would jeopardize this species' habitat.
- Species Status
  - Listed as 'Endangered' on 07/20/1994 by USFWS.

Zuni Bluehead Sucker (*Catostomus discobolus yarrow*)[8]

- Habitat Description, Location, and Biology/Ecology
  - This species persists in small creeks that are subject to exceptionally low water velocities. Effects on the range reduction and fragmentation of this species includes discontinuous surface-water flow, introduced species, and habitat degradation from fine sediment deposition.[9]
  - This species' range includes isolated locations within the Little Colorado and San Juan River drainages in Arizona and New Mexico. Occupancy locations are mostly located on Tribal lands on the Navajo Nation and Zuni Pueblo Reservation.
  - Surface and groundwater withdrawal would affect the direct loss of habitat to any aquatic species. The proposed PEN will not cause any surface or groundwater withdrawal (via sedimentation issues) that would jeopardize this species' habitat.
- Species Status
  - Listed as 'Endangered' on 08/25/2014 by USFWS.

[6] https://ecos.fws.gov/ecp/species/1391
[7] U.S. Fish & Wildlife Service. 2010. Rio Grande Silvery Minnow (Hybognathus amarus) Recovery Plan, First Revision. Albuquerque, NM. viii + 210 pp.
[8] https://ecos.fws.gov/ecp/species/3536
[9] 76 FR 66370 66439

Pecos Sunflower (*Helianthus paradoxus*)[10]

- Habitat Description, Location, and Biology/Ecology
  - Typical species' locations include desert wetlands that contain permanently saturated root soils. The species require sites with low proportions of woody shrubs that provide enough space and light for individual and population growth.
  - The critical habitat identified from USFWS is located on the eastern side of Grants, NM where grasses such as blue grama and sideoats grama are located. These are some plants that remain moister than the areas surrounding it. Threats to the sunflower include wetland drying and groundwater depletion. The effects of the construction of the PEN will not disturb any existing groundwater nor wetlands.
  - This species commonly blooms between September through November. Flowering typically peaks in the second week of September in the northern-most portion of New Mexico. Seeds fill and mature during October and November, then require a two-to-three-month after-ripening period before germination. Some seeds will remain dormant for longer periods than others, though the precise duration of seed viability is unknown.
- Species Status
  - Listed as 'Threatened' on 10/20/1999 by USFWS.

Zuni Fleabane (*Erigeron rhizomatus*)[11]

- Habitat Description, Location, and Biology/Ecology
  - Found on outcrops in the Datil/Sawtooth Mountains in western New Mexico at elevations between 7,300 and 8,300 ft. Commonly grows on steep slopes, most commonly on north-facing slopes. Found on recently weathered detrital slopes or cliff benches with sandy soils. Substrate types include pink or white weathered soft sandstone strata and pink or red shale strata that weather into a sand-like substrate.[12]
  - Also found in the Zuni Mountains in northwestern New Mexico at elevations between 7,300 and 7,380 ft. There are only two known locations of the plant in this area. Grows on both gentle and steep slopes at all exposures. Substrate types include gray and brown sandy shale or shale that breaks down into small sandy particles, giving the soil a sandy surface texture.
  - This species flowers from mid to late May into early June. Fruiting time varies from mid-June to early July. The mature seeds fall by the end of July. The major threat to this species is primarily surface disturbance activity associated with mineral development. Many sites for this species are directly associated with historic or current mining claims for uranium.[13] As mining activities gradually decreased over time, the survival of this species increased.

[10] https://www.fws.gov/species/paradox-sunflower-helianthus-paradoxus
[11] https://ecos.fws.gov/ecp/species/5700
[12] Status Report for Zuni Fleabane on the Cibola National Forest, New Mexico, 2014.
[13] U.S. Fish & Wildlife Service. 1988. Zuni fleabane (Erigeron rhizomatus) Recovery Plan. U.S. Fish & Wildlife Service, Albuquerque, New Mexico 38 pp.

- Species Status
  - Listed as 'Threatened' on 04/26/1985 by USFWS.

Mexican wolf (*Canis lupus baileyi*)[14]

- Habitat Description, Location, and Biology/Ecology
  - Mexican wolves historically occupied montane woodland habitats ranging from foothills characterized by evergreen oaks (*Quercus* spp.), pinyon (*Pinus edulis*), and juniper (*Juniperus* spp.) to high elevation pine (*Pinus* spp.) and mixed conifer forests.
  - This species' current range includes central and southern Arizona and New Mexico in the U.S. and portions of the States of Sonora and Chihuahua in Mexico.
- Species Status[15]
  - Listed as 'Endangered' 1976 by USFWS.
  - Listed as 'Non-essential, experimental population' in 1998 by USFWS.

G. Effects

The construction of the PEN includes primarily directional boring methods and, in some areas, vibratory plow trenching at a minimum depth of 36 inches from the surface (except at river crossings), with special depth adjustment based on existing terrain and site characteristics. The directional boring procedures will occur in areas where the proposed PEN is crossing a waterway, existing roads, various existing infrastructure. Vibratory plow trenching occurs when the equipment has easy accessibility in areas less densely populated. Additionally, vegetation re-seeding will occur in areas trenched.

Direct effects are those caused by the proposed action and occur simultaneously. The direct effects of this proposed project include noise disruptions during construction, and temporary impact/loss of vegetation. Long term impacts to vegetation and wildlife are not anticipated because of the proposed action.

G.1 Noise Disruptions

Typical heavy equipment noise ranges from 80 to 90 decibels (dB). The noise disruptions from the proposed action closely resemble the noise produced during urban development. Although the proposed PEN is NOT an urban development project, the noise coming from construction equipment is similar, but also temporary. The construction equipment noise is only to occur during normal hours of the day and may last up to 1 or 2 days maximum at the location of construction within the construction area.

G.2 Temporary Loss of Habitat

Minor temporary loss of habitat may occur. The presence of construction equipment and the presence of multiple workers in a specific construction location would cause wildlife to

[14] https://ecos.fws.gov/ecp/species/3916
[15] Biological Report for Mexican Wolf (USFWS) – Nov. 2017, pg. 7

temporarily avoid the work area. Most importantly, construction activities will occur around the various breeding seasons to avoid any temporary loss of habitat.

Construction activities will temporarily impact soil and vegetation within the proposed action area. Implementation of New Mexico Department of Transportation specifications for backfill, seeding, and revegetation will occur.

G.3 Cumulative Effects (State, Tribal, and Private Actions)

The proposed PEN broadband fiber line will be located underground, so it does not permanently intrude or impede on any natural habitats and does not pose any major negative effects on surrounding wildlife and plant population.

With all construction activities, there are instances of uncertainty regarding weather, equipment failures, or leaks from heavy equipment. Construction observation and monitoring will occur to document and report (when necessary) these instances. The observer will monitor implementation of SWPPP and NMDOT regulations to mitigate any issues. The observer will also document and contact appropriate agencies and/or personnel if any of these instances of uncertainty occur.

H. Conservation Measures for Species near the Proposed Action Area

Table 4 identifies conservation measures for each species known to occur within the proposed action area.

Table 4: Proposed Conservation Measures

Species	Approximate Habitat Location(s) near the Proposed Action Area	Conservation Measure
New Mexico Meadow Jumping Mouse	• Wherever found within riparian communities along the Rio Grande.	Work within suitable habitat occurs outside of the active/breeding season. The active season of this species occurs in mid-May to late October in the lower elevations along the Rio Grande. Work within or adjacent to this species' habitat will occur outside of its active season.
Mexican Spotted Owl	• Outside of PEN footprint along Ice Caves Rd. Location approx. 1.29 miles north of PEN.	Identification of suitable forested (or canyon) nest/roost habitat for the owl will occur prior to project implementation. If nest/roost habitat identified, work within suitable nest/roost habitat will not occur during the owl's breeding season (Mar. 1 – Aug. 31), as construction noise and human presence disrupts breeding behavior. Efforts to avoid tree and/or vegetation removal within any type of potential owl habitat will occur.
Southwestern Willow Flycatcher	• Rio Grande corridor from Los Lunas to Socorro	Work within 0.25 mi. of suitable riparian habitat occurs outside of the breeding season (May 1 – Sep. 1) as construction noise disrupts breeding behavior.
Yellow-billed Cuckoo	• Rio Grande corridor from Los Lunas to Socorro	Work within 0.25 mi. of suitable riparian habitat occurs outside of the breeding season (May 1 – Sep. 1) as construction noise disrupts breeding behavior.
Rio Grande Silvery Minnow	• Outside of PEN footprint along Broadway Blvd. near Isleta Pueblo.	The construction occurring near the Rio Grande involves a directional bore approximately 8 ft. below the bed of the river, which alleviates any surface water disruptions that could harm this species habitat, breeding season, or feeding. To avoid potential impacts to the Rio Grande silvery

	Location approx. 1 mile west of PEN. • Rio Grande corridor from Los Lunas to Socorro	minnow's spawning activities and to sensitive life stages, boring activities underneath the Rio Grande will occur outside of April 15 to September 1. The use of sediment control devices (such as silt fencing) during construction will prevent eroded soil from transporting off the construction site to surrounding rivers or streams (NMDOT Specifications for Highway and Bridge Construction – 2019; Section 604.3.6).
Zuni Bluehead Sucker	• Outside of PEN footprint along Ice Caves Rd. near Ramah. Location approx. 0.84 miles NE of PEN.	The construction occurring within the range of the Zuni bluehead sucker involves crossing of multiple water bodies and directional boring approximately 8 ft. below the bed of these water bodies, which alleviates most surface water disruptions that could harm this species' habitat, breeding season, or feeding. To avoid the smothering of Zuni bluehead eggs, sediment-generating activities will not occur within 0.25 miles of the Rio Pescado and Zuni River during the species' spawning season (late April to early June) or appropriate measures (i.e., silt fences, etc.) will be taken to eliminate any potential siltation of these rivers due to project activities.
Pecos Sunflower	• Outside of PEN footprint along McBride Rd. in Grants. Location approx. 0.34 miles SW of PEN.	Pre-construction habitat assessment surveys to identify potential habitats will occur. If potential habitat identified, directional boring would occur at a depth where no roots are present (a minimum of 5 feet) to avoid the disturbance of potential Pecos sunflower habitat.
Zuni Fleabane	• Wherever found in mountainous areas of Western NM, particularly in Grants, Ramah, and Zuni areas.	Pre-construction habitat assessment surveys to identify potential habitats will occur. If potential habitat identified, directional boring would occur at a depth where no roots are present (a minimum of 5 feet) to avoid the disturbance of potential Zuni fleabane habitat.
Mexican Wolf (Experimental Population)	• Wherever found in areas south of NM Interstate 40	Work occurring within identified suitable habitats (south of I-40) within the proposed action area will occur outside of breeding season (February to March). Road avoidance behavior is a characteristic of this species. If species encountered, construction would halt until species is out of range of proposed action area.
Mexican Wolf	• Wherever found in areas north of NM Interstate 40	Work occurring within identified suitable habitats (north of I-40) within the proposed action area will occur outside of breeding season (February to March). Road avoidance behavior is a characteristic of this species. If species encountered, construction would halt until species is out of range of proposed action area.
Mexican Wolf	• Within Sevilleta National Wildlife Refuge and El Malpais	Work occurring within identified suitable habitats (within Sevilleta NWR and El Malpais) within the proposed action area will occur outside of breeding season (February to March). Road avoidance behavior is a characteristic of this species. If species encountered, construction would halt until species is out of range of proposed action area.

I. Analysis of Alternative Actions

The Alternative Paths considered for the PEN proceed through tribal communities and municipalities such as Laguna Pueblo, Alamo Navajo Indian Reservation, Gallup, Southern Albuquerque, Eastern Albuquerque, Moriarty, Corona, Mountainair, Carrizozo, San Antonio, and Magdalena. When compared to the proposed action, the alternative path involves:

- There are more resources (soil, wetlands, points of diversion, mineral resources, and biological resources) within the alternative path that have potential to be affected and impacted. Substantial mitigation measures are necessary for their protection.
- Four locations of directional boring across the Rio Grande River rather than one crossing for the proposed action

J. Tribal Engagements

As specified by *Secretarial Order 3206: Tribal Rights, Trust Responsibilities, and the Endangered Species Act*, the [Departments will carry out their responsibilities under the Act in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation][16].

> *Because of the unique government-to-government relationship between Indian tribes and the United States, the Departments and affected Indian tribes need to establish and maintain effective working relationships and mutual partnerships to promote the conservation of sensitive species (including candidate, proposed and listed species) and the health of ecosystems upon which they depend. Such relationships should focus on cooperative assistance, consultation, the sharing of information, and the creation of government-to-government partnerships to promote healthy ecosystems.*[17]

> *The Departments recognize that Indian lands, whether held in trust by the United States for the use and benefit of Indians or owned exclusively by an Indian tribe, are not subject to the controls or restrictions set forth in federal public land laws. Indian lands are not federal public lands or part of the public domain but are retained by tribes or set aside for tribal use pursuant to treaties, statutes, court orders, executive orders, judicial decisions, or agreements. Accordingly, Indian tribes manage Indian lands in accordance with tribal goals and objectives, within the framework of applicable laws.*[18]

To fulfill the goals and intentions of this order, this Biological Assessment will be forwarded to respective BIA agencies (Southern Pueblo Agency, Zuni, and Navajo) for review and interpretation, at a period between 30-45 days upon receipt. Any changes or recommendations made by these BIA agencies will be included in this BA when this engagement occurs.

K. Determination and Conclusion

Table 5 identifies each species, determinations, and determination reasoning.

[16] Secretarial Order #3206 (1997), Section 1. Purpose and Authority
[17] Secretarial Order #3206 (1997), Section 4. Background
[18] Secretarial Order #3206 (1997), Principle 2

Table 5: Proposed Species Determination

Species	Determination	Determination Reasoning
New Mexico Meadow Jumping Mouse	*Not likely to adversely affect*	This species' habitat occurs along rivers and streams. Directional boring will occur under the Rio Grande and will not cause disturbances to the above ground vegetation where this waterway occurs. For additional protection, construction activities will occur outside of this species' breeding season. Directional boring at the Rio Grande will occur at a location between 220 to 390 feet from the water's edge, at a depth of approximately 27 feet (below the riverbed) depending on site conditions. This is likely out of range of the mice burrowing hibernation location.
Mexican Spotted Owl	*Not likely to adversely affect*	Prior to project implementation, forest areas (if any) will be identified. If there is no presence of dense old story conifer forest areas (nesting habitat) identified within the proposed action area, there is no nesting habitat of the Mexican Spotted Owl present. Construction activities (and related noise) in known owl locations will only occur during daylight hours.
Southwestern Willow Flycatcher	*Not likely to adversely affect*	To prevent potential effects on this species, conservation measures and timing restrictions will occur. Construction activities and related noise will occur outside of breeding season.
Yellow-billed Cuckoo	*Not likely to adversely affect*	This species' habitat occurs in wooded areas where water is present nearby. Directional boring will occur under the Rio Grande and will not cause disturbances to the above ground vegetation or nests where this waterway occurs. For additional protection, construction activities (and related noise) will occur outside of this species' breeding season.
Rio Grande Silvery Minnow	*Not likely to adversely affect*	Directional boring will occur under the Rio Grande. However, boring activities will occur outside of April 5 to September 1 to avoid potential impacts to the Rio Grande Silvery Minnow's spawning activities and to sensitive life stages. Nor will boring activities cause any sedimentation issues that will harm this species' habitat. Implementation of sediment control devices (such as silt fencing) to combat potential silt issues will occur.
Zuni Bluehead Sucker	*Not likely to adversely affect*	Directional boring will occur under the Zuni River. This method will not cause influxes in water velocities and conservation measures will ensure the avoidance of any sedimentation issues that will harm this species' habitat.
Pecos Sunflower	*Not likely to adversely affect*	Identification of potential habitats (via species-specific surveys) within the proposed action area will trigger implementation of appropriate conservation measures. Specifically, directional boring techniques to avoid direct or indirect impacts to this species and/or suitable habitat will occur. Additional surveys may be necessary when the sunflower is in bloom.
Zuni Fleabane	*Not likely to adversely affect*	Identification of potential habitats (via species-specific surveys) within the proposed action area will trigger implementation of appropriate conservation measures. Specifically, directional boring techniques to avoid direct or indirect impacts to this species and/or suitable habitat will occur.

Species	Determination	Determination Reasoning
Mexican wolf (Experimental population)	*Not likely to jeopardize*	The road avoidance characteristic of this species allows the proposed action to continue. Special considerations for work performed during breeding season (February to March) will occur. Construction activities occur strictly within the ROW boundary.
Mexican Wolf	*Not likely to adversely affect*	The road avoidance characteristic of this species allows the proposed action to continue. Special considerations for work performed during breeding season (February to March) will occur. Construction activities occur strictly within the ROW boundary.
Mexican Wolf (Sevilleta NWR and El Malpais)	*Not likely to adversely affect*	The road avoidance characteristic of this species allows the proposed action to continue. Special considerations for work performed during breeding season (February to March) will occur. Construction activities occur strictly within the ROW boundary.

The proposed SFIS PEN project is a 324-mile Middle Mile fiber optic network that seeks to provide broadband internet to the following tribes: Pueblo of Isleta, Pueblo of Acoma, and the Pueblo of Zuni. After careful analysis of various resources (including species analysis shown in this document), the proposed route for this project is the least environmentally damaging alternative. Overall, construction activities and methods utilized for this proposed action do not intend to harm any species nor surrounding habitats and vegetation.

L. Consultation to Date

October 11, 2023	DOI Bureaus and Cooperating Agencies Regular Update Meeting
November 14, 2023	DOI Bureaus and Cooperating Agencies Regular Update Meeting
November 17, 2023	Informal discussion of BA with USFWS
November 28, 2023	DOI Bureaus and Cooperating Agencies Regular Update Meeting
January 12, 2024	Informal discussion of BA with USFWS
February 6, 2024	DOI Bureaus and Cooperating Agencies Regular Update Meeting
February 20, 2024	DOI Bureaus and Cooperating Agencies Regular Update Meeting
February 21, 2024	Informal discussion of BA with USFWS
March 1, 2024	Informal discussion of PEN water crossings with USFWS
March 5, 2024	DOI Bureaus and Cooperating Agencies Regular Update Meeting
March 19, 2024	DOI Bureaus and Cooperating Agencies Regular Update Meeting

M. List of Contacts/Contributors/Preparers

Phoebe Suina	SFIS Consultant; High Water Mark, LLC
Christel White	SFIS Consultant; High Water Mark, LLC
Edmund Vandever	SFIS Consultant; High Water Mark, LLC
Teran Villa	SFIS Consultant; High Water Mark, LLC
Alana Simmons	Biologist; US Fish & Wildlife Service – NM Ecological Services
Josh Fitzpatrick	Environmental Program Officer; National Telecommunications and Information Administration

N. Resources

U.S. Fish and Wildlife Service. 2002. Southwestern Willow Flycatcher Recovery Plan. Albuquerque, New Mexico. i-ix + 210 pp., Appendices A-O.

U.S. Fish and Wildlife Service. 2005. Pecos Sunflower Recovery Plan. Albuquerque, New Mexico. 39 pp.

U.S. Fish and Wildlife Service. 2010. Rio Grande Silvery Minnow Recovery Plan, First Revision. Albuquerque, NM.

U.S. Fish and Wildlife Service. 2012. Recovery Plan for the Mexican Spotted Owl (Strix occidentalis lucida), First Revision. Albuquerque, New Mexico. 414 pp.

U.S Fish and Wildlife Service. 2013. Mexican spotted owl 5-year review. Arizona Ecological Services Office, Phoenix, Arizona. 16 pp.

U.S. Fish and Wildlife Service. 2014. Endangered and Threatened Wildlife and Plants; Endangered Species Status of the Zuni bluehead sucker; Final rule. Federal Register 79:43132-43161.

U.S. Fish and Wildlife Service. 2016. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Zuni bluehead sucker. 81:36761-36785.

U.S. Fish and Wildlife Service. 2022. Mexican Wolf Recovery Plan, Second Revision. Region 2, Albuquerque, New Mexico, USA.

U.S. Fish and Wildlife Service. 2024. Information for Planning and Consultation (IPaC) Resource List for the SFIS Pueblo Education Network.

For more information contact:

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Appendix 1

Information for Planning and Consultation (IPaC)

Resource List for SFIS PEN Updated June 2025

Outlook

Updated IPaC Species List for SFIS

From Simmons, Alana L <alana_simmons@fws.gov>
Date Tue 6/10/2025 3:43 PM
To Michael Griego <michaelgriego@high-watermark.com>; Christel White <ChristelWhite@high-watermark.com>

2 attachments (646 KB)
20250610_SFIS_UpdatedRoute_40ftBuffer_IPaC_ Explore Location resources.pdf; FiberLineUPDATED12_2024_40FootBuffer.zip;

External (alana_simmons@fws.gov)

Report This Email

Hey there Michael and Christel,

Attached is the IPaC list I pulled for the updated SFIS route plus a 40-ft. buffer. Also attached is the shapefile that I used to pull the list which I received from Christel earlier today.

My apologies as the consultation # 2024-005024 is not stamped on the attached IPaC list. However, I have filed the attached IPaC list as being the updated list for consultation # 2024-005024.

If you need further assistance, please don't hesitate to reach out.

