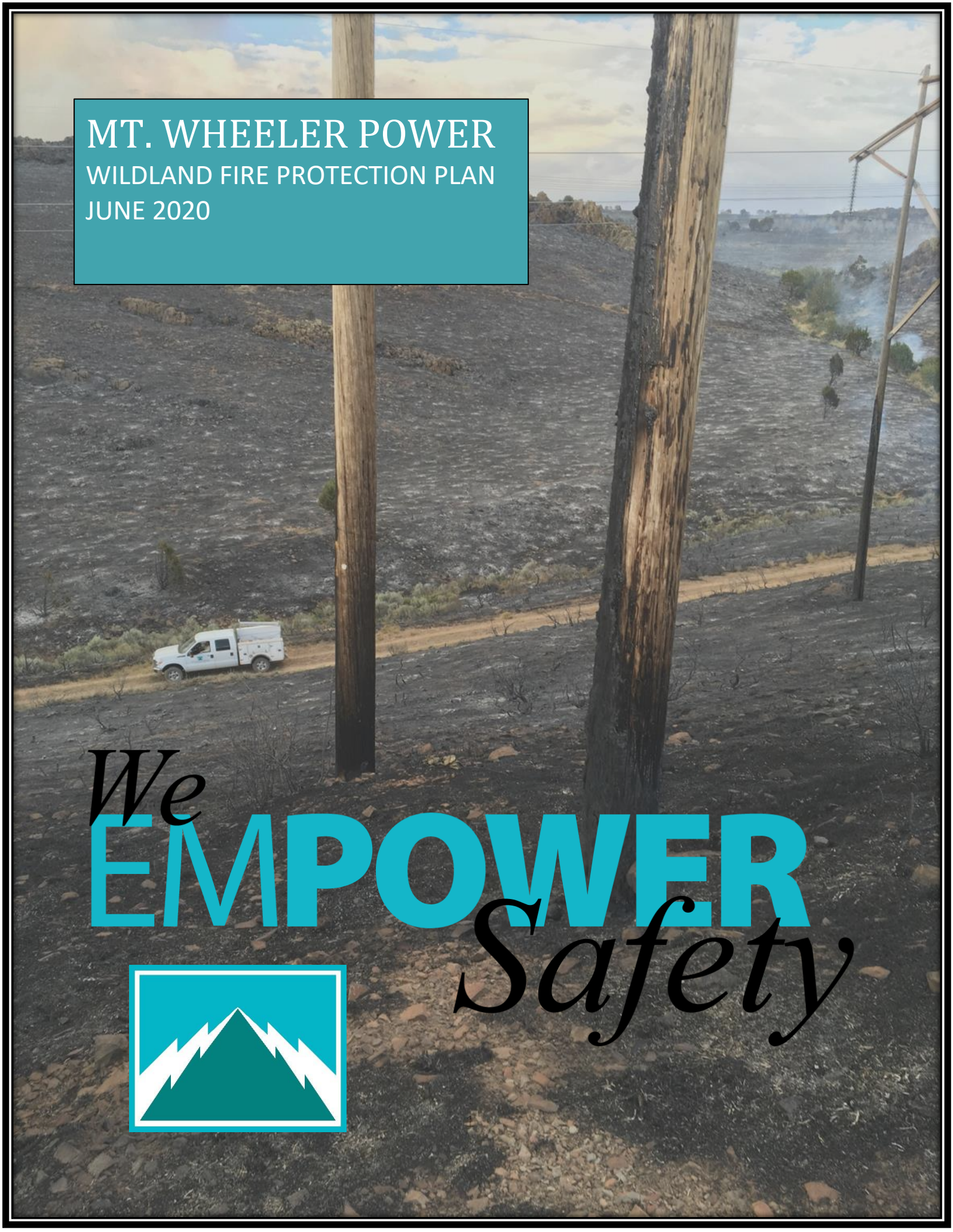

MT. WHEELER POWER
WILDLAND FIRE PROTECTION PLAN
JUNE 2020
We
EMPOWER
Safety

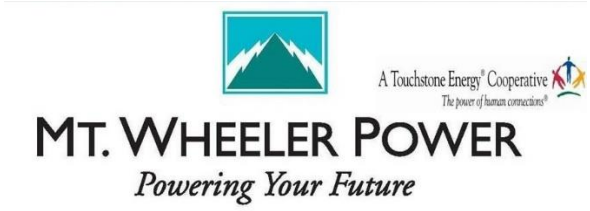
MT. WHEELER POWER COOPERATIVE

WILDLAND FIRE PROTECTION PLAN

Prepared by William J Ricci,
Mt. Wheeler Power Operations Manager

Mt. Wheeler Power
1600 Great Basin Blvd.
Ely, Nevada 89301
775-289-8981

August 2020



Wildland Fire Prevention Plan 2020-2022
Mt. Wheeler Power Inc.
June 1, 2020

Mt. Wheeler Power is a non-profit rural electric cooperative, originally established under the United States Department of Agriculture (USDA) Rural Electrification Act (REA) in 1963 began doing business February 19,1970, and currently serves approximately 8,500 members serving 16,000 square miles covering Two states Utah and Nevada portions of 7 counties Nevada (White Pine, Eureka, Elko, and Nye) Utah(Western Areas of Tooele, Juab,& Millard) with 9-Directors serving a specified electorate area.

Mt. Wheeler is headquartered in Ely, Nevada, with additional offices in Eureka and Baker Nevada.

The management team of Mt. Wheeler consists of:

Kevin Robison, Chief Executive Officer,
kevinr@mwpower.org
Trish Stanton, Finance Manager, Tstanton@mwpower.org
Jesse Murdock, Engineering Manager,
mwpjesse54@mwpower.org
Shellie Watts, Member Services/HR Manager,
shelliew@mwpower.org
William Ricci, Operations Manager, billr@mwpower.org

The official mailing address of the cooperative is:

1600 Great Basin Blvd
Ely NV 89301

The phone number for all the offices is: 775-289-8981

Mt Wheeler Power serves rural residential, agricultural, commercial, mining and light industrial members in Nevada (4 counties) and parts of Utah (3 counties) to serve these members Mt Wheeler has:

County, State	Customers	Acres	Miles of transmission	Substations	Miles of OH distribution	Miles of UG Distribution
White Pine, NV	6201	5,694,080		8		
Eureka, NV	1183			1		
Nye, NV	358		0	0		
Elko, NV	14		0			
Millard, UT	185		0	0	83	1.4
Juab, UT	121		0	0	116	8.5
Tooele, UT	135		0	0	75	.6
TOTALS	8197			9	274	10.5

** This plan currently only includes Utah **

The purpose of the analysis and practices detailed in this Wildland Fire Protection Plan is to: 1. Protect the public; 2. Minimize the chance of the cooperative's powerlines starting wildfires; 3. Speed the recovery from any wildfires that may occur. The plan contained in the following document has been drafted to comply with the requirements specified in Utah HB66-2020 and has been reviewed by the pertinent agencies, with input from all interested parties, been reviewed by a third party expert, and duly adopted by the Board of Directors of Mt. Wheeler Power, all of which has been documented in the body of the plan. A Glossary of Terms, specific to this industry and used throughout this plan is included in Appendix A.

Parts (a) through (h) [in bold, following] are the specific items covered in this Wildland Fire Protection Plan and have been extracted directly from the text of Utah HB66-2020. The paragraphs following each point have been drafted to address each of the requirements of the legislation.

All sections in this plan will be regularly updated and modified as needed, depending on experience. As a minimum, this plan will be reviewed annually and the findings presented to the cooperative's Board of Directors (Governing Authority,) and updated every three years with new assessments and to incorporate new technology and best practices.

(a) Description of areas within the service territory of the electric cooperative that may be subject to a heightened risk of wildland fire.

Mt. Wheeler Power, Inc. has had direct experience with wildfire. When the "Pinto Creek Fire" burned down a two-mile segment of Mt. Wheeler's overhead (OH) transmission and distribution lines in Newark Valley; no dwellings or lives were lost in the wildfire, but electrical service was lost to the mining, irrigation and residential loads in the valley. Mt. Wheeler has experienced wildfire losses to an overhead (OH) transmission line in Steptoe Valley "Gun Range Fire" which burned a two-mile overhead (OH) transmission line that served the Baker Substation serving mining, irrigation and residential loads in Snake Valley and Spring Valley; no dwellings or lives were lost in the wildfire. The "Pescio Bench Fire" burned down a three-mile overhead (OH) distribution line which served Steptoe Valley irrigation and residential members; no dwellings or lives were lost in the wildfire. The "Baker – Garrison Fire" resulted in a burn down of a two-mile segment of overhead (OH) overhead distribution line; no dwellings or lives were lost in the wildfire. The Pinto Creek overhead (OH) distribution line was rerouted and rebuilt with new poles, crossarms, insulators, and wire, with shortened span lengths and the ROW opened up for better access, all of which should reduce the risk of future wildfires on that line.

In addition to these lines in which Mt. Wheeler experienced the direct effects of a wildfire, the cooperative has evaluated each of its powerlines (feeders) relative to the risk of starting a wildland fire. This analysis process started with overlaying the cooperative's Geographical Information System (GIS,) which maps all the powerlines owned and operated by the cooperative, over the Fire Threat Index GIS maintained by the Utah Division of Natural Resources (DNR) in their Utah Wildfire Risk Assessment Portal, UWRAP, (see: https://wildfirerisk.utah.gov/.) The resulting composite maps for all the powerlines owned and operated by Mt. Wheeler Power are found in Appendix B. The overhead powerlines are drawn in blue in the composite maps and the underground powerlines are drawn in green. The areas of high fire threat index are colored in red and orange, so the areas of interest are where the blue lines cross the orange and red areas. The overhead lines are a greater potential threat in a wildfire situation than underground lines because overhead lines are largely

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supported in open air on wooden poles and could be exposed to fire and lightning, underground lines are practically uninvolved in a wildfire situation because they're buried three or four feet under the surface level of the ground.

The official mailing address of the cooperative is:
Using the composite GIS, all the Mt. Wheeler Power feeders were analyzed for risk of wildfire; the results of the analysis are displayed in the following table. In the first column on the left is the name and map location of the substation. The second column gives the feeder number and the third column contains a description of the feeder, including a map reference number. Each feeder starts at the substation and then proceeds outward to the end of the feeder. The fourth column contains the description of the fire threat analysis for that feeder, including map reference numbers, and addresses fire threat levels as well as any projects required to reduce the threat of powerline-caused wildfires.

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Baker Substations Utah Feeders			
Substation	Feeder	Description	Analysis
Baker	North Snake Valley	3 Phase OH line North Snake Valley Single Phase into Ibapah	This feeder serves mostly irrigated, cultivated land (marked in green on the maps) and so poses very negligible fire threat. One segment on the northwest portion of this single-Phase feeder where the OH line serves through the Ibapah area is at higher risk of fire threat.
			1
	Eskdale	OH East, pg. 14	This feeder serves mostly irrigated, cultivated land (marked in green on the maps) and so poses very negligible fire threat.
Baker	Baker South	OH South and Underground through cultivated area, Map Pg15-17	This feeder serves mostly irrigated, cultivated land (marked in green on the maps) and so poses very negligible fire threat.

(b) Description of the procedures, standards, and time frames that the electric cooperative will use to inspect and operate its infrastructure.

