APPENDIX B

Biological Assessment

RECLAMATION

Managing Water in the West

Cochiti Priority Sites

Biological Assessment

U.S. Department of the Interior
Bureau of Reclamation
Albuquerque Area Office

May 2007
Revised: July 2007

Cochiti Priority Sites

Biological Assessment

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Cover photograph: Bend of the Rio Grande at Rive Mile 228.9.
Photo by Mark Nemeth.

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Background and Proposed Action

The Bureau of Reclamation (Reclamation) has authority for river channel maintenance on the Rio Grande in New Mexico between the community of Velarde and the headwaters of Caballo Reservoir. Reclamation regularly monitors changes in the river channel and evaluates channel and levee capacity in an effort to keep track of river maintenance priority sites where there is concern about possible damage to riverside facilities.

There are two priority sites on the Pueblo of Cochiti: one (at River Mile 231.3) is on the west side of the Rio Grande about 1 mile downstream of Cochiti Dam, and the other (at River Mile 228.9) is on the east side, about 3 miles downstream of the dam (Figure 1). Geomorphic investigations have been completed for both sites (Massong 2004, Bio-West, Inc. 2005a, Bio-West, Inc. 2005b). At River Mile 231.3, the west bank of the channel has migrated beyond the jetty jack line and is very close to a road and several agricultural fields. At River Mile 228.9, the main channel is on the west side of a large island with the secondary channel on the east side. The secondary channel carries water year-round. The concern at this site is that the secondary channel is slowly, but steadily, migrating eastward toward the levee and riverside drain. Both sites are located entirely within the boundaries of the Pueblo of Cochiti.

At River Mile 231.3, the planned maintenance action is to remove the jetty jacks, install bioengineered bank protection, and move the nearby road farther away from the river. At River Mile 228.9, the planned maintenance action is to block the upstream end of the secondary channel with a berm and excavate a new channel through the island that will connect the main channel to the secondary channel downstream of the priority site.

The primary concern at River Mile 231.3 is that the west bank of the Rio Grande is only about 30 feet away from a dirt road that runs parallel to the channel. The edge of an agricultural field is about 80 feet away from the channel; it is believed that this field may have an underground drainage system that could be damaged if the river migrates further westward. Additionally, several sinkholes, probably caused by flow of groundwater, have been observed between the river and the agricultural fields. Some sinkholes have formed in the road, and sinkholes near the channel have the potential to encourage erosion of the bankline. The project purpose at this site is to protect the road and agricultural fields from damage caused by erosion and sinkhole formation.

At River Mile 228.9, the main concern is that the bend in the secondary channel could migrate toward the levee, causing a levee breach and possible flow of river water into the adjacent drain. The bend in the secondary channel has an unusually small radius of curvature, and there is evidence that the secondary channel could abruptly become the main channel because of its steeper gradient, as compared to the western channel (Bio-West, Inc. 2005c). The distance from the channel to the levee toe is approximately 200 feet. At this site, the project purpose is to ensure that the levee is not damaged by eastward migration of the secondary channel.

For both sites, the project purposes must be accomplished while complying with the provisions of the Endangered Species Act and while meeting the habitat needs specified in the Biological

Opinion addressing Reclamation's river maintenance activities (U.S. Fish and Wildlife Service 2003a).

