

**National Park Service  
U.S. Department of the Interior**

**Dinosaur National Monument  
Colorado/Utah**



## **DEERLODGE ROAD REHABILITATION FINDING OF NO SIGNIFICANT IMPACT**

Dinosaur National Monument (hereafter Monument) in cooperation with the Central Federal Lands Highway Division (CFLHD) of the Federal Highway Administration (FHWA), is proposing to rehabilitate, restore, and resurface 12.7 miles of Deerlodge Road (road) and to stabilize the Yampa riverbank where it has encroached on the roadway. Rehabilitation is needed because of the deteriorating road conditions and safety concerns. The proposed rehabilitation will improve the efficiency of Monument operations by correcting structural deficiencies and reducing maintenance requirements. The road rehabilitation will also improve visitor enjoyment and safety when traveling Deerlodge Road, while protecting the natural and cultural resources and the scenic quality of the Yampa River.

This finding of no significant impact (FONSI) and the environmental assessment (EA) constitute the record of the environmental impact analysis and decision-making process for the rehabilitation of Deerlodge Road. The EA was prepared for the road rehabilitation project to report on issues and options sought from the public; to provide an opportunity for public comment on alternatives; and as a necessary step in determining the impact of the road rehabilitation project on the environment. The National Park Service (NPS) will implement the preferred alternative, which includes site-specific repairs needed to address the identified deficiencies and the associated modifications to rehabilitate the road. The preferred alternative includes design measures for protection of Monument resources, safety improvements, and a sustainable road for visitor travel; and provides long-term conditions necessary to sustain scenic quality of the Yampa River and natural and cultural resources. The preferred alternative was selected after careful review of resource and visitor impacts and public comment.

This document records 1) a Finding of No Significant Impact as required by the National Environmental Policy Act of 1969, including the floodplain and wetland statement of findings (See Appendix A and B) and 2) a determination of no impairment as required by the NPS Organic Act of 1916 (see Appendix C).

### **SELECTION OF THE PREFERRED ALTERNATIVE**

Two alternatives were analyzed in the EA: a no action and an action alternative to rehabilitate Deerlodge Road. Under the no action alternative, Deerlodge Road would not be rehabilitated or improved. The preferred alternative selected by NPS is to rehabilitate

Deerlodge Road because it best meets the purpose and need for the project as well as the project objectives to: 1) improve the efficiency of Monument operations, 2) provide for visitor safety and enjoyment, and 3) protect Monument resources.

The preferred alternative includes proposed resurfacing, restoration, rehabilitation, bank stabilization measures, and installing new drainage measures needed to address the identified deficiencies along the 12.7-mile stretch of Deerlodge Road. Improving the safety and maintenance of Deerlodge Road requires bank stabilization along approximately 1,500 feet of the bank near milepost 9.5 to prevent further erosion and sedimentation. In addition, a number of road modifications are proposed to address subgrade failure, drainage improvements, and improvement of the Monument entrance pullout and four parking areas. The proposed project may be completed in two phases depending on available funds. Phase I would include bank stabilization along the Yampa River near milepost 9.5, and Phase II would include the pavement rehabilitation and parking area modifications.

## RESOURCE MITIGATING MEASURES

To prevent and minimize potential adverse impacts associated with the preferred alternative, Best Management Practices and resource protection measures will be implemented during construction and post-construction phases of the project (Table 1).

**Table 1. Resource Protection/Mitigation Measures.** Table continued on following pages.

Resource Area	Mitigation	Responsible Party
General Considerations	<p>All resource protection measures will be clearly stated in the construction specifications, and workers will be instructed to avoid conducting activities beyond the construction zone identified by the FHWA and Monument. Disturbances will be limited to roadsides, culvert areas, and other areas inside the designated construction limits. No machinery or equipment will access areas outside the construction limits.</p> <p>Construction equipment staging will occur in the road for active work areas or at designated pullouts and parking areas. Off-site equipment and vehicle parking will be limited to designated staging areas.</p> <p>Contractors will be required to properly maintain construction equipment (i.e., mufflers and brakes) to minimize noise. Construction vehicle engines will not be allowed to idle for extended periods.</p> <p>Material and equipment hauling will comply with all legal load restrictions. Load</p>	NPS Project Manager

Resource Area	Mitigation	Responsible Party
	<p>restrictions on Monument roads are identical to state load restrictions; however, the Monument superintendent may impose additional regulations.</p> <p>Water sprinkling will be used as needed to reduce fugitive dust in work zones. All tools, equipment, barricades, signs, surplus materials, and rubbish will be removed from the project work limits upon project completion.</p>	
Soils and Water Quality	<p>Erosion-control BMPs for drainage and sediment control, as identified and used by the FHWA and Park Service, will be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation in drainage areas. These practices may include, but are not limited to, sediment wattles, turbidity barrier, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity impacts as a result of construction activities. The placement and specific measures used will be dictated to a large degree by the topography immediately adjacent to the road in some portions of the project. Erosion-control BMPs will be inspected daily during project work and weekly after project completion, until removed. Accumulated sediments will be removed when the fabric is estimated to be approximately 75% full. Silt removal will be accomplished in such a way as to avoid introduction into any flowing water bodies.</p> <p>Regular site inspections will be conducted to ensure that erosion-control measures are properly installed and functioning effectively. Erosion-control measures will be left in place at the completion of construction, after which time the Monument will be responsible for maintenance and removal once vegetation is established.</p> <p>The operation of ground-disturbing equipment will be temporarily suspended during large precipitation events to reduce the production of sediment that may be transported to streams.</p> <p>A storm water pollution prevention plan will be developed and approved by the Monument and submitted to the Colorado</p>	NPS Project Manager and FHWA Engineer

Resource Area	Mitigation	Responsible Party
	<p>Water Quality Control Division prior to commencing any near-water activities.</p> <p>All equipment will be maintained in a clean and well-functioning state to avoid or minimize contamination from fluids and fuels. Prior to starting work each day, all machinery will be inspected for leaks (e.g., fuel, oil, and hydraulic fluid) and all necessary repairs will be made before the commencement of work.</p> <p>A hazardous spill plan will be required from the contractor prior to the start of construction stating what actions will be taken in the case of a spill and the preventive measures to be implemented. Hazardous spill clean-up materials will be on-site at all times. This measure is designed to avoid/minimize the introduction of chemical contaminants associated with machinery (e.g., fuel, oil, and hydraulic fluid) used in project implementation.</p> <p>Equipment will be refueled at least 100 feet from the surface water and drainages, where any spill of fuel and lubricants cannot reach flowing water.</p> <p>Excavated topsoil will be salvaged, stockpiled in approved areas, and used to reclaim disturbed areas with similar vegetation communities; topsoil stockpiles will be covered to prevent windblown dust.</p> <p>All activities will be confined to areas defined by the drawings and specifications.</p>	
<b>Vegetation</b>	<p>All disturbed ground will be reclaimed using appropriate BMPs that include using salvaged topsoil for revegetating soils and reseeded with native plant species. Erosion-control measures will be left in place at the completion of construction, after which time the Monument will be responsible for maintenance and removal once vegetation is established.</p> <p>Temporary barriers will be provided to protect existing trees, plants, and root zones. Trees or other plants will not be removed, injured, or destroyed without prior approval.</p> <p>To prevent the introduction of, and minimize the spread of, nonnative vegetation and</p>	NPS Project Manager and FHWA Engineer

Resource Area	Mitigation	Responsible Party
	<p>noxious weeds, the following measures will be implemented during construction:</p> <ul style="list-style-type: none"> <li>• Soil disturbance will be minimized.</li> <li>• All construction equipment will be pressure washed and/or steam cleaned before entering the Monument to ensure that all equipment, machinery, rocks, gravel, and other materials are cleaned and weed free.</li> <li>• All haul trucks bringing fill materials from outside the Monument will be covered to prevent seed transport.</li> <li>• Vehicle and equipment parking will be limited to within construction limits or approved staging areas.</li> <li>• If staging areas outside the Monument were to be used, they will be surveyed for noxious weeds and treated appropriately prior to use.</li> <li>• All fill, rock, and additional topsoil will be obtained from stockpiles from previous projects or excess material from this project, if possible; and if not possible, then weed free fill, rock, or additional topsoil will be obtained from sources outside the Monument. The Moffat County, CO extension agent will certify that the source is weed free.</li> <li>• Monitoring and follow-up treatment of exotic vegetation will occur after project activities are completed.</li> <li>• Riprap, gravel, and topsoil sources will be inspected prior to use, and material currently supporting invasive exotic plants will be avoided.</li> <li>• Any disturbed areas will be reseeded with native upland species.</li> </ul>	
<b>Wildlife</b>	<p>The specific hours designated for roadwork will be adjusted by the Monument biologist seasonally for varying day lengths, but will typically be between 7 a.m. and 7 p.m. If the need for night work is identified, the contractor will notify Monument staff at least one week in advance so that the public can be notified one week prior to night work commencing.</p> <p>The construction contractor will be required to keep all garbage and food waste contained and removed daily from the work site to avoid attracting wildlife into the construction zone. Construction workers will</p>	NPS Project Manager and Monument Chief, Research and Resource Management

Resource Area	Mitigation	Responsible Party
	<p>be instructed to remove food scraps and to not feed or approach wildlife.</p> <p>Equipment will be inspected for hydraulic fluid, antifreeze and oil leaks prior to use at staging and stockpiling sites, and materials will be kept on site for clean-up of any motor vehicle or heavy equipment fluid spills that might occur (such fluid spills are potential unnatural attractants to wildlife species).</p> <p>Adequate portable restroom facilities for construction workers will be provided to eliminate human waste as a wildlife attractant at construction sites.</p>	
<b>Special Status Species</b>	<p>Erosion-control BMPs for drainage and sediment control, as identified and used by the FHWA and Park Service, will be implemented to prevent or reduce nonpoint source pollution and minimize soil loss and sedimentation of aquatic habitats used by Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker. These may include but are not limited to turbidity barrier or fiber logs placed at the toe of any disturbed slopes, just above the ordinary high water mark to prevent additional sedimentation until vegetation has stabilized the slopes.</p> <p>A hazardous spill plan will be prepared and implemented.</p> <p>All construction equipment will be pressure washed and/or steam cleaned before entering the Monument to ensure that all equipment, machinery, rocks, gravel, and other materials are cleaned and weed free and inspected daily for leaks. Leaking equipment will be removed from the project site until repaired and cleaned.</p> <p>Equipment will be refueled at least 100 feet from surface water and drainages and fuel, oil, hydraulic fluid, or substances of this nature will be stored within sealed, storage containers or facilities that are located outside the floodplain.</p> <p>The amount and duration of in-stream work will be limited as much as possible.</p> <p>Staging areas will be limited to existing roads, designated pullouts and parking areas, and already disturbed areas.</p>	NPS Project Manager and Monument Chief, Research and Resource Management

Resource Area	Mitigation	Responsible Party
	Any disturbed slopes will be reseeded with native upland species placed down to the ordinary high water mark.	
<b>Floodplains</b>	<p>Work will be completed during low flow times such that any impact to the floodplain will be minimized.</p> <p>Equipment will be refueled at least 100 feet from surface water and drainages and fuel, oil, hydraulic fluid or substances of this nature will be stored within sealed, storage containers or facilities that are located outside the floodplain.</p> <p>The amount and duration of in-stream work will be limited as much as possible.</p>	NPS Project Manager and FHWA Engineer
<b>Cultural Resources</b>	<p>Archeological resources in the vicinity of the project area will be identified and delineated for avoidance prior to project work.</p> <p>The Monument will continue to coordinate with the State Historic Preservation Office (SHPO) throughout the course of the project to protect and mitigate cultural resources affected by the preferred alternative.</p> <p>Should any archeological resources be uncovered during construction, work will be halted in the area and the Monument archeologist, SHPO, and appropriate American Indian tribes will be contacted for further consultation.</p> <p>Monument cultural resources staff will be available during construction to advise or take appropriate actions should any archeological resources be uncovered during construction. In the unlikely event that human remains are discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act (1990) will be followed.</p> <p>The Park Service will ensure that all contractors and subcontractors are informed of the penalties for illegally collecting artifacts or intentionally damaging archeological sites or historic properties. Contractors and subcontractors also will be instructed on procedures to follow in case previously unknown archeological resources are uncovered during construction.</p>	NPS Project Manager, Monument Cultural Resource Specialist, and FHWA Project Manager

Resource Area	Mitigation	Responsible Party
	Equipment and material staging areas will avoid known archeological resources.	
<b>Visitor Experience, Public Health, Safety, and Park Operations</b>	<p>Visitors will be informed in advance of construction activities via a number of outlets including the Monument website, newspaper, radio, at the entrance station, visitor center, and kiosks. In addition, information on construction will be publicized in news releases, local newspapers, media outlets, postings in local businesses, visitor bureaus, chambers of commerce, and travel- and tourism-related businesses.</p> <p>Roadwork will not be permitted on weekends without prior Monument approval to minimize impacts to visitors and local residents that travel the road on the weekends. Traffic delays during construction will be kept to a minimum, but travel will be subject to alternating one-way traffic with delays up to 30 minutes. Flagmen, pilot cars, or signal lights will be used to control traffic through the one-lane section.</p> <p>To facilitate visitor planning, the status of roadwork and traffic delays will be posted two weeks in advance and will be updated daily.</p> <p>The Monument public information officer will coordinate with the contractor on the construction schedule and update visitors and information sources periodically on construction work to inform visitors of project status and access.</p> <p>Provisions for emergency vehicle access through construction zones will be developed.</p>	<p>NPS Project Manager and Monument Interpretive Staff and Public Affairs Specialist</p>

## ALTERNATIVES CONSIDERED

Alternatives considered included the no action alternative and the preferred alternative. Under the no action alternative, Deerlodge Road would not be rehabilitated. The Monument staff would continue routine maintenance, minor repairs, and asphalt patching and sealing as needed. The road pavement and structural integrity would continue to deteriorate and the safety concerns associated with encroachment of the Yampa River on the roadway near milepost 9.5; failing pavement; and sharp drop-offs due to erosion around culverts would continue. The identified structural problems and visitor safety concerns associated with encroachment of the Yampa River and



pavement conditions would not be corrected under the no action alternative. No highway funds would be expended for rehabilitation, improvements, or bank stabilization; however, road maintenance costs would likely increase to address deteriorating road conditions. If the Yampa River continues to erode the bank beyond the existing roadway, then the road past milepost 9.5 may become inaccessible.

NPS also considered four additional alternatives at the internal scoping session, but dismissed them from analysis in the EA.

#### ***Stabilize the bank using soil cement***

The use of soil cement to stabilize approximately 1,500 feet of stream bank and prevent further erosion of the Yampa River bank was considered. Soil cement as bank protection would require a completely dry work area by dewatering. Soils to make the soil-cement would be imported and the soil-cement mixture would be made off-site and transported to the construction site and placed in a completely dry environment. This bank stabilization method would require in-channel excavation of approximately 19,100 yd<sup>3</sup> of native streambed material, which would be replaced with soil cement to form the toe of the slope and stair-step construction. Approximately 6,100 yd<sup>3</sup> would be backfilled to cover the toe and about 13,000 yd<sup>3</sup> of the streambed material would be hauled away. This alternative was eliminated because the longer construction period and the dry environment requirement would be less advantageous compared to riprap installation. Riprap may be placed when water is present in shallow depths.

