Watershed Planning
Section 203 of WRDA 2000, as amended
(Tribal Partnership Program)
Review Plan

San Felipe, New Mexico

Albuquerque District (SPA)

MSC Approval Date: 8 October 2014

Last Revision Date: None

US Army Corps
of Engineers ®
Albuquerque District

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Tribal Partnership Program
(Section 203 of WRDA 2000, as amended)
Review Plan
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Review Plan
Pueblo of San Felipe Sec 203 Watershed Assessment

1. Purpose and Requirements

a. Purpose

This Programmatic Review Plan defines the scope and level of peer review for the San Felipe, New Mexico, Section 203 Tribal Partnership Program (TPP) watershed assessment (WA) products.

Section 203 of the Water Resources Development Act (WRDA) of 2000 (as amended by Section 2011 of WRDA 2007) (33 USC § 2269), is also known as the Tribal Partnership Program (TPP), which reads in part:

> *(b) PROGRAM.—*
>
> *(1) IN GENERAL.—In cooperation with Indian tribes and the heads of other Federal agencies the Secretary may carry out water-related planning activities and study and determine the feasibility of carrying out water resources development projects that —*
>
> > *(A) will substantially benefit Indian tribes; and*
> >
> > *(B) are located primarily within Indian country (as defined in section 1151 of title 18, United States Code) and including lands that are within the jurisdictional area of an Oklahoma Indian tribe, as determined by the Secretary of the Interior, and are recognized by the Secretary of the Interior as eligible for trust land status under part 151 of title 25, Code of Federal Regulations or in proximity to Alaska Native villages.*
>
> *(2) MATTERS TO BE STUDIED.—A study conducted under paragraph (1) may address—*
>
> > *(A) projects for flood damage reduction, environmental restoration and protection, and preservation of cultural and natural resources;*
> >
> > *(B) watershed assessments and planning activities; and*
> >
> > *(C) such other projects as the Secretary, in cooperation with Indian tribes and the heads of other Federal agencies, determines to be appropriate.*

Additionally, Section 203(b)(I) of the Water Resources Development Act (WRDA) of 2000, Public Law [P.L.] 106-541 (114 Stat.2588-2589) and Section 2011 of WRDA 2007, P.L. 110-114 (121 Stat.1074) states:

> *Under Section 203 WRDA 2000, the U.S. Army Corps of Engineers may conduct a watershed assessment (WA) (feasibility phase), as stated in subsection (2) (B) above. A WA results in a watershed management plan (WMP) which makes recommendations for future study, rather than a project to be authorized for Corps construction, as is typical for Feasibility studies. The implementation guidance contained in CECW-P Memorandum for Commanders, Major Subordinate Commands dated 16 May 2008, Subject: Implementation Guidance for Section 2011 of the Water Resources Development Act (WRDA) of 2007, Tribal Partnership Program, directs that a Section 203 Assessment will follow the guidance covering WAs and planning activities pursuant to Section 729 of WRDA 1986, Study of Water Resources Needs of River Basins and Regions.*

Additional guidance for WAs can be found in Engineering Circular (EC) 1105-2-411 and Appendix H of Engineering Regulation (ER) 1105-2-100 Planning Guidance Notebook.

Products for review may include the WA; preliminary environmental and cultural assessments; cost estimates; economic analysis; hydraulic and hydrologic analysis; geotechnical analysis; real estate plan or analysis.

b. Applicability

This Review Plan is based on the Programmatic Review Plan for the Continuing Authorities Program, which was developed under the guidance of reference c (7) below in order to streamline the execution of this program. This Review Plan for Section 203 WRDA 2000 (TPP) is applicable to projects that do not require Independent External Peer Review (IEPR), as defined by the mandatory Type I IEPR triggers contained in EC 1165-2-214, Civil Works Review Policy, and is equally applicable to feasibility studies and WAs that fit within the parameters defined below.

c. References:

1) Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012
2) EC 1105-2-411 Watershed Plans, 15 January 2010, Expired 15 January 2012
3) EC 1105-2-412, Assuring Quality of Planning Models, 31 Mar 2011
4) Engineering Regulation (ER) 1110-1-12, Quality Management, 30 Sep 2006
5) ER 1105-2-100, Planning Guidance Notebook, Appendix H, Policy Compliance Review and Approval of Decision Documents, Amendment #1, 20 Nov 2007
6) ER 1105-2-101, Risk Analysis for Flood Damage Reduction Studies, 3 January 2006
7) Director of Civil Works' Policy Memorandum #1, CECW-P, subject: Continuing Authority Program Planning Process Improvements , dated 19 January 2011
8) QMS 02500-SPD, Preparation and Approval of Review Plans
9) QMS 02500.1-SPD, Supplemental Review Plan Checklist
10) San Felipe, Section 203, Project Management Plan

d. Requirements

This Review Plan was developed in accordance with EC 1165-2-214, the review requirements therein modified in accordance with Section 203 WRDA 2000 implementation guidance and EC 1105-2-411 to fit the unique nature of this program as a small scale (in scope, schedule and budget) investigations authority that lacks construction authority. The review requirements laid out herein establish an appropriate, accountable, comprehensive review strategy by providing a seamless process for review of planning documents in the TPP. Four general levels of review are outlined below: District Quality Control/Quality Assurance (DQC), Agency Technical Review (ATR), Independent External Peer Review (IEPR), and Policy and Legal Compliance Review commensurate with the level of detail authorized in the TPP.

2. Review Management Organization (RMO) Coordination

The RMO is responsible for managing the overall peer review effort described in this Review Plan. The RMO for Section 203 Tribal Partnership Program is the Major Subordinate Command (MSC). The MSC for the Albuquerque District (SPA) is the South Pacific Division (SPD). SPD will coordinate and approve the review plan and manage the ATR. SPA will post the approved review plan on its public website.

3. Watershed Assessment Information

a. Watershed Assessment / Watershed Management Plan (WA / WMP)

The San Felipe, New Mexico WA / WMP will be prepared in accordance with ER 1105-2-100, Appendix H and EC 1105-2-411. The approval level of the WA / WMP (if policy compliant) is the U.S. Army Corps (Corps) of Engineers headquarters (HQUSACE). The purpose of the WA is to evaluate impacts to the watershed and develop a WMP for the Pueblo.

b. Watershed Assessment Description

The Pueblo of San Felipe (Pueblo) is located in Sandoval County in central New Mexico, approximately 25 miles north of Albuquerque and 40 miles south of Santa Fe. The Pueblo encompasses nearly 50,000 acres that straddle the Rio Grande and Interstate 25. The historic Pueblo is located on the west bank immediately adjacent to the Rio Grande. The remainder of the Pueblo development is dispersed east of the Rio Grande. See maps in attachment B.

The study area includes the Rio Grande floodplain, and several major and minor arroyo watersheds. The major watersheds include the Tonqué, de la Vega de los Tanos, San Francisco, Maria Chavez and Lamita arroyos. The study area potentially includes these watersheds even though the boundaries of the watersheds may fall outside the boundary of Pueblo lands. All of these arroyos, except the Lamita, drain the Sandia and Ortiz mountain foothills east of the Pueblo. The Lamita Arroyo flows out of the Santa Ana mesa to the southwest of the Pueblo. The primary threats from flooding of houses, public buildings, agricultural crops and irrigation infrastructure come from these arroyos.

(See Figure 3-3 San Felipe 203 Watershed Location Map)

c. Non-Federal sponsor

The Pueblo of San Felipe is a federally recognized Native American Tribal Government. As of the 2000 census the population of the Pueblo was 2,080 (http://factfinder.census.gov/). San Felipe is a Keresan speaking Pueblo founded in 1706.

d. Congressional District

Congressman Ben Lujan Jr. – District 3

e. Public Concerns

1) Flooding has damaged homes, public facilities, roads, irrigation ditches and agricultural land. FEMA assistance was granted following a flood event in 2003 that was exacerbated by a breach of the earthen San Francisco Dam. The flood damaged many homes, public facilities and destroyed agricultural crops. Interstate 25 was closed for a period of time as was the parallel Highway 313. The flood also filled irrigation ditches with sediment.
2) Dam safety is a major concern due to the position of several earthen dams upstream of Pueblo development. Most of these dams were built by the Bureau of Indian Affairs. A flood event in 2006 breached the San Francisco dam and caused damages similar to the 2003 dam breach and flood. The earthen dam on Maria Chavez Arroyo failed in the late 1990's and was not repaired. This event and subsequent high flow events overtopped the Highway 313 Bridge. Water Tank Dam is a high risk dam due to the proximity of houses downstream of the dam.