Thank you,
Alana Simmons
Fish and Wildlife Biologist
New Mexico Ecological Services Field Office
U.S. Fish and Wildlife Service
2105 Osuna Rd NE, Albuquerque, NM 87113
Office: 505-761-4707

Note: Please direct any e-mail requests for project reviews within New Mexico to nmesfo@fws.gov

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

New Mexico



Local office

New Mexico Ecological Services Field Office

(505) 346-2525
(505) 346-2542

2105 Osuna Road Ne
Albuquerque, NM 87113-1001

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

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The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Mexican Wolf Canis lupus baileyi No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3916	Endangered
Mexican Wolf Canis lupus baileyi No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/3916	EXPN
New Mexico Meadow Jumping Mouse Zapus hudsonius luteus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7965	Endangered

Birds

NAME	STATUS
Mexican Spotted Owl Strix occidentalis lucida Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8196	Threatened
Northern Aplomado Falcon Falco femoralis septentrionalis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1923	EXPN
Piping Plover Charadrius melodus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Southwestern Willow Flycatcher Empidonax traillii extimus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

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NAME	STATUS
Yellow-billed Cuckoo Coccyzus americanus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3911	Threatened

Fishes

NAME	STATUS
Loach Minnow Tiaroga cobitis Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6922	Endangered
Rio Grande Silvery Minnow Hybognathus amarus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/1391	Endangered
Spikedace Meda fulgida Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6493	Endangered
Zuni Bluehead Sucker Catostomus discobolus yarrowi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3536	Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

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Suckley's Cuckoo Bumble Bee Bombus suckleyi No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10885	Proposed Endangered

Crustaceans

NAME	STATUS
Socorro Isopod Thermosphaeroma thermophilus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2470	Endangered

Flowering Plants

NAME	STATUS
Pecos (=puzzle, =paradox) Sunflower Helianthus paradoxus Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7211	Threatened
Zuni Fleabane Erigeron rhizomatus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5700	Threatened

Ferns and Allies

NAME	STATUS
American Hart's-tongue Fern Asplenium scolopendrium var. americanum Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4232	Threatened

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Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Bald and Golden Eagle information is not available at this time

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Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report

On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

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The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (FWS). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The FWS interprets the MBTA to prohibit incidental take.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Migratory bird information is not available at this time

Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

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How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of

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concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Facilities

Wildlife refuges and fish hatcheries

Refuge and fish hatchery information is not available at this time

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

NOT FOR CONSULTATION

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to

engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION

Appendix I

Section 106 – Programmatic Agreement between SHPO, ACHP, Tribes and Pueblos, and other Parties

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PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION, ADVISORY COUNCIL ON HISTORIC PRESERVATION, NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA, PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

This Programmatic Agreement (Agreement) is entered into by and between the National Telecommunications and Information Administration (NTIA), an operating bureau of the U.S. Department of Commerce, the Advisory Council on Historic Preservation (ACHP), New Mexico State Historic Preservation Officer (SHPO), the Pueblo of Acoma, Pueblo of Isleta, Pueblo of Zuni, and the Navajo Nation Ramah Chapter. NTIA, SHPO, Pueblo of Acoma, Pueblo of Isleta, Pueblo of Zuni, and Navajo Nation Ramah Chapter, may be collectively referred to herein as the "Signatories" and individually referred to herein as a "Signatory."

RECITALS

Whereas, NTIA is authorized to provide financial assistance supporting the development of broadband infrastructure under the Tribal Broadband Connectivity Program (TBCP), which is implemented through NTIA's *Internet for All* initiative; and

Whereas, NTIA issued a financial assistance award under TBCP to the Santa Fe Indian School (SFIS) to build a 324-mile Middle Mile Fiber Optic Pueblo Education Network (the Project) to connect rural tribal education facilities in New Mexico. The Project will deploy buried fiber optic cable, primarily in existing road rights of way (ROW), to extend Internet connectivity to educational facilities in the City of Albuquerque, Pueblo of Isleta, Village of Los Lunas, City of Belen, City of Socorro, Village of Magdalena, Pueblo of Acoma, City of Grants, and the Pueblo of Zuni, located in the following New Mexico counties: McKinley, Cibola, Bernalillo, Valencia, Socorro, Catron (Attachment A); and

Whereas, NTIA has determined that the Project is an Undertaking subject to review under Section 106 of the National Historic Preservation Act (NHPA), at 54 U.S.C. 306108, and its implementing regulations, "Protection of Historic Properties" (36 C.F.R. Part 800); and

Whereas, under a memorandum issued on January 1, 2024 (Delegation Memo), NTIA has authorized TBCP recipients to act on behalf of NTIA to consult with SHPOs and other parties to initiate the Section 106 process, to identify and evaluate historic properties, and to assess effects (Attachment B); and

Whereas, NTIA is the lead federal agency for the Undertaking and has consulted with the Signatories and Invited Signatories pursuant to its responsibilities under Section 106 of the NHPA and its implementing regulations at 36 C.F.R. Part 800; and

Whereas, any party engaging in consultation for the Project may be collectively referred to herein as the "Consulting Parties" and individually referred to herein as a "Consulting Party"; and

Whereas, due to the complexities inherent in a linear project involving multiple landowners designed to provide broadband infrastructure to reach under-served and unserved communities and locations, NTIA, the Signatories and the Consulting Parties have agreed to employ a phased approach to conclude Section 106 review; and

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Whereas, the Project will be reviewed in phases, and for the purposes of review, certain Signatories and Consulting Parties may be referred to as "Reviewing Parties" as described in Attachment C; and

Whereas, NTIA, in accordance with 36 CFR Part 800.14(b)(1)(ii), has determined that execution of an Agreement is appropriate because effects on historic properties cannot be fully determined prior to approval of this Undertaking; and

Whereas, in accordance with 36 CFR § 800.2(c)(2)(i)(a), the Undertaking includes *tribal lands* as defined in 36 CFR 800.16(x), therefore, the Pueblo of Zuni , Pueblo of Acoma, the Pueblo of Isleta, and the Navajo Nation tribal historic preservation officers (THPO) will consult in lieu of the SHPO for broadband infrastructure deployments under their respective jurisdictions within the Pueblo of Zuni, Pueblo of Acoma, Pueblo of Isleta, and Navajo Nation Ramah Chapter; and

Whereas, approximately thirteen (13) miles of buried optic cable is proposed to cross the Pueblo of Isleta tribal lands, and the Pueblo of Isleta is a signatory to this Agreement (Attachment A); and

Whereas, approximately 63 miles of fiber optic cable cross Pueblo of Acoma tribal lands, and the Pueblo of Acoma is a signatory to this Agreement (Attachment A); and

Whereas, approximately 22 miles of fiber optic cable cross Pueblo of Zuni tribal lands, and the Pueblo of Zuni is a signatory to this Agreement (Attachment A); and

Whereas, approximately four (4) miles of fiber optic cable will cross tribal lands of the Navajo Nation Ramah Chapter, and the Navajo Nation Ramah Chapter is a signatory to this Agreement (Attachment A); and

Whereas, the remaining approximately 222 miles of fiber optic cable will be deployed on non-tribal lands subject to consultation with the SHPO, who is a signatory to this Agreement (Attachment A); and

Whereas, NTIA has determined the Area of Potential Effects for the Project includes all locations of project related ground disturbing activities and is defined as the width of the construction ROW plus any additional areas for associated facilities, staging, or access as described; and

Whereas, NTIA and the Consulting Parties intend to utilize stipulations in the *Program Comment for Federal Communications Projects (amended)*, when applicable and agreed upon, for portions of the project; and

Whereas, SFIS is the NTIA funded TBCP grant recipient responsible for the construction of the Undertaking and is an Invited Signatory to this Agreement; and

Whereas, the Bureau of Land Management (BLM) must comply with Section 106 of the NHPA associated with permit applications for rights-of-way (ROW) grants for approximately eleven (11) miles of the Project, and the BLM Socorro and Rio Puerco field offices are Invited Signatories to this Agreement; and

Whereas, Bureau of Indian Affairs (BIA) agencies including Ramah Navajo, Southern Pueblos, and Zuni must comply with Section 106 of the NHPA associated with permit applications for ROW easements for the Project on allotment lands, and the BIA is an Invited Signatory to this Agreement; and

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Whereas, the National Park Service (NPS) must comply with Section 106 of the NHPA associated with a permit application for a ROW easement across approximately two (2) miles of the El Malpais and El Morro National Monument, and the NPS is an Invited Signatory to this Agreement; and

Whereas, the Federal Highway Administration (FHWA) must comply with Section 106 of the NHPA associated with a permit application for ROW easements for the Project and is an Invited Signatory to this Agreement; and

Whereas, the U.S. Army Corps of Engineer Albuquerque District (USACE) must comply with Section 106 of the NHPA associated with a permit application for the Project to cross navigable waters of the U.S. and crossing of congressionally authorized federal levee and water conveyance structures, and the USACE is an Invited Signatory to this Agreement; and

Whereas, the Project will deploy fiber in rights of way owned and managed under the jurisdiction of the New Mexico Department of Transportation (NMDOT), wherein NMDOT is the permitting authority, and NMDOT is an Invited Signatory to this Agreement; and

Whereas, the project involves New Mexico State Land Office (NMSLO) owned land, and the NMSLO may use the provisions of this Agreement to address the applicable requirements of the Cultural Properties Protection Rule (19.2.24 New Mexico Administrative Code) and NTIA has invited NMSLO to sign this Agreement as an Invited Signatory; and

Whereas, other federally recognized tribes that may attach significance to the project location, including the Pueblo of Jemez, Pueblo of Laguna, Pueblo of San Filipe, Ohkay Owingeh, Pueblo of Sandia, Pueblo of Santa Clara, Pueblo of Santo Domingo, Pueblo of Tesuque, Southern Ute Tribe, Comanche Nation, Kiowa Indian Tribe, Apache Tribe of Oklahoma, Eastern Shoshone Tribe, Skull Valley Band Goshute, Mescalero Apache Tribe, Northern Cheyenne Tribe, White Mountain Apache Tribe, Jicarilla Apache Nation, Navajo Nation Ramah Chapter, Northern Arapaho, were afforded an opportunity to participate in and comment upon this Undertaking through the Federal Communications Commission's (FCC) Tower Notification System (TCNS) and did not express interest in additional project information; and

Whereas, the White Mountain Apache Tribe, Jicarilla Apache Nation, Navajo Nation Ramah Chapter, and Northern Arapaho requested to be notified in instances of inadvertent discoveries; and

Whereas, in accordance with 36 CFR § 800.6(a)(1), NTIA has invited the ACHP to participate in the consultation for this Project and the ACHP has elected to participate; and

NOW THEREFORE, NTIA, SHPO, ACHP, Pueblo of Acoma, Pueblo of Isleta, Pueblo of Zuni, and Navajo Nation Ramah Chapter agree that the Undertaking as described shall be implemented in accordance with the following stipulations to take into account the Undertaking's potential effects on historic properties.

STIPULATIONS

I. DEFINITIONS

Definitions of terms throughout the Agreement are in accordance with 36 CFR 800.1 to 800.16, unless stated otherwise. In addition, the following terms will apply:

A. "Signatories", in accordance with 36 CFR § 800.6(c)(1), are those parties with the sole authority to execute, amend, or terminate the Agreement.

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B. "Invited Signatories", in accordance with 36 CFR § 800.6(c)(2), are those parties that assume a responsibility under the agreement and, upon signing, have the authority to amend and terminate the Agreement.
C. "Consulting Parties" are those parties that have been identified by NTIA to have a consultative role in the Section 106 review process as described in 36 CFR 800.2(c).
D. "Reviewing Parties" are Consulting Parties who have Section 106 review responsibilities as defined in Stipulation V.B.(b).
E. "Project Phase" is a fiber route that is a component of the Undertaking as described in Stipulation V.B and Attachment C that is subject to Section 106 review by the Reviewing Parties.
F. Timelines are in calendar days, unless otherwise noted.

II. ROLES AND RESPONSIBILITIES

A. As the lead federal agency, NTIA shall:
   1. Ensure the Agreement's stipulations are carried out according to the provisions set forth herein.
   2. Maintain its responsibilities for tribal consultation for each project phase as defined in 36 CFR 800.3(d) and 36 CFR 800.3(f)(2). This includes consultation regarding potential Traditional Cultural Places and Properties of Religious and Cultural Importance, both of which rely on tribal indigenous knowledge to identify and appropriately treat.
   3. Ensure the responsibilities under the terms of this Agreement are included as a binding provision of SFIS's NTIA TBCP funding.
B. SFIS, as the TBCP grant recipient and project proponent shall:
   1. Establish project phases as described in Stipulation IV to support the respective Section 106 review responsibilities of Reviewing Parties in this Agreement.
   2. Conduct identification efforts as described in Stipulation VI under the authority of NTIA's Delegation Memo (Attachment B).
   3. Fund identification and potential mitigation measures as agreed upon under Stipulations VI and VII of this Agreement.
   4. Refrain from construction on any project phase until Section 106 review for that phase concludes per the terms of this Agreement.
C. The New Mexico SHPO and the respective THPOs acting in lieu of the SHPO shall:
   1. Consult on project phases as described in Attachment C of this Agreement.
   2. Participate in the Section 106 consultation process as described in Stipulations VI and VII of this Agreement.
D. Federal and state land and resource management agencies who are Invited Signatories to this agreement shall:
   1. Review project phases for components of the APE subject to their permitting authority as described in Attachment C under the provisions set forth in Stipulation VI.
   2. Participate in the resolution of adverse effects per Stipulation VII of this Agreement, should an adverse effect on historic properties, Traditional Cultural Places (TCPs), or Properties of Traditional Religious and Cultural Importance (PTRCI) occur on federally or state managed lands under their jurisdiction.
   3. Be included as a point of contact in any Inadvertent Discovery Plan covering land(s) jurisdiction, as described in Stipulation X.

III. ADOPTABILITY

In the event that another federal agency not initially a party to or subject to this Agreement receives an application for funding/license/permit for the Undertaking as described in this

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Agreement, that agency may fulfill its Section 106 responsibilities by stating in writing it concurs with the terms of this Agreement and notifying the Signatories to this Agreement that it intends to do so. Such agreement shall be evidenced by execution of a Signature page and filing with the ACHP, and implementation of the terms of this Agreement.

IV. PROFESSIONAL STANDARDS

A. The archaeological and historical investigations required under the terms of the Agreement shall be carried out by, or under the supervision of, a professional who meets or exceeds the Secretary of the Interior's (SOI) Professional Qualifications Standards in archaeology, history, cultural anthropology, architectural history, or historic landscape architecture, as appropriate (Qualified Professional).

B. NTIA acknowledges that Indian tribes have special expertise in evaluating the eligibility of historic properties that may possess religious and cultural significance for them (36 CFR Part 800.4(c)(1)). Thus, prior to conducting work on *tribal lands,* SFIS must consult with the tribe and any hired professional must meet the standards of the sovereign tribe and have obtained the appropriate Tribal and federal permits. For some tribes, this may entail SFIS engaging the THPO office and/or Tribal archaeologists to undertake identification efforts as outlined in Stipulation VI.A.(a)(i).

C. Cultural resource investigations on federal and state lands are subject to applicable statutory or permit requirements which may include additional professional qualifications.

V. PHASED IDENTIFICATION AND REVIEW OF PROJECT

A. Once the final engineering project plans are complete and prior to the initiation of any construction activity, SFIS shall ensure that a Qualified Professional reviews the project plans and implements the requirements of Stipulation VI of this Agreement for each Section 106 review project phase as described in Attachment C.

B. Plans for the Project shall clearly identify, map, and describe:

   a. Each of the Section 106 review project phases (Attachment C);

   b. The Signatories and/or Invited Signatories participating in the Section 106 review for each Phase, referred to as the Reviewing Parties; and

   c. Activities anticipated within the APE. Project activities may include but are not limited to: aerial placement of fiber optic cable on existing utility infrastructure; aerial placement of fiber optic cable on new infrastructure; placement of equipment shelters, and transmission nodes; installation of buried fiber optic cable through open trenching, directional drilling, grading for construction of transmission nodes; staging; equipment access (including use of trails and roadways); temporary construction easements; tree and vegetation removal; and any other ground disturbing activities. Discussion of any proposed activity that includes ground disturbance must describe the area of disturbance and the depth of ground disturbance resulting from construction methods.

      i. NTIA may modify the APE at the request of SFIS, Signatories, or land managing agencies participating in the Section 106 review of a phase. The request must include updated mapping and a justification for the change. NTIA will forward the modification proposal to all Reviewing Parties for a fifteen (15) days consultation period. If all parties cannot agree to the proposal, then NTIA shall render the final decision. Modification of the APE for a project phase will not require amendment of this Agreement.

C. SFIS shall complete a Records Check Report as described in Stipulation VI.A and submit

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the plans for the phase with the Records Check Report to each Reviewing Pary identified in Attachment C and provide an opportunity for comment in accordance with the requirements of Stipulation VI.C of this Agreement.

VI. IDENTIFICATION, EVALUATION, AND EFFECT DETERMINATION

A. **Records Check.** Using the Professional Standards in Stipulation IV, SFIS shall complete a cultural resources inventory to identify historic properties that could be affected by the Project. This inventory will include:

(a) Existing Data Inventory of all previously recorded cultural resources within 0.25 mile of the APE, which shall include a review of information in New Mexico Cultural Resource Information System (NMCRIS), records held at land managing agencies, historical maps, including 15-minute topographic maps, General Land Office maps and survey notes, and other archival sources for properties that are over 45 years old that may be affected by the Project.

(i) For any project phases that include *tribal lands,* SFIS shall consult with the respective THPO regarding cultural resources, their location, and any confidentiality measures that may be appropriate when considering tribal cultural resources.

(ii) In accordance with the ACHP's *Policy Statement on Indigenous Knowledge and Historic Preservation*, identification efforts should be guided and informed by Indigenous Knowledge, where Indian tribes consent to share that knowledge with federal agencies, to ensure these actions more effectively account for properties that may be of religious and cultural significance to Indian tribes. This Indigenous Knowledge may identify Traditional Cultural Places and Properties of Traditional Religious and Cultural Importance within the APE that warrant consultation between NTIA and the respective THPO and tribal representatives.

(b) Areas that have been previously surveyed with an indication of whether the previous survey meets current SHPO/THPO standards and is more than ten years old.

(c) Previously documented sites, buildings, and structures and their National Register of Historic Places (NRHP) status.

(d) Portions of the APE that are previously disturbed to an extent and depth where the probability of identifying historic properties is low.

(e) Portions of the APE with high probability of containing NRHP eligible properties.

(i) The Qualified Professional will consult with the SHPO and THPOs to make this determination based on professional expertise, familiarity with the area, and similar geomorphology elsewhere.

(f) For any historic properties identified in or adjacent to the APE, a description of proposed ground disturbance and how the historic property may be avoided (i.e. fiber routed to opposite side of the road, deploying fiber aerially, directionally boring to depths required to avoid an adverse effect).

B. Recommendations. Based on the results of the Records Check, SFIS's Qualified Professional shall include in the Records Check reporting a recommendation of whether additional efforts, which may include survey and/or construction monitoring, are warranted. Recommendations will consider the conditional exemptions and presumed effect determinations for broadband deployments established by the ACHP in the *Program Comment for Federal Communications Projects* and may identify phases or portions of fiber within phases of the project where construction can proceed with no additional identification efforts.

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1. Recommendations for avoidance of historic properties in and immediately adjacent to the APE shall include methods to confirm and/or update site boundaries to ensure avoidance measures are adequate.
2. Construction monitoring recommendations shall include a Monitoring Plan that details monitoring methodology, procedures, and current site conditions of proposed monitored sites.
3. NTIA and SFIS shall consult with each respective THPO and Tribal leader(s) regarding the appropriate survey effort, methods, monitoring and reporting requirements for elements of the Project on *tribal lands*.

C. Review and Comment. The Records Check Report will be submitted to Reviewing Parties for a fifteen (15) day review period.
   1. If there are no objections from Reviewing Parties, SFIS may proceed in implementing the Records Check Report Recommendations after the review period and upon obtaining tribal consent and any applicable archaeological permits.
   2. Should there be an objection to the APE or the recommendations, SFIS, in consultation with NTIA will consult with all Reviewing Parties to resolve the objection. If NTIA determines that consultation will not likely result in an agreement, NTIA will request ACHP comment in accordance with Stipulation XII, Dispute Resolution.

D. Field Survey, Evaluation, and Effect Determination
   1. For each Phase of the project where a field survey is conducted, SFIS shall submit a Field Survey and Evaluation report to NTIA and the Reviewing Parties for the Phase. The report submittal will include:
      (a) A cover letter with summary findings, including recommendations of eligibility, avoidance measures, and effects finding.
      (b) Documentation of Historic Properties in accordance with any land managing agency site recording requirements and SHPO or THPO reporting standards.
      (c) Site evaluations for any historic property or unevaluated site within the APE to include:
         (i) Update of site documentation and confirmation of site boundaries for properties on or determined eligible for the NRHP in the APE.
         (ii) Determinations of Eligibility (DOE) and confirmation of site boundaries for any unevaluated cultural resources within the APE.
            (a) If a historic property or unevaluated cultural resource is confirmed to be outside of the APE during site evaluation, site documentation shall be updated to reflect site boundaries and there will be no further evaluation.
            (b) SFIS shall make every reasonable effort to avoid historic properties. Any avoidance measures undertaken by SFIS in response to identification efforts shall be documented in the Field Survey and Evaluation Report.
      (d) A recommended Determination of Effect for the proposed phase of the project with support for the finding.
   2. NTIA and Reviewing Parties will have 30 calendar days from receipt of the Field Survey and Evaluation Report for the phase to review and provide written concurrence or disagreement with the finding.
   3. If written objections regarding determinations are provided to SFIS within the 30-day review period, NTIA will consult with the Reviewing Parties to resolve such objections. If NTIA cannot resolve the objection(s), NTIA will follow the procedures in Stipulation XII, Dispute Resolution.
   4. If SFIS's Qualified Professional makes a determination of No Historic Properties Affected or No Adverse Effect for a project phase, and no objections are received within the 30-day

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review period, Section 106 review for that Phase of the project is concluded.

E. Draft and final reports, treatment plans, traditional cultural resource reports, Laboratory of Anthropology (LA) site forms, and Historic Cultural Properties Inventory (HCPI) sites forms will be submitted electronically (Word or PDF) to the appropriate Reviewing Parties and uploaded to the New Mexico Cultural Resource Information System (NMCRIS) when appropriate.

VII. AVOIDANCE AND RESOLUTION OF ADVERSE EFFECTS

A. The preferred treatment for all historic properties is avoidance of adverse effects. SFIS, in consultation with NTIA, SHPO and THPO shall, to the extent practicable, avoid adverse effects on historic properties either through Project design changes, use of temporary fences or barricades during construction, or other measures that will protect historic properties.

