Mitigation Action Plan
To Implement Mitigation Requirements for
Beaver Creek-Hoyt-Erie Transmission Line Upgrade Project
Morgan and Weld Counties, Colorado
November 2005

Action Plan for Standard Project Practices and Mitigation

Mitigation Action Identifier	Responsible Party for Implementing	Mitigation Action	Party Responsible for Monitoring and Ensuring Compliance
1	Construction Contractor Western Maintenance	The contractor shall limit the movement of crews and equipment to the ROW, including access routes. The contractor shall limit movement on the ROW to minimize damage to residential yards, grazing land, crops, orchards, and property, and shall avoid marring the lands.	Western Engineering Construction (during Construction Phase) Western Maintenance (During maintenance of facility)
	Construction Contractor Western Maintenance	The contractor shall coordinate with the landowners to avoid impacting the normal function of irrigation devices during project construction and operation.	Western Engineering Construction (During Construction Phase) Western Maintenance (During Maintenance of facility)
2	Construction Contractor Western Maintenance	When weather and ground conditions permit, obliterate all construction 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. Ruts, scars, and compacted soils in hay meadows, alfalfa fields, pastures, and cultivated productive lands 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. At the end of each construction season and 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 construction operations shall be loosened and leveled. The land and facilities shall be restored as nearly as practicable to the original condition.	Western Engineering Construction (During Construction Phase) Western Maintenance (During maintenance of installed facility)

3	Western shall identify locations and quantities of water bars for inclusion in the Project Specifications and Bid Schedule. Construction Contractor	Water turnoff bars or small terraces shall be constructed across all ROW trails on hillsides to prevent water erosion and to facilitate natural revegetation on the trails.	Western Engineering Construction
4	Construction Contractor Western Maintenance	The contractor and Western 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. To assist in this effort, the construction contract will address: a) Federal and state laws regarding antiquities and plants and wildlife, including collection and removal; and b) the importance of these resources and the purpose and necessity of protecting them.	Western Environment will identify and map avoidance areas that the Construction contractor be required to avoid. Western Engineering Construction will ensure avoidance is enforced during construction Western Maintenance will ensure that avoidance is continued through life of project
5	Construction Contractor Western Maintenance	The contractor shall exercise care to preserve the natural landscape. Construction activities shall be conducted to minimize 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, vegetation shall be preserved and shall be protected from damage by the contractor's construction operations and equipment.	Western Engineering Construction during construction phase Western Maintenance during routing maintenance.

6	Construction Contractor Western Maintenance	On completion of the work, all work areas except access trails shall be scarified or left in a condition that will facilitate natural revegetation (unless reseeding, mulching or other specific requirements apply), 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.	Western Engineering Construction during construction phase Western Maintenance during Maintenance Phase.
7	Construction Contractor	Construction trails not required for maintenance access shall be restored to the original contour and made impassable to vehicular traffic. The surfaces of such construction trails shall be scarified as needed to provide a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion.	Western Engineering Construction
8	Construction Contractor	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 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.	Western Engineering Construction
9	Construction Contractor	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. Piles of excess soil or other borrow shall be shaped to provide a natural appearance.	Western Engineering Construction

10	Construction Contractor Western Maintenance	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.	Western Engineering Construction during Construction phase. Western Maintenance during Maintenance of installed facility.
11	Construction Contractor Western Maintenance	Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or water courses will not be performed without prior notice to appropriate state agencies and compliance with applicable NPDES requirements.	Western Engineering Construction during Construction phase. Western Maintenance during Maintenance of installed facility.
12	Construction Contractor Western Maintenance	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.	Western Engineering Construction during Construction phase. Western Maintenance during Maintenance of installed facility.
13	Construction Contractor	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, filter fences, 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. Settleable material is defined as material that will settle from the water by gravity during a 1-hour quiescent period.	Western Engineering Construction

14	Construction Contractor	The contractor shall utilize such practicable methods and devices as are reasonably available to control, prevent, and otherwise minimize atmospheric emissions or discharges of air contaminants.	Western Engineering Construction
15	Construction Contractor	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 corrective repairs or adjustments are made.	Western Engineering Construction
16	Construction Contractor Western Maintenance	Burning or burying of waste materials on the ROW or at the construction site will not be allowed. The contractor shall remove all waste materials from the construction area. All materials resulting from the contractor's clearing operations shall be removed from the ROW.	Western Engineering Construction during Construction phase. Western Maintenance during Maintenance of installed facility.
17	Construction Contractor Western Maintenance	The Contractor shall make all necessary provisions in conformance with safety requirements for maintaining the flow of public traffic and shall conduct his construction operations so as to offer the least possible obstruction and inconvenience to public traffic.	Western Engineering Construction during Construction phase. Western Maintenance during Maintenance of installed facility.