Figure 3-1 San Francisco Dam showing stand pipe outlets and flood warning instruments in foreground

3) Heavy runoff from the top of the west mesa has been a threat to homes, public buildings and the historic Pueblo at the foot of the mesa. Due to the extreme slope of the mesa edge, heavy runoff can produce landslide conditions in the Pueblo. A low berm or "kicker-dike" was built on the top of the mesa to divert the flows away from the Pueblo. The berm was breached presumably by heavy storms, concentrating flows to a single point. The resulting high velocity stream destroyed two homes in the Pueblo and caused a mudslide. The berm was removed to prevent a similar event. However, the flooding and landslide concerns remain.

Figure 3-2 Residential housing below Water Tank Dam. San Francisco Arroyo flows through the same area from left to right.

4) Bank erosion threatens buildings and infrastructure in several locations throughout the Pueblo. Erosion along the Rio Grande adjacent to and near the Pueblo threatens the Pueblo structures and the road that provides ingress and egress. Bank erosion along Tonqué Arroyo has damaged the parking lot at the Pueblo travel-stop and casino and in time could damage utilities and roads that parallel the arroyo.

5) Aggradation along various arroyos reduces the capacity of bridge or irrigation crossings. Additionally the aggradation of San Francisco Arroyo within the residential area is essentially building a delta. The unpredictable flow paths in this area have the potential to flood several residential and public buildings as well as cover area roads with sediment.
6) Runoff carries sediment into irrigation infrastructure blocking ditches or damaging aqueducts. Large efforts are required to repair and clean irrigation ditches after large rain events.
7) Numerous factors have contributed to the loss or reduced extent and reduced quality of wetlands and riparian bosque habitat along the Rio Grande. Upstream reservoirs, confinement of the floodplain and non-native species have all impacted floodplain ecology and hydro-geomorphology.
8) Lack of flood plain mapping and comprehensive watershed information hampers decision making. More information is needed to perform long-range watershed management or plan future development.