#### ***Stabilize the bank using spur dikes***

The use of spur dikes to stabilize approximately 1,500 feet of stream bank and prevent further erosion of the Yampa River bank was considered. Spur dikes were dismissed due to negative environmental impacts from potential degradation of the channel and downstream erosion.

#### ***Realignment of road at milepost 9.5 and buried riprap***

Relocating Deerlodge Road further away from the bank of Yampa River and using buried riprap as a bank stabilization option was considered. The buried riprap would have been constructed without excavation of the river channel. In order to relocate this section of road outside the existing ROW, right-of-way acquisition from private landowners would be required. The realignment would have been approximately 2,300 feet and would have impacted approximately 16 acres. This alternative was dismissed from further consideration because relocating the roadway would require considerable expense and the buried riprap could provide only a temporary solution, as the riprap would eventually become exposed.

#### ***Realignment of road at milepost 9.5 and no bank stabilization***

Relocating Deerlodge Road further away from the bank of Yampa River with no bank stabilization was considered. Relocating this section of road would only provide a temporary solution as the Yampa River lateral migration would continue with no bank stabilization measures implemented. In addition, relocating this section of road outside the existing ROW would require land acquisition from private landowners. Realignment of this section alone would not address the need to improve road safety for private landowners, visitors, and employees. This alternative was dismissed from further consideration because it would not meet the project purpose and need.

### **ENVIRONMENTALLY PREFERABLE ALTERNATIVE**

According to the Council on Environmental Quality regulations implementing NEPA (43 CFR 46.30), the environmentally preferable alternative is the alternative "that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources. The environmentally preferable alternative is identified upon consideration and weighing by the Responsible Official of long-term environmental impacts against short-term impacts in evaluating what is the best protection of these resources. In some situations, such as when different alternatives impact different resources to different degrees, there may be more than one environmentally preferable alternative."

The preferred alternative, rehabilitation of Deerlodge Road, is the environmentally preferable alternative for several reasons: 1) it will best preserve the natural and cultural features along the road because it implements structural improvements that will provide long-term protection of environmental and cultural resources adjacent to the road; 2) drainage improvements will reduce the potential for erosion and impacts to water quality and cultural resources; and 3) it supports sustainable design concepts and energy efficiency by providing for the reuse of existing materials. For these reasons, the preferred alternative causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources, thereby making it the environmentally preferable alternative.

Under the no action alternative, road rehabilitation and associated ground disturbance as well as bank stabilization would not occur, however, 1) it would not best preserve the Monument natural and cultural resources, as the road would continue to deteriorate without rehabilitation; 2) inadequate drainage could lead to erosion and impacts to water quality, natural resources, and cultural resources; and 3) continued high maintenance requirements would not be energy efficient.

### **WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT EFFECT ON THE HUMAN ENVIRONMENT**

Based on the analysis in the EA, the NPS has determined that the preferred alternative can be implemented without significant adverse effects. As defined in 40 CFR §1508.27, significance is determined by examining the context (including duration) of an impact, and its intensity, which is based on a consideration of the following criteria.

***Impacts that may be both beneficial and adverse. A significant effect may exist even if the agency believes that on balance the effect will be beneficial.***

Implementation of the preferred alternative will result in some short-term adverse impacts; however, there will also be long-term benefits from the project. For example, visitor enjoyment and safety will benefit from measures to improve the road conditions and the bank stabilization near milepost 9.5. Rehabilitating, restoring, and resurfacing the road will also make travel by vehicle safer for private landowners, visitors, and employees. Better road conditions and reduced maintenance requirements will improve the efficiency and cost of Monument operations. Construction will have short-term, minor, adverse impacts on vegetation, soils, and water resources from ground disturbances. Traffic delays and short closures along the road and increased noise from the construction equipment could inconvenience visitors during the construction. However, BMPs and resource protection measures listed in Table 1 will be implemented during construction and post-construction phases of the project to reduce adverse impacts. A summary of resource impacts is found in Table 4 of the EA.

***Degree of effect on public health or safety***

The proposed rehabilitation and modifications will address public safety concerns associated with deteriorating road conditions. Bank stabilization near milepost 9.5, resurfacing, rehabilitating sections with subgrade failures, replacing damaged culverts, and modifying four parking areas will have a moderate beneficial effect on safety and driving conditions. Traffic control measures will be implemented during construction to protect visitors.

***Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas***

As described in the EA, the preferred alternative will cause no major impacts to historic or cultural resources, or parklands. There are no prime farmlands, wild and scenic rivers, or ecologically critical areas affected. The proposed road rehabilitation will permanently impact 0.82 acre of riverine wetland. However, the bank stabilization near milepost 9.5 will improve conditions by reducing the potential risk for soil slumping, erosion, and soil being carried downstream into adjacent wetland resources. In addition, the 0.82 acre of riverine wetland will be compensated through restoration of 0.09 acre of wetlands at the Needle Parking area at a 1:1 ratio and 1.46 acres of tamarisk removal along the bank of the Yampa and Green Rivers at a 2:1 ratio. The Needle Parking area is adjacent to riparian woody vegetation and will be suitable to restore to wetland habitat. The tamarisk removal will remove invasive tamarisk from important native fish habitat and recreation sites located downstream of the wetland impact (bank stabilization) site. A 5-year monitoring program will also be implemented to monitor the success of the mitigation area at the Needle Parking area. The preferred alternative will result in long-term, local, adverse, minor impacts to wetland resources from affecting 0.82 acre of riverine wetland, but will be mitigated by compensating at a 2:1 ratio (over 1.04 acres of combined tamarisk removal and wetland restoration area to compensate for the 0.82 acre of wetland loss), which is consistent with the National Park Service's implementation of the NPS Director's Order and Procedural Manual #77-1.

***Degree to which effects on the quality of the human environment are likely to be highly controversial***

Throughout the environmental process, the proposal to rehabilitate Deerlodge Road and stabilize the Yampa riverbank near milepost 9.5 was not environmentally controversial. The methods proposed for erosion and sediment control and bank stabilization are proven and their effectiveness has a high likelihood of success. As analyzed in the EA, the anticipated effects on the human environment are not likely to be highly controversial.

***Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks***

The preferred alternative, road rehabilitation, meets project objectives through implementation of structural improvements that correct roadway deficiencies, improve visitor enjoyment and safety, and protect natural and cultural resources and the scenic quality of the Yampa River. As analyzed in the EA, the anticipated effects on the human environment are not highly uncertain or unique, nor were any unknown risks identified.

***Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration***

Rehabilitation of Deerlodge Road will not result in significant adverse effects to the natural environment, cultural resources, or visitor experience because the project was designed to prevent and minimize potential adverse impacts associated with the preferred alternative by incorporating BMPs and resource protection measures during construction and post-construction phases. In addition, the preferred alternative will provide long-term protection of resources and will not set a precedent for future actions that could have significant effects.

***Whether the action is related to other actions with individually insignificant but cumulatively significant impacts***

The EA concluded that past, present, and reasonably foreseeable future activities when combined with the Deerlodge Road rehabilitation will have local, long-term, minor adverse cumulative impacts on soils, vegetation, water resources and floodplains, and wetlands. Cumulative impacts to wildlife, special status species, and visitor use and experience will be local, minor to moderate, adverse and beneficial. There will be local, long-term, moderate, and beneficial cumulative effects on public health and safety. However, the recently identified proposed transmission lines have the potential to create additional cumulative impacts to the impact topics mentioned above. Pending a SF 299 Right of Way application which would include more details on the project, there is the potential for negligible to major adverse cumulative impacts to Soils, Vegetation, Wildlife, Special Status Species, Water Resources and Floodplains, Wetlands, Visitor Use and Experience and Public Health and Safety. Nonetheless, the incremental impacts of the Deerlodge Road Rehabilitation project would contribute only minimally to cumulative impacts, and would not cause significant impacts.

***Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.***

Compliance with the National Historic Preservation Act (NHPA), in accordance with the Advisory Council on Historic Preservation's regulations implementing Section 106 (36 CFR Part 800) has been completed in consultation with the tribes and the SHPO. The NPS found that the preferred alternative will have no adverse effect on historic properties and the SHPO has concurred with that determination in a letter dated December 24, 2012.

***Degree to which the action may adversely affect an endangered or threatened species or its critical habitat***

The US Fish and Wildlife concurred with the determination of "no effect" for the yellow-billed cuckoo (*Coccyzus americanus*), Mexican spotted owl (*Strix occidentalis lucida*), greater sage-grouse (*Centrocercus urophasianus*), Ute ladies'-tresses (*Spiranthes diluvialis*), North American wolverine (*Gulo gulo luscus*), Canada lynx (*Lynx canadensis*), and black-footed ferret (*Mustela nigripes*) and "may affect, but not likely to adversely affect," for the humpback chub (*Gila cypha*), bonytail chub (*Gila elegans*), Colorado pikeminnow (*Ptychocheilus lucius*), and razorback sucker (*Xyrauchen texanus*) and/or their designated critical habitat as identified in their response dated March 18, 2013. Critical habitat for the bonytail chub and humpback chub has been designated approximately 2 miles downstream from the bank-stabilization area and critical habitat for the Colorado pikeminnow and razorback sucker has been designated within the bank-stabilization area. It was determined the preferred alternative "may affect but is not likely to adversely affect" the critical habitats for the four listed fishes of concern because any potential effects would be insignificant and discountable. More details about the justification for the determinations may be found in the EA and Biological Assessment. Mitigation measures as discussed in the EA and listed in Table 1 will be implemented to prevent and/or minimize potential adverse impacts to endangered or threatened species and/or their critical habitat.

***Whether the action threatens a violation of Federal, state, or local environmental protection law***

The preferred alternative does not violate any federal, state, or local environmental protection laws.

***PUBLIC INVOLVEMENT***

The EA was made available for public review and comment during a 30-day period ending March 8, 2013. To notify the public of this review period, a press release was mailed to stakeholders, affiliated Native American tribes, interested parties, and newspapers. Copies of the document were sent to certain agencies and interested parties; made available in local repositories; and posted on the NPS Planning, Environment, and Public Comment website. No written comments were received during this review period.

## **NATIVE AMERICAN CONSULTATION**

The Monument contacted 33 American Indian tribes and 5 bands (See list below) on June 6, 2012 informing them of the proposed project and soliciting comments. Information from the tribes also was requested to determine if any ethnographic resources are in the project area and if the tribe wanted to be involved in the environmental compliance process. Copies of the Archeological Survey results were also sent on November 29, 2012 to solicit comments. The Hopi Tribe responded with a request for a copy of the testing plan and report for the pre-historic site, 5MF.485, identified outside the area of potential effect for the project; The Hopi Tribe also requested to be consulted if any significant pre-historic deposits are identified. The Pueblo of Laguna concluded that there will not be significant impacts on any traditional or cultural properties and to be notified if any new archaeological sites are discovered during the project. The Crow Tribe of Montana requested additional information on the project. On February 6, NPS Archeologist contacted the Crow Tribe and discussed the project. The Crow Tribe had no objections at this time to the Deerlodge Road Project; The Crow Tribe also requested to be informed and consulted prior to testing of 5MF.485 and starting the Cross Mountain Parking Lot area project. American Indian Tribes contacted include the following:

Arapaho Tribe of the Wind River  
Reservation  
Comanche Nation of Oklahoma  
Crow Tribe of Montana  
Hopi Tribe  
Navajo Nation  
Paiute Indian Tribe of Utah—Cedar Band,  
Kanosh Band, Indian Peaks Band,  
Koosharem Band, and Shivwits Band  
Pueblo of Acoma  
Pueblo of Cochiti  
Pueblo of Isleta  
Pueblo of Jemez  
Pueblo of Laguna  
Pueblo of Nambe  
Pueblo of Picuris  
Pueblo of Pojoaque  
Pueblo of San Felipe  
Pueblo of San Ildefonso

Ohkay Owingeh  
Pueblo of Sandia  
Pueblo of Santa Ana  
Pueblo of Santa Clara  
Kewa Pueblo  
Taos Pueblo  
Pueblo of Tesuque  
Pueblo of Zuni  
San Juan Southern Paiute Tribe  
Shoshone-Bannock Tribes  
Southern Ute Tribe  
Uintah and Ouray Ute Tribe  
Ute Mountain Ute Tribe  
Zuni Tribe  
Absentee-Shawnee Tribe of Indians of  
Oklahoma  
San Juan Southern Paiute Tribe and  
Eastern Shoshone Tribe


## **CONCLUSION**

As described above, the selected alternative does not constitute an action meeting the criteria that normally require preparation of an environmental impact statement (EIS). The preferred alternative will not have a significant effect on the human environment. Environmental impacts that could occur are limited in context and intensity, with generally adverse impacts that range from localized to site-specific, short- to long-term, and negligible to minor. There are no unmitigated adverse effects on public health, public safety, threatened or endangered species,

sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, or elements of precedence were identified. While negligible to major adverse cumulative impacts may occur, the incremental impacts of the Deerlodge Road Rehabilitation project would contribute only minimally to cumulative impacts, and would not cause significant effects. Implementation of the preferred alternative will not violate any federal, state, or local environmental protection law.

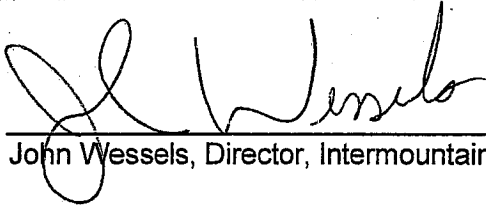
Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended by:

  
\_\_\_\_\_  
Mary Risser, Superintendent  
Dinosaur National Monument

June 27, 2013  
Date

Approved by:

  
\_\_\_\_\_  
John Wessels, Director, Intermountain Region

6/28/13  
Date

## **Errata Sheets**

### **Deerlodge Road Rehabilitation Environmental Assessment Dinosaur National Monument**

This section addresses comments received during the EA public comment period that ended March 8, 2013 and that warranted clarification or explanation.

An interdisciplinary team reviewed the received comments to identify any substantive comments. Substantive comments are those that 1) question the accuracy of the information in the EA, 2) question the adequacy of the environmental analysis, 3) present reasonable alternatives that were not presented in the EA, or 4) cause changes or revisions in the proposal.

The comments received during the public review of the environmental assessment resulted in text changes, which are described below. The comments received did result in changes to the cumulative impacts analysis, which did not affect the finding of no significant impact. Text to be added or changed in the environmental assessment is in bold.

The environmental assessment and this errata section form the record on which the finding of no significant impact is based.

