DRAFT

GENERAL REEVALUATION REPORT AND

SUPPLEMENTAL ENVIRONMENTAL

IMPACT STATEMENT II:

RIO GRANDE FLOODWAY,

SAN ACACIA TO BOSQUE DEL APACHE UNIT,

SOCORRO COUNTY, NEW MEXICO

APPENDIX A –

Letters of Interest

NEW MEXICO INTERSTATE STREAM COMMISSION

COMMISSION MEMBERS
ALBERT E. UTTON, Chairman, Albuquerque
S. E. REYNOLDS, Secretary, Santa Fe
J. PHELPS WHITE III, Roswell
GEORGE BRANTLEY, Carlsbad
TRACY SEIDMAN, Wagon Mound
RICHARD C. JOHNSON, Silver City
SAMMIE SINGH, La Mesa
PETER A. CASADOS, El Guique
JACK D. COOK, Farmington

BATAAN MEMORIAL BUILDING
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

August 8, 1988

Lt. Col. Kent R. Gonser
District Engineer
Albuquerque District Corps of Engineers
P. O. Box 1580
Albuquerque, New Mexico 87103-1580

Dear Colonel:

This letter is in reply to your July 8, 1988, letter concerning local sponsorship of the Flood Protection Project for the west side of the valley of the Rio Grande from San Acacia to Elephant Butte Reservoir.

I will recommend to the New Mexico Interstate Stream Commission that the Commission solicit the support of the other interests identified in your letter and that the Commission fund a portion of the 25% local share of the cost of the project. The funding source for this project would be from the Improvement of the Rio Grande Income Fund, a trust fund administered by the Commission.

Sincerely,

S. E. Reynolds
Secretary

SER:PBM:pt

NEW MEXICO INTERSTATE STREAM COMMISSION
BATAAN MEMORIAL BUILDING
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

COMMISSIONERS

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E. REYNOLDS, Secretary, Santa Fe
ALVIN M. STOCKTON, Raton
JOHN A. DEAN, Farmington
FIDEL GUTIERREZ, Jr. Velarde
ALBERT E. UTTON, Albuquerque
J. PHELPS WHITE III, Roswell
GEORGE BRANTLEY, Carlsbad
WOODROW O. GARY Hatch

April 22, 1985

Lt. Col. David E. Peixotto
District Engineer
Corps of Engineers
Albuquerque District
P. O. Box 1580
Albuquerque, New Mexico 87103-1580

Dear Colonel:

By letter dated February 29, 1984, your office advised us that the Rio Puerco-Rio Salado Phase 1 General Design Memorandum indicated that an improved continuous levee between the low-flow conveyance channel and the floodway on the Rio Grande downstream of San Acacia was economically justified. We have also been advised that, because of U. S. Fish and Wildlife Service concerns, the preferred alternative for flood and sediment control, a dam and reservoir on Rio Salado, would be faced with institutional complications.

This office is keenly interested in plans to provide flood and sediment control works for the Rio Grande below the mouth of the Rio Puerco. It now appears that a continuous levee on the west side of the Rio Grande Floodway from San Acacia to Elephant Butte Reservoir is the most viable flood control plan even though it does not provide the sediment control that we originally hoped could be accomplished. It is my understanding that the continuous levee is an authorized feature of the Rio Grande Floodway that has been deactivated while studies were underway on the Rio Puerco-Rio Salado alternative. This office urges that the Corps reactivate the levee feature for a continuous levee below San Acacia to provide protection for the Bureau of Reclamation's low-flow conveyance channel, the Bosque del Apache Wildlife Refuge , communities, irrigation works, irrigated lands and other works in the reach.

The reach from San Acacia to the north boundary of the Bosque del Apache Wildlife Refuge is within the Middle Rio Grande Conservancy District. The levee would extend about 11 miles through the Bosque del Apache Wildlife Refuge to its southern

boundary. It appears that the federal government should provide local sponsorship for at least the reach of the project within the National Wildlife Refuge. This office will work diligently with the affected interests to seek a local sponsor for the project.

Sincerely,

S. E. Reynolds
Secretary

SER:PBM:bmm

cc: Bureau of Reclamation - Albuquerque
Middle Rio Grande Conservancy District
U. S. Fish and Wildlife Service - Albuquerque

CITY OF SOCORRO

Angelo Meloro
MAYOR

111 School of Mines
P.O. Drawer K
(505) 835-0240
Socorro, New Mexico 87801-0329

Harold C. Dotson, Jr.
CITY CLERK

June 18, 1987

Army Corp. of Engineers
District Eng. Lt. Col. David Peixotto
P.O. Box 1580
Albuquerque, New Mexico 87103

The Governing body for the City of Socorro would like to offer this letter of support for your project.

"Middle Rio Grande Floodway
San Acacia to Bosque Del Apache Unit"

We are aware that the existing levees along the Rio Grande River in this area were not designed to act as flood control levees. We are deeply concerned that in the event of a major runoff the existing levees are estimated to fail at flows over 15,000 cfs. which would result in catastrophic loss of property and possibly life.

We ask the Army Corp. of Engineers to approve this project and prioritize it so the engineering for this project can begin as soon as possible..

We thank you for your consideration.