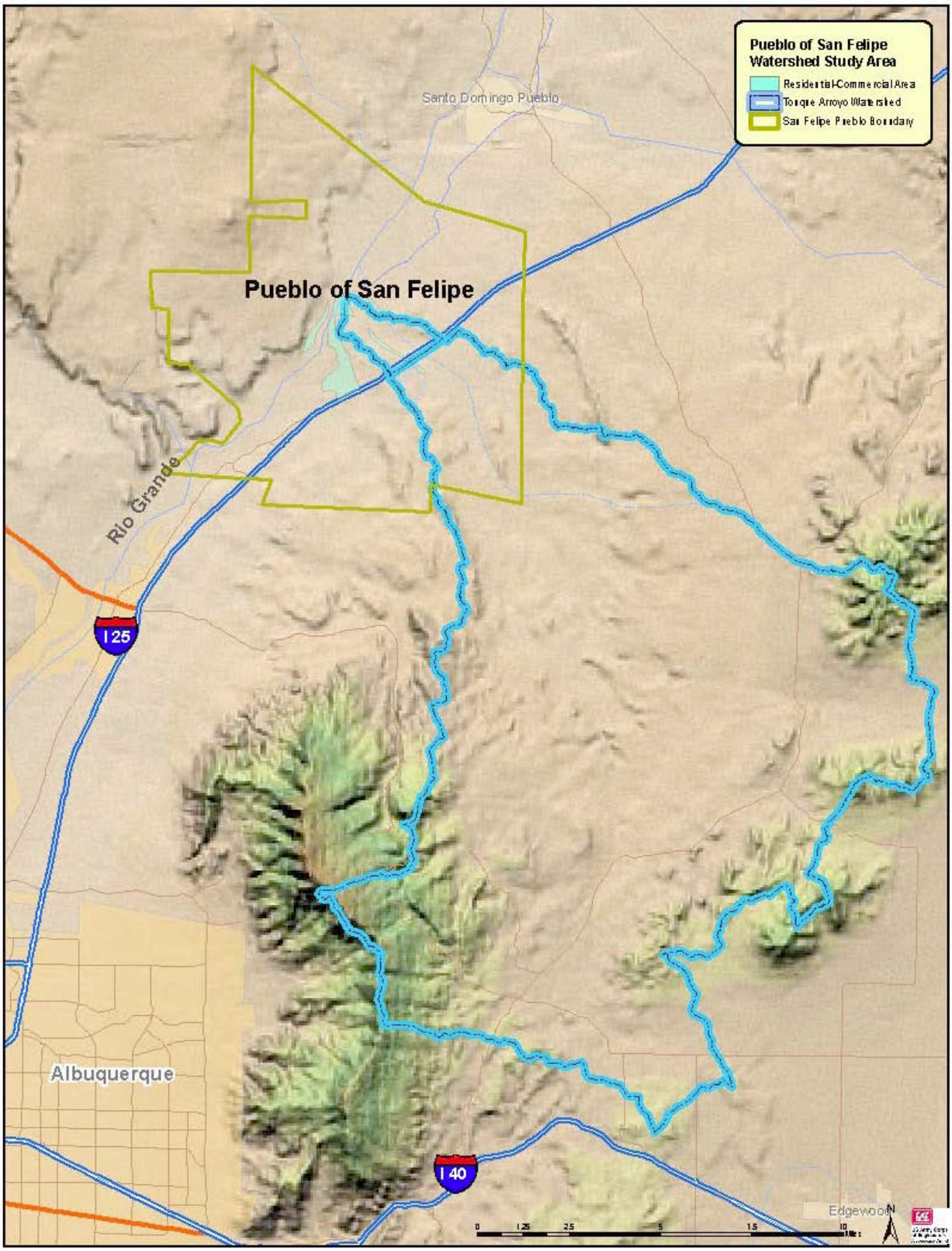

Figure 3-3 San Felipe 203 Watershed Location Map

f. Problems and Opportunities

1) Flood risk: Flooding originating on the mesa west of the Pueblo and from the San Francisco and Maria Chavez arroyos has damaged residences, public buildings, infrastructure and agriculture.
    a) The opportunity exists to reduce flood risk within the study area.
2) Dam safety and flood damage caused by failure of earthen dams: Maria Chavez Dam was not rebuilt therefore does not affect flood risk. Several dams on the San Francisco Arroyo and its tributaries remain intact, have been rebuilt or are in the process of failure. There are no plans to improve or enlarge the dams at this time. The capacity of these dams is insufficient to contain or safely pass large events and therefore may exacerbate flooding in these cases. Further, the integrity of some of the dams is unknown and may increase risk to existing and future development downstream.
    a) The opportunity exists to address dam safety and manage flood risk from dam failure within the study area.
3) Sedimentation: Damage occurs among residences, public buildings, roads, and irrigation infrastructure due to deposition of arroyo sediment. Sedimentation in the form of aggradation results in diminished capacity of arroyo channels and bridge crossings. Sediment deposition in lower arroyos has led to formation of deltas and unpredictable flow-paths in these areas.
    a) The opportunity exists to identify sources and causes of sedimentation and prevent damages caused by sedimentation.
4) Bank erosion threatens public facilities along arroyos and the Rio Grande: Localized bank protection measures have been implemented unsuccessfully in areas of severe erosion.
    a) The opportunity exists to prevent bank erosion and protect buildings or infrastructure.
5) Loss or reduced extent and reduced quality of wetlands and riparian bosque habitat along Rio Grande: Construction of reservoirs on the Rio Grande has altered the hydrographs and sediment transportation through the study area. High value habits have lost the functional processes required for a healthy bosque system. Without intervention this important ecosystem will continue to degrade.
    a) The opportunity exists to restore the ecological structure and function of the Rio Grande ecosystems on Pueblo lands.
6) Lack of a comprehensive WMP: The Pueblo has instituted measures to address some of the problems listed above. These measures have been carried out singularly without consideration of the watershed as a whole. Future efforts to address problems would likely be disjointed. No comprehensive plan that includes critical information such as watershed mapping or arroyo discharge frequencies would be obtained.
7) No restrictions on development or flood proofing have occurred therefore flood damages are expected continue. Existing flood risk would remain and future development may be at risk without this information.
    a) The opportunity exists to provide a comprehensive, long-term WMP. The WMP would provide information for good decision making, future planning, recommend causes of action to alleviate concerns and identify funding sources as well as, local, state and Federal programs appropriate for implementation of the watershed management goals.

g. Planning Objectives

1) To reduce risk of damage caused by flooding within Pueblo of San Felipe Tribal lands.
2) Address dam safety and flood risk from dam breaches.
3) To reduce damage to infrastructure from sedimentation within the Pueblo lands.
4) To reduce damage caused by erosion along watercourses.
5) To restore ecosystem processes and function along the Rio Grande that is characteristic of a healthy bosque riparian system.
6) To develop a comprehensive and long-range management plan that includes each watershed within the study area.