B. If Traditional Cultural Places (TCPs) or Properties of Traditional and Religious Cultural Importance (PTRCIs) are identified within the APE and cannot be avoided through project redesign or alternate fiber construction methods, NTIA shall consult with the appropriate Tribal Consulting Party on treatment. SFIS may, at their expense, employ a qualified Tribal construction monitor to avoid potential adverse effects. NTIA and SFIS will consult with the respective THPO on construction monitoring procedures.

C. If NTIA, in consultation with the SHPO and/or THPO, determines that an adverse effect on historic properties has or will occur and cannot be adequately avoided through other measures, SFIS' Qualified Professional will develop a treatment plan with proposed minimization and mitigation measures.
   1. The treatment plan will identify the nature of any adverse effects on historic properties and describe the measures that will be implemented to minimize or mitigate those effects.
   2. The treatment plan will establish the boundaries of treatment activities. NTIA and the Reviewing Parties may agree to allow SFIS to proceed with construction activities outside of the treatment boundaries elsewhere in the Project Phase during the treatment plan review and approval period.
   3. The treatment plan will provide an implementation timeline that defines what measures must be carried out prior to construction commencement.
   4. The treatment plan will be consistent with the Secretary of the Interior's *Standards for the Treatment of Historic Properties,* the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation,* the Advisory Council on Historic Preservation's *Treatment of Archeological Properties; A Handbook;* and Part 4.10.16 of the NMAC, *Standards for Excavation and Test Excavation,* and Part 4.10.17 NMAC, *Standards for Monitoring* and in so doing will incorporate provisions for monitoring discoveries.

D. SFIS shall submit the treatment plan to the SHPO/THPO and other Reviewing Parties on the project Phase for a thirty (30) day review and approval period.
   1. If NTIA receives no written comment within the 30-day review period, NTIA will notify Reviewing Parties that the review period has ended and instruct SFIS to proceed.
   2. If NTIA receives written comments on the proposed treatment plan, NTIA will instruct SFIS to address such comments or recommendations prior to finalizing the treatment plan.
   3. Should NTIA disagree with proposed revisions to the treatment plan, or if any Reviewing Party objects to the proposed treatment plan approach, NTIA will consult with all Reviewing Parties to resolve the dispute.
   4. If NTIA is unable to resolve the dispute within ten days of consulting on the objection, NTIA will request ACHP comments in accordance with Stipulation XII Dispute Resolution.

E. SFIS will implement any treatment plan as a binding provision of SFIS's TBCP funding.

VIII. CURATION

A. All material resulting from work carried out pursuant to this Agreement shall be curated in

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accordance with 36 CFR part 79 and NMAC Part 4.10.8.19.

B. Any material remains removed from *tribal lands* remain the property of the respective tribe and NTIA shall consult with the respective Tribal government to define acceptable curation conditions.
C. Any material remains (6 CFR 79.4 "Material remains") removed from federal land that are not subject to the Native American Graves Protection and Repatriation Act (NAGPRA) and their associated records (36 CFR Part 79.4 "Associated Records") will be curated in accordance with 36 CFR Part 79, *Curation of Federally Owned and Administered Archaeological Collections,* and at the Museum of Indian Arts and Culture in Santa Fe, New Mexico.
D. Any material remains removed from non-federal, state, and other publicly owned land and their associated records will be curated in accordance with 4.10.8.19 NMAC, and with 36 CFR Part 79, *Curation of Federally owned and Administered Archaeological Collections,* and based on guidance provided by the NM SHPO. Material remains will be curated at the Museum of Indian Arts and Culture in Santa Fe, New Mexico.
E. SFIS will provide private landowners with the opportunity to donate material resulting from data recovery efforts to facilities that comply with the standards in 36 CFR Part 79. If private landowners decline to donate materials, SFIS shall return all artifacts and materials recovered through implementation of the terms of this Agreement to the respective landowners after analysis and reporting are complete.

IX. CONFIDENTIALITY

A. NTIA shall protect information about historic properties to the extent allowed by 36 CFR § 800.11(c), Freedom of Information Act, 5 U.S.C. § 552 (2023), as amended, and other applicable state and local laws. Confidentiality regarding the specific nature and location of archaeological sites and any other cultural resources under this Agreement shall be maintained to the extent allowable by law. Dissemination of such information shall be limited to appropriate personnel within NTIA, the Signatories, Invited Signatories and those parties involved in planning, reviewing, and implementing this Agreement. When information is provided to NTIA by SHPO, tribes, or others who wish to control the dissemination of that information more than described above, NTIA will do so to the extent permissible by federal law. NTIA and SFIS will adhere to any federal agency specific confidentiality requirements that may apply to work proposed on federal lands.

X. POST-REVIEW DISCOVERIES

A. Unanticipated discoveries of cultural materials lacking human remains on federal, state, and private land shall comply with applicable state notification standards, federal laws, and 36 CFR § 800.13(a)(1). The unanticipated discovery process as described in Stipulation X and XI as it relates to construction practices will be considered a condition of the grant award and SFIS shall ensure that its contractors maintain a copy of an unanticipated discoveries plan onsite for review.
B. If cultural materials are discovered by construction crew members or Tribal or archaeological monitors that might indicate the presence of past human activity or a cultural site that is of historic age (50-years-old or older), all work must immediately stop within a 100-foot radius of the discovery.
    1. For all discoveries, work must also stop in the surrounding area where further historic properties can reasonably be expected to occur.
    2. SFIS shall notify NTIA of post-review discoveries within 24 hours. NTIA shall then notify all Signatories and Invited Signatories to this Agreement of the discovery within forty-eight hours. If, in consultation, the Signatories determine that the property is eligible for inclusion in the NRHP, the terms of this Agreement shall apply, and the procedures described in Stipulations VI and VII will apply.

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XI. TREATMENT OF HUMAN REMAINS

A. Inadvertent discoveries of cultural materials with human remains or funerary objects shall comply with applicable federal or state notification standards, and applicable federal and/or state laws. At all times, human remains must be treated with the utmost dignity and respect, and in a manner consistent with the ACHP's *Policy Statement on the Treatment of Human Remains, Burial Sites and Funerary Objects* (February 23, 2007). SFIS shall ensure that their contractors maintain a copy of the inadvertent discoveries plan onsite for review.

B. If human remains and/or funerary objects are discovered on state or private land, all surface-disturbing activities within 100 feet of the discovery shall immediately cease and measures shall be taken to protect the remains. Local law enforcement and the Office of the Medical Investigator shall be notified and the process set forth in Section 18-6-11.2 of the Cultural Properties Act, NMSA 1978 and Part 4.10.11 of the NMAC shall be followed.

XII. DISPUTE RESOLUTION

A. Should any party to this Agreement object in writing to NTIA to any action carried out or proposed pursuant to this Agreement, the NTIA shall consult with the objecting party to resolve the objection.

B. If NTIA determines that the objection cannot be resolved, NTIA shall forward all documentation relevant to the dispute, including NTIA's proposed resolution, to the ACHP. The ACHP shall provide NTIA with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation.

C. Prior to reaching a final decision on the dispute, NTIA shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and Consulting Parties and provide them with a copy of this written response. NTIA will then proceed according to its final decision.

D. Should the ACHP not exercise one of the above options within 30 days after receipt of all pertinent documentation, the NTIA may proceed with implementing its proposed response to the objection.

E. Any recommendation or comment provided by the ACHP shall be understood to pertain only to the subject of the dispute; NTIA's responsibility to carry out all other actions pursuant to this Agreement and SFIS's ability to proceed with authorized work in other project areas not implicated in the dispute shall remain unchanged.

XIII. REPORTING

A. On or before January 31 of each year, or until the Agreement expires or is terminated, SFIS shall prepare and provide an annual report to all parties to this Agreement, addressing:

1. Status of Project Implementation;
2. Progress in Work, including a list of cultural resources inventories executed and reviewed project phases;
3. Coordination of work with planning and construction schedules;
4. Any disputes or objections received, and how they were resolved;
5. Any problems or unexpected issues related to this Agreement encountered during the year.

XIV. AMENDMENTS

A. Upon receipt of a written request to amend this Agreement, including its attachments, or upon a determination by NTIA to propose such an amendment, NTIA will immediately notify the other Consulting Parties and initiate a ten (10)-day period from the date of receipt to consult on the proposed amendment, or as extended by the Signatories, whereupon all Consulting Parties shall consult to consider such amendments.

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XV. TERMINATION

A. If SFIS determines that it cannot implement the terms of this Agreement, or if any Signatory determines that the Agreement is not being properly implemented, SFIS, NTIA, the SHPO or the THPO may propose to the other parties Signatories to this Agreement that it be amended or terminated. Termination shall include the submission of a technical report by SFIS on any work done up to and including the date of termination. Should a Signatory terminate the Agreement, NTIA will notify the Invited Signatories of its termination and Section 106 consultation shall continue under 36 CFR 800 Subpart B.

XVI. ANTI-DEFICIENCY

A. NTIA's obligations under this Agreement are subject to the availability of appropriated funds, and the stipulations of this Agreement are subject to the provisions of the Anti- Deficiency Act. NTIA will make reasonable and good faith efforts to secure the necessary funds to implement this Agreement in its entirety. If compliance with the Anti-Deficiency Act alters or impairs NTIA's ability to implement the stipulations of this Agreement, NTIA shall consult in accordance with the amendment and termination procedures found at Stipulations XIV and XV above.

XVII. DURATION

A. The term of this Agreement shall be five (5) years from the date of execution by the Signatories unless the Signatories agree to amend the Agreement, per Stipulation XIV.A, to extend its term.
B. Upon the completion of all stipulations to this Agreement, SFIS shall circulate to NTIA, the SHPO, THPO and the other Parties a signed memorandum documenting that SFIS has fulfilled all its responsibilities under this Agreement.

Execution of this Agreement by the NTIA, SHPO, ACHP, Pueblo of Zuni, Pueblo of Acoma, Pueblo of Isleta, and Navajo Nation Ramah Chapter, and subsequent implementation of its terms evidence that NTIA and the Bureau of Land Management, , Bureau of Indian Affairs, National Park Service, Federal Highway Administration, and U.S. Army Corps of Engineers have taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

XVIII. PRIMARY POINTS OF CONTACT

A. Names and contact information for each Party are included in Attachment D.

XIX. SIGNATORIES

A. For purposes of this Agreement, facsimile and electronic signatures of authorized representatives of the Parties, including such signatures in counterparts, are acceptable.

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Attachment A:

Santa Fe Indian School Broadband Project Proposed Fiber Route

PROJECT DESCRIPTON

The SFIS PEN proposes to build and install an approximate 324-mile broadband line containing a Single Mode SMF-28e cable encased with a 1 ¼-inch High Density Polyethylene conduit. Installation of the broadband line includes directional boring (ASTM F1962-22), vibratory plowing, and trenching at a minimum depth of 36 inches from the surface (depending on soil and site conditions). Additional depth may be necessary to avoid existing utilities, major waterways, or highways. Related infrastructure implementation of fiber optic boxes or vaults ("hand-holes") is to facilitate fiber placement and storage area needs for future potential cable damage and repair efforts.

The width of the 324-mile line will be 20-feet from the centerline with a total width of 40-feet. Four (4) regeneration sites are proposed within the project area footprint at the following locations: 1) location near the southern border of Isleta Pueblo near Los Lunas, 2) New Mexico Tech Grad site location (already established – fiber installation required but no building structure necessary), 3) location within Acoma Pueblo on the corner of Anzac Rd. and Airport Rd., and 4) location in Zuni Pueblo along Hwy 53 across BIA-12. The regeneration sites have an approximate footprint of 50 feet (length) by 50 feet (width) and sit on a concrete foundation, connected to local electricity and are enclosed with a chain link fence. The selection of regeneration sites was selected on pre-disturbed NMDOT ROW and Tribal ROW areas with minimal vegetation and geological issues.

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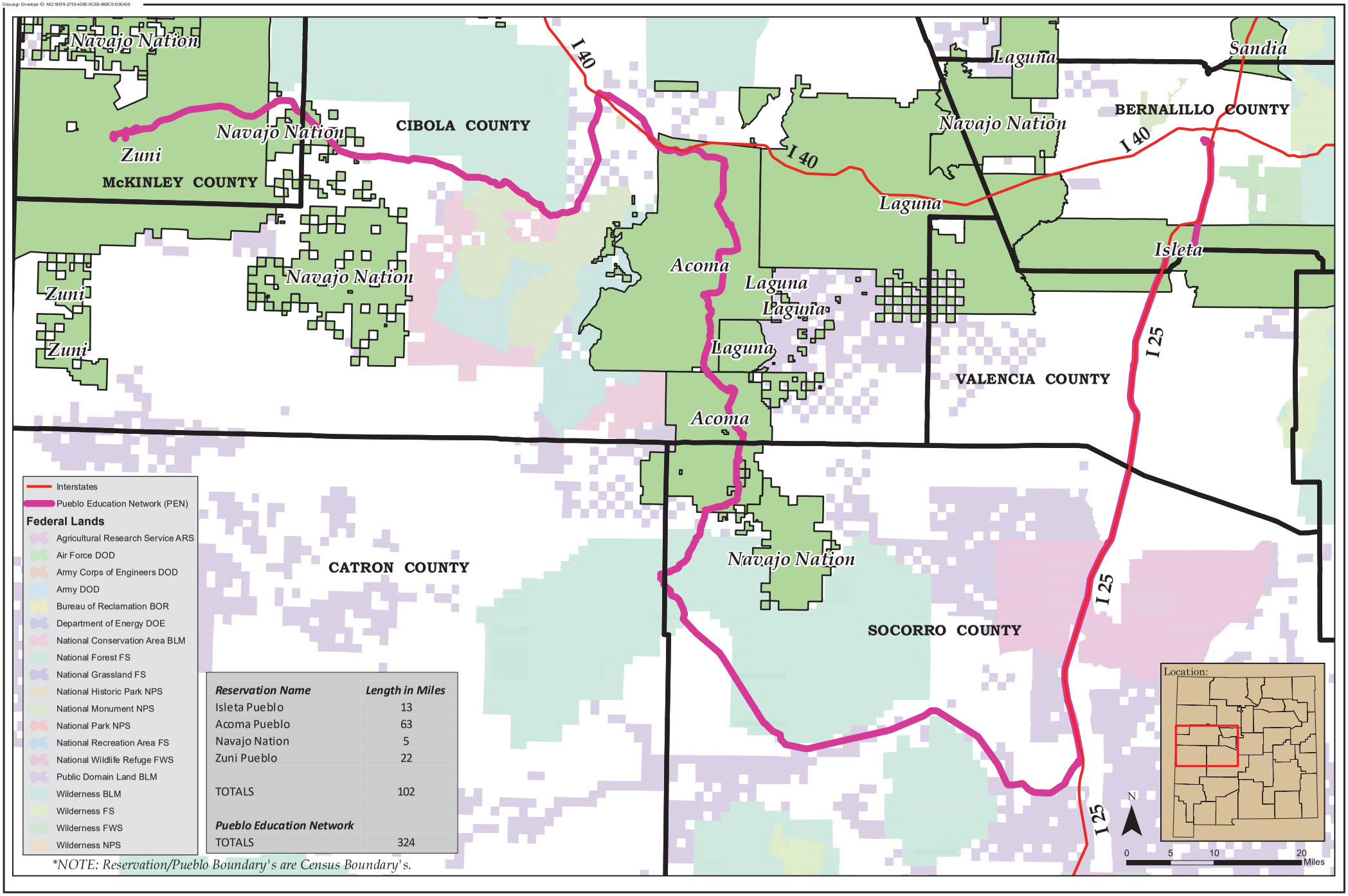

Reservation Name	*Length in Miles*
Isleta Pueblo	13
Acoma Pueblo	63
Navajo Nation	5
Zuni Pueblo	22
TOTALS	102
Pueblo Education Network	
TOTALS	324

**NOTE: Reservation/Pueblo Boundary's are Census Boundary's.*

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Attachment B:

NTIA Delegation Memorandum

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and Information Administration
Washington, D.C. 20230

MEMORANDUM FOR: State Historic Preservation Officers (SHPO) and Tribal Historic Preservation Officers (THPO), Internet for All (IFA) Grant Recipients

FROM: Jill Springer, Senior Policy Advisor on Permitting
Chief Environmental Review and Permitting Officer
Federal Preservation Officer

SUBJECT: Authorization of IFA Grant Recipients to Initiate Section 106 Consultation for NTIA Funded Projects

EFFECTIVE DATES: January 1, 2024, to December 31, 2030

In 2021, the Consolidated Appropriations Act of 2021 and the Bipartisan Infrastructure Law of 2021 appropriated $49.8 billion in grants for the Department of Commerce's National Telecommunications and Information Administration (NTIA) to bring broadband service to un-served and underserved locations across America through the Internet for All (IFA) grant programs. NTIA, in implementing IFA, will administer the Broadband Equity, Access, and Deployment (BEAD) Program, the Middle Mile Deployment Grant Program, the Tribal Broadband Connectivity Program (TBCP), the Broadband Infrastructure Program (BIP), and the Digital Equity (DE) Act programs. These IFA initiatives will expand access to high-speed infrastructure by funding infrastructure deployment in all fifty states, five territories, and the District of Columbia.

NTIA has determined that IFA projects receiving financial assistance for infrastructure deployment may be undertakings subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. 470f, and its implementing regulations under 36 CFR part 800 (Section 106). Early consideration of Section 106 is necessary to meet program timelines. To facilitate the review process, NTIA has determined that it is consistent with 36 CFR § 800.2(c)(4) for IFA grant recipients to initiate consultation with State Historic Preservation Officers (SHPO), Tribal Historic Preservation Officers (THPO), and other consulting parties.

Effective immediately, NTIA authorizes recipients awarded IFA funding and their authorized representatives (which for BEAD recipients may include subrecipients) to act on behalf of NTIA to consult with SHPOs and other consulting parties, except for Tribes, to initiate the Section review process, identify and evaluate historic properties, and assess effects. Recipients must include a copy of this Memorandum with their submission to the SHPO.

NTIA remains legally responsible for Section 106 findings and determinations and for government-to-government consultation with Tribes and Native Hawaiian Organizations. To this

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end, NTIA advises all IFA grant recipients to hire Secretary of the Interior qualified cultural resource consultants with state-specific Section 106 experience. NTIA also provides recipients of funding with ongoing technical assistance on environmental and historic compliance in the form of fact sheets, webinars, and in-person training.

When consulting with the SHPO and others, IFA recipients shall provide an appropriate contact person representing the IFA grant recipient and identify the authorized representative hired to coordinate the review.

The IFA recipient or authorized representative shall prepare documentation that meets 36 CFR 800.11 (d) or (e), or the requirements of the applicable program alternative, and submit complete information to SHPO for review and comment following NTIA environmental and historic preservation technical assistance available online at https://broadbandusa.ntia.gov/technical-assistance-hub.

NTIA will participate in the Section 106 consultation when:

- It is determined during review that, in accordance with the *Criteria of Adverse Effect*, there may be an adverse effect on a historic property;
- There is a disagreement or dispute between the IFA recipient and the SHPO and/or THPO regarding identification of historic properties and/or assessment of effects;
- There is an objection from Tribes, consulting parties, or the public regarding assessment of effects, the implementation of review provisions, or their involvement in a Section 106 review; or
- There is a potential foreclosure situation per 36 CFR 800.9(b) or anticipatory demolition as specified in Section 110(k) of the NHPA.

It is important that Section 106 reviews be conducted within statutorily established timeframes and that the exchange of documentation and other aspects of consultation be carried out in a consistent and predictable manner. To this end, NTIA will coordinate with IFA recipients to carry out the process set forth in this memorandum. NTIA will provide guidance and periodic training on the implementation of the authorization and monitor compliance with the authorization.

If you have any questions regarding this Memorandum, please contact Amanda Pereira, Environmental Program Officer, at apereira@ntia.gov

Affirmed by _____ Date_____

Doug Kinkoph
Associate Administrator
Office of Internet Connectivity and Growth

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Attachment C

Project Phases for Santa Fe Indian School Broadband Project

SFIS will phase project review according to land ownership/management jurisdiction as shown on the following maps. These phases do not need to be reviewed sequentially, and multiple phases may be under review concurrently.

Signatories and Invited Signatories are referred to as 'Reviewing Parties' and may review multiple phases, depending on responsibilities as stipulated in the Agreement and consulting party status.