Mt. Wheeler Power has followed the Rural Utilities Services (RUS, successor to the REA) standards for powerline construction and operation, including line inspection and maintenance, with each circuit on a four year rotation or when the circuit is opened due to a permanent fault which has kept the cooperative's powerlines almost completely uninvolved in wildland fires. These standards were developed by the RUS/USDA staff and/or their consultants and have applied to REA/RUS cooperatives since the original Rural Electrification Act of 1935 and are evaluated and updated regularly and are listed in the Code of Federal Regulations (CFR.) Specifically, the regulation requiring regular system inspections and testing is found in 7CFR1793.21. See also: "REA Bulletin 161-3 Inspection and Maintenance of Distribution Lines." All field inspections are completed by Mt. Wheeler Power linemen who are very familiar with the construction standards and how the lines

should look and therefore are readily able to spot any anomalies. They utilize smart devices (iPads or smart phones) that have inspection software directly tied to the cooperative's GIS. When a problem is detected via line or ROW inspection, the inspector creates a service order in the digital service order system, which is tied to the inspection software which is tied to the GIS, and the line maintenance crew finds it automatically added to their project queue; of course higher priority is assigned to projects that affect safety (including the potential to start fires) and near-term reliability. The inspections are also tracked in the cooperative's GIS software so that inspections do not overlap and so segments of the powerlines are not overlooked. These inspections and resulting service orders are on-going and a permanent and ever-increasing part of every annual budget.

In addition to the minimum regulatory requirements from the RUS via the CFR, Mt. Wheeler Power also follows the National Rural Electric Cooperative Association's (NRECA) more rigorous Rural Electrification Safety Accreditation Program (RESAP) and has been safety accredited by NRECA since 2006. This accreditation is renewed every three years after an extensive application and rigorous on- site inspection program. Following this program, we evaluate assemblies and structures for potential future issues based on our experiences. For example tracking/flashover on insulators and pole tops; splitting crossarms or loose hardware; observe jumpers for length or possible damage; evaluate raptor protection adequacies; our IML-RESI F-Series Wood Testing Drill is used to test for unserviceable poles, pole where decay/rot has occurred damage to poles e.g. through cracking and external factors such as woodpeckers. We also evaluate surrounding tree growth and evaluate/adjust the trimming schedule accordingly. See Appendix C for the inspection rubric: "Section 17: Overhead & Underground Lines, Equipment, etc."

New engineering practices outlined in our Avian Protection Plan reduce the risk of pole fires and arcing. Shortening span lengths, 10ft fiber glass cross arms, increasing BIL on distribution lines (e.g. 35kV insulators on a 25kV line) insertion of fiberglass ridge pins and neutral stand offs, insert fiberglass links into guy wires, decreased hardware on dead end pole tops, replacing double arms & double braces with single PUPI fiberglass crossarms & no braces have all been engineered to reduce the chance of a second point of contact and arcing. Mt. Wheeler also contracts with the USDA to remove and relocate nests and eliminate problem birds.

(c) Description of the procedures and standards that the electric cooperative will use to perform vegetation management.

Trees and tall brush cause a large proportion of the outages experienced by any overhead electric system. They also cause intermittent and recurring outages, observed as blinking and brown outs (voltage sags,) which decreases customer satisfaction. Accordingly, it is incumbent upon the cooperative to maintain cleared rights-of-way to maintain reliability and customer satisfaction, in addition to any wildland fire prevention benefits. That Mt. Wheeler Power has been successful in maintaining cleared rights-of-way is evidenced by the year-after-year high reliability and customer satisfaction.

Mt. Wheeler Power has followed the RUS standards for powerline construction and operation. These standards were developed by the RUS/USDA staff and have applied to REA/RUS cooperatives since the original Rural Electrification Act of 1935 and are evaluated and updated regularly and are listed in the CFR. See 7 CFR Part 1728, "RUS Bulletin 1828F-804, Section M: Specifications for Right-of-Way Clearing for overhead distribution lines." Also see 7CFR 1728, "RUS Bulletin 1828F-810 & 811" for similar transmission line ROW clearing standards. See Appendix D of this document for the text and drawings of both the overhead distribution line and the transmission line vegetation management standards. Also, see REA Bulletin 161-17 for prescribed vegetation control practices for right-of-way maintenance.

To assure continuously cleared rights-of-way Mt. Wheeler Power contracts with a certified tree trimming contractor who follows a three year cycle trimming near the overhead lines to ensure that all trees are the prescribed distance away from the powerlines (see prescribed distances detailed in Appendix D.) Additionally, if any of the cooperative line or ROW inspectors, or any member of the public, observe that a segment of powerline has encroaching trees, a service order is created and a corresponding work order is issued to the tree trimming contractor in addition to their normal trimming cycle. Vegetation management is a permanent and ever-expanding part of every annual budget.

In addition to regular tree trimming ROW clearing is completed annually by a licensed, qualified, contractor. Mt. Wheeler Power sends out individual linemen to each line fuse pole in known high-risk/dried grass locations (see the red dots on the Fire Risk maps in Appendix B) to clear out the brush or any other potential fire hazard manually. (Note: this does not include transformer fuses on overhead lines, which are very small and are of a different characteristic, which expels significantly less hot gas, and therefore is much less likely to be involved in any wildland fire events.) This specific and targeted round of clearing is performed each year during low fire risk segments of the year. Weather and precipitation will determine growth of fuel sources, potential issues, and accessibility.

Methods the cooperative uses to clear ROW are smash & dash brush, cut and remove trees, chemical usage where appropriate, dozer to maintain tree free and ROW road access.

Cooperative-owned properties that need to be completely clear of all vegetation, specifically substations and material yards, are sprayed annually on a pre-scheduled basis by a licensed, qualified employee. The regular, annual application of herbicides on these areas meant to stay clear of all vegetation ensures that they indeed stay free of any combustible vegetable material.

Furthermore, Mt. Wheeler Power follows the REA/RUS Construction Standards as detailed in RUS bulletins and codified in the CFR. These design and construction standards are regularly reviewed and updated by RUS and/or their consultants and have as a fundamental design criteria public safety and fire prevention. By following the RUS design and construction standards, as well as a regular on-going line replacement program, Mt. Wheeler Power has created an electrical system that is reliable, and safe, as evidenced by a more than three year record of no lost time accidents and a very low Workers' Compensation Fund (WCF) experience modifier (e-mod) rate.

(d) Description of proposed modifications or upgrades to facilities and preventative programs that the electric cooperative will implement to reduce the risk of its electric facilities initiating a wildland fire.

Mt. Wheeler Power has been working to rebuild and improve the OH distribution lines throughout Snake Valley, where the majority of Mt. Wheeler Power's OH distribution lines are found, at the rate of at least five miles per year—as they have the past ten years, and will continue this practice each year into the future within budgetary limitations. In these rebuild/upgrade projects, new crossarms and insulators, with shorter spans between poles (reducing from greater than 500 foot spans to less than 400 foot spans,) and new, larger, more sturdy conductor (replacing old 8A-CWC and #6 copper with new 1/0 AWG ACSR,) all of which should combine to make each new segment not only more reliable, but also much less likely to fail in extreme weather events, which should directly increase public safety and reduce the potential to start wildfires in those areas.

(e) Description of procedures for de-energizing power lines and disabling reclosers to mitigate potential wildland fires, taking into consideration:

(i) the ability of the electric cooperative to reasonably access the proposed power line to be de-energized;

(ii) the balance of the risk of wildland fire with the need for continued supply of electricity to a community; and

(iii) any potential impact to public safety, first responders, and health and communication infrastructure;

Mt. Wheeler Power considered putting all distribution reclosers 35kv and below on non-reclose settings to ensure that the power would go off and stay off in the case of any short circuit during the hot, dry summer months. However, due to the radial nature inherent in the rural distribution lines of rural electric cooperative service territories, that action would put whole communities out of service for prolonged periods of time, which would inevitably lead to deaths in those communities of individuals who rely on electrical service for medical devices and air conditioning in the summer, as witnessed graphically in the summer outages in California in 2019. Industry experience has been that 70- 80% of all faults are temporary in nature (see: Cooper Power System's "Electrical Distribution System Protection" 2005 edition, page7,) and that electrical service could be restored within seconds of interrupting the arc, which is the normal practice of almost all power companies in the United States. Transmission circuit breakers 35kv and above have a common operating procedure to be on non-reclose.

Thanks in large part to the engineering practice of properly setting the recloser functions as part of a greater sectionalizing coordination scheme, as well as the vegetation management, and the design, construction, maintenance, and inspection practices described in the preceding sections, Mt. Wheeler Power members have enjoyed above average reliability for over fifty years, on which they have rightfully come to rely and expect.

(f) Description of the procedures the electric cooperative intends to use to restore its electrical system in the event of a wildland fire.

During any outage during the "dry months" of June through September (or the monsoon season, which often starts in July) operations crews will not replace and re-energize blown fuses until they have driven the line downstream from the fuse to ensure that there are no conductors on the ground or among any dry vegetation and thus avoid starting a wildland fire. Also, after any line recloser locks out, the line crew will try the recloser only once before driving the length of the circuit for the same reasons.

If a wildfire were to destroy a segment of Mt. Wheeler Power's lines, Mt. Wheeler Power crews would await clearance from the fire incident commander. When clearance is given the crews would immediately start reconstructing the damaged lines, upgrading the line as necessary. See: "RUS Bulletin 1730B-2 Guide for Electric System Emergency Restoration Plan." Mt. Wheeler Power maintains a crew of linemen on-call 24/7 and can call in as many additional linemen as needed in an emergency. Currently Mt. Wheeler Power employs 15 linemen and an engineering staff of four and can respond to an emergency with the personnel required.

(g) Description of potential consultation, if applicable, with state or local wildland fire protection plans.

In preparation and compilation of this Wildland Fire Prevention Plan, Mt. Wheeler Power has consulted with and taken input from all the individuals, documents, and resources in the following table:

UT Division of Forestry and State Lands	Jason Torgerson, Central Area Manager	435-201-7601, jtorgerson@utah.gov	
UT Dept of Natural Resources	Tom Thompson, GIS/IT Manager	385-315-9410	
	Interface Coordinator		
Utah DNR	Wildfire Risk Assessment Portal	https://wildfirerisk.utah.gov/Map/Public/#map-themes	
UT Division of Forestry, Fire and State Lands	Justin Johnson, Senior GIS Analyst	801-834-1577 Jjohnson2@utah.gov	
		PO Box 145703 Salt Lake City UT 84114-5703	
Federated Rural Electric Insurance Exchange, "Federated"	Phil Irwin, President & CEO	Conference Call	4/23/2020
	Corey Parr, VP of Safety and Loss Prevention		
	Mike Mattix, VP Reinsurance		

(h) Consider input from:

A. The State Division of Forestry, Fire, and State Lands created in Section 65A-1-4;
B. Any other appropriate federal, state, or local entity that chooses to provide input;
C. Other interested persons who choose to provide input.

(i) Third Party review:

Mt. Wheeler Power board of Directors reviewed and approved the draft document on May 19, 2020.

