

Charlie Creek to Garrison Transmission Line Rebuild Project

Draft Environmental Assessment

*Mercer, Dunn, and McKenzie Counties, North
Dakota*



**Western Area
Power Administration**

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Acronyms

BNSF	Burlington Northern-Santa Fe
CCR-GA	Charlie Creek-Garrison Transmission Line
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
DOE	U.S. Department of Energy
EA	Environmental Assessment
EMFs	electric and magnetic fields
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act of 1973
FEMA	Federal Emergency Management Agency
kV	kilovolt
LMNG	Little Missouri National Grassland
mG	milliGaus
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
O&M	Operation and Maintenance
Refuge	Lake Ilo National Wildlife Refuge
ROW	right-of-way
UGP	Upper Great Plains Customer Service Region
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOCs	Volatile organic carbons
WAPA	Western Area Power Administration
WHO	World Health Organization

Chapter 1: Introduction

The Western Area Power Administration (WAPA) is one of four power marketing administrations within the U.S. Department of Energy (DOE). WAPA's mission is to market and deliver clean, renewable, reliable, cost-based federal hydroelectric power and related services. WAPA's vision is to continue to provide premier power marketing and transmission services to WAPA customers, as well as contribute to enhancing America's energy security and sustaining the nation's economic vitality. WAPA's customers include Federal and state agencies, cities and towns, rural electric cooperatives, public utility districts, irrigation districts and Native American tribes. They, in turn, provide retail electric service to millions of consumers in the West.

WAPA is proposing to rebuild 95-miles of the existing Charlie Creek to Garrison transmission line in Mercer, Dunn, and McKenzie Counties, North Dakota.

For transmission line rebuild projects greater than 20 miles in length, DOE requires that agencies prepare an Environmental Assessment (EA) to analyze and disclose the projected consequences of the action on the human and natural environment.

Background

WAPA's Charlie Creek-Garrison (CCR-GA) 115-kilovolt (kV) transmission line was constructed in 1949 to deliver electricity to customers in western North Dakota. The transmission line originally interconnected the Fort Peck Dam and Garrison Dam power plants. The 95-mile long section of line currently being studied begins at the Charlie Creek Substation in McKenzie County, North Dakota, passes through Dunn County, and ends at the Garrison Dam Switchyard in Mercer County, North Dakota (see Figure 1). Due to outage limitations, funding, and construction seasons, WAPA's proposed rebuild project would be broken into phases based upon the existing substations or taps. Substations and taps that sectionalize the line into segments include Killdeer and Beulah Substations, and Halliday, Stanton, and Pick City Taps.

The CCR-GA transmission line is over 65 years old. Many of the wood H-frame structures from the original construction are still in use today but have begun to rot. These structures require increased amounts of maintenance to ensure worker safety and line reliability.

Even though it is one of the oldest lines in WAPA's Upper Great Plains Customer Service Region (UGP), it is still a key element in providing reliable power service to WAPA's customers in the region.

Purpose and Need

The purpose of the CCR-GA transmission line rebuild is to safeguard WAPA's ability to provide reliable and cost efficient electric power to customers, as defined in WAPA's mission.

This work is needed because the line is approaching the end of its useful service life and is experiencing equipment failures and unscheduled outages, which inhibits WAPA's ability to provide reliable power to customers.

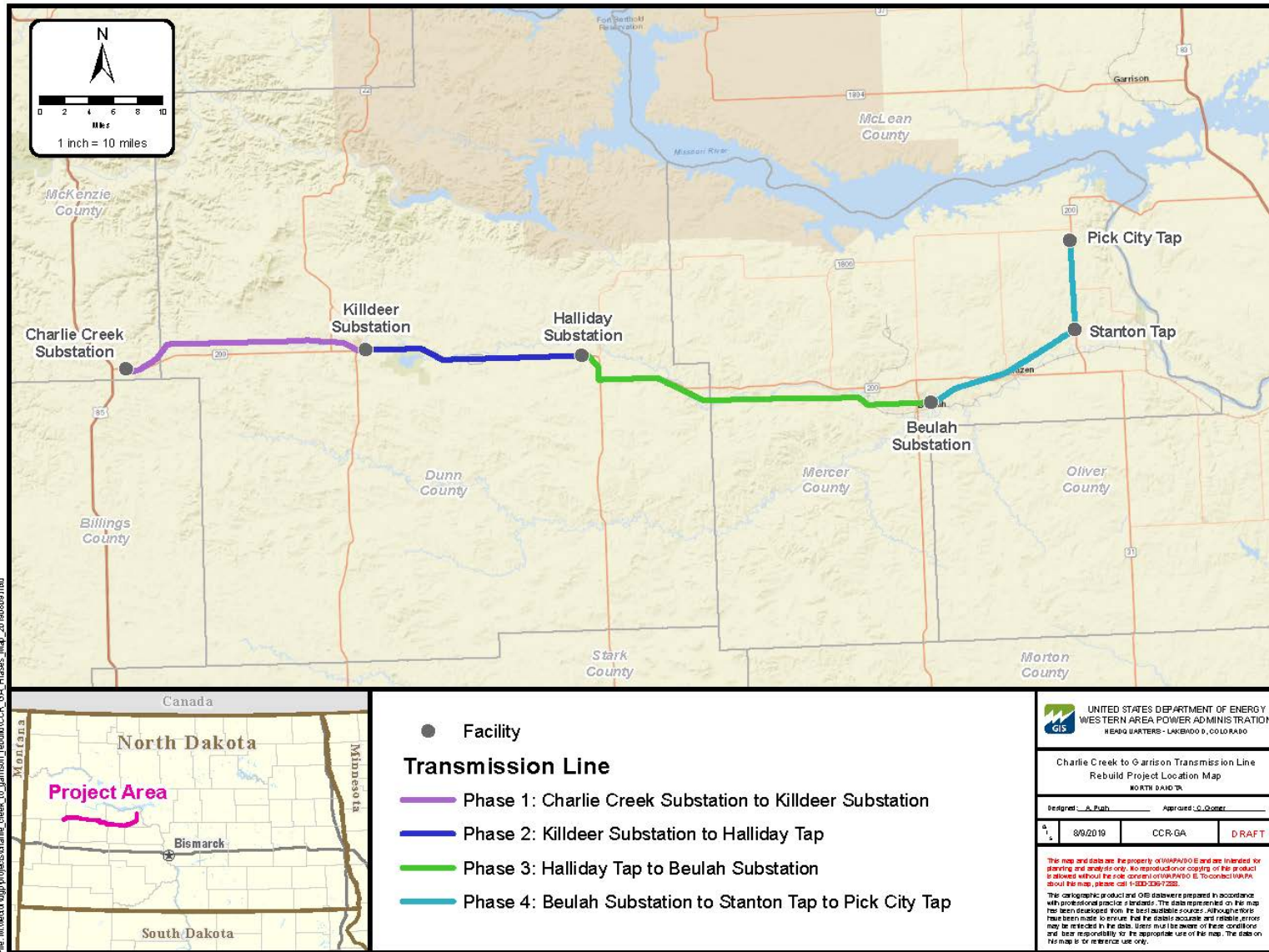


Figure 1: Project Location and Phases



Chapter 2: Proposed Action and Alternatives

This chapter describes the action WAPA proposes to take (the Proposed Action), as well as practical alternatives to the action.

Alternatives Considered but Dismissed

WAPA reviewed a variety of design alternatives and reroute alternatives. These alternatives were eventually dismissed from full analysis because they were not feasible due to technical requirements or financial constraints.

Design Alternative: Pole Material

WAPA considered the benefits and risks of replacing the existing wood structures with either new wood or new steel structures. WAPA determined that wood poles are preferred due to low cost, proven service life, and maintenance versatility.

Design Alternative: Operational Voltage

WAPA's power flow system studies have identified overload issues (when the electricity demand is great than the amount of electricity that can be carried across the power lines) in this area of WAPA's grid system. Any new generation added to the existing system would likely worsen these reliability issues. WAPA considered increasing the voltage from 115 kV to 230 kV. WAPA determined the system needs could be met by increasing the conductor (power line) size without increasing the operational voltage of the line. Also constructing and operating the line at 230 kV would require acquisition of a wider ROW and upgrades to each of the substations and taps, thus making this alternative cost-prohibitive.

Reroute Alternatives: Line Location

WAPA considered whether to rebuild the transmission line in a new location, but determined that acquiring new property easements was cost- and time-prohibitive.

Proposed Action Alternative

WAPA's Proposed Action is to rebuild the 95-mile long CCR-GA 115 kV transmission line. This action entails:

- Upgrading the line capacity by replacing the existing conductors with larger conductors,
- Replacing the existing wooden structures with new taller wooden structures to accommodate the larger conductor, and
- Installing fiber optic communication capability to one of the overhead ground wires.

Typical construction activities are outlined in the table below.

Table 2-1: Typical Construction Activities

Activity	Description
Clearing	Remove vegetation (tree cutting or mowing) within the right-of-way (ROW).
Grading	Perform earth work (land leveling) to repair existing access roads.

	Perform earth work (land leveling) in rougher terrain so cranes and other heavy equipment can be set up on flat ground.
Remove existing structures	Unclip conductors (over-head power line) from the existing structures and lower to the ground. Remove existing crossarms and other equipment from the poles.
	Pull the old poles out of the ground using cranes or other heavy equipment. If the pole cannot be removed entirely, cut off poles near the ground surface. Lay the old poles on the ground near access roads.
Assemble structures	Transport new structures to staging areas and/or haul to their new pole locations.
	Auger holes for any new pole locations.
	Erect wood pole structures into the holes.
	String and tension new conductors onto the pole structures.
Clean up	Load and haul away old wood structures, wire, and other materials.

At roughly 95 miles in length and 75 feet in width, WAPA's current easement footprint is approximately 865 acres. WAPA expects that additional ROW and easements will be necessary but the extent of easement acquisition is currently unknown. A breakdown of each activity and the anticipated disturbance area is presented below.

Table 2-2: Disturbance Area

Construction Activity	Estimated Size of Disturbance
<i>Temporary Disturbance</i>	
Wire pulling sites	Less than 0.5 acres per site and 25 wire pulling locations = roughly 13 acres.
Structure assembly	Less than 0.5 acres per structure and roughly 747 structures = 374 acres.
Crane set-up and operation	1800 square feet per site at every structure location, approximately 747 sites = roughly 31 acres.
Guy wire installation	500 sq feet per site at angle and deadend structures, approximately 50 sites = less than 1 acre.
<i>Permanent Disturbance</i>	
New access roads	Currently unknown, but estimated at less than 5 miles of new access roads and 12 feet wide = 7 acres.
Existing access roads	No new disturbance.
Structure sites (replacing structures in their existing locations)	18 square feet per structure and 747 structures = less than 1 acre.
Structure sites (adding structures in a new location)	18 square feet and 10 feet deep. Unknown how many structures, but estimated at less than 1 acre total.

Construction Timing

Actual construction activities for the upgrade of the CCR-GA transmission line are planned to begin in 2020. The transmission line would be rebuilt over an anticipated 10-year period. Phase 1, the Charlie Creek – Killdeer section (roughly 21 miles long), would be replaced in 2020; Phase 2, the Killdeer – Halliday section (19 miles), would be replaced in 2021 or 2022. Replacement of Phase 3 (Halliday to Beulah section) and 4 (Beulah to Pick City section) remaining sections (56 miles) are budgeted from 2023 through 2028 and would be contingent on funding.

Access Points/Roads/Right-of-Way

WAPA's standard construction procedures for transmission lines require the movement of vehicles and equipment within the existing 75 foot ROW. For the most part, the transmission line would stay within the existing ROW and pole structures would be replaced in the existing holes. Some structures may shift in location but would remain within the existing ROW. For example, structures may be moved away from fence lines, protected natural resources (wetlands or cultural sites), cliffs, or other obstacles in order to protect resources and to make construction and access easier.

WAPA would need to acquire additional access easements in the following situations:

- Where rough terrain makes existing access roads impassable.
- Where longer spans (spans over 960 feet) require 80 feet ROW.
- Where guy wires (wires used to anchor the pole into the ground for additional support) on deadend structures (structures where the transmission line makes a turn or ends) require "guy pockets" beyond the existing ROW.

Personnel and Equipment

The proposed work would involve various personnel and equipment over a 10-year period. The average crew is six people and there may be more than one crew working at various points at any given time. Equipment would include mobile hydraulic cranes, aerial-lifts (bucket trucks), digger trucks, front-end loaders and skid-steer loaders, truck-tractors with trailers, pickups with or without trailers, utility trucks and passenger vehicles. Construction vehicles, equipment and pole deliveries would access the line using existing access roads where possible. All staging and stockpiling areas would occur in previously disturbed areas. Locations would be coordinated with the appropriate landowner or manager.

Site Clearing/Grading

Most of the project area was cleared and leveled when the original transmission line was constructed, however, surface conditions have changed over the years and some locations may need additional leveling. Clearing and grading may be required in areas where new ROW is acquired. Due to the prairie and farmland landscape in the Project area, minimal clearing or grading is expected. Tall trees and vegetation that could pose a safety hazard are removed during routine maintenance, but additional vegetation may need to be removed to accommodate construction equipment.

Pole Excavation and Replacement

WAPA proposes to remove the existing wooden H-frame pole structures and replace them with new H-frame wooden pole structures. The new poles would be 10 to 15 feet taller than the existing structures. The existing 747 wood pole structures would be replaced with approximately the same number of structures.

The span length between structures would remain very similar to the existing spans. The normal span length between structures is 700 to 800 feet.