Phases		**Reviewing Parties**
1	Pueblo of Acoma	Pueblo of Acoma THPO
3	Pueblo of Zuni	Pueblo of Zuni THPO
2	Pueblo of Isleta	Pueblo of Isleta THPO
4	Navajo Nation	Navajo Nation THPO, NMDOT
5	Federal Lands	SHPO, NMDOT BLM, BIA, NPS, USACE, Pueblo of Zuni
6	New Mexico State Land Office Lands	SHPO, NMSLO, NMDOT, Pueblo of Zuni THPO
7	Private Lands	SHPO, NMDOT, Pueblo of Zuni THPO

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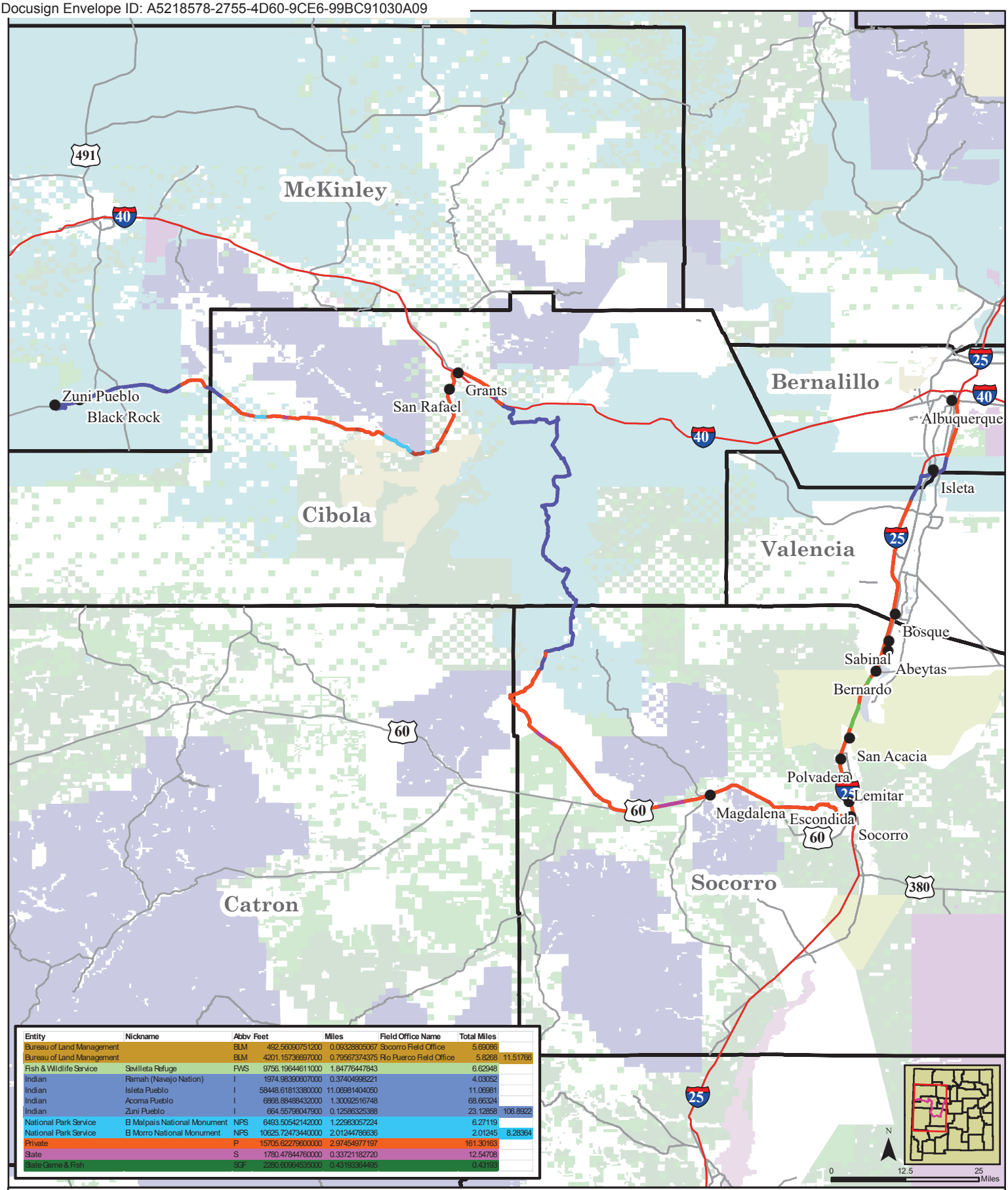

Entity	Nickname	Abbv	Feet	Miles	Field Office Name	Total Miles	
Bureau of Land Management		BLM	492.56090751200	0.09328805067	Socorro Field Office	5.69086	
Bureau of Land Management		BLM	4201.15736697000	0.79567374375	Rio Puerco Field Office	5.8268	11.51766
Fish & Wildlife Service	Sevilleta Refuge	FWS	9756.19644611000	1.84776447843		6.62948	
Indian	Ramah (Navajo Nation)	I	1974.98390607000	0.37404998221		4.03052	
Indian	Isleta Pueblo	I	58448.61813380000	11.06981404050		11.06981	
Indian	Acoma Pueblo	I	6868.88488432000	1.30092516748		68.66324	
Indian	Zuni Pueblo	I	664.55798047900	0.12586325388		23.12858	106.8922
National Park Service	El Malpais National Monument	NPS	6493.50542142000	1.22983057224		6.27119	
National Park Service	El Morro National Monument	NPS	10625.72473440000	2.01244786636		2.01245	8.28364
Private		P	15705.62279600000	2.97454977197		161.30163	
State		S	1780.47844760000	0.33721182720		12.54708	
State Game & Fish		SGF	2280.60964535000	0.43193364495		0.43193	

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a map that depict an overview of the Pueblo Education Network (PEN) line subdivided into the entities that the line crosses through.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central & West (US Feet) Scale:1:1,350,000

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- PEN Fiber Regeneration Sites
- Bureau of Land Management
- Fish & Wildlife Service
- Indian
- National Park Service
- Private
- State
- State Game & Fish
- PEN Fiber Optic Line UPDATED 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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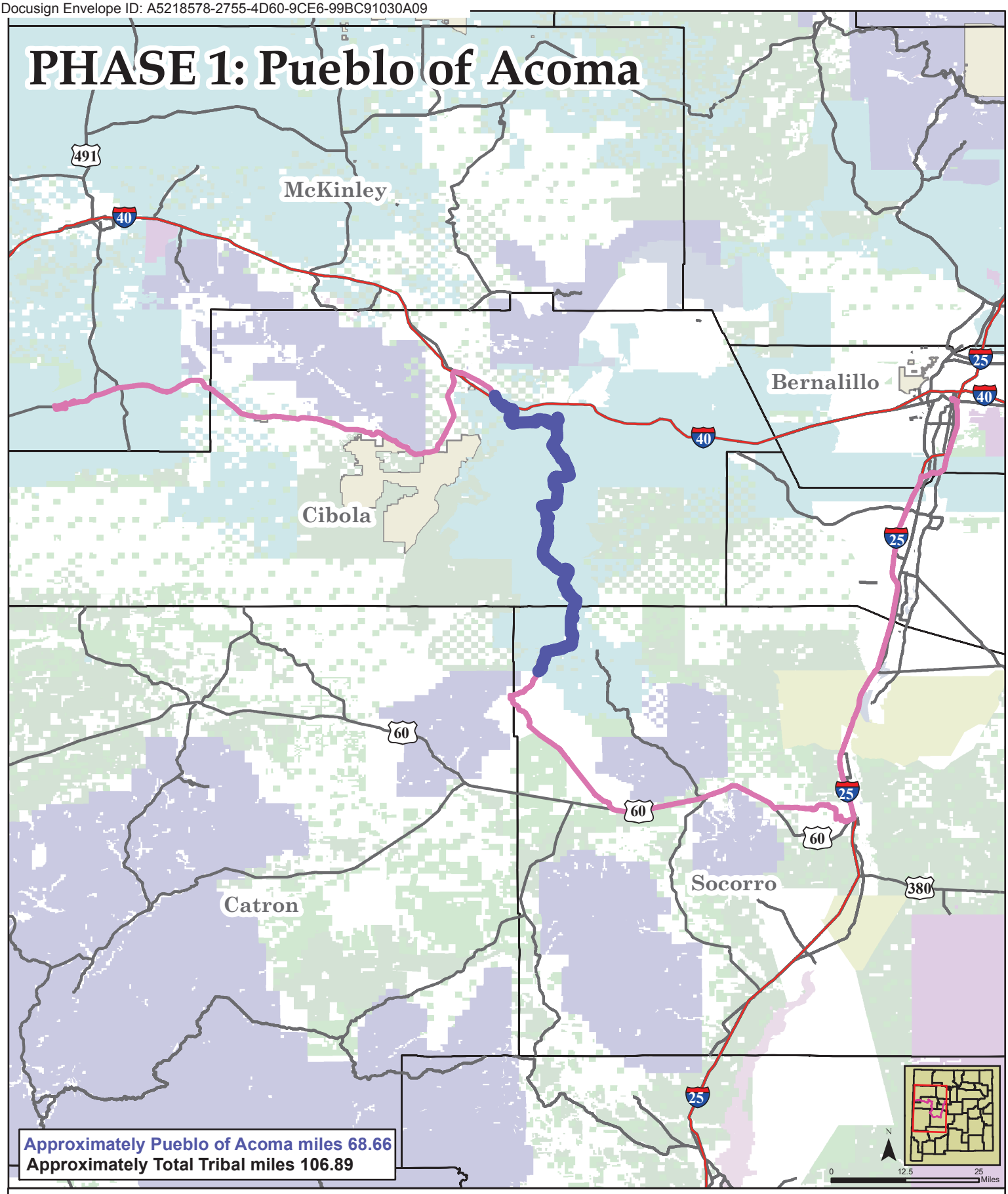
PHASE 1: Pueblo of Acoma



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Acoma lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- Pueblo of Acoma
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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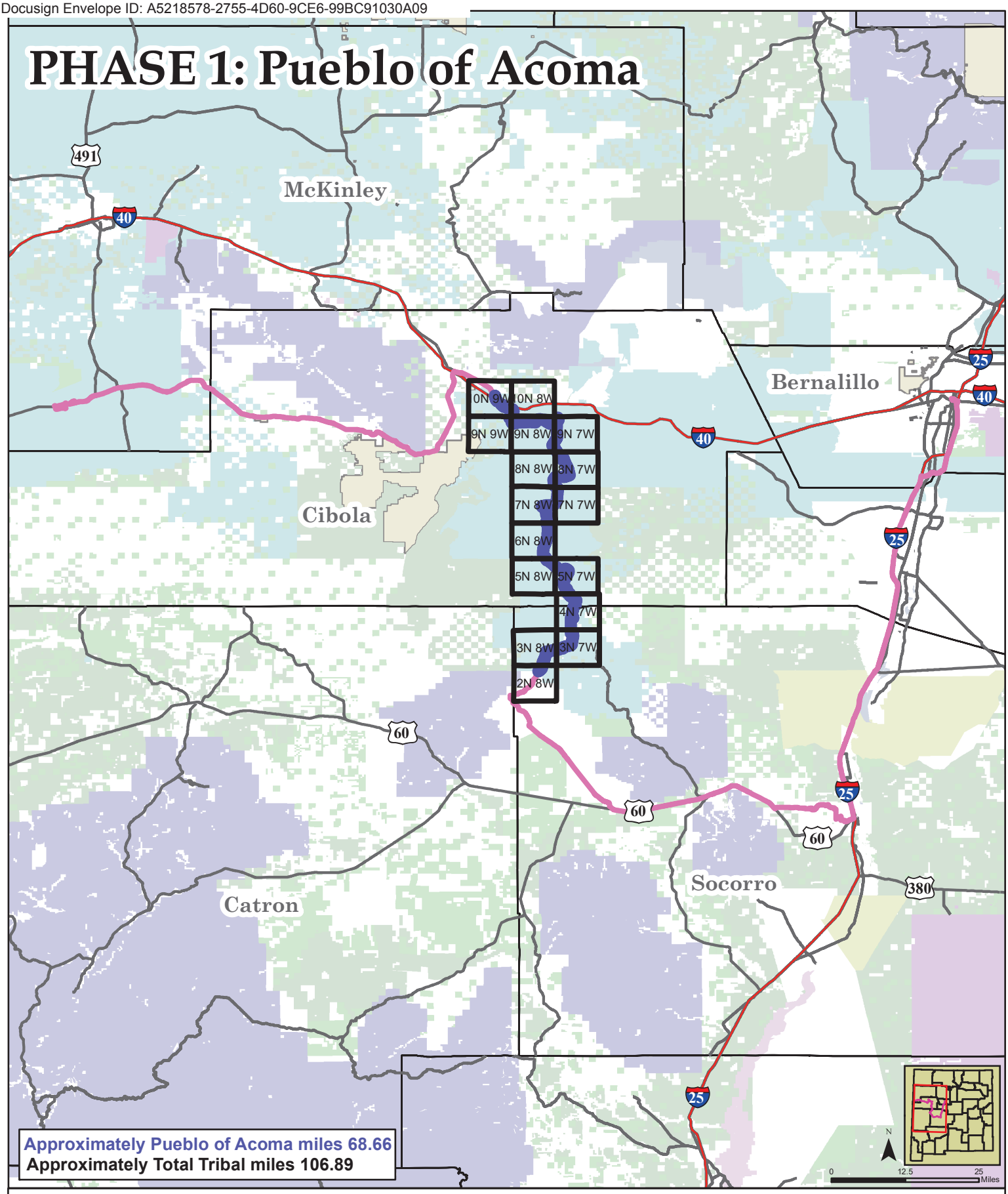
PHASE 1: Pueblo of Acoma



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Acoma lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- Township Range through Pueblo of Acoma
- Pueblo of Acoma
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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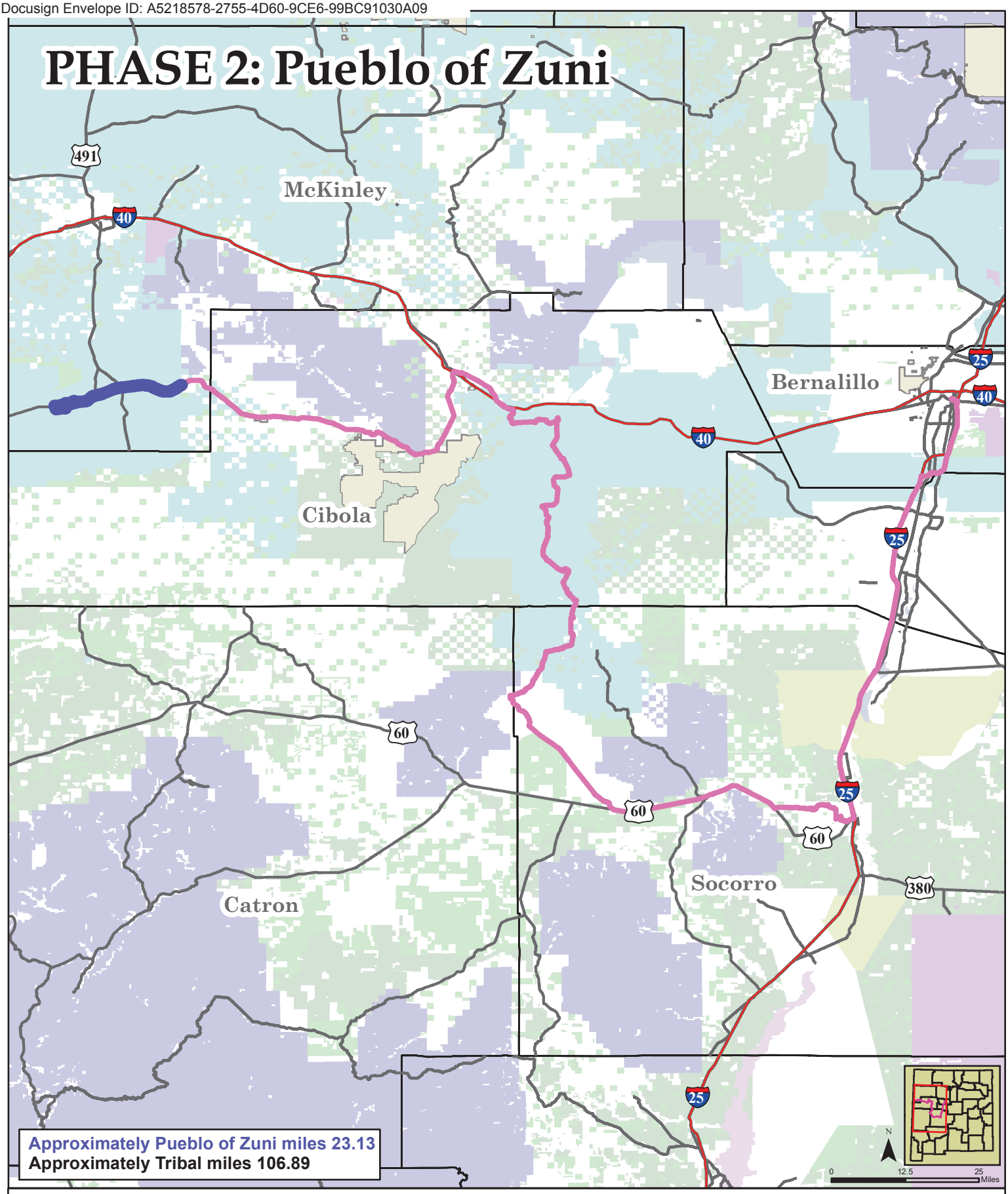
PHASE 2: Pueblo of Zuni



Approximately Pueblo of Zuni miles 23.13
Approximately Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Zuni lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- Pueblo of Zuni
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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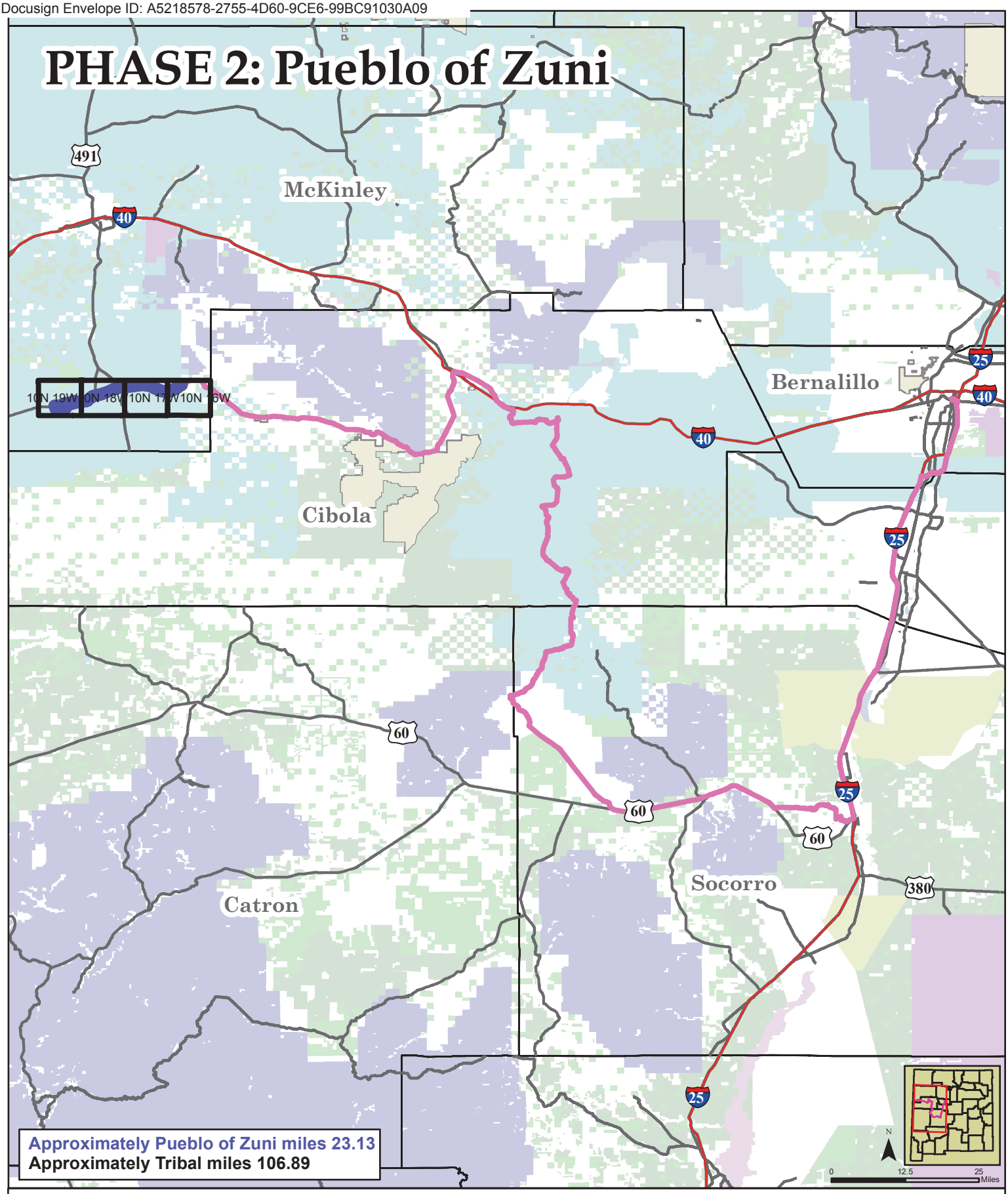
PHASE 2: Pueblo of Zuni



Approximately Pueblo of Zuni miles 23.13
Approximately Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Zuni lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

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- Township Range through Zuni Pueblo
- Pueblo of Zuni
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
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- Forest Service (FS)
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- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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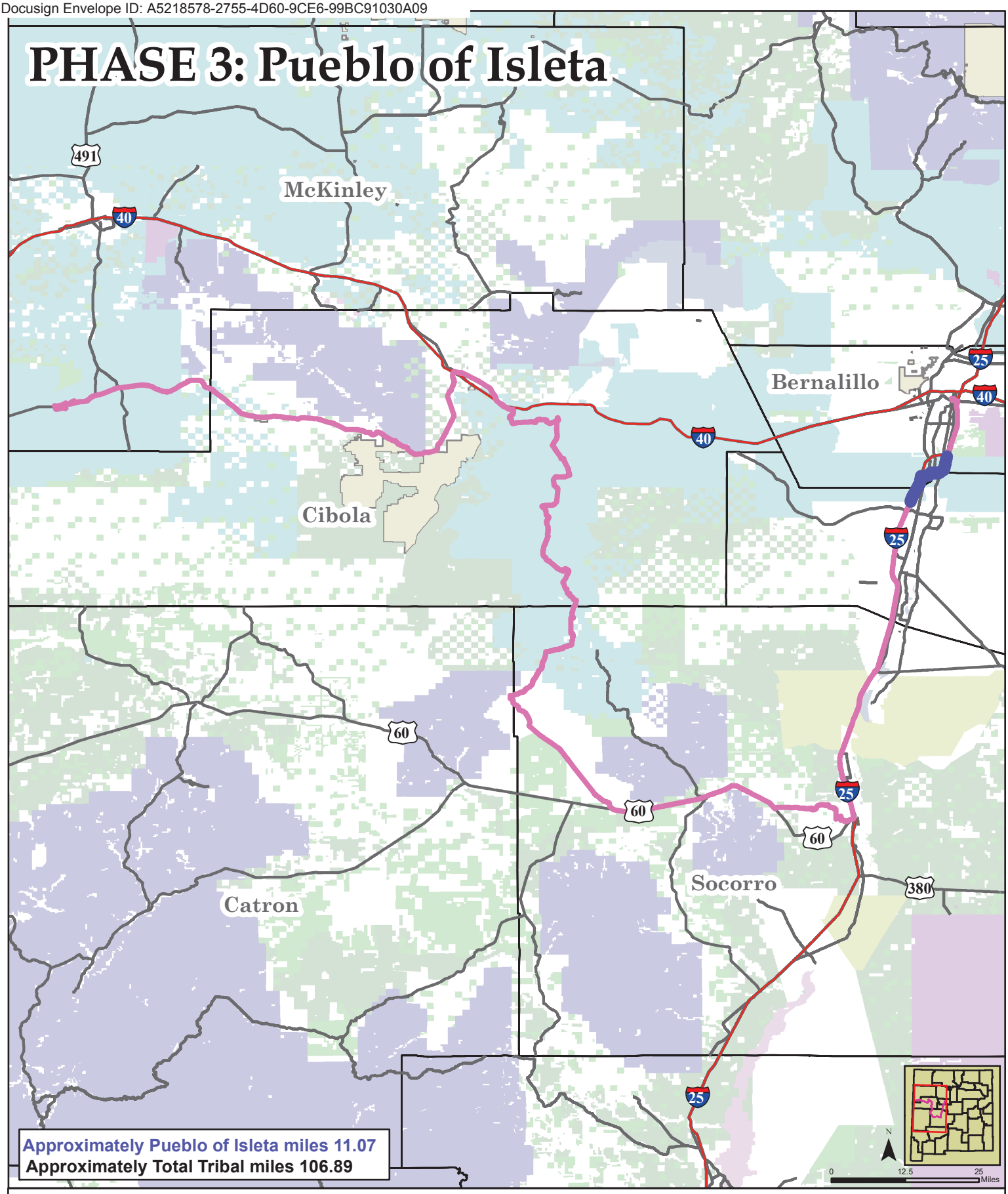
PHASE 3: Pueblo of Isleta