"By failing to prepare, you're preparing to fail." Benjamin Franklin

Appendix A: Glossary for Mt. Wheeler Power

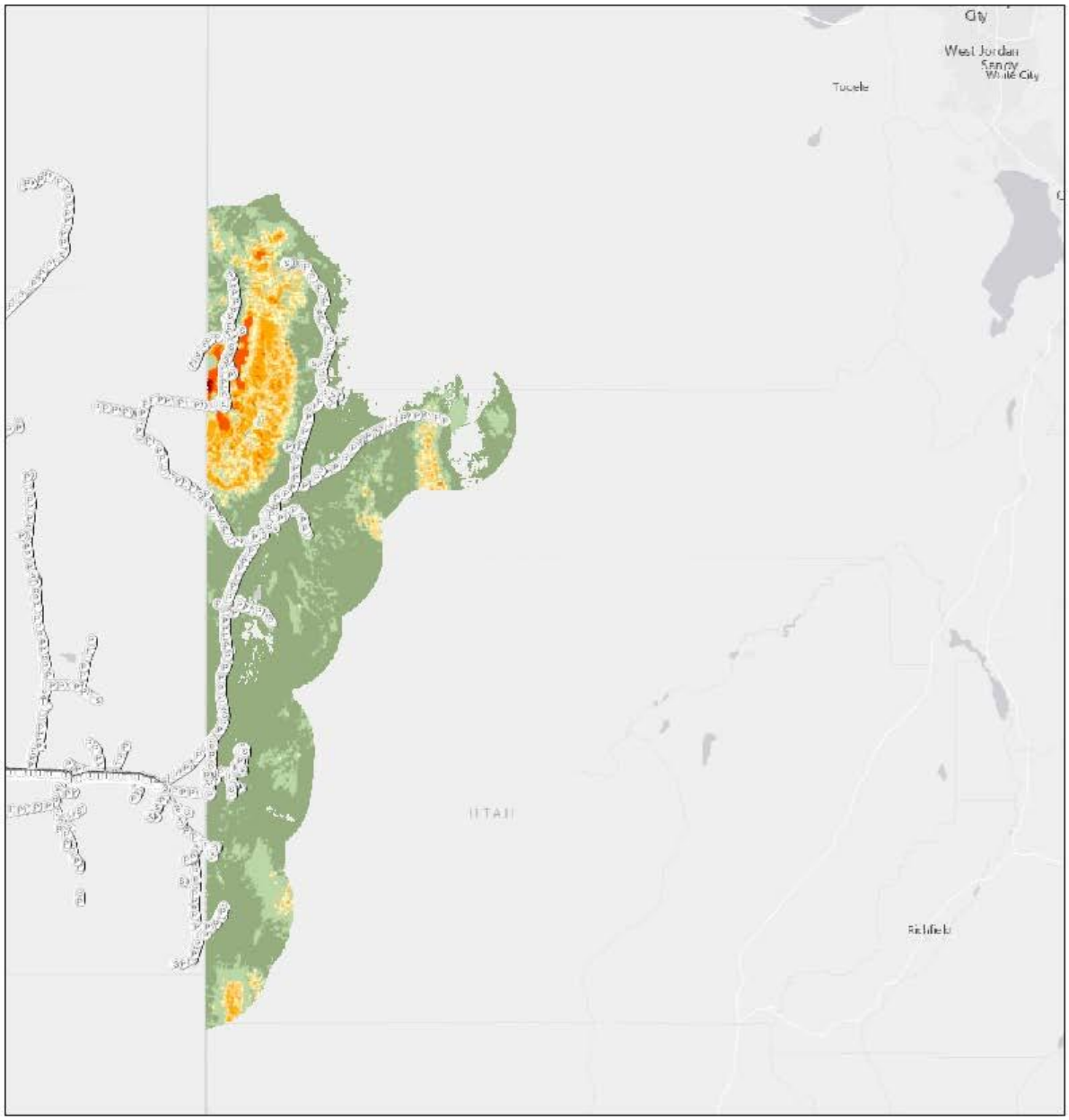
- ACSR: Aluminum Conductor Steel Reinforced, stranded aluminum conductor wound around a steel core, also typically stranded. The aluminum strands provide conductivity and the steel strands provide strength.
- Board of Directors: the official Governing Authority of the cooperative, elected by the membership of the cooperative to protect the interests of the members and recognized by the State of Utah and Public Service Commission.
- E-mod: Experience Modification Factor (E-Mod) is a premium modifier that reflects the loss experience of a policyholder compared with payroll exposure during the same time period. The modifier increases or decreases the current premium depending on how the actual exposure and losses, for the past three years, compares with expected losses for the same amount of exposure.
- Faults: Any time a powerline is shorted out, creating an unintentional path to ground for electrical current. The magnitude of current in faults is typically many times that of the load current.
- Federated Insurance, Federated Rural Electric Insurance Exchange: a non-profit cooperatively owned liability insurance provider that only insures rural electric cooperatives, and so understands the specific needs of this sector of the electric utility industry. Federated provides annual courtesy inspection for cooperatives to help ensure that everyone stays within prudent utility practices.
- IEEE: The Institute of Electrical and Electronics Engineers (IEEE) is a professional association for electrical engineering and has created industry accepted global standards for over a century with technical expertise and consensus of industry experts from all over the world.
- MCM: Thousands (M) of Circular Mils, measurement of diameter of conductor where one mil is one one-thousandth of an inch. Used in conductor sizes for wires larger than those described in the American Wire Gauge (AWG.)
- NRECA: The National Rural Electric Cooperative Association is the organization the represents the interests of the over 900 independent non-profit member-owned electric cooperatives in the United States. NRECA provides training, group insurance and retirement benefits, as well as technical advice.
- Overhead (OH) Distribution Lines: Bare metal power wires (typically ACSR in new lines) suspended in air via poles, crossarms, and insulators. OH distribution lines are favored in rural areas because they are significantly less expensive to build, operate, and maintain. Distribution voltages for Mt. Wheeler Power are mostly 12.47kV with some 34.5kV and extend from substations to the services at homes, farms, and businesses.
- Rural Electrification Administration (REA): Predecessor to the RUS, the REA is a Federal Agency, under the USDA, that was created in 1935 to provide funding, regulations, and oversight for the one thousand rural electric cooperatives that serve 80% of the land mass in the United States.
- Substations: Fenced areas of approximately one acre that contain devices to change voltage from transmission levels to distribution levels, as well as regulate the voltage on the distribution lines and interrupt the flow of current on distribution lines in the case of faults. The ground in substations are sterilized and covered in clean, dry gravel.
- Three-phase: abbreviated 3Φ, typically when electrical current is carried over three separate conductors, all supported on the same pole and cross-arm.
- Transmission Lines: Bare metal power wires suspended in air via poles, crossarms, and insulators. Transmission lines carry power from the source of generation to the substations. Transmission voltages at Mt. Wheeler Power are 34.5kV, 69kV, and 69kV. Transmission lines are necessarily overhead due to the level of insulation required for the higher voltages associated with

transmission in order to cover longer distances.

- Underground (UG) Distribution Lines: Power wires covered in insulation and buried in the ground, typically inside conduit. UG distribution lines are significantly (five times) more expensive to build, operate, and maintain, and so are typically only used in urban or suburban area which tend to be more congested and concerned about the visual impacts from OH lines. Distribution voltages for Mt. Wheeler Power are 4kV, 25kV, with some 34.5kV and extend from substations to the services at homes, farms, and businesses.