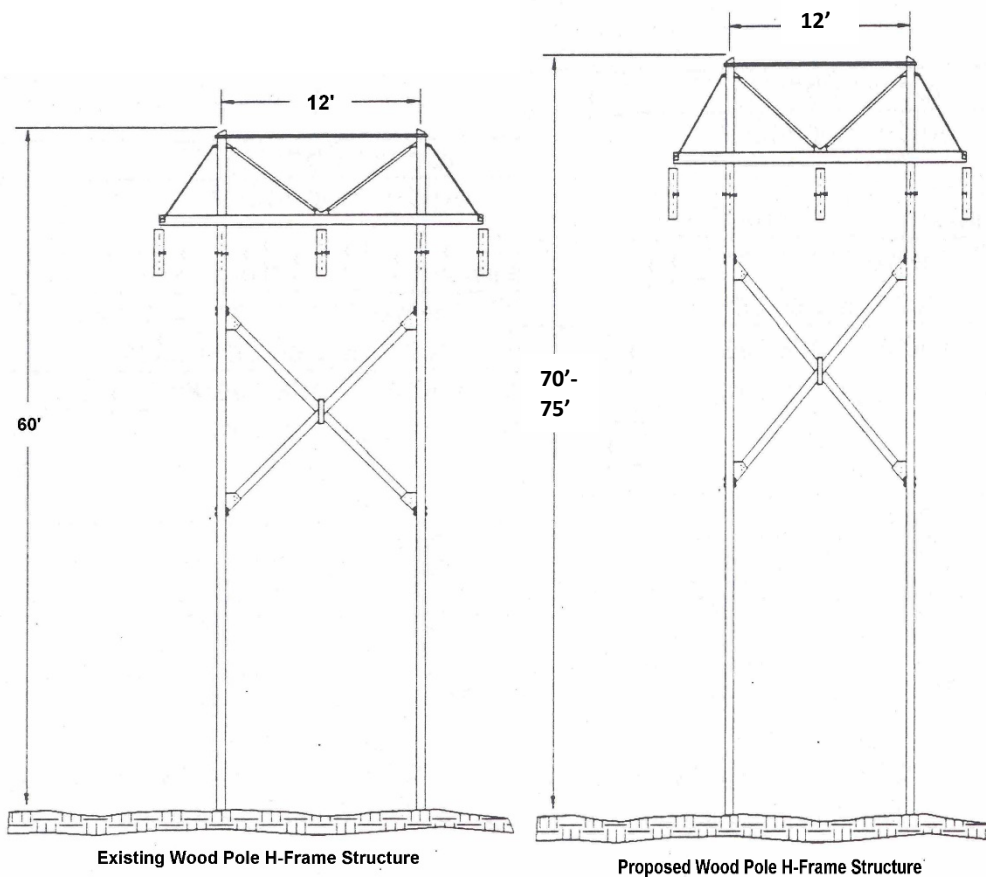


Figure 1: Proposed Pole Structures

The existing poles would be pulled from their holes using cranes or a hydraulic jack rigged as an attachment to a skid-steer loader. Crews would assemble new structures within the ROW. In areas where the structure location has shifted, crews would use an auger to dig new holes that are roughly 3 feet wide and up to 12 feet deep. Next, crews would position the poles into the holes using cranes. Dirt from the holes would be used to back fill around the new poles. Excess dirt would be scattered adjacent to the pole and leveled with existing topography.

Conductor Stringing and Tensioning

At specific stringing sites, a tensioner and puller would be used to remove the old conductors and to pull in new ones. The conductors would be tightened to allow them to sag to a safe point above ground level, without becoming too taut during cold temperatures.

One of the two overhead ground wires would contain fiber optic cables to enhance WAPA's communication system. The fiber optic overhead ground wire would be installed in a similar manner.

Disposal

Old poles would be removed and either reused, recycled, or hauled away and disposed of. If requested by a landowner, the old poles would be provided to the landowner for reuse. Old poles are reused regularly for corner fence posts. All associated hardware, including guying, guy rods, insulators, and conductor and overhead groundwire, would also be reused, recycled or disposed of as appropriate. Waste construction materials and rubbish from construction areas would be collected, hauled away, and disposed of at approved sites (i.e., a landfill).

Site Restoration and Compensation

Disturbed areas would be restored to pre-construction condition when work is completed. Restoration activities may include re-grading disturbed areas to their original contour and reseeded with a regionally native seed mix where revegetation is required. Surfaces would be scored to provide for proper drainage, revegetation, and prevent erosion. WAPA would provide compensation to landowners where construction activities result in damage to property.

Operation and Maintenance (O&M)

System dispatchers at WAPA's Watertown Operations Center would continue to direct routine, daily operation of the transmission line. The dispatchers would use communication facilities to operate circuit breakers, which control the transfer of power through the lines. Currently, aerial patrols of the line are conducted two times each year. Ground patrols are completed once a year, as weather permits. These patrols would continue as part of WAPA's routine maintenance program. Routine maintenance work is usually done April through November. Climbing inspections may also be conducted, with each structure being climbed and inspected approximately five years after construction. In emergencies, crews would rapidly repair or replace damaged equipment.

At the end of the transmission line's useful life, WAPA would consider whether the line should be repaired or dismantled and removed.

Routine Maintenance Alternative (No Action Alternative)

DOE requires that EAs assess the No Action Alternative. Under this No Action Alternative, no coordinated upgrade of the existing structures and line would take place. The line would be maintained and operated at its current level of 115 kV within the existing 75-foot wide ROW and repairs to individual structures would take place on an as-needed basis as they fail.



The overload issues in WAPA's grid system would not be addressed and the frequent repairs and continued maintenance of the line would become increasingly expensive, which would threaten WAPA's ability to provide reliable and cost efficient electric power to customers.

O&M

O&M operations would continue as described in the Proposed Action Alternative.

Access Points/Roads/Right-of-Way

WAPA's standard construction procedures for transmission lines require the movement of vehicles and equipment within the ROW. The transmission line alignment would stay within the existing alignment ROW and no new access points or rights-of-way would be needed.

Pole Replacement

Crews would replace deteriorating wood pole structures individually, as they fail. A hydraulic pole jack rigged as an attachment to a skid-steer loader and a hydraulic crane would be used to remove old poles. New poles would be placed in the same hole as the existing pole. Equipment used to install new poles would be the same as described for the Proposed Action.

Equipment Replacement

Other transmission structure components would need replacement over the next several years. Examples of these types of repairs include restapling the pole ground wire and reattaching or replacing cross braces, crossarms, conductor or overhead ground wire hardware, insulator strings, and old anchor rods.

Chapter 3: Affected Environment and Environmental Consequences

This chapter will first describe the existing resources and conditions within the project area, then describe the potential impacts the Proposed Action and No Action Alternatives would have on those resources. Regardless of the Alternative, impacts to all resources would be minimized by the use of WAPA's *Standard Mitigation Measures for Construction, Operation and Maintenance of Transmission Lines* (Appendix A) and *Construction Standard 13, Environmental Quality Protection* (Appendix B).

Air Quality

The U.S. Environmental Protection Agency (EPA) has set National Ambient Air Quality Standards (NAAQS) for six pollutants: sulfur dioxide, nitrogen dioxide, carbon monoxide, ozone, particulate matter, and lead (called "criteria pollutants"). Volatile organic carbons (VOCs) are also monitored. There are several air quality monitoring sites near the project area: one near the Teddy Roosevelt National Park in McKenzie County, one to the east of Lake Ilo in Dunn County, and one North of Beulah in Mercer County.

The project area is primarily rural and air quality is chiefly affected by agricultural activities and transportation corridors. There are no hazardous air pollutant generators within Mercer, Dunn, or McKenzie Counties. Air quality in the entire state of North Dakota is within the NAAQS limits (EPA, 2019a).

Environmental Impacts: Proposed Action and No Action Alternatives

Both alternatives would result in similar impacts to air quality. The types of expected impacts include:

- Increase in fugitive dust during construction and maintenance activities.
- Release of emissions (criteria pollutants, VOCs, and greenhouse gasses) from construction and maintenance vehicles.

Fugitive dust may be a nuisance to persons or dwellings, and could damage crops or cultivated fields. Fugitive dust and emissions may temporarily affect air quality in the local area, but are not expected to result in a measurable impact on local, regional, and national climate or air quality. Impacts would be minimized by the use of several environmental commitments, such as:

- Vehicles and machinery would be equipped with air emission control devices required by Federal and state regulations or ordinances.
- Equipment and vehicles that show excessive emissions of exhaust gases due to poor engine adjustments, or other inefficient operating conditions, would not be operated until repairs or adjustments are made.
- Dust abatement and dust control measures such as road watering and speed limits would be implemented. WAPA's Construction Standards do not allow oil to be used as a dust suppressant.



Solid and Hazardous Waste

There are no hazardous waste generators within the project area. There are several active waste disposal facilities near the project area. These include:

Table 3-1: Active Waste Facilities in Dunn, Mercer, and McKenzie Counties

Facility Name	Waste Type	City	County
Killdeer PBR Inert Waste Landfill	Inert ¹	Killdeer	Dunn
Dunn Center PBR Inert Waste Landfill	Inert ¹	Dunn Center	Dunn
Halliday PBR Inert Waste Landfill ²	Inert ¹	Halliday	Dunn
Dodge PBR Inert Waste Landfill	Inert ¹	Dodge	Dunn
Coteau Properties Company - Freedom Mine	Petroleum Contaminated Soil	Beulah	Mercer
Beulah Waste Transfer Station	Municipal	Beulah	Mercer
Dakota Gasification Company	Hazardous	Beulah	Mercer

¹ Inert waste is solid waste that will not generally contaminate water or form a contaminated leachate. Examples of this are construction and demolition material such as metal, wood, bricks, masonry, and concrete.

Source: North Dakota Department of Health, 2019

Environmental Impacts: Proposed Action and No Action Alternatives

Both alternatives would generate solid waste materials. Examples include wood poles, conductor and overhead groundwire, hardware, and porcelain insulators. These would be reused, recycled, or as a last resort, disposed of in one of the waste facilities listed above. Examples of recycling, reusing, or reprocessing include reprocessing of solvents; recycling cardboard; and salvaging scrap metals.

Treated wood poles that are removed but in good condition would be reused in other locations. If landowners request, old poles would be given to them for their use after they sign WAPA's Used Pole Waiver form. Treated wood product scraps or poles and members that cannot be donated or reused would be disposed in a landfill that accepts treated wood and has signed WAPA's Consumer Information Sheet receipt.

Burning or burying waste materials on the ROW or at the construction site would be permitted only if allowed by local regulations. WAPA would remove all other waste materials from the construction area and ROW.

Additionally, WAPA requires that all construction activities use methods that will prevent entrance, or accidental spillage, of solid matter contaminants, debris, and any other pollutants and wastes into streams, flowing or dry watercourses, lakes, and underground water sources. WAPA's construction standards also require a Spill Prevention, Notification, and Cleanup Plan to be implemented prior to work.

Transportation and Traffic

The existing transmission line largely parallels ND Highway 200. Highway 200 runs east to west and is a principal traffic artery that passes through or near the towns of Killdeer, Dunn, Halliday, Dodge, Golden Valley, Zap, Beulah, Hazen, and Pick City.

ND Highway 22 is a minor traffic artery that runs perpendicular (north to south) through the project area near the town of Killdeer. ND Highway 8 is a minor traffic artery that runs perpendicular (north to south) through the project area near the town of Halliday. ND Highway 49 is a principal traffic artery that runs perpendicular (north to south) through the project area near the town of Beulah. The transmission line also intersects several county roads (ND Department of Transportation 2016 and 2019).

The Burlington Northern-Santa Fe (BNSF) Railway has a rail line that also parallels ND Highway 200. The railway and the transmission line intersect in one location, slightly east of the town of Beulah.

Environmental Impacts: Proposed Action and No Action Alternatives

The Proposed Action would have a greater impact on transportation and traffic than the No Action because a larger number of equipment and vehicles would be used during the construction timeframe, but both alternatives are expected to result in intermittent and localized traffic increases during routine O&M. With either alternative, WAPA would use traffic control plans, flagmen, and signage during periods of heavy equipment delivery to maintain the safety and flow of public traffic. WAPA would schedule construction operations to offer the least possible obstruction and inconvenience to public traffic (i.e., avoid peak commuting times). Construction activity near railroad lines would be coordinated with BNSF to ensure no disruption to their service.

Also, when weather and ground conditions permit, WAPA would repair all WAPA-caused ruts that are hazardous to farming operations and to movement of agricultural equipment by leveling, filling, and grading the area.

Soils

The project area is located in the Northwestern Great Plains ecoregion. This ecoregion was largely unaffected by glaciation and retained most of its original soils. Portions of the project area have broken terraces and uplands that descend to the Missouri River and its major tributaries. They have formed primarily in soft, easily erodible soil layers, such as Pierre shale, siltstone, and sandstone (Bryce and Omernik 1996). The soils are moderately deep and deep, well drained and moderately well drained, and loamy and clayey (Natural Resources Conservation Service [NRCS] 2008, 2019a, and 2019b). Most of the soils have a poor productivity due to the steep terrain (badlands-type landscapes).

Environmental Impacts: Proposed Action Alternative and No Action Alternatives

Both alternatives have the potential to impact soils anywhere within the existing ROW. The types of impacts that are expected include soil compaction, increased erosion or erosion potential (as a result of changes in slope), and mixing of soil layers.

Within the existing ROW, soils were previously disturbed during original construction of the transmission line. The Proposed Action would require additional easements. The exact acreage/length of these easements is currently unknown, but new soil impacts would occur throughout those easements as well.

The types of activities that could impact soils are:

- access road use and/or creation (site clearing and land leveling),
- pole excavation, assembly, and replacement,
- hole relocation, and
- equipment and vehicle use during routine O&M and, for the Proposed Action, during wire tensioning and stringing.

To reduce soil impacts, WAPA would adopt the following environmental commitments:

- Move crews and equipment within the existing ROW, including access routes, whenever possible.
- Use only the minimum area necessary for access ways (12 feet to 15 feet wide).
- Stage construction activities to limit the area of disturbed soils exposed at any particular time.
- In hay meadows, alfalfa fields, pastures, and cultivated lands, ruts, scars, and compacted soils would have the soil loosened and leveled by scarifying, harrowing, discing, or other standard methods. In agricultural areas, all ruts would be eliminated and all trails and areas that are hard-packed as a result of construction operations would be loosened, leveled, and reseeded.
- All work areas (except permanent access roads) would be regraded so that all surfaces drain naturally, blend with the natural terrain, and to help with natural revegetation and prevent erosion.
- Topsoil would be removed, stockpiled, and re-spread at all heavily disturbed areas not needed for maintenance access.
- Erosion control measures would be implemented on disturbed areas, including areas that must be used for maintenance operations (access ways and areas around structures).
- Structures would be located and designed to conform with the terrain. Leveling and benching of the structure sites would be done only when necessary for structure assembly and erection.
- New ROWs would avoid steep terrain whenever possible. Water bars or small terraces would be constructed across all ROW and access roads on hillsides to prevent water erosion and to facilitate natural revegetation.
- New access roads would follow the lay of the land around steep features, rather than a straight line through the features.