Gladys Bacon Deschamps
Councillor

Ravi Bhasker
Councillor

Gordy Hicks
Councillor

Tom Chavez
Councillor

Tony Sais
Councillor

Richard Lopez
Councillor

David R. Jones
Councillor

Charles A. Zimmerly
Councillor

Angelo Meloro, Mayor

Attest:

Harold C. Dotson Jr., City Clerk

NEW MEXICO INTERSTATE STREAM COMMISSION
BATAAN MEMORIAL BUILDING
STATE CAPITOL
SANTA FE, NEW MEXICO 87503

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S. E. Reynolds
Secretary

SER:PBM:bmm

cc: Bureau of Reclamation - Albuquerque
Middle Rio Grande Conservancy District
U. S. Fish and Wildlife Service - Albuquerque

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APPENDIX B

Section 404(b)(1) Guidelines Evaluation and State Water Quality Certification

APPENDIX B
SECTION 404(b)(1) GUIDELINES EVALUATION

Section 404 (b)(1) Guidelines Evaluation for the Recommended Plan

This evaluation is an appendix to the *General Reevaluation Report / Supplemental Environmental Impact Statement II, Rio Grande Floodway, San Acacia to Bosque del Apache Unit, Socorro County, New Mexico* (U.S. Army Corps of Engineers, Albuquerque District, 2012). A complete description of the entire project and its effects is included in the GRR/SEIS-II.

I. Project Description

a. Location: Adjacent to the channel of the Rio Grande, Socorro County, New Mexico. The total project area extends from the San Acacia Diversion Dam downstream for approximately 47.5 river-miles to Tiffany Junction. The spoilbank is approximately 50 feet east of, and parallels, the Low-Flow Conveyance Channel (LFCC).

b. General Description: The proposed project would remove approximately 43 miles of spoil bank adjacent to the Rio Grande floodway and replace it with an engineered levee capable of containing at least the 1%-chance flood event (approx. 29,900 cfs at San Acacia).

Five activities relating to proposed work below the Ordinary High water Mark OHWM) are described in detail in this evaluation: 1) earthen levee construction; 2) placement of riprap along the riverward slope and toe of the levee; 3) construction of a soil-cement embankment; 4) a temporary river crossing (to access the east side of the river to excavate a terrace above the OHWM); and 5) construction of a gated closure at the confluence of Brown Arroyo.

c. Authority and Purpose: The project's single purpose is flood risk management. Construction of the San Acacia to Bosque del Apache Project was authorized by Congress in1948. In1993, a Record of Decision was signed for a 1992 Supplemental EIS and both documents were submitted to Congress. An appendix in the 1992 SEIS included an evaluation of effects and a Finding of Compliance relative to Section 404(b)(1) of the Clean Water Act; therefore, meeting the requirements for an exemption under §404(r) of the Act.

This current re-evaluation revises the Section 404(b)(1) guidelines evaluation for the project. Because the project's design has substantively changed, an exemption under §404(r) of the Act is not being sought for the proposed construction.

d. Determination of Ordinary High Water: Throughout the project area, the Rio Grande occupies a physically well-defined channel; however, flows regularly reach a magnitude to inundate portions of the overbank area adjacent to the channel in the southern portion of the project area. Therefore, for the purposes of this evaluation, the Ordinary High Water Mark (OHWM) was defined as the extent of the 50%-exceedance discharge (colloquially termed the "2-year" discharge). The 50%-exceedance discharge was determined by Tetra Tech, Inc., (and is described in Parametrix [2008]), and was based on daily mean discharge values at the San Acacia and San Marcial streamflow gages for the period 1974 through 2002. The 50%-exceedance flows were determined to be 5,660 cfs at San Acacia and 4,170 cfs at San Marcial.

The Parametrix (2008) investigation also modeled and mapped these flows using the FLO2-D two-dimensional hydraulic model. The mapped extent of inundation for the attenuated 5,660-cfs

discharge at San Acacia served as the basis for determining the OHWM throughout the project reach.

e. Description of Activities and Fill Material

(1) Earthen Levee Construction

The existing spoil bank will be removed (approximately one mile at a time) with bulldozers, scrapers, or excavators and the excavated material would be used for construction of a new levee. Material for the proposed levee will be stockpiled and mixed within the footprint of the levee alignment. (All waste spoil will be deposited in upland locations.) Soil material consists of poorly sorted sand and gravel.

The entire spoilbank and the proposed levee are set back from the Rio Grande channel bank by 150 to 1,800 feet. No earthen levee construction would encroach on the channel bank. However, the 50%-chance discharge frequently inundates the vegetated overbank area at the toe of the spoilbank or proposed levee. From the mapped extent of the modeled 5,660-cfs discharge, all areas of the existing spoil bank / future levee footprint that would be below the water surface of the OHWM were identified (Table B-1). These are limited to two relatively small areas between San Acacia and Highway 380; and a nearly 14.4-mile-long portion from about 1.5 mile north of Bosque del Apache NWR (BDANWR) downstream to about 1.5 miles south of BDANWR.

Throughout its entire length, the existing spoil bank is fairly uniform in height and base width. The proposed new levee would increase in both height and width from north to south. Therefore, there are extensive areas where the new levee would be smaller than the existing spoilbank, resulting in newly exposed substrate, and, therefore, increasing the area of the floodway. Conversely, where the base of the new levee would extend riverward of the toe of the existing spoil bank (near the southern end), the area of the active floodway would be reduced. Over the entire length of the proposed levee, the project would result in a net gain of 73.7 acres of floodway area; however, only a portion of this is below the OHWM. Within the overbank segments identified as being below the OHWM, the proposed levee would expose 12.3 acres of new substrate and fill 8.7 acres, resulting in a net gain of 3.6 acres (Table B-1).