h. Planning Constraints

1) Because much of the information regarding traditional and cultural sites is sensitive, a system for the sharing of necessary information between the Pueblo and Corps technical team members will need to be agreed upon by both the Corps and the sponsor.
2) Project measures should not induce additional risk of flooding or flood damages in or beyond the study area.
3) Project measures will not adversely impact downstream deliveries of water per the Rio Grande Compact or Upper Colorado River Basin Compact.

i. Preliminary Management Measures from the Federal Interest Determination

1) No action
2) Adjust arroyo morphology to stabilize channel flow path or facilitate movement of accumulated sediment through system.
3) Capture and remove sediment before it damages infrastructure.
4) Retain water to reduce flood peaks upstream of infrastructure.
5) Identify and stabilize sediment sources.
6) Reduce run-off upstream of development thereby reducing flood flows.
7) Evaluate and modify highway bridges, culverts and low water crossings for structural integrity and for water and sediment transport capabilities
8) Provide bank stabilization to problem areas thereby protecting infrastructure from damage.
9) Reconnect the Rio Grande channel to the bosque at lower flows to provide this vital ecosystem function.
10) Remove non-native, invasive species to promote or protect native species.
11) Identify location and extent of floodplains and implement floodplain management to prevent future flooding.
12) Formulate structural and non-structural methods to reduce flood risk to infrastructure, structures and agriculture.
13) Prevent dam breaches through design of detention structures that are adequate to capture or pass all flood events.
14) Eliminate dams and reduce risk from catastrophic flood damage to downstream infrastructure.
15) Develop WMPs that reduce flood risk and provide for ecosystem restoration.

j. Factors Affecting the Scope and Level of Review

The conceptual nature of solutions or recommendation resulting from the WA will not involve significant threat to human life/safety or involve significant public dispute as to the size, nature, or effects of a project. All conceptual projects will require additional analysis prior to implementation. The WMP resulting from the WA has a much lesser scope and level of review than the traditional study since it does not provide detailed design or cost estimation, or the selection of one alternative over others. The WA will only conduct a screening level economic comparison among strategies to prioritize recommended actions. Hydrology and Hydraulics analysis is limited to the existing and future conditions to define the problem and inform potential solutions. Because this authority does not include construction of any alternatives, environmental compliance documentation and IEPR is not required. DQC and ATR will be restricted to verifying that the existing and future without project conditions were fully captured, and evaluating the screening level alternative formulation.

The WA may or may not involve novel methods, techniques or models in the data collection, data interpretation and analysis of existing problems in the watershed. This analysis will not be used to determine specific conclusions resulting in an investment decision, activity or undertaking. Follow-on projects based on this WA will include further, more detailed, analysis of alternatives and economic or environmental effects. The WA will integrate existing research with some data collection restricted to filling gaps in the existing conditions.

Project challenges include watershed planning and forecasting of future conditions in the face of drought and continued mining operations. Hydrologic, geomorphic and habitat changes due to short and long term climate conditions present challenges to forecasting future conditions in the watershed.

This WA does have significant interagency interest. Coordination with multiple agencies and entities within the watershed such as the Bureau of Indian Affairs, Indian Health Services, US Geological Service and New Mexico Environment Department will be included in the WA, though their role and contributions have yet to be defined. The involvement of these agencies, who have had previous on-the-ground involvement with the Pueblo, will strengthen the resulting WMP. Leveraging of expertise from other agencies and the Pueblo will provide a stronger evaluation of aspects not standard to Corps operations or studies. These aspects include water quality, groundwater movement and impacts of mining.

Since there will be no recommended plan selected for implementation, participation by general engineering, cost engineering, real estate and economics will be minimal and on a qualitative basis. The conceptual nature of the watershed management plan recommendations is the main determinant for the scope of review of the WMP, and the level of expertise required from the reviewers.

Even though the product for this study is a WMP, Safety Assurance factors for any recommended flood risk management measures will include, at a minimum, a DQC and ATR review for the following factors:

1) Where failure leads to significant threat to human life,
2) Novel methods / complexity / precedent setting models / policy changing conclusions,
3) Innovative materials or techniques,
4) Design redundancy, resiliency or robustness,
5) Unique construction sequences or acquisition planning, or
6) Reduced / overlapping design construction schedules.

k. In-Kind Contributions

Products and analyses provided by non-Federal sponsor as in-kind services are subject to DQC and ATR, similar to any products developed by Corps. The in-kind products and analyses to be provided by the non-Federal sponsor include:

1) Existing reports and hard data that they contribute to the study / project;
2) Assistance during public involvement actions; and
3) Assistance during the formulation of recommendations.