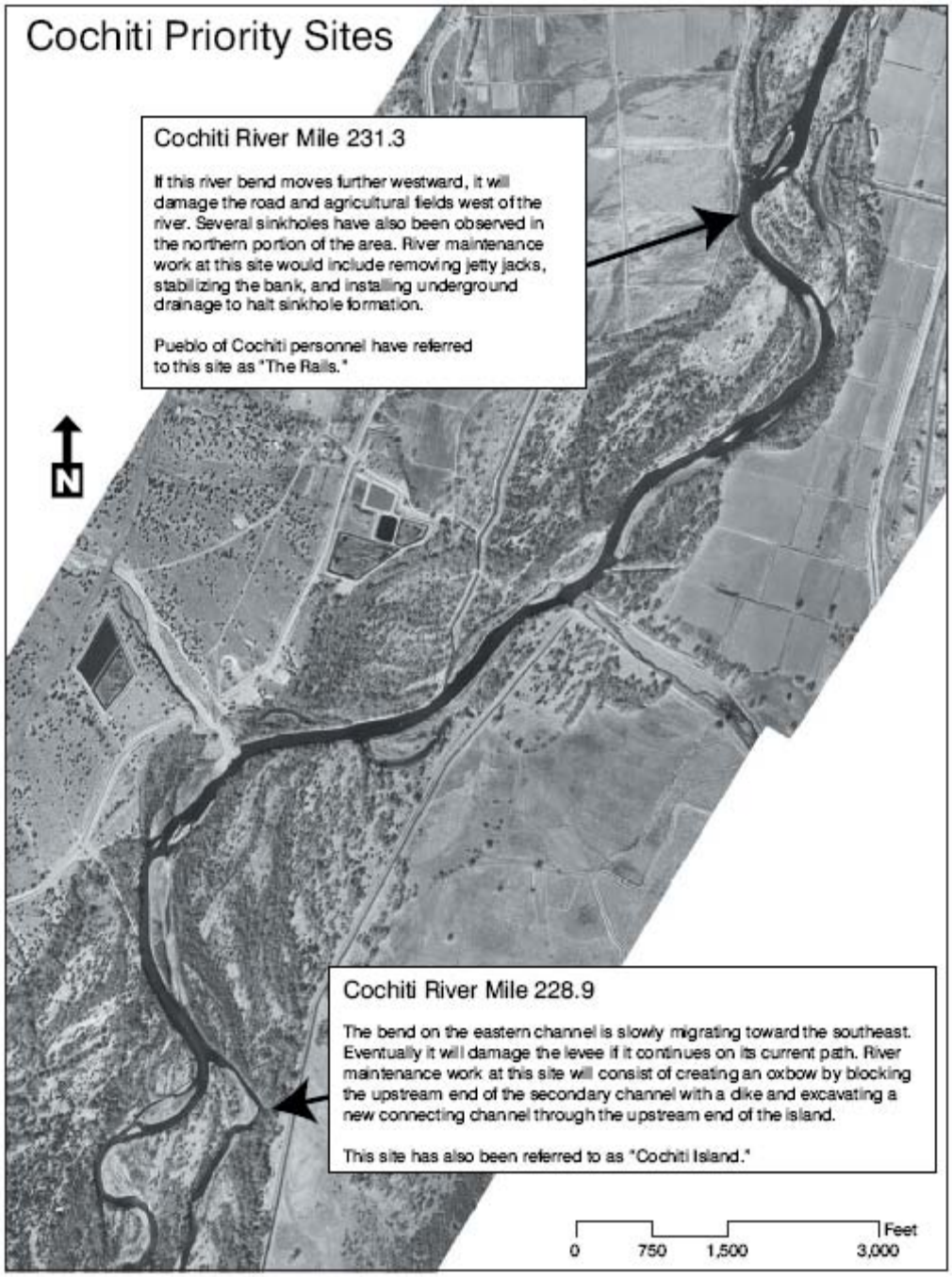

Figure 1. Locations of Cochiti priority sites.

Proposed Construction Sequence

The features of the projects for the priority sites at River Miles 231.3 and 228.9 are described below, in the probable order in which they will occur. The construction steps will likely overlap one another to some extent. Work at each site is completely independent of work at the other site. Construction equipment will include the following: bulldozers, excavators (land-track and amphibious), water trucks, scrapers, dump trucks, loaders, and motor graders. Proposed access routes and plan view illustrations of the proposed work for each of the two priority sites appear below in Figures 2-4. Construction at River Mile 231.3 will disturb a maximum area of 21 acres, while construction at River Miles 228.9 will disturb a maximum area of 32 acres.

Cochiti River Mile 231.3:

Step 1: Access Roads and Staging Areas

Dirt access roads will be graded, if necessary. The staging area designated in the construction drawings will be cleared of vegetation and used for equipment and material storage. Reclamation may pump water from irrigation facilities or the river for dust abatement during construction. If water is pumped from the river, Reclamation would use an exclusion cage with ¼-inch hardware cloth enclosing the sides to screen the pump intake for construction occurring August 31st (or later) to April 15th. For the construction periods April 16, 2008 through August 30, 2008, Reclamation would dig a sump in the proximate floodplain for pumping. The sump is less effective for pumping water but would exclude fish eggs and larvae during the spawning season. The sump would be filled back in with the excavated materials when pumping is terminated. The staging area will disturb up to 5 acres of terrestrial habitat in an adjacent fallow farm field on the west side of the river.

Step 2: Excavate Diversion Channel

A diversion channel between the main (western) and secondary (eastern) channels upstream of the priority site will be excavated through terrestrial habitat. Construction of the diversion channel will disturb up to 1 acre of terrestrial habitat. Water will be diverted into this channel in Step 3.

Step 3: Construct Diversion Dike

A temporary dike will be installed in the main (western) channel upstream of the priority site to divert water into the channel constructed in Step 2. The temporary dike should divert most of the flow down the eastern side channel during construction. If possible, local fill from the excavation of the diversion channel shall be used to build the temporary berm. The berm would be constructed by pushing earth material into the main channel with bulldozers; this may be done from only one side or from both sides simultaneously. Construction of the temporary dike will disturb approximately 1.5 acres of wetted habitat. Imported fill material may also be used, if necessary. It is anticipated that there may be seepage under the temporary berm and water may need to be pumped from the site during construction. A pit may be dug immediately downstream of the temporary berm to place a pump to dewater the groundwater and allow placement of the toe stone.

Step 4: Remove Jetty Jacks and Non-native Vegetation

All existing jetty jacks, including both tieback and main lines, located within the project area will be removed from the site. The removal of jetty jacks promotes more natural habitat conditions, provides better construction access for other project features, and eliminates a potential safety hazard. All non-native vegetation will also be removed within the disturbed area of the project site. The removal of existing cottonwood trees and other native plants shall be minimized in the disturbed area to the extent practical during all project phases. All removed vegetation shall be mulched within the project site and spread out evenly on the ground surface.

Step 5: Construct Bio-engineered Bankline and Install French Drain

The bio-engineered bankline will be constructed using a rock toe and coir fabric encapsulated soil. The existing bankline will be regraded at a 1.5:1 (H:V) slope. A toe trench shall be excavated at a width of approximately 7 feet. This trench shall be filled with 12-inch nominal toe stone at a 1.5:1 (H:V) slope to a level similar to the existing channel bed. After the stone toe has been placed, the coir fabric encapsulated soil will be placed in several lifts. Fill material will be provided for the bio-engineered bankline from the regrading of the existing bankline and construction of the toe stone trench. The fill material will be planted with native riparian vegetation. Approximately 0.3 acres of wetted and 2.7 acres terrestrial habitat will be disturbed during the bio-engineering bank construction and road relocation. The bio-engineered bankline will result in a more gradually sloped bank allowing for inundation of the surface at higher flows.

Concurrent with the bio-engineered bankline construction, an investigation of the source of piping in this area will be done to avoid possible collapse and failure of the bio-engineered bankline. Piping, through the formation of sinkholes, was noted in the vicinity of this priority site during an initial site investigation. A trench will be dug following a path west from one of the sinkholes towards the agricultural fields to investigate the source of the water causing the piping. If it is determined that the source is primarily a broken drainage tile, then this will be repaired. If the source is unchecked seepage from Cochiti Dam or the nearby agricultural fields, then the underground flow will be intercepted by digging a trench perpendicular to this flow and filling it with rock, gravel packed perforated pipe, solid pipe, or some combination of these three to create a French drain. The existing two-track road along the river bank will be moved westward during the construction process.

Step 6: Remove Diversion Dike

After the bio-engineering bankline has been completed, the temporary dike will be removed, and the diversion channel will either be filled in with the excavated material or left in place, at the discretion of the project manager.

