

**APPENDIX C**

**ENVIRONMENTAL PROTECTION MEASURES**

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**ENVIRONMENTAL PROTECTION MEASURES**

Category	Description
<b>General</b>	
G-1	The Contractor shall comply with all federal, state and local environmental laws, orders and regulations. Prior to construction, all supervisory construction personnel will be instructed on the protection of cultural and ecological resources (e.g., wetlands, Waters of the U.S. [WOUS], wildlife).
G-2	Prior to construction, Tri-State shall discuss with the Contractor sensitive environmental areas within the project area (e.g., wetlands) and, particularly, those areas where an Environmental Monitor must be present during construction.
G-3	Emergency access will be allowed during any time of the year for the purposes of long-term maintenance. In the event of an emergency, Tri-State will notify the appropriate agencies or landowners as soon as possible. Reclamation and revegetation will be implemented, as required, as soon as practical after any emergency road access or maintenance work needed to repair the transmission line.
G-4	Only the minimum amount of soils and vegetation necessary for the construction and maintenance of the access routes and the safe and reliable operation of the transmission line will be disturbed. If excavation is necessary, topsoil will be conserved and reused as cover on temporarily disturbed areas to facilitate re-growth of vegetation. Vegetation will be cleared from those areas necessary to obtain adequate working width and turning radius space for maintenance equipment and allow for the safe operation of the transmission line.
<b>Air Quality</b>	
AQ-1	The Contractor shall utilize practicable methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants. Speed limits on access routes will be required to minimize dust.
AQ-2	Possible construction related dust disturbance shall be controlled by the periodic application of water to all disturbed areas along the ROW and access roads.
AQ-3	Vehicles and equipment showing excessive emission of exhaust gases due to poor engine adjustments or other inefficient operating conditions shall not be operated until corrective adjustments or repairs are made.
AQ-4	As appropriate, post seeding mulch or other viable stabilization alternatives shall be utilized during reclamation activities to help reduce wind erosion and blowing dust. The mulch/stabilization will be performed as soon as possible after completion of project activities to minimize potential fugitive dust generation as re-vegetation occurs.
<b>Access Routes</b>	
AR-1	No construction activities shall be performed during periods when the soil is too wet to adequately support equipment and vehicles. If equipment or vehicles create ruts in excess of 4-6 inches deep for a distance of 10 feet on native surface roads, the soil shall be deemed too wet to adequately support construction equipment. If equipment or vehicles create ruts in excess of 1-inch-deep on graveled roads, the roads shall be deemed too wet to support construction equipment.

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<b>Cultural Resources</b>	
CR-1	Prior to construction, all supervisory construction personnel shall be instructed on the protection of cultural resources with reference to relevant laws and penalties, and the need to cease work in the location if cultural resource items are discovered.
CR-2	Should any previously unknown historic/prehistoric sites or artifacts be encountered during construction, all land altering activities at that location shall be immediately suspended and the discovery left intact until such time that Tri-State is notified and appropriate measures taken to assure compliance with the National Historic Preservation Act (NHPA) and enabling legislation. A similar process shall apply if paleontological resources are discovered during excavations.
<b>Fire Prevention/Control</b>	
FP-1	Construction vehicles shall be equipped with government approved spark arresters.
FP-2	The Contractor shall maintain in all construction vehicles a current list of local emergency response providers and methods of contact/communication.
<b>Hazardous Materials</b>	
HM-1	Tri-State and its contractors shall comply with all applicable federal laws and regulations existing or hereafter enacted or promulgated regarding toxic substances or hazardous materials. In any event, Tri-State shall comply with the Toxic Substance Control Act of 1976, as amended (15 United States Code [U.S.C.] 2601, et seq.) with regard to any toxic substances that are used, generated by, stored on the ROW, or on facilities (See 40 Code of Federal Regulations [CFR], Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.). In addition, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act of 1980, section 102b. A copy of any report required or requested by any federal agency or state government as a result of a reportable release or spill of any toxic substance shall be furnished to the authorized officer concurrent with the filing of the reports to the involved federal agency or state government.
HM-2	No bulk fuel storage shall occur within the public lands portion of the project ROW. All fuel and fluid spills within this area will be handled in accordance with appropriate state and federal spill reporting and response requirements. Contractor shall notify Tri-State of any spills so appropriate notifications can be made to regulatory authorities.
HM-3	Any waste generated as a result of the proposed project shall be properly disposed in a permitted facility. Solid waste generated during construction and periodic maintenance periods will be minimal. All hazardous materials will be handled in accordance with applicable local, state and federal hazardous material statutes and regulations.
<b>Land Use</b>	
LU-1	All activities associated with the construction, operation, and maintenance of the transmission line shall occur within the authorized limits of the transmission line ROW and access routes. Additional access routes or cross-country travel shall not be allowed outside of the authorized routes prior to review and approval by Tri-State and the authorized landowner managing authority.
LU-2	The Contractor shall maintain all fences, brace panels, and gates during the construction period. Any fence, brace panel, or gate damaged during construction will be repaired immediately by the Contractor.