Appendix B: Maps of Mt. Wheeler Powerlines relative to Fire Threat Index Areas

ArcGIS Web Map



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1:1,155,581

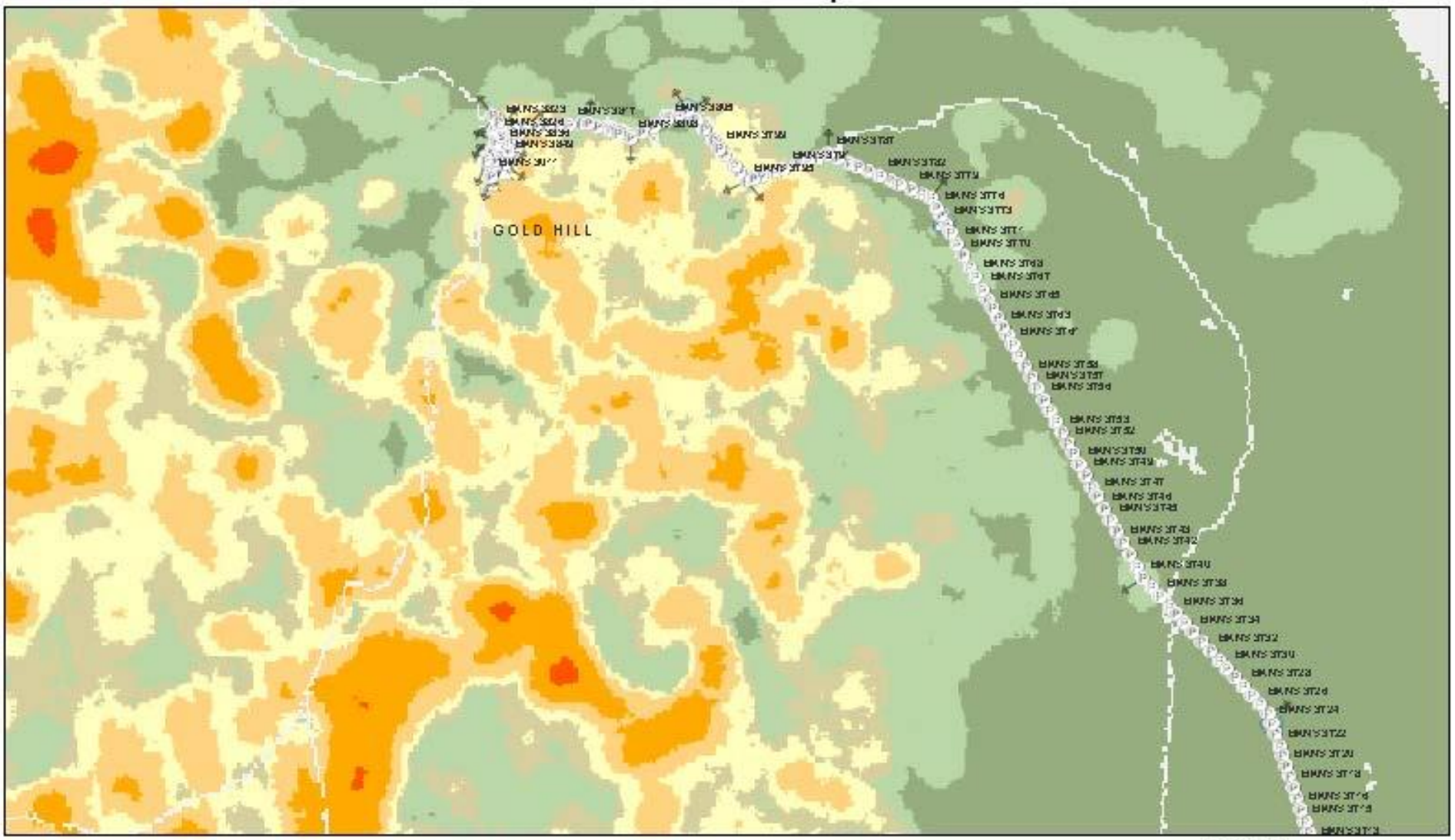
0 10 20 40 mi

0 15 30 60 km

Pole

- GuyPole
- LightPole
- MeterPole
- PrimaryPole
- SecondaryPole

ArcGIS Web Map



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DownGuy

SecondaryPole

Primary Line

Pole

Primary Equipment

C

MeterPole

Fuse

Transformer-Type

PrimaryPole

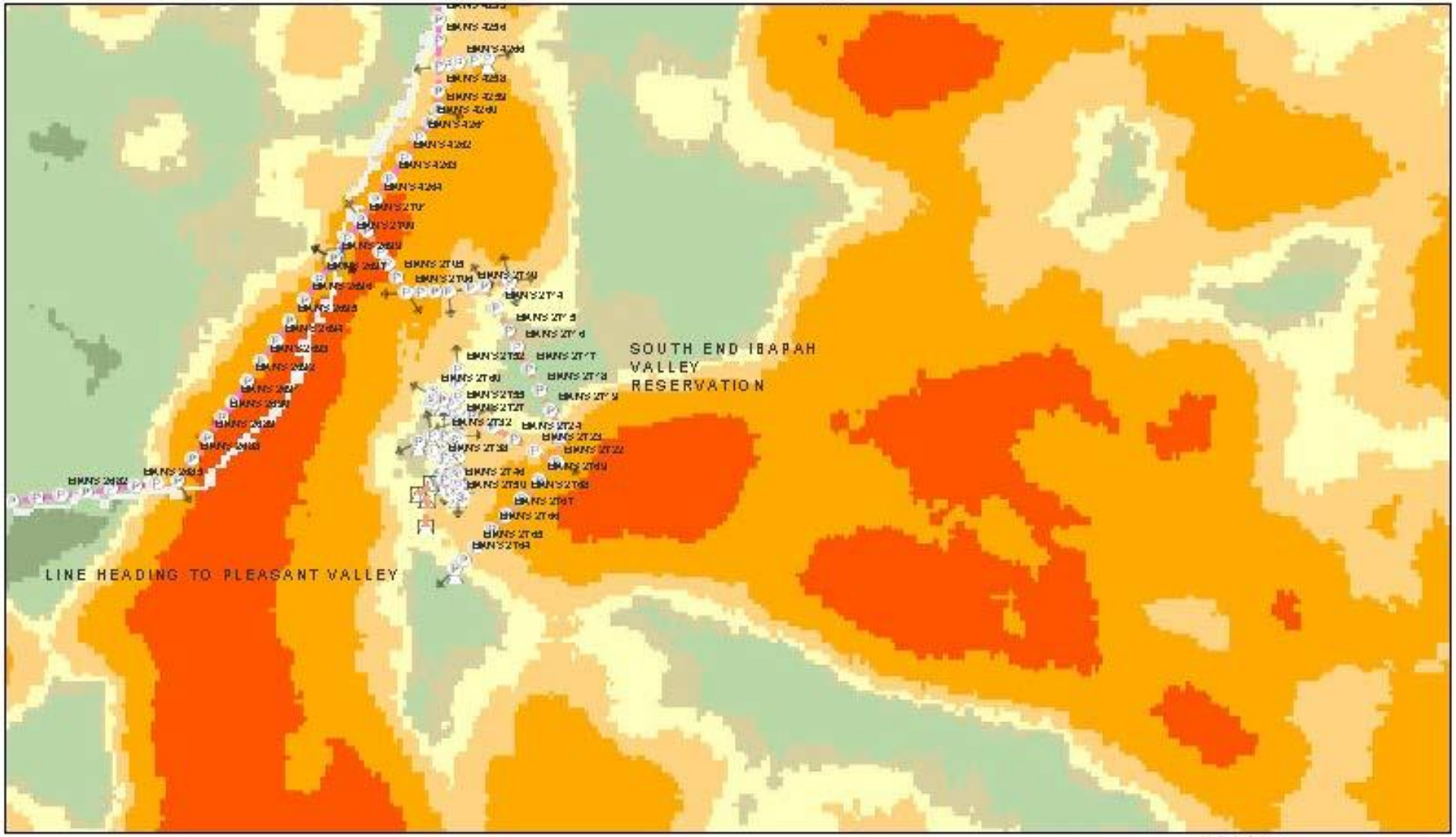
OH

1:72,224

0 0.47 0.95 1.9 mi

0 0.75 1.5 3 km

ArcGIS Web Map



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Pole
- DownGuy
- LightPole
- MeterPole
- PrimaryPole
- SecondaryPole

Primary Equipment
- Fuse
- Regulator

Primary Line
- ABC
- B
- BTCA
- C

UG Equipment
- Pad

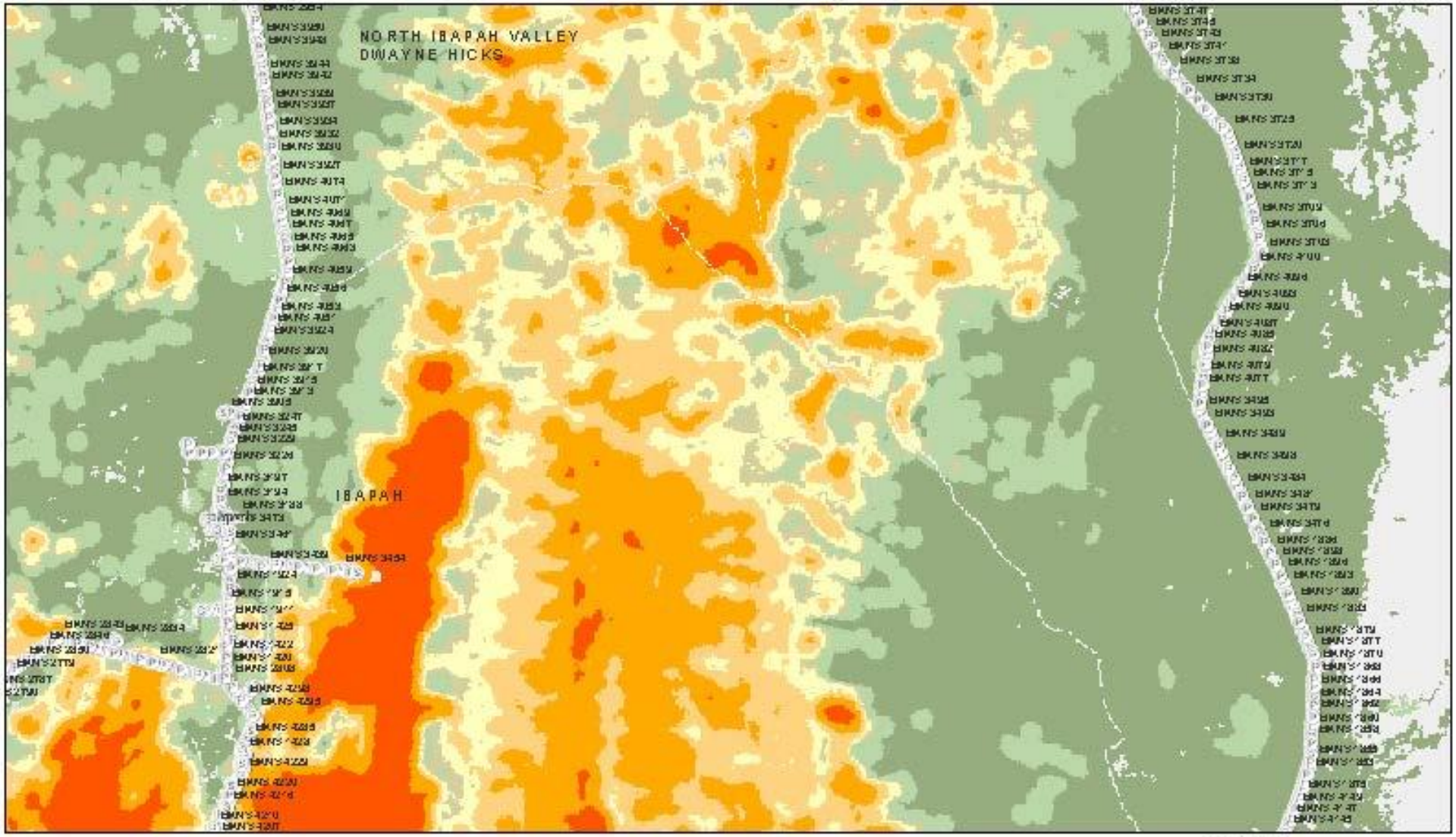
Transformer-Type
- OH
- PAD

1:36,112

0 0.23 0.45 0.9 mi

0 0.38 0.75 1.5 km

ArcGIS Web Map



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Pole

MeterPole

SecondaryPole

LightPole

PrimaryPole

1:144,448

0 0.75 1.5 3 mi

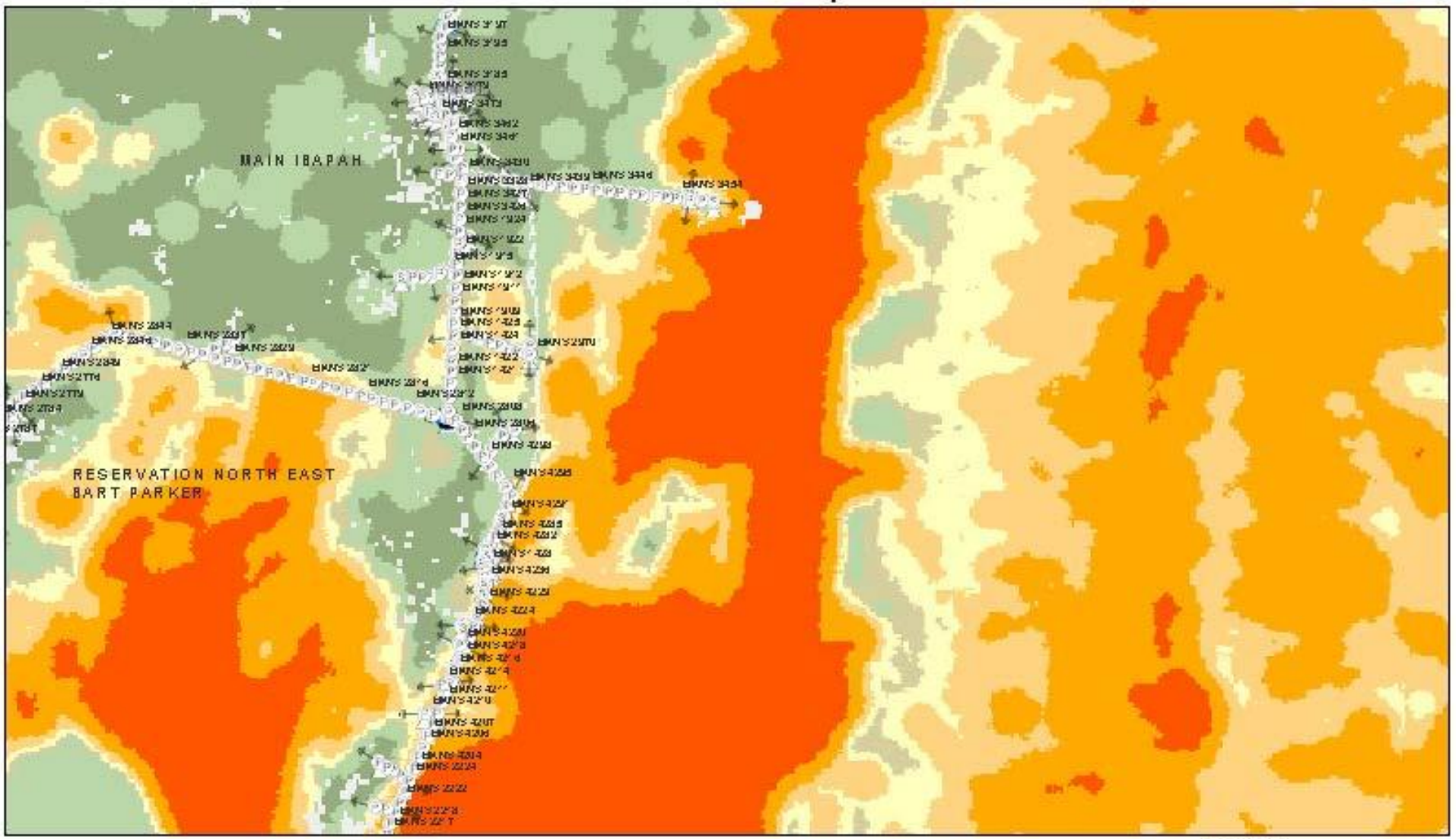
0 1.5 3 6 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Web AppBuilder for ArcGIS