Step 7: Site Cleanup and Planting

The final step of the construction is vegetation planting, removal of material from staging areas, and reseeding disturbed areas.

Cochiti River Mile 228.9:

Step 1: Access Roads and Staging Areas

Dirt access roads will be graded. If necessary, a gravel cap will be placed on the levee road from the Santa Fe River confluence to the project site at River Mile 228.9. The staging area designated in the construction drawings will be cleared of exotic vegetation and used for equipment and material storage. Reclamation may pump water from irrigation facilities or the river for dust abatement during construction. If water is pumped from the river, Reclamation would use an exclusion cage with ¼-inch hardware cloth enclosing the sides to screen the pump intake for construction occurring August 31st (or later) to April 15th. For the construction periods April 16, 2008 through August 30, 2008, Reclamation would dig a sump in the proximate floodplain for pumping. The sump is less effective for pumping water but would exclude fish eggs and larvae during the spawning season. The sump would be filled back in with the excavated materials when pumping is terminated. Approximately 2.5 acres of terrestrial habitat will be disturbed for the staging area.

Step 2: Placement of Rock in Berm

The first portion to be constructed of the berm across the east channel of the river will be the rock toe. The toe stone will be placed as a mound with a top width of 14 feet along the channel bed at the upstream end of the berm footprint.

Step 3: Excavate Material from Cross-island Channel and Spoil Berm

A cross-island channel will be excavated, running from the existing western side channel through Cochiti Island and connecting with the abandoned eastern side channel downstream of the priority site location. The diversion berm will cover approximately 2.5 acres of existing habitat (1.25 acres terrestrial; 1.25 acres aquatic). Additional earth material will be excavated from an existing spoil berm on the island, downstream of the new channel location. A plug will be left at the mouth of the cross-island channel at least until all excavated material has been transported upstream of the channel; the plug could potentially remain in place until the conclusion of the project, if it is necessary to keep water from backing up into the work area. Excavation of the side channel will convert (disturb) 1.5 acres terrestrial habitat to lotic habitat for a net gain of 0.25 acres.

Depending on hydrologic conditions, it may be preferable to complete Step 3 before Step 2. In this case, the excavated earth material would be temporarily stored on the island, north of the cross-island channel.

Step 4: Bank Restructuring

The bank of the channel at the priority site location (i.e., where the eastern branch of the channel is closest to the levee) will be graded to result in a flatter slope. Additional berms will be placed in the east channel between the diversion berm and the cross-island channel confluence. These berms will be created at varying slopes and will be planted with native riparian vegetation to help ensure berm stability and improve habitat. Fill material shall be provided for the berm and bank restructuring from the excavation in Step 3. To the extent possible, fill placement will be conducted to avoid creating isolated pools that could trap fish. Berm and bank restructuring for creating the oxbow will disturb up to 4.0 acres. The berm will create about 1.0 acres of potential

riparian habitat while the approximately 3.0 of backwater (oxbow) will result in higher quality (lower water velocities with a fine sediment substrate) aquatic habitat.

Step 5: Install Bio-engineered Bankline and Place Earth Material in Diversion Berm

Earth material excavated in Step 3 will be placed on top of and behind the rock toe to form the diversion berm. The berm would be constructed by pushing earth material into the channel with bulldozers; this may be done from one or both sides simultaneously. After the fill is placed, additional stabilization shall be provided by installing a bio-engineered bank above the toe stone on the river side of the berm. The bio-engineered bankline shall be installed by grading the diversion berm at a 1.5:1 (H:V) slope from the eastern top edge of the toe stone to the design elevation of the diversion berm. Each lift of the bio-engineering bankline shall consist of a coir fabric block with both a bottom and top coir fabric sheet.

Step 6: Site Cleanup and Planting

The final step of the construction is vegetation planting, removal of material from staging areas, and reseeding disturbed areas. If the plug at the upstream end of the cross-island channel has not previously been removed, it will be removed at this time.