Water Resources

The project area is in the Lower Little Missouri and Knife water basins, which are part of the larger Missouri River watershed (EPA 2001). The existing transmission line crosses the Little Knife River, Lake Ilo, Spring Creek, Cottonwood Creek, and Antelope Creek, and numerous unnamed coulees, washes, wetlands, and ditches. All drainage patterns flow into the Little Missouri River, which then flows into Lake Sakakawea (NRCS 2008). The Little Missouri River is a State designated Scenic River. There are no federally designated wild and scenic rivers in North Dakota.

Wetlands are scattered throughout the entire project area (U.S. Fish and Wildlife Service [USFWS] 2019b). Most of these wetland complexes are small (1-5 acres) freshwater emergent



wetlands or freshwater ponds. There are approximately 147 acres of these riverine, freshwater pond, and freshwater emergent wetlands within 0.5 miles of the existing transmission line. Lake Ilo, located within the Lake Ilo National Wildlife Refuge, measures 1,240 acres and is the largest wetland in the vicinity of the project.

The Northern Great Plains aquifer system underlies most of North Dakota (U.S. Geological Survey [USGS] 2019a). In the project area, the major aquifers are found in sandstones from the Tertiary age (USGS 2000). Unconsolidated sand and gravel deposits, some of which are highly permeable and have a very shallow ground-water flow system, overlie the aquifer system. Groundwater wells typically draw from these sand and gravel aquifers. The typical depth to water level ranges from 2 feet to 6.5 feet below the land surface (USGS 2019b).

Nearly the entire transmission line is located within an “Area of Minimal Flood Hazard,” where there is minimal chance of flooding during a 500-year flood event (Federal Emergency Management Agency [FEMA] 2019). Exceptions to this include:

- A handful of existing structures which cross areas that are designated as “Zone A” flood zones. Zone A refers to areas which could be flooded during a 100-year flood (1%-annual-chance) event.
- Within the cities of Hazen and Zap, where the transmission line crosses through the potential floodway (Zone AE) of a 100-year flood event and areas of moderate flood hazard (Zone X) during a 500-year flood event.
- Unmapped areas within Dunn County, where the floodplain status is unknown.

Environmental Impacts: Proposed Action and No Action Alternatives

Regardless of the alternative, WAPA’s standard practice is to span over water resources and flood prone areas whenever possible. WAPA purposefully aims to install structures at least 300 feet from rivers, streams (including ephemeral [intermittent] streams), ponds, lakes, and reservoirs. With the use of spanning, direct impacts to water resources can be avoided. When spanning is not possible, WAPA would complete a survey of the water resource and coordinate with the U.S. Army Corps of Engineers (COE) to ensure compliance with the Clean Water Act (CWA).

WAPA’s current maintenance activities are typically authorized under Nationwide Permit 12, which allows for activities necessary for the construction, maintenance, repair, and removal of utilities lines and associated facilities in waters of the U.S., so long as those activities do not result in the loss of more than 0.5 acres of U.S. waters. WAPA expects that future maintenance activities, as part of either alternative, would also qualify for coverage under Nationwide Permit 12. In the event that an activity is not allowable under Nationwide Permit 12, WAPA would pursue an individual permit. The permit conditions would stipulate any requirements to minimize water resource impacts.

Where installation of new structures within floodplains is unavoidable, proposed structures would be designed to withstand 100 year flood events. Structure placement would not alter surface water flow characteristics of a floodplain, change drainage patterns, or impede or redirect flood flows.

Although WAPA does not expect to encounter groundwater during structure replacement activities, there is evidence of shallow groundwater aquifers in the area, so the potential for groundwater contamination does exist. Studies on pole preservatives have shown that fluctuations in the water table can result in leaching of the preservatives into the water table. These studies concluded chemical leaching from wood poles is not detectable in downgradient groundwater (Electric Power Research Institute 1997).

Indirect impacts, like sedimentation or pollution from spills and leaks, would be minimized by:

- Avoiding work within and near water resources.
- Use of the commitments described in the Soils section to curtail erosion and runoff.
- Obtaining a permit for stormwater discharges associated with construction activities from the North Dakota Department of Health prior to construction. The provisions of the permit would be implemented to reduce stormwater runoff during construction.
- Disallowing stockpiling or depositing excavated material near water perimeters (banks or shorelines) where they could be washed away by high water or storm runoff.
- Implementing the work practices and precautions outlined in WAPA's Construction Stormwater Management Plans and Spill Prevention, Control, and Countermeasure and Spill Prevention, Notification, and Cleanup plans. These plans outline measures that will be used to prevent spills, notification protocols for any spills, and employee awareness training.
- If new access roads must cross a waterway, culverts of adequate size to accommodate the estimated peak flow of the waterway would be installed.
- If necessary, a National Pollutant Discharge Elimination System (NPDES) Permit for the Prevention of Stormwater Pollution from Construction Projects would be obtained.

Vegetation

Vegetation records for the project area indicate the presence of species typical of the mixed grass prairie, rangeland, and native grasses common to the majority of North Dakota. The most common species present are: blue gramma, bluestem, buffalo grass, green needlegrass, little bluestem, needle and thread, prairie junegrass, prairie sandreed, rough fescue, and western wheatgrass (NRCS 2019c). The State of North Dakota's native grassland composition model map indicates there are six miles of existing transmission line that traverse areas that could contain 60% or greater native grasses. This six-mile segment involves approximately 43 structures across 52 acres of right-of-way.

Woodlands and shrublands are very sparse across the project area, but the species found include buffaloberry, chokecherry, snowberry, and sagebrush. Ponderosa pines and junipers can be found along with the other common trees (green ash, elm, quaking aspen, birch, oak, and cottonwood) (National Pollutant Discharge Elimination System [NPDES] 1996).

The westernmost 2.5 miles of the existing transmission line is in the Little Missouri National Grassland (LMNG). This area is public land managed by the USFS (McKenzie Ranger District) for multiple uses, including grazing cattle, and is generally considered rangeland with broad resource emphasis (USFS 2001). The USFS indicates the following sensitive plant species could

be present or have suitable habitat in the vicinity of the LMNG, however, there are no known actual presence records of these species in the project area:

- Smooth goosefoot
- Dakota buckwheat
- Blue lips
- Torrey's cryptantha
- Nodding buckwheat
- Missouri foxtail cactus
- Sand lily
- Dwarf mentzelia
- Alyssum-leaved phlox
- Limber pine
- Lanceleaf cottonwood
- Alkali sacaton
- Stemless townsend daisy, and
- Easter daisy.

The existing transmission line also crosses 3 miles of the Lake Ilo National Wildlife Refuge (Refuge). This area is public land managed by the USFWS' National Wildlife Refuge System and is managed primarily as a breeding ground for migratory birds and other wildlife. The vegetation in this area includes shelterbelts, grassland habitat, and wetlands that provide wildlife habitat.

North Dakota has designed thirteen "noxious weed" species throughout the state. McKenzie County has designated an additional four noxious weeds (North Dakota Department of Agriculture 2019). The noxious weeds are:

- | | | |
|-----------------------|---------------------|------------------------|
| 1. Absinth wormwood | 7. Diffuse knapweed | 13. Purple loosestrife |
| 2. Baby's breath | 8. Halogeton | 14. Russian knapweed |
| 3. Black henbane | 9. Houndstongue | 15. Saltcedar |
| 4. Canada thistle | 10. Leafy spurge | 16. Spotted knapweed |
| 5. Common burdock | 11. Musk thistle | 17. Yellowstone |
| 6. Dalmatian toadflax | 12. Palmer amaranth | toadflax |

Environmental Impacts: Proposed Action and No Action Alternatives

Both alternatives would impact vegetation. The types of impacts would be similar between the alternatives, but the timing and intensity of impacts would be different. The impacts of the Proposed Action alternative would occur during a concentrated construction phase, followed by less intense routine maintenance, whereas the No Action alternative would have no dedicated construction phase but more frequent and extensive routine maintenance activities.

The types of disturbances include removal via blading, mowing, trimming, and grading, crushing or trampling by equipment, and reduced productivity due to soil compaction. Most of the vegetation in the existing ROW was cleared and leveled during construction of the original transmission line, however, surface conditions have changed over time and some locations may need additional leveling or clearing. Vegetation that recovered or grew since original construction would again be disturbed at wire pulling sites, structure assembly and staging areas. New vegetation disturbance would occur in areas where additional access easements or ROW are acquired.

These disturbances would occur throughout the life of the transmission line. Vegetation along the entire ROW would be disturbed intermittently during on-going O&M activities.

The types of vegetation that would be impacted are primarily pre-disturbed communities, such as cropped areas, previously cropped areas, non-native haylands, pasture or other grassland with majority non-native species. An estimated six-mile segment of the transmission line would continue to impact grasslands that have a higher likelihood to contain native species. Additionally, both alternatives present a risk of introducing or spreading noxious weeds.

In order to minimize vegetation impacts, WAPA would adopt the following environmental commitments, in addition to the measures listed in the Soils section:

- Implement a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed. Transport only construction vehicles that are free of mud and vegetation debris to staging areas and the project right-of-way.
- Structures and ROWs would be carefully located to avoid sensitive vegetative conditions, including wetlands, where practical, or, if they are linear, to cross them at the least sensitive feasible point.
- Removal of vegetation would be minimized to avoid creating a swath along the ROW.
- WAPA's Integrated Vegetation Management Guidance Manual would be used to control and reestablish vegetation.
- Clearing for the access road would be limited to only those trees necessary to permit the passage of equipment.
- Reseed disturbed areas with regionally native grass mixture.
- Surfaces of construction roads shall be scarified to facilitate natural revegetation, provide for proper drainage, and prevent erosion.
- Use EPA registered pesticides and apply in accordance with their labeling and applied by appropriately licensed applicators.
- The edges of clearings and cuts through trees, shrubbery, or other vegetation would be irregularly shaped to soften the undesirable visual impact of straight lines.
- Construction staging areas would be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent.
- Provide compensation to landowners where construction activities result in damage to crops, per the terms of the easement.

Fish and Wildlife

North Dakota is home to an abundance of wildlife species. The mixed grass prairies, native remnant prairies, grassland, and riparian areas along the length of the project provide habitat for most of the common species of North Dakota. From insects to fish to bird to mammals, the project area encompasses suitable habitat for a large array of species.

Typical wildlife in the area include prairie dogs, white-tailed deer, mule deer, pronghorn, coyote, cottontail rabbit, fox, mink, badger, skunk, beaver, raccoon, and muskrat. Pronghorn, jackrabbit, prairie dog, mule deer, cattle, and house cat were the mammals observed during field visits to the site.

Additional observations included a woodpecker cavity in an existing pole, a badger burrow, five possible nest structures (1 active red-tailed hawk), two prairie dog towns, many ticks, roadkill

great-horned owl, roadkill rattlesnake, roadkill porcupine, and 17 unidentified raptors perched on power poles.

Western North Dakota has suitable breeding habitat for many bird species and is also a seasonal home to migrants. The Refuge is a haven for wildlife. Waterfowl, shorebirds, and other wildlife species find the wetlands attractive as summer breeding habitat and as a spring and fall migration stop. Peak concentrations can reach 100,000 waterfowl in the fall and 20,000 in the spring. The principle waterfowl nesting species are Canada geese, mallards, pintails, blue-winged teal, shovelers, and gadwall. Other common birds include eared, western, and pie-billed grebes, double-crested cormorants, great blue herons, black-crowned night herons, American bitterns, killdeer, plovers, sandpipers, willets, yellowlegs, marbled godwits, and American avocets. The following avian observations were recorded during field visits:

red-tailed hawk	blue-winged teal	northern harrier
lark bunting	northern flicker	rough legged hawk
eastern kingbird	gray catbird	ring-necked pheasant
prairie falcon	tri-colored blackbird	mountain bluebird
brown-headed cowbird	American robin	sharp-tailed grouse
boblink	Killdeer	common nighthawk
greater yellowleg	clay-colored sparrow	willet
turkey vulture	brown thrasher	great-horned owl
western meadowlark	American white pelican	Eurasian collared doves.
says phoebe	chestnut collared longspur	
ring-necked duck	ferruginous hawk	

Beyond the Refuge, most other birds are dry grassland and badland species, and riparian associates, such as ferruginous hawk, golden eagle, sharp-tailed grouse and sage grouse, gray partridge, mourning dove, black-billed magpie, horned lark, western meadowlark, lark bunting, grasshopper sparrow, and chestnut-collared longspur. Typical herpetofauna are the snapping turtle, spiny softshell turtle, smooth green snake, and prairie rattlesnake (USFS 1996).

Federally-listed Species and Critical Habitats

Federally endangered and threatened species, as well as designated critical habitat, are protected under the Endangered Species Act of 1973 (ESA). Designated Critical Habitat is a specific habitat which is essential to the conservation of the species. Federal agencies are required to ensure that a Federal action does not jeopardize the continued existence of any listed species or significantly alter its critical habitat. The following endangered, threatened, proposed and candidate species are reported for project area (USFWS 2019a):

Table 3-2: ESA Species

Species	Listing Designation
Dakota skipper	Threatened
Whooping crane	Endangered
Pallid sturgeon	Endangered
Gray wolf	Endangered
Interior least tern	Endangered

Piping plover	Endangered and Designated Critical Habitat
Northern long-eared bat	Endangered

The pallid sturgeon, gray wolf, interior least tern, the northern long-eared bat, and the piping plover and its designated critical habitat would not be impacted by the project, so they will not be discussed in detail. The Dakota skipper and Whooping crane may be impacted by the project and are discussed in detail below.

Whooping crane may occur near the existing transmission line. Between the 1960s and 2009, there were approximately 30 observations within 1 mile of the transmission line. The majority of these detections were recorded in late April and late October, which is during the spring and fall migration timeframes.

Whooping cranes prefer wetlands and riparian habitat, but can be found in uplands areas during migration. A recently developed habitat model indicates that approximately 31 miles of the transmission line intersect higher value habitat (Niemuth et al 2018). Wetland forage areas appear to be widely available across the project area. The majority of those areas identified as wetlands in the National Wetlands Inventory have since been agriculturally developed. Because of human disturbance (roads, energy infrastructure, towns, agriculture) across the project area, WAPA estimates that stopover habitat is present at approximately 4,201 acres of the area within a half mile of WAPA's existing ROW.

