

## **Chapter 4. Environmental Consequences**

### **4.1 Introduction**

The anticipated potential effects of each alternative to the previously described environmental issues and resources in Chapter 3, Section 3.2, are presented below. The analysis of the secondary and cumulative effects of other planned projects near the project area, as discussed in Chapter 1, Section 1.5, and in Chapter 2, Section 2.4, is presented here under each issue/resource section under the heading “Secondary and Cumulative Effects.”

### **4.2 Predicted Attainment of Project Objectives for Each Alternative**

#### **No Action**

Under the no action alternative, the project objectives would not be attained. The river would continue to erode the east stream bank until the levee breaches. Severe damage to levee and canal structures would not be avoided and flooding of private, Pueblo of Sandia, and Middle Rio Grande Project facilities would occur.

#### **Proposed Action**

Under the proposed action alternative, the project objective of preventing damage to the east levee system by reducing the probability that high flows will cause further erosion of the east river bank would be achieved. By providing additional bank stability and reliability, damage to these structures would be effectively avoided for the foreseeable future.

The secondary objective of restoring, improving, and enhancing the habitat and natural condition of the floodplain between the river and the east levee would be attained by human action with available resources. The short-term disturbance of vegetation, followed by an aggressive revegetation plan, would ultimately lead to a long-term improvement in the productivity of available terrestrial habitat.

There would be a few small, irreversible and irretrievable commitments of resources. Fuel and lubricants for the heavy equipment would be permanently expended during the project. Rock, wood, and metal would be used as materials for construction of specific components of the proposed action.

### **4.3 Predicted Effects on Each Relevant Issue and Resource**

#### **4.3.1 Federal and State Listed Species**

##### **No Action**

There would be no change to the existing condition and no effects to Federally listed species under the no action alternative.

**Proposed Action**

No long-term adverse effects to legally protected species are expected from implementation of the proposed action. Specific efforts to avoid adverse effects to legally protected species as part of the proposed action are described below.

Bald Eagle

Should a bald eagle be observed within 0.25 mile upstream or downstream of the active project area in the morning before project construction activity starts or following breaks in project construction activity, the construction crew would be required to suspend all activity until the bird leaves of its own volition or the Reclamation biologist, in consultation with the Service, determines that the potential for harassment is minimal. However, if a bald eagle arrives during project construction activities or is observed beyond the specified distance, construction would not need to be interrupted. If bald eagles are found consistently in the immediate project area during the construction period, Reclamation would contact the Service to determine whether formal consultation under the ESA is necessary.

Southwestern Willow Flycatcher

Although historically the project area may have provided habitat for the southwestern willow flycatcher, the current habitat in the project area is not suitable for nesting and none are known to nest in or near the project area. The Pueblo of Sandia has been surveying the project area for southwestern willow flycatcher following Service protocols since 2002 and no birds have been detected. The results of flycatcher surveys conducted by Reclamation using Service protocols in the project area in 2004 were also negative (A. Coykendall, pers. comm., 2004). Areas proposed for clearing of vegetation do not contribute to any primary constituent elements of viable southwestern willow flycatcher habitat. Additionally, clearing and grubbing activities would occur prior to the southwestern willow flycatcher's nesting season; therefore, Reclamation has determined that no effects to this species would occur, and the proposed action would not adversely modify designated critical habitat.

Rio Grande Silvery Minnow

Critical habitat for the Rio Grande silvery minnow was designated by the Service as the reach of the Rio Grande from Cochiti Dam to the upper pool for Elephant Butte Reservoir, approximately 163 miles (Service 2003). However, Pueblo of Sandia lands within this reach were not included as critical habitat. Rio Grande silvery minnow have previously been collected adjacent to the project area, both upstream and downstream. Temporary earthen berms installed in the river channel upstream and downstream of the main channel construction site would function as fish barriers to prevent Rio Grande silvery minnow from moving into the project area during construction. Pooled areas within the main channel construction site would be managed to maintain a refugial area throughout the project to allow Rio Grande silvery minnow to avoid construction activities. Management of a refugial pool within this area provides sufficient depth and area for Rio Grande silvery minnow to avoid construction equipment and activities. Reclamation would coordinate site visits with the Service to evaluate the refugial pool management during construction activities and would continue to coordinate with the Service on whether Rio Grande silvery minnow should be transported away from the project area. These

construction techniques are designed to minimize contact with the Rio Grande silvery minnow and the potential for harm or harassment. However, harm to Rio Grande silvery minnows may be unavoidable during construction and, therefore, Reclamation has requested “Incidental Take” for the proposed action that would be limited to an unknown number of individuals in the immediate area of dewatering and channel construction. There would be no destruction of or adverse modification to the Rio Grande silvery minnow’s designated critical habitat.