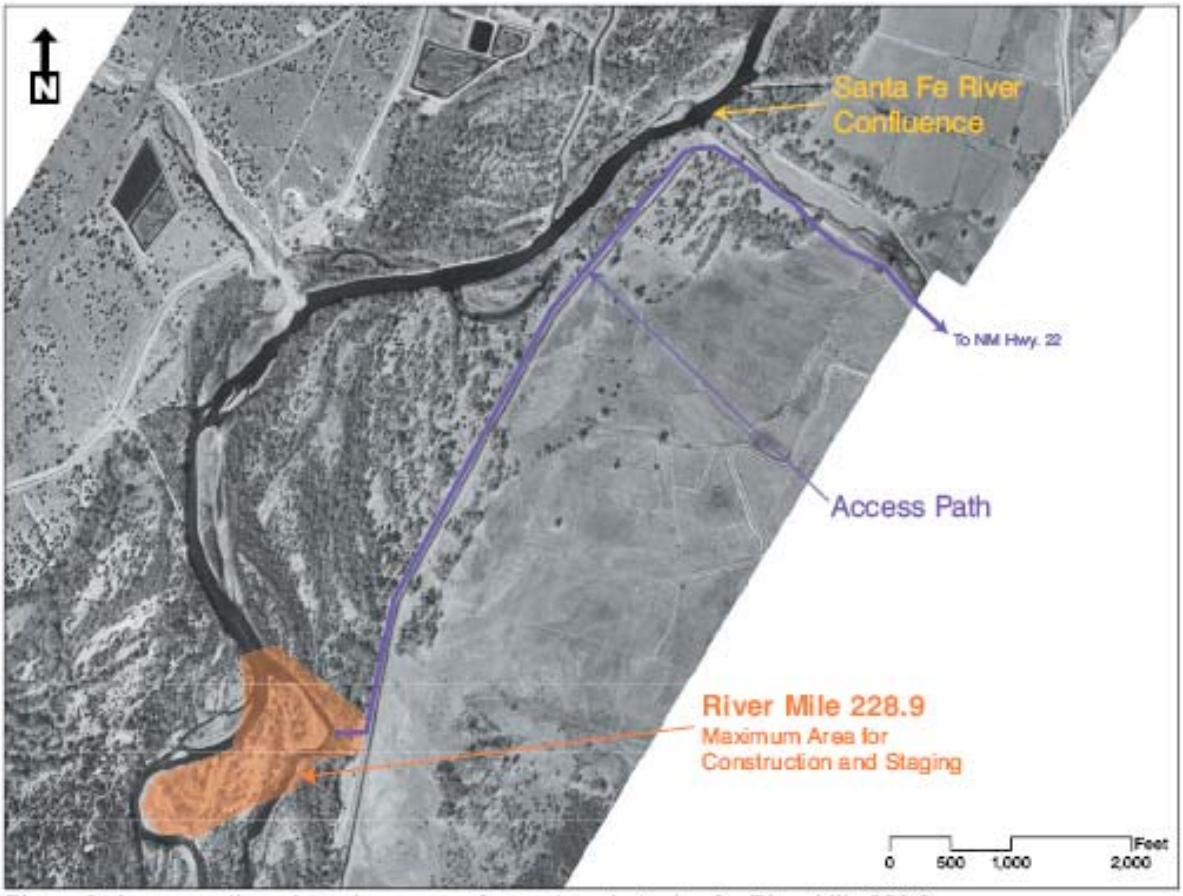

Figure 2. Access path and maximum area for work and staging for River Mile 228.9.

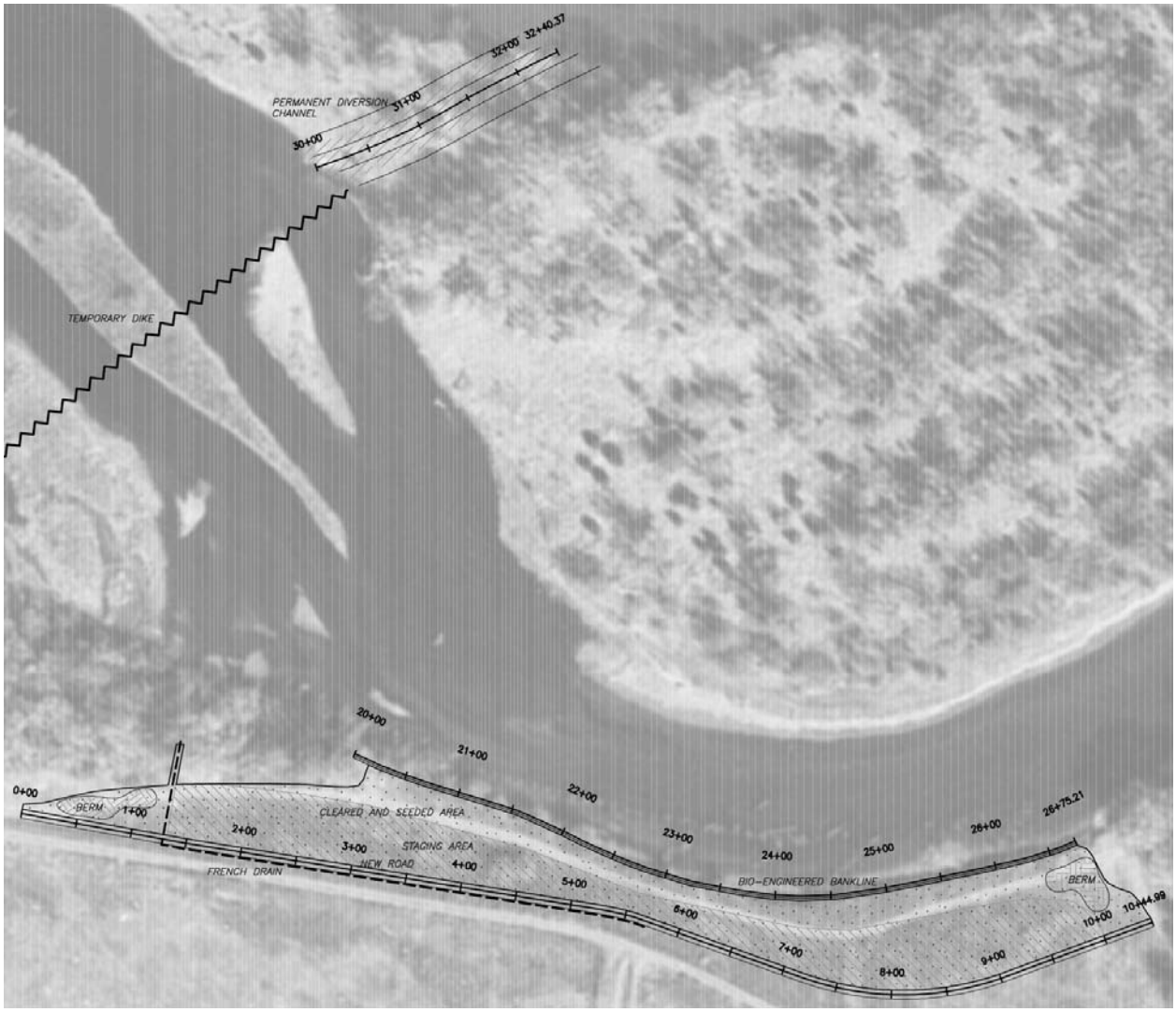

Figure 3. Plan view of River Mile 231.3 priority site features.