#### **Text Changes**

*Revised the last sentence in the second paragraph in the Summary to read as follows:*  
**The preferred alternative includes proposed resurfacing, restoration, rehabilitation, bank stabilization measures, and installing new drainage measures needed to address the identified deficiencies along the 12.7-mile stretch of Deerlodge Road.**

*Revise the mitigation measures in Table 2 on page 24 under Soils and Water Quality to read as follows:* **These practices may include, but are not limited to silt fencing, sediment wattles, turbidity barrier, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity impacts as a result of construction activities.... Silt fencing Erosion-control BMPs would be inspected daily during project work and weekly after project completion, until removed.**

**Equipment would be refueled at least 100 feet from the stream channel surface water and drainages, where any spill of fuel and lubricants cannot reach flowing water.**

*Reworded the second sentence in Table 1 Wildlife on page 25.* **If the need for night work is identified, the contractor will notify Monument staff at least one week in advance so that the public can be notified one week prior to night work commencing.**



*Revise the mitigation measures in Table 2 on page 25 under Special Status Species to read as follows:*

*Remove the extra "the" and replace silt fences from the 2<sup>nd</sup> sentence. These may include but are not limited to turbidity barrier or fiber logs placed at the toe of any the disturbed slopes, just above the ordinary high water mark to prevent additional sedimentation until vegetation has stabilized the slopes.*

*Add and drainages to the fourth mitigation measure. Equipment would be refueled at least 100 feet from surface water and drainages and fuel, oil, hydraulic fluid, or substances of this nature would be stored within sealed, storage containers or facilities that are located outside the floodplain.*

*Revise the sixth mitigation measure to read as follows: Staging areas would be limited to existing roads, at the designated pullouts and parking areas, and already disturbed areas.*

*Add and drainages to the second mitigation measure in Table 2 on page 25 under Floodplains to read as follows: Equipment would be refueled at least 100 feet from surface water and drainages and fuel, oil, hydraulic fluid or substances of this nature would be stored within sealed, storage containers or facilities that are located outside the floodplain.*

*Revise the first mitigation measure in Table 2 on page 27 under Visitor Use and Experience to read as follows: Visitors would be informed in advance of construction activities via a number of outlets including the park website, newspaper, radio, at the entrance station, variable message signs, visitor center, and kiosks. In addition, information on construction would be publicized in news releases, local newspapers, media outlets, postings in local businesses, visitor bureaus, chambers of commerce, and travel- and tourism-related businesses.*

*Revise the second mitigation measure, first sentence in Table 2 on page 27 under Visitor Use and Experience to read as follows: Roadwork would generally not be permitted on weekends without prior Monument approval to minimize impacts to visitors and local residents that travel the road on the weekends.*

*Change asphalt to materials under number 3 on page 28.*

*Revise the first two sentences under the Preferred Alternative Direct and Indirect Impacts on page 58 to read as follows: The preferred alternative would result in local, indirect, long-term, adverse, moderate impacts that could affect a portion of the lower Yampa River. Installation of the 1,500 feet of exposed riprap with a launchable toe would require minimal in-stream work and thus would minimize the potential for incidental takes of fish. Fish could be temporarily displaced during construction of the exposed rock riprap due to the physical disturbance of the riverside and the noise.*

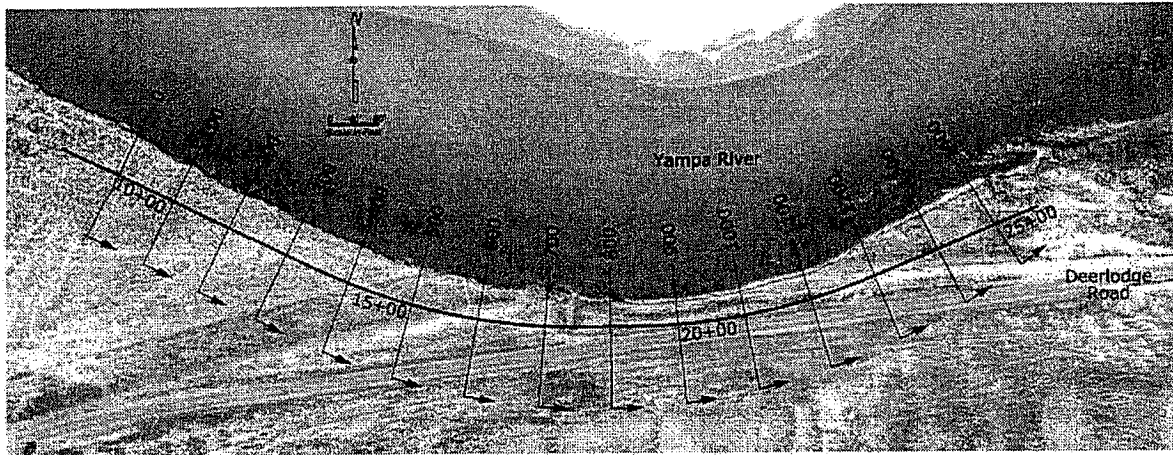
*Updated the number of cross sections used for the HEC-RAS modeling, third paragraph on page 61 to Fifteen.*

Updated the cubic feet per second used to determine riprap size and depth of scour needed under Water Resources and Floodplains, third paragraph on page 61 to the following:

The depth and high velocity for the peak flow of 32,200 cubic feet per second (cfs) were used to determine the riprap size and depth of scour needed along the bank of the Yampa River near milepost 9.5 (FHWA 2012b).

Capitalized agency name under Water Resources and Floodplains on page 61 to Federal Emergency Management Agency.

Updated Figure 11 to reflect the Final Hydraulics Recommendations Report for Deerlodge Road Improvements on page 62.



Reworded Figure 11 caption on page 62 to read as the following: **Figure 1. HEC-RAS Cross Sections near along MP 9.5.**

Updated Table 11 to reflect the Final Hydraulics Recommendations Report for Deerlodge Road Improvements on page 62.

River Station	Velocity (ft/sec) 2,800 cfs	Velocity (ft/sec) 33,200 cfs	Maximum Channel Depth (ft) 2,800 cfs	Maximum Channel Depth (ft) 32,200 cfs
0	2.93	7.21	4.29	12.35
100	2.79	7.23	4.31	12.37
200	3.39	7.59	4.32	12.37
300	3.42	7.76	4.46	12.42
400	2.34	6.96	4.55	12.67
500	3.48	7.94	4.45	12.56
600	3.43	7.56	4.58	12.74
700	2.59	7.18	4.68	12.89
800	2.67	7.10	4.63	12.94
900	2.56	7.14	4.59	12.97
1000	2.78	7.45	4.52	12.96
1100	4.39	8.70	4.47	12.86

River Station	Velocity (ft/sec) 2,800 cfs	Velocity (ft/sec) 33,200 cfs	Maximum Channel Depth (ft) 2,800 cfs	Maximum Channel Depth (ft) 33,200 cfs
1200	4.41	8.53	4.77	13.12
1300	3.12	7.83	5.03	13.44
1391	3.60	7.97	5.02	13.49

Data Source: FHWA Final Hydraulics Recommendations Report.

*Replace replacement with **rehabilitation** under Water Resources, Preferred Alternative, Direct and Indirect Impacts on page 64.*

*Revise the written comments received under Native American Consultation on page 76 to read as follows: **The Monument has received written comments from the Hopi, Pueblo of Laguna, and the Crow Tribe of Montana as of the date of this EA.***

The National Park Service refined the design plan, increasing the wetland impacts from 0.52 to 0.82 acre. The following details the timing and why the change occurred.

The preliminary design of the bank stabilization, submitted in July 2012, did not include a thickened base called a launchable toe. Because of review comments from the preliminary design, a launchable toe was added to the bank stabilization design. This thickened base consisted of Class 4 and Class 8 riprap and resulted in a 15 foot wide toe. At the request of the team preparing the EA, a wetland impact area of 0.52 acres was calculated based on the above design. This was developed and provided on September 28, 2012.

During final design of the bank stabilization, the launchable toe design was modified. The Class 4 riprap was replaced with Class 8 riprap. This change occurred as a result of further design analysis and research that indicated the larger riprap was needed based on the design flows. This is reflected in the calculations with a larger safety factor. (The detailed design calculations for the launchable toe riprap design are shown in Appendix B of the 95% Final Hydraulics Recommendations Report.) The use of larger riprap was a more constructible solution as well. As a result of the larger riprap, the toe of the bank stabilization increased from 15 feet to 24 feet. This increase in the dimensions of the toe result in wetlands impacts of 0.82 acres. These wetlands impacts were calculated at the 95% design level submitted in February 2013.

The changes in the Environmental Assessment generated by these revisions are presented below. These changes do not change the results of the impact analysis. Text to be added or changed in the EA is in bold.

Change 22,500 to **36,000** square feet and 0.52 to **0.82** acre in the description of the Preferred Alternative on page 17.

*Revise wetland impacts for the preferred alternative in Table 4 on page 32 to reflect the revised compensation measures:*

The preferred alternative would have long-term, local, adverse, minor impacts to wetland resources because **2:1 ratio compensation with over 1.04 acres of combined tamarisk removal and wetland restoration area would compensate for the loss of 0.82 acre of riverine wetland.**

*Updated Figures 4 and 5 to the refined design plan on pages 18 and 20.*

*NPS was recently notified that TransWest may propose construction of a transmission line which would cross, but not physically come into contact with, Deerlodge Road or the Monument. According to BLM, two additional transmission lines could follow the same route as the TransWest proposal in the future. These transmission lines could contribute to cumulative impacts. Therefore, the transmission lines have been added to the cumulative actions scenario in the EA. More detailed information on the proposed transmission lines was unavailable pending submission of applicants' Right of Way permit applications which would include more details on the projects, as well as detailed impacts analysis in respective EISs. However, the impacts of the Deerlodge Road Rehabilitation project would contribute only minimally to cumulative effects, including cumulative impacts from the transmission line projects.*

*Replace the text in the first paragraph of page 35 with the following.*

**NPS was recently notified that TransWest may propose construction of a transmission line which would cross, but not physically come into contact with, Deerlodge Road or the Monument. According to BLM, two additional transmission lines could follow the same route as the TransWest proposal in the future.**

#### **Cumulative Impact Summary**

**For each resource topic carried forward for analysis, past, present, and reasonably foreseeable future activities were identified. When combined with the Deerlodge Road rehabilitation there would be local, long-term, minor adverse cumulative impacts on soils, vegetation, water resources and floodplains, and wetlands. Cumulative impacts to wildlife, special status species, and visitor use and experience would be local, minor to moderate, adverse and beneficial. There would be local, long-term, moderate, and beneficial cumulative effects on public health and safety. The impacts of the project would contribute only minimally to cumulative effects, including impacts from the transmission line projects.**

**The cumulative impacts associated with the no-action alternative are similar to the impacts associated with the preferred alternative (long-term, minor adverse cumulative impacts on soils, vegetation, water resources and floodplains, and wetlands, and visitor experience) with the exception of minor adverse cumulative impacts to public health and safety, and a lack of cumulative impacts to special status species due to the absence of construction work.**

**The recently identified proposed transmission lines have the potential to create additional cumulative impacts to the impact topics retained for analysis, and are added, through these errata, to the cumulative impacts analysis. Pending a SF 299 Right of Way application which would include more details on the project, there is the potential for negligible to major cumulative impacts to Soils,**

Vegetation, Wildlife, Special Status Species, Water Resources and Floodplains, Wetlands, Visitor Use and Experience and Public Health and Safety. These include but may not be limited to the following types of impacts: soils and vegetation could be impacted by grading and mechanical removal; impacts to wildlife (including migratory birds) could occur by construction, maintenance and the continuous presence of transmission towers and lines that could disturb wildlife in and outside of breeding season and pose a hazard to birds; impacts to water quality could occur during construction which may have an impact to the special status fish species in the Yampa River; impacts to wetlands in the area and floodplain function by construction in the flood plain could also occur; impacts to visitor experience, and public health and safety could occur during construction and maintenance activities, particularly if they occur during high use periods such as whitewater rafting season. These and other potential impacts will receive additional analysis in the BLM's transmission line EISs, once BLM and the applicants are able to provide additional information, such as proposed route / site locations(s), anticipated construction dates, survey results, and other information pertinent to impacts analysis. Nonetheless, the incremental impacts of the Deerlodge Road Rehabilitation project would contribute only minimally to overall cumulative impacts.

*Change 0.52 to 0.82 in the Soils Direct and Indirect Impacts on page 36.*

*Replace the following describing the wetland compensation on page 67 under Wetland Resources Environmental Consequences to reflect the compensation measures as described in the Wetland Statement of Findings:*

In addition, the NPS would provide compensation through restoration of 0.09 acre of wetlands at the Needle parking area at a 1:1 ratio and 1.46 acres of tamarisk removal along the bank of the Yampa and Green Rivers at a 2:1 ratio. The Needle parking area is adjacent to riparian woody vegetation and would be suitable to restore to wetland habitat. The Needle parking area mitigation is at a 1:1 ratio because it is a similar type of wetland. The tamarisk removal mitigation is at a 2:1 ratio because it is invasive species removal (vs. wetland restoration), but would nonetheless improve riverine wetland habitat. The tamarisk removal would remove invasive tamarisk from important native fish habitat and recreation sites located downstream of the wetland impact (bank stabilization) site. The preferred alternative would result in long-term, local, adverse, minor impacts to wetland resources from affecting 0.82 acre of riverine wetland, but would be compensated at a 2:1 ratio (over 1.04 acres of combined tamarisk removal and wetland restoration area to compensate for the 0.82 acre of wetland loss).

*Replace the following describing the wetland compensation on page 68 under Wetland Resources to reflect the compensation measures as described in the Wetland Statement of Findings:*

However, this would be compensated at a 2:1 ratio with over 1.04 acres of combined tamarisk removal and wetland restoration area to compensate for the 0.82 acre of wetland loss.

*Due to the design change consultation with the USFWS was reinitiated to request concurrence for the may affect, but is not likely to adversely affect for the four endangered Colorado River fish, and their critical habitats. The USFWS concurred on March 18, 2013 via email stating that the concurrence memo dated February 11, 2013 still applies—"we concur that the proposed action may affect, but is not likely to adversely affect the four endangered Colorado River fish, and their critical habitats."*

*The following text changes were made to the BA:*

*Page 7—Change 22,500 to **36,000** square feet and 0.52 to **0.82** acre in the description of the Preferred Alternative.*

*Pages 8 and 9—Updated Figures 4 and 5 to the refined design plan.*

*Reword Table 1, Soil and Water Quality Mitigation Measure on page 14—These practices may include, but are not limited to silt fencing, **sediment wattles, turbidity barrier, filter fabric, temporary sediment ponds, check dams of pea gravel-filled burlap bags or other material, and/or immediate mulching of exposed areas to minimize sedimentation and turbidity impacts as a result of construction activities....** Silt fencing Erosion-control BMPs would be inspected daily during project work and weekly after project completion, until removed.*

*Equipment would be refueled at least 100 feet from the stream channel surface water and drainages, where any spill of fuel and lubricants cannot reach flowing water.*

*Reworded the second sentence in Table 1 Wildlife on page 15. If the need for night work is identified, the contractor will notify Monument staff at least one week in advance so that the public can be notified one week prior to night work commencing.*

*Revise the mitigation measures in Table 2 on page 16 under Special Status Species to read as follows:*

*Remove the extra "the" and replace silt fences from the 2<sup>nd</sup> sentence. These may include but are not limited to turbidity barrier or fiber logs placed at the toe of any the disturbed slopes, just above the ordinary high water mark to prevent additional sedimentation until vegetation has stabilized the slopes.*

*Add and drainages to the fourth mitigation measure. Equipment would be refueled at least 100 feet from surface water and drainages and fuel, oil, hydraulic fluid, or substances of this nature would be stored within sealed, storage containers or facilities that are located outside the floodplain.*

*Revise the sixth mitigation measure to read as follows: Staging areas would be limited to existing roads, at the designated pullouts and parking areas, and already disturbed areas.*

*Add and drainages to the second mitigation measure in Table 2 on page 16 under Floodplains to read as follows: Equipment would be refueled at least 100 feet from surface water and drainages and fuel, oil, hydraulic fluid or substances of this*

nature would be stored within sealed, storage containers or facilities that are located outside the floodplain.

*The following changes were made to the Floodplain Statement of Findings (Appendix A):*

Page 2—Change 22,500 to **36,000** square feet and 0.52 to **0.82** acre in the description of the Preferred Alternative.