4. District Quality Control (DQC)

All WA / WMPs (including supporting data, analyses, environmental compliance documents, etc.) shall undergo DQC prior to ATR. DQC is an internal review process of basic science and engineering work products focused on fulfilling the project quality requirements defined in the Watershed Assessment Project Management Plan (WA-PMP) and SPD Quality Management Plan. SPA shall manage DQC in accordance with the MSC (RMO) and district Quality Management Plans. Any discrepancies between a reviewer and a Project Delivery Team (PDT) member will be resolved through telephonic and email communications. If a concern cannot be satisfactorily resolved between the DQC team and the PDT, it will be elevated to the section supervisor for further resolution. Documentation of DQC activities is required and should be in accordance with the Quality Manual of the District and the home MSC; product issues identified via DQC will be resolved prior to ATR.

a. Documentation of DQC

DrChecks review software will be used to document all DQC comments, responses and associated resolutions accomplished throughout the review process. Comments and responses will be included as part of the package for later reviews. Comments should be limited to those that are required to ensure adequacy of the product.

The four key parts of a quality review comment should include:

1) The review concern;
    a) Identify the product's information deficiency or incorrect application of policy, guidance, or procedures.
2) The basis for the concern;
    a) Cite the appropriate law, policy, guidance, or procedure that has not been properly followed.
3) The significance of the concern;
    a) Indicate the importance of the concern with regard to its potential impact on plan selection, recommended plan components, efficiency (cost), effectiveness (function/outputs), implementation responsibilities, safety, Federal interest, or public acceptability.
4) The probable specific action needed to resolve the concern.
    a) Identify the action(s) that the reporting officers must take to resolve the concern.

In some situations, especially addressing incomplete or unclear information, reviewers should seek clarification in order to then assess whether further specific concerns may exist.

b. Products to Undergo DQC

The combined draft and final detailed WA / WMP, supporting appendices and any existing, sponsor or contractor provided products used to inform the alternative analysis and decision to make recommendations, will undergo DQC review.

c. Required DQC Expertise

DQC Team Members / Disciplines	Expertise Required
Planning	The reviewer should have recent experience in reviewing Plan Formulation processes for FRM studies and be able to draw on "lessons learned" in advising the PDT of best practices.
Economics	The reviewer should be familiar with the processes used in evaluation of flood risk management projects and have recent experience in preparing economic analysis plans for flood risk management feasibility studies.
Environmental Resources	The reviewer should have a solid background in the habitat types to be found in the arid southwestern United States, and understand the factors that may impact native species of plants and animals.
Cultural Resources	The reviewer should have extensive Corps' experience regarding cultural resources on public and tribal lands. They need to be familiar with Department of Defense as well as Corps policies and procedures as they pertain to Corps studies and projects. http://www.usace.army.mil/CECW/Pages/cultural.aspx
Hydrology	The reviewer should have extensive knowledge of hydrology of arid-land, flashy wash systems and the Rio Grande or similar river system.
Hydraulic Engineering	The reviewer should have extensive knowledge of HEC-RAS modeling including the use of GIS (ARC-INFO) inputs to the model. The reviewer should also have a solid understanding of the geomorphology of alluvial rivers.
Geotechnical Engineering	The reviewer should carry a Professional Engineer's license and have recent experience in the Corps' design requirements. This person should also have experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; designing earthworks and structure foundations; and monitoring site conditions, earthwork and foundation construction.
Civil Engineering	The reviewer should have recent experience in the design and of plans and specifications for levees and river bridges, to include tie in to natural features.
Environmental Engineering	The reviewer should have experience in the application of scientific principles and techniques to evaluate water, air and soil quality relative to human and wildlife uses, fishery impacts, EPA and ASTM standards. Specific experience related to the impacts of uranium mining would be beneficial.
Cost	The reviewer should have extensive Corps' experience in the application of scientific principles and techniques to problems of cost estimating, cost

DQC Team Members / Disciplines	Expertise Required
Engineering	control, business planning and management science, profitability analysis, project management, and planning and scheduling.
Real Estate	The Real Estate reviewer should be a senior real estate specialist with experience in flood risk management studies.