### **Secondary and Cumulative Effects**

There would be no adverse secondary effects to southwestern willow flycatcher or bald eagle as a result of the proposed action. Because there would be no adverse effects to the southwestern willow flycatcher from the proposed action, there would be no adverse cumulative effect when combined with other planned projects in the area. However, the proposed action would result in the planting of riparian/wetland communities in newly created areas that could eventually mature and create potentially suitable southwestern willow flycatcher habitat, which would be a beneficial secondary effect. Monitoring for bald eagle during this project and others would minimize any potential effect on this species. This project, in combination with other planned projects in the area, would not be expected to result in any adverse cumulative effects to bald eagles. Implementation of the proposed action would likely create suitable conditions for the bald eagle’s prey base by creating a series of secondary channels with slower water velocities and planting riparian and wetland vegetation on newly created areas. This newly created habitat for its prey base would likely further attract the bald eagle to the project area, resulting in beneficial secondary effects.

Secondary effects of the proposed action for the Rio Grande silvery minnow include improving habitat quality within the secondary channels and other project features. The proposed action would result in an increase in potential habitat for the species, which may increase the local population abundance. The cumulative effects to Rio Grande silvery minnow should be beneficial, though difficult to quantify.

### **4.3.2 Vegetation and Wildlife**

#### **No Action**

Under the no action alternative, existing vegetation, including native and non-native species, would remain in place. Because of the altered hydrologic regime of the Rio Grande, mature cottonwood trees and Goodding’s willow trees would continue to decline in health without being replaced by younger trees. The abundance of saltcedar and Russian olive would be expected to increase over time.

#### **Proposed Action**

Any existing trees or shrubs removed at the beginning of construction would be replaced by a minimum of 37 poles of Rio Grande cottonwood and 47 poles of Goodding’s willow, along with 2,939 coyote willow poles. In addition, 223 false indigo, 296 false willow, and 339 New Mexico olive containerized plants would be planted. These new trees and shrubs would be spaced irregularly throughout the project area in appropriate locations to improve their potential for survival and to create a more natural condition. All pole plantings would be caged with wire initially to prevent beaver damage. In addition, all containerized plantings would include a

watering tube made of plastic pipe to facilitate deep watering of these plants. Final numbers and species of plants and long-term monitoring of planted areas would be determined in cooperation with the Pueblo of Sandia.

Native grasses and wildflowers would be seeded in areas disturbed by construction to re-establish vegetation. Only the amount of the proposed staging and stockpiling areas needed would be used or disturbed. Upon completion of stabilization activities, all work areas would be cleaned up and all materials and equipment removed. These areas would be reseeded as discussed in Section 2.3. The re-establishment of vegetation would be monitored and irrigation water would be brought in by truck, if necessary, to ensure the successful establishment of seeded areas. Final numbers and species of seed and long-term monitoring of seeded areas would be determined in cooperation with the Pueblo of Sandia.

Although construction activities may scare existing wildlife away temporarily, most animal species in the project area would be able to return after project completion. Some mortality of less mobile species would be expected but not in quantities that would damage local populations. The improved quality of the habitat after new vegetation becomes established would offset these losses over time.

### **Secondary and Cumulative Effects**

There would be no secondary effects to vegetation and wildlife as a result of the proposed action. The effects of the proposed action in combination with work at the Bernalillo Priority Site would, over time, likely result in an overall improvement in the quality of the local floral and faunal health. The short-term cumulative effects of construction would be small in the overall regional context and temporary in nature.

#### **4.3.3 Noxious Weeds**

##### **No Action**

Under the no action alternative, no ground-disturbing activities would be undertaken. Therefore, there would be no effect on existing noxious weed infestations.

##### **Proposed Action**

Whenever land is disturbed, the potential exists for the intrusion and establishment of noxious weeds. This project could disturb up to 40.2 acres, depending upon how much space is ultimately needed for staging and stockpiling. To minimize the potential for the continued establishment and spread of State-listed and other noxious weeds, an aggressive revegetation plan would be implemented. This plan, as described in Section 2.2 of this EA, would allow native species to become re-established more rapidly than they otherwise might. Past experience has shown that, over time, any noxious weeds that manage to gain a foothold in the project area would likely be crowded out by the more competitive native vegetation.

In addition to reseeding and planting, the introduction of noxious weed seeds would be minimized by a requirement that all equipment used on the project be pressure washed before arriving and leaving the site. Reclamation, in cooperation with the Pueblo of Sandia, would monitor the project area following construction (3-5 years) for noxious weeds and treat them as necessary. By preventing the introduction of noxious weed seeds and pursuing an aggressive

revegetation plan, the potential for noxious weeds becoming established in the project area over time would be minimal.

**Secondary and Cumulative Effects**

Addressing erosion problems at the Bernalillo Priority Site would also require some ground-disturbing activities. Approximately 5.1 acres of ground disturbance would occur at that site. Noxious weed seeds could be imported as part of that project. Through sound and aggressive revegetation planning and ensuring all equipment is pressure washed to prevent weed seed transmission, the opportunity for noxious weed establishment would be minimized. There would be no secondary effects to noxious weeds as a result of the proposed action.