*The following changes were made to the Wetland Statement of Findings (Appendix B):*

Page 4—Change 22,500 to **36,000** square feet and 0.52 to **0.82** acre in the description of the Preferred Alternative.

Page 5—Replaced Figure 3 to the refined design plan.

Page 7 under the Wetlands in the Project Area Section—Change 0.52 to **0.82** acre.

Page 10 under the Avoidance and Minimization Section—Change 0.52 to **0.82** acre in the second sentence.

Page 10 under the Compensatory Mitigation Section—First sentence Change 0.52 to **0.82** acre.

Page 10 under the Compensatory Mitigation Section—Second sentence change 0.86 to **1.46** acres and add **and Green Rivers**.

Page 11—Added the following to the tamarisk removal sites after the last bullet.

- **Additional mitigation sites will need to be found to compensate for the additional 0.6 acre necessary to compensate for the additional wetland impacts from the design change. The additional mitigation sites will be further downstream in the Green River.**

Page 11—Last sentence after the list of tamarisk removal sites change 0.86 to **1.46** acres.

Page 13—Change 1 to 2 to **up to 4** in the description of the schedule.

Page 15—Change 0.52 to **0.82** in the Justification for Use of Wetlands Section.

## **APPENDICES**

**APPENDIX A—FLOODPLAIN STATEMENT OF FINDINGS**

**APPENDIX B—WETLAND STATEMENT OF FINDINGS**

**APPENDIX C—NON-IMPAIRMENT FINDING**



## **APPENDIX A**

### **Floodplain Statement of Findings**

National Park Service  
Department of the Interior

Dinosaur National Monument  
Colorado



## FLOODPLAIN STATEMENT OF FINDINGS

### DEERLODGE ROAD REHABILITATION PROJECT

PMIS 59763

DINOSAUR NATIONAL MONUMENT

MOFFAT COUNTY, COLORADO

Recommended:

*Mary Risser*

3-26-13

Mary Risser, Superintendent

Date

Concurred:

*Ed Harvey*

4/1/13

Ed Harvey, Water Resource Division

Date

Approved:

*John Wessels*

4/18/13

John Wessels, Director

Date

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## INTRODUCTION

Executive Order 11988 requires federal agencies to evaluate proposed actions on floodplains. Director's Order #77-2 (floodplain protection) establishes guidelines for the National Park Service's implementation of Executive Order 11988. Guidelines for Director's Order #77-2 are presented in Procedural Manual 77-2: Floodplain Management (US Department of Agriculture National Park Service 2003). The manual states that if proposed actions cannot be designed in a way to avoid potential impacts within the 100-year floodplain then a Statement of Findings (SOF) must be prepared and approved according to procedures defined in Director's Order #77-2.

The Department of Interior National Park Service, in cooperation with the Federal Lands Highway Program (FLHP), is proposing to provide safer access and parking for private landowners, visitors, and employees by rehabilitating, restoring, and resurfacing about 12.7 miles of Deerlodge Road and stabilizing the Yampa riverbank where it has encroached the roadway.

In 2003, Dinosaur National Monument attempted to stabilize the south bank of the Yampa River adjacent to Deerlodge Road by burying riprap in a trench between the roadway and the riverbank. However, in 2011, above average snowmelt and runoff caused substantial bank erosion due to the migration of the Yampa River along Deerlodge Road and damaged the previous bank stabilization work. The Yampa River has encroached to within approximately 50 feet of the edge of the pavement in this Oxbow area (milepost 9.5). Another high flow year in the Yampa River could result in additional erosion and perhaps even threaten the road itself. The measures installed in 2003 are no longer providing adequate protection to the road. The riverbank needs to be stabilized before another large runoff occurs and additional bank erosion damages the road in the project area.

The Proposed action is a Federal Lands Highway Program (FLHP) rehabilitate, restore, and resurface (3R) project. The construction design is provided by the Central Federal Lands Highway Division of the Federal Highway Administration (CFLHD).

The project area is located in Dinosaur National Monument in Moffat County, Colorado. The legal descriptions are Sections 21, 25-28, Township 6N, Range 99W; Sections 19-22, 26, 27, 30, 35, 36, Township 6N, Range 98W; and Sections 1, 12, Township 5N, Range 98W (Sixth Principal Meridian), in the Twelvemile Mesa, Cross Mountain Canyon, and Indian Water Canyon 24k USGS quadrangles.

## PROPOSED ACTION

### Bank Stabilization

The lateral migration analysis technical memorandum reported that the Yampa River is encroaching Deerlodge roadway approximately ten feet per year. In 2002, the roadway was realigned and boulders were placed between the roadway and the river embankment to mitigate the Yampa River encroachment. Lateral movement of the Yampa River has continued and is currently approximately 50 feet from the existing roadway with a portion of the original roadway eroded (FHWA 2011). The hydraulics recommendations report identified areas with erosion and drainage issues and bank stabilization recommendations (FHWA 2012a).

Bank stabilization would occur along approximately 1,500 feet (approximately 400 feet on the west end and less than 200 feet on the east end is on private land) of the bank to prevent further erosion and sedimentation. Exposed rock riprap with a launchable toe would be used as the bank stabilization method. The design of the riprap would conform to FHWA guidelines.

#### *Exposed Rock Riprap*

Exposed rock riprap (Class IV, 18 to 24 inches in diameter) would be used as the bank stabilization method. Placement of the rock riprap would require installing a large "toe" into the natural riverbed substrate to ensure high flows would not compromise the structural integrity of the stabilized bank. This would be done using a launchable toe with Class 8 riprap (up to 30 inches in diameter) and water depths up to 8 feet. The riprap would be prepared and placed such that the gradation would form a homogenous mass with the smaller rock filling the voids of the larger rock. The launchable toe would slowly launch to scour depths as the river scours the river channel/bottom and the rock slides into the channel with sediment filling back over the launched material. The launchable toe would permanently impact 36,000 square feet (0.82 acres) of natural streambed. Project work would occur during low flow.

Placement of the rock riprap outside the riverbed would require excavation from the base of the existing bank slope away from the river to one inch above the estimated high water elevation. A slope would be graded at approximately 2 Vertical: 1 Horizontal. A type IV C erosion control geotextile would be placed below the riprap on the native soils to prevent soil loss through the riprap.

The bank stabilization design in the 30% submittal showed a design which extended onto private ROW. As a result of that review, an alternative design was developed which would not impact ROW. This design consisted of a combination of exposed riprap and buried riprap. The riprap would be exposed nearest to the roadway encroachment and then become buried at each end so that the improvements remained in the ROW. As scour continues along the buried improvements, the buried riprap would become exposed and the embankment would remain stable. However, this would allow a significant portion of the existing bank to erode prior to reaching the stabilization at each end. The downstream length required for the solution on the private property (1.5 times the channel width, or 450 feet) could not be achieved within the right-of-way due to gradually decreasing distance between the right-of-way line and the edge of road.

This length is required to "train" the flow in a straight direction after a bend. Therefore it is likely that erosion could continue beyond the end limit of the placed riprap within the right-of-way and compromise the road.

Safety features, such as guardrails or boulders, may be placed along Deerlodge Road where the exposed rock riprap is closest to the roadway. Due to the proximity of the of the rock riprap slope to the edge of the roadway, these safety features may be installed to protect vehicles from leaving the roadway and rolling down the riprap slope.

## **Road Design and Pavement**

### *Road Width*

The proposed Deerlodge roadway would maintain the same 40-foot roadway bench with nine-foot lane widths and one-foot shoulders. However, pavement raveling and erosion around four culverts has reduced road widths and caused pavement cracking and settling, respectively. The proposed road rehabilitation would include restoring the paved width of the road to the original design of 20 feet. In areas where the pavement has settled there may be a slight change in pavement width. New centerline and edge line pavement markings would be painted.

### *Pavement Considerations*

Portions of the current pavement have exceeded their service life and have developed surface cracks, rutting, buckling, and unraveling of the pavement edge. Prior to repaving, six isolated sections of road would require improvements to the subgrade in locations where the existing soil has become soft and lost compaction or severe subgrade failure has occurred. In areas with subgrade issues, the subgrade and backfill would be removed and replaced to a depth of about 19.5 inches to 21 inches, prior to repaving.

Currently, the pavement consists of one and a half to three inches of multiple chip seal layers on top of 12 to 24 inches of aggregate base. The proposed pavement option is to pulverize or remove the existing chip seal pavement and overlay with 3 inches of new hot asphalt pavement on top of 12 inches of aggregate base. The proposed treatment would remain on the roadway bench and maintain the same profile grade. In areas where the existing pavement is less than the proposed three inches, there may be a slight change in profile, which could alter the road width. In these areas, aggregate fill would be placed on the shoulders to fill in the side slope.

Deerlodge Road right-of-way (ROW) encompasses approximately 308 acres with a 200-foot-wide ROW. All pavement rehabilitation would remain within the existing ROW limits.

## **Drainage**

Two major parts of the road rehabilitation project involve drainage: culverts along Deerlodge Road and drainage around parking area improvements.

Deerlodge Road crosses approximately 93 culvert-crossing locations within the rehabilitation project limits. Most of the culverts are in fair condition with some showing signs of minor erosion and sediment deposition. Ten culverts were identified as having severe erosion at the downstream end of the culvert and would require erosion protection measures. The protection measures to stabilize the head cutting and to minimize erosion would be based on the head cutting information obtained during a field visit and information already obtained from the Preliminary Hydraulics Recommendations Report (FHWA 2012a).

Four culverts identified as potentially causing roadway damage and slumping would be replaced. An additional 1–3 culverts may be added within the bank stabilization area on private land. It was noted in the geotechnical report that leaks in the culvert walls, settlement of backfill, poor surface drainage, or inadequate cover over the corrugated metal pipe could be causing the damage (FHWA 2012b).

### **Pullouts and Parking Areas**

The park entrance pullout with an information kiosk is not compliant with the Americans with Disability Act (ADA). A parking area and space for the information kiosk would be relocated on flatter terrain to be ADA compliant.

There are four parking areas along Deerlodge Road proposed for modifications— Needle Parking Area, Photo Parking Area, Boat Launch Parking Area, and Disappointment Draw Access Area.

#### *Needle Parking Area*

This parking area and access road would be modified by pulverizing the asphalt to a depth of eight inches and would remain unpaved with a crushed gravel surface. The turn-around loop would be obliterated by removing the asphalt and gravel. The obliterated area would then be re-contoured and revegetated.

#### *Photo Parking Area*

This parking area would be reduced by half the width and length and removing the existing asphalt curb. The remaining parking area would be repaved. The obliterated area would be re-contoured and revegetated.

#### *Boat Launch Parking Area*

Currently, the northern portion of the parking area is paved to a 15-foot width and the southern portion is graveled from a 0- to 15-foot width. The proposed modification is to pave the entire parking area. The gravel section would be removed to a depth about 15 inches and replaced with 12 inches of aggregate base overlaid with three inches of new hot asphalt. The current chip seal pavement portion would be removed and repaved with three inches of new asphalt.

### *Disappointment Draw Access Area*

This parking area would be modified by removing the chip seal layers and overlaying with three inches of new asphalt. The turn-around loop would be obliterated by removing the asphalt and gravel. The obliterated area would then be re-contoured and revegetated. A short trail would be constructed to connect the existing informal trail to the new parking area. The existing curb, gutter, sidewalk, and the inlet and storm pipe located in the northeast corner of the existing parking area would be removed.

### **Staging Areas**

Temporary staging areas for equipment and supplies during construction would use previously disturbed sites, such as pullouts and parking areas along Deerlodge Road.



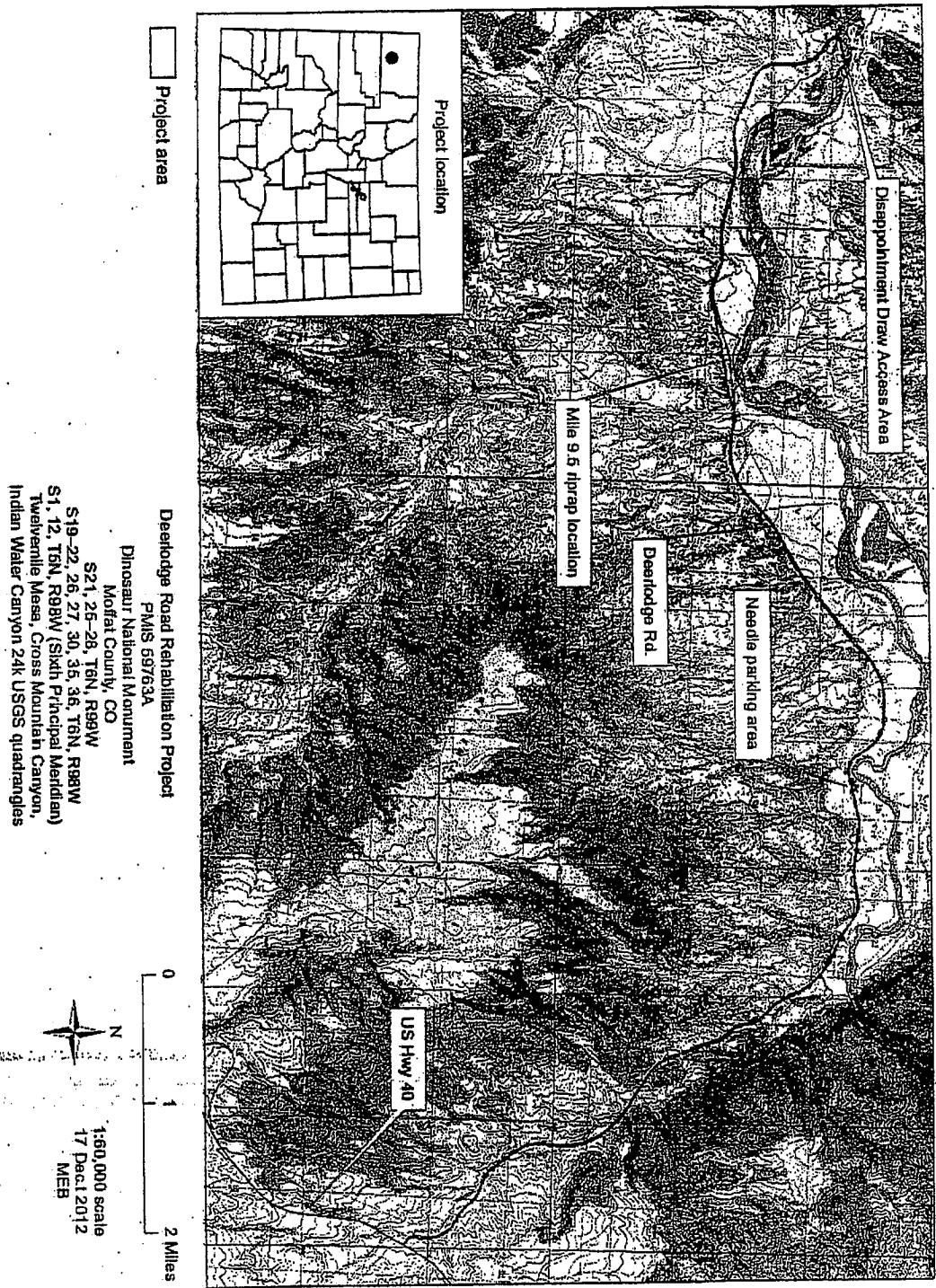


Figure 1. Map of project location in Dinosaur National Monument, Moffat County, CO and areas in potential river floodplain.