5. Agency Technical Review (ATR)

ATR is mandatory for all WA / WMPs (including supporting data, analyses, environmental compliance documents, etc.). The objective of ATR is to ensure consistency with established criteria, guidance, procedures, and policy. The ATR will assess whether the analyses presented are technically correct and comply with published Corps guidance, and that the document explains the analyses and results in a reasonably clear manner for the public and decision makers. ATR is managed within Corps by the designated RMO and is conducted by a qualified team from outside the home district that is not involved in the day-to-day production of the project/product. ATR teams will be comprised of senior Corps personnel and may be supplemented by outside experts as appropriate. The ATR team lead will be from outside the home MSC.

The ATR team (ATRT) will be composed of reviewers approved by the Communities of Practice (CoP), the FRM-PCX, and the ATRT Lead.

For each ATR event, the ATR team will examine, as part of its ATR activities, relevant DQC records and provide written comment in the ATR report as to the apparent adequacy of the DQC effort for the associated product or service. The reviews should be appropriate to the level of risk and complexity inherent to the project, and verify compliance with clearly established policies, principles and procedures, using justified and valid assumptions. Verification shall include review of analysis assumptions; methods, procedures, and material used in the analysis; the appropriateness of the data used; and reasonableness of the results, including whether the product meets the customer's need consistent with law and existing Corps policy.

a. Products to Undergo ATR

1) Draft and Final WA/WMP

This would include the WA / WMP as well as appendices. NOTE: the final product ATR may be very limited if there are few substantive changes from the draft.

2) Hydrologic, Hydraulic, Sediment and Risk Analyses

The models used and the write-up in the main report, plus appendices will be reviewed at the same time as the draft WA/WMP.

3) Economic Analysis

The write-up in the main report and appendices will be reviewed at the same time as the draft and final WA/WMP.

4) Cost Estimates

These products, if any, will be reviewed prior to their information being included in the draft WA/WMP.

5) Existing or Future Sponsor or Contractor Provided Products

These products, if any, will be reviewed prior to their information being included in the draft WA/WMP.

b. Required ATR Team Expertise

An ATR Leader shall be designated for the review by the FRM-PCX and will come from outside the MSC. The PDT requests that the PCX recommend an ATR Leader and ATR team from district(s) that have experiences in flood risk management projects in large, semi-arid river systems similar to that in Sandoval County, New Mexico. In general, the ATR Leader is responsible for providing information necessary for setting up the reviews communicating with the Project Manager and Plan Formulator, providing a summary of critical review comments, collecting grammatical and editorial comments from the ATR team, ensuring that the ATR team has adequate funding to perform the review, facilitating the resolution of the comments, and certifying that the ATR has been conducted and resolved in accordance with policy.

ATR Team Members/Disciplines	Expertise Required
ATR Team Leader	The ATR Lead should be a senior professional with extensive experience in preparing Civil Works decision documents and conducting ATR. The ATR Lead should also have the necessary skills and experience to lead a virtual team through the ATR process. The ATR Lead may also serve as a reviewer for a specific discipline (such as planning, economics, environmental resources, etc).
Planning / Economics	The reviewer should have recent experience in reviewing Plan Formulation processes for FRM studies and be able to draw on “lessons learned” in advising the PDT of best practices. The reviewer should be familiar with the processes used in evaluation of flood risk management projects and have recent experience in preparing economic analysis plans for flood risk management feasibility studies. HEC-FDA will be used for analysis.
Environmental / Cultural Resources	The reviewer should have a solid background in the habitat types to be found in the arid southwestern United States, and understand the factors that may impact native species of plants and animals. The reviewer should have extensive Corps’ experience regarding cultural resources on public and tribal lands. They need to be familiar with Department of Defense as well as Corps policies and procedures as they pertain to Corps studies and projects. http://www.usace.army.mil/CECW/Pages/cultural.aspx
Hydrology	The reviewer should have extensive knowledge of hydrology of arid-land, flashy wash systems and the Rio Grande or similar river system. The reviewer must be a certified reviewer in the CERCAP system.
Hydraulic Engineering & Sediment	The reviewer should have extensive knowledge of HEC-RAS modeling including the use of GIS (ARC-INFO) inputs to the model. The reviewer should also have a solid understanding of the geomorphology of alluvial rivers. The reviewer must be a certified reviewer in the CERCAP system.