WAPA completed ground-based field evaluations at ten spans of transmission line where WAPA deemed collision risk was highest, due to proximity to wetlands and suitable stopover habitat. Based upon the survey, WAPA identified four wetlands totaling 64 acres that are potentially suitable migratory stopover habitat. The Garrison Dam area at Lake Sakakawea does not provide quality habitat. The Refuge is the largest wetland available near the project, but Refuge staff confirmed there is little use documented therein due to the rarity of the bird (Frerichs 2018).

The Dakota skipper, a butterfly, is listed as "present" in both Dunn and McKenzie Counties, but has only been observed in two townships that intersect the existing transmission line. The sightings are 3.5 miles northwest of Halliday and 5.5 miles north of Dunn Center. However, it is unknown how recent these observations are and land cover changes may have occurred since the observations were recorded. Currently, the location northwest of Halliday is the only township with potential for occupancy. There are no known areas of potential occurrence on USFS lands within 0.6 mi of occupied habitat. The closest sighting location clusters on the National Grassland are 48 miles north.

Potentially suitable skipper habitat must have at least 40% native vegetation and the presence of nectar plants, such as purple coneflower, white prairie clover, fleabanes, blanketflowers, black-eyed Susans, and evening primrose. The area is dominated by crop land, previously cropped areas, non-native haylands, pasture, or other grassland with majority non-native species. It is these areas where the Dakota skippers are not likely to be present. However, two miles of existing transmission line occur where historic presence records overlap with potentially suitable habitat conditions. A field assessment of these two miles concluded they are frequently

disturbed by livestock and vehicles, and they would not support the skipper or the vegetation habitat they rely on.

Other Special Status Species

There are two known bald eagle nests that occur within 1 mile of the transmission centerline and adjacent to Garrison Dam. The North Dakota Game and Fish (NDGF) has actively monitored this territory for years. There are a cluster of golden eagle nests in the vicinity of the project (within 10 miles), but outside of the effects footprint.

There are nesting records of ferruginous and Swainson's hawks in the vicinity of the project area. A red-tailed hawk nest was found during field surveys. The known Swainson's hawk nest is further than 0.5 miles from the transmission line.

There are no known actual use records of the aforementioned USFS-designated sensitive wildlife species in the project area.

There are two known sharp-tailed grouse leks just over three miles away from the project area. Sharp-tailed grouse may occur and there are probably leks in the vicinity of the broader project area. The NDGF monitors grouse leks in census blocks and none intersect the project area, but not every lek in the state is documented (Johnson 2018). Grouse were observed during field surveys.

There are four records of black-tailed prairie dogs in a 10-mile vicinity of the project, but none on the LMNG. Baird's sparrows may occur on any of the native grassland tracts in the project area (Johnson 2018) and could be disturbed if present during implementation.

Environmental Impacts: Proposed Action and No Action Alternatives

Physical impacts to wildlife habitat are described in the Vegetation Section. Indirectly, the wildlife habitat fragmentation from the original transmission line construction is an existing impact that would continue at the same intensity. New habitat fragmentation is not expected beyond the short term construction impacts to vegetation. It is unknown how much ROW or easement would be needed, and WAPA cannot estimate the current wildlife habitat value of any new ROW or easement areas. Conservatively, WAPA anticipates less than 10 acres of new disturbance to wildlife habitat as a result of new ROW and easements.

Most impacts to wildlife individuals would be short term and intermittent in nature. During construction and maintenance activities, wildlife behavior would be modified by human presence – avoidance behaviors and displacement are expected. During operation of the transmission line, no wildlife response is expected, with the exception of avian wildlife.

Operation of the transmission line poses an electrocution and collision risk to birds. Design of the transmission line requires spacing and grounding equipment that makes bird electrocutions unlikely. The new conductors would be higher which could result in an imperceptible increase in potential for collisions if there are birds habituated to avoiding the wire at the lower height.

WAPA would implement the following environmental commitments to minimize impacts to all wildlife:

- Delay mowing of grasslands until July 15 or later to protect ground-nesting birds, including their nests and young broods. Site-specific level analyses will determine the earliest mowing date for each segment.
- Protect standing dead trees that are 10” diameter breast height or more for cavity-dependent wildlife species. This guideline does not apply in areas where tree presence would be detrimental to public and worker safety or reliability of the transmission line.
- Implement WAPA’s Avian Protection Plan, including training of construction personnel. This training would be designed to comply with WAPA’s Construction Standard 13, with a focus on explanations regarding sensitive areas in the vicinity of the transmission line ROW.
- WAPA would prepare plan and profile drawings showing sensitive areas located on or immediately adjacent to the transmission line ROW or facility. These areas would be considered avoidance areas. Prior to any construction activity, the avoidance areas would be marked on the ground in a manner approved by WAPA. If access is absolutely necessary, the WAPA biologist may be required to accompany personnel and equipment.
- If evidence of a protected species or habitat is found, construction crews would immediately provide the location and nature of the findings to the WAPA biologist.
- In accordance with the USFWS guidelines, bird flight diverters would be installed to increase visibility for whooping crane. The FWS would receive written confirmation from WAPA when the power lines are scheduled to be marked, and WAPA would ensure that diverters are maintained in working condition. Diverter location proposals would be based on segment-specific field evaluations.

Federally-listed Species: Whooping Crane

Impacts to whooping crane habitat are unlikely to occur because existing stopover habitat is distant from the project area and relatively limited or of lower quality. Additionally, bird flight diverters would be installed over waterways in proximity to potential stopover areas.

The transmission line will continue to potentially disturb flight patterns while whooping crane move between resting and foraging areas. This infrastructure has been on the landscape for decades and is not a new impact. Risk of collision is present and is highest if cranes stopover in the area during inclement weather or periods of low visibility, however, there are no records of crane collision mortality from transmission lines in this population. Additionally, the transmission line predominantly runs adjacent to roads, through cropland, pasture, and through several towns, so pre-existing human activities reduce the likelihood of actual crane use.

If activities are scheduled during spring or fall migration periods (April, October), monitoring of the project site and surrounding area would occur. Construction personnel would be trained to identify and report whooping crane sightings. Construction activities would be shut down if/when whooping crane are observed within 2 miles of the project.

WAPA has determined that the Proposed Action may affect, but is not likely to adversely affect the whooping crane. The USFWS concurred with this determination on June 6, 2019.

Federally-listed Species: Dakota Skipper

The project would not destroy or convert suitable Dakota skipper habitat. Direct mortality due to ground disturbance or collisions with vehicles is very unlikely given the habitat assessment and distance to actual use areas, as described above.

WAPA has determined that the Proposed Action may affect, but is not likely to adversely affect the Dakota skipper. The USFWS concurred with this determination on June 6, 2019.

Eagles and Raptors

When activities are scheduled during nesting season and overlaps with known breeding areas, WAPA would evaluate eagle and raptor nesting status prior to the start of construction. If the territory is active, WAPA would limit activities within 0.25 miles and up to 1 mile of an active nest between February 1st and July 31st, or until chicks have fledged. The buffer size and timing restrictions would be evaluated on a site-specific basis. For instance, if other features on the landscape (such as topographic barriers) provide disturbance protection, or if the site experiences routine disturbance and monitoring demonstrates a tolerance for human presence. If WAPA determines that limiting activities to this timeframe is impossible, disturbance would be documented and submitted to USFWS in WAPA's annual special use utility permit (permit number MB87553B-0) report. If the territory is inactive, the seasonal timing restriction would be lifted.

LMNG Sensitive Species

The Proposed Action may impact individuals or habitat but would not likely contribute to a trend towards Federal listing or cause loss of viability to the population or species due to the temporary and confined nature of construction activities associated with the Alternatives.

If a lek were discovered within 0.5 to 1 mile of WAPA's ROW, WAPA would conform to timing restrictions (April 15th to August 1st), in accordance with the NDGFD and USFWS guidance.

Lake Ilo Refuge

WAPA has been in contact with Refuge staff and determined that both Alternatives are compatible with the purposes of the Refuge because they are an existing use that will not materially interfere with or detract from the fulfillment of the Refuge system mission or purposes. Specifically, the Proposed Action is consistent with public safety and would not compromise the ecological integrity of the Refuge System for present or future generations of Americans. Further, the Project does not reduce the quality or quantity of wildlife habitats because it is already part of the existing condition, and does not fragment habitats because it parallels the boundary of the Refuge.

Land Use

Land use varies along the transmission line ROW but dryland farming and livestock grazing are the main land uses. In Dunn, McKenzie, and Mercer Counties, much of the land use supports the oil and agricultural (primarily, the livestock and crop industries) economies. The transmission line passes through the towns of Killdeer, Dunn, Halliday, Dodge, Golden Valley, Zap, Beulah, Hazen, and Pick City. The land use in these areas varies between residential, commercial, and



industrial. As described previously, the Refuge and LMNG are public lands managed for multiple uses.

Each of the counties has developed zoning ordinances to guide future land use and development.

The Farmland Protection Policy Act protects farmland from being converted to non-agricultural uses. The provisions of this act identify prime and unique farmlands for protection. Prime farmlands are those lands that have the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, and without intolerable erosion. Unique farmlands are composed of land other than prime farmland that are used for producing specific high-value food and fiber crops. Dunn, McKenzie, and Mercer Counties contain interspersed prime and unique farmlands.

Environmental Impacts: Proposed Action and No Action Alternatives

Construction and operation of the transmission line would occur, primarily, within the existing ROW and would not alter or impede present land uses. Existing land uses would not be affected by either the Proposed Action or No Action alternative, except for the possible temporary disruption of farming activities. This would be minimized to the extent practical by timing construction activities to avoid planting and harvesting seasons. WAPA would compensate landowners for any crop losses due to constructing, operating, or maintaining the line, as specified in WAPA's easement terms.

Zoning ordinances may restrict some uses. Any newly acquired easements and ROWs would be issued in compliance with the county-specific land development plans and ordinances.

Neither alternative would convert farmland to non-agricultural uses. Short-term impacts to prime farmland could include reduced productivity due to soil compaction. Long-term impacts could include erosion, either by wind or water, and any contamination by release of regulated materials. WAPA's environmental commitments listed in the previous sections (Soils, Solid and Hazardous Waste, and Water Resources) would minimize soil erosion and impacts from spills.

Cultural Resources

The National Historic Preservation Act (NHPA) and the Archaeological Resources Protection Act protect significant cultural resources. Section 106 of the NHPA specifically addresses the process which individual Federal agencies must follow to identify, evaluate, and coordinate their efforts and recommendations concerning cultural resources. Identified cultural resources are evaluated based on criteria for inclusion on the National Register of Historic Places (NRHP). Sites that meet at least one of the criteria for listing on the NRHP are considered significant and are referred to as "historic properties."

A cultural resource review and literature search was conducted in May and September of 2018, as well as February of 2019. Site records and survey reports were studied to identify resources of concern along the entire CCR-GA corridor plus a 0.5 mile buffer on either side of WAPA's ROW. The records search revealed that along the entire corridor there are 433 known

archaeological sites and 238 surveyed architectural properties. Of the known sites within the corridor, 72 are located directly within WAPA's ROW.

The literature search revealed that 98 archaeological investigations have been previously conducted along the corridor, the vast majority of which are linear surveys (electric lines, water lines, pipelines, buried cable lines, and road surveys). The remaining investigations are mainly for aggregate borrow areas, highway interchanges, or general survey or evaluation/mitigation reports for federal lands (e.g. Lake Ilo National Wildlife Refuge). Approximately 58 of those previous investigations took place within WAPA's existing ROW.

WAPA's Regional Preservation Officer (RPO) and Billings Office Archaeologist completed a field visit in May 2018, in order to access the accuracy of the previously recorded site locations, perform reconnaissance of ROW access locations, and to view the entire corridor. Due to the large number of sites along the corridor, WAPA staff only investigated those sites that could be easily accessed from the nearby highway, which generally runs along the transmission line ROW. Thirty-one sites were inspected and artifacts were identified on the ground surface at nearly all of the sites.

Environmental Impacts: Proposed Action and No Action Alternative

A consultation meeting was held at the ND SHPO on March 1, 2018. At that time, the agencies determined that both the proposed action and no action alternatives meet the definition of a maintenance activity since the transmission line is currently present and nearly all of the new structures would be placed within the existing holes, and the agencies discussed WAPA's intention to complete field "spot checks" of previous investigations (as described in the paragraph above).

WAPA has prepared an Archeological Monitoring and Controlled Testing Plan (treatment plan) that outlines the process for handling any newly identified sites along the transmission line and avoiding impacts to known sites. The treatment plan requires that both alternatives implement:

- Archaeological monitoring of pole replacements within existing unevaluated and NRHP eligible site boundaries.
- Survey or subsurface testing of any new structure, access road, or ground disturbing locations prior to construction.
- "No work" areas and buffer zones surrounding unevaluated and NRHP-eligible sites. These areas shall be considered avoidance areas. Prior to any construction activity, the avoidance areas shall be marked on the ground and employees, subcontractors, and others will be notified that vehicular or equipment access to these areas is prohibited. Ground markings shall be maintained throughout the duration of the contract.
- Construction crews will be monitored to the extent possible to prevent vandalism or unauthorized removal or disturbance of cultural artifacts or materials from sites.
- Should any unknown cultural resources be encountered during construction, ground disturbance activities at that location will be suspended until the provisions of the NHPA have been carried out.



The treatment plan would be used for consultation purposes with other federal and state agencies that own land along the ROW. Tribes would also be consulted regarding the project.

Generally, impacts to cultural resources could occur during all project activities, including site preparation, access road use, structure removal and installation, and on-going O&M. Increased traffic can lead to destruction of sites by unauthorized vehicles driving over the site surface. Also, increased pedestrian traffic can lead to vandalism of sites including artifact collection, destroying existing standing structures, and “trashing” sites and sacred areas.

Specifically, Phase 1 of the Proposed Action contains 92 known archaeological sites and 12 architectural properties. Phase 1 will require three new “dead end” structures (that is, a wooden transmission line structure with three poles instead of two). The footprint of one of the structures has not been surveyed (since its exact location is unknown), but the general pole location is not within the boundary of any known archaeological site or site lead. The remaining two structures are located within the boundaries of an unevaluated site and an eligible site, respectively. Subsurface survey and testing would take place at the new pole locations for each of these structures per the approved limited treatment plan mentioned above. Structure location plans for project Phases 2 through 4 have not yet been designed, so new pole locations have not been identified for the subsequent project phases; however, these phases will also be subject to the requirements of the treatment plan and to continued consultation as per Section 106 of the NHPA.