## **Design Alternatives Considered**

### **No Action Alternative**

This alternative provides a baseline for comparing and evaluating the impacts to the environment by the preferred alternative and the respective environmental consequences. Under the no action alternative, Deerlodge Road would not be rehabilitated and NPS would respond to future needs and conditions without major actions or changes in the present course. Dinosaur National Monument staff would continue routine maintenance, minor repairs, and asphalt patching and sealing as needed. The road pavement and structural integrity would continue to deteriorate and the safety concerns associated with encroachment of the Yampa River on the roadway; failing pavement; and sharp drop-offs due to erosion around culverts would continue. No highway funds would be expended for rehabilitation, improvements, or bank stabilization; however, road maintenance costs would likely increase to address deteriorating road conditions.

### **NPS Preferred Alternative**

The preferred alternative includes proposed road rehabilitation and bank stabilization measures needed to address the identified deficiencies along the 12.7-mile stretch of Deerlodge Road (FHWA 2012a). The proposed rehabilitation and modifications of the road may be constructed in two phases, depending on available funds. Phase I would include bank stabilization along the Yampa River near milepost 9.5, and Phase II would include the pavement rehabilitation and other parking area modifications. The proposed bank stabilization and pavement rehabilitation and parking area modifications are planned to start in 2013 and 2016, respectively. Both are subject to available funds with the estimated total construction cost between \$8 million and \$11 million.

## **FLOODPLAINS IN PROJECT AREA**

The area has not been mapped and classified into Flood Hazard Zones by the Federal Emergency Management Agency (FEMA) or by another agency. The majority of Deerlodge Road is located outside the Yampa River 100-year floodplain. The Disappointment Draw Access Area located at the end of Deerlodge Road is adjacent to a stand of cottonwoods (*Populus* sp.) and the Needle parking area is adjacent to woody riparian shrubs; both areas may be within the 100-year floodplain. The installation of 1,600 feet of riprap into the Yampa River and its southern bank would impact the 100-year floodplain.

### **Justification for Use of Floodplains**

Deerlodge Road is a 12.7-mile two-lane road following the Yampa River in the eastern portion of Dinosaur National Monument in Colorado. This road is currently threatened by erosion from the Yampa River at a section of road along the middle of the route near mile 9.5. Deerlodge Road provides access to the Disappointment Access Draw Area and Ranger Station, Yampa River, BLM land, private property, county roads, and a county bridge over the Yampa River. It is also used for park-related education activities.

Above-average snowmelt runoff in 2011 caused high erosion to the two above-mentioned areas as the river shifted towards the outside banks. Previous bank stabilization installed in 2003 was exposed as a result of erosion in 2011. The river is within approximately 50 feet of Deerlodge Road at the main road erosion area. Both of these areas are in need of erosion control before they are lost to the river, which could occur if another year of high precipitation occurs.

The purpose of the proposed action is to protect Deerlodge Road from the encroachment of the Yampa River and improve Deerlodge Road. Erosion-control measures would be designed to protect the riverbank and road from 25- to 30-year floods. Such floods would not inundate the road itself, but would increase the rate of bank erosion and the potential for the river to migrate toward the existing road location.

### Hydrologic Risks

There will be minimal hydrologic risks associated with the proposed action. The proposed action would impact the 100-year floodplain on the Yampa River by the installation of 1,500 feet of exposed riprap along the river bank (requiring Clean Water Act 404 permit/401 certification). No riprap would extend out into the river. It would be placed along the river bank and extend inland away from the river channel. The riprap would impact the natural migration of the river and alter high-flow energy dispersal. The installed riprap would not alter the function or value of the floodplain, nor would it significantly reduce the amount of floodable land.

Portions of the proposed action are exempt from Director's Order #77-2. The order states that projects involving "picnic facilities, scenic overlooks, foot trails, and small associated daytime parking facilities in non-high hazard areas provided that the impacts of these facilities on floodplain values are minimized" are exempt (U.S. Department of Interior National Park Service 2012). The road-improvement portion of the project would not result in impacts to the floodplain. Construction at the Disappointment Draw Access and Needle parking areas would be focused mainly in existing lots. The obliteration of the turn-around loops will restore small areas of impervious surface to natural, vegetated floodplain. Vegetated floodplains function much better hydrologically (e.g., flood retention) than impervious surfaces. The placement of boulders at this location and the installation of a graded drainage ditch at the Disappointment Draw Access Area would have little influence on a 100-year flood in a river the size of the Yampa River.

The replacement of four culverts and potential installation of additional 1-3 culverts would have little influence on the 100-year floodplain. These modifications would have more influence on local precipitation drainage into the river. The replacement of problem culverts and new culverts would reduce localized erosion along Deerlodge Road thus serving to improve the floodplain along the south side of the Yampa River in the project area. The culverts would be designed to improve runoff and reduce erosion. Poorly designed and/or installed culverts, like the problem culverts being replaced, can cause head cutting.

## Avoidance and Minimization

Avoiding work along the Yampa River would result in the continued erosion of Deer Mountain parking lot and the eventual destruction of Deerlodge Road. Resource Mitigation Measures would be used during construction activities to protect floodplain areas. Disturbed natural areas would be restored and reseeded after operations. Replacement culverts would be designed to minimize scouring, deposition, and damage to floodplains and would reduce current erosion issues caused by derelict culverts.

## COMPLIANCE AND CONCLUSIONS

The majority of the proposed action would not impact floodplains. Impacts to jurisdictional waters of the U.S. will be covered under Clean Water Act Section 404 permitting and Section 401 Certification. There is one riverine wetland within the project area.

The installation of riprap along the Yampa riverbank would have only minor, local impacts to the floodplain. The riprap would not substantially reduce the amount of floodable land in the 100-year flood. Impacted habitat along the riverbank would be revegetated and not substantially altered. Other impacts would include the alteration of the natural river migration and the alteration of local aquatic habitat by creating artificial boulder habitat.

The installation of riprap would not alter the function or value of the floodplain, nor would it significantly reduce the amount of floodable land. The proposed action would limit impacts to floodplains by incorporating resource mitigation measures. The majority of the proposed action would alter and improve existing parking areas and Deerlodge Road. The National Park Service finds the proposed action in compliance with Executive Order 11988.

## REFERENCES CITED

Federal Highway Administration (FHWA)

2012a Preliminary Hydraulics Recommendations Report for Deerlodge Road Improvements, Dinosaur National Monument. CH2MHILL. Federal Highway Division, Lakewood, Colorado.

2012b Draft Pavement and Design Report, Dinosaur National Monument. Yeh and Associates, Inc. Federal Highway Division, Lakewood, Colorado.

U.S. Department of Interior National Park Service

2003 Director's Order #77-2: floodplain management. U.S. Department of Interior National Park Service, Washington, D.C.

2012 Procedural manual 77-2: floodplain management. V. scope. B. exempted actions. Accessed 07 September 2012 from [http://www.nature.nps.gov/Rm77/pm77\\_2/scope.cfm#exc](http://www.nature.nps.gov/Rm77/pm77_2/scope.cfm#exc).

**APPENDIX B**  
**Wetland Statement of Findings**

National Park Service  
Department of the Interior

Dinosaur National Monument  
Colorado



## WETLAND STATEMENT OF FINDINGS

### DEERLODGE ROAD REHABILITATION PROJECT

PMIS 59763

### DINOSAUR NATIONAL MONUMENT

MOFFAT COUNTY, COLORADO

Recommended:

Mary Risser  
Mary Risser, Superintendent

5-26-13  
Date

Concurred:

Ed Harvey  
Ed Harvey, Water Resource Division

4/1/13  
Date

Approved:

John Wessels  
John Wessels, Regional Director, Intermountain Region

4/14/13  
Date

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## INTRODUCTION

The National Park Service, in cooperation with the Federal Lands Highway Program (FLHP), is proposing to provide safer access and parking for private landowners, visitors, and employees by rehabilitating, restoring, and resurfacing about 12.7 miles of Deerlodge Road and stabilizing the Yampa riverbank where it has encroached on the roadway.

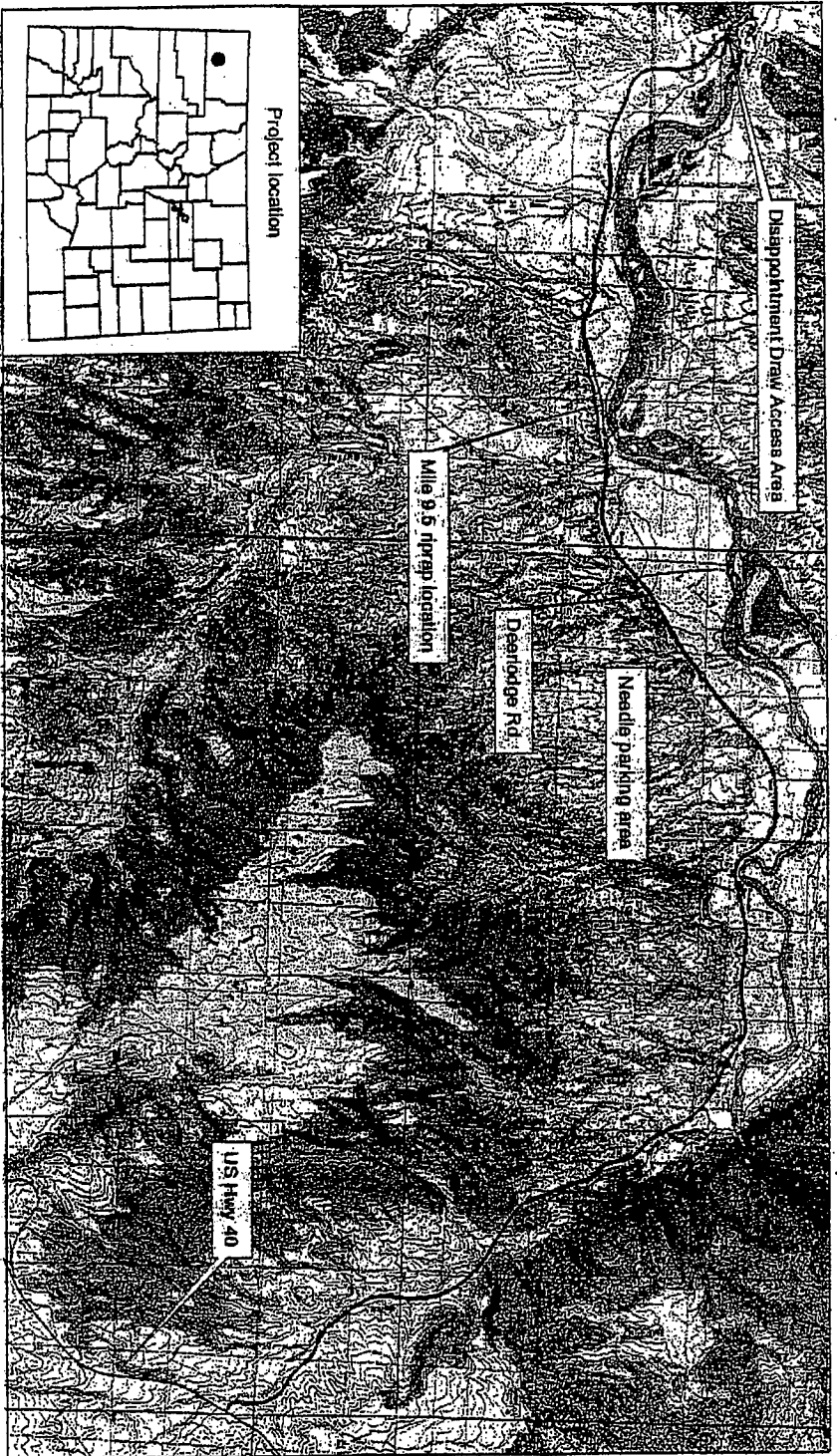
The proposed project is located in Dinosaur National Monument in Moffat County, Colorado. The project area is bordered on the north by the Yampa River (Figures 1-2). The legal descriptions are Sections 21, 25-28, Township 6N, Range 99W; Sections 19-22, 26, 27, 30, 35, 36, Township 6N, Range 98W; and Sections 1, 12, Township 5N, Range 98W (Sixth Principal Meridian), in the Twelvemile Mesa, Cross Mountain Canyon, and Indian Water Canyon 24k USGS quadrangles. The elevation ranges approximately 5,600-6,200 feet (1,700-1,890 meters).

Deerlodge Road is a 12.7-mile two-lane road following the Yampa River in the eastern portion of Dinosaur National Monument in Colorado. This road is currently threatened by erosion from the Yampa River at a section of road along an oxbow area (milepost 9.5). Deerlodge Road provides access to the Disappointment Draw Access Area and Ranger Station, Yampa River, BLM land, private property, county roads, and a county bridge over the Yampa River. It is also used for park-related education activities.

In 2003, Dinosaur National Monument attempted to stabilize the south bank of the Yampa River adjacent to Deerlodge Road by burying riprap in a trench between the roadway and the riverbank. However, in 2011, above average snowmelt and runoff caused substantial bank erosion due to the migration of the Yampa River along Deerlodge Road and damaging the previous bank stabilization work. The Yampa River has encroached to within approximately 50 feet of the edge of the pavement in this Oxbow area (milepost 9.5). Another high flow year in the Yampa River could result in additional erosion and perhaps even threaten the road itself. The measures installed in 2003 are no longer providing adequate protection to the road. The riverbank needs to be stabilized before another large runoff occurs and additional bank erosion destroys the road in the project area.

The Proposed Action is a Federal Lands Highway Program (FLHP) rehabilitate, restore, and resurface (3R) project. The construction design is provided by the Central Federal Lands Highway Division of the Federal Highway Administration (CFLHD).