Approximately Pueblo of Isleta miles 11.07
Approximately Total Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Isleta lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

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- Pueblo of Isleta
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
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- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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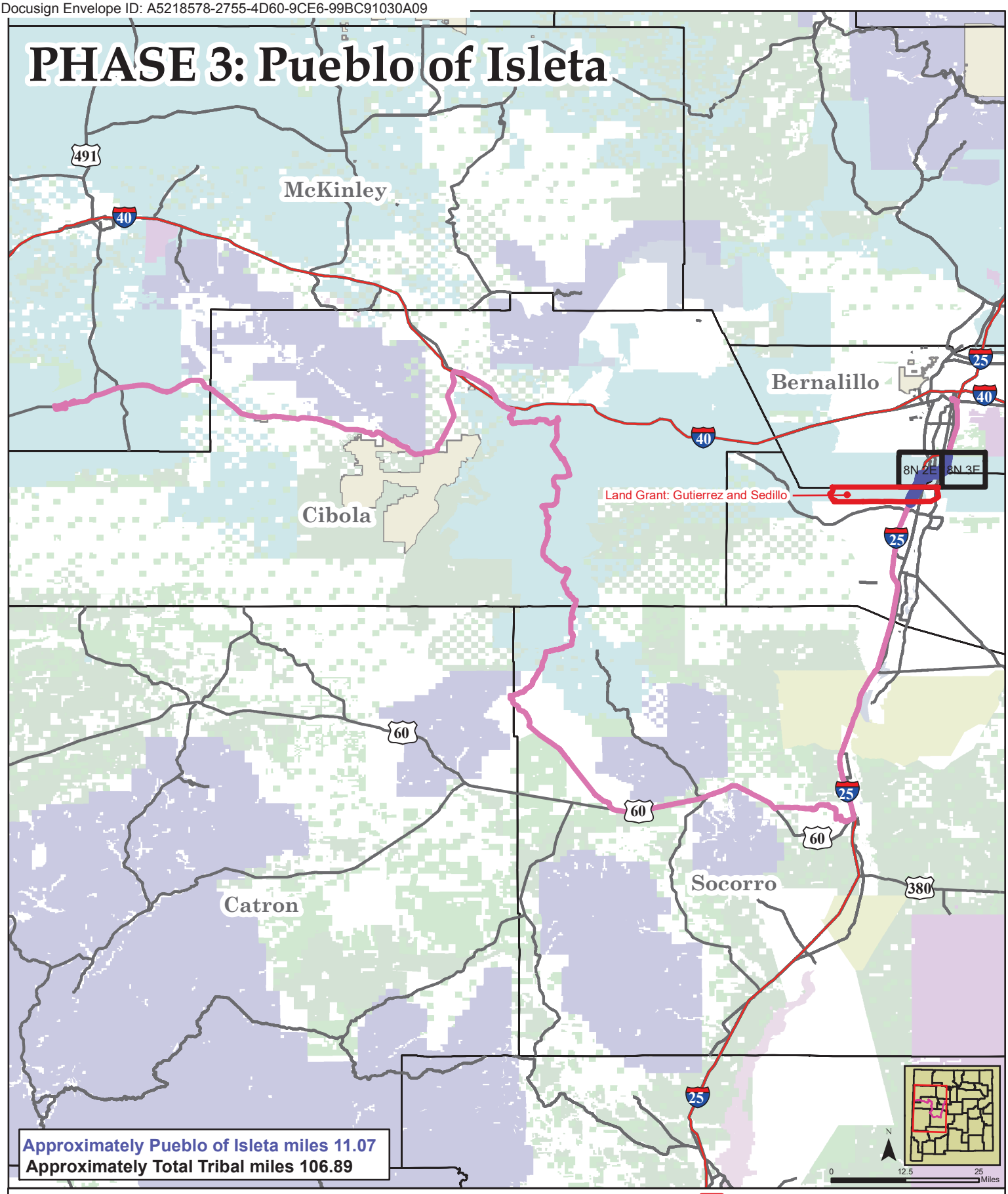
PHASE 3: Pueblo of Isleta



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Isleta lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- Land Grant
- Township Range through Pueblo of Isleta
- Pueblo of Isleta
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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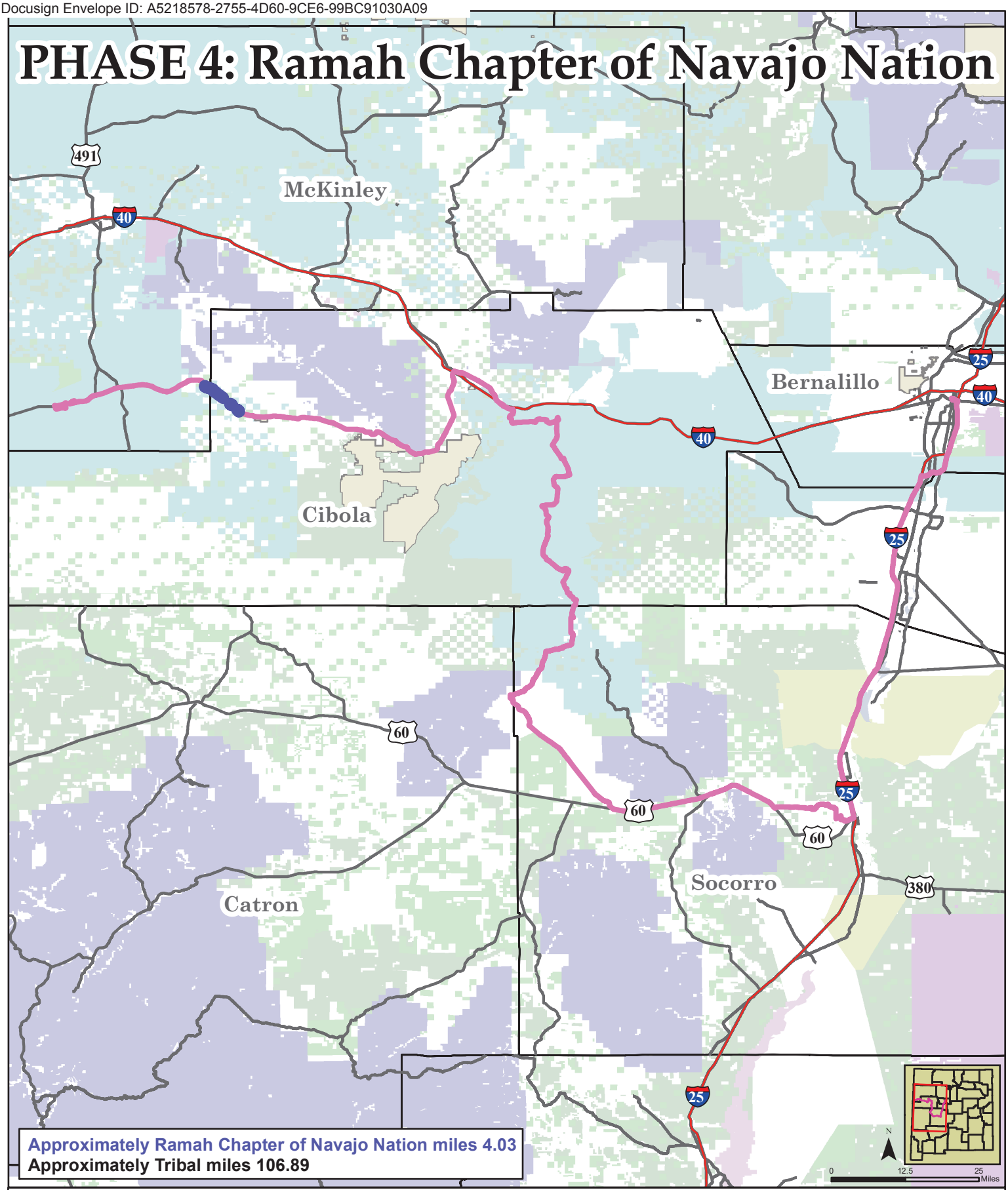
DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 4: Ramah Chapter of Navajo Nation



Approximately Ramah Chapter of Navajo Nation miles 4.03
Approximately Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Ramah lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

Ramah Chapter of Navajo Nation
UPDATED PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

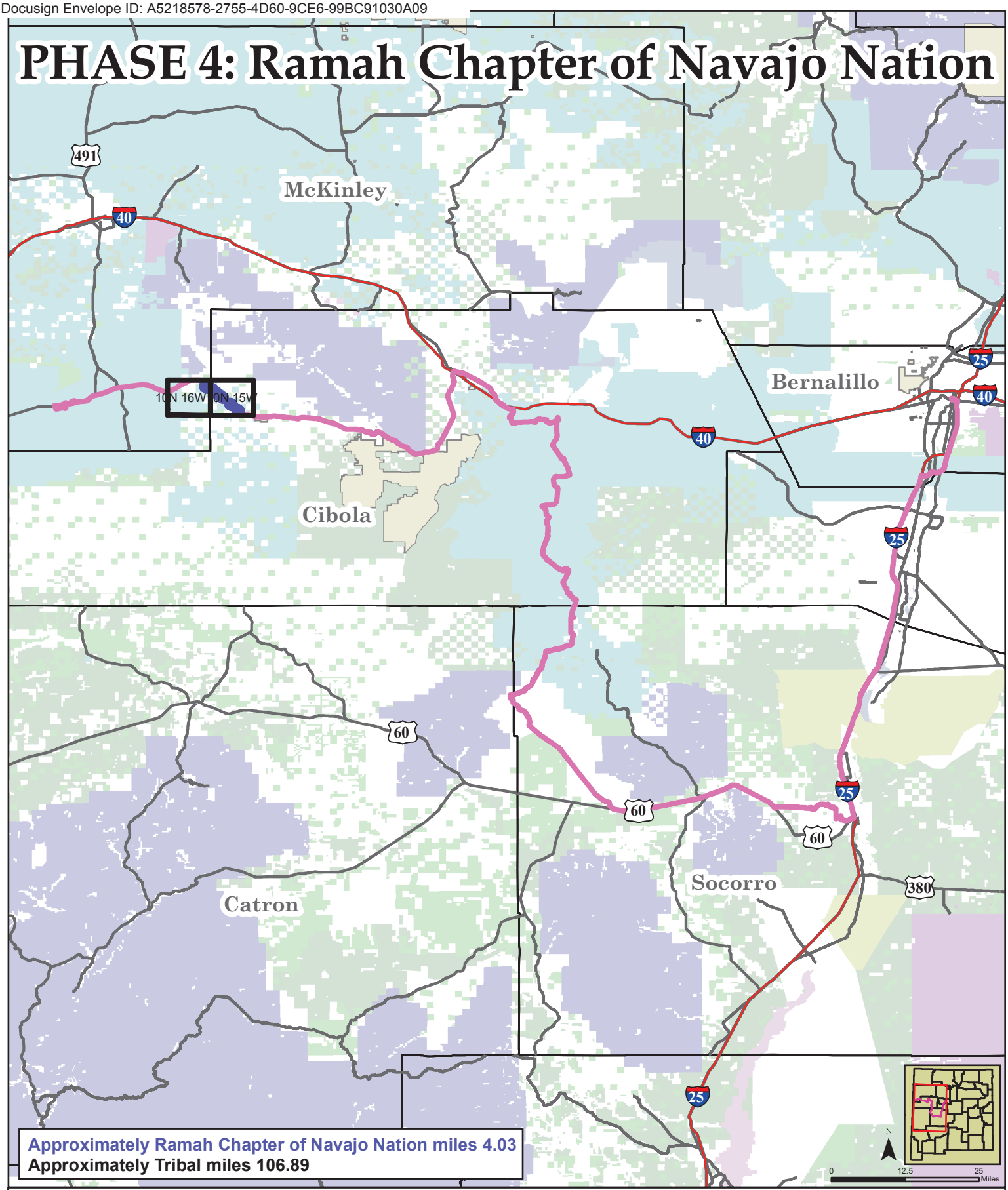
DISCLAIMER: The geographic data layers produced by High Water Mark, LLC (HWM) GIS Specialist are provided as a public resource. HWM makes no warranties, expressed or implied, concerning the accuracy, completeness or suitability of this data, and it should not be construed or used as a legal description. Every reasonable effort is made to ensure the accuracy and completeness of the data.

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\NDN

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 4: Ramah Chapter of Navajo Nation



Approximately Ramah Chapter of Navajo Nation miles 4.03
Approximately Tribal miles 106.89

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over Ramah lands.

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COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

- Township Range through Ramah Chapter of Navajo Nation
- Ramah Chapter of Navajo Nation
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

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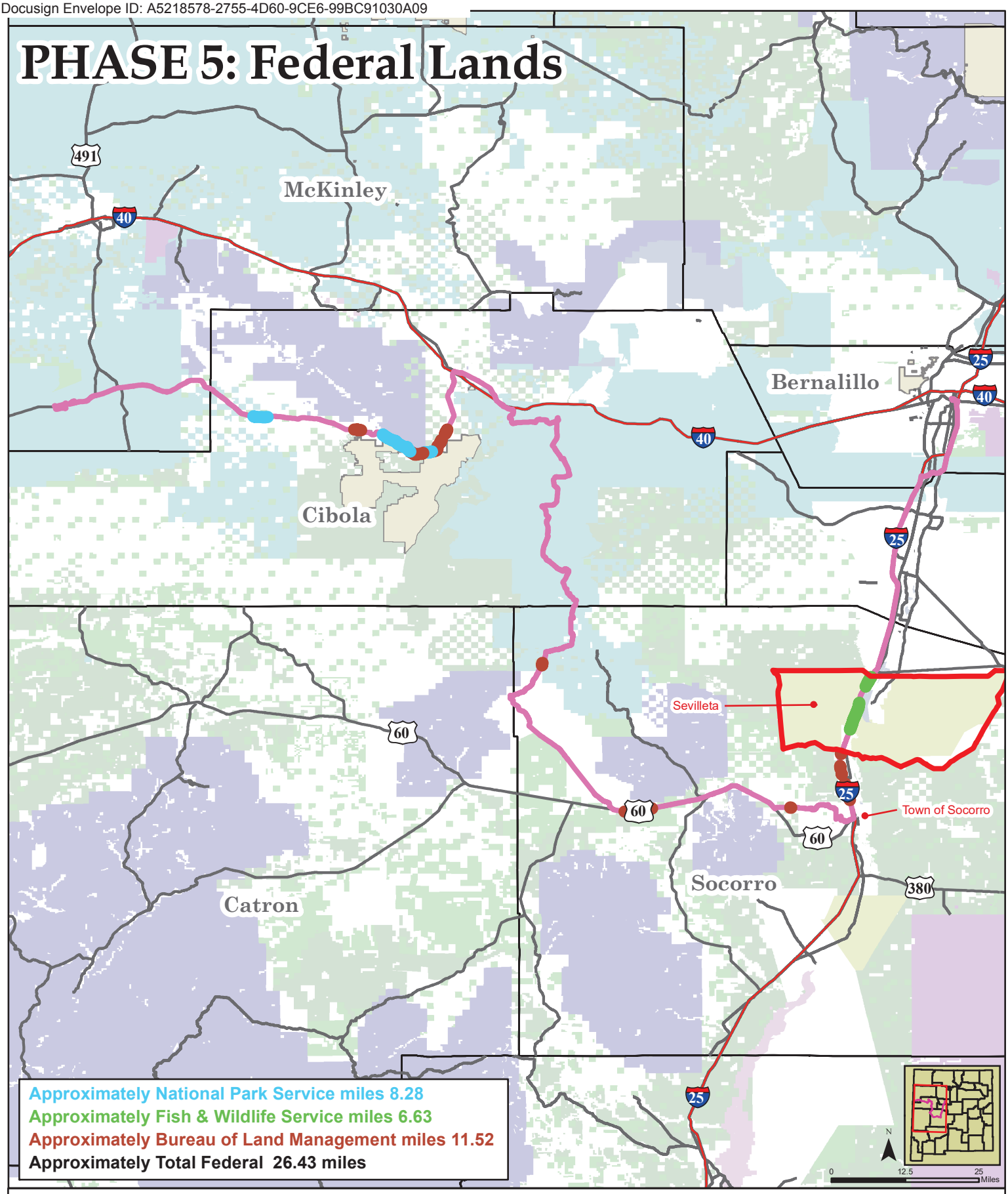
File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\NDN

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 5: Federal Lands



Approximately National Park Service miles 8.28
Approximately Fish & Wildlife Service miles 6.63
Approximately Bureau of Land Management miles 11.52
Approximately Total Federal 26.43 miles

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over federal lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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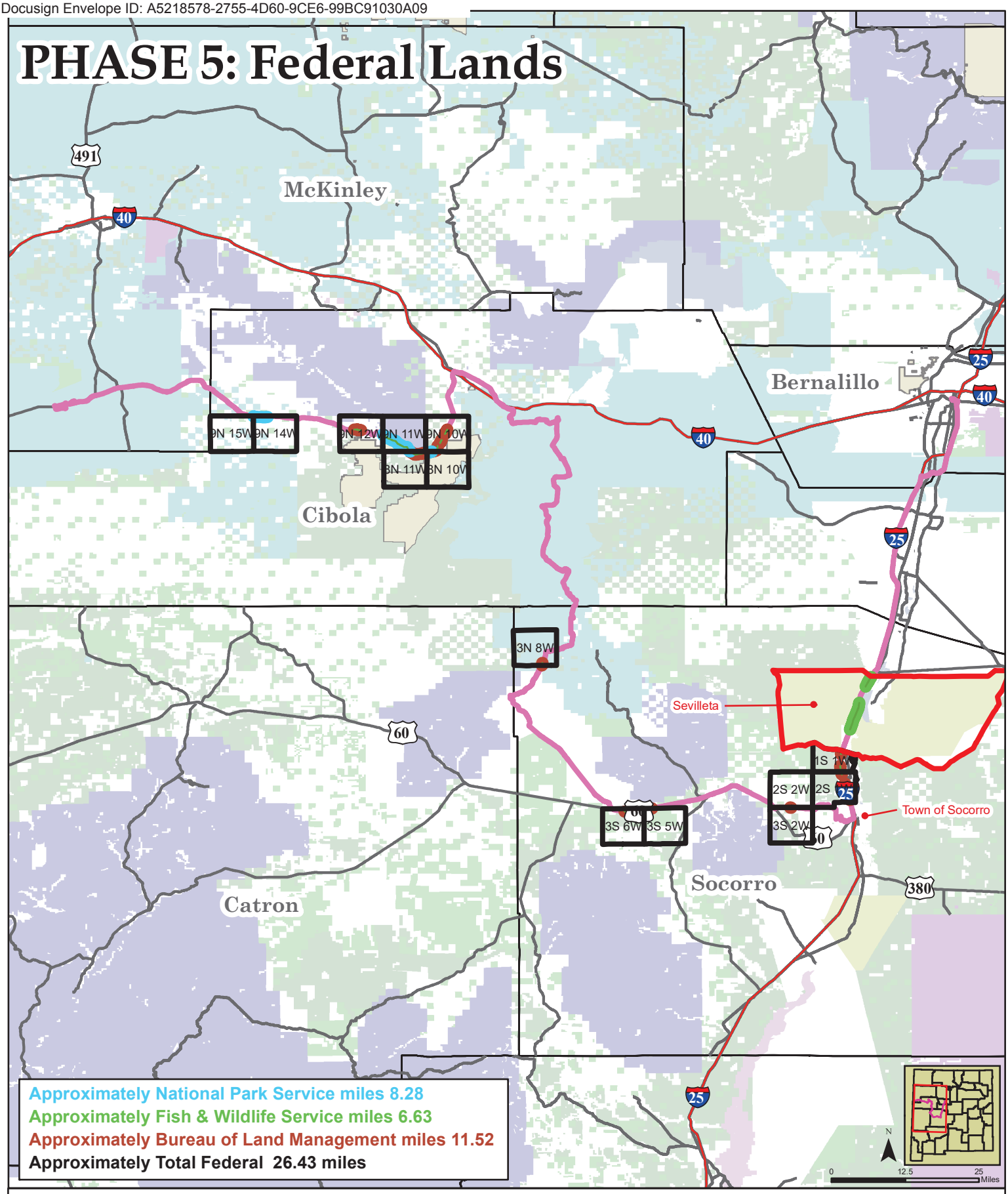
- Sevilleta Land Grant
- Bureau of Land Management
- Fish & Wildlife Service
- National Park Service
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Federal

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 5: Federal Lands



Approximately National Park Service miles 8.28
Approximately Fish & Wildlife Service miles 6.63
Approximately Bureau of Land Management miles 11.52
Approximately Total Federal 26.43 miles