On rare occasions cultural or paleontological sites may be discovered during excavation or other earth-moving activities. If evidence of a cultural or paleontological site is discovered, construction crews will immediately notify the WAPA RPO and give the location and nature of the findings. All activities within a 50-foot radius of the discovery will be halted pending further investigation.

Visual Resources

The visual environment where the existing transmission line lies contains mostly rolling rural landscapes. Portions of the transmission line pass near or through the towns of Killdeer, Dunn, Halliday, Dodge, Golden Valley, Zap, Beulah, and Hazen. The existing alignment passes through two unique visual resources: the Refuge and the far eastern portion of the LMNG.

Environmental Impacts: Proposed Action and No Action Alternatives

Because both Alternatives would occur within the existing alignment, no new impacts to the view shed are expected. The Proposed Action would result in poles that are roughly 10-15 feet taller than the existing poles. The new poles would be more visible than the existing poles.

Construction and O&M activities would cause short-term visual impacts due to the presence of vehicles, vegetation removal, and general human activity.

Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” directs Federal agencies to develop strategies to

identify and address disproportionately high and adverse impacts of programs, policies, and activities on minority and low-income populations.

Environmental Impacts: Proposed Action and No Action Alternatives

The Alternatives are not expected to have adverse impacts to any population, including minority or low-income populations.

Health and Safety

Electrical and Magnetic Fields

Natural and man-made sources of electric and magnetic fields (EMFs) are commonplace in the United States. Man-made sources of EMFs within the Project area include the existing WAPA substation and transmission line, various other utility-owned power lines, as well as ordinary household appliances such as hairdryers, electric shavers, computers, wireless networks, cell phones, microwaves, and remote controls. Because EMFs are vector quantities, they have a strength and a specific direction. The strength of an EMF decreases substantially with increasing distance from the source.

Potential health effects from EMF have been extensively studied. The studies found a weak link between EMF exposure and a slightly increased risk of childhood leukemia. Studies that have been conducted on adults show no evidence of a link between EMF exposure and adult cancers, such as leukemia, brain cancer, and breast cancer (National Institute of Environmental Health Sciences, 2018).

There are currently no Federal or State regulations on maximum EMF intensity. However, the EPA, International Commission on Non-ionizing Radiation Protection, and the Institute of Electrical and Electronics Engineers recommends that you limit your exposure to 0.5 milliGaus (mG) to 2.5 mG. For a 115 kV transmission line, the expected EMF levels are:

Table 3-3: EMF Levels with Increasing Distance from a Power Transmission Line

Transmission Line Voltage (kV)	Electric Field (kV)				Average Magnetic Field (mG)			
	At the Source	100 Feet Away	200 Feet Away	300 Feet Away	At the Source	100 Feet Away	200 Feet Away	300 Feet Away
115	1.0	0.07	0.01	0.003	29.7	1.7	0.4	0.2

Source: Bonneville Power Administration, 1994

The greatest hazard from a transmission line is primary shocks or direct electrical contact with the conductors. Primary shocks can result in bodily harm. Caution should be exercised to avoid primary shocks resulting from line strikes with equipment (e.g., drill rigs, farm equipment, and electrical service equipment).

Steady-state currents are those that flow when a person contacts an ungrounded object, providing a path for the induced current to flow to the ground. Steady-state-current shocks could cause an

involuntary and potentially harmful movement, but cause no direct bodily harm. Steady-state current shocks are infrequent and represent a nuisance rather than a hazard.

Coronal Noise

Modern transmission lines are designed, constructed, and maintained so that during dry conditions the lines generate minimal noise. Corona-generated audible noise is a crackling/hissing noise. During dry weather, noise from transmission lines is generally indistinguishable from background noise. Under wet conditions, however, moisture collecting on the lines increases noise. Occasional corona humming noise at 120 hertz and higher is easily identified and, therefore, may cause complaints from nearby residents. Although corona noise could be an issue where transmission lines run through populated areas, there are no design-specific regulations to limit audible noise from transmission lines.

Environmental Impacts: Proposed Action and No Action Alternatives

In 2007, the World Health Organization (WHO) completed a review of health implications from magnetic fields and concluded, “virtually all of the laboratory evidence and the mechanistic evidence fail to support a relationship between low-level EMF and changes in biological function or disease status” (WHO, 2007). It is WAPA’s policy to design and construct transmission lines that reduce the EMF to the maximum extent feasible. WAPA’s policy is to apply any necessary mitigation to eliminate problems of induced currents and voltages onto conductive objects sharing a ROW, to the mutual satisfaction to the parties involved.

The ROW would keep future development from encroaching on the transmission line, which in turn would reduce the potential for EMF or noise effects to adjacent structures and inhabitants. WAPA’s existing ROW ranges between 75 and 80 feet. At 100 feet away from a 115 kv transmission line, the exposure limits are within the EPA recommendations. Exposures within the ROW are expected to be short-term, such as during O&M activities, driving under the line for farming/ranching activities, or other transient activities. Long-term exposure above the EPA recommended levels is not expected.

Various techniques, such as shielding, exist for eliminating adverse impacts on radio and television reception. WAPA would address individual complaints concerning radio and television interference as needed.



Chapter 4: Public Involvement and Coordination

WAPA offered several opportunities for public and regulatory agency involvement.

WAPA notified stakeholders of the project and solicited information on their concerns through informal phone calls and email correspondence. The agencies contacted included USFWS, COE, USFS, and FEMA. In addition, baseline information on area resources was collected using existing literature and site visits.

Interested parties were notified of the draft EA and comment opportunities via announcements in the following newspapers:

- McKenzie County Famer
- MHA Times
- Dunn County Herald
- Hazen Star
- Beulah Beacon

Federal, tribal, state and local governments and other interested organizations and stakeholders were notified of the draft EA via official correspondence dated October 28, 2019. Public notice and other project materials are posted at WAPA's website, available at the following link: https://www.wapa.gov/regions/UGP/Environment/Pages/CCR_GA.aspx.

Chapter 5: References

Bonneville Power Administration. 1994. *Electric Power Lines: Questions and Answers on Research into Health Effects*, Portland, Oregon: U.S. Department of Energy.

Bryce, S.A. and J.M. Omernik. 1996. *Ecoregions of North Dakota and South Dakota*. Accessed online from <https://www.epa.gov/eco-research/ecoregion-download-files-state-region-8#pane-39>.

Environmental Protection Agency (EPA). 2001. *Surf Your Watershed* database. Access online from: http://cfpub.epa.gov/surf/locate/county_input.cfm

EPA. 1992. *EMF in Your Environment: Magnetic field measurements of everyday electrical devices*. December 1992.

EPA. 2019a. *Current Nonattainment Counties for All Criteria Pollutants*. Accessed online from <https://www3.epa.gov/airquality/greenbook/ancl.html>.

EPA. 2019b. *Facility Level Information on GreenHouse Gasses Tool (FLIGHT). 2017 Greenhouse Gas Emissions from Large Facilities*. Accessed online from <https://ghgdata.epa.gov/>

Electric Power Research Institute. 1997. *Pole Preservatives in Soils Adjacent to In-Service Utility Poles in the United States. EPRI TR-108598, EPRI Projects 2879 & 9024, ESEERCO Project EP92-37, Final Report, December 1997*. Prepared by: META Environmental, Inc., GEI Consultants, Inc., Utah State University, and Science and Technology Management, Inc.

Federal Emergency Management Agency (FEMA), U.S. Department of Homeland Security. 2019. *National Flood Hazard Layer (NFHL) Viewer*. Accessed online from <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9c&extent=-101.86710798673556,47.31969133364531,-101.20243513517396,47.55191974411907> and https://www.floodmaps.fema.gov/fhm/fmx_main.html

Frerichs, Todd. May and September 2018. Personal communication. Project Leader, Audubon NWR/WMD Complex, USFWS, 3275 11th St. NW, Coleharbor, ND 58531.

Johnson, Sandy. 25 July 2018. Personal communication. Conservation Biologist, North Dakota Game and Fish Department, 100 N. Bismarck Expwy, Bismarck, ND 58501.

National Institute of Environmental Health Sciences. 2018. *Electric & Magnetic Fields*. Accessed online from <https://www.niehs.nih.gov/health/topics/agents/emf/index.cfm>.

Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture. 2008. *Lower Little Missouri River Hydrologic Unit Profile*. Accessed online from https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs141p2_000620.pdf.

Niemuth, Neal D, AJ Ryba, AT Pearse, SM Kvas, DA Brandt, B Wangler, JE Austin, and MJ Carlisle. 2018. *Opportunistically collected data reveal habitat selection by migrating Whooping Cranes in the U.S. Northern Plains*. The Condor: Ornithological Applications 120:343-356.

NRCS. 2019a. *Web Soil Survey*. Accessed online from <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>

NRCS. 2019b. *Official Soil Series Descriptions*. Accessed online from https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/geo/?cid=nrcs142p2_053587

NRCS. 2019c. *PLANTS Database*. Accessed online at <https://plants.sc.egov.usda.gov/java/>

North Dakota Department of Health. 2019. *Active Solid Waste Facilities in North Dakota - North Dakota Department of Health*. Accessed online from: <https://deq.nd.gov/FOIA/SolidWaste/ActiveSWLandfills.aspx>

North Dakota Department of Transportation (NDDOT). 2016. Planning/Asset Management Division, in cooperation with the U.S. Department of Transportation Federal Highway Administration. *2016 traffic Volume Map*. Accessed online from https://www.dot.nd.gov/docs/maps/traffic/trafficstate_2016.pdf

NDDOT. 2019. *Transportation Information Map*. Available online from: https://gis.dot.nd.gov/external/ge_html/?viewer=ext_transinfo

North Dakota Department of Agriculture. 2019. *County and City Listed Noxious Weeds*. Accessed online from <https://www.nd.gov/ndda/sites/default/files/resource/2019%20May%20-%20City%20County%20Noxious%20Weeds%20List.pdf>.

U.S. Fish and Wildlife Service (USFWS), Department of the Interior. 2019a. *List of North Dakota endangered, threatened, proposed and candidate species and designated Critical Habitat*. U.S. Fish and Wildlife Service, Bismarck Field Office. Information for Planning and Consultation Database. Available online at: <https://ecos.fws.gov/ipac/>.

USFWS. 2019b. *National Wetlands Inventory mapper tool*. Accessed online from <https://www.fws.gov/wetlands/data/mapper.html>

U.S. Forest Service (USFS), Department of Agriculture. 1996. *Ecological Subregions of the United States. Section 331F-Northwestern Great Plains*. Available online from: <https://www.fs.fed.us/land/pubs/ecoregions/ch41.html#331F>.

USFS. 2001. *Land and Resource Management Plan for the Dakota Prairie Grasslands, Northern Region. North Dakota Prairie Grasslands*.

U.S. Geological Survey (USGS). 2000. *Groundwater Atlas of the U.S.* Available online from <https://pubs.usgs.gov/ha/730/report.pdf>.

USGS. 2019a. *Aquifers and Confining units of the Northern Great Plains aquifer system crop out over large areas in Montana and Wyoming and subcrop beneath glacial deposits in much of North Dakota and South Dakota*. Available online from:

https://pubs.usgs.gov/ha/ha730/ch_i/gif/I049.GIF

USGS. 2019b. *National Water Information system: Web Interface*. Available online from:

https://nwis.waterdata.usgs.gov/nwis/dv?referred_module=gw&site_no=472144102453402

World Health Organization. 2007. *Environmental Health Criteria Volume No. 238 on Extremely Low Frequency Fields*. Accessed online from:

<https://www.who.int/peh-emf/publications/Comple DEC 2007.pdf>



APPENDIX A: EXAMPLE PHOTOS OF TYPICAL LINE REBUILD ACTIVITIES



Photo 1: Guy wire installation



Photo 2: ROW used to traverse from structure to structure. Also an example of the typical landscape of Western North Dakota.





Photo 3: Grading at a structure site to level crane set-up.



Photo 4: The structure in the foreground is an example of the structure design that WAPA is proposing to install. The structures in the background are the original structures, which WAPA is proposing to replace.





Photo 5: Typical earth disturbance at pole locations during hole auguring.



Photo 6: Equipment and disturbance during installation of structures.