Table B-1. Locations, length, and affected area below OHWM for earthen levee construction.

Corps station	Length (feet)	Length (miles)	USBR River-mile (approx)	New levee is smaller than existing spoil bank: gain in 5,660-cfs flow area (acres exposed)	New levee is larger than existing spoil bank: loss of 5,660-cfs flow area (acres filled)	Net (acres)
375+00 to 385+00	1,000	0.19	108.0 to 108.2	3.44	0.00	3.44
668+00 to 701+00	3,300	0.63	104.4 to102.0	3.66	0.00	3.66
1451+00 to 2213+00	76,000	14.39	72.6 to 85.5	5.19	-8.71	-3.53
Sum or Net	**80,996**	**15.21**		**12.29**	**-8.71**	**3.58**

All of the affected area below the OHWM is located on the overbank terrace of the floodway, and is currently occupied by the spoil bank or dense riparian shrubs (primarily salt

cedar). Soils within the affected area are mapped as Typic Ustifluvents (SCS 1988), a non-hydric soil type. No wetlands as defined in Section 404(b)(1)of the Clean Water Act occur within the affected area of the proposed project. No activities associated with earthen levee construction would occur within, nor would it affect, the clearly defined active Rio Grande channel. All earthwork would be performed when the substrate is dry (not inundated).

(2) Riprap Erosion Protection for Earthen Levee:

The riverward slope of selected segments of the proposed levee would be blanketed with riprap to protect it from erosion and scouring during large flood events. Riprap will consist of basalt obtained from a local source, and would vary in diameter and thickness depending on the location along the alignment. The three levee segments where rock would be placed below the OHWM are listed in Table B-2. At all three locations, the proposed levee is set back from the active channel. Riprap would be placed in a blanket on the riverward slope of the new levee, and the lower portions would be buried in the terraced overbank during dry conditions. The depth to which riprap will be buried varies from 7 to 12 feet. In all, riprap would be placed along 2.54 miles of the area below the OHWM, entailing 16.3 acre-feet of rock and 2.1 acres. Because riprap would be buried by earthen material, this activity does not result in a decrease in the area flooded by 5,660 cfs (*i.e.*, the area below the OHWM).

Table B-2. Locations, length, and affected area below OHWM for riprap placement.

Corps Station	Length (feet)	Length (miles)	USBR River-mile (approx)	Volume of rock below OHWM (CY)	Volume of rock below OHWM (acre-feet)	Area of rock below OHWM (ac.)
1522+19 to 1552+70	3,051	0.58	84.3 to 83.75	3,079	1.91	0.49
1729+68 to 1801+42	7,174	1.36	80.8 to 79.6	7,277	4.51	1.15
2181+49 to 2213+00	3,151	0.60	72.6 to 73.0	15,874	9.84	0.43
Sum	**13,376**	**2.54**		**26,230**	**16.26**	**2.07**

After removal of the spoil bank, the below-ground portions of riprap would be installed immediately adjacent to the location of the riverside toe of the new levee. At any given time, a 500-foot linear trench would be excavated to the appropriate depth (ranging from 7 to 12 feet). Wells would be installed immediately riverward of the trench at approximately 50-foot intervals. Pumps would lower the water elevation within the trench to accommodate the placement of rock within. After the placement of rock, pumps would be removed and the trench refilled to the ground surface. This operation would be repeated sequentially in 500-foot-long segments.

Generally, the depth to water adjacent to the spoil bank during the growing season ranges from 4 to 15 feet below the ground surface near San Acacia, 6.5 to 12 feet near Escondida, 3.5 to 14 near Highway 380, and 4 to 14 feet at Bosque del Apache NWR (Parametrix 2008). Water table depths would be 4 to 6 feet deeper during low-flow periods outside of the growing season when construction would be performed. Therefore, it is expected that the water depth within trenches would range from 0 to 4 feet.

Each 500-foot-long segment would require approximately 7 days to install below-ground portions of riprap. Pumps would be operated as needed to maintain proper working conditions. In areas with relatively shallow water in the trench, pumps would not need to be operated during the non-working, overnight period.

Pumped water would be discharged into or through the riparian zone towards the Rio Grande channel. Solid or perforated pipes would discharge pumped water onto the ground surface or into small natural drainage channels leading to the river. Geotextile material would be (manually) placed along the flowpath or under perforated pipes to minimize surface erosion. If groundwater is sufficiently low in dissolved oxygen, pumped water would be aerated prior to its discharge into the mainstem flow of the Rio Grande.

Except for minor evaporation losses, all water pumped from trenches would return to the surface water or groundwater system through immediate or slightly delayed infiltration. From previous experiences of dewatering activities during construction, it is expected that normal water levels in and adjacent to the trench would resume within one-half day following the cessation of pumping.

(3) Soil Cement Embankment

Beginning at the San Acacia Diversion Dam, a soil cement embankment will be constructed along the slope of the western river terrace. A new, engineered levee is not required though this reach; however, the existing terrace bank must be armored to protect the adjacent railroad and safely convey the 1%-chance flood event. The soil cement embankment would begin at the dam and extend downstream for approximately 5,690 feet. Along most of this extent, the base of the soil cement wall will be buried in the vegetated overbank area above the OHWM. However, for approximately 1,000 feet along a curve in the river alignment, the existing terrace slope is nearly vertical and the base quickly transitions to the active river channel. The base of the soil cement wall will, therefore, be buried below the OHWM along this 1,000-foot segment. The soil cement wall will be constructed in lifts (horizontal layers) of 1-foot thickness and 10 feet wide. The buried base of the wall will extend approximately 20 feet below the OHWM, and entail approximately 7,407 CY of soil-cement material. The area occupied by soil-cement fill below the OHWM will be approximately 0.56 acres.