18	Construction Contractor Western	Western will apply necessary mitigation to eliminate problems of induced currents and voltages onto conductive objects sharing a ROW, to the mutual satisfaction of the parties involved. Western will install fence grounds on all fences that cross or are parallel to the proposed line.	Western Engineering (design phase) will quantify and include fence grounds and gates. Western Maintenance (routine maintenance of installed project) Western Engineering Construction (during construction)
19	Construction Contractor Western Maintenance	Minimize activities in riparian areas or span riparian areas. Avoid disturbance to riparian vegetation whenever practical.	Western Engineering Construction (construction phase) Western Maintenance (Maintenance of installed facility)
	Construction Contractor Western Maintenance	Minimize the crossing of riparian areas with Equipment and vehicles during construction and maintenance activities.	Western Engineering Construction (construction phase) Western Maintenance (Maintenance of installed facility)

	Construction Contractor Western Maintenance	Existing bridges or fords will be used to access the ROW on either side of riparian areas.	Western Engineering Construction (construction phase) Western Maintenance (Maintenance of installed facility)
20	Western Engineering Design	Western would design and construct the transmission line in conformance with *Suggested Practices for Protection of Raptors on Powerlines* (Avian Power Line Interaction Committee, 1994) to eliminate the potential for raptor electrocution.	Western Engineering-Design Western Engineering Construction (Installation) Western Maintenance (routine maintenance of installed devices)

Action Plan for Project and Site Specific Mitigation Requirements

Mitigation Action Identifier	Responsible Party AND Action	Mitigation Action Description	Additional Information
SOILS-1	Environment: Will map areas to be revegetated, provide the seed mix requirements. Environment will present requirements to be included in the construction specifications and estimated quantities for the bid schedule. Western Construction: Will oversee implementation by monitoring contractor performance. Contractor will implement measures as agreed to or as modified based on field conditions.	All constructed pad disturbances, staging areas, stringing sites, and ROW access roads located in areas of high and extremely high wind erodibility potentials that are not reclaimed by the landowner during normal agricultural practices need to be stabilized following construction. Western will monitor such sites to ensure that they are successfully revegetated with desirable plant species. Measures that may be used to achieve this goal, individually or in combination, include seedbed preparation, fertilization, drill or broadcast seeding, straw mulching, hydromulching, the use of erosion control mats, or chemical tackifiers. Any seed mixture to be used will be a mixture recommended by the Natural Resources Conservation Service of the County within which the disturbance is located. Fertilizer to be applied, if any, prior to seeding will be based on the recommendations of the landowner or the Natural Resources Conservation Service. The areas of high potential wind erosion susceptibility to which this mitigation measure is applicable are listed on Table 3.4 -1.	Environment will monitor once a year until revegetation is successful. Maintenance will monitor and repair blown out areas that were disturbed during this project. Maintenance will use the same seed mixture or another mixture recommended and approved by the NRCS.

PALEO-1	Environment will present the requirements to the Construction Contractor at the preconstruction conference. Western Construction will coordinate with Western environment if suspected finds are made during construction activities.	The contractor shall receive instructions from Western regarding the potential presence of fossils in pole excavations and in areas excavated or disturbed for roadwork. The contractor will be notified of his obligation to report any suspected paleontological finds to Western. If suspected finds are made, Western will retain a paleontologist to assess the significance of the paleontological finds and make recommendations.	