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LU-3	The Contractor shall eliminate, at the earliest opportunity, all construction ruts that are detrimental to agricultural operations and/or hazardous to movement of vehicles and equipment. Such ruts shall be leveled, filled and graded, or otherwise eliminated in an approved manner. Damage to ditches, tile drains, culverts, terraces, local roads, and other similar land use features shall be corrected, as necessary, by the Contractor. The land and facilities shall be restored as nearly as practicable to their original condition.
LU-4	Structure foundation holes will be covered if the hole must be left open overnight. Covers will be secured in place and will be strong enough to prevent livestock, wildlife, or the public from falling through and into the excavation.
<b>Noise</b>	
N-1	Construction vehicles and equipment shall be maintained in proper operating condition and shall be equipped with manufacturers' standard noise control devices or better (e.g., mufflers, engine enclosures).
N-2	Tri-State shall address complaints about radio or television noise interference associated with project operation.
<b>Noxious Weeds</b>	
NW-1	Weed control on disturbed areas within the limits of the ROW shall be implemented and the appropriate agency shall be contacted regarding planning acceptable weed control measures on noxious and invasive weed infestations within the limits of the ROW.
NW-2	To minimize introduction and spread of noxious weed seed sources to the project area the following measures shall be performed: All heavy equipment utilized during construction will be washed prior to departure from the equipment storage facility. Washing of equipment prior to transport from one work site to another is not recommended, as on-site washing of equipment increases the chance of weed seed dispersal by drainage of water off of the site, across an area greater than the size of the work site. Equipment will have accumulations of mud removed instead. This method promotes containment of weed seeds on the work site; all seed mixes and mulch used for reclamation activities will be certified weed-free.
NW-3	In order to prevent the spread of noxious weeds from the ROW, noxious weed populations that have resulted from project construction shall be annually monitored and treated, as required by the appropriate agencies or the property owner. This will include weed treatments of access routes along the power line ROW. The use of pesticides shall comply with federal and state laws governing their proper use, storage, and disposal, and any limitations imposed by state or federal regulations.
<b>Soils and Geology</b>	
S-1	The Contractor shall mitigate soils compacted by movement of construction vehicles and equipment, by loosening, leveling, harrowing or disking to approximate pre-construction contours and reseeded with certified weed-free grasses and mulched (except in cultivated fields). The specific seed mix(s) and rate(s) of application will be determined in coordination with specific landowners.
S-2	Movement of construction vehicles and equipment shall be limited to the ROW and approved access routes to minimize soil disturbance.