Project area

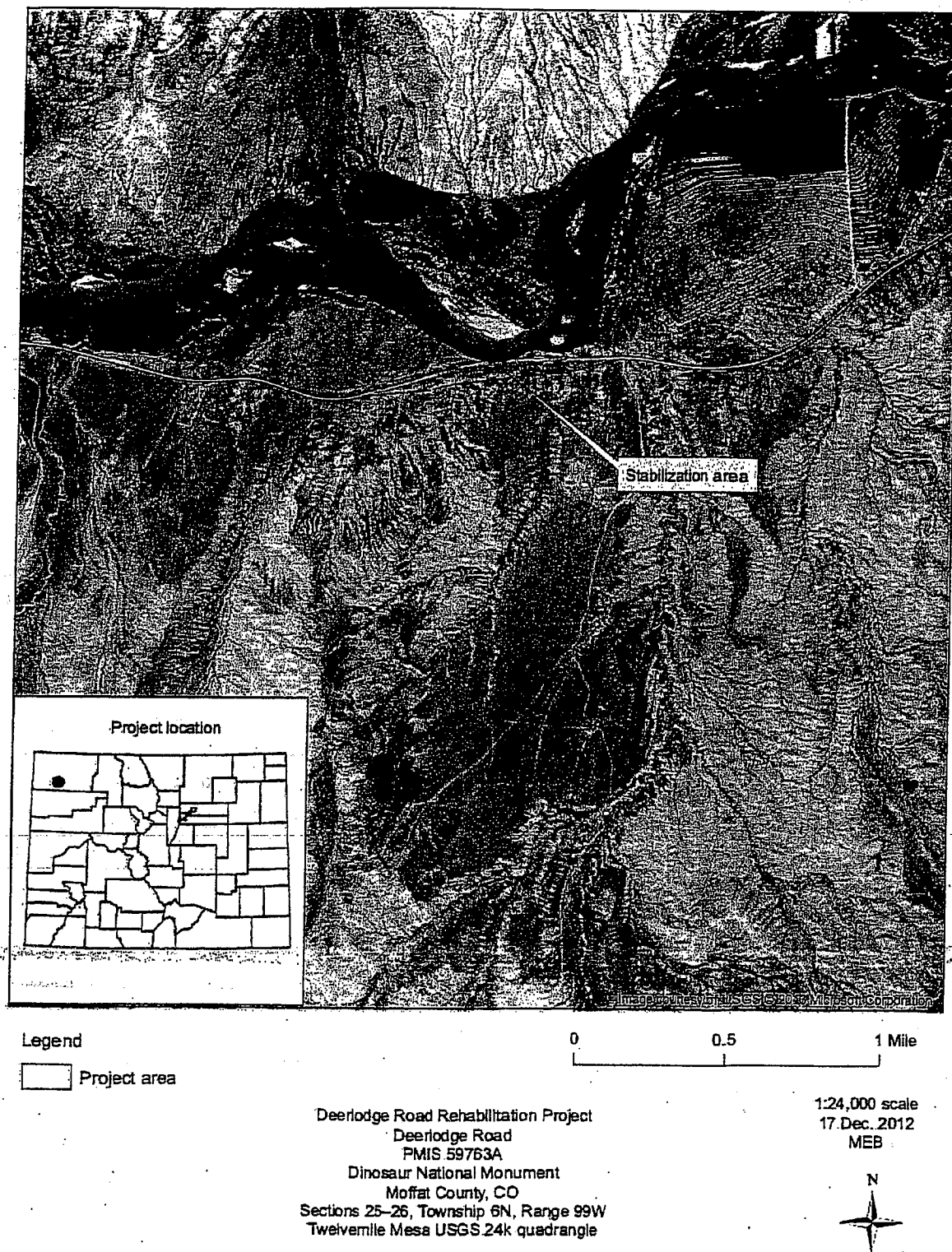
Deerlodge Road Rehabilitation Project  
 PMIS 59763A  
 Dinosaur National Monument  
 Moffat County, CO  
 S21, 28-28, T6N, R99W  
 S19-22, 26, 27, 30, 35, 36, T6N, R98W  
 S1, 12, T6N, R98W (Sixth Principal Meridian)  
 Twelvemile Mesa, Cross Mountain Canyon,  
 Indian Water Canyon 24k USGS quadrangles

0 1 2 Miles



1:50,000 scale  
 17 Dec 2012  
 MEB

Figure 1. Map of project location in Dinosaur National Monument, Moffat County, CO.



**Figure 2.** Map of the Deerlodge Road bank stabilization location in Dinosaur National Monument.

## PROPOSED ACTION

### Bank Stabilization

The lateral migration analysis technical memorandum reported that the Yampa River is encroaching Deerlodge roadway approximately ten feet per year. In 2002, the roadway was realigned and boulders were placed between the roadway and the river embankment to mitigate the Yampa River encroachment. Lateral movement of the Yampa River has continued and is currently approximately 50 feet from the existing roadway with a portion of the original roadway eroded (FHWA 2011). The hydraulics recommendations report identified areas with erosion and drainage issues and bank stabilization recommendations (FHWA 2012a).

Bank stabilization would occur along approximately 1,500 feet (approximately 400 feet on the west end and less than 200 feet on the east end is on private land) of the bank to prevent further erosion and sedimentation. Exposed rock riprap with a launchable toe would be used as the bank stabilization method. The design of the riprap would conform to FHWA guidelines.

### *Exposed Rock Riprap*

Exposed rock riprap (Class IV, 18 to 24 inches in diameter) would be used as the bank stabilization method. Placement of the rock riprap would require installing a large "toe" into the natural riverbed substrate to ensure high flows would not compromise the structural integrity of the stabilized bank (Figure 3; Appendix A). This would be done using a launchable toe with Class 8 riprap (up to 30 inches in diameter) and water depths up to 8 feet. The riprap would be prepared and placed such that the gradation would form a homogenous mass with the smaller rock filling the voids of the larger rock. The launchable toe would slowly launch to scour depths as the river scours the river channel/bottom and the rock slides into the channel with sediment filling back over the launched material. The launchable toe would permanently impact 36,000 square feet (0.82 acre) of natural streambed. Project work would occur during low flow.

Placement of the rock riprap outside the riverbed would require excavation from the base of the existing bank slope away from the river to one inch above the estimated high water elevation. A slope would be graded at approximately 2 Vertical: 1 Horizontal. A type IV C erosion control geotextile would be placed below the riprap on the native soils to prevent soil loss through the riprap.

Placement of the exposed rock riprap outside the riverbed would require excavation from the base of the existing bank slope away from the river to one inch above the estimated high water elevation. A slope would be graded at approximately 2 Vertical: 1 Horizontal. A type IV C erosion control geotextile would be placed below the riprap on the native soils to prevent soil loss through the riprap.

Safety features, such as guardrails or boulders, may be placed along Deerlodge Road where the exposed rock riprap is closest to the roadway. Due to the proximity of the of the rock riprap slope to the edge of the roadway, these safety features may be installed to protect vehicles from leaving the roadway and rolling down the riprap slope.

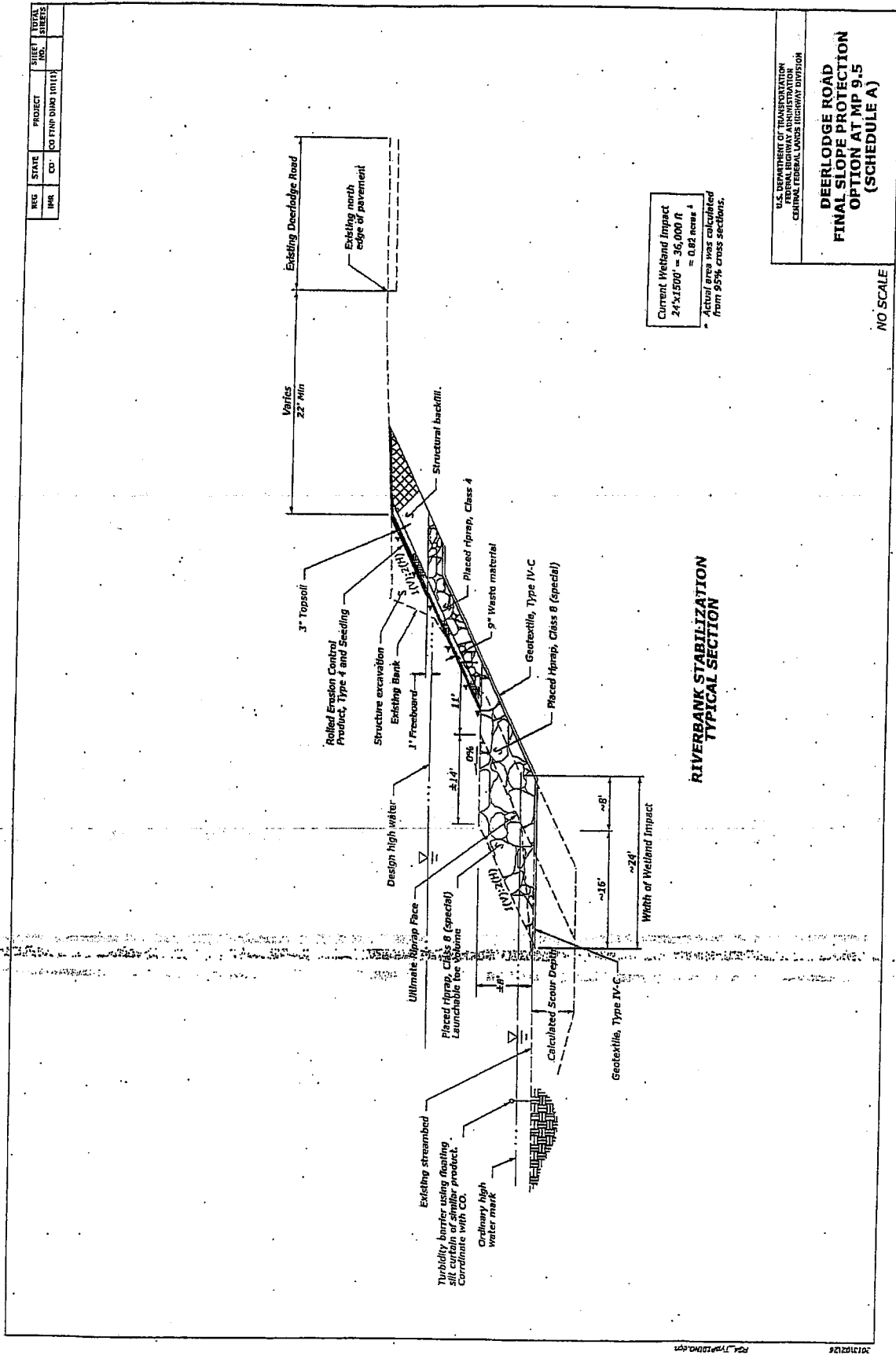


Figure 3. Typical Section for Exposed Riprap Bank Protection.

## **Road Design and Pavement**

The proposed Deerlodge roadway would maintain the same 40-foot roadway bench with nine-foot lane widths and one-foot shoulders. However, pavement raveling and erosion around four culverts has reduced road widths and caused pavement cracking and settling, respectively. The proposed road rehabilitation would include restoring the paved width of the road to the original design of 20 feet. The Deerlodge Road Rehabilitation Project Environmental Assessment contains detailed information on the proposed road design and repaving (NPS 2012a).

Deerlodge Road right-of-way (ROW) encompasses approximately 308 acres with a 200-foot wide-ROW. All pavement rehabilitation would remain within the existing ROW limits.

## **Drainage**

Two major parts of the road rehabilitation project involve drainage: culverts along Deerlodge Road and drainage around parking area improvements.

Deerlodge Road crosses approximately 93 culvert-crossing locations within the rehabilitation project limits. Most of the culverts are in fair condition with some showing signs of minor erosion and sediment deposition. Ten culverts were identified as having severe erosion at the downstream end of the culvert and would require erosion protection measures. The protection measures to stabilize the head cutting and to minimize erosion would be based on the head cutting information obtained during a field visit and information already obtained from the Preliminary Hydraulics Recommendations Report (FHWA 2012a).

Four culverts identified as potentially causing roadway damage and slumping would be replaced. An additional 1-3 culverts may be added within the bank stabilization area on private land. It was noted in the geotechnical report that leaks in the culvert walls, settlement of backfill, poor surface drainage, or inadequate cover over the corrugated metal pipe could be causing the damage (FHWA 2012b).

## **Pullouts and Parking Areas**

There are four parking areas along Deerlodge Road proposed for modifications—Needle Parking Area, Photo Parking Area, Boat Launch Parking Area, and the Disappointment Draw Access Area. The Deerlodge Road Rehabilitation Project Environmental Assessment contains detailed information on the proposed pullout and parking area modifications and no wetlands will be impacted by the pullout and parking area modifications. (NPS 2012a).

### *Needle Parking Area*

The turn-around loop would be obliterated by removing the asphalt and gravel. The obliterated area would then be re-contoured and revegetated. This parking area is being proposed as a wetland mitigation site for the proposed action.

## **Staging Areas**

Temporary staging areas for equipment and supplies during construction would use previously disturbed sites, such as pullouts and parking areas along Deerlodge Road.

## **Design Alternatives Considered**

### **No Action Alternative**

This alternative provides a baseline for comparing and evaluating the impacts to the environment by the preferred alternative and the respective environmental consequences. Under the no action alternative, Deerlodge Road would not be rehabilitated and NPS would respond to future needs and conditions without major actions or changes in the present course. Dinosaur National Monument staff would continue routine maintenance, minor repairs, and asphalt patching and sealing as needed. The road pavement and structural integrity would continue to deteriorate and the safety concerns associated with encroachment of the Yampa River on the roadway; failing pavement; and sharp drop-offs due to erosion around culverts would continue. No highway funds would be expended for rehabilitation, improvements, or bank stabilization; however, road maintenance costs would likely increase to address deteriorating road conditions.

### **NPS Preferred Alternative**

The preferred alternative includes proposed road rehabilitation and bank stabilization measures needed to address the identified deficiencies along the 12.7-mile stretch of Deerlodge Road (FHWA 2012a). The proposed rehabilitation and modifications of the road may be constructed in two phases, depending on available funds. Phase I would include bank stabilization along the Yampa River near milepost 9.5, and Phase II would include the pavement rehabilitation and other parking area modifications. The proposed bank stabilization and pavement rehabilitation and parking area modifications are planned to start in 2013 and 2016, respectively. Both are subject to available funds with the estimated total construction cost of \$8 million to \$11 million.

### **Wetlands in the Project Area**

Wetland delineation fieldwork was conducted on May 9, 2012, using the technical criteria and procedures outlined in the revised 1987 U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual (Wetland Training Institute, Inc. 1995) and the regional supplement to the USACE wetland delineation manual: Western Mountains, Valleys, and Coast Region (USACE 2008). The delineation was conducted by Bill Hevron and Matt Brooks. In addition, the wetland delineation and classification efforts were kept consistent with the National Park Service Procedural Manual 77-1: Wetland Protection (U.S. Department of the Interior National Park Service 2012), including the use of a wetland classification scheme based on Cowardin et al. (1979). A complete report of the wetland delineation methods and findings, including photographs and data sheets is available under a separate cover (NPS 2012b).

The bank stabilization near milepost 9.5 would impact 0.82 acre of wetlands (Figure 4). This area is characterized as a Riverine-Upper Perennial-Unconsolidated Bottom wetland. This area

consists of upland vegetation that transition directly to the riverine habitat of the Yampa River channel below the ordinary high water mark via the steep, vertical river bank. The channel area could be exposed and contain early successional vegetation (e.g., *Salix exigua*, annual forbs, grasses, and sedges) during times of low water.

## **Functions**

The biotic, hydrologic, and cultural functions as well as the research/scientific values of the delineated wetlands were assessed through field observations.

**Biotic Functions**—This area serves as shallow riverside habitat most of the year. Small fishes that prefer shallow water may use this area; however, because it is the outside of a river bend, the current would be faster in this area. Fish that prefer slow-moving, shallow water would not use this area. During times of low water, some river bottom may become exposed. Early colonizing vegetation may become established temporarily. The vertical river bank above the high water mark could be used by bank-nesting birds such as the belted kingfisher (*Megaceryle alcyon*) and bank swallow (*Riparia riparia*). Wading birds may use the water's edge during low water.

**Hydrologic Functions**—This area is located at the inside of a bend in the river. The primary function is to absorb energy from the river via the gradual erosion of the river bank and lateral migration of the river. Soil removed from the river bank would most likely be deposited downstream in the form of a point bar. This process creates the natural sinuosity of the river that is important in the dispersion of water energy, sediment deposition, flow rates, river bed and bank scouring, and channel slope. This section of the river will not function after riprap is installed. Energy that would be absorbed by the eroding river bank will be distributed to another portion of the river.