Esri, HERE, NPS | Esri, HERE, NPS |

ArcGIS Web Map



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DownGuy

Pole

LightPole

MeterPole

PrimaryPole

SecondaryPole

Primary Equipment

Fuse

Recloser

Primary Line

C

A

ABC

B

Transformer-Type

OH

1:72,224

0 0.47 0.95 1.9 mi

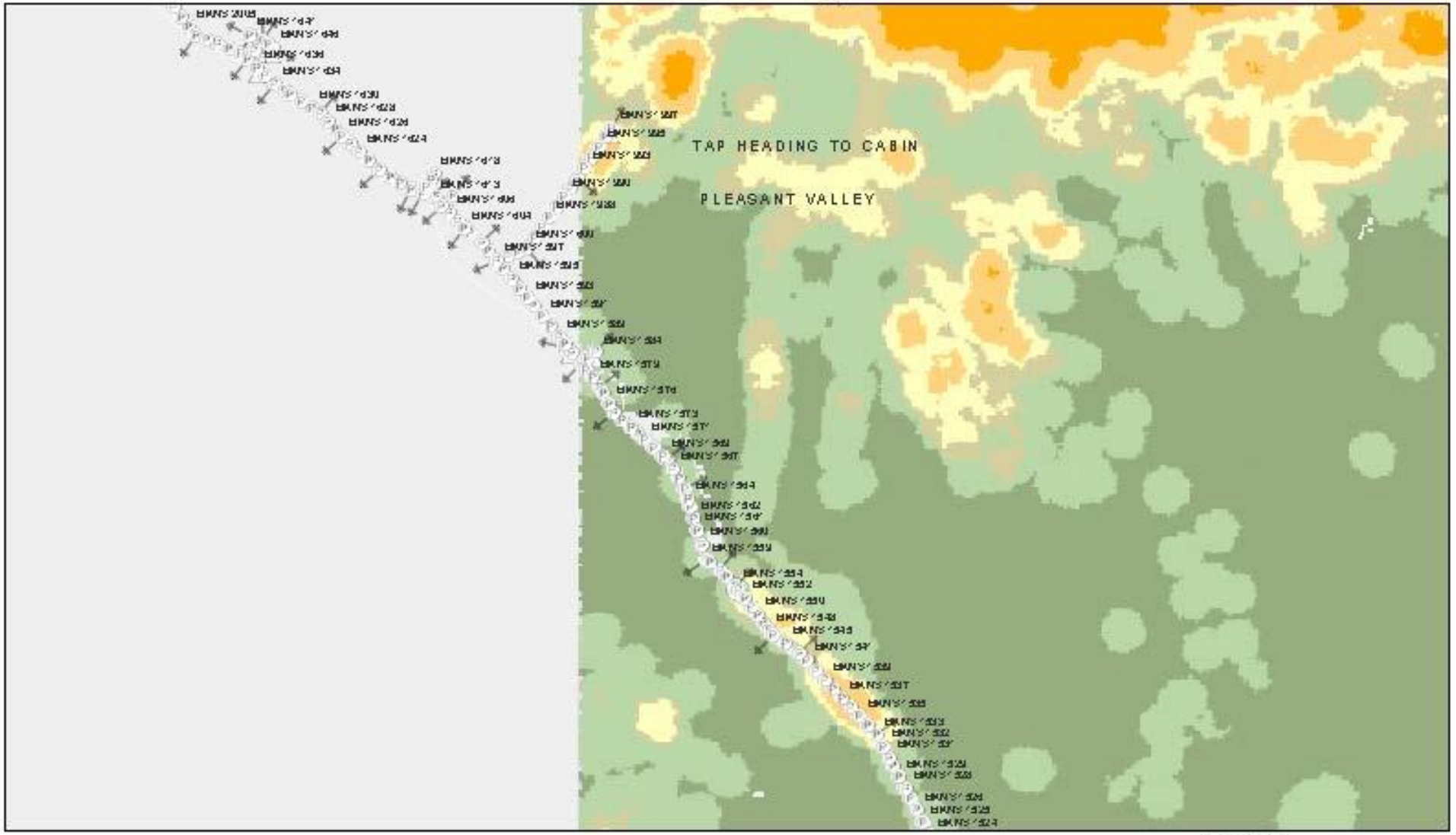
0 0.75 1.5 3 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Web AppBuilder for ArcGIS