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over federal lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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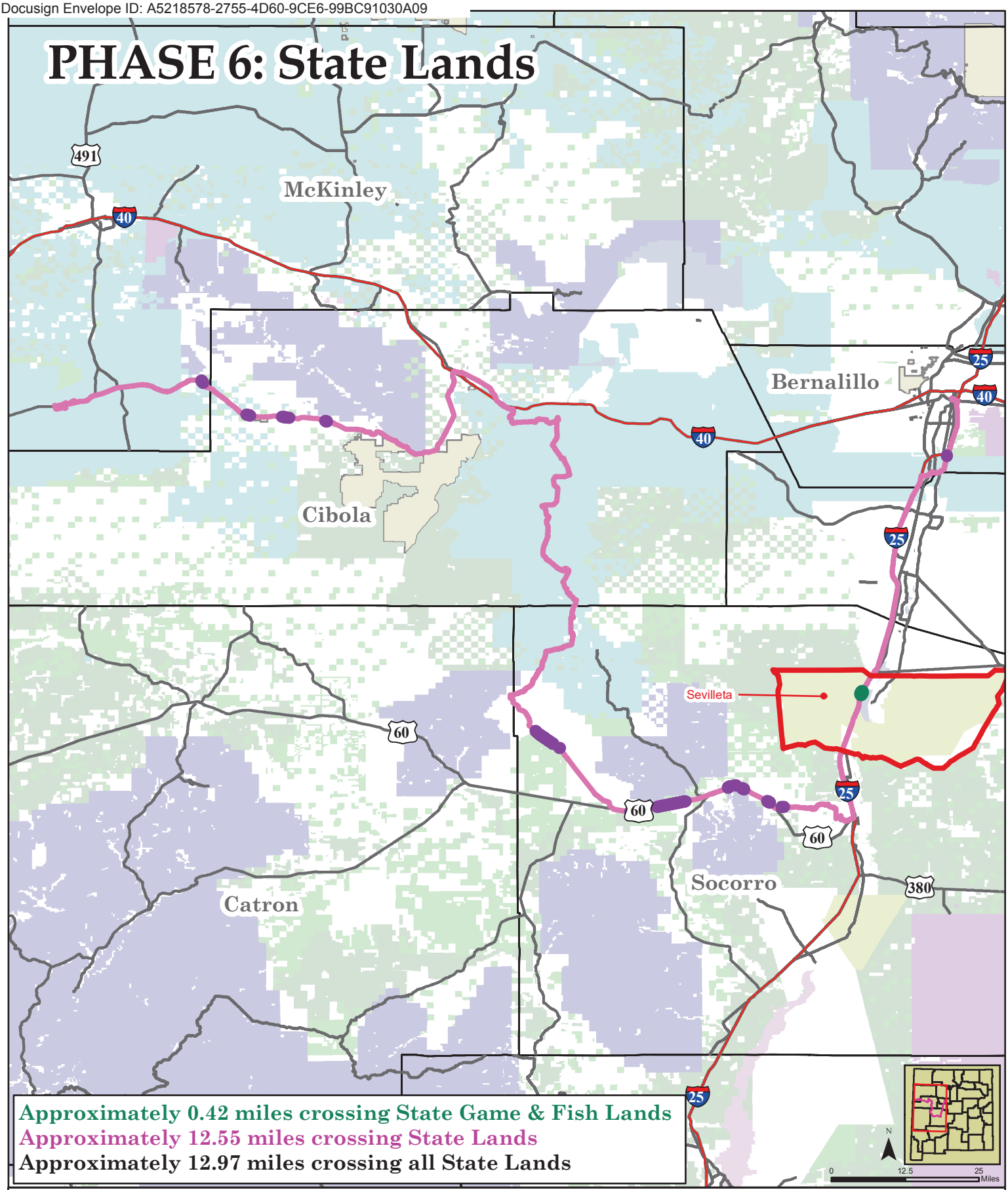
- Sevilleta Land Grant
- Township Range through Federal Lands
- Bureau of Land Management
- Fish & Wildlife Service
- National Park Service
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\Federal

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 6: State Lands



Approximately 0.42 miles crossing State Game & Fish Lands

Approximately 12.55 miles crossing State Lands

Approximately 12.97 miles crossing all State Lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over state lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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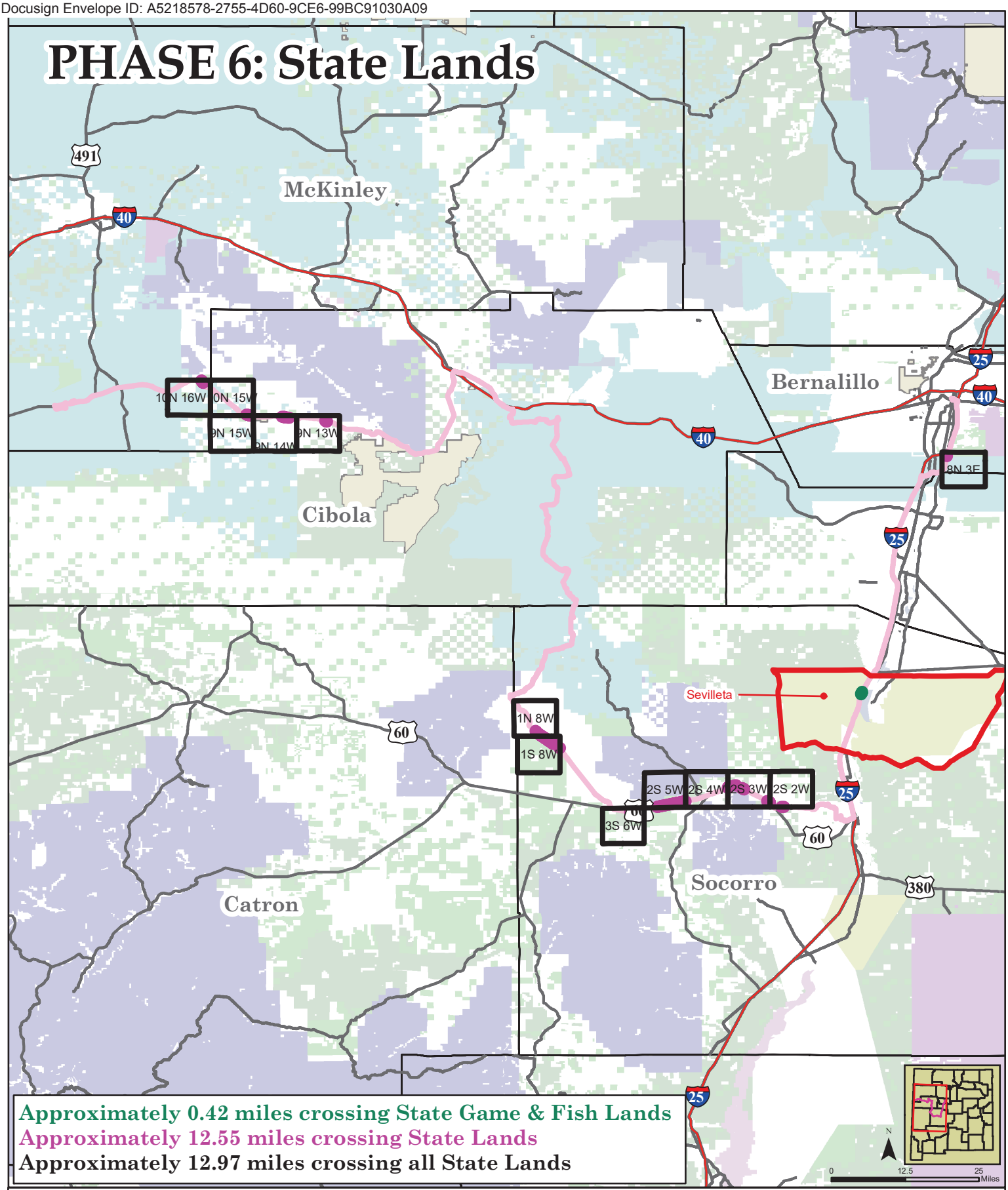
- SevilletaLandgrant
- Through State Land
- Through State Game and Fish Land
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State\Overall_State

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 6: State Lands



Approximately 0.42 miles crossing State Game & Fish Lands

Approximately 12.55 miles crossing State Lands

Approximately 12.97 miles crossing all State Lands

Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over state lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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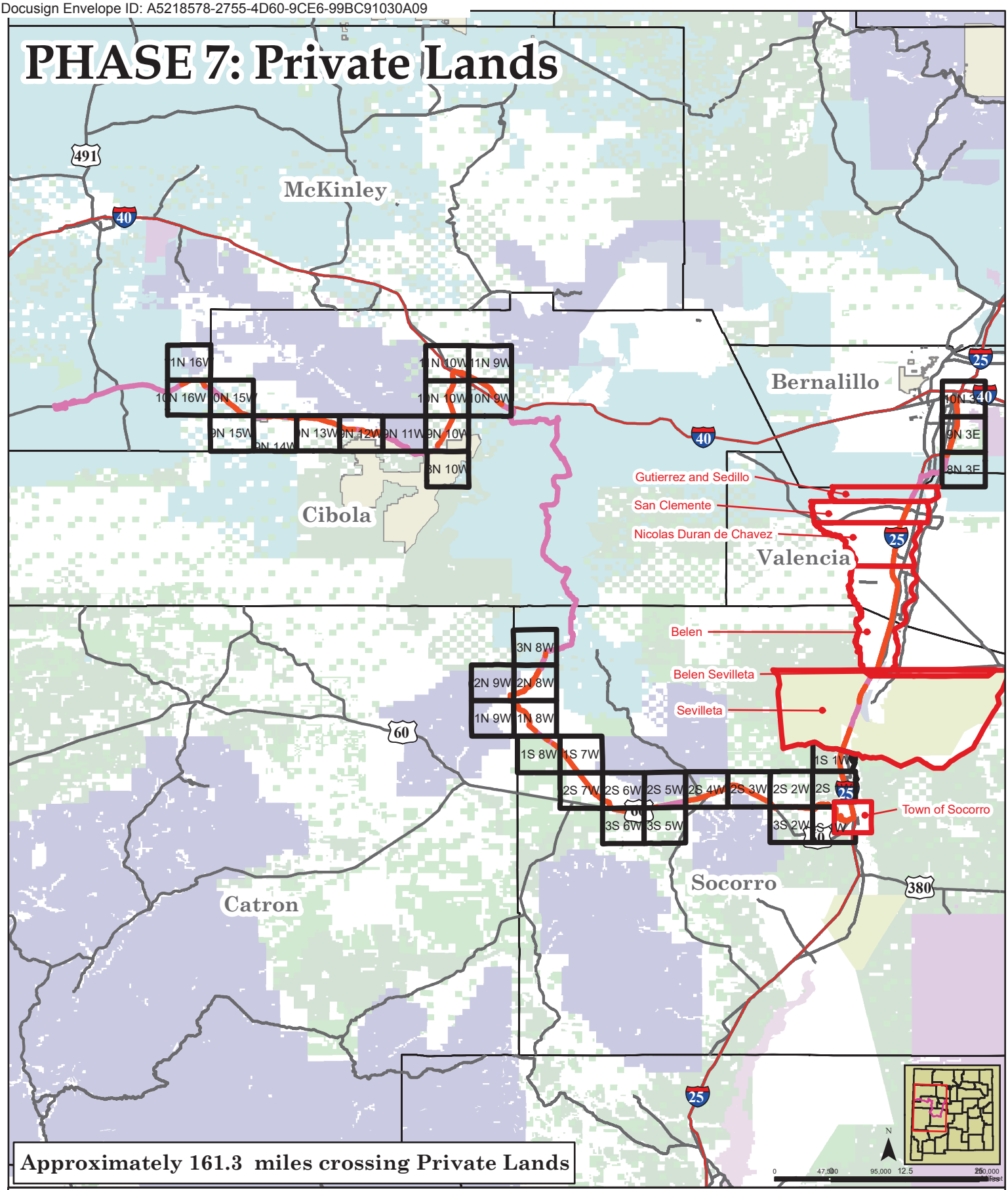
SevilletaLandgrant
Township Range through State Lands
through State Land
through State Game and Fish Land
UPDATED PEN Fiber Optic Line 12/2024
Roads
Bureau of Land Management (BLM)
Bureau of Reclaimation (BOR)
Departmewnt of Agriculture (DOA)
Department of Defense (DOD)
Department of Energy (DOE)
Forest Service (FS)
Fish & Wildlife Service (FWS)
Tribal/Indian (I)
National Park Service (NPS)
Other Federal Agency (OFA)
Private (P)
State (S)
NM State Game & Fish (SGF)
NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Phases\State\Overall_State_Township

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

PHASE 7: Private Lands



Pueblo Education Network (PEN) Fiber Optic Line

Drawing of: This is a series of maps that depict an overview of the Pueblo Education Network (PEN) line that crosses over private lands.

Project: The SFIS Pueblo Education Network will construct 324 miles of fiber optic infrastructure in rural and isolated New Mexico; connecting the Zuni Tribe, and the Pueblos of Acoma and Isleta to a regional Internet exchange in Albuquerque.

COORDINATE SYSTEM: NAD 1983 State Plane New Mexico Central and West (US Feet) Scale:1:1,352,094

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- Land Grants through Private Lands
- Township Range through Private Lands
- Through Private Lands
- UPDATED PEN Fiber Optic Line 12/2024
- Roads
- Bureau of Land Management (BLM)
- Bureau of Reclaimation (BOR)
- Departmewnt of Agriculture (DOA)
- Department of Defense (DOD)
- Department of Energy (DOE)
- Forest Service (FS)
- Fish & Wildlife Service (FWS)
- Tribal/Indian (I)
- National Park Service (NPS)
- Other Federal Agency (OFA)
- Private (P)
- State (S)
- NM State Game & Fish (SGF)
- NM State Park (SP)

File Path: C:\CWhite\GIS\NTIA\SFIS_NTIA\GIS\Private\Overall_PrivateA

DRAWN BY: GIS Specialist, HWM on 02/2025

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

Attachment D

Points of Contact

BIA-SWRO	Waylon Denny	Southwest Regional Office	Deputy Regional Director	Waylon.denny@bia.gov
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BIA Southern Pueblos Agency	Santee Lewis	Southern Pueblos Agency	Superintendent	Santee.lewis@bia.gov
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BIA HQ	Wenona Wilson	BIA HQ	NEPA/Cultural	wenona.wilson@bia.gov
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BLM	Sabrina Flores	Albuquerque District Office	District Manager	sflores@blm.gov
BLM	Joshua Freeman	Rio Puerco Field Office	Lead Realty Specialist	jfreeman@blm.gov
NPS	Eric Weaver	El Malpais and El Morro National Monument	Resources Program Manager	eric_weaver@nps.gov
FHWA	Cindy Vigue	FHWA New Mexico Division	Administrator	cindy.vigue@dot.gov
USACE	Forrest Luna	USACE, Albuquerque District	Regulatory Project Manager	forrest.luna@usace.army.mil
ACHP	Emily Choi	Advisory Council on Historic Preservation	Federal Agency Liaison	echoi@achp.gov
NTIA	Josh Fitzpatrick	Office of Internet Connectivity and Growth	Environmental Program Officer	jfitzpatrick@ntia.gov
NTIA	Amanda Pereira	Office of Internet Connectivity and Growth	Environmental Program Officer	apereira@ntia.gov
NTIA	Anne Crotty	Office of Internet Connectivity and Growth	Cultural Compliance Coordinator	acrotty@ntia.gov
NTIA	Jill Springer	Office of Internet Connectivity and Growth	Federal Preservation Officer	jspringer@ntia.gov
Sponsor	Michael Manulito	Santa Fe Indian School	SFIS PEN Project Director	mkmanuelito@sfis.k12.nm.us
Sponsor	Phoebe Suina	High Water Mark	Contractor to SFIS, Alternate Contact	phoebe@high-watermark.com
SHPO	Geoff Gunnar	New Mexico State Historic Preservation Office	State Historic Preservation Officer	geoff.cunnar@dca.nm.gov
SHPO	Michelle Ensey	New Mexico State Historic Preservation Office	Staff Archaeologist	michelle.ensey@dca.nm.gov
NMDOT	Gary Funkhouser	New Mexico Department of Transportation	Utilities and ROW Access Coordinator	gary.funkhouser@dot.nm.gov
NMSLO	Ethan Ortega	New Mexico State Land Office	Director of Cultural Resources	eortega@nmslo.gov
THPO	Steve Concho	Pueblo of Acoma	Tribal Historic Preservation Officer	SConcho@poamail.org
THPO	Henry Walt	Pueblo of Isleta	Tribal Historic Preservation Officer	henryj@toast.net
THPO	Kurt Dongoske	Zuni Pueblo	Tribal Historic Preservation Officer	kdongoske@gmail.com

Docusign Envelope ID: A5218578-2755-4D60-9CE6-99BC91030A09

THPO	Richard Begay	Navajo Nation Ramah Chapter	Tribal Historic Preservation Officer	r.begay@navajo-nsn.gov
Tribal Leader	Martha Garcia	Navajo Nation Ramah Chapter	President	MGarcia@ramahnavajo.org
Tribal Leader	Charles Riley	Pueblo of Acoma	Governor	criley@poamail.org
Tribal Leader	Eugene Jiron	Pueblo of Isleta	Governor	eugene.jiron@isletapueblo.com
Tribal Leader	Juan Rey Abeyta	Pueblo of Isleta	2nd Lt. Governor (Interim Broadband Director	Juan.Rey.Abeita@Isletapueblo.com
Tribal Leader	Arden Kucate	Zuni Pueblo	Governor	arden.kucate@ashiwi.org

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 1 of 7:

National Telecommunications and Information Administration

Douglas Kinkoph Date: 05/07/2025

Douglas Kinkoph
Associate Administrator
Office of Internet Connectivity and Growth

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 2 of 7:

Advisory Council on Historic Preservation

Date: 7/2/2025

Reid Nelson
Executive Director

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 3 of 7:

New Mexico State Historic Preservation Office

Michelle Ensey Digitally signed by Michelle Ensey
Date: 2025.05.09 08:33:16 -06'00'

Date: 5/9/2025

Michelle Ensey, State Historic Preservation Officer
New Mexico State Historic Preservation Office

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 4 of 7:

Pueblo of Acoma

Charles Riley, Governor

Date: 6·27·25

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 5 of 7:

Pueblo of Isleta

E. Chu Jr.

Eugene Jiron, Governor

Date: 6/17/25

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 6 of 7:

Pueblo of Zuni

Cordelia Hooee, Lt. Governor
for Arden Kucate, Governor

Date: 6-25-2025

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

SIGNATORY 7 of 7:

For the **NAVAJO NATION**

Dr. Buu Nygren, President

Date: JUN 24 2025

Richard M. Begay, Tribal Historic Preservation Officer

Date: 06/20/25

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

INVITED SIGNATORY:

Santa Fe Indian School

Christie Abeyta, Superintendent

Date: June 16, 2025

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PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

INVITED SIGNATORY:

NEW MEXICO STATE LAND OFFICE

Signed by:
Sunalei Stewart
1D513CA1C85E4CB...

6/30/2025

Date: _____

Sunalei Stewart, Deputy Commissioner of Operations

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

INVITED SIGNATORY:

U.S. Army Corps of Engineers, Albuquerque District

Date: 28 April 2025

Kelly E. Allen, Chief, Regulatory Division

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

INVITED SIGNATORY:

BRYAN BALD EAGLE

Digitally signed by BRYAN BALD EAGLE
Date: 2025.05.29 14:53:48 -05'00'

Bryan Bald Eagle, Regional Director, Southwest Regional Office

Date: _____

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

INVITED SIGNATORY:

BUREAU OF LAND MANAGEMENT

Sabrina A. Flores

Sabrina Flores, Albuquerque District Office Manager

Date: 6-24-25

PROGRAMMATIC AGREEMENT
AMONG THE
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION,
ADVISORY COUNCIL ON HISTORIC PRESERVATION,
NEW MEXICO STATE HISTORIC PRESERVATION OFFICER, PUEBLO OF ACOMA,
PUEBLO OF ISLETA, PUEBLO OF ZUNI, AND NAVAJO NATION RAMAH CHAPTER
FOR THE
SANTA FE INDIAN SCHOOL PUEBLO EDUCATION NETWORK BROADBAND PROJECT

INVITED SIGNATORY:

National Park Service

KELBY KELLY FUHRMANN Digitally signed by KELBY KELLY FUHRMANN
Date: 2025.04.29 14:03:44 -07'00'

Superintendent, El Morro and El Malpais National Monument

Appendix J

US Census Bureau Information for the Proposed Project Area

[Appendix J-1: Employment and Income]

		Albuquerque *	Pueblo of Isleta **	Belen *	Los Lunas *	Socorro *	Magdalena *	Pueblo of Acoma **	Grants *	Pueblo of Zuni **
Employment	In labor force	294,734	1,855	2,888	6,906	3,293	278	1,191	3,415	3,038
	Not in labor force	164,315	1,623	3,479	6,459	3,960	477	1,199	3,666	3,157
	Unemployment Rate (%)	5.5	3.6	8	5.3	3	0	2.9	4.5	13.7
	Population Estimate (16 years and over)	459,049	3,478	6,367	13,365	7,253	755	2,390	7,081	6,195
Income (in 2022 inflation – adjusted dollars)	Less than $10,000	16,927	129	335	395	166	103	34	159	233
	10,000 – 14,999	11,596	50	173	268	336	26	19	200	134
	15,000 – 24,999	20,214	115	301	697	396	0	54	379	218
	25,000 – 34,999	21,148	143	359	389	335	85	113	255	263
	35,000 – 49,999	28,886	195	399	564	238	17	124	372	143
	50,000 – 74,999	41,646	284	577	1,175	381	31	140	479	327
	75,000 – 99,999	29,931	210	354	1,107	240	17	79	394	143
	100,000 – 149,999	36,924	254	81	1,056	307	57	57	295	266
	150,000 – 199,999	16,797	43	76	495	186	10	47	344	43
	$200,000 or more	15,731	41	29	170	109	23	23	47	44
	Total Households	239,800	1,464	2,684	6,316	2,694	369	690	2,924	1,814
	Mean Household Income ($)	83,679	67,841	49,899	76,077	65,649	67,966	67,995	69,049	57,285
Source: US Census Bureau – American Community Survey 5-Year Estimates										

*US Census Bureau, 2018-2022 American Community Survey 5-Year Estimates (DP03: Selected Economic Characteristics)

**US Census Bureau (My Tribal Area), 2018-2022 American Community Survey 5-Year Estimates

Detailed information for both Navajo Indian Reservations (Alamo and Ramah) are not available. Only population information was reported in a 2019 American Community Survey 5-Year Estimate. Total populations include Alamo Chapter (1,909) and Ramah Chapter (1,530).
Source: https://navajoprofile.wind.enavajo.org/

[Appendix J-2: Demographics]

		Albuquerque *	Pueblo of Isleta **	Belen *	Los Lunas *	Socorro *	Magdalena *	Pueblo of Acoma **	Grants *	Pueblo of Zuni **
Total Population		562,551	4,466	7,367	17,452	8,605	791	2,982	9,177	8,134
Race (one race)	White	341,186	146	4,404	11,699	5,561	582	239	5,442	89
	African American	17,795	24	43	309	149	0	0	154	0
	American Indian / Alaskan Native	27,063	3,938	31	778	336	0	2,548	1,363	7,850
	Asian	17,457	0	179	176	306	0	0	56	41
	Native Hawaiian and Other Pacific Islander	564	0	0	0	0	0	20	6	0
	Other	56,414	118	1,006	1,346	613	0	27	820	47
	Two or more Races	102,071	240	1,704	3,144	1,550	209	148	1,336	107
Total Population		562,551	4,466	7,367	17,452	8,605	791	2,982	9,177	8,134
Hispanic or Latino and Race	Hispanic or Latino (of any race)	279,981	558	5,139	10,536	4,052	423	213	5,286	206
	Not Hispanic or Latino	282,570	3,908	2,228	6,916	4,553	368	2,769	3,891	7,928
Total Population		562,551	4,466	7,367	17,452	8,605	791	2,982	9,177	8,134
Source: US Census Bureau – American Community Survey 5-Year Estimates										

*US Census Bureau, 2018-2022 American Community Survey 5-Year Estimates (DP05: ACS Demographic and Housing Estimates)

**US Census Bureau (My Tribal Area), 2018-2022 American Community Survey 5-Year Estimates

Detailed information for both Navajo Indian Reservations (Alamo and Ramah) are not available. Only population information was reported in a 2019 American Community Survey 5-Year Estimate. Total populations include Alamo Chapter (1,909) and Ramah Chapter (1,530).
Source: https://navajoprofile.wind.enavajo.org/

Appendix K

Weather and Climate Hazards Assessment and Mitigation Plan for SFIS PEN by 10G Consulting

Weather and Climate Hazards Assessment and Mitigation Plan for Santa Fe Indian School Pueblo Education Network

Introduction

This document provides an overview of the weather and climate hazards that may affect the Santa Fe Indian School Pueblo Education Network. The document also outlines the mitigation strategies and actions that can be implemented to reduce the potential impacts of these hazards on the project's objectives, timeline, and budget. The document is based on the available data and information from the National Weather Service and the National Climate Assessment.