**Cultural Functions**—This area does not have any cultural functions.

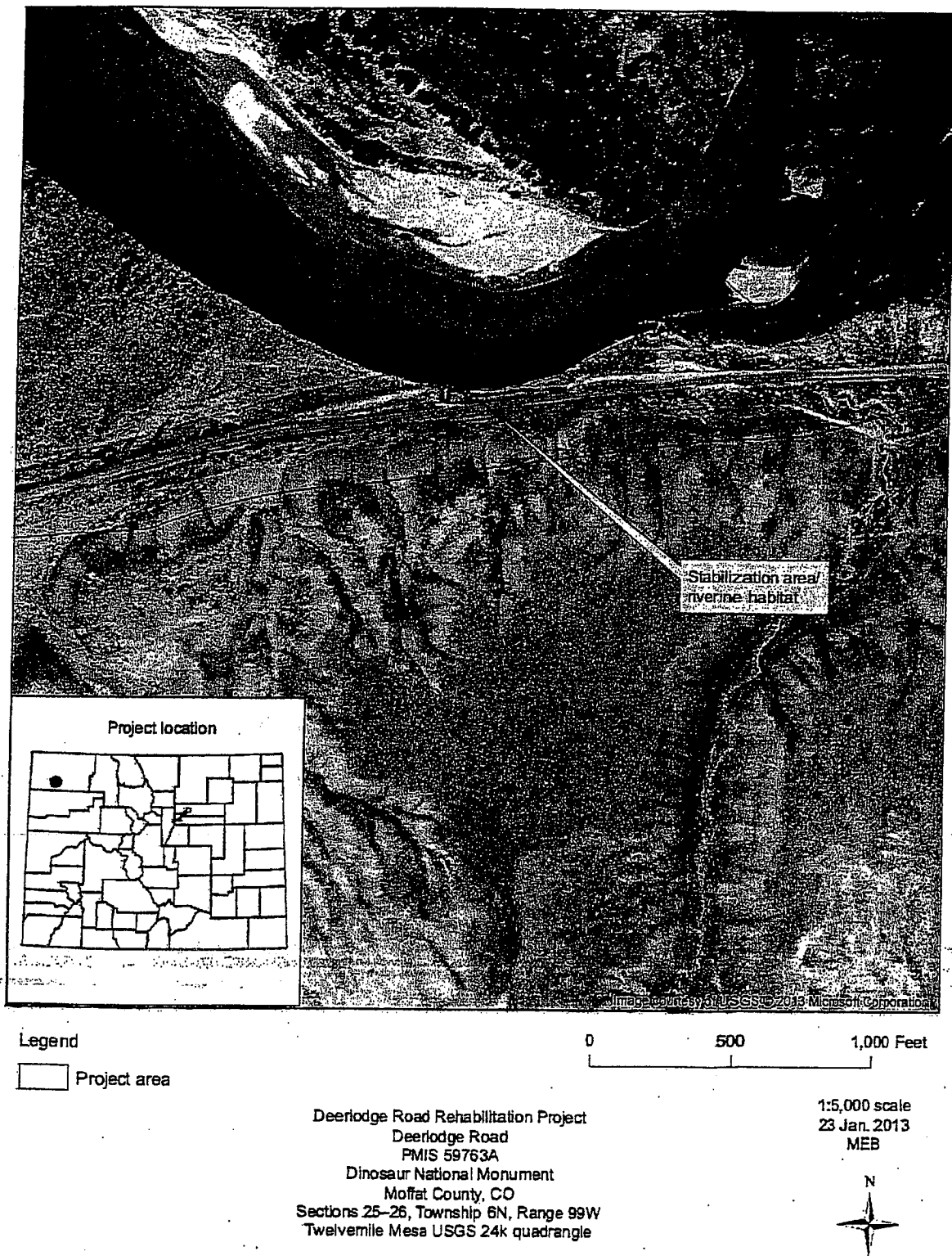


Figure 4. Riverine wetland in project area.



**Research/Scientific Values**—This area serves as a good example of natural river migration and sinuosity that has been unimpeded by dams and other water control structures. Most of the major rivers in the upper Colorado River basin have been dammed.

### **Avoidance and Minimization**

The NPS in cooperation with the FLHP is proposing to provide safer access and parking for private landowners, visitors, and employees by rehabilitating, restoring, and resurfacing about 12.7 miles of Deerlodge Road and stabilizing the Yampa riverbank where it has encroached on the roadway. The bank stabilization near milepost 9.5 would impact 0.82 acre of wetlands. The need to stabilize the Yampa riverbank near milepost 9.5 to provide safer access and parking precludes the complete avoidance of impacts to wetlands. Impacts would include the filling in of the stream-channel wetland and removal and injury to any aquatic habitat and wetland vegetation present. These impacts are described in detail below.

Design emphasis has been to avoid and minimize impacts to wetland resources. Placement of the exposed rock riprap would require installing a large "toe" into the natural riverbed substrate to ensure high flows would not compromise the structural integrity of the stabilized bank. This would be done using a launchable toe with Class 8 riprap (up to 30 inches in diameter) and water depths up to 8 feet. The launchable toe would slowly launch to scour depths as the river scours the river channel/bottom and the rock slides into the channel with sediment filling back over the launched material. The installation of the launchable tow would permanently compact soils in the construction footprint. The wetland area is unvegetated except during periods of extended low water. It is unlikely the removal of wetland vegetation would occur. Any vegetation in the area would likely be ephemeral. Construction activities on the riverbank would temporarily increase sedimentation into the river and riverine wetlands downstream, which could also impact aquatic organisms, such as insects, fish, and wildlife using the Yampa River and riverbank. A typical section for exposed riprap bank protection with a launchable toe is shown in Figure 3.

### **Compensatory Mitigation**

Approximately 0.82 acre of riverine wetland would be impacted by bank stabilization construction. The NPS will provide compensation through restoration of 0.09 acre of wetlands at the Needle parking area at a 1:1 ratio and 1.46 acres of tamarisk removal along the bank of the Yampa and Green Rivers at a 2:1 ratio (Figures 5). The Needle parking area is adjacent to riparian woody vegetation and would be suitable to restore to wetland habitat. The Needle parking area mitigation is at a 1:1 ratio because it is a similar type of wetland. The tamarisk removal mitigation is at a 2:1 ratio because it is invasive species removal (vs. wetland restoration), but would nonetheless improve riverine wetland habitat.

In general, in-kind mitigation is preferable to out-of-kind mitigation because it is most likely to compensate for the functions and services lost in the area impacted. The wetland restoration at the Needle parking area is being proposed as a compensatory mitigation site to be paired with tamarisk removal in high priority endangered fish habitat areas in or adjacent to the Yampa River channel downstream of the wetland impact area.

The restoration effort would include the removal of fill areas back to the original grade elevations and the expansion of depressional areas to make the topography and hydrologic conditions consistent with the existing wetland. The restoration effort would include the development, prior to construction, of a revegetation plan specifically for this area.

The proposed road construction project (mile 9.5 riprap project) is located in designated critical habitat for endangered Colorado Pikeminnow and Razorback Sucker. It is proposed that a portion of the wetland mitigation requirements (0.86 acre) be met by removing invasive tamarisk from important native fish habitat and recreation sites located downstream of the wetland impact (bank stabilization) site. The proposed tamarisk removal from NPS sites include:

- Point bar (spawning habitat) on river-left at mile 18 (above Mather Hole) on the Yampa River.
- Mid-channel cobble bar (spawning habitat) at mile 16.75 (near Cleopatra's Couch) on the Yampa River.
- Mid-channel island (historical nursery habitat) at the confluence of the Yampa and Green rivers in Echo Park.
- Jones Hole Creek debris fan, downstream of Jones Hole #3 river camp (significant recreation site and breeding bird habitat) at mile 218.5 on the Green River in Whirlpool Canyon.
- Placer Point (significant recreation site and area for outreach/education activities related to native fish recovery efforts) at mile 196.2 on the Green River, downstream of Split Mountain Canyon and upstream of the Razorback Sucker spawning bar.
- Additional mitigation sites will need to be found to compensate for the additional 0.6 acre necessary to compensate for the additional wetland impacts from the design change. The additional mitigation sites will be further downstream in the Green River.

Tamarisk biomass will be removed from these sites in an amount equal to 1.46 acres utilizing techniques as described in established plans.

#### TAMARISK PLANS

- Within Recommended Wilderness areas, tamarisk will be removed mechanically from river camps, lunch beaches, other high-recreation-value sites, and important native fish habitat by the least intrusive tool feasible. For most plants, this may include hand-pulling, weed wrenches, shovels, picks, pry bars, loppers, saws, tripod/ratchet puller and other hand tools. In situations where the plants are growing in dense stands in vertical or near-vertical banks or cobble bars located in the active river channel, a gas-powered water pump may be used to dislodge the plants, if it is determined that hand-tools will not accomplish the task. In situations where mechanical removal is not feasible or desirable (root crown lodged in rocky substrate or small diameter plants sparsely distributed in dense native vegetation), cut-stump or basal bark herbicide applications will be used. Choice of a particular herbicide will be

based on the most effective and least hazardous material, given site- and weather-specific circumstances.

- Outside of Recommended Wilderness (e.g., Gates of Lodore, Deerlodge, Echo Park, Rainbow Park, Split Mountain and Green River campgrounds), additional tools may be employed, where the benefits to high-value recreational resources warrant. Such tools may include chainsaws, chipper or other motorized equipment used primarily for debris management.
- In areas where high-value natural habitat has been invaded by tamarisk, cut-stump or basal bark herbicide application will be used, when it is desirable to eliminate the structural disruption caused by tamarisk presence. In other areas, biological control agents will be encouraged, where feasible, to gradually reduce tamarisk infestation. In a very limited number of sites, where (and if) large tamarisk stands succumb to biological control agents, it may be desirable to remove the dead biomass (e.g., islands in Echo Park) to aid re-establishment of natural geomorphic processes important to creation or maintenance of endangered fish spawning or nursery habitat; chainsaws may be employed in this situation, if the benefit to natural resources is significant.
- Debris management is not an insignificant component of tamarisk management. In any areas subject to flooding along the Yampa or Green rivers, stems will be cut into lengths not longer than 8 feet and stacked in piles with the cut end facing toward the river. Whenever possible, these piles will be placed above the high water mark to ensure that they will not be buried under sediment or carried away by flood waters. The piles will be left to dry for at least one year and then broken down and tossed into the river as close to peak flow as possible. Tamarisk stems are capable of sprouting both new root and new stem tissue—care must be taken to ensure that fresh-cut stems are not placed in contact with moist soil.
- In tributaries, tamarisk stems will be lopped and scattered so as to leave as natural an appearance as possible.
- Outside of Recommended Wilderness, debris may be chipped and moved off site, especially if the volume is substantial. Chipped material may be used to mulch for weed control around restrooms, in campsites or other developed areas. In no instance will the chipped material be placed back on to the cleared areas, as research suggests that this hampers recovery of native vegetation.
- At this time, burning is not an option for management of debris piles in the river corridors, even outside of Recommended Wilderness. Early attempts to burn tamarisk piles required excessive fuel and staff time and still burned with difficulty and may have caused irreparable damage to soil structure and beneficial microbes.
- The tamarisk removal areas would be maintained free of tamarisk for five years after the initial removal. Tamarisk management may occur at any time of year when the ground and/or stems are not frozen, with the following exceptions: 1) within 50 feet of the bank of the Yampa and Green Rivers, Garlon 4 applications will occur only between August 15 and November 15, 2) areas that are only accessible by boat can only be treated during the boating season, and 3) when temperatures exceed 85° F, Garlon® 4 herbicide applications will cease and be replaced with Habitat® herbicide applications in situations where the work cannot be rescheduled.

- Removal areas contain important breeding bird habitat, so work would be planned for time periods outside of the breeding bird season.

### **Schedule**

Implementation of the mitigation plan will require up to 4 seasons depending upon the depth of water at the site and access to the site.

### **Compensatory Mitigation Success Criteria**

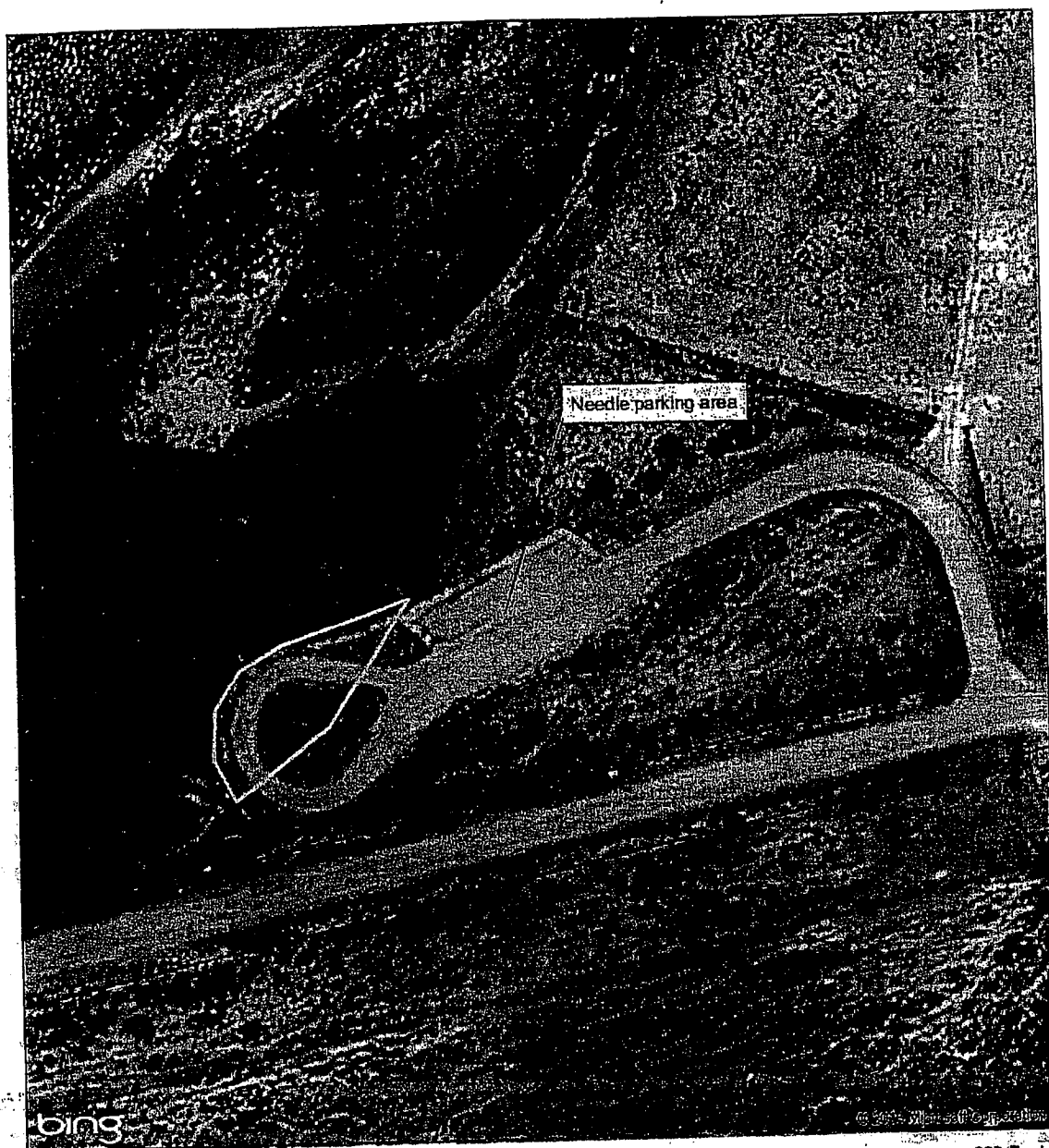
For tamarisk removal sites the objective is absence of woody vegetation, especially in the priority fish habitat areas. The fish need bare cobble substrate. Tamarisk causes accretion of sand on top of cobble. Removing the tamarisk reverses this process. Established populations of tamarisk leaf beetles (*Diorhabda carinulata*) will prevent or slow reinvasion of these critical geomorphic features. Therefore, the success criterion for the tamarisk removal areas is successful removal of all above-ground tamarisk biomass in the subject area. Over the 5-year monitoring period, the sites would be maintained tamarisk-free but may or may not become vegetated with native vegetation.