**4.3.4 Erosion Control and Water Quality**

**No Action**

Erosion of the east river bank in the project area would continue to add a small amount of turbidity to the river downstream; however, when the levee ultimately fails, a large amount of soil would be deposited into the river and contribute adversely to the turbidity of the river for a brief period. Emergency measures to repair the levee and the east canal system would likely be carried out under less than desirable conditions, which could temporarily contribute further to turbidity in the river.

**Proposed Action**

During construction, the removal of vegetation in the project area could potentially result in erosion and contribute to additional turbidity in the river downstream of the project area; however, standard construction BMPs would be used to minimize runoff during this period. Consequently, most runoff would be contained within the active construction site. The re-establishment of native riparian vegetation in the project area following construction would ultimately reduce the project area's contribution to turbidity in the river. The Pueblo of Sandia and the NMED have specified project requirements for certification and compliance with Section 401 of the CWA. Also, because this project would result in the disturbance of more than 1 acre of land, a Section 402 of the CWA NPDES permit would be required. A notice of intent (NOI) would be submitted by Reclamation under the Construction General Permit and a Stormwater Pollution Prevention Plan (SWPPP) would be prepared.

**Secondary and Cumulative Effects**

The effects of the proposed action on erosion and water quality would be minor and temporary in nature; therefore, there would be no cumulative effects resulting from the combination of the proposed action and other anticipated projects. There would be no secondary effects to erosion and water quality as a result of the proposed action.

**4.3.5 Air Quality**

**No Action**

There would be no effects to air quality under the no action alternative.

**Proposed Action**

Fugitive dust generation from excavating and grading activities in the project area, along with exhaust emissions from heavy equipment and vehicles working on the project, are the only anticipated effects to air quality during construction. These temporary effects would not be expected to be significantly adverse. There would be no effects to air quality following completion of construction activities and re-establishment of vegetation in disturbed areas.

Fugitive dust would be suppressed by spreading water over disturbed areas where heavy equipment is working during dry conditions. Most nearby residences are far enough away from the project area that dust escaping from the immediate project area would dissipate before reaching them. Dust levels resulting from the proposed action would be expected to be lower than those generated by plowing and tilling activities on nearby farms and by construction activities in nearby subdivisions. Exhaust emissions from heavy equipment and vehicles working on the project would dissipate rapidly before leaving the project area.

**Secondary and Cumulative Effects**

The effects of the proposed action on air quality would be minor in the context of the local setting and temporary in nature; therefore, there would be no cumulative effects resulting from the combination of the proposed action and other anticipated projects. There would be no secondary effects to air quality as a result of the proposed action.

**4.3.6 Cultural and Archaeological Resources, and Sacred Sites**

**No Action**

There would be no effects to cultural resources or sacred sites under the no action alternative.

**Proposed Action**

There are no structures eligible for the National Register of Historic Places that would be affected by the proposed action. In addition, no sacred sites or traditional cultural properties are expected in the project area; however, should consultation with the tribes result in the identification of any such sites or properties, then Reclamation would consult with tribe(s) concerned to ensure no adverse effects result from the proposed action.

**Secondary and Cumulative Effects**

There would be no secondary effects to cultural and archaeological resources or sacred sites as a result of the proposed action. Because no effects to cultural or archaeological resources, sacred sites, or traditional cultural properties are anticipated as a result of the proposed action, there would be no cumulative effect on these resources.

**4.3.7 Indian Trust Assets (ITAs)**

**No Action**

There would be no effects to ITAs under the no action alternative.

**Proposed Action**

The Pueblo of Sandia Tribal Council approved the Sandia Priority Site Project proposed action in 2005. In addition, the Bureau of Indian Affairs has reviewed and provided comments on the proposed action to Reclamation. As such, there would be no effects to ITAs under the proposed action.

**Secondary and Cumulative Effects**

There would be no secondary effects to ITAs as a result of the proposed action. Because no effects to ITAs are anticipated as a result of the proposed action, there would be no cumulative effect.

**4.3.8 Environmental Justice**

**No Action**

No effects of any kind to the local population are expected under the no action alternative. No adverse effects to low-income or minority populations are anticipated.

**Proposed Action**

No effects of any kind to the local population are expected under the proposed action. No adverse effects to low-income or minority populations are anticipated.

**Secondary and Cumulative Effects**

There would be no secondary effects concerning environmental justice as a result of the proposed action. Because no effects to the local population, either adverse or beneficial, are anticipated as a result of the proposed action, there would be no cumulative effect.

**4.3.9 Visual Resources**

**No Action**

There would be no effects to visual resources under the no action alternative.

**Proposed Action**

The proposed action would be expected to have temporary impacts on visual quality. Visual quality impacts would be short term (i.e., 3 to 5 years) until areas affected by construction revegetate to a more naturally appearing condition. Most of the above-water portion of the proposed bendway weirs would be buried, effectively screening their negative visual quality. However, during flows less than 500 cubic feet per second, a portion of the bendway weirs may become partially exposed in the main river channel.

**Secondary and Cumulative Effects**

There would be no secondary effects to visual resources as a result of the proposed action. Because effects to visual resources would be temporary as a result of the proposed action, there would be no long-term cumulative effect to these resources.