Weather and Climate Hazards

The PEN project involves the installation of fiber optic cables and equipment to provide high-speed educational connections to the Pueblos along the path The project area covers approximately 324 miles of pre-disturbed paths along highways, dirt roads and minor arterial streets. The project is expected to take approximately 2 years to complete.
The weather and climate hazards that may pose a risk to the project are summarized in the table below, along with their likelihood, severity, and potential impacts.

Hazard	Likelihood	Severity	Potential Impacts
Flash floods	High	Moderate to high	Damage to cables, equipment, and infrastructure; delays in installation and maintenance; increased costs; safety hazards for workers and residents
Drought	High	Low to moderate	Reduced water availability for construction and operation; increased fire risk; increased dust and erosion; reduced

			vegetation cover and wildlife habitat
Wildfires	Moderate	High	Damage to cables, equipment, and infrastructure; delays in installation and maintenance; increased costs; safety hazards for workers and residents; air quality degradation; loss of vegetation cover and wildlife habitat
Extreme heat	Moderate	Low to moderate	Reduced productivity and efficiency of workers and equipment; increased cooling and energy costs; health risks for workers and residents; increased evaporation and water demand
Extreme cold	Low	Low to moderate	Reduced productivity and efficiency of workers and equipment; increased heating and energy costs; health risks for workers and residents; increased freezing and bursting of pipes and cables
Severe storms	Low	Moderate to high	Damage to cables, equipment, and infrastructure; delays in installation and maintenance; increased costs; safety hazards for

			workers and residents; power outages; communication disruptions
Earthquakes	Low	High	Damage to cables, equipment, and infrastructure; delays in installation and maintenance; increased costs; safety hazards for workers and residents; power outages; communication disruptions

Mitigation Plan

The mitigation plan for the SFIS PEN project consists of the following strategies and actions, organized by the phases of the project: planning, design, construction, operation, and maintenance.

- Planning
- Conduct a site-specific risk assessment and vulnerability analysis for each project location, considering the historical and projected weather and climate data, the topography and hydrology of the area, and the existing and planned infrastructure and land use.
- Consult with the Authority Having Juridiction and the local stakeholders to identify their needs, preferences, and concerns regarding the project and its potential impacts on the Pueblo's environment, culture, and economy.
- Coordinate with the relevant federal, state, and local agencies and authorities to obtain the necessary permits, approvals, and clearances for the project and to comply with the applicable laws, regulations, and standards.
- Develop a contingency plan and an emergency response plan for the project, outlining the roles and responsibilities of the project team, the contractors, and the partners, and the procedures and protocols for dealing with potential hazards and incidents.
- Establish a monitoring and evaluation system for the project to track the progress, performance, and impacts and identify and address any issues or challenges that may arise.
- Design

- Select the appropriate materials, equipment, and technologies for the project, considering their durability, reliability, and resilience to weather and climate hazards and their environmental and social impacts.
- Design the project layout and configuration to minimize the exposure and sensitivity of the cables, equipment, and infrastructure to weather and climate hazards and maximize the system's adaptive capacity and flexibility.
- Incorporate the best practices and standards for weather and climate hazard mitigation and adaptation in the project design, such as stormwater management, erosion control, fire prevention, heat mitigation, and seismic retrofitting.
- Integrate the project design with the existing and planned infrastructure and land use of the Pueblo, to ensure the project's compatibility, complementarity, and synergy with the local context and needs.
- Incorporate the traditional knowledge, values, and practices of the Tribal community in the project design, to respect and enhance the cultural and spiritual aspects of the project and its surroundings.
- Construction
- Implement the project according to the approved design, specifications, and schedule and in compliance with the applicable laws, regulations, and standards.
- Ensure the quality and safety of the construction activities, materials, and equipment, and conduct regular inspections and tests to verify the compliance and performance of the project.
- Minimize the environmental and social impacts of construction activities, such as noise, dust, traffic, waste, and disruption, and implement the appropriate mitigation and compensation measures.
- Communicate and coordinate with the Authority Having Jurisdiction and the local stakeholders to inform them of the status, progress, and impacts of the project and to solicit their feedback and input.
- Monitor and evaluate the construction activities, report any issues, challenges, or incidents that may occur, and implement the necessary corrective and preventive actions.
- Operation
- Operate the project according to the approved plan, procedures, and protocols, and in compliance with the applicable laws, regulations, and standards.
- Ensure the quality and reliability of the service delivery, and conduct regular maintenance and repairs to prevent and address any malfunctions or damages.
- Minimize the environmental and social impacts of the operation activities, such as energy consumption, emissions, waste, and interference, and implement the appropriate mitigation and compensation measures.
- Communicate and coordinate with the Authority Having Juridiction and the local stakeholders, to inform them of the status, performance, and impacts of the project, and to solicit their feedback and input.

- Monitor and evaluate the operation activities, report any issues, challenges, or incidents that may occur, and implement the necessary corrective and preventive actions.
- Maintenance
- Maintain the project according to the approved plan, procedures, and protocols and in compliance with the applicable laws, regulations, and standards.
- Ensure the quality and safety of the maintenance activities, materials, and equipment, and conduct regular inspections and tests to verify the compliance and performance of the project.
- Minimize the environmental and social impacts of maintenance activities, such as noise, dust, traffic, waste, and disruption, and implement the appropriate mitigation and compensation measures.
- Communicate and coordinate with the Authority Having Jurisdiction and the local stakeholders to inform them of the status, progress, and impacts of the project and to solicit their feedback and input.
- Monitor and evaluate the maintenance activities, and report any issues, challenges, or incidents that may occur, and implement the necessary corrective and preventive actions.

Conclusion

The Santa Fe Indian School Pueblo Education Network is a valuable and beneficial initiative that can provide high-speed internet access to the residents and businesses of the Pueblo's, and enhance their social, economic, and educational opportunities. However, the project also faces some weather and climate hazards that may affect its objectives, timeline, and budget. Therefore, it is important to assess and mitigate these hazards, and to implement a comprehensive and adaptive plan that can ensure the resilience and sustainability of the project. This document provides such a plan, based on the available data and information, and the consultation and coordination with the relevant stakeholders. The document also provides a monitoring and evaluation system that can track the progress, performance, and impacts of the project, and identify and address any issues or challenges that may arise. By following this plan, the project can achieve its goals and deliver its benefits, while minimizing its risks and impacts, and respecting and enhancing the environment, culture, and needs of the communities.

Appendix L

Right-of-Way and Permitting Applications

NATIONAL PARK SERVICE (NPS) ROW PERMIT
PERMIT AREA MAPPING GUIDELINES

Descriptions and mapping of the proposed Permit Area, including authorized access routes, shall comply with the following minimum standards:

1. Land survey and legal description complying with 36 CFR 14.25, which is signed by a licensed surveyor or engineer, OR

2. Map created using GPS with a level of accuracy of +/- one meter or other mapping acceptable to the NPS, which allows the site area, and/or centerline of the power line, telephone, fiber optic communications line, pipeline or other facility to be measured, located, and identified on said map and in the field by NPS staff.

3. Section, Township, Range, and Principle Meridian shall be noted where applicable.

4. The state plane coordinate and datum shall be noted.

5. The point of beginning and point of termination for the legal description shall include a tie to a section corner or other recognized land survey monument, or include two sets of coordinates in the project area identifying the point of beginning/point of termination or other physical features associated with the facilities. If using Northing-Easting coordinates for the POB/POT, also provide the Lat-Long Coordinates as a separate reference.

6. Each segment of the linear ROW or site area (Permitted Area) shall include the bearings and distances, which may be provided in a) a separate narrative legal description, b) in a corresponding table, or c) noted directly on the map.

7. Specify the total length of linear ROW's and the total land area included in the proposed Permitted Area.

8. The map shall be dated and include the name, title, company, and phone number of the person who prepared the map.

9. North arrow.

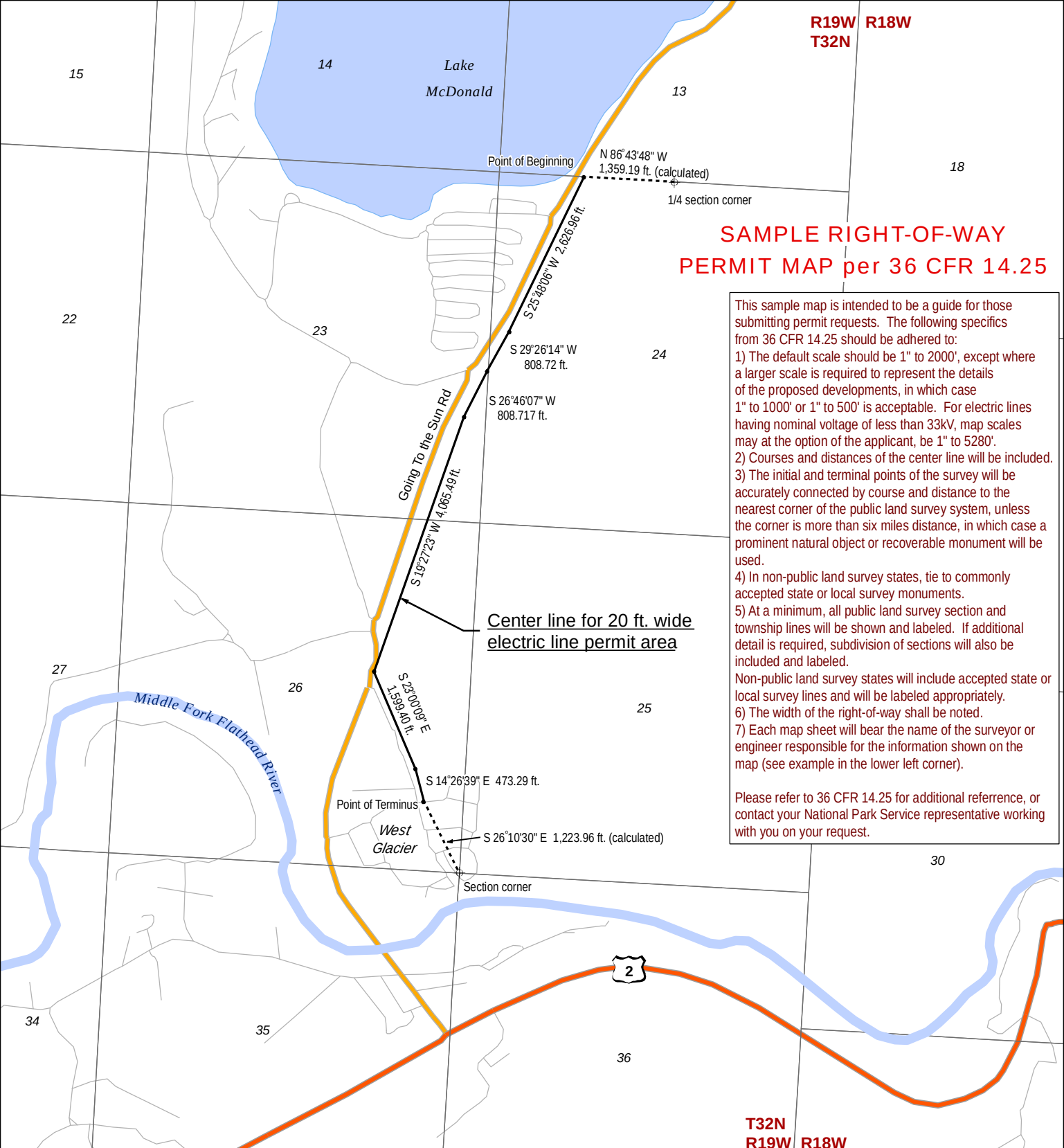
10. Map scale.

11. Map size shall not exceed 11"x17" unless otherwise approved by the NPS.

12. NPS ROW Permits are a revocable, non-exclusive license. They do not convey a lease, easement, title, or other interest in the property. All authorized use areas shall be referred to as Permitted Area, and shall not be described as easement or lease area.

13. Paper copies may be included with the SF-299 application. The mapping and legal descriptions shall also be submitted electronically in .pdf format.

14. In addition, a geospatial data file in shapefile, AutoCAD drawing file, Google Earth .kmz/.kml format, or an industry standard equivalent, or other data type as requested by the park and .pdf map shall be provided. The geospatial data will include a metadata file that at a minimum includes the data source and date of the most recent edit or update to the data set.


R19W R18W
T32N
15
14
Lake
McDonald
13
18
Point of Beginning
N 86°43'48" W
1,359.19 ft. (calculated)
1/4 section corner
SAMPLE RIGHT-OF-WAY
PERMIT MAP per 36 CFR 14.25
22
23
24
S 25°48'06" W 2,626.96 ft.
S 29°26'14" W
808.72 ft.
S 26°46'07" W
808.717 ft.
Going To the Sun Rd
S 19°27'23" W 4,065.49 ft.
Center line for 20 ft. wide
electric line permit area
27
26
25
S 23°00'09" E
1,599.40 ft.
Middle Fork Flathead River
S 14°26'39" E 473.29 ft.
Point of Terminus
West
Glacier
S 26°10'30" E 1,223.96 ft. (calculated)
Section corner
30
2
34
35
36
T32N
R19W R18W
This sample map is intended to be a guide for those submitting permit requests. The following specifics from 36 CFR 14.25 should be adhered to:
1) The default scale should be 1" to 2000', except where a larger scale is required to represent the details of the proposed developments, in which case 1" to 1000' or 1" to 500' is acceptable. For electric lines having nominal voltage of less than 33kV, map scales may at the option of the applicant, be 1" to 5280'.
2) Courses and distances of the center line will be included.
3) The initial and terminal points of the survey will be accurately connected by course and distance to the nearest corner of the public land survey system, unless the corner is more than six miles distance, in which case a prominent natural object or recoverable monument will be used.
4) In non-public land survey states, tie to commonly accepted state or local survey monuments.
5) At a minimum, all public land survey section and township lines will be shown and labeled. If additional detail is required, subdivision of sections will also be included and labeled.
Non-public land survey states will include accepted state or local survey lines and will be labeled appropriately.
6) The width of the right-of-way shall be noted.
7) Each map sheet will bear the name of the surveyor or engineer responsible for the information shown on the map (see example in the lower left corner).
Please refer to 36 CFR 14.25 for additional referrence, or contact your National Park Service representative working with you on your request.
N
W
E
S
SCALE: 1 " = 2,000 '
0 500 1,000 2,000
Feet
Joe Smith, PLS 12345, of Rural Electric Co-op of Northern Montana, supervised a survey of the electric lines as shown from June 17, 2013 to June 27, 2013, and certifies that such survey is accurately represented on this map.
Project Name: BISON RIDGE SUBDIVISION SERVICE LINE
NATIONAL PARK SERVICE ROW PERMIT MAP
Project Location: SECTIONS 23, 24 & 26
T32N R19W, P.M. MONTANA
FLATHEAD COUNTY, MONTANA
Company: RURAL ELECTRIC CO-OP OF NORTHERN MONTANA
123 Main Street
Kalispell, Montana, 34567
Date: June 21, 2013
Datum/Projection: Montana State Plane Coordinate System, NAD 83, Int. Feet
Basis of bearings: North of line section 24, T32N, R19W, bearing N 86°43'48" W

New Mexico DEPARTMENT OF TRANSPORTATION

UTILITY PERMIT APPLICATION CHECKLIST

This checklist is provided only as an aid to assist you in accurately developing a Utility Permit package for submittal. All the required forms, instructions, regulations will be provided to you upon request or upon authorization by the Department to Engineer and Design specific utility relocations on a highway construction project. More definitive information on the permit requirements is available in 17.4.2 NMAC.

1. Four fully executed Utility Permit Applications
    - All blank spaces on the Permit Application must be completely filled out (Project No. line may be left blank and milepost readings used in lieu of Stationing if your construction is not highway project related.)
    - Check appropriate box in upper right corner
    - Signature and title of owner or official designee
2. Include a Vicinity Map of the work area
3. Four ½ size (11x17) copies of Utility relocation/installation plans showing:
    - Title block with date, scale, county, north arrow and facility owner's name
    - Plan view of entire relocation/installation
    - Cross-section drawing of facility crossing the roadway
    - Profile drawing of facility paralleling roadway, including Right-of-Way lines
    - Right-of-Way lines, property lines, special existing field conditions/features
    - Right-of-Way width/dimensions

- Dimensions from roadway centerline, edge of pavement and right of way line to facility
- Bore pit details, including distances from edge of pavement and right of way lines
- Highway stationing or Milepost readings
- Size and type of facility; Ex: 4" dia. PE water line inside 8" dia. X 120'steel casing (This same information should be shown on line 1 of the permit application.)
- Details of existing/proposed highway features affected by utility construction, if any.

NOTE: All of the above elements are also shown on our standard drawings. Highway Construction Plans may be used for your relocation plans as long as **all** the above elements are satisfied.

4. Other required Documentation:
    - Copy of Archaeological & Environmental Clearances-

      Contact: Gary Funkhouser, NMDOT Environmental Development Section in Santa Fe @ 505-827-5692

    - Copy of Certificate of Insurance-must be in the amount of $1,000,000 per occurrence during the project-with the NMDOT named as also insured
    - Traffic Control Plan
    - If disturbance is more than 1 acre: Proof of compliances with National Pollutant Discharge Elimination System (NPDES). Other approvals/authorizations/permits must be obtained and copies attached, from Indian, Federal and other State agencies where required.
    - Proof of compliance with SWPP
5. A minimum nonrefundable $500 administrative application fee for each submitted permit shall be invoiced to the applicant except consumer-rate-regulated public utilities.
   Please mail check to the following address:
   P.O. Box 1149, Room 130, Santa Fe, NM 87504-1149

NOTE TO APPLICANT: All of the above elements and information are required and reviewed when processing your permit package. The review of a permit normally requires up to forty (40) work days for completion. Please allow this amount of time when planning work schedules. Incorrect

or missing information will only delay permit approval as the permit package will be returned for correction/completion. Please return this from with all items checked along with your executed and signed permit application.

EXHIBIT "A" UTILITY SURVEY DATA REQUIREMENTS

Within thirty (30) days of completion of the project, a set of hard copy as – built plans, stamped by a New Mexico Registered Land Surveyor are to be submitted to this office by the utility owner. The plans shall be plotted onNMDOT AutoCad DWG (3D) or Microstation DGN (3D) format. The standard horizontal datum shall be North American Datum 1983 (NAD 83) and standard projections shall be the New Mexico State Plane Coordinate System (NMSPCS 83). The Standard vertical datum shall be the North American Vertical Datum 1988 (NAVD 88). The preferred media in which this data must be submitted is CD-ROM; however, a 3.5" diskette may be used for the data submittal, if necessary.

The utility location information shall be tied to Department monuments and referenced to highway mileposts or to highway project construction stationing, and certified by a New Mexico Registered Land Surveyor. Metadata, or "data about the data" shall be submitted with each utility's as built electronic file, preferably as a separate text file on the electronic submittal media, and shall include:

1. District, Utility Permit Number
2. Name, address, and phone number of responsible land surveyor.
3. Date of completion survey
4. Equipment used to conduct the survey
5. Horizontal and vertical control marks used to tie the survey to the NMSPC83 and NAVD88. Ground to grid combination scale factor used.

Elevations shall be provided every 500 feet and at all survey break points, including all high and low points.