Construction would occur during the fall and winter months when the Rio Grande is experiencing the lowest annual flows. The construction area will be separated from the river by a portable dam / coffer, and the excavation area will be dewatered with pumps. Following placement of the soil cement wall, the extracted earth material will be used to refill the remaining excavated area to grade.

(4) East Bank Excavation and Access

Immediately downstream from the San Acacia Diversion Dam, the terrace along the eastern bank of the river currently can be inundated by discharges of 25,000 cfs. To lower the water surface elevation of the 1%-chance flood event, the eastern terrace would be excavated to form a bench that would be inundated by flows greater than 15,000 cfs. This feature also reduces the velocity of the 1%-chance flood event (17 fps) and its potential to scour the <u>western</u> bank through this curved reach. All excavation would occur on the terrace above the OHWM. Of the total 12.4 acres of excavation, approximately 3.1 acres will likely be inundated by the 5,660-cfs flow (*i.e.*, be below the OHWM) <u>following</u> construction. All excavated material (sand and gravel) would be disposed at an upland location. Following construction, coyote willow (approx. 1.1 acres; 300 stems/acre) would be planted along the channel edge to stabilize the excavated bankline.

To access the East Bank Excavation area, a temporary crossing would be placed across the channel of the Rio Grande. The crossing would be 300 feet long with a top-width of 20 feet. Basal width would be approximately 92 feet through the channel, and the crossing would

occupy an 0.28-acre footprint below the OHWM. The crossing would include fifteen 84-inch-diameter conduits to pass flows. The crossing will be designed to pass flows up approximately 7,000 cfs. The crest elevation along the eastern end of the crossing would be slightly lower to facilitate overtopping during a larger storm event and avoid washing out the entire crossing structure. The entire crossing structure would entail 3,980 CY of soil material, but only about 20% of that volume would be below the OHWM. When removing the temporary crossing, a slight increase in turbidity would be expected when the substrate is re-flooded.

(5) Gated closure at Brown Arroyo

Brown Arroyo is an ephemeral channel that enters the Rio Grande just south of Socorro. To prevent Rio Grande flood flows from inundating the arroyo and developed areas landward of the proposed levee, a gated closure structure would be constructed across the confluence of Brown Arroyo. The structure will consist of two 10x10-ft gates in the center which are flanked by six 10x7-ft sluice gates. The gates will be aligned in a zigzag configuration which will allow for flows from the channel to enter directly into the gates, as the alignment of Brown Arroyo is skewed to the Rio Grande channel. The structure is designed to pass the 1%-chance flood event originated from the Brown Arroyo drainage basin.

The overall footprint of the structure would be approximately 10,125 ft^2 (0.23 ac.). The structure would be built upon a 4,375 ft^2 (0.10 ac.) concrete footing (486 CY) buried below the existing ground surface. Approximately 6,400 ft^2 (0.15 ac.) of 18-inch-diameter riprap (356 CY) would be laid in the arroyo bed upstream and downstream from the structure, and would overlay a portion of the concrete footing as well. Included in the design of this structure will be concrete encasement, appropriate filter materials and slope protection where it ties into the adjacent levee.

After construction the gates will normally remain open, but would be manually closed in the event of a flood. The invert of the central gates will match the existing bed elevation at the confluence. Following construction, flows from Brown Arroyo would not be impeded, and Rio Grande flows would continue to back up into the arroyo channel during non-flood discharges.

(6) Table B-3. Summary of post-project change in acreage below the OHWM.[a]

Type of fill material	Filled area below OHWM (ac.)	Area below OHWM created (ac.)
Earthen levee / spoilbank	8.71	12.29
Riprap erosion protection	0	0
Soil cement	0.56	0
Eastside bank excavation	0	3.08
Brown Arroyo closure gate	0.23	3.08
Subtotal	9.50	15.37
Net change		5.87

[a] Does not include fill of 0.28 acre for the Temporary Crossing.

Project construction would begin in November 2013, and continue in phases for up to 20 years to complete all associated construction. All proposed work below the OHWM, as described above, would occur between August 15 and March 15 when flows are relatively low in the Rio Grande.

(7) Best Management Practices:

The following best management practices would be employed during construction to prevent or minimize the potential for erosion or degradation of water quality:

- Stream flow would be maintained at all times during construction and the streambed contoured so that fish can migrate through the project area during and after construction.

- Silt curtains, cofferdams, dikes, wattles, straw bales and other suitable erosion control measures would be employed to prevent sediment-laden runoff or contaminants from entering the watercourse.

- Work would be performed below the elevation of the ordinary high water mark only during low-flow periods. Flowing water must be temporarily diverted around the work area, but remain within the existing channel to minimize erosion and turbidity and to provide for aquatic life movement. Diversion structures must be non-erodible, such as sand bags, water bladders, concrete barriers, or channel lined with geotextile or plastic sheeting. Dirt cofferdams are not acceptable diversion structures.

- All asphalt, concrete, drilling fluids and muds, and other construction materials will be properly handled and contained to prevent releases to surface water. Poured concrete will be will be fully contained in mortar-tight forms and/or will be placed behind non-erodible cofferdams to prevent discharge contact with surface or groundwater. Wastewater from concrete batching, vehicle washdown, and aggregate processing would be contained, and treated or removed for off-site disposal. Dumping of any waste material in or near watercourses is prohibited.