Esri, HERE | Esri, HERE |

ArcGIS Web Map



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DownGuy

Pole

GuyPole

MeterPole

PrimaryPole

SecondaryPole

Primary Equipment

Fuse

Primary Line

C

ABC

BTAC

Transformer-Type

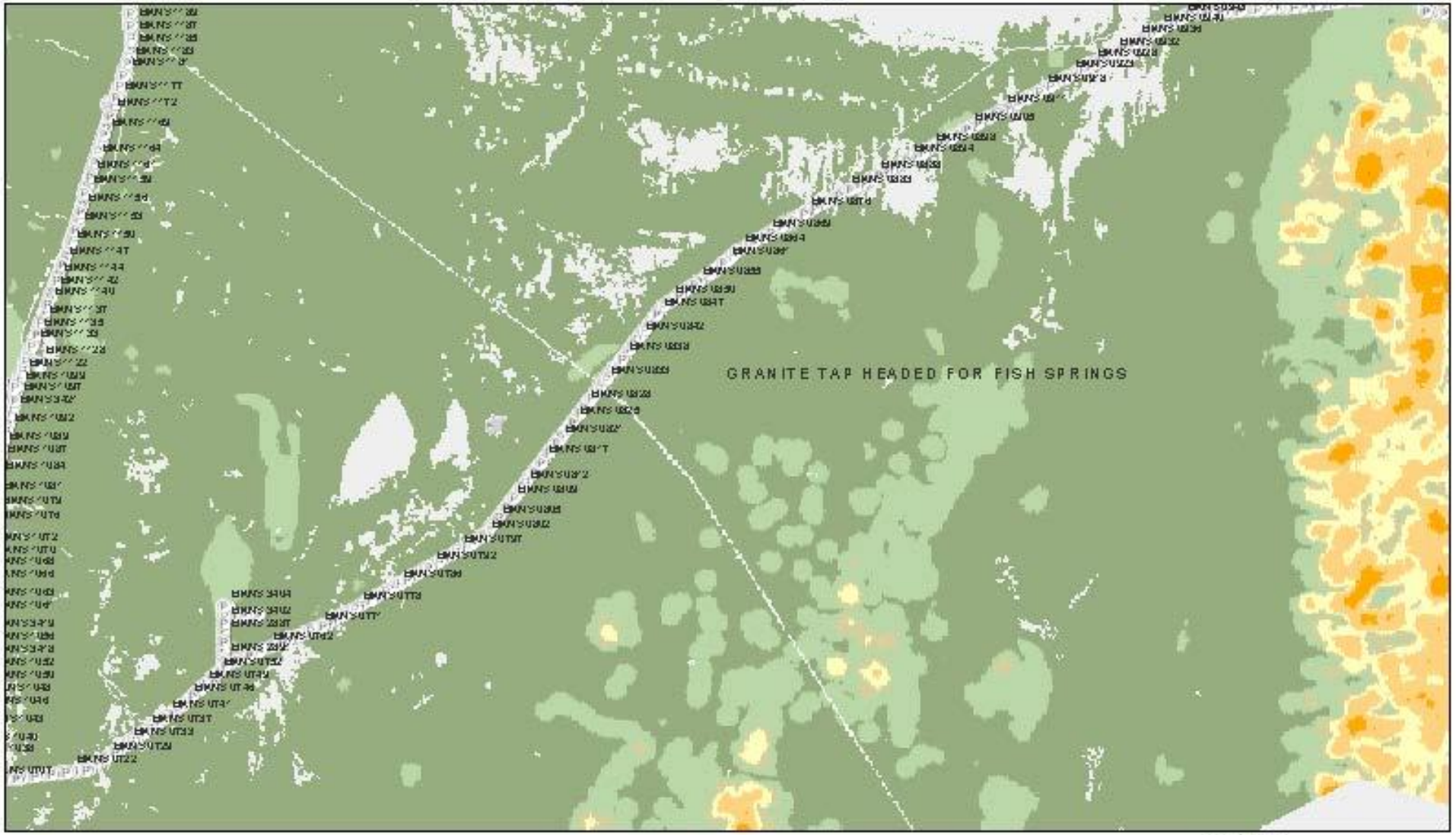
OH

1:72,224

0 0.47 0.95 1.9 mi

0 0.75 1.5 3 km

ArcGIS Web Map



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Pole

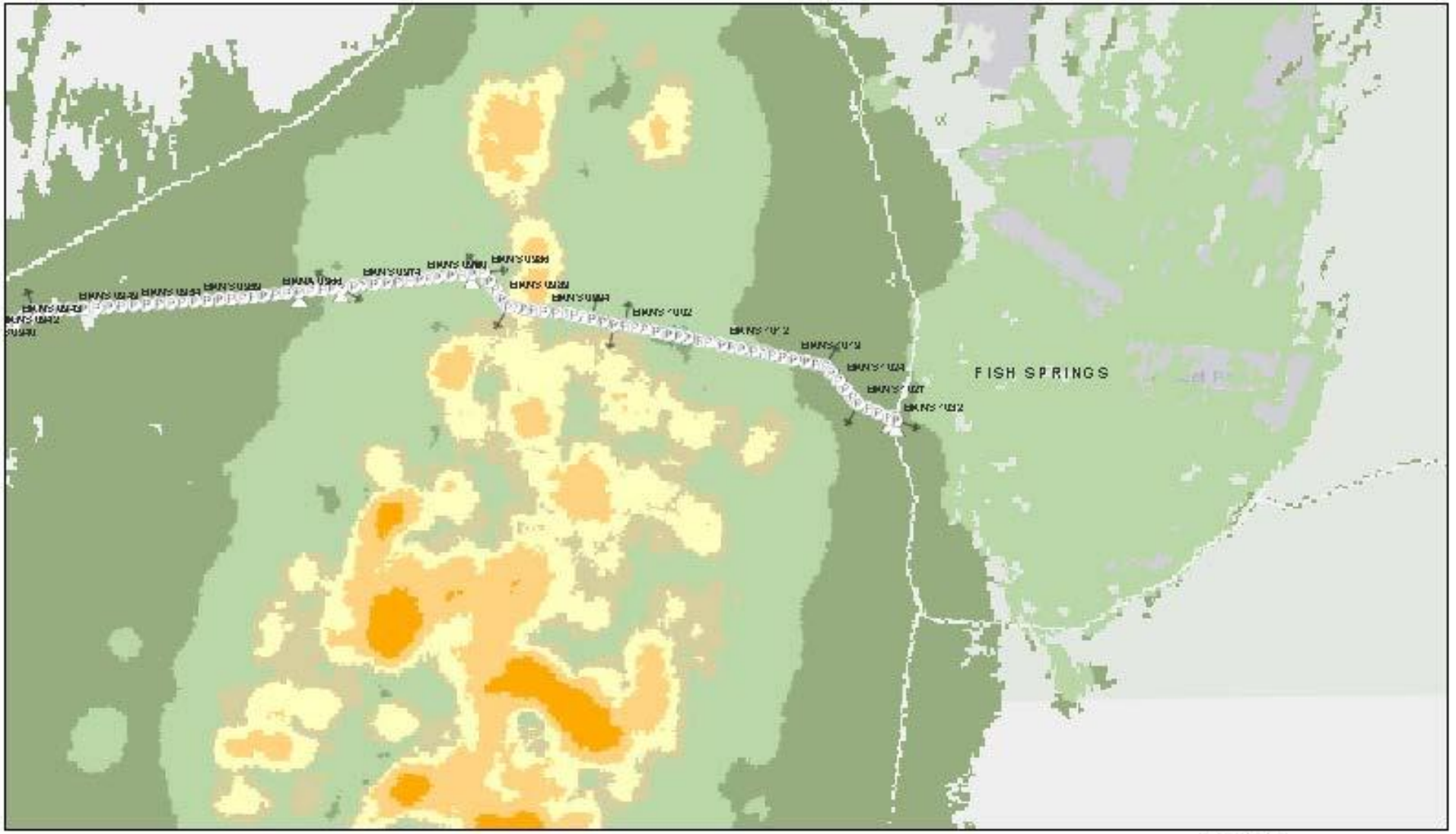
- MeterPole
- PrimaryPole

1:144,448

0 0.75 1.5 3 mi

0 1.5 3 6 km

ArcGIS Web Map



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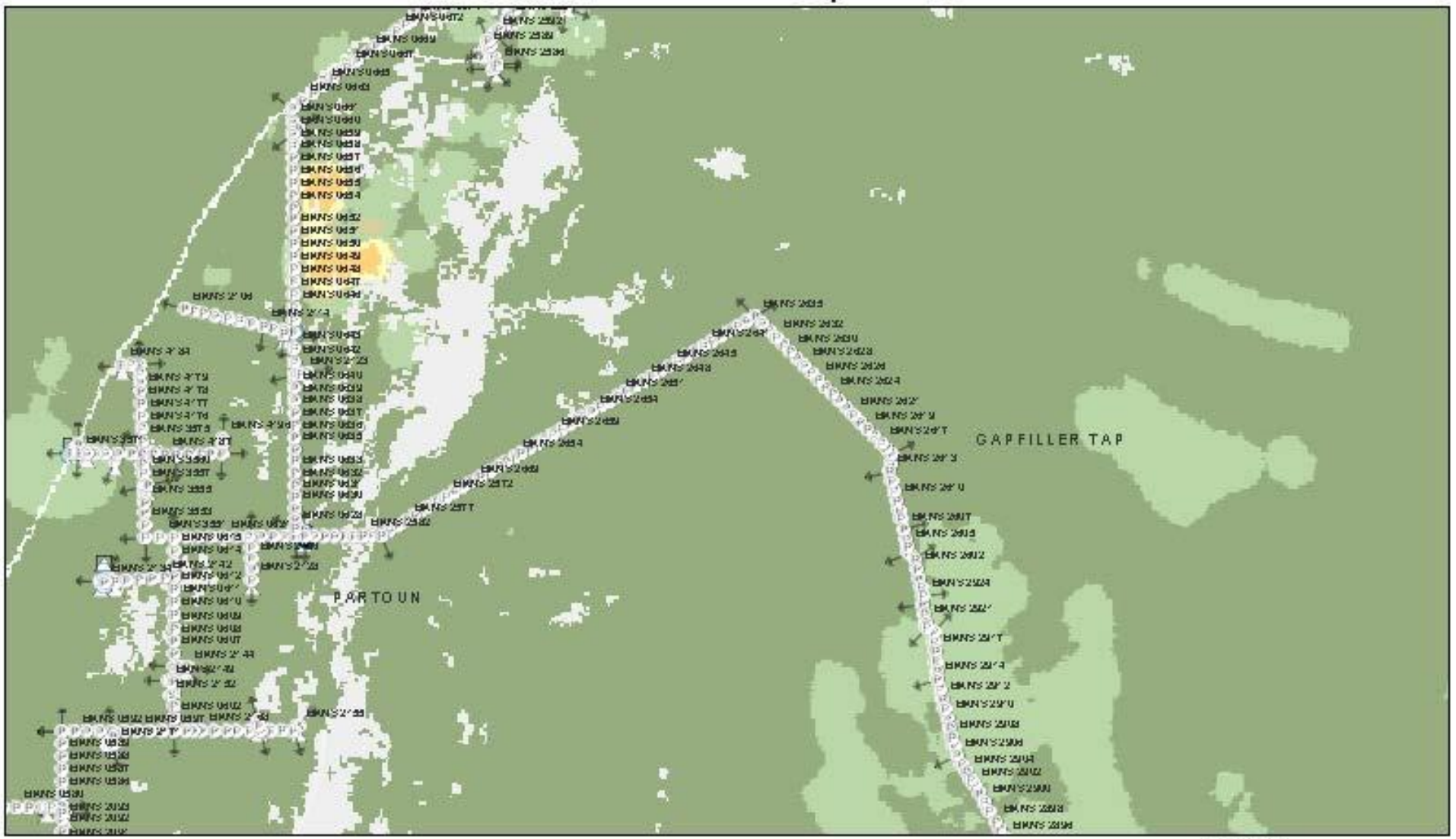
DownGuy
PrimaryPole
Primary Line
Transformer-Type
Pole
Primary Equipment
B
OH
MeterPole
Fuse

1:72,224

0 0.47 0.95 1.9 mi

0 0.75 1.5 3 km

ArcGIS Web Map



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DownGuy
Pole
GuyPole
LightPole
MeterPole
PrimaryPole
SecondaryPole