WATER-1	Western Engineering Design shall perform geological investigations. Western Engineering Design shall site structures based on design criteria. Western Engineerign Construction shall ensure that borings are made at each structure location identified by Western Engineering Design to the depth of the designed foundation plus 5 feet. The borings will be overseen by a registered professional geologist familiar with the characteristics of the clay layer and capable of identifying it. The borings shall be discontinued if the clay layer is encountered. The structure design will be modified if required to avoid the clay layer. Even if the pre-construction borings indicate that the clay layer was not encountered, Engineering Construction shall ensure that construction boring shall be monitored by a certified professional geologist and a record shall be made of the observations for each foundation. The professional geologist shall be retained by Western. The record shall be provided to Western and to the City of Brush.	In order to avoid potential impacts to groundwater resources, Western would conduct detailed geological investigations prior to construction in order to insure that penetration of the clay layer would be avoided or mitigated during the final engineering and design and installation of the new structures. Borings and logging of soils structure will be conducted at each new structure site within the City of Brush property and/or Brush Prairie Ponds Recharge Area. (Structures within Sections 20, 21, 22 and W1/2 of 23 T3N, R56W). Borings will extend five feet beyond the depth of the structure foundations to determine if the clay layer would be encountered. Monitoring of the test holes will be conducted by a geologist to determine if the clay layer is reached. In the unlikely event that foundations would reach the clay layer, the holes will be filled prior to penetrating the clay layer and an alternative design, requiring shallower foundation, will be used.	Western shall provide independent monitoring by a registered professional geologist.
WATER - 1A	Western Engineering Design and Engineering Construction shall site structures so that the outermost edge of the structure foundation is at least 100 feet from the pipeline.	Western shall not install a structure foundation within 100 feet of the City of Brush Water Pipeline	

WATER 1B	Specific restrictions shall be placed in Project Specifications by Engineering Design and Engineering Construction (Specification Writer). Western shall ensure that the construction contractor adheres to the restrictions Western Maintenance shall adhere to the restrictions	Vehicles or other construction equipment shall not be refueled; Fuels shall not be stored; and any fuel or petroleum product spill (regardless of quantity) shall be immediately cleaned up on within ½ mile of the southern section lines of sections 20, 21, 22,and 23 of T3N, R56W	Changes to these requirements approved by the City of Brush should be obtained in writing and a copy forwarded to the environmental office.
VEG-1	Western will identify off ROW access around wetlands and provide access information and wetland maps in the construction specifications. Environment will provide a map of the wetland areas and discuss the requirement with the Engineering Construction and/or the construction contractor during the preconstruction meeting. Western Construction shall monitor the avoidance.	The contractor will span wetland areas located along the ROW and avoid physical disturbance to wetland vegetation and aquatic habitat. Equipment and vehicles will not cross wetlands along the ROW during construction and maintenance activities. If crossings are required (e.g. for the installation of pulling lines) additional in-field decisions on mitigation shall be made with the appropriate regulatory agency. To the extent possible, existing uplands, bridges, etc. will be used to access the ROW on either side of wetlands.	
VEG-2	Western shall ensure that all vehicles will be washed annually or prior to entering on the ROW after being in an area with noxious weeds. Disturbed areas shall be reclaimed as provided elsewhere in this mitigation plan. Noxious weeds shall be controlled along the ROW in cooperation with landowners.	The contractor will minimize the introduction and/or spread of weeds by washing all equipment at a commercial facility prior to the start of construction each year, by avoiding vehicle traffic in known weedy areas, and by rewashing equipment if weeds are encountered. Western or its contractor will reclaim all disturbed areas as soon as practical after construction each year and would implement a noxious weed control program as necessary.	