APPENDIX B: STANDARD MITIGATION MEASURES FOR CONSTRUCTION, OPERATION AND MAINTENANCE OF TRANSMISSION LINES

1. The contractor shall limit the movement of its crews and equipment to the right-of-way (ROW), including access routes. The contractor shall limit movement on the ROW so as to minimize damage to grazing land, crops, or property, and shall avoid marring the land.
2. When weather and ground conditions permit, the contractor shall obliterate all contractor-caused deep ruts that are hazardous to farming operations and to movement of equipment. Such ruts shall be leveled, filled, and graded, or otherwise eliminated in an approved manner. In hay meadows, alfalfa fields, pastures, and cultivated productive lands, ruts, scars, and compacted soils shall have the soil loosened and leveled by scarifying, harrowing, disking, or other approved methods. Damage to ditches, tile drains, terraces, roads, and other features of the land shall be corrected. Before final acceptance of the work in these agricultural areas, all ruts shall be obliterated, and all trails and areas that are hard-packed as a result of contractor operations shall be loosened, leveled, and reseeded. The land and facilities shall be restored as nearly as practicable to their original conditions.
3. Water bars or small terraces shall be constructed across all ROW and access roads on hillsides to prevent water erosion and to facilitate natural revegetation.
4. The contractor shall comply with all Federal, State, and local environmental laws, orders, and regulations. Prior to construction, all supervisory construction personnel and heavy equipment operators will be instructed on the protection of cultural and ecological resources.
5. The contractor shall exercise care to preserve the natural landscape and shall conduct its construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for permanent works, approved construction roads, or excavation operations, all trees, native shrubbery, and vegetation shall be preserved and shall be protected from damage by the contractor's construction operations and equipment. The edges of clearings and cuts through tree, shrubbery, or other vegetation shall be irregularly shaped to soften the undesirable visual impact of straight lines. Where such clearing occurs in the Lake Mead National Recreation Area, the contractor shall consult with the on-site Park Representative.
6. On completion of the work, all work areas except access roads shall be scarified or left in a condition which will facilitate natural revegetation, provide for proper drainage, and prevent erosion. All destruction, scarring, damage, or defacing of the landscape resulting from the contractor's operations shall be repaired by the contractor.
7. Construction staging areas shall be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent. On abandonment, all storage and construction buildings, including concrete footings and slabs, and all construction materials and debris shall be removed from the site. The area shall be regraded as required so that



- all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion.
8. Borrow pits shall be excavated so that water will not collect and stand therein. Before being abandoned, the sides of borrow pits shall be brought to stable slopes, with slope intersections shaped to carry the natural contour of adjacent undisturbed terrain into the pit or borrow area giving a natural appearance. Waste piles shall be shaped to provide a natural appearance.
 9. Construction activities shall be performed by methods that will prevent entrance, or accidental spillage, of solid matter contaminants, debris, any other objectionable pollutants and wastes into streams, flowing or dry watercourses, lakes, and underground water sources. Such pollutants and waste include, but are not restricted to refuse, garbage, cement, concrete, sanitary waste, industrial waste, radioactive substances, oil and other petroleum products, aggregate processing tailing, mineral salts, and thermal pollution.
 10. Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses, shall be conducted in a manner to prevent muddy water and eroded materials from entering the streams or watercourses by construction of intercepting ditches, bypass channels, barriers, settling ponds, or by other approved means.
 11. Excavated material or other construction materials shall not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be wasted away by high water or storm runoff or can in any way encroach upon the actual watercourse itself.
 12. Waste waters from concrete batching, or other construction operations shall not enter streams, watercourses, or other surface waters without the use of such turbidity control methods as settling ponds, gravel-filter entrapment dikes, approved flocculating processes that are not harmful to fish, recirculation systems for washing of aggregates, or other approved methods. Any such waste waters discharged into surface waters shall be essentially free of settleable material. For the purpose of these specifications, settleable material as defined as that material which will settle from the water by gravity during a 1-hour quiescent detention period.
 13. The contractor shall utilize such practicable methods and devices as are reasonably available to control, present, and otherwise minimize atmospheric emissions or discharges of air contaminants.
 14. The emission of dust into the atmosphere will not be permitted during the manufacture, handling, and storage of concrete aggregate, and the contractor shall use such methods and equipment as necessary for the collection and disposal, or prevention, of dust during these operations. The contractor's methods of storing and handling cement and pozzolans shall also include means of eliminating atmospheric discharges of dust.



15. Equipment and vehicles that show excessive emissions of exhaust gases due to poor engine adjustments, or other inefficient operating conditions, shall not be operated until repairs or adjustments are made.
16. The contractor shall prevent any nuisance to persons or damage to crops, cultivated fields, and dwellings from dust originating from his operations. Oil and other petroleum derivatives shall not be used for dust control. Speed limits shall be enforced, based on road conditions, to reduce dust problems.
17. To avoid nuisance conditions due to construction noise, all internal combustion engines used in connection with construction activity shall be fitted with an approved muffler and spark arrester.
18. Burning or burying waste materials on the ROW or at the construction site will be permitted if allowed by local regulations. The contractor shall remove all other waste materials from the construction area. All materials resulting from the contractor's clearing operations shall be removed from the ROW.
19. The contractor shall make all necessary provisions in conformance with safety requirements for maintaining the flow of public traffic and shall conduct its construction operations to offer the least possible obstruction and inconvenience to public traffic.
20. Western will apply necessary mitigation to eliminate problems of induced currents and voltages onto conductive objects sharing a ROW, to the mutual satisfaction to the parties involved.
21. Structures will be carefully located to avoid sensitive vegetative conditions, including wetlands, where practical.
22. ROW will be located to avoid sensitive vegetation conditions including wetlands where practical, or, if they are linear to cross them at the least sensitive feasible point.
23. Removal of vegetation will be minimized to avoid creating a swath along the ROW.
24. Topsoil will be removed, stockpiled, and respread at all heavily disturbed areas not needed for maintenance access.
25. All disturbed areas not needed for maintenance access will be reseeded using mixes approved by the landowner or land management agency.
26. Erosion control measures will be implemented on disturbed areas, including areas that must be used for maintenance operations (access ways and areas around structures).
27. The minimum area will be used for access ways (12 feet to 15 feet wide, except where roadless construction is used).



28. Structures will be located and designed to conform with the terrain. Leveling and benching of the structure sites will be the minimum necessary to allow structure assembly and erection.
29. ROW will be located to utilize the least steep terrain and, therefore, to disturb the smallest area feasible.
30. Careful structure location will ensure spanning of narrow flood prone areas.
31. Structures will not be sited on any potentially active faults.
32. Structure sites and other disturbed areas will be located at least 300 feet, where practical, from rivers, streams (including ephemeral streams), ponds, lakes, and reservoirs.
33. New access ways will be located at least 300 feet, where practical, from rivers, ponds, lakes, and reservoirs.
34. At crossings of perennial streams by new access ways, culverts of adequate size to accommodate the estimated peak flow of the stream will be installed. Construction areas will minimize disturbance of the stream banks and beds during construction. The mitigation measures listed for soil/vegetation resources will be performed on areas disturbed during culvert construction.
35. If the banks of ephemeral stream crossings are sufficiently high and steep that breaking them down for a crossing would cause excessive disturbance, culverts will be installed using the same measures as for culverts on perennial streams.
36. Blasting will not be allowed.
37. Power line structures will be located, where practical, to span small occurrences of sensitive land uses, such as cultivated areas. Where practicable, construction access ways will be located to avoid sensitive conditions.
38. ROW will be purchased at fair market value and payment will be made of full value for crop damages or other property damage during construction or maintenance.
39. The Power line will be designed to minimize noise and other effects from energized conductors.
40. The precise location of all structure sites, ROW, and other disturbed areas will be determined in cooperation with landowners or land management agencies.
41. Crossing of operating railroads by construction vehicles or equipment in a manner that would cause delays to railroad operations will be avoided. Construction will be coordinated with railroad operators. Conductors and overhead wire string operations would use guard structures to eliminate delays.
42. Before construction, Western will perform a Class III (100 percent of surface) cultural survey on all areas to be disturbed, including structure sites and new access ways. These



surveys will be coordinated with the appropriate land owner or land management agency. A product of the survey will be a Cultural Resources Report recording findings and suggesting mitigation measures. These findings will be reviewed with the State Historic Preservation Offices and other appropriate agencies, and specific mitigation measures necessary for each site or resource will be determined. Mitigation may include careful relocation of access ways, structure sites, and other disturbed areas to avoid cultural sites that should not be disturbed, or data recovery.

43. The contractor will be informed of the need to cease work in the location if cultural resource items are discovered.
44. Construction activities will be monitored or sites flagged to prevent inadvertent destruction of any cultural resource for which the agreed mitigation was avoidance.
45. Construction crews will be monitored to the extent possible to prevent vandalism or unauthorized removal or disturbance of cultural artifacts or materials from sites where the agreed mitigation was avoidance.
46. Should any cultural resources that were not discovered during the Class III Survey be encountered during construction, ground disturbance activities at that location will be suspended until the provisions of the National Historic Preservation Act and enabling legislation have been carried out.
47. Construction activities will be monitored or significant locations flagged to prevent inadvertent destruction of any paleontological resource for which the agreed mitigation was avoidance.
48. Clearing for the access road will be limited to only those trees necessary to permit the passage of equipment.
49. The access road will follow the lay of the land rather than a straight line along the ROW where steep features would result in a higher disturbance.



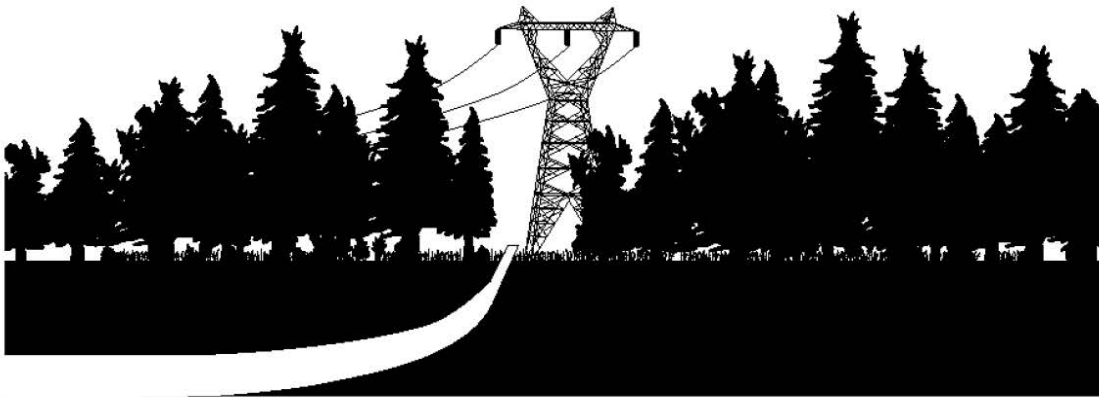
APPENDIX C: CONSTRUCTION STANDARD 13, ENVIRONMENTAL QUALITY PROTECTION



Western Area
Power Administration

CONSTRUCTION STANDARDS

STANDARD 13 ENVIRONMENTAL QUALITY PROTECTION



September 2016



STANDARD 13 – ENVIRONMENTAL QUALITY PROTECTION

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STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.1 – REQUIRED SUBMITTALS, REPORTS, AND PLANS

1. FINAL PAYMENT: For each section below, final payment will be withheld until the referenced submittal, report, or plan is received.

SECTION 13.2 – CONTRACTOR FURNISHED DATA

1. RECYCLED MATERIALS QUANTITY REPORT: Submit quantities of recycled materials listed in Section 13.7, "Recycled Materials Quantities", to the COR prior to submittal of final invoice.
2. RECOVERED AND BIOBASED MATERIAL PRODUCTS REPORT: Provide the COR the following information for purchases of items listed in Section 13.8, "Use of Recovered Material and Biobased Material Products".
 - (1) Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.
 - (2) Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.
3. REFRIGERANT RECEIPT: The contractor shall provide a record of all refrigerant usage, recycling, or disposal on WAPA HVAC systems. In the event refrigerant is either charged into or removed and reclaimed from a WAPA HVAC system, the contractor shall provide either a record of usage or a receipt from the EPA-certified refrigerant reclaimer including whether it was either added to or reclaimed from the equipment, the date, and the amount and type of refrigerant used to the COR prior to submittal of final invoice.
4. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR prior to submittal of final invoice in accordance with Section 13.9.8, "Waste Material Quantity Report".
 - (1) Unregulated Wastes (i.e., trash): Volume in cubic yards or weight in pounds.
 - (2) Hazardous or Universal Wastes: Weight in pounds.
 - (3) PCB Wastes: Weight in pounds.
 - (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).
5. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Submit the Plan as described in Section 13.11.2, "Spill Prevention Notification and Cleanup Plan", to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.
6. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Submit the Plan as described in Section 13.11.3, "Tanker Oil Spill Prevention and Response Plan", to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.



STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

7. PESTICIDE USE PLAN: Submit a plan as described in Section 13.12.3, "Pesticide Use Plan", to the COR for review and comment 14 days prior to the date of intended pesticide application. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Within seven days after application, submit a written report in accordance with Standard 2 – Sitework, Section 2.1.1_5, "Soil-Applied Herbicide".
8. TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING - CONSUMER INFORMATION SHEET RECEIPT: Submit treated wood utility poles and crossarms - consumer information sheet receipts to the COR prior to submittal of final invoice (see 13.13, "Treated Wood Utility Poles and Crossarms Recycling or Disposal").
9. PREVENTION OF AIR POLLUTION: Submit a copy of permits, if required, as described in 13.14, "Prevention of Air Pollution" to the COR 14 days prior to the start of work.
10. SULFUR HEXAFLUORIDE (SF6) EMISSIONS: A receipt from the SF6 gas supplier stating that the gas was reclaimed, the amount of SF6, and the date shall be submitted to the COR prior to submittal of final invoice in accordance with Section 13.14.4(3), "Certificates of Disposal and Receipts".
11. ASBESTOS LICENSES OR CERTIFICATIONS: Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work as described in 13.15, "Handling and Management of Asbestos Containing Material" to the COR 14 days prior to starting work. Submit copies of certificates of disposal and/or receipts for waste to the COR prior to submittal of final invoice.
12. LEAD PAINT NOTICES: Submit a copy of lead paint notices with contractor and recipient signatures as described in 13.16, "Material with Lead-based Paint" to the COR prior to submittal of final invoice. Submit copies of certificates of disposal and/or receipts for waste to the COR prior to submittal of final invoice.
13. WATER POLLUTION PERMITS: Submit copies of any water pollution permits as described in 13.17, "Prevention of Water Pollution" to the COR 14 days prior to start of work.
14. PCB TEST REPORT: Submit a PCB test report as described in 13.18, "Testing, Draining, Removal, and Disposal of Oil-filled Electrical Equipment", prior to draining, removal, or disposal of oil or oil-filled equipment that is designated for disposal.
15. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled, or reprocessed as described in 13.18, "Testing, Draining, Removal, and Disposal of Oil-filled Electrical Equipment", to the COR prior to submittal of final invoice.
16. OSHA PCB TRAINING RECORDS: Submit employee training documentation records to the COR 14 days prior to the start of work as described in 13.19.1.
17. CLEANUP WORK MANAGEMENT PLAN: Submit a Cleanup Work Management Plan as described in 13.19, "Removal of Oil-contaminated Material" to the COR for review and comment 14 days prior to the start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.
18. POST CLEANUP REPORT: Submit a Post-Cleanup Report as described in 13.19, "Removal of Oil-contaminated Material" to the COR prior to submittal of final invoice.



STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.3 – ENVIRONMENTAL REQUIREMENTS

Comply with Federal, State, and local environmental laws and regulations. The sections in this Standard further specify the requirements.