Primary Equipment
Fuse
Recloser

Primary Line
A
ABC
BTAC

BTCA
C
CBA

UG Equipment
Handhole
Pad

Transformer-Type
OH
PAD

1:72,224

0 0.47 0.95 1.9 mi

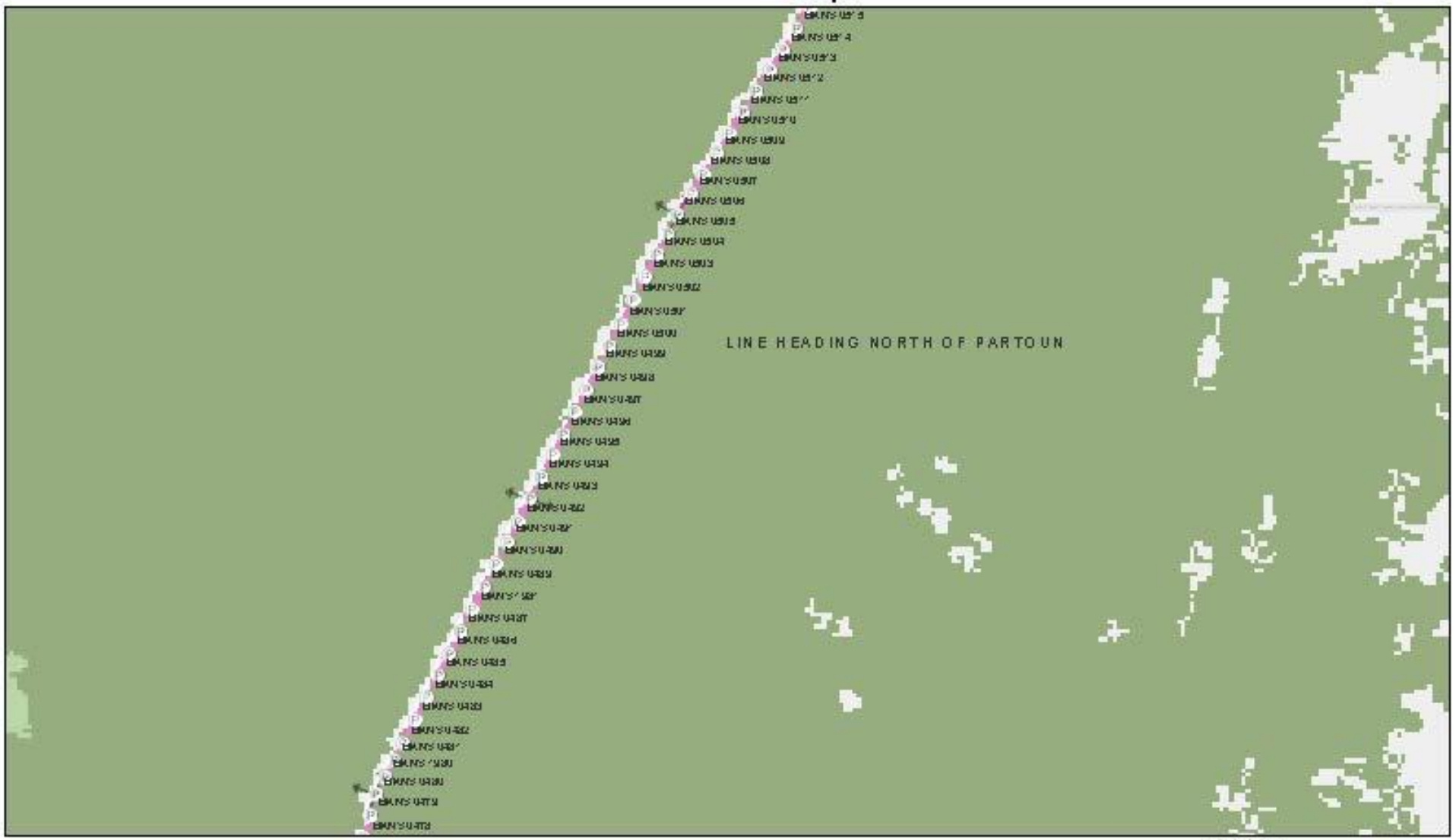
0 0.75 1.5 3 km

Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Web AppBuilder for ArcGIS

Esri, HERE | Esri, HERE |

ArcGIS Web Map



5/13/2020, 5:09:39 PM

DownGuy Pole

PrimaryPole

Primary Line

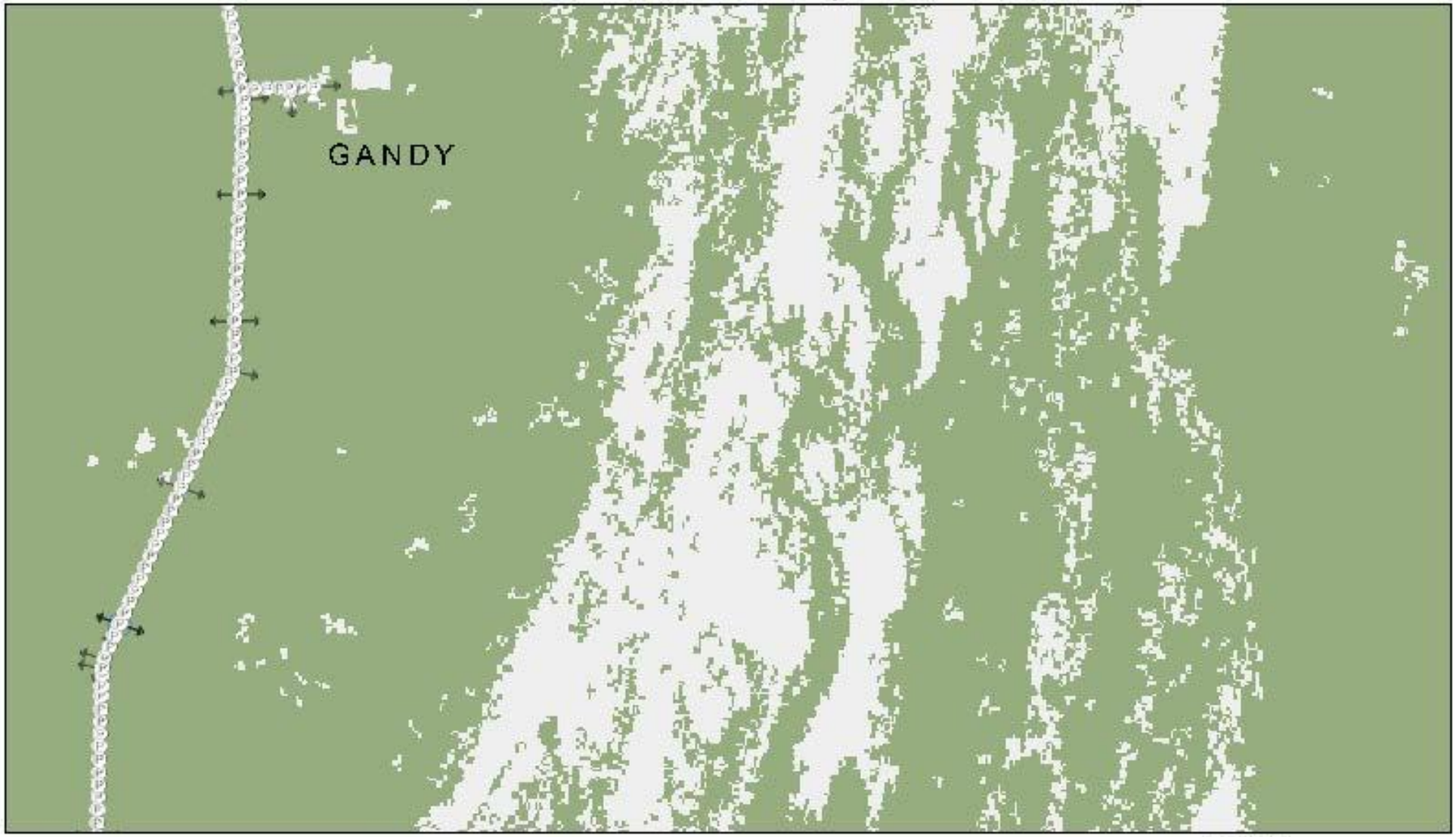
ABC

1:36,112

0 0.23 0.45 0.9 mi

0 0.38 0.75 1.5 km

ArcGIS Web Map



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DownGuy

MeterPole

Primary Equipment

Primary Line

Transformer-Type

Pole

PrimaryPole

Fuse

ABC

OH

GuyPole

Regulator

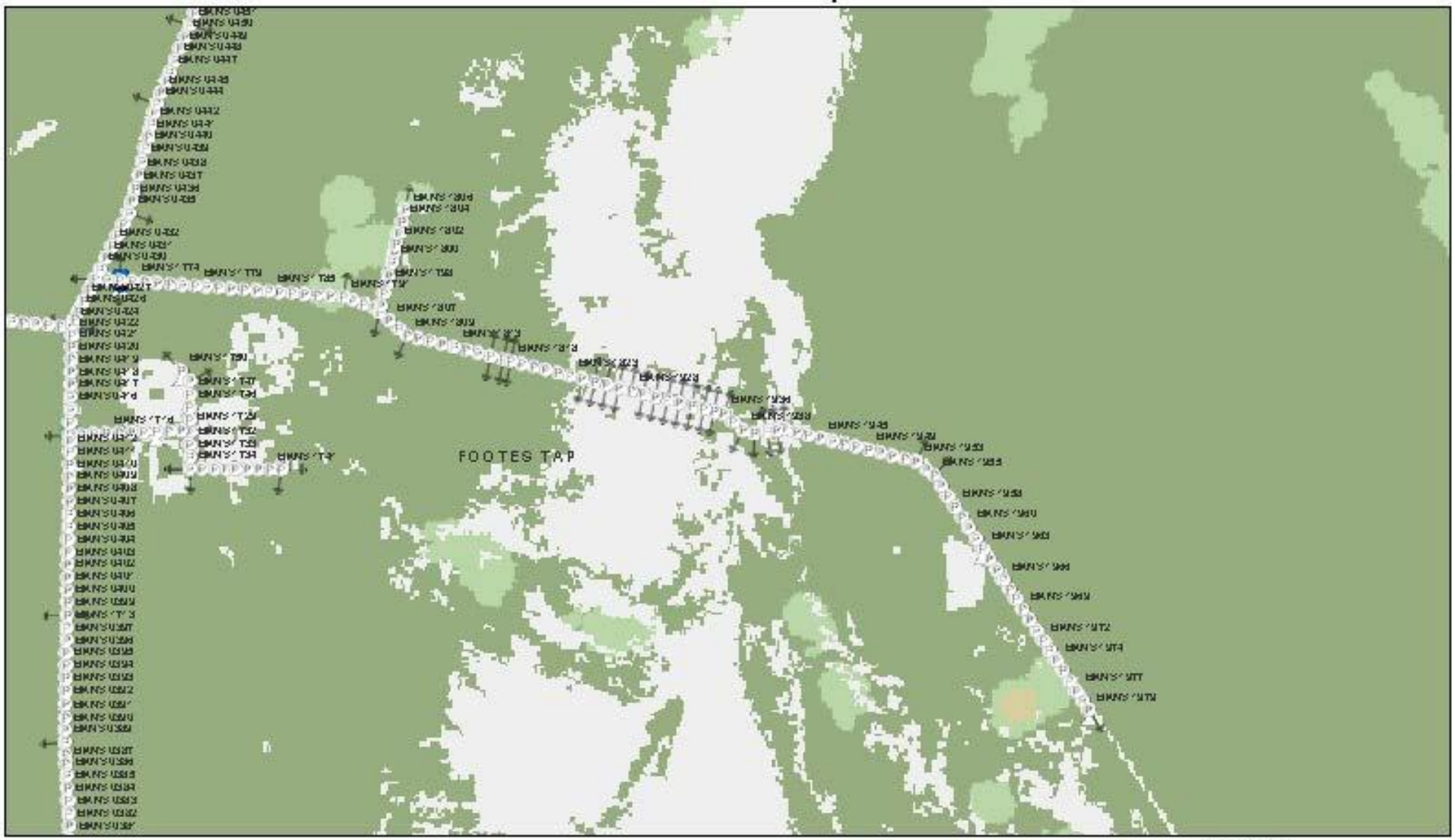
C

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

ArcGIS Web Map



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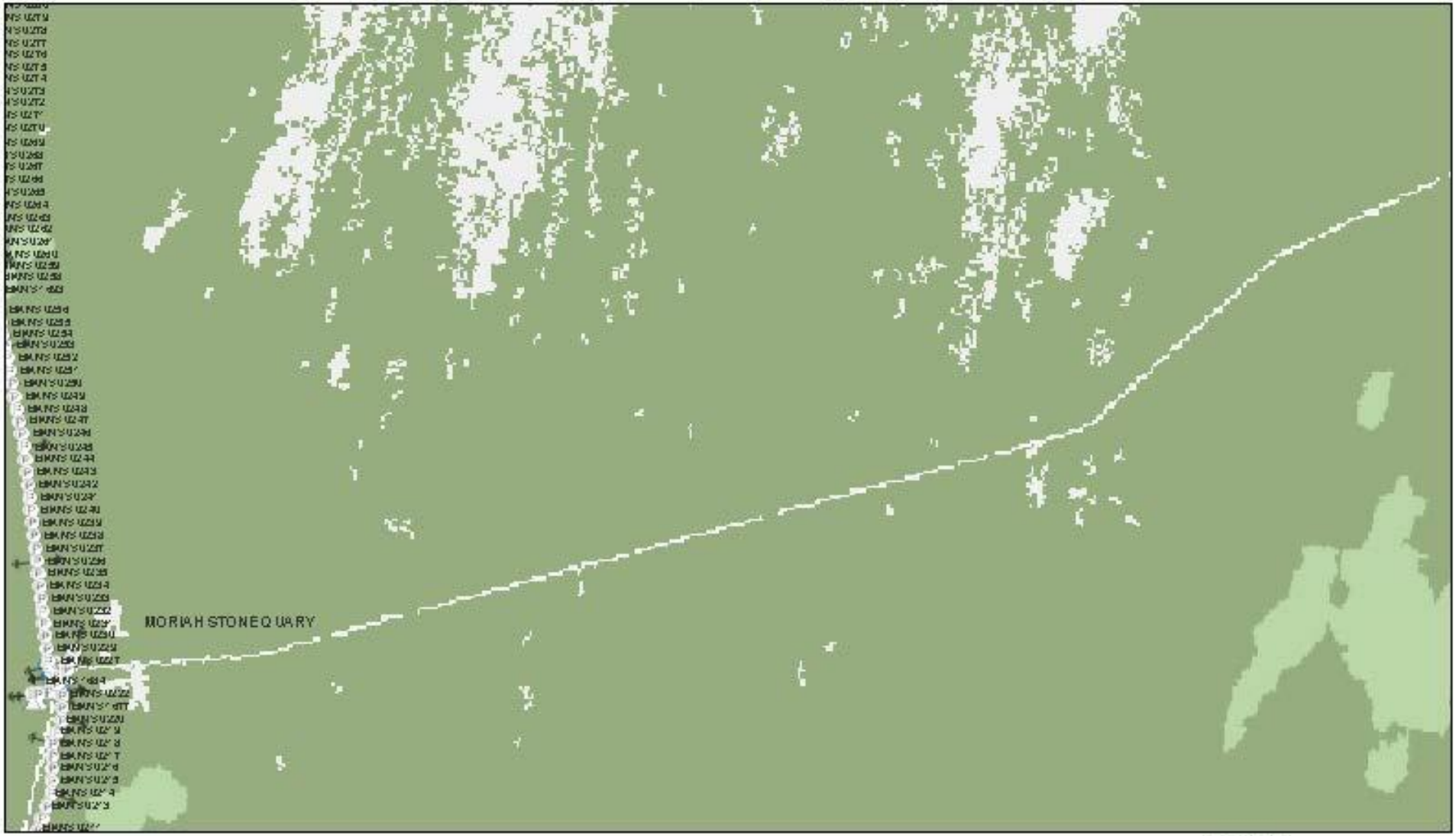
DownGuy
PrimaryPole
Recloser
ABC
CBA
Pole
Primary Equipment
Primary Line
BTAC
Transformer-Type
MeterPole
Fuse
A
BTCA
OH

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

ArcGIS Web Map



5/13/2020, 5:13:27 PM

DownGuy

PrimaryPole

SecondaryPole

Pole

MeterPole

Primary Equipment

Fuse

Primary Line

A

ABC

B

C

Transformer-Type

OH

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

ArcGIS Web Map

5/13/2020, 5:14:35 PM

DownGuy
PrimaryPole
SecondaryPole
GuyPole
MeterPole
Fuse

Primary Line
A
ABC
B
BTAC
BTCA
C
CBA

UG Equipment
Handhole
Meter Pedestal
Modules

Pad
Vault
PAD
OH

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

ArcGIS Web Map

5/13/2020, 5:15:43 PM

DownGuy
Pole
GuyPole
MeterPole
PrimaryPole
SecondaryPole
Primary Equipment
Fuse
Recloser
Switch
Primary Line
A
ABC
B
BTAC
BTCA
C
CBA
UG Equipment
Handhole
Meter Pedestal
Modules
Pad
Vault
Transformer-Type
OH
PAD

1:72,224

0 0.5 1 2 mi

0 0.75 1.5 3 km

ArcGIS Web Map

5/13/2020, 5:18:34 PM

DownGuy

Pole

GuyPole

MeterPole

PrimaryPole

SecondaryPole

Primary Equipment

Fuse

Primary Line

A

ABC

B

BTAC

BTCA

C

CBA

LIG Equipment

Pad

Transformer-Type

OH

PAD

1:36,112

0 0.23 0.45 0.9 mi

0 0.38 0.75 1.5 km

ArcGIS Web Map

5/13/2020, 5:19:42 PM

DownGuy
PrimaryPole
Pole
MeterPole
Primary Line
ABC
B
BTCA
A
UG Equipment
Meter Pedestal
Transformer-Type
OH

1:36,112
0 0.23 0.45 0.9 mi
0 0.38 0.75 1.5 km

Section 17: Overhead & Underground Lines, Equipment, etc.

1) Overhead and underground system circuit maps or files will be available and will be updated monthly.

Criteria:

- Procedures are being developed for conveying system circuit changes to crews.
- System circuit maps or files are being developed.
- Sufficient supplies of system circuit maps or pertinent sections will be available for crews in case of emergency.
- All electronic mapping information will be updated as required. ref: NESC Section 442 Switching Control Procedures

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

2) Guy wires observed are in tension, and guys are marked for visibility.
ref: RUS BULLETIN 1724E-153 / NESC 217C

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

3) Observed construction and maintenance of lines and structures meet the applicable NESC standards and RUS specifications.
ref: NESC Section 214(A)(2); NESA Section 22 (Relations between various classes of line and equipment); NESC Section 23 (Clearances); RUS BULLETIN 1728F-804 / Bulletin 50-6

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

4) Right-of-ways observed are maintained and in good condition.
ref: NESC Section 218-A-1 (Vegetation Management)

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

5) UG riser installations observed meet applicable NESC, RUS specifications, and the following industry criteria.

Criteria:

- Cables are identified and tagged to correspond with the system's underground tagging and cable identification system.
- Riser installations are numbered or identified and consistent with the overall underground system.
- Riser installations have proper clearances and proper climbing space.

ref: NESC Section 36 (Risers); RUS Bulletin 50-6

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

6) UG transformers and enclosures are properly bolted and locked.
ref: NESC Section 381(G)(1)

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

7) Appropriate hazard identification signs are in place for underground transformers, cabinets, and enclosures.

Criteria:

- Permanent WARNING signs are displayed on outside of underground transformers and enclosures.
- Permanent DANGER signs are on the inside of underground transformers and enclosures.

ref: ANSI Z535 NESC 381(G)(2)

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

8) UG enclosures are marked with labels and cables and are labeled with suitable identification methods and/or durable tags to confirm the correct enclosure, to identify cables, to distinguish phases, etc., for utility worker safety during normal operation and troubleshooting activities.