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S-3	Excavated material not used in the backfilling of poles shall be spread around each pole, evenly spread on the access routes in the immediate vicinity of the pole structure, or transported off site to approved fill sites or a Tri-State approved disposal location. Disturbed areas shall then be regraded to approximate pre-construction contours and reseeded, as specified in EPM S-1.
S-4	Topsoil shall be removed, stockpiled, and re-spread at temporarily disturbed areas not needed for maintenance access.
<b>Stormwater</b>	
SW-1	If the project will result in more than 1 acre of ground disturbance, a Stormwater Management Plan (SWMP) meeting all Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division standards shall be developed and maintained on site. The SWMP will ensure that stormwater runoff is managed such that applicable water quality standards are not exceeded.
SW-2	Stormwater Best Management Practices (BMPs) shall be implemented according to the standards set forth in <i>Storm Drainage Criteria Manual Vol. 3</i> , as recommended in the Regional Water Quality Management Plan. BMPs will be implemented with the goal of minimizing erosion from disturbed areas. Barriers shall be placed, as warranted, to delineate buffer zones around sensitive areas (e.g., potential erosion areas, wetlands, other WOUS).
SW-3	Stormwater BMPs shall be inspected every 14 days, or within 24 hours of high precipitation or snowmelt events to ensure that BMPs are fully functional. Impaired BMPs will receive maintenance as soon as practical.
SW-4	All construction personnel shall receive stormwater awareness training, as recommended in the Regional Water Quality Management Plan. Relevant personnel will receive additional stormwater training.
<b>Transportation</b>	
T-1	The Contractor shall make all necessary provisions for conformance with federal, state and local traffic safety standards and shall conduct construction operations so as to offer the least possible obstruction and inconvenience to public traffic.
<b>Vegetation Management</b>	
VEG-1	Vegetation shall be preserved and protected from damage by construction operations to the maximum extent practicable. Removal of trees will be limited to those necessary for the safe and reliable construction and operation of the line. Within the boundaries of wetlands or other WOUS, tree stumps will be left in place unless otherwise requested by the landowner and approved by the U.S. Army Corps of Engineers (USACE). In all areas of the ROW, stumps will be cut off to ground level, and the stumps and roots will be left to minimize ground disturbance. To the greatest extent possible, material will be chipped at a depth not to exceed 18 inches and spread within the ROW. No material will be permitted to be spread or placed into areas delineated as wetlands or other WOUS.
VEG-2	Upon completion of the work, work areas, except any permanent access roads/trails, pad sites or wetland crossings, 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.

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VEG-3	Disturbed areas where vegetation has been removed by construction activities to the extent that the potential for soil erosion is increased to a detrimental level shall be subject to seedbed preparation techniques, reseeded to an approved seed mixture, and mulched, if necessary, during a recognized planting season. All seed mixes and mulch used for reclamation activities will be certified weed-free.
VEG-4	All construction materials and debris shall be removed from the project area.
<b>Visual Resources</b>	
VR-1	The Contractor shall exercise care to preserve the natural landscape and shall conduct construction operations so as to prevent unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for permanent works, approved temporary or permanent construction roads, staging areas, or excavation operations, vegetation shall be preserved and shall be protected from damage by the Contractor’s construction operations and equipment.
VR-2	The Contractor shall minimize scarring, defacing, damage, or destruction of the natural landscape resulting from construction operations and any unnecessary or unauthorized shall be repaired by the Contractor to the satisfaction of Tri-State.
VR-3	All construction materials, waste, and debris shall be removed from the project area in a timely manner. Burning or burying of waste materials on the ROW or at the construction site will not be allowed. All materials resulting from the Contractor’s clearing operations shall be removed from the ROW.
VR-4	Structures shall be located and designed to conform to the terrain and minimize visual impacts whenever possible. Leveling and benching of the structure sites will be done to the minimum necessary to allow structure assembly and erection.
<b>Wetlands and other Waters of the U.S.</b>	
WET-1	Access roads, material yards, and the transmission line ROW shall be surveyed for wetlands and other WOUS by a qualified wetlands scientist prior to construction. In addition, wetlands and other WOUS boundaries shall be mapped with Geographic Information System (GIS) sub-foot accuracy and flagged in the field prior to construction. Permanent impacts to surface waters, wetlands, and riparian areas shall be avoided, unless authorized under a Nationwide Permit 12: Utility Line Activities (NWP 12), issued by the USACE. Impacts to surface waters, wetlands, and riparian communities will be minimized to the greatest extent feasible and all stipulations of the NWP 12 will be followed. Temporary impacts will be restored per USACE guidelines.
WET-2	Construction vehicles and equipment shall be restricted near wetlands and other WOUS except to cross at designated points, build crossings, or complete site restoration. Crossing may be allowed when soils are protected by snow cover, soils are dry or frozen, and/or timber matting techniques are used. Refueling of construction vehicles shall take place a minimum of 100 feet from the delineated boundaries. Excavated material or other construction materials shall not be stockpiled or deposited within 100 feet of delineated wetlands or other WOUS.