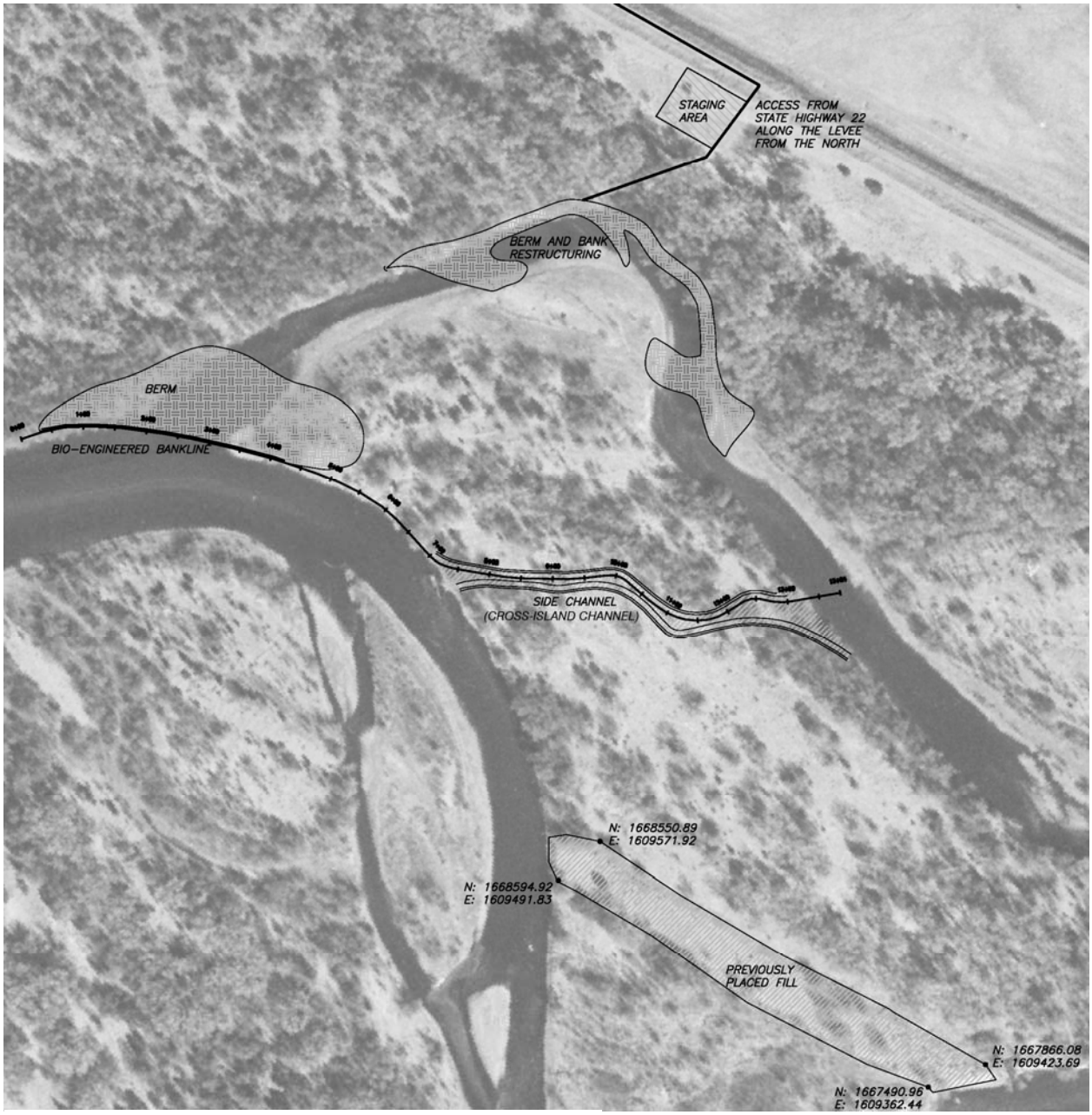

Figure 4. Plan view of River Mile 228.9 priority site features.

Species Information

Rio Grande Silvery Minnow

The Rio Grande silvery minnow (*Hybognathus amarus*) (minnow) was listed as a federally-endangered species by the U.S. Fish and Wildlife Service (Service) in July 1994 (U.S. Fish and Wildlife Service 1994a). Critical habitat was designated as the reach of the Rio Grande from Cochiti Dam to the upper pool for Elephant Butte Reservoir, a distance of approximately 163 miles (U.S. Fish and Wildlife Service 2003a). The species was previously documented in

Cochiti Reach in 1988 (Platania and Bestgen 1988), though no silvery minnows have been collected on Cochiti Pueblo since 1990's (Platania 1993; Pecos pers. comm.). A more recent fish community survey conducted in 2002 did not encounter any silvery minnows in the project area (see Appendix). The most recent fish community surveys in the reach were conducted by the Service at Peña Blanca. The Final Critical Habitat Designation for the minnow includes the Cochiti Reach from Cochiti Dam to Angostura Diversion Dam, including the project area on Cochiti Pueblo (U.S. Fish and Wildlife Service 2003b).

Dudley and Platania (1997) documented habitat preferences of the minnow. They found that individuals were most commonly collected in shallow water (<40 cm) with low water velocities (<10 cm/second) and small substrate size, primarily silt and sand. Low-velocity habitats, such as backwaters and embayments, provide nursery areas for larvae (Dudley and Platania 1997, Massong et al. 2004), which grow rapidly in these areas. Restoration efforts that increase the availability of these habitat conditions would benefit the minnow. In addition to the quantity of preferred habitat, food availability may be influenced directly by river restoration activities. Minnows are herbivores that eat primarily diatoms, cyanobacteria, and green algae associated with sand or silt substrates in shallow areas of the river channel (Shirey 2004). Habitat created by the project would benefit possible remnant silvery minnow populations and facilitate future re-introduction in the reach.

The hypolimnetic water released from Cochiti Reservoir has created a highly incised river channel armored by cobble and gravel in the project area (Dudley and Plataina 2007). There are few backwater, side channel, or shallow water habitats in this reach of the river considered suitable for silvery minnows. Both project areas have low quality silvery minnow habitat as defined by Dudley and Platania (1997). The removal of jetty jacks, bio-engineered (deformable) banklines, oxbow re-establishment, and high flow channels are suitable habitat enhancement techniques cited in the 2001 Biological Opinion (U.S. Fish and Wildlife Service 2001).