Criteria:

- The identification information should match the same information shown on system maps.
- The identification method used should be durable and suitable for outside weather conditions.

ref: NESC Section 372 (Identification)

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

9) Underground facilities construction, maintenance, and clearances meet applicable NESC and RUS specifications.

Criteria:

- Enclosures are level and free of washouts, weeds, debris, and wildlife.
- Entrances to enclosures are unobstructed.

ref: NESC Section 311 (Installation and Maintenance); NESC Section 313(A)(2)

( ) Exceeds Requirements

( ) Satisfies All Requirements

( ) Partially Satisfies Requirements

( ) Fails to Satisfy Requirements

( ) N/A

Comments:

Section 17: Summary

The overall evaluation of the onsite field observation team for this section of the assessment is as follows:

Criteria

- Strong performance - Questions evaluated as exceeds or satisfies all requirements.
- Satisfactory performance - Questions evaluated as satisfies all requirements, could be a small number evaluated as exceeds.
- Generally satisfactory with minor areas for improvement - Questions evaluated as satisfies all or most requirements, improvement areas are minor.
- Key attention areas for improvement - Questions evaluated as partially satisfies or fails to satisfy requirements in important improvement areas.

( ) Strong Performance

( ) Satisfactory Performance

( ) Generally Satisfactory

( ) Key Attention Areas for Improvement

( ) N/A

Comments:

Appendix D: Right of Way and Vegetation Management Standards

7 CFR Part 1728: Bulletin 1728F-804 (overhead distribution line), Section M, Specifications for Right-Of-Way Clearing

The right-of-way shall be prepared by removing trees, clearing underbrush, and trimming trees so that the right-of-way is cleared close to the ground and to the width specified. However, low growing shrubs, which will not interfere with the operation or maintenance of the line, can be left undisturbed if directed by the property owner. Slash may be chipped and blown on the right-of-way if so allowed. Trim, but do not remove shade, fruit, or ornamental trees unless otherwise authorized.

All trimming shall be done using good arboricultural practices.

The landowner's written permission is usually required prior to cutting trees outside of the right-of-way. Trim trees fronting each side of the right-of-way symmetrically unless otherwise specified. Remove dead trees beyond the right-of-way which would strike the line in falling. Also, either remove or top leaning trees beyond the right-of-way that would strike the line in falling.

7 CFR Part 1728: Bulletin 1728F-811, (Transmission Lines) Page 2-1

2. CLEARING

2.1 General Requirements

2.1.1 Clearing units specified may cover full width right-of-way clearing, selective clearing, tree topping, spraying of herbicides, or other forms of right-of-way preparation. Only those areas shown on the drawings or specified by the engineer shall be cleared in accordance with the applicable clearing units. Isolated ("danger") trees to be removed will be marked in the field by the engineer.

2.1.2 Only such vegetation should only be removed as necessary to permit construction, operation, and maintenance of the transmission line. Care must be taken to prevent denuding of ground cover and erosion of the soil.

2.2 Clearing Methods and Equipment

2.2.1 Unless otherwise specified, all timber to be cleared must be felled. The removal of brush must be in a manner so as to reduce the overall impact on the root structure of the ground cover.

2.2.2 Equipment must be in good repair and appropriate for the types of clearing specified.

2.2.3 When specified in the right of-way construction units, stumps left in place must be treated with a heavy application of an appropriate herbicide approved by the engineer. Chemical treatment of stumps must occur as soon as possible after cutting. The chemical application must be sufficient to saturate the entire above ground surface of the stump and cause a small amount to run down the sides and collect at the base to penetrate below the ground line into the roots. Any stumps showing resurgent growth prior to completion of line construction must be treated to kill all such growth

2.2.4 Chemical sprays or herbicides must only be used with the approval of the engineer, and only in areas so designated for their use. Herbicides must be applied in accordance with the manufacturer's recommendations and only by a licensed/certified applicator. The chemical sprays and herbicides must meet the environmental requirements of all governing agencies. Spraying must be performed in such manner, at such pressure, and under such wind conditions that drift of spray material to adjacent plants, animals, or persons will be avoided.

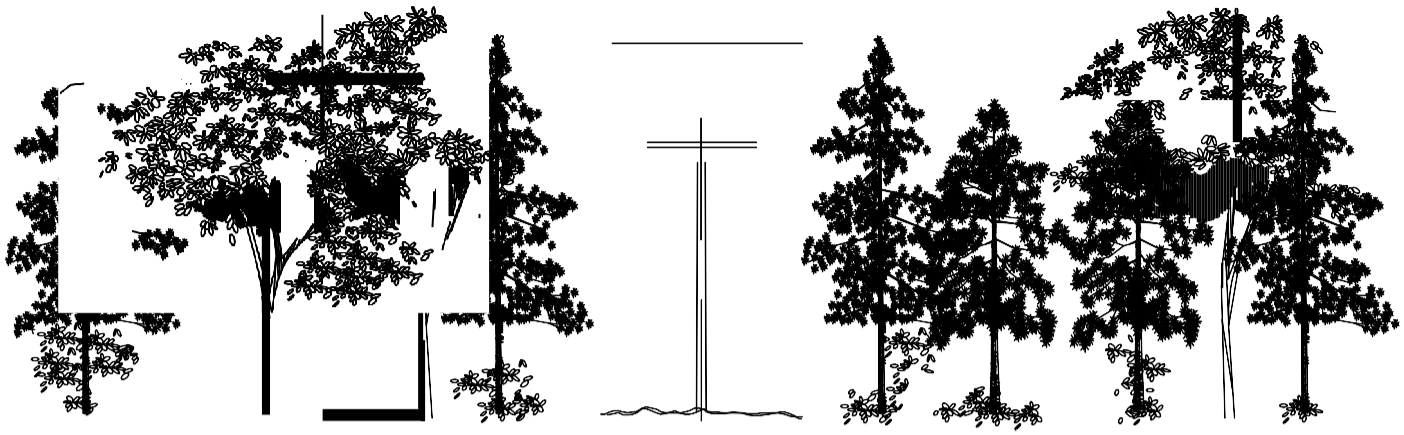
Such application must not be made: a) when the ground is continuously frozen; b) adjacent to streams or other water bodies; c) when the ground is or may be flooded during the period in which the herbicide retains its toxicity; or d) in a marsh or other wetland.

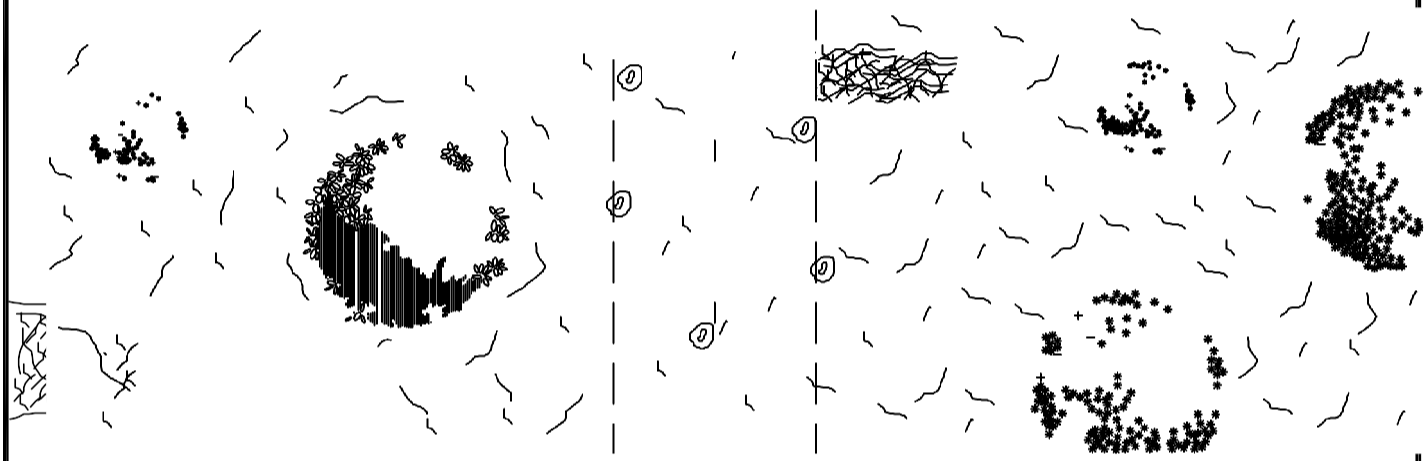
2.2.5 If required by the "Special Requirements" paragraph below, stumps must be removed.

2.2.6 The landowner's written permission must be received prior to cutting trees outside the right-of-way.

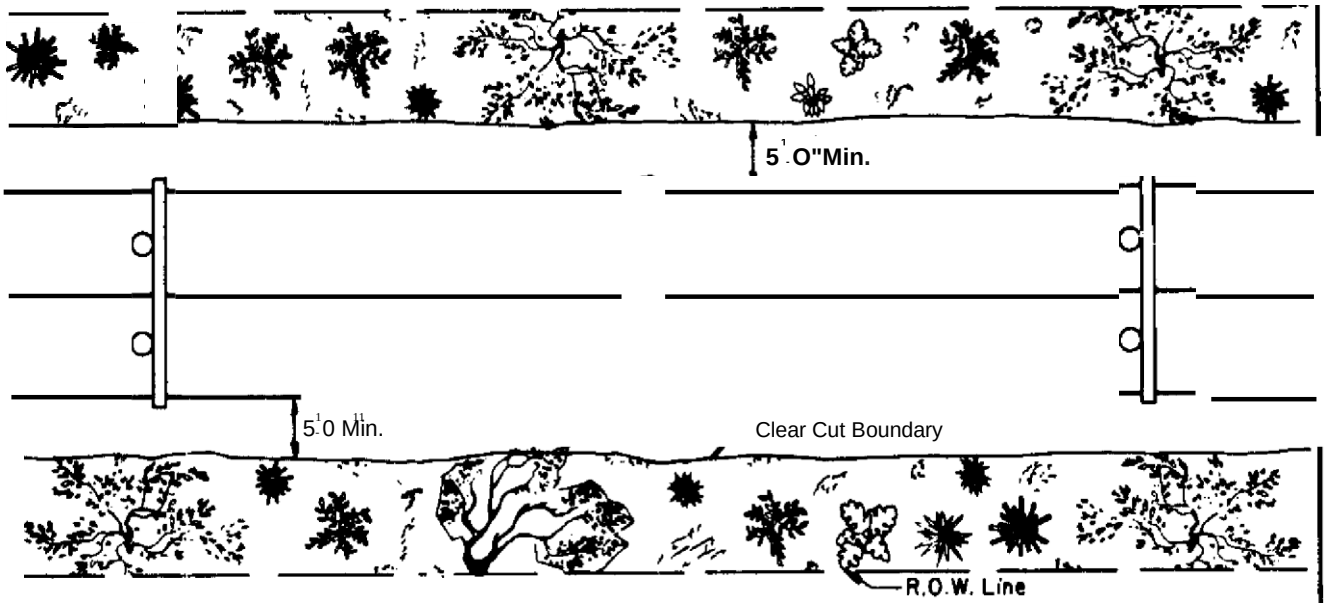
2.2.7 Disposal of trees, brush, branches, and refuse must be in accordance with the methods specified in the construction units.

2.2.8 Avoid clearing vegetation in riparian areas to the extent possible. A vegetative buffer zone should be left along creeks and streams to minimize siltation and sedimentation and prevent adverse impacts to riparian habitat.





BEFORE CLEARING


5' O"Min.
5' 0 Min.
Clear Cut Boundary
R.O.W. Line

NOTES:

1. Engineer shall designate all danger trees which are to be removed or topped. The unit for clearing danger trees is "TM-13."

2. The unit for clearing right-of-way of specified width is "TM-15" or "TM- I S(I) .II

Width TM-15

Width TM - 15 (I)