SECTION 13.4 – LANDSCAPE PRESERVATION

1. **GENERAL:** Preserve landscape features in accordance with the contract clause titled "Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements." Exercise care to preserve the natural landscape and conduct activities to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the project vicinity. Except where clearing is required for permanent works, approved construction roads, or excavation operations, vegetation shall be preserved and shall be protected from damage by project operations and equipment.
2. **CONSTRUCTION ROADS:** Location, alignment, and grade of construction roads shall be subject to the COR's approval. When no longer required, surfaces of construction roads shall be scarified to facilitate natural revegetation, provide for proper drainage, and prevent erosion. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.
3. **CONSTRUCTION FACILITIES:** Shop, office, material lay down and material and equipment storage areas, and yard areas shall be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent and prevent impact on sensitive riparian areas and flood plains. Storage and construction buildings, including concrete footings and slabs, shall be removed from the site prior to contract completion. The area shall be re-graded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion or transport of sediment and pollutants. If re-vegetation is required, use seed mixtures as recommended by Natural Resources Conservation Service or other land managing agency as appropriate.

SECTION 13.5 – PRESERVATION OF CULTURAL AND PALEONTOLOGICAL RESOURCES

1. **GENERAL:** Do not, at any time, remove, disturb, or otherwise alter cultural artifacts or paleontological resources (fossils). Cultural artifacts may be of scientific or cultural importance and include, but are not limited to bones, pottery, projectile points (arrowheads), other stone or metal tools, surface features (stone circles, rock piles, etc.), glass, metal, ceramic, or other historic objects, structures and buildings (including ruins). Paleontological resources can be of scientific importance and include mineralized animals and plants or trace fossils such as footprints. Both cultural and paleontological resources are protected by Federal Regulations during Federal construction projects. Contractor shall restrict all ground disturbing activities to areas reviewed/investigated and approved WAPA by the Regional Preservation Officer (RPO) and as specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-of-way and 1.3.2 Access to the Work and Haul Routes.
2. **KNOWN CULTURAL OR PALEONTOLOGICAL SITES:** The contractor shall ensure that all construction activities avoid the boundaries of specific cultural, historic, or scientific sites. Following issuance of notice to proceed, WAPAWAPA will provide drawings or maps that indicate the areas of avoidance in relation to the project area. Prior to any construction activity, the avoidance areas shall be marked on the ground in a manner approved by the COR in conjunction with the RPO. When avoidance is not possible, the Contractor shall provide WAPA a 90-day notice of their inability to avoid historic properties. WAPA will consult with the appropriate authorities and the contractor will not be permitted to work within or near the boundaries of the historic property until the RPO approves of the work and the COR directs the contractor to proceed. Instruct employees and subcontractors that vehicular or equipment access to these areas is prohibited. If access is absolutely necessary, first



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obtain approval from the COR in conjunction with the RPO. WAPA will remove the markings during or following final cleanup.

3. **WORKING WITH CULTURAL, PALEONTOLOGICAL, OR TRIBAL MONITORS:** For some project work, WAPA will require an archaeological, paleontological or tribal monitor at or near cultural or paleontological site locations. The contractor, contractor's employees, and subcontractors shall work with the monitor to insure that sensitive areas are avoided. Where monitors are required, the monitor shall meet with the crew each morning to go over the day's work. The monitor will also conduct awareness training for all contractors prior to any work in the field. Untrained personnel shall not be allowed in the construction area. For sensitive areas requiring a monitor, the contractor may not access those areas without a monitor being present.
4. **UNKNOWN CULTURAL OR PALEONTOLOGICAL SITES:** On rare occasions cultural or paleontological sites may be discovered during excavation or other earth-moving or other construction activities.
 - (1) **Reporting:** If evidence of a cultural or paleontological site is discovered, cease work in the area immediately and notify the COR of the location and nature of the findings. If a monitor is present, the monitor should also be notified. Stop all activities within a 200-foot radius of the discovery and do not proceed with work within that radius until directed to do so by the COR.
 - (2) **Care of Evidence:** Protect the area. Do not remove, handle, alter, or damage artifacts or fossils uncovered during construction activities.
5. **SPECIAL CONSIDERATIONS:** Refer to Division 13 of the Project Specifications for site-specific requirements including, but not limited to, known and unknown cultural or paleontological resources.

SECTION 13.6 – NOXIOUS WEED CONTROL

Comply with Federal, State, and local noxious weed control regulations. At Contractor's expense, obtain required permits and conduct required notifications. Provide a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed. Transport only construction vehicles that are free of mud and vegetation debris to staging areas and the project right-of-way. All seed mixes and mulch used for reclamation activities will be certified weed-free.

SECTION 13.7 – RECYCLED MATERIALS QUANTITIES

1. **GENERAL:** All materials generated from the project that can be recycled, shall be recycled. Record quantities of material by category that is salvaged, recycled, reused, or reprocessed, including:
 - (1) Transformers, Breakers: Weight without oil.
 - (2) Aluminum Conductor – Steel Reinforced (ACSR): Weight in pounds or tons.
 - (3) Steel: Weight in pounds or tons.
 - (4) Aluminum: Weight in pounds or tons.
 - (5) Copper: Weight in pounds or tons.
 - (6) Other Metals: Weight in pounds or tons.
 - (7) Oil: Gallons (separate by type - less than 2 ppm PCB, 2 to 50 ppm PCB, and 50 or greater ppm PCB).



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- (8) Gravel, Asphalt, Or Concrete: Weight in pounds or tons.
 - (9) Batteries: Weight in pounds.
 - (10) Treated Wood Utility Poles and Crossarms: Weight in pounds.
 - (11) Wood construction material: Weight in pounds.
 - (12) Cardboard: Weight in pounds.
 - (13) Porcelain Insulators: Weight in pounds.
 - (14) Glass: Weight in pounds.
 - (15) Fluorescent Bulbs: Weight in pounds.
 - (16) Ballasts: Weight in pounds.
2. RECYCLED MATERIAL QUANTITY REPORT: Submit quantities (pounds or metric tons) of all recycled material by category to the COR within 30 days of recycling and prior to submittal of final invoice.

SECTION 13.8 – USE OF RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS

1. RECOVERED MATERIAL PRODUCTS: If the products listed below or other products listed at <https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program> are obtained as part of this project, purchase the items with the highest recovered material content possible unless recovered material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

Example include:

- (1) Building Insulation Products.
- (2) Carpet.
- (3) Carpet cushion.
- (4) Cement and concrete containing coal fly ash, ground granulated blast furnace slag, cenospheres, or silica fume.
- (5) Consolidated and reprocessed latex paint.
- (6) Floor Tiles.
- (7) Flowable fill.
- (8) Laminated Paperboard.
- (9) Modular threshold ramps.
- (10) Nonpressure pipe.



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- (11) Patio Blocks.
 - (12) Railroad grade crossing surfaces.
 - (13) Roofing materials.
 - (14) Shower and restroom dividers/partitions.
 - (15) Signage.
 - (16) Structural Fiberboard.
2. **BIOBASED MATERIAL PRODUCTS:** If the products listed at <https://www.biopreferred.gov/BioPreferred/faces/pages/ProductCategories.xhtml> are obtained as part of this project, purchase the items with the highest biobased content possible and no less than the percent indicated for each product unless biobased material products are not available: 1) competitively within a reasonable time frame, 2) meeting reasonable performance standards as defined in the Standards or Project Specifications, or 3) at a reasonable price.

NOTE: All station service and pole mounted transformers will be bio-based oil. WAPA large transformers will be evaluated on a best value basis using life cycle cost analysis.

3. **RECOVERED MATERIAL AND BIOBASED MATERIAL PRODUCTS REPORT:** Provide the COR the following information for purchases of those items listed above:

Quantity and cost of listed items with recovered or biobased material content and quantity and cost of listed items without recovered or biobased material content prior to submittal of final invoice.

Written justification of listed items if recovered material or biobased material products are not available: 1) competitively within a reasonable time frame; 2) meeting reasonable performance standards as defined in the Standards or Project Specifications; or 3) at a reasonable price.

SECTION 13.9 – DISPOSAL OF WASTE MATERIAL

- 1. **GENERAL:** Dispose or recycle waste material in accordance with applicable Federal, State and local regulations and ordinances. In addition to the requirements of the Contract Clause "Cleaning Up", remove all waste material from the construction site. No waste shall be left on WAPA property, right-of-way, or easement. Burning or burying of waste material is not permitted.
- 2. **HAZARDOUS, UNIVERSAL, AND NON-HAZARDOUS WASTES:** Manage hazardous, universal, and non-hazardous wastes in accordance with State and Federal regulations.
- 3. **USED OIL:** Used oil generated from the Contractor activities shall be managed in accordance with used oil regulations.
- 4. **RECYCLABLE MATERIAL:** Reduce wastes, including excess WAPA material, by recycling, reusing, or reprocessing. Examples of recycling, reusing, or reprocessing includes, but is not limited to, reprocessing of solvents; recycling cardboard; and salvaging scrap metals.
- 5. **REFRIGERANTS AND RECEIPTS:** Refrigerants from air conditioners, water coolers, refrigerators, ice machines and vehicles shall be reclaimed with certified equipment operated by certified technicians if the item is to be disposed. Refrigerants shall be reclaimed and not vented to the atmosphere. A



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receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant, and the date shall be submitted to the COR prior to submittal of final invoice.

6. HALONS: Equipment containing halons that must be tested, maintained, serviced, repaired, or disposed must be handled according to EPA requirements and by technicians trained according to those requirements.
7. SULFUR HEXAFLUORIDE: SF₆ gas shall be reclaimed and shall not be vented to the atmosphere. See Section 13.14.4(3)
8. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR prior to submittal of final invoice.
 - (1) Unregulated Wastes (i.e., trash): Volume in cubic yards or weight in pounds.
 - (2) Hazardous or Universal Wastes: Weight in pounds.
 - (3) PCB Wastes: Weight in pounds.
 - (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

SECTION 13.10 – CONTRACTOR'S LIABILITY FOR REGULATED MATERIAL INCIDENTS

1. GENERAL: The Contractor is solely liable for all expenses related to spills, mishandling, or incidents of regulated material attributable to his actions or the actions of his subcontractors. This includes all response, investigation, cleanup, disposal, permitting, reporting, and requirements from applicable environmental regulation agencies.
2. SUPERVISION: The actions of the Contractor employees and subcontractors shall be properly managed at all times on WAPA property or while transporting WAPA's (or previously owned by WAPA) regulated material and equipment.

SECTION 13.11 – POLLUTANT SPILL PREVENTION, NOTIFICATION, AND CLEANUP

1. GENERAL: Provide measures to prevent spills of pollutants and respond appropriately if a spill occurs. A pollutant includes any hazardous or non-hazardous substance that when spilled, will contaminate soil, surface water, or ground water. This includes any solvent, fuel, oil, paint, pesticide, engine coolants, and similar substances.
2. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Provide the Plan to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Include the following in the Plan:
 - (1) Spill Prevention Measures: Describe the work practices or precautions that will be used at the job site to prevent spills. These may include engineered or manufactured techniques such as installation of berms around fuel and oil tanks; storage of fuels, paints, and other substances in spill proof containers; and management techniques such as requiring workers to handle material in certain ways.



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- (2) Notification: Most States and the Environmental Protection Agency require by regulation that anyone who spills certain types of pollutants in certain quantities notify them of the spill within a specific time period. Some of these agencies require written follow up reports and cleanup reports. Include in the Plan the types of spills for which notification would be made, the agencies notified, the information the agency requires during the notification, and the telephone numbers for notification.
 - (3) Employee Awareness Training: Describe employee awareness training procedures that will be implemented to ensure personnel are knowledgeable about the contents of the Plan and the need for notification.
 - (4) Commitment of Manpower: Equipment and Material. Identify the arrangements made to respond to spills, including the commitment of manpower, equipment and material.
 - (5) If applicable, address all requirements of 40CFR112 pertaining to Spill Prevention, Control and Countermeasures Plans.
3. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Provide a Tanker Oil Spill Prevention and Response Plan as required by the Department of Transportation if oil tankers with volume of 3,500 gallons or more are used as part of the project. Submit the Tanker Oil Spill Prevention and Response Plan to the COR for review and comment 14 days prior to start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

SECTION 13.12 – PESTICIDES

1. GENERAL: The term "pesticide" includes herbicides, insecticides, rodenticides and fungicides. Pesticides shall only be used in accordance with their labeling and applied by appropriately certified applicators.
2. ENVIRONMENTAL PROTECTION AGENCY REGISTRATION: Use only EPA-registered pesticides that are approved for the intended use and location. Follow all applicable label directions.
3. PESTICIDE USE PROPOSAL: Provide a pesticide use proposal that contains: 1) pesticide(s) proposed (include mixtures and surfactants), 2) treatment site, 3) intended rate of application, 4) a copy of labels and Safety Data Sheets, and 5) a copy of required applicator certifications. Submit the pesticide use proposal to the COR for review and comment 14 days prior to the date of intended application. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Within seven days after application, submit a written final report to the COR, including the pesticide applicators report, in accordance with Standard 2 – Sitework, Section 2.1.1.5. "Soil-Applied Herbicide, (4) Final Report".

SECTION 13.13 – TREATED WOOD UTILITY POLES AND CROSSARMS RECYCLING OR DISPOSAL

Whenever practicable, treated wood utility poles and crossarms removed during the project shall be recycled or transferred to the public for some uses. Treated wood utility poles and crossarms transferred to a recycler, landfill, or the public shall be accompanied by a written consumer information sheet for treated wood as provided by WAPA. Obtain a receipt, part of the consumer information sheet, from the recipient indicating that they have received, read, and understand the consumer information sheet. Treated wood products transferred to right-of-way landowners shall be moved off the right-of-way. Treated wood product scrap, poles, and crossarms that cannot be donated or reused shall be properly disposed in a landfill that



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accepts treated wood and has signed WAPA's consumer information sheet receipt. Submit treated wood utility poles and crossarms consumer information receipts to the COR prior to submittal of final invoice.