ATR Team Members/Disciplines	Expertise Required
Geotechnical Engineering	The reviewer should carry a Professional Engineer's license and have recent experience in the Corps' design requirements for levee work. This person should also have experience in investigating existing subsurface conditions and materials; determining their physical/mechanical and chemical properties that are relevant to the project considered, assessing risks posed by site conditions; designing earthworks and structure foundations; and monitoring site conditions, earthwork and foundation construction. The reviewer must be a certified reviewer in the CERCAP system.

Note: SPA reserves the right to nominate specific reviewers by technical discipline.

c. Documentation of ATR

DrChecks review software will be used to document all ATR comments, responses and associated resolutions accomplished throughout the review process. Comments and responses will be included as part of the package for later reviews. Comments should be limited to those that are required to ensure adequacy of the product and should follow the four part comment structure described in section 4.a.

In some situations, especially addressing incomplete or unclear information, reviewers should seek clarification in order to then assess whether further specific concerns may exist.

The ATR documentation in DrChecks will include the text of each ATR concern, the PDT response, a brief summary of the pertinent points in any discussion, including any vertical team coordination (the vertical team includes the district, RMO, MSC, and HQUSACE), and the agreed upon resolution. If an ATR concern cannot be satisfactorily resolved between the ATR team and the PDT, it will be elevated to the vertical team for further resolution in accordance with the policy issue resolution process described in either ER 1110-1-12 or ER 1105-2-100, Appendix H, as appropriate. Unresolved concerns can be closed in DrChecks with a notation that the concern has been elevated to the vertical team for resolution.

At the conclusion of each ATR effort, the ATR team will prepare a Review Report summarizing the review. Review Reports will be considered an integral part of the ATR documentation and shall:

1) Identify the document(s) reviewed and the purpose of the review;
2) Disclose the names of the reviewers, their organizational affiliations, and include a short paragraph on both the credentials and relevant experiences of each reviewer;
3) Include the charge to the reviewers;
4) Describe the nature of their review and their findings and conclusions;
5) Identify and summarize each unresolved issue (if any); and
6) Include a verbatim copy of each reviewer's comments (either with or without specific attributions), or represent the views of the group as a whole, including any disparate and dissenting views.

ATR may be certified when all ATR concerns are either resolved or referred to the vertical team for resolution and the ATR documentation is complete. For draft and final products, The ATR Lead will prepare a Completion of ATR statement documenting that the ATR has been

completed and the issues raised by the ATR team have been resolved (or elevated to the vertical team). Subsequently, the District will prepare (with ATR Lead assistance upon request) a Certification of ATR statement that certifies all concerns resulting from the ATR of the project have been fully resolved.

6. Independent External Peer Review (IEPR).

IEPR may be required for decision documents under certain circumstances. IEPR is the most independent level of review, and is applied in cases that meet certain criteria where the risk and magnitude of the proposed project are such that a critical examination by a qualified team outside of Corps is warranted. A risk-informed decision, as described in EC 1165-2-214, is made as to whether IEPR is appropriate. IEPR panels will consist of independent, recognized experts from outside of the Corps in the appropriate disciplines, representing a balance of areas of expertise suitable for the review being conducted. There are two types of IEPR:

Type I IEPR

The review panel will accomplish a concurrent review that covers the entire decision document or action. The panel will address all of the underlying engineering, economics, and environmental work.

An Outside Eligible Organization (OEO) will select the reviewers by considering each reviewer's credentials, absence of conflict of interest, and the independence of the group that selects the reviewers. The OEO will select reviewers and structure the review such that good science, sound engineering, and public welfare are the most important factors producing a sound review. The OEO will develop criteria for determining if the review panel is properly balances in terms of professional expertise and in points of view of the study and project.

The independent review panel will maintain communications with Corps during the review such that the review panel understands Corps assumption and methods, as well as the practical implications of the panel's findings and recommendations. The OEO will coordinate the communications between SPA, RMO or PCX, and review panel, as well as communications between the panel and relevant federal agencies, interest groups, and the public.

Section 203 WA/WMPs prepared under the TPP Programmatic Review Plan, Type I IEPR may or may not be required.

Type II IEPR (Safety Assurance Review – SAR)

Type II IEPR, or Safety Assurance Review (SAR), are managed outside Corps and are conducted on design and construction activities for hurricane, storm, and flood risk management projects or other projects where existing and potential hazards pose a significant threat to human life. Type II IEPR panels conduct reviews of the design and construction activities prior to initiation of physical construction and, until construction activities are completed, periodically thereafter on a regular schedule. The reviews shall consider the adequacy, appropriateness, and acceptability of the design