The utility owner shall provide “as-built” horizontal and vertical utility location information in hard copy and electronic file in AUTOCAD DWG (3D) or MICROSTATION DGN (3D) format. The standard horizontal datum shall be the North American Datum 1983 (NAD83) and the standard projections shall be the New Mexico State Plane Coordinate System 1983 (NMSPC83). The standard vertical datum shall be the North American Vertical Datum 1900 (NAVD88). The preferred media in which this data must be submitted is CD Rom; 3.5: diskette may be used for the data submittal. The utility location information shall be tied to Department monuments and reference to highway mile post or highway project construction stationing, and certified by a New Mexico Registered Land Surveyor. Metadata or “data about the data” shall be submitted with each utility’s as-built electronic file, preferably as a separate text file on the electronic submittal media, and shall include:

1. District Utility Permit Number.
2. Name, address and phone number of the responsible land surveyor.
3. Date of completion of survey.
4. Equipment used to conduct the survey.
5. Horizontal and vertical control marks used to tie the survey to the NMSPC83 and NAVD88.
6. Ground to grid combined scale factor used.
7. Elevation shall be provided every 500 feet and at all survey break points, including all high and low points.

A-0063b
Revised:11/2021
Right-of-Way

NEW MEXICO DEPARTMENT OF TRANSPORTATION
APPLICATION FOR USE AND OCCUPANCY WITHIN PUBLIC RIGHT OF WAY

Permit No. _____

_____ Renewal Permit

_____ Relocation

_____ Remain in Place

_____ New Installation

TO: NEW MEXICO DEPARTMENT OF TRANSPORTATION
P.O. Box 1149
SANTA FE, NEW MEXICO 87504-1149

1. Pursuant to New Mexico Statutes Annotated, 1978 Compilation, Sections 67-8-13 and 55-2-7, and 17.4.2 NMAC the undersigned

_____

Address: _____

herein makes application to use highway rights of way to install:

Size and Type of Facility _____

in the following location: N.M. Project No. _____ S.R. No. _____

Highway Station/and or MP/GPS _____ to Highway Station and/or MP/GPS _____

_____ County, Section _____ , Township _____ , Range _____

2. For the purpose of this application "within" shall be construed as meaning "on, upon, over, under, across or along."
   a. "Engineer" shall be construed as meaning the District Engineer of the New Mexico Department of Transportation or the District Engineer's Representative.
   b. "Applicant shall be construed as meaning the individual, firm, corporation, association, governmental subdivision, or other organization making application, or the successors of any of the above.
   c. "Facility" shall be construed as meaning, but not limited to any publicly, privately, cooperatively, municipally or governmentally owned facility used for carriage, distribution or transmission or water, gas or electricity, oil and products derived therefrom, sewage, stream or other projects carried by means of pipelines, conduits, wires, culverts, ditches, conveyors or other methods.
   d. If application is for a parallel installation, justification as to why private right may be utilized must be furnished.

3. Applicant proposes to ☐ relocate ☐ install ☐ leave facility _____ feet within the _____ right of way line. The Proposed installation shall be:

_____ _____ _____

(Crossing or Parallel) (Subsurface or Overhead) (Boring, Jacking, or Pavemet Cuts)

   a. If applicant requests installation by pavement cut, complete justification therefore shall be submitted by attachment.
   b. Where application for pavement cut us justified, the application may be held in abeyance pending receipt of cash bond in an amount to be fixed by the Engineer.

4. There is attached hereto a diagrammatic dimensioned drawing showing the location of existing and/or proposed installation referenced to roadway and right of way, right of way lines, any access control lines, distance of proposed installation above, or below grade, highway stationing, identification of materials to be used an any other pertinent data. If application is for parallel installation, nature of adjacent land use must be shown. Proposed installations on or in bridges or other structures, or for the installation of any structures, shall require detailed structural drawings.

5. Applicant desired this permit to be in affect for_____years. Permit shall not be issued for a period longer than 25 years, and must be renewed upon expiration. The burden of timely renewal is on the Applicant. The Applicant shall formally notify the engineer of actual commencement and completion of construction of the installation. The Applicant shall also formally notify the Engineer of removal or abandonment of the facility, or relinquishment of the permit.

NEW MEXICO DEPARTMENT OF TRANSPORTATION
APPLICATION FOR USE AND OCCUPANCY WITHIN PUBLIC RIGHT OF WAY

6. Applicants requesting use of highway rights of way for the installation of broadband infrastructure hereby acknowledge and agree they will be subject to such fees and terms for use of highway rights of way as will be set forth in the NMDOT Broadband and Telecommunications Manual to be incorporated by reference and made a part of 17.4.2 NMAC. The terms and fees, if any, shall be applied as of the date of publication of the final rule in the New Mexico Register.

7. This application shall be validated as a permit upon the signing of the application by the Engineer and returning it to the applicant. The granting of this permit shall not be construed as granting any easement or property right.

8. Servicing of facilities shall not be permitted within the access control lines on any controlled access project. Should an emergency occur, the Applicant shall notify the Engineer and shall provide such flagmen, flashers, warning or other safely devices as required by the Engineer. All routine maintenance shall be performed from outside any access control lines.

9. The relocation or installation of facilities within public right of way shall be in strict conformance with all **applicable provisions of regulations of the New Mexico Department of Transportation 17.4.2 NMAC,** all provisions of this application, drawing and the Instructions for Utility Permits, as they may be modified by the Engineer, and no departure therefrom may be made without the written consent of the Engineer. All facilities shall be so placed that they will not interfere with or endanger any roadway features or other existing facilities. All construction of facilities shall be subject to the inspection and approval of the Engineer. All such work shall be performed so that danger, inconvenience and delay to the traveling public will be held to a minimum. Protection and handling of traffic during the installation are the responsibility of the Applicant and must be approved by the Engineer.

10. The Applicant shall, except as otherwise ordered by the Engineer, restore the right of way, and all bridges or other structures thereon or adjacent thereto which have been altered or affected by facility installation performed hereunder, in accordance with sound construction practices and the Engineer's specifications, and shall cause the work to be done in a workmanlike manner, if any damage is caused to the highway right of way or to any bridge, structure or improvement thereon or adjacent thereto by reason of the design installation, maintenance alteration or removal of such facilities or other appurtenances, the Applicant shall reimburse the Engineer the full amount thereof promptly upon demand by the Engineer provided, however, that the obligation imposed under this paragraph shall not apply in the event the damage resulted from causes beyond the control of the Applicant or its contractors or its consultants. All such facilities located with the right of way shall at all times be kept in such repair so as not to damage the highway, inconvenience or endanger the traveling public and shall be kept free advertisement, posters and the like.

11. Should the Applicant at the time fail to promptly and fully perform any of the obligations imposed hereby and after thirty (30) days written notice thereof, the Engineer may, at his option (a) cause the obligations to be fully carried out and performed, and the Applicant shall promptly reimburse the Engineer for all costs and expenses incident thereto, or (b) summarily order the removal of such facility and if the Applicant fails to comply with that removal order within a reasonable time, the Engineer may direct the removal of the facility with all costs and expenses thereto to be borne by Applicant.

12. If by reason of any change in the location, construction, grade or by any other matter affecting the highway upon which any facility is located because of changing traffic conditions or otherwise, it shall become advisable in the opinion of the Engineer that said facility be removed, relocated or otherwise modified, the applicant, upon written notice from the Engineer, shall provide all horizontal and vertical data including pothole information, size and type of material, and condition of material. If necessary the applicant shall remove, relocate or modify such facility without undue delay in such manner as the Engineer may direct or approve, at the applicant's expense and at no cost to the Engineer. All facilities located on public right-of-way under the dual jurisdiction of the state and a subordinate governmental entity shall comply with all applicable rules and regulations of such entity properly and lawfully in force and including but not limited to provisions of local franchises not in conflict with the rules and regulations of the New Mexico Department of Transportation. The Engineer makes no warranty, either expressed or implied, as to the continued existence of any highway in any particular location and expressly assumes no obligation with regard to the facility upon change, vacation or abandonment of any highway or portions thereof nor shall anything herein contained in any way prejudice or impair any right.

13. Neither the making of this application nor anything herein contained shall constitute a waiver on the part of the Applicant of any rights or claims had or made by some with respect to the occupancy of the streets and highways under the Constitution and Laws of the State of New Mexico, nor shall anything herein contained in any prejudice or impair any rights or claims existing independent of this application with respect to the construction, operation, and maintenance of the Applicant's facilities in the State of New Mexico nor shall anything herein contained in any way prejudice or impair any right.

14. The Applicant must indemnify and hold harmless the New Mexico Department of Transportation from loss due to any negligent act of the Applicant or the Applicant's employees, any agent acting on the Applicant's behalf, and anyone else engaged by the Applicant to work on the installations, maintenance or relocations of the Applicant's facilities. Any contractor or subcontractor engaged by the Applicant to perform installations or relocations in conjunction with or prior to highway construction must also indemnify and hold harmless the New Mexico Department of Transportation from loss due to any negligent act of the Applicant's contractor or subcontractor.

NEW MEXICO DEPARTMENT OF TRANSPORTATION
APPLICATION FOR USE AND OCCUPANCY WITHIN PUBLIC RIGHT OF WAY

15. Each copy of the application shall be signed by the Applicant as an individual owner or by any official designated to execute such Documents.

16. Applicant shall carry insurance in amounts not less than those below specified and as outlined in 17.4.2 NMAC and the Standard Specifications for Highway and Bridge Construction, 2019 Edition, (hereinafter, "Specifications"), as may be updated from time to time. In the event of conflict between the specifications, and the regulations, owner shall carry the larger amount of insurance. If and Applicant is self-insured, the Applicant shall provide an Owner's Protective Liability Insurance Policy, in favor of the Department, in the amounts below specified. **Department as additional named insured**: The utility, its contractor or subcontractor shall have the New Mexico Department of Transportation added as an additional named insured on the Comprehensive General Liability Form or Commercial General Liability Form furnished by the Applicant.

    This application is hereby granted subject to all provisions herein and including the following special provisions, changes or amendments:

    The Applicant shall provide "as-built" horizontal and vertical location information in hard copy and electronic file (AutoCAD DWG (3D) or Microstation DGN (3D) format. The standard horizontal datum shall be North American Datum 1983 (NAD83) and the standard projections shall be the New Mexico State Plane Coordinate System 1983 (NMSPCS83). The standard vertical datum shall be North American Vertical Datum 1988 (NAVD 1988). The preferred media in which this data must be submitted is CD ROM. The facilities location information shall be tied to Department monuments and referenced to highway mileposts and/or to highway project construction stationing and certified by a New Mexico Registered Land Surveyor. Metadata or "data about the data" shall be submitted with each Applicant's as-built electronic file, preferably as a separate text file on the electronic submittal media, and shall include: **1.** District Permit Number. **2.** Name, address and phone number of the responsible land surveyor. **3.** Date of completion of survey. **4.** Equipment used to conduct the Survey. **5.** Horizontal and vertical control marks used to tie the survey to the NMSPC83 and NAVD88. **6.** Ground to Grid combined scale factor used. **7.** Elevations shall be provided every 500 feet and at all survey break points, including all high and low points.

Note: Highway projects are time sensitive therefore, permit information requested from Authorization to Engineer Letters must be returned by the date indicated within the Authorization to Engineer letter.

17. Pursuant to: MAP-21; http://www.fhwa.dot.gov/construction/contracts/buyam-qa.cfm and (23U.S.C313) Applicant certifies it is in compliance with Buy America for said facility described in Section 1 of this permit document. Applicant agrees and understands nonadherence will void said permit.

Applicant: _____

By: _____

Signature: _____ Date: _____

Approval of this permit is hereby given this _____ day of _____, 20 _____

NEW MEXICO DEPARTMENT OF TRANSPORTATION

By: _____

Form No. A-66
New 03/13

NEW MEXICO DEPARTMENT OF TRANSPORTATION
(NMDOT)

TRAFFIC CONTROL/ROADWAY WORK PERMIT

NMDOT Project Number (If applicable):_____ **Control Number:** _____

General Scope of work: _____

Contractor Name: _____

Contact Person: _____

Contact Telephone: ( ) - _____ Fax: ( ) - _____

Traffic Control Firm: _____

Certified Traffic Control Supervisor: _____

Contact Telephone: ( ) - _____ Fax: ( ) - _____

Work Zone Location Information:

Route: _____

Mile Post: From _____ To: _____

Or Intersection: _____ Intersection: _____

Direction (NB, SB, EB, WB, or both): _____

☐ 2 lane Road ☐ 4 lane Road ☐ 6 lane Road ☐ 8 Lane Road ☐ Divided ☐ Undivided

Existing Speed limit in area: ___ MPH or Ranges from ___MPH to ___MPH

Proposed Speed Limit reduction within work zone (If Applicable):_____ MPH

Working Duration:

Start Date: _____ End Date :_____

Daily Start Time_____ End Time: _____

Purpose of Permit:

☐ Roadway Construction/Rehab. ☐ Shoulder Work
☐ Signal and Lighting Work ☐ Utility work
☐ Drainage/Excavation work ☐ Soil Testing
☐ Signing and Striping Placement
☐ Other: _____

TCP Plan Enclosed ___ **(TC Permit will not be processed without a TCP plan)**

If no, describe why: _____

Approval is conditioned on the following terms that are deemed accepted by the Contractor upon submission of this Permit

1. Traffic Control for operations under this permit shall conform with the Manual on Uniform Traffic Control Devices (MUTCD).
2. The Contractor agrees to indemnify and hold harmless the NMDOT and its employees from liability, claims, damages losses or expenses due to any negligent act of the Contractor, the Contractor's employees, any agent acting on the Contractor's behalf, and anyone else engaged by the Contractor to work pursuant to this permit.
3. The Contractor shall provide the NMDOT a certified copy of the its insurance policy and certificate of insurance and shall include on the certificate of insurance the NMDOT as an additional-named insured, with notice that the coverage is primary over any other valid insurance.
4. Any additional conditions as attached and referenced below.

For Official Use:

☐ **Approved** (see conditions below) ☐ **Approved As Amended** ☐ **Not Approved**

☐ Contractor/TCP firm **SHALL** contact the District Office and confirm the actual start dates.

☐ TCP Firm and Contractor must adhere to the attached notes.

Permit Number: _____ - _____

Approved By _____

NMDOT District Office – Traffic Section

Submitted to the District Public Information Officer By:_____ On:____/_____/_____

New Mexico DEPARTMENT OF TRANSPORTATION
MOBILITY FOR EVERYONE

Environmental Certification for Undertakings within NMDOT Rights-of-Way

Please fill out the form completely. Submittals are reviewed in the order received. Allow 10-15 business days for the processing. Emergency requests are handled on a case-by-case basis.

Any tree removals needed for the commission of the utility work shall be reviewed and approved by the NMDOT Environmental Bureau as part of the permit. Provide latitude, longitude, tree type, and tree condition. Any trees on the NM Noxious Weed List are excluded from this requirement.

1. **Purpose** and **Nature** of undertaking. Describe the undertaking along with width, length and depth of ground disturbance. Include the methods and machinery to be used.

2. Is your project resulting from a NMDOT project? If so, provide the control and/or project number.

3. Funding source. Is the funding private, state, or federal? If state and/or federal, list agency(s).

4. Land status. Is the project on right of way owned by BLM, Forest Service, Tribal land, or State Trust land? (NMDOT does not own all highway rights of way)

5. Permitting agencies. List other permitting agencies involved besides NMDOT.

6. County. List the county or counties in which the project is located.

7. Highway number. Indicate the highway the project will cross or parallel.

8. BOP and EOP. Provide the milepost (MP) locations for the beginning of the project area (BOP) and the end of the project area (EOP). Indicate BOP and EOP on project area maps, as well. If highway crossing only, list the milepost location.

9. Side(s) of the road. Indicate on which side of the road the project will be located using cardinal directions (north, south, east, west). List all project crossings of the highway by milepost.

10. Length of the project. Indicate the length of the project within NMDOT right of way in terms of feet and/or miles.

11. Provide the legal description of the project area: Township, Range, and Section(s).

12. Maps / Locational Information. Include a map or other location information such as Esri Shapefiles and/or a Google Earth image or kml/kmz file at an appropriate scale so that the project area within the NMDOT right-of-way can be accurate and precisely identified in the NMDOT GIS database. If milepost information is unavailable, please use latitude and longitude coordinates of the BOP and EOP.

13. Include your:

Name/Company:

Phone:

Email:

14. Submit your request to:

Email: gary.funkhouser@dot.nm.gov
C: 505-570-7291

or:

Gary Funkhouser
NMDOT - Environmental Bureau
P.O. Box 1149
Santa Fe, NM 87504-1149

Physical Address (for FedEx and UPS):
1120 Cerrillos Road, Room 206
Santa Fe, NM 87505-1842

OMB Control Number 1076-0181
Expires 10/31/2027

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS

RIGHT-OF-WAY APPLICATION

Request for the BIA to grant a right-of-way under the terms and provisions of the Act of February 5, 1948 (25 U.S.C. 323-328) and Departmental Regulations at 25 CFR 169.

Parcel(s) Affected by Right-of-Way:
Landowner Name(s): _____
Allotment Number(s): _____
Legal Description: _____
_____
_____

Applicant Information
Applicant:_____
Contact information:_____

Right-of-Way Information
General location of the right-of-way:_____
_____
Duration/term (years):_____
Purposes:_____
_____
_____
Length (in feet):____ Width (in feet):_____ Depth (in feet):_____ Size (area):_____
Owner of permanent improvements in right-of-way:_____
Party responsible for constructing, operating, maintaining, and managing permanent improvements in right-of-way:_____

APPLICANT EXPRESSLY AGREES TO review and abide by all conditions stated in the right-of-way grant and comply with all provisions of 25 CFR 169.

APPLICANT SIGNATURE:_____
DATE:_____
ATTEST:_____

See the back of this form for:

- Required supporting documents that must be submitted with this application; and
- A list of conditions that will be among those in the right-of-way grant.

PLEASE SUBMIT THIS FORM & REQUIRED SUPPORTING DOCUMENTS TO THE LOCAL BIA AGENCY OFFICE.

PAPER WORK REDUCTION ACT STATEMENT

This information is being collected to provide Bureau of Indian Affairs (BIA) with information necessary to issue a grant of a right-of-way across Indian land. Response is required to obtain benefits under 25 CFR 169. A Federal Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Public reporting for this form is estimated to average 1 hour per response, including the time for reviewing instructions, gathering and maintaining data, completing the form. Direct comment regarding the burden estimate or any other aspect of this form to: Information Collection Clearance Officer, Office of Regulatory Affairs & Collaborative Action – Indian Affairs, 1001 Indian School Road NW, Suite 229, Albuquerque, NM 87104.

REQUIRED SUPPORTING DOCUMENTS:

(1) An accurate legal description of the right-of-way, its boundaries, and parcels associated with the right-of-way;
(2) A map of definite location of the right-of-way and existing facilities adjacent to the proposed project, signed by a professional surveyor or engineer (this requirement does not apply to easements covering the entire tract of land);
(3) A bond meeting the requirements of 25 CFR § 169.103;
(4) Record of consent for the right-of-way meeting the requirements of 25 CFR § 169.105 for tribal land, and 25 CFR § 169.106 for individually owned Indian land;
(5) If applicable, a valuation meeting the requirements of 25 CFR § 169.110;
(6) If the applicant is a corporation, limited liability company, partnership, joint venture, or other legal entity, except a tribal entity, information such as organizational documents, certificates, filing records, and resolutions, that demonstrates that: (i) The representative has authority to execute the application; (ii) The right-of-way will be enforceable against the applicant; and (iii) The legal entity is in good standing and authorized to conduct business in the jurisdiction where the land is located**;**
(7) Environmental and archeological reports, surveys, and site assessments, as needed to facilitate compliance with applicable Federal and tribal environmental and land use requirements.

LIST OF CONDITIONS THAT WILL BE AMONG THOSE IN THE RIGHT-OF-WAY GRANT

(1) The grantee has no right to any of the products or resources of the land, including but not limited to, timber, forage, mineral, and animal resources, unless otherwise provided for in the grant;
(2) BIA may treat any provision of a grant that violates Federal law as a violation of the grant; and
(3) The grantee must:
- (i) Construct and maintain the right-of-way in a professional manner consistent with industry standards;
- (ii) Pay promptly all damages and compensation, in addition to the deposit made pursuant to §169.103, determined by the BIA to be due the landowners and authorized users and occupants of land as a result of the granting, construction, and maintenance of the right-of-way;
- (iii) Restore the land as nearly as may be possible to its original condition, upon the completion of construction, to the extent compatible with the purpose for which the right-of-way was granted, unless otherwise negotiated by the parties;
- (iv) Clear and keep clear the land within the right-of-way, to the extent compatible with the purpose of the right-of-way, and dispose of all vegetative and other material cut, uprooted, or otherwise accumulated during the construction and maintenance of the project;
- (v) Comply with all applicable laws and obtain all required permits;
- (vi) Not commit waste (i.e., any damage to the property that lessens its value);
- (vii) Repair and maintain improvements consistent with the right-of-way agreement;
- (viii) Build and maintain necessary and suitable crossings for all roads and trails that intersect the improvements constructed, maintained, or operated under the right-of-way;
- (ix) Restore land to its original condition, as much as reasonably possible, upon revocation or termination of the right-of-way, unless otherwise negotiated by the parties;
- (x) At all times keep the BIA informed of the grantee's address;
- (xi) Refrain from interfering with the landowner's use of the land, provided that the landowner's use of the land is not inconsistent with the right-of-way; and
- (xii) Comply with due diligence requirements under § 169.104.

(4) Unless the grantee would be prohibited by law from doing so, the grantee must also:
- (i) Hold the United States and the Indian landowners harmless from any loss, liability, or damages resulting from the applicant's use or occupation of the premises; and
- (ii) Indemnify the United States and the Indian landowners against all liabilities or costs relating to the use, handling, treatment, removal, storage, transportation, or disposal of hazardous materials, or release or discharge of any hazardous material from the premises that occurs during the term of the agreement, regardless of fault, with the exception that the applicant is not required to indemnify the Indian landowners for liability or cost arising from the Indian landowners' negligence or willful misconduct.