- Fuel, oil, lubricants, hydraulic fluids and other petrochemicals would be stored westward of the LFCC and at least 100 feet from surface water (including ditches, drains, and the LFCC). The fuel storage facility must have a secondary containment system capable of containing twice the volume of the product. Appropriate spill clean-up materials such as booms and absorbent pads must be available on-site at all times during construction.

- Fueling of wheeled construction vehicles would not be permitted in the construction area or near the LFCC. Only tracked vehicles may be fueled within the construction area via a fuel tender with a maximum fuel capacity of 500 gallons, thereby minimizing the consequences of any accidental spill. Refueling of all vehicles and equipment must be performed at least 100 feet from surface water.

- All heavy equipment used in the project area must be pressure washed and/or steam cleaned before the start of the project and inspected daily for leaks. A written log of inspections and maintenance must be completed and maintained throughout the project period. Leaking equipment must not be used in or near surface water. Any petroleum or chemical spills would be contained and removed, including any contaminated soil.

- Only uncontaminated earth or crushed rock would be used for backfills, and for the temporary river crossing.

- Water quality would be monitored during bankline and in-channel construction to ensure compliance with State water quality standards for turbidity, pH, temperature, and dissolved solids.

- Excavated trenches must be backfilled and compacted to match the bulk density and elevation of the adjacent undisturbed soil.

- The temporary river crossing would be located perpendicular to and at a narrow point of the channel to minimize disturbance. Heavy equipment must be operated from the bank or work platforms and not enter surface water. Heavy equipment must not be parked within the stream channel.

- All disturbed areas that are not otherwise physically protected from erosion will be reseeded or planted with native vegetation.

- A copy of the water quality certification must be kept at the project site during all phases of construction. All contractors involved in the project must be provided a copy of the certification and made aware of the conditions prior to starting construction.

- All construction contractors will be required to prepare and submit, for the Corps' approval, a Storm Water Pollution Prevention Plan (SWPPP) pursuant to the National Pollution Discharge Elimination System (NPDES) prior to the start of construction activity. The SWPPP will incorporate the Best Management Practices listed above, as well as any other practices which would avoid or minimize stormwater runoff due to construction activities, including clearing, grading, and excavating.

(8) Public Review:

The Draft GRR/SEIS-II, including the draft Section 404(b)(1) Guidelines Evaluation, was circulated for public review and comment from April 27 through July 11, 2012. A notice of availability of the draft document was published by the USEPA in the Federal Register on April 27, 2012. The District published notices of availability in the Federal Register (also on April 27) and in local newspapers. A public meeting was held in Socorro on May 22, 2012.

II. Factual Determination (Section 231.11)

a. Physical Substrate Determinations

(1) Substrate Elevation and Slope: Channel slope would not be affected. Substrate elevation would be altered (lowered) over approximately 3.1 acres in the East Bank Excavation area, and over approximately 12.3 acres where the spoilbank levee would be removed. Substrate elevation would increase over 8.7 acres due to the new levee structure.

(2) Sediment Type: Sediment gradations would not change.

(3) Dredged/Fill Material Movement: Not applicable.

(4) Physical Effects on Benthos (burial, changes in sediment type, etc.): As a result of the East Bank Excavation, the benthic area would be increased by approximately 3.1 acres.

(5) Actions Taken to Minimize Impacts (Subpart H): Work would be performed during the annual low-flow period. See section I.e.(8) above for best management practices to be employed.

b. Water Circulation, Fluctuation and Salinity Determinations

(1) Water

(a) Salinity: No effect.

(b) Water Chemistry (Ph, etc.): No effect.

(c) Clarity: No effect.

(d) Color: No effect.

(e) Odor: No effect.

(f) Taste: No effect.

(g) Dissolved Gas Levels: No effect.

(h) Nutrients: No effect.

(i) Eutrophication: No effect.

(2) Current Patterns and Circulation

(a) Current Patterns and Flow: Following construction, current flow patterns would only be altered for flood events exceeding 11,800 cfs at San Acacia—the minimum probable failure point of the existing spoil bank. Current patterns of flows below this magnitude would not change. Flood events greater than 11,800 cfs would be confined to the floodway rather than inundating the developed floodplain west of the spoilbank/levee alignment

(b) Velocity: Velocities in the floodway would only be altered for flood events exceeding 11,800 cfs at San Acacia—the minimum probable failure point of the existing spoil bank. Velocities of flows below this magnitude would not change.

(c) Stratification: No effect.

(d) Hydrologic Regime: Along the bank of the East Bank Excavation area, 3.1 acres would be inundated more frequently following excavation. This Intermittently Flooded area would become Temporarily Flooded. For the project overall, a net increase in approximately 5.9 acres below the OHWM would result.

(3) Normal Water Level Fluctuations: No effect.

(4) Salinity Gradients: No effect.

c. <u>Suspended Particulate/Turbidity Determinations</u>

(1) Expected changes in suspended particulates and turbidity levels in vicinity of disposal site: Soil material where excavation would occur is primarily coarse sand with some gravel and only a small percentage of suspendable fine particles. The initial reflooding of the new levee and the excavated eastern bank would only slightly increase turbidity downstream. This temporarily elevated turbidity would be similar to, or less than, levels occurring annually in the Rio Grande during the spring runoff period.