Southwestern Willow Flycatcher

The Willow Flycatcher is a widely-distributed summer resident of much of the United States and southern Canada (Brown 1988). Currently, four subspecies of Willow Flycatcher are recognized in North America and distinguished by subtle differences in color, morphology, and breeding range (Phillips 1948, Aldrich 1953, Unitt 1987, Browning 1993). One subspecies breeds east of the Rocky Mountains, *E. t. traillii*. Three breed west of the Rocky Mountains, *E. t. brewsteri*, *E. t. adastus*, and *E. t. extimus* (Unitt 1987). Browning (1993) recognizes a fifth subspecies (*E. t. campestris*) that is said to occur in the central portion of the United States. Formerly known as the Traill's Flycatcher, *Empidonax traillii* was divided into two species in 1973 (American Ornithologists' Union 1973). The Willow Flycatcher (*Empidonax trailli*) was defined as the "fitz-bew" song form of the prairies and open habitats of the Midwest and eastern United States. The Alder Flycatcher (*Empidonax alnorum*) was defined as the "fee-bee-o" song form from the boreal regions of Alaska, Canada, and eastern United States.

E. t. extimus was initially described by Phillips (1948), from a collection by Gale Monson. The southwestern subspecies is generally paler than other subspecies and differs in morphology, primarily wing formula. The taxonomic status of *E. t. extimus* was reviewed and confirmed by Hubbard (1987), Unitt (1987), and Browning (1993). Generally, *E. t. extimus* is paler on its back

and head than either *E. t. adastus* or *E. t. brewsteri*, and the breast band found on *E. t. extimus* is less distinct and paler gray than on other subspecies (Browning 1993). In 1992 the Service was petitioned to list *E. t. extimus* as an endangered species under the Endangered Species Act (ESA). Subsequently, the Service published a proposal in 1993 to list the subspecies as endangered with critical habitat. A final designation of critical habitat for the flycatcher was made in 2005 (U.S. Fish and Wildlife Service 2005).

Historically, the Southwestern Willow Flycatcher was widespread across the southwestern United States, breeding in riparian habitats ranging from sea level to approximately 7,000 feet in Arizona, southern California, New Mexico, southern Nevada, southern Utah, southwestern Colorado, west Texas, and extreme northwest Mexico (Phillips 1948, U.S. Fish and Wildlife Service 1995, McKernan and Braden 2001, Smith et al. 2004). This subspecies has been documented at a total of 109 sites on 43 drainages throughout the southwestern United States. The majority of the population occurs in Arizona, California, and New Mexico, accounting for 92 percent of all breeding territories (Marshall 2000).

In New Mexico Southwestern Willow Flycatcher breeding territories have been documented on the upper, middle, and lower Rio Grande; the Rio Chama; the Zuni River; and the middle and lower Gila River (Sogge et al. 1997, Williams 1997, Finch and Kelly 1999, Marshall 2000). During Southwestern Willow Flycatcher surveys conducted from 1994 to 1996, 17 territories were found along the middle Rio Grande. Sites were located on the Isleta Pueblo, Bosque del Apache, and San Marcial (Finch and Kelly 1999). More recently, 10 to 11 territories were located on the San Juan Pueblo and 6 to 8 pairs were found on the Isleta Pueblo (N. Baczek, pers. comm.). During presence/absence surveys conducted in 2006 along the middle Rio Grande, 177 Southwestern Willow Flycatcher territories were documented between the Pueblo of Isleta and the upper half of Elephant Butte Reservoir (Moore and Ahlers 2006).

Bald Eagle

Historically widely distributed across North America, the Bald Eagle suffered great declines in southern and eastern portions of its range (Buehler 2000). By the early 1990s, populations in many areas had rebounded from the low levels that occurred before DDT use was banned in the United States. The number of breeding territories in the continental United States nearly tripled between 1980 and 1990 (Kjos 1992), and breeding populations have doubled every 6 to 7 years since the late 1970s (U.S. Fish and Wildlife Service 1994b).

In New Mexico the Bald Eagle is known to occur in Bernalillo, Catron, Colfax, McKinley, San Juan, and Sierra Counties. Watersheds in New Mexico where the species is known to occur include the Rio Grande headwaters, Alamosa-Trinchera, San Luis, Saguache, Conejos, Rio Grande, and Elephant Butte and Caballo Reservoirs (Buehler 2000).

The Bald Eagle was listed endangered in 1967, and a Federal recovery plan was written and approved in 1995. A proposed rule to reclassify the Bald Eagle from endangered to threatened in most of the lower 48 states was published in 1994 (U.S. Fish and Wildlife Service 1994b), and a

final rule to reclassify the species from endangered to threatened in the lower 48 states was published in 1995 (U.S. Fish and Wildlife Service 1995).

Roosting or perching (often communally) on snags, large deciduous trees, and cliffs, the Bald Eagle is primarily water-oriented, and the majority of the populations in New Mexico are found within 4 kilometers of streams and lakes. However, Bald Eagles have been known to regularly occur in considerably drier areas to include the region between the Pecos Valley and Sandia, Manzano, Capitan, and Sacramento Mountains, and areas of the Mogollon Plateau (Haynes and Schuetz 1997). Bald Eagles on the middle Rio Grande (from Albuquerque to the Rio Chama confluence) have been monitored by the U.S. Army Corps of Engineers since 1988 (Reclamation 1999). Reclamation has also conducted winter surveys for Bald Eagles at Elephant Butte and Caballo Reservoirs since 1997.

Wintering habitat for the Bald Eagle occurs almost statewide in New Mexico, though most of its wintering habitat is found in the northern and westwern parts of the state. These sites have large numbers of waterfowl from November to March and fisheries supported by reservoirs that provide the prey base to support foraging Bald Eagles. Winter and migrant populations appear to have increased in New Mexico, apparently as the result of reservoir construction and the expansion of fish and waterfowl populations. This species is found occasionally elsewhere in New Mexico in the summer (Reclamation 1999).