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WET-3	Construction within surface waters and wetland communities may require wetland mats, culverts, or pulling back banks. Wetland mats may be required at wetland crossings unless soils are protected by snow cover, or soils are dry or frozen. If excavation work is required in wetland areas, the top 12 inches of soil shall be removed at the excavation location and stockpiled adjacent to the wetland prior to excavation. Upon completion of construction at that location, wetland mats or other non-permanent structures will be removed and the topsoil will be redistributed on the wetland. Temporary impacts will be restored per USACE guidelines.
<b>Water Quality</b>	
WQ-1	Construction activities shall be performed by methods that prevent entrance or accidental spillage of solid matter, contaminants debris, and other objectionable pollutants and wastes into flowing streams or dry water courses, lakes and underground water sources. Such pollutants and wastes include, but are not restricted to, refuse, garbage, cement, concrete, sanitary waste, industrial waste, radioactive substances, oil and other petroleum products, aggregate processing tailings, mineral salts, and thermal pollution.
WQ-2	Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or water courses shall not be performed without prior approval by Tri-State and appropriate state agencies. Water and eroded materials will be prevented from entering the streams or watercourses by constructing intercepting ditches, bypass channels, barriers, settling ponds, or other approved methods.
WQ-3	Borrow pits shall be so excavated that water will not collect and stand therein. Before being abandoned, the sides of borrow pits will 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 will be shaped to provide a natural appearance.
WQ-4	Excavated material or other construction materials shall not be stockpiled or deposited near or on stream banks, lake shorelines or other water course perimeters where they can be washed away by high water or storm runoff or can in any way encroach upon the actual water source itself.
WQ-5	Waste waters from construction operations shall not enter streams, water courses, or other surface waters without 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 settle-able material. Settle-able material is defined as that material that will settle from the water by gravity during a 1-hour quiescent period.
WQ-6	Water required for construction, revegetation, or dust suppression shall be purchased from a municipal source or construction water provider with a private well. No water will be withdrawn from surface water resources.



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<b>Category</b>	<b>Description</b>
<b>Wildlife Resources</b>	
WR-1	In the event construction were to extend February 15 through August 31 (or December 15 for eagles and great-horned owls), raptor nest clearance surveys shall be conducted prior to construction occurring in those areas. If active raptor nests occur within 0.25 to 0.5 miles (eagles) of the project area, a restricted buffer area will be established around the nest site until the young have fledged. The applicable buffer area will be determined on a site-specific basis, as warranted by the species involved, nest location, proposed construction activities, and line of sight to construction activities or personnel.
WR-2	In order to preclude avian electrocutions and minimize collision risk, Tri-State will incorporate Avian Protection Plan standards developed by the Avian Power Line Interaction Committee and U.S. Fish and Wildlife Service (USFWS) to protect birds on power lines (APLIC and USFWS 2005), and the National Electrical Safety Code (NESC) which specifies electric conductor clearances.
WR-3	An Avian Collision Risk Assessment will be completed once final engineering is completed. Line segments identified within the risk assessment as a potential hazard to avian species will be marked with Swan Flight Diverters or a similarly effective device to minimize risk.
WR-4	Western burrowing owls are known to occur within the Project Study Area. Should construction extend into the breeding season between March 15 and October 31, surveys will be conducted within prairie dog colonies. Should a nest be located, a buffer of 150 feet around the burrowing owl nest will be implemented.

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