(2) Effects (degree and duration on Chemical and Physical properties of the water column)

(a) Light Penetration: No effect.

(b) Dissolved Oxygen: No effect.

(c) Toxic Metals and Organics: No effect.

(d) Pathogens: No effect.

(e) Aesthetics: No effect.

(f) Others as Appropriate: No effect.

(3) Effects on Biota

(a) Primary Production, Photosynthesis: No effect.

(b) Suspension/Filter Feeders: No effect.

(c) Sight Feeders: No effect.

d. Contaminant Determinations: Excavated material would be analyzed for concentrations of metals and potential contaminants to verify that the material is suitable for disposal.

e. Aquatic Ecosystem and Organism Determinations

(1) Effects on Plankton: No effect.

(2) Effects on Benthos: A slight increase in benthic area would result.

(3) Effects on Nekton: No effect.

(4) Effects on Aquatic Food Web (refer to section 230.31): No effect.

(5) Effects on Special Aquatic Sites (discuss only those found in project are or disposal site)

(a) Sanctuaries and Refuges: Portions of the proposed work below the OHWM would be located on Sevilleta and Bosque del Apache National Wildlife Refuges. The Corps will obtain a Determination of Compatibility from the respective refuge managers for the proposed construction; and will minimize potential impacts to these lands and resources.

(b) Wetlands (refer to section 230.41): Not applicable.

(c) Mud Flats (refer to section 230.42): Not applicable.

(d) Vegetated Shallows (refer to section 230.43): Not applicable.

(e) Coral Reefs (refer to Section 230.44): Not applicable.

(f) Riffle and Pool Complexes (refer to section 230.45): Not applicable.

(6) Threatened and Endangered Species: Section 6.4 of the GRR/SEIS-II, and the Biological Assessment in Appendix C, evaluates the potential effects to listed species and their designated or proposed critical habitats in the project area. The following determinations were made:

Pecos sunflower: no effect.
Interior Least Tern: no effect.
Southwestern Willow Flycatcher and its designated / proposed critical habitat: may affect, but will likely not adversely affect.
Rio Grande silvery minnow and it designated critical habitat: may affect, and will likely adversely affect.

Pursuant to Section 7 of the Endangered Species Act, the Corps is currently conducting formal consultation with the U.S. Fish and Wildlife regarding the proposed project. The Service's Biological Opinion will include reasonable and prudent measures to minimize the potential take of flycatchers and minnows during construction.

(7) Other Wildlife: All clearing or removal of vegetation would be limited the period between August 15 and March 15. Wildlife in and adjacent to the construction area may be temporarily displaced during active construction periods.

f. Proposed Disposal Site Determinations

(1) Mixing Zone Determination (consider factors in section 230.22(f)(2))

(2) Determination of compliance with applicable water quality standards: Water quality would be monitored during bankline and in-channel construction to ensure compliance with state water quality standards for turbidity, pH, temperature, and dissolved solids.

(3) Potential effects on human use characteristic

(a) Municipal and Private water supply: No effect.

(b) Recreational and commercial fisheries: Not applicable.

(c) Water related recreation: No effect.

(d) Aesthetics: No effect.

(e) Parks, National and Historic Monuments, National Seashores, Wilderness Areas, Research Sites, and similar preserves (refer to section 230.54): Not applicable.

g. Determination of Cumulative Effects on the Aquatic Ecosystem: None.

h. Determination of Secondary Effects on the Aquatic Ecosystem: No effect.

III. Findings of Compliance or Non-Compliance with the restrictions on discharge

a. Adaptation of the Section 404(b)(1) Guidelines to this Evaluation: None.

b. Evaluation of Availability of Practicable Alternatives to the Proposed Discharge site which would have less adverse impact on the aquatic ecosystem: Alternatives evaluated included two levee heights, a 4-mile extension of the proposed levee, and a setback alignment for approximately one mile of the proposed levee (see Chapter 5 of the GRR/SEIS-II). The recommended plan was determined to be the most practicable, defined as available and capable of being accomplished after taking into consideration cost, existing technology, and logistics in light of overall project purposes, while meeting environmental compliance requirements.

c. Compliance with applicable State Water Quality Standards: The Corps will obtain State Water Quality Certification from the New Mexico Environment Department prior to the start of construction activities.

d. Compliance with applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act: Not applicable.

e. Compliance with Endangered Species Act of 1973: Pursuant to Section 7 of the Endangered Species Act, the Corps has formally consulted with the U.S. Fish and Wildlife regarding the proposed project.

f. Compliance with specified protection measures for marine sanctuaries designated by the Marine Protection, Research and Sanctuaries Act of 1972: Not Applicable

g. Evaluation of Extent of Degradation of the Waters of the United States

(1) Significant adverse effects on human health and welfare:

(a) Municipal and private water supplies: Not applicable.

(b) Recreation and commercial fisheries: Not applicable.

(c) Plankton: None.

(d) Fish: None.

(e) Shellfish: None.

(f) Wildlife: None.

(g) Special Aquatic sites: Not applicable.

(2) Significant adverse effects on life stages of aquatic life and other wildlife dependent on aquatic ecosystems: None.

(3) Significant adverse effects on aquatic ecosystem diversity, productivity and stability: None.

(4) Significant adverse effects on recreational, aesthetic, and economic values: None.

h. Appropriate and practicable steps taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem: See section I.e.(8) above for best management practices to be employed.

i. On the basis of the guidelines, the proposed discharge of dredged or fill material is specified as complying with the requirements of these guidelines

References

Parametrix. 2008. Restoration Analysis and Recommendations for the San Acacia Reach of the Middle Rio Grande, NM. Prepared for the U.S. Bureau of reclamation, Albuquerque, and the Middle Rio Grande Endangered Species Collaborative Program.

Soil Conservation Service (SCS). 1988. Soil Survey of Socorro County Area, New Mexico. 328 pp. + maps. Digital and updated soil survey information is available at: http://soildatamart.nrcs.usda.gov/SDM%20Web%20Application/Survey.aspx?County=NM053

U.S. Army Corps of Engineers (USACE). 2012. Draft General Reevaluation Report / Supplemental Environmental Impact Statement II, Rio Grande Floodway, San Acacia to Bosque del Apache Unit, Socorro County, New Mexico. USACE, Albuquerque District, NM.

Finding of Compliance

for

San Acacia to Bosque del Apache Unit, Socorro County, New Mexico

1. No significant adaptations of the guidelines were made relative to this evaluation.

2. The planned disposal of dredged material at would not violate any applicable State water quality standards.

3. The Proposed deposition of fill material has the potential to harm any the endangered Rio Grande silvery minnow; however, the U.S. Fish and Wildlife Service has issued an Incidental Take Permit including reasonable and prudent measures that minimize that potential, and which the Corps will employ during project construction.

4. The Proposed deposition of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, recreation and commercial fishing, plankton, fish, shellfish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife will not be adversely affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values will not occur.

5. Appropriate steps to minimize potential adverse impacts of the discharge on aquatic systems include

- Stream flow would be maintained at all times during construction and the streambed contoured so that fish can migrate through the project area during and after construction.
- Silt curtains, cofferdams, dikes, wattles, straw bales and other suitable erosion control measures would be employed to prevent sediment-laden runoff or contaminants from entering the watercourse.
- Work would be performed below the elevation of the ordinary high water mark only during low-flow periods. Flowing water must be temporarily diverted around the work area, but remain within the existing channel to minimize erosion and turbidity and to provide for aquatic life movement. Diversion structures must be non-erodible, such as sand bags, water bladders, concrete barriers, or channel lined with geotextile or plastic sheeting. Dirt cofferdams are not acceptable diversion structures.
- All asphalt, concrete, drilling fluids and muds, and other construction materials will be properly handled and contained to prevent releases to surface water. Poured concrete will be will be fully contained in mortar-tight forms and/or will be placed behind non-erodible cofferdams to prevent discharge contact with surface or groundwater. Wastewater from concrete batching, vehicle washdown, and aggregate processing would be contained, and treated or removed for off-site disposal. Dumping of any waste material in or near watercourses is prohibited.
- Fuel, oil, lubricants, hydraulic fluids and other petrochemicals would be stored westward of the LFCC and at least 100 feet from surface water (including ditches, drains, and the LFCC). The fuel storage facility must have a secondary containment system capable of containing twice the volume of the product. Appropriate spill clean-up materials such as booms and absorbent pads must be available on-site at all times during construction.
- Fueling of wheeled construction vehicles would not be permitted in the construction area or near the LFCC. Only tracked vehicles may be fueled within the construction area via a fuel

tender with a maximum fuel capacity of 500 gallons, thereby minimizing the consequences of any accidental spill. Refueling of all vehicles and equipment must be performed at least 100 feet from surface water.

- All heavy equipment used in the project area must be pressure washed and/or steam cleaned before the start of the project and inspected daily for leaks. A written log of inspections and maintenance must be completed and maintained throughout the project period. Leaking equipment must not be used in or near surface water. Any petroleum or chemical spills would be contained and removed, including any contaminated soil.
- Only uncontaminated earth or crushed rock would be used for backfills, and for the temporary river crossing.
- Water quality would be monitored during bankline and in-channel construction to ensure compliance with State water quality standards for turbidity, pH, temperature, and dissolved solids.
- Excavated trenches must be backfilled and compacted to match the bulk density and elevation of the adjacent undisturbed soil.
- The temporary river crossing would be located perpendicular to and at a narrow point of the channel to minimize disturbance. Heavy equipment must be operated from the bank or work platforms and not enter surface water. Heavy equipment must not be parked within the stream channel.
- All disturbed areas that are not otherwise physically protected from erosion will be reseeded or planted with native vegetation.
- A copy of the water quality certification must be kept at the project site during all phases of construction. All contractors involved in the project must be provided a copy of the certification and made aware of the conditions prior to starting construction.
- All construction contractors will be required to prepare and submit, for the Corps' approval, a Storm Water Pollution Prevention Plan (SWPPP) pursuant to the National Pollution Discharge Elimination System (NPDES) prior to the start of construction activity. The SWPPP will incorporate the Best Management Practices listed above, as well as any other practices which would avoid or minimize stormwater runoff due to construction activities, including clearing, grading, and excavating.

6. On the basis of the guidelines the proposed disposal site for the discharge of dredged material is specified as complying with the inclusion of appropriate and practical conditions to minimize pollution or adverse effects to the aquatic ecosystem.

CLEAN WATER ACT SECTION 401 WATER QUALITY CERTIFICATION

New Mexico Environment Department,

Surface Water Quality Bureau

February 21, 2013

NEW MEXICO ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

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Secretary

BUTCH TONGATE
Deputy Secretary

THOMAS SKIBITSKI
Acting Director
Resource Protection Division

February 21, 2013 ***CERTIFIED MAIL NO.7009 0080 0000 0485 2212***

Mr. William R. DeRagon
U.S. Army Corps of Engineers
4101 Jefferson Plaza NE
Albuquerque, New Mexico 87109

Re: Clean Water Act Section **401 Water Quality Certification**
NMED SWQB File SC-001 2013
Rio Grande Floodway, San Acacia to Bosque del Apache Unit Levee Replacement Project, Socorro County, New Mexico

Dear Mr. DeRagon:

The New Mexico Environment Department (NMED) has examined the application for the project indicated above under sections 404 and 401 of the federal Clean Water Act (CWA). According to the application, the proposed project would remove approximately 43 miles of spoil bank adjacent to the Rio Grande floodway and replace it with an engineered levee capable of containing at least the 1%-chance flood event (approx. 29,900 cfs at San Acacia). Five activities relating to proposed work below the ordinary high water mark (OHWM) are described in more detail in the application: 1) earthen levee construction; 2) placement of riprap along the riverward slope and toe of the levee; 3) construction of a soil-cement embankment; 4) a temporary river crossing (to access the east side of the river to excavate a terrace above the OHWM); and 5) construction of a gated closure at the confluence of Brown Arroyo.

CERTIFICATION PROCESS: The U.S. Army Corps of Engineers (USACE) will regulate this project under a Finding of Compliance relative to section 404(b)(1) of the Clean Water Act; therefore, meeting the requirements for an exemption under section 404(r) of the Act. A state Water Quality Certification is required by CWA section 401 to ensure that the action is consistent with state law (New Mexico Water Quality Act, sections 74-6-1 through 74-6-17, NMSA 1978) and complies with the state Water Quality Standards (*State of New Mexico, Standards for Interstate & Intrastate Surface Waters, New Mexico Water Quality Control Commission, 20.6.4 New Mexico Administrative Code (NMAC) amendments effective on January*

14, 2011) , the Water Quality Management Plan/Continuing Planning Process, including Total Maximum Daily Loads (TMDLs), and the Antidegradation Policy.

Pursuant to state regulations for permit certification (20.6.2.2002, NMAC), NMED issued a public notice of this activity and announced a public comment period. This notice was published in the El Defensor Chieftain and the Albuquerque Journal and posted on the Surface Water Quality Bureau's web site: (www.nmenv.state.nm.us/swqb/WQA/Notice) on January 19, 2013. The public comment period ended on February 19, 2013. No comments were received by the end of the comment period.

CONDITIONAL SECTION 401 CERTIFICATION: The following conditions are necessary to assure compliance with the applicable provisions of CWA sections 301, 302, 303, 306, and 307 and with applicable requirements of state law. Compliance with the terms and conditions of the permit and this certification will provide reasonable assurance that the permitted activities will be conducted in a manner which will not violate applicable water quality standards and the water quality management plan and will be in compliance with the antidegradation policy.

The State of New Mexico certifies that the discharge will comply with these provisions and requirements upon inclusion of the following conditions for the project:

1. Fuel, oil, hydraulic fluid, lubricants, and other petrochemicals must not be stored within the 100-year floodplain and must have a secondary containment system capable of containing twice the volume of the product. Appropriate spill clean-up materials such as booms and absorbent pads must be available on-site at all times during construction.

2. All heavy equipment used in the project area must be pressure washed and/or steam cleaned before the start of the project and inspected daily for leaks. A written log of inspections and maintenance must be completed and maintained throughout the project period. Leaking equipment must not be used in or near surface water. Refuel equipment at least 100 feet from surface water.

3. Work in the stream channel should be limited to periods of low flow. Releases from dams must be incorporated into the work schedule to avoid working in high water.

4. Temporary crossings should be restricted to specific designated locations. Heavy equipment must not be parked within the stream channel.

5. Flowing water must be temporarily diverted around the work area, but remain within the existing channel to minimize erosion and turbidity and to provide for aquatic life movement.

6. Protective measures must be used to prevent all excavated soil or rock from entering surface water.

7. Work or the use of heavy equipment in wetlands must be avoided or minimized unless the impacts are to be mitigated. Construction activities in wetlands must be scheduled during low

water or winter (frozen) conditions. Wetland crossings must be restricted to a single location and constructed perpendicular to and at a narrow point of the wetland. Wetland vegetation and excavated material (top soil) must be retained and reused to improve seeding success. Permeable fills should be designed and installed when practicable, and flows to wetlands must not be permanently disrupted. Fill materials must be clean and consist of coarse material with minimal fines. Ditches or culverts in wetlands must have properly designed, installed and maintained siltation or sedimentation structures at the outfall.

8. A copy of this Certification must be kept at the project site during all phases of construction. All contractors involved in the project must be provided a copy of this certification and made aware of the conditions prior to starting construction.

9. The NMED must be notified at least five days before starting construction to allow time to schedule monitoring or inspections. The NMED must be notified immediately if the project results in an exceedence of applicable Standards.

If you have any questions regarding this section 401 Water Quality Certification, please feel free to contact David Menzie of my staff at (575) 956-1548.

Sincerely,

James Hogan
Acting Chief
Surface Water Quality Bureau

JH: dm
xc: Tom Nystrom, Wetlands, Region 6, USEPA
Allen Steinle, USACE, Albuquerque
Rick Gatewood, USACE, Las Cruces
Ken Cunningham, New Mexico Department of Game and Fish
U.S. Fish and Wildlife Service
401 Certification File SC001-2013