### **On-Site Monitoring**

#### Monitoring Methodology

Monitoring would be conducted for the Needle Parking area beginning immediately after the restoration (after re-grading and planting of vegetation), which would be designated as time-zero or the beginning of the restoration time period. Monitoring surveys would be done by qualified personnel after the first growing season of restoration planting to identify and remove or determine the survival of the restoration plantings. If needed, supplemental restoration planting would be done, and another monitoring survey would be done after the second growing season. By this time, plantings on the restoration site should be at the point where they are sustainable.

Vegetation, wildlife, and general climate data at the restoration site would be documented. Photographs would be taken. A time-zero post-construction and planting (as-built conditions) report would document plant densities and describe the conditions of the restoration areas after restoration is completed. The monitoring reports would be prepared by qualified individuals and would document the progress of the restoration efforts. All reports would be kept on file at monument headquarters. Any issues that arise or corrective action that needs to be taken would also be included in the monitoring reports. Observations of vegetation would be made at the restoration site throughout the time-zero and the subsequent reporting cycles.



- Project area
- Wetland mitigation area

0 100 200 Feet

Deerlodge Road Rehabilitation Project  
PMIS 59763A  
Wetland mitigation area  
Dinosaur National Monument  
Moffat County, CO

1:1,000 scale  
04 Dec. 2012  
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Figure 5. Needle parking wetland mitigation site.

### Wildlife Monitoring

During the monitoring program, observations of wildlife would be made in the restoration area during monitoring surveys through both visual means and inspection of physical evidence.

### Tamarisk Removal Monitoring

The tamarisk removal areas would be maintained free of tamarisk for five years after the initial removal. Dinosaur National Monument staff would periodically visit the removal sites for five years to monitor for reinvasion of tamarisk or invasion of other noxious weeds.

### Photographic Documentation

Photograph stations would be identified at the Needle Parking area. These locations would be used to document the physical condition of the restoration area during the five-year monitoring program. Photographs would be taken at tamarisk-removal sites to document the presence or absence of tamarisk.

### **Monitoring Reports**

Monitoring reports would be prepared by a qualified individual who will be coordinating the revegetation monitoring. These reports would provide documentation of the success of the mitigation program and the general condition of the enhanced area.

Monitoring reports would consist of the following information:

- Narrative description of the enhancement activities performed since the last report
- Explanation of maintenance work to be conducted over the next year
- List of wildlife species observed
- Results of vegetative monitoring
- Photographs taken at photo station locations on compass points
- General weather description
- Description of any remedial action recommendations (if necessary)

These reports would be submitted to the Dinosaur National Monument Chief of Resources for review and filed at Dinosaur National Monument.

### **Justification for Use of Wetlands**

The Proposed Action would impact 0.82 acre of riverine wetland. The NPS finds that there are no practicable alternatives to the Proposed Action that would avoid wetland disturbance completely. A no-action alternative would result in the eventual loss of Deerlodge Road. River access by recreationalist, researchers, park staff, and ranchers would be severely limited. Wetlands have been avoided to the maximum extent possible, and unavoidable wetland impacts would be compensated at a two-to-one ratio (over 1.04 acres of combined tamarisk removal and wetland restoration area to compensate for the 0.82 acre of wetland loss), which is consistent

with the National Park Service's implementation of the NPS Director's Order and Procedural Manual #77-1.

### **Compliance**

This document is required in order to comply with the National Park Service's Director's Order #77-1: Wetland Protection. Compliance with other agency regulations will be completed (if appropriate for this project) separately from this document. Separate compliance with other appropriate federal laws and regulations is required as per the NPS's Director's Order #77-1: Wetland Protection and Procedural Manual. For example, NPS activities that involve the discharge of dredged or fill material into wetlands or other waters of the United States may have to comply with Sections 401 and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. And if appropriate, the NPS may also have to comply with the Fish and Wildlife Coordination Act; the Wild and Scenic Rivers Act; the Endangered Species Act; the National Historic Preservation Act; and other relevant laws and regulations governing actions in wetlands and other aquatic environments.

### ***Clean Water Act Section 401 and Section 404, and National Pollution Discharge Elimination System (NPDES)***

The Proposed Action would impact waters of the U.S. as defined under the Clean Water Act. A Section 404 permit, issued by the U.S. Army Corps of Engineers, and a Section 401 Water Quality Certification, issued by the Colorado Water Quality Control Division, will be required. Section 404 permits and 401 Certifications are required for any activities that would discharge dredge or fill into waters of the U.S. A Section 401 Certification also insures that projects adhere to a state's water quality standards. The National Pollution Discharge Elimination System (NPDES) permit program regulates point sources that discharge pollutants into waters of the U.S. The Proposed Action would not discharge point source pollutants into waters of the U.S. Section 404 general conditions, Colorado regional conditions, Colorado water quality standards, project-specific conditions, and resource mitigation measures would be followed to assure the project is in compliance with all regulatory agencies.

### ***National Environmental Policy Act***

The NPS environmental assessment, finding of no significant impact, Section 106 compliance review, NPS floodplain statement of findings for Executive Order 11988, Floodplain Management, and this NPS wetland statement of findings for Executive Order 11990 are required to fulfill the NPS Director's Order #12 for this project.

### **REFERENCES CITED**

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe  
1979. Classification of wetlands and deepwater habitats of the United States. United States Department of the Interior, Geological Service.

Federal Highway Administration (FHWA), U.S. Department of Transportation (USDOT)

2011 U.S. Technical Memorandum of the Yampa River near Deerlodge Road (CO PRA DINO 101(1)), Dinosaur National Monument. U. S. Department of Transportation Federal Highway Administration Central Federal Lands Highway Division and CH2M HILL. Federal Highway Division, Lakewood, CO.

2012a Preliminary Hydraulics Recommendations Report for Deerlodge Road Improvements, Dinosaur National Monument. CH2MHILL. Federal Highway Division, Lakewood, CO.

2012b Draft Pavement and Design Report, Dinosaur National Monument. Yeh and Associates, Inc. Federal Highway Division, Lakewood, CO.

National Park Service [NPS], Department of the Interior

2012a Deerlodge road rehabilitation project, draft environmental assessment, Dinosaur National Monument. Ecosystem Management, Inc. National Park Service, Denver Service Center, Denver, Colorado.

2012b Wetland determination and delineation report for Deerlodge road and Cross Mountain Parking Area, Dinosaur National Monument. Ecosystem Management, Inc. National Park Service, Denver Service Center, Denver, Colorado.

U.S. Army Corps of Engineers

2008 Regional supplement to the Corps of Engineers wetland delineation manual: western mountains, valleys, and coast region, (J. S. Wakeley, R. W. Lichvar, and C. V. Noble, Eds.). ERDC/EL TR-08-13. U.S. Army Engineer Research and Development Center, Vicksburg, MS.

U.S. Department of the Interior National Park Service

2012 National Park Service procedural manual #77-1: wetland protection.

Wetland Training Institute, Inc.

1995 Field guide for wetland delineation: 1987 Corps of Engineers manual. WTI 02-1.

Wetland Training Institute, Inc., Glenwood, NM.



## **APPENDIX C**

### **Non-Impairment Finding**

## Non-Impairment Finding

National Park Service's *Management Policies, 2006* requires analysis of potential effects to determine whether or not actions would impair park resources. The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within park, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute an impairment, but an impact would be more likely to constitute an impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;

- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be an impairment is based on whether an action would have major (or significant) effects.

Impairment findings are not necessary for visitor use and experience, socioeconomics, public health and safety, environmental justice, land use, and park operations, because impairment findings relates back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. After dismissing the above topics, topics remaining to be evaluated for impairment include wildlife, special status species, water resources and floodplains, and wetlands.

Fundamental resources and values for Dinosaur National Monument are identified in the *Comprehensive Interpretive Plan*. According to that document, of the impact topics carried forward in this environmental assessment, soils, vegetation, wildlife, special status species, water resources and floodplains, and wetland resources are considered necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park; are key to the natural or cultural integrity of the park; and/or are identified as a goal in the park's General Management Plan or other relevant NPS planning document.

### Soils

Road rehabilitation activities such as excavating for subgrade road failures, milling, grading, repaving, and culvert replacements will occur within the existing ROW. Approximately 0.82 acre of soil will be disturbed during the rock riprap toe construction. Soil material exposed during construction will be subject to erosion until stabilized or revegetated. Soil disturbance along with vegetation, litter and top soil removal, and installation of the riprap will decrease the natural condition of the site and will have local, short-term, minor, and adverse impacts. Proposed drainage improvements, bank stabilization, and correction of deteriorating road pavement will reduce the potential for long-term erosion and soil loss. Repairing existing road conditions that currently generate erosion will result in a local, long-term, minor, beneficial impact on soil resources. Closing and revegetating the turn-around-loops for the Needle and Disappointment Draw Access Area and half of the Photo parking area will reduce the potential for future erosion and restore soil productivity. The planned use of temporary and permanent erosion-control BMPs and revegetation of temporarily disturbed areas will reduce the potential for erosion and soil loss. The preferred alternative will result in local, long-term, minor, beneficial impacts on soil resources.

## **Vegetation**

Road rehabilitation will occur primarily within the existing roadway and parking areas, but will impact greasewood vegetation along milepost 9.5 by machinery used for the placement of riprap. Temporarily disturbed areas will be reseeded with native vegetation following construction. Eight culverts currently experiencing erosion problems will be replaced, having local, minor, beneficial, long-term impacts on vegetation. This will prevent further erosion of soils in localized areas and will help to maintain the existing vegetation in these areas. Eroded areas could become unvegetated over time or areas of disturbance could harbor invasive plant species. Three parking areas will be reduced, with some areas of existing impervious surface restored to natural vegetation. BMPs will be used specifically to prevent topsoil erosion, plant mortality, and spread of invasive species, which could become established following roadside disturbance. There will be no impacts to the biological productivity of the area or to plant populations or communities. The preferred alternative will not result in an impairment of vegetation resources because construction-related adverse impacts will be local and minor and all temporary disturbances will be revegetated following construction.

## **Wildlife**

Road rehabilitation activities will be limited primarily to the existing paved roadway and adjacent disturbed areas, but will disturb shrublands around milepost 9.5. This will occur during the avian non-breeding season, so nesting birds will not be impacted. Human presence and construction noise will temporarily disturb and displace resident wildlife. The local habitats, however, are widespread, and wildlife is expected to move into adjacent areas. Large mammals are typical highly mobile and have large ranges and will be able to avoid portions of the project area under construction without hampered access to suitable habitat and water. Construction-related disturbance will be limited to one season; therefore, there will be no long-term adverse impacts to wildlife. The installation of exposed riprap could create habitat for the invasive smallmouth bass by simulating boulder habitats. However, BMPs and the launchable toe design will help to protect native fish in the Yampa River from potential smallmouth bass habitat creation and prevent erosion and chemical spills. The launchable toe design will fill in the gaps within and between the riprap and underlying soil, thus minimizing colonization of smallmouth bass in the bank stabilization area near milepost 9.5. For all fish species, sedimentation from construction should not be an issue because this section of the river is highly turbid. The preferred alternative will not result in an impairment of wildlife resources because construction-related adverse impacts will be local and short-term to resident wildlife and will be mitigated with BMPs; and bank stabilization using exposed rock riprap will improve aquatic species habitat, including native fish, by correcting drainage deficiencies and deteriorating road conditions that may impact water quality.

## **Special Status Species**

Installation of the 1,500 feet of exposed riprap with a launchable toe will require minimal in-stream work and thus will minimize the potential for incidental takes of fish. Fish could be temporarily displaced during construction of the exposed rock riprap due to the physical disturbance of the riverside and the noise. The temporary displacement will be local and is unlikely to restrict or limit fish access to the water or physical habitat,

primary constituent elements of the critical habitats. In addition, adult fish will likely avoid the project area due to noise disturbance during construction and no young of the endangered fish are known to occur within the project area. Potential impacts to bonytail chub, humpback chub, and the razorback sucker breeding fishes and/or their spawning grounds will be avoided; and a 25-mile buffer will be between the bank stabilization area and the Colorado pikeminnow spawning grounds. Smallmouth bass habitat could be created by installation of the riprap because it simulates boulder habitats used by this fish. However, the design of the launchable toe will minimize colonization of smallmouth bass in the bank stabilization area. The preferred alternative will not result in an impairment of special status species and/or their critical habitat because construction-related adverse impacts will be mitigated with BMPs and seasonal time constraints on construction activities in the Yampa River; and rehabilitation of eroding culverts will improve water quality by reducing current sediment runoff in these areas.

### **Water Resources and Floodplains**

Road rehabilitation involving excavating, grading, and exposing soil material will increase the potential for erosion until vegetation is established, paving is completed, drainage work is installed, and other stabilization work is finished. The transport of sediment to the Yampa River or other ephemeral drainages is possible during construction, although soil- and erosion-control BMPs will be used to contain and control erosion. No measurable effects on water quality will occur because of the use of BMPs and because any sediment contributions will be very minor in relation to the supply of sediment and erosion naturally occurring in this watershed. The proposed rehabilitation of culverts in eroding areas will reduce the potential for sediment runoff and ephemeral water channel erosion and will better collect and dissipate runoff. The total area of impervious surface in Disappointment Draw and Needle parking areas will be reduced, and previously paved areas will be revegetated.

The placement of riprap along approximately 1,500 feet of riverbank will stabilize the bank and reduce potential bank erosion, but will limit lateral migration of the channel and natural changes to the shape of the river bend. This will alter the high-flow energy dispersal by hardening one side of the channel, leading to increased erosion on the opposite side of the stream or farther downstream. However, the placement of riprap will have little impact on the overall water quality of the river, which is naturally turbid. Installation of riprap will also not alter the function or value of the floodplain, nor will it significantly reduce the amount of floodable land. The preferred alternative will not result in an impairment of water resources and floodplains because any construction-related adverse impacts will be short-term, minor and mitigated with BMPs; and drainage improvements and riprap installation will improve water quality by providing long-term treatment of surface discharge and bank erosion; and function or value of the floodplain will not be altered.

### **Wetlands**

Approximately 0.82 acre of riverine wetland will be permanently impacted. However, the bank stabilization near milepost 9.5 will improve conditions by reducing the potential risk for soil slumping, erosion, and soil being carried downstream into adjacent wetland resources. In addition, the 0.82 acre of riverine wetland will be compensated through

restoration of 0.09 acre of wetlands at the Needle parking area at a 1:1 ratio and 1.46 acre of tamarisk removal along the bank of the Yampa and Green Rivers at a 2:1 ratio. The Needle Parking area is adjacent to riparian woody vegetation and will be suitable to restore to wetland habitat. The tamarisk removal will remove invasive tamarisk from important native fish habitat and recreation sites located downstream of the wetland impact (bank stabilization) site. The preferred alternative will not result in an impairment because construction-related adverse impacts will be mitigated by compensating at a two-to-one ratio (over 1.04 acres of combined tamarisk removal and wetland restoration area to compensate for the 0.82 acre of wetland loss).