SECTION 13.14 – PREVENTION OF AIR POLLUTION

1. **GENERAL:** Ensure that construction activities and the operation of equipment are undertaken to reduce the emission of air pollutants. Submit a copy of permits for construction activities, if required (e.g., "non-attainment" areas, State implementation plans, or Class I air-sheds), from Federal, State, or local agencies to the COR 14 days prior to the start of work. The contractor shall fulfill the conditions under any applicable locally prepared Environmental Impact Statements (EISs) or Environmental Assessments (EAs) conducted for the project under the National Environmental Protection Act (NEPA).
2. **MACHINERY AIR EMISSIONS:** The Contractor and subcontractor machinery shall have, and shall use the air emissions control devices required by Federal, State or Local Regulation or ordinance.
3. **DUST ABATEMENT:** Dust shall be controlled. Oil shall not be used as a dust suppressant. Dust suppressants shall be approved by the COR prior to use.
4. **SULFUR HEXAFLUORIDE EMISSIONS:**
 - (1) **GENERALGENERALGENERAL:** WAPA complies with State, Federal, and local regulations regarding Mandatory Greenhouse Gas Reporting 40 CFR Part 98. The Contractor shall provide the information required by this section to the COR as described.
 - (2) The Contractor shall record quantities of SF₆ gas, including:
 - a. Nameplate capacity in pounds of SF₆ gas containing equipment.
 - b. Record pounds of SF₆ gas stored in containers, before transferring into energized equipment.
 - c. Record pounds of SF₆ gas left in containers, after transferring into energized equipment.
 - d. Pounds of SF₆ gas purchased from equipment manufacturers or distributors.
 - e. Pounds of SF₆ gas returned to suppliers.
 - f. Scales used to weigh cylinders must be accurate to within +/- 2 pounds and must have current calibration sticker.
 - (3) **CONTRACTOR FIELD QUALITY TESTING AND SF₆ GAS HANDLING:**
 - a. The Contractor shall test all functions to verify correct operation and conduct a leak test. No SF₆ gas leakage shall be allowed from any equipment or storage containers.
 - b. Atmospheric venting of SF₆ gas is not allowed.
 - c. The Contractor shall remove all empty SF₆ gas cylinders and return to supplier.
 - (4) **CERTIFICATES OF DISPOSAL AND RECEIPTS FOR SF₆ GAS:**
 - a. The Contractor can use WAPA's Reporting Form for reporting quantities listed above.



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- b. The Contractor shall provide receipts of SF₆ gas returned to supplier.
 - c. The Contractor shall submit SF₆ gas Reporting Forms and copies of receipts to the COR prior to submittal of final invoice.
5. PROTECTION OF STRATOSPHERIC OZONE: The contractor shall comply with all State, Federal, and local regulations regarding ozone depleting substances and the Protection of Stratospheric Ozone, including, but not limited to 40 CFR 82. Contractors performing work on HVAC systems shall be trained and certified according to the regulations, and releases of ozone depleting substances to the atmosphere shall be prevented. The contractor shall provide reclaimed refrigerant receipts to the COR in accordance with section 13.2.3 of this document.

SECTION 13.15 – HANDLING AND MANAGEMENT OF ASBESTOS CONTAINING MATERIAL

- 1. GENERAL: Obtain the appropriate Federal, State, Tribal or local licenses or certifications prior to disturbing any regulated asbestos-containing material. If a building or portion of a building will be demolished or renovated, obtain an Asbestos Notice of and Permit for Demolition and Renovation from the State or Tribal Department of Environmental Quality, Division of Air Quality (or equivalent). The building(s) shall be inspected by a State-Certified or Tribal accepted Asbestos Building Inspector. The inspector shall certify the presence and condition of asbestos, or non-presence of asbestos, on site as directed on the State or Tribal Demolition and Renovation Notice/Permit. The inspections shall be performed and notifications shall be submitted whether asbestos is present or not. Submit a copy of licenses, certifications, Demolition and Renovation Notifications and Permits for asbestos work to the COR 14 days prior to work. Ensure: 1) worker and public safety requirements are fully implemented and 2) proper handling, transportation, and disposal of asbestos containing material.
- 2. TRANSPORTATION OF ASBESTOS WASTE: Comply with Department of Transportation, Environmental Protection Agency, and State and Local requirements when transporting asbestos wastes.
- 3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts from a landfill approved to accept asbestos if the waste is a non-hazardous waste. Submit copies to the COR prior to submittal of final invoice.

SECTION 13.16 – MATERIAL WITH LEAD-BASED PAINT

- 1. GENERAL: Comply with all applicable Federal, State and local regulations concerning work with lead-based paint, disposal of material painted with lead-based paint, and management of these materials. OSHA and General Industry Standards apply to worker safety and right-to-know issues. Federal EPA and State agencies regulate waste disposal and air quality issues.
- 2. TRANSFER OF PROPERTY: If lead-based paint containing equipment or material is to be given away or sold for reuse, scrap, or reclaiming, the contractor shall provide a written notice to the recipient of the material stating that the material contains lead-based paint and the Hazardous Waste regulations may apply to the waste or the paint in some circumstances. The new owner must also be notified that they may be responsible for compliance with OSHA requirements if the material is to be cut, sanded, abraded, or stripped of paint. Submit a copy of lead paint notices with contractor and recipient signatures to the COR prior to submittal of final invoice.
- 3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificates of disposal for waste if the waste is a hazardous waste or receipts from a landfill if the waste is a non-hazardous waste. Submit copies to the COR prior to submittal of final invoice.



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SECTION 13.17 – PREVENTION OF WATER POLLUTION

1. GENERAL: Ensure that surface and ground water is protected from pollution caused by construction activities and comply with applicable regulations and requirements. Ensure that streams, waterways and other courses are not obstructed or impaired unless the appropriate Federal, State or local permits have been obtained.
2. PERMITS: Ensure that:
 - (1) A National Pollutant Discharge Elimination System (NPDES) permit is obtained from the US Environmental Protection Agency or State as appropriate if the disturbed construction area equals 1 acre or more. Contractor is responsible for preparation and implementation of the associated Storm Water Pollution Prevention Plan (SWPPP). Disturbed areas include staging, parking, fueling, stockpiling, and any other construction related activities. Refer to <https://www.epa.gov/npdes/npdes-stormwater-program> for directions and forms.
 - (2) A dewatering permit is obtained from the appropriate agency if required for construction dewatering activities.
 - (3) Copies of permits and plans, approved by the appropriate regulating agencies, are submitted to the COR 14 days prior to start of work.
3. EXCAVATED MATERIAL AND OTHER CONTAMINANT SOURCES: Control runoff from excavated areas and piles of excavated material, construction material or wastes (to include truck washing and concrete wastes), and chemical products such as oil, grease, solvents, fuels, pesticides, and pole treatment compounds. Excavated material or other construction material shall not be stockpiled or deposited near or on streambanks, lake shorelines, ditches, irrigation canals, or other areas where run-off could impact the environment.
4. MANAGEMENT OF WASTE CONCRETE OR WASHING OF CONCRETE TRUCKS: Do not permit the washing of concrete trucks or disposal of excess concrete in any ditch, canal, stream, or other surface water. Concrete wastes shall be disposed in accordance with all Federal, State, and local regulations. Concrete wastes shall not be disposed of on any WAPA property, right-of-way, or easement; or on any streets, roads, or property without the owner's consent.
5. STREAM CROSSINGS: Crossing of any stream or other waterway shall be done in compliance with Federal, State, and local regulations. Crossing of some waterways may be prohibited by landowners, Federal or State agencies or require permits.

SECTION 13.18 – TESTING, DRAINING, REMOVAL, AND DISPOSAL OF OIL-FILLED ELECTRICAL EQUIPMENT

1. SAMPLING AND TESTING OF INSULATING OIL FOR PCB CONTENT: Sample and analyze the oil of electrical equipment (which includes storage tanks) for PCB's. Use analytical methods approved by EPA and applicable State regulations. Decontaminate sampling equipment according to documented good laboratory practices (these can be contractor developed or EPA standards). Use only laboratories approved by WAPA. The COR will furnish a list of approved laboratories.
2. PCB TEST REPORT: Provide PCB test reports that contain the information below for disposing of oil-filled electrical equipment. Submit the PCB test report for COR approval prior to draining, removal, or disposal of oil or oil-filled equipment that is designated for disposal.
 - (1) Name and address of the laboratory.



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- (2) Copies of Chain of Custody Form(s).
 - (3) Description of the electrical equipment (e.g. transformer, breaker).
 - (4) Serial number for the electrical equipment.
 - (5) Date sampled.
 - (6) Date tested.
 - (7) PCB contents in parts per million (ppm) by Aroclor type.
 - (8) Unique identification number of container into which the oil was drained (i.e., number of drum, tank, tanker, etc.)
3. OIL CONTAINING PCB: Comply with the Federal regulations pertaining to PCBs found at Title 40, Part 761 of the U.S. Code of Federal Regulations (40 CFR 761).
 4. REMOVAL AND DISPOSAL OF INSULATING OIL AND OIL-FILLED ELECTRICAL EQUIPMENT: Once the PCB content of the oil has been identified from laboratory results, the oil shall be transported and disposed, recycled, or reprocessed according to 40 CFR 761 (if applicable), Resource Conservation and Recovery Act (RCRA) "used oil", and other applicable regulations. Used oil may be transported only by EPA-registered used oil transporters. The oil must be stored in containers that are labeled "Used Oil." Use only transporters and disposal sites approved by WAPA.
 5. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled, or reprocessed to the COR prior to submittal of final invoice.

SECTION 13.19 – REMOVAL OF OIL-CONTAMINATED MATERIAL

1. GENERAL: Removing oil-contaminated material includes excavating, stockpiling, testing, transporting, cleaning, and disposing of these material. Personnel working with PCBs shall be trained in accordance with OSHA requirements. Submit employee training documentation records to the COR 14 days prior to the start of work.
2. CLEANUP WORK MANAGEMENT PLAN: Provide a Cleanup Work Management Plan that has been approved by applicable Federal, State, or Local environmental regulation agencies. Submit the plan to the COR for review and comment 14 days prior to the start of work. Review of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. The plan shall address on-site excavation of contaminated soil and debris and include the following:
 - (9) Identification of contaminants and areas to be excavated.
 - (10) Method of excavation.
 - (11) Level of personnel/subcontractor training.
 - (12) Safety and health provisions.
 - (13) Sampling requirements including quality control, laboratory to be used.
 - (14) Management of excavated soils and debris.
 - (15) Decontamination procedures for personnel and equipment.
 - (16) Disposal methods, including transportation to disposal.
3. EXCAVATION AND CLEANUP: Comply with the requirements of Title 40, Part 761 of the U.S. Code of Federal Regulations (40 CFR 761).



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4. **TEMPORARY STOCKPILING:** Excavated material, stockpiled on site during construction, shall be stored on plastic with appropriate thickness and covered to prevent wind and rain erosion at a location designated by the COR.
5. **SAMPLING AND TESTING:** Sample contaminated debris and areas of excavation to ensure that contamination is removed. Use personnel with experience in sampling and, in particular, with experience in PCB cleanup if PCBs are involved. Use analytical methods approved by EPA and applicable State regulations.
6. **TRANSPORTATION AND DISPOSAL OF CONTAMINATED MATERIAL:** The Contractor shall be responsible and liable for the proper loading, transportation, and disposal of contaminated material according to Federal, State, and local requirements. Use only transporters and disposal sites approved by WAPA.
7. **POST CLEANUP REPORT:** Provide a Post-Cleanup Report that describes the cleanup of contaminated soils and debris. Submit the report to the COR prior to submittal of final invoice. The report shall contain the following information:
 - (1) Site map showing the areas cleaned.
 - (2) Description of the operations involved in excavating, storing, sampling, and testing, and disposal.
 - (3) Sampling and analysis results including 1) Name and address of the laboratory, 2) sample locations, 3) sample dates, 4) analysis dates, 5) contents of contaminant (e.g. PCB or total petroleum hydrocarbons) in parts per million (ppm).
 - (4) Certification by the Contractor that the cleanup requirements were met.
 - (5) Copies of any manifests, bills of lading, and disposal certificates.
 - (6) Copies of correspondence with regulatory agencies that support completion of the cleanup

SECTION 13.20 – CONSERVATION OF BIOLOGICAL RESOURCES

1. **GENERAL:** Federal law prohibits the "take" of endangered, threatened, proposed or candidate wildlife and plants, and destruction or adverse modification of designated Critical Habitat. Federal law also prohibits the "take" of birds protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or attempt to engage in any such conduct with a protected animal or plant or any part thereof, or attempt to do any of those things without a permit from U.S. Fish and Wildlife Service. The Contractor will take precautions to avoid harming all wildlife species and native plants. Contractor shall restrict all ground disturbing activities to areas that have been surveyed by WAPA for natural resources and as specified in accordance with Standard 1 – General Requirements, Sections 1.3.1 Rights-of-way and 1.3.2 Access to the Work and Haul Routes.
2. **KNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT:** Following issuance of the notice to proceed, and prior to the start of construction, WAPA will provide training to all contractor and subcontractor personnel and others involved in the construction activity if there is a known occurrence of protected species or habitat in the construction area. Untrained personnel shall not be allowed in the construction area. WAPA will provide drawings or maps showing sensitive areas located on or immediately adjacent to the transmission line right-of-way and/or facility. These sensitive areas shall be considered avoidance areas. Prior to any construction activity, the avoidance areas shall be



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marked on the ground by WAPA. If access is absolutely necessary, the contractor shall first obtain written permission from the COR, noting that a WAPA and/or other Federal or State government or tribal agency biologist may be required to accompany personnel and equipment. Ground markings shall be maintained through the duration of the contract. WAPA will remove the markings during or following final inspection of the project.

3. UNKNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: On rare occasions a protected species or habitat may be discovered during the project. If evidence of a protected species is found in the project area, the contractor shall immediately notify the COR and provide the location, date and nature of the findings. The contractor shall stop all activity within 200 feet of the protected species or habitat and not proceed until directed to do so by the COR.
4. MIGRATORY BIRDS AND RAPTORS: Under the Migratory Bird Treaty Act of 1918, migratory bird species and their nests and eggs are protected from injury or death. Impacts to migratory bird nests shall be avoided during the nesting season(s) identified in Division 13 of the Project Specifications. If construction activities occur during the nesting season, WAPA will survey the construction area for migratory bird nests prior to construction activities and establish appropriate buffers around any nests that may potentially be disturbed. If work must be conducted within these buffers, a WAPA-supplied biological monitor will be on site for construction activities within the buffers. If the biological monitor determines that activities are likely to cause nest impacts or nest abandonment, then construction activities in the area shall be postponed until nestlings have fledged or the nest is no longer active.
5. SPECIAL CONSIDERATIONS: Refer to Division 13 of the Project Specifications for site-specific requirements including, but not limited to, known and unknown migratory birds and raptors.