Analysis of the Effects of the Action

Rio Grande Silvery Minnow

The proposed action is limited to small areas (5.5 and 8 acres) and time period (4 months) with minimal disturbance to resident fish. There are no immediate direct or indirect adverse effects to Rio Grande silvery minnow critical habitat. The minnow has not been detected in this reach since the 1980's during recent surveys by Cochiti Pueblo or the Service. Though the minnow may persist at extremely low population densities further downstream in the Cochiti reach, the likelihood of silvery minnows being present at either construction area appear to be small and discountable due to unsuitable habitat. The project features would affect critical habitat constituent elements 2 (water velocity) and 3 (substrate) and have no affect on elements 1 (hydrologic regime) and 4 (water quality). The project will increase habitat quality for 3.55 acres of aquatic habitat.

At the River Mile 231.3 priority site the removal of jetty jacks and exotic terrestrial vegetation would have no direct effects on fish. An earthen berm would be constructed on the upstream ends of the main channel to redirect water into the eastern channel during construction. The work area will remain open at the downstream end throughout the project to allow any fish to avoid construction activities. This is normal behavior for avoidance of predators and in-channel dunes by this species in the Rio Grande. Personnel would operate equipment to facilitate avoidance and escapement by any fish in the construction area. The techniques employed on this project attempt to minimize harm, harass, or take of any fish present in the project area.

The proposed action would improve quality habitat for the minnow in the project area. The proposed bio-engineered bankline at River Mile 231.3 would create a low velocity shallow water area providing new habitat for the Rio Grande silvery minnows and other fish. Replacing the steep bankline with approximately 0.3 acres of bio-engineered bankline would create a gradient of benthic habitat at various water levels improving suitable silvery minnow and riparian habitat (U.S. Fish and Wildlife Service 2001). The bio-engineered bankline also produces a gradient of water velocities desirable for silvery minnows at higher flows. Establishment of riparian vegetation on the stabilized bankline would provide nursery habitat when inundated during the spawning season. The wetted area at base flows will be reduced, but the habitat value of the remaining wetted area will be improved. Replacing 0.3 acres of deep higher water velocity river channel with a bio-engineered bankline having a gradient of water velocities (constituent element 2) with a sand substrate (constituent element 3) would increase critical habitat value (U.S. Fish and Wildlife Service 2001).

The proposed action at the River Mile 228.9 priority site would create new habitat for the minnow in the project area by increasing the channel complexity. The perennial cross-island channel will have about 25 percent of the total river flow at 500 cfs. The flow through the cross-island channel would increase to 30 percent of the total river flow at 5000 cfs. Shifting the flow from the current side channel to the cross-island channel will result in a net gain of 0.25 acres of lotic habitat for fish. The berms and bank restructuring in the east channel at this site will create habitat with variable depths at a broad range of flows. The bio-engineered bankline (1.0 acre of riparian habitat) would create up to 3.0 acres of backwater habitat at various water levels suitable for silvery minnows and other fish (U.S. Fish and Wildlife Service 2001). This type of backwater habitat is considered higher quality than the current high velocity channel. Establishment of riparian vegetation on the stabilized bankline would provide nursery habitat when inundated during the spawning season. The wetted area at base flows will be reduced, but the habitat value of the remaining wetted area will be improved. Replacing 4.0 acres of deep higher water velocity river channel with a bio-engineered bankline (1.0 acre) with a backwater (3.0) having lower water velocities (constituent element 2) and a sand substrate (constituent element 3) would increase critical habitat value. The resulting decrease in depth and velocity would benefit by increasing the area of preferred habitat conditions for juvenile and adult minnows (<40 cm deep and <10 cm/second water velocity; Platania 1995).

Southwestern Willow Flycatcher

The project area is dominated by mixed native and exotic habitats that are primarily composed of Russian olive (*Elaeagnus angustifolia*) and saltcedar (*Tamarix* sp.) with a smaller component of coyote willow (*Salix exigua*) and a cottonwood (*Populus deltoids* var. *wislizeni*) overstory. These mixed communities are bordered by open, flowing water throughout both of the priority sites. In the vegetated areas affected by the proposed activity, while the vegetation species composition is suitable, the overall density of vegetation is low and there are no patches of dense habitat large enough to support breeding populations of Southwestern Willow Flycatchers, based on the median patch size of 4.4 ac given in the species' recovery plan (U.S. Fish and Wildlife Service 2002). The area of vegetation at River Mile 228.9 that will be affected by this project is approximately 3.0 acres. The proposed work at River Mile 231.3 will affect an area of vegetation less than 1.0 acre in size; most of the impacts are to open, agricultural land. Once the project activity is completed, the above areas will be replanted in native riparian species.

The Pueblo of Cochiti, following Service-approved protocols, surveyed the project areas for Southwestern Willow Flycatchers in 2005 and no birds were detected during the resident period (see Appendix). However, single birds were detected during these surveys and were determined to be migrants. This is not unexpected as migrant Southwestern Willow Flycatchers will utilize a wide variety of riparian, as well as non-riparian, habitats as stopover areas (U.S. Fish and Wildlife Service 2002). The closest occupied breeding habitat to the project area is located within the Isleta and Okhay Owingeh Pueblos, approximately 54 miles south and 38 miles north of the project area, respectively.

The proposed action would not adversely affect Southwestern Willow Flycatchers through habitat alteration. New plantings of native plant species and the creation of a backwater area at River Mile 228.9 will likely improve conditions for potential future occupation by Southwestern Willow Flycatchers.

Bald Eagle

Terrestrial habitat within the project area is composed of scattered cottonwoods with an understory of willow, saltcedar, Russian olive, and weed species. Several snags that may offer suitable perching structures have been identified within the project area. Because Bald Eagles only breed in a few isolated locations in New Mexico, none of which are located within close proximity to the project area, the proposed action would not adversely effect breeding Bald Eagle populations. Wintering Bald Eagles are present within the Middle Rio Grande Valley and have been observed flying and perching in the project area. To avoid adverse effects to Bald Eagles that may be present during construction, Reclamation would implement Conservation Measure number 2 (see page 15).

Effect Determinations

Rio Grande Silvery Minnow

This effects determination considers population status of the minnow in the Cochiti reach, and possibility of individuals occurring in the vicinity of excavation equipment. The likelihood of silvery minnows being present at either construction area is extremely small and discountable since the minnows have not been at detectable densities in this reach since the 1980's. The unsuitable deep high velocity habitat further reduces the possibility of minnows occurring in the project areas. The construction of the proposed action would not result in the adverse effects on minnow critical habitat as discussed in the 2001 Biological Opinion (U.S. Fish and Wildlife Service 2001). The project would improve 3.55 acres of aquatic habitat quality for the species, anticipating future re-introduction efforts in cooperation with the pueblos or a rebound by a potentially cryptic local population.

The construction techniques in the proposed action are designed to minimize contact with any fish and minimize potential for harm or harassment. The construction sequence would allow fish present in the work area to move freely to avoid contact with the equipment or personnel. Personnel would operate equipment to facilitate avoidance and escapement by fish in the construction area based on normal predator avoidance behavior.

The project may affect, but is not likely to adversely affect the minnow because the minnow does not appear to reside at detectable densities near or in the project area. The construction of the proposed action may affect, but is not likely to adversely affect Rio Grande silvery minnow critical habitat.

Southwestern Willow Flycatcher

The proposed action would have no adverse effects on the Southwestern Willow Flycatcher or its designated critical habitat based on the distance to occupied habitat and the fact that minimal existing vegetation would be disturbed by the proposed activity. Additionally, 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. Therefore, the proposed action may affect, but is not likely to adversely affect, the Southwestern Willow Flycatcher.

Bald Eagle

The proposed action may affect, but is not likely to adversely affect, wintering Bald Eagles. Potential roosting and perching structures would not be impacted by the proposed action, since existing native vegetation would be protected. Additionally, implementation of the proposed river maintenance activities would likely create suitable conditions for the Bald Eagle's prey base by creating a secondary channel with slower water velocities and planting riparian and wetland vegetation on newly created areas. Newly created habitat for its prey base may attract Bald Eagles to the project area.

Conservation Measures

1) Construction of the stabilized bankline would be implemented during low flows to minimize the area of disturbance at the construction site.
2) If a Bald Eagle is visible at the project area in the morning before construction activities start or following breaks in construction activities, Reclamation would be required to suspend all activity until the Bald Eagle leaves of its own volition. If a Bald Eagle arrives during construction activities, construction would not 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 is necessary.

3) For the construction period January 15, 2008 to April 15, 2008, Reclamation would use an exclusion cage with ¼-inch hardware cloth enclosing the sides to screen the pump intake. The ¼-inch hardware cloth would exclude small silvery minnows and other fish from the pump intake. The cage would be sized (larger than 2'L x 2'W x 2'D) to allow sufficient water for pumping and avoid pressure differential (suction) along the sides of the cage that could injury small fish.

4) For the construction period April 16, 2008 through August 30, 2008, Reclamation would dig a sump in the proximate floodplain for pumping. Preparation of a sump involves digging a hole in the floodplain, away from the edge of the river. The sump would be located a minimum of 50' from the nearest open water in the river and excavated to about 30-35 feet square and approximately 3 feet below groundwater level. The excavated material would be temporarily placed as a berm between the sump and the river. Water would be pumped out of the sump for dust abatement. The sump is less effective for pumping water but would exclude fish eggs and larvae during the spawning season. The sump would be filled back in with the excavated materials when pumping is terminated.

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Appendix

Letter from the Pueblo of Cochiti addressing the Pueblo's efforts to survey for Southwestern Willow Flycatchers and Rio Grande silvery minnow.

Cippy CrazyHorse
Governor

J. Leroy Arquero
Lt. Governor

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Treasurer

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December 15, 2006

Connie Rupp, Area Manager
Bureau of Reclamation
555 Broadway NE, Suite 100
Albuquerque, NM 87102

RE: River Maintenance NEPA requirements

Dear Ms. Rupp:

The Pueblo de Cochiti would like to address the Biological Assessment issues relative to the NEPA requirements for the river maintenance projects early next year. The Pueblo has worked toward gaining the capacity to perform various surveys independently including wildlife surveys for management purposes. Pueblo staff has performed the training "Southwestern Willow Flycatcher Survey Protocol Training" conducted by the New Mexico Ecological Services Field office of the US Fish and Wildlife Service in coordination with the New Mexico Department of Game and Fish. The two species addressed in this letter are the Southwestern Willow flycatcher and the Rio Grande Silvery minnow.

The most recent Pueblo surveys for the flycatcher were performed in July of 2005. The survey revealed no nesting flycatchers or presence of flycatchers during these surveys. Prior to the 2005 surveys there were two reports written by the Bureau of Indian Affairs and the USDA Rocky Mountain Research Station in 2001. No Willow Flycatchers were detected in all five surveys performed on four sites, however, single incidental sitings occurred on three of the sites. In conclusion the flycatcher or its subspecies may be using some sites during migration. Suitable breeding habitat on the sites is uncommon, and the majority of the potentially suitable breeding habitat is below minimum patch size requirements (Lehmann, Walker and Finch 2001).

The Rio Grande silvery minnow has not been observed in the Cochiti Reach in at least the past 15 years. The most recent electrofishing survey (2002) conducted by the Bureau of Reclamation under the supervision of the Pueblo staff sampled 150 fish without finding any silvery minnows. The pueblo concurs that the silvery minnow has been extirpated from the Cochiti reach of the Rio Grande.

The Pueblo de Cochiti would like to remain involved in the project details as it moves forward. We would like to thank you for your time and effort and please contact Mr. Jacob Pecos at 465-3123 should you have any questions on this matter or inquiries from other agencies.

Sincerely,

Cippy Crazyhorse, Governor
Pueblo de Cochiti

Cc: Robert Maxwell, Bureau of Reclamation
Richard Pecos, Tribal Administrator
Jacob Pecos, DNRC Director
DNRC/Tribal File