WILDLIFE -1	Environment shall prepare a map and other information that identifies the location and restrictions. This information will be included in the project construction specifications by Engineering Construction. Environment will conduct an inventory or contract for an inventory. Western Engineering Construction shall ensure that these restrictions are complied with by the construction contractor..	Western or its environmental contractor will conduct a raptor nest inventory each year prior to construction and will implement mitigation (avoidance, screening, and timing of construction) to prevent the project from disrupting any occupied nests during the breeding season as per CDOW recommended buffer zones and seasonal restrictions.	
WILDLIFE -2	Environment shall prepare a map and other information that identifies the location and restrictions. This information will be included in the project construction specifications by Engineering Construction. Environment will conduct an inventory or contract for an inventory, if necessary. Western Engineering Construction shall ensure that these restrictions are complied with by the construction contractor..	Ground-clearing activities will not occur from April through June, in the Brush Prairie Ponds SWA, per CDOW recommendation. Construction restrictions will lessen the potential for inadvertent loss of migratory bird nests during the avian breeding season.	
WILDLIFE -3	Engineering Construction shall ensure that construction activities along the existing ROW (of the 115-kV transmission line) will be restricted from Sept through January. Activities along the realignment will be negotiated with the CDOW.	No construction activities will occur in the Brush Prairie Ponds SWA during the waterfowl hunting season (September through January 31) to preclude conflicts with hunting use of the SWA, per CDOW recommendation.	

SS-1	Environment will include in its raptor survey under WILDLIFE-1, the identification of potential nest and roosting areas and make recommendations for avoidance in conformance with the CDOW recommendations. Western Engineering Construction will ensure that restrictions included in the project specifications are enforced. Western Maintenance will ensure that the restrictions are adhered to during the Maintenance Phase.	Western will adhere to "Recommended buffer zones and seasonal restrictions for Colorado raptors" (CDOW, 2002) to preclude impacts to bald eagle nest and winter night roost sites. Measures will be implemented to avoid/minimize construction activities within 0.5 mile of a nest site during the nesting season between November 15 and July 31 or within 0.25 mile of a winter night roost site between November 15 and March 15.	
SS-2	Environment will conduct or contract for burrowing owl surveys per CDOW recommendations if required.	If construction cannot avoid prairie dog towns between March 1 and October 31, burrowing owl surveys will be completed, per Colorado Division of Wildlife guidelines to ensure construction activities would not impact breeding burrowing owls.	
SS-3	Western Engineering Design and Construction responsible for design, installation. Western Maintenance responsible for ongoing maintenance of installed devices.	Ensure that the overhead ground wires are marked to improve visibility by bald eagles at the crossing of the South Platte River. The devices used will conform to the recommendations of the Avian Powerline Interaction Committee published specifications.	
CULT-1	Environment shall provide maps that identify avoidance areas to Engineering and Design so that avoidance sites can be identified in the Project Specifications. Western Construction shall ensure that the avoidance areas are enforced during construction. Western Maintenance shall ensure that the areas are avoided during routine Maintenance.	Impacts to eligible cultural sites caused by construction of new towers will be mitigated by planning, design and avoidance. Whenever possible, transmission structures placement will be planned outside of site boundaries. In cases where avoidance is not possible, a mitigation plan will be formulated. If new structures are to be placed within 100 feet of an eligible site, an archaeological monitor may be present to ensure that the site is not impacted during construction. Western will clearly mark eligible sites within the ROW that must be avoided and instruct the contractor to avoid them.	

CULT-2	Environment shall provide maps that identify avoidance areas to Engineering and Design so that sites can be avoided. Western Construction shall ensure that the avoidance areas are enforced during construction. Western Maintenance shall ensure that the areas are avoided during routine Maintenance.	Maintenance and upgrading of access roads along the borders of eligible irrigation sites will be done with caution, to avoid filling historic irrigation systems with sediment from the roadbed. Construction or maintenance of culverts or bridges allowing access roads to cross eligible sites will be avoided wherever possible. Maintenance and upgrading of access roads on eligible sites will be avoided. Where avoidance is not possible, mitigation through photographic documentation to Athearn's (1990) Level II standards will be implemented prior to any construction or roadwork. This will mitigate adverse effects. These guidelines apply not only to roads surveyed as project access roads, but also to roads beneath the transmission lines that were subsumed in the transmission line survey.	
VISUAL-1	Western Design shall include the requirement for compatible colored structures in their structure design and specifications. Western Engineering/Construction shall include the requirement in the procurement package.	The 230-kV steel pole structures will be a neutral, non-reflective or naturally weathering or dulling steel material, such as galvanized steel. Non-reflective or weathering conductors and compatible toned insulators will also be used. Rusting steel (e.g. Corten) will not be used in these settings due to the strong visual contrasts that the darker rusted steel tone would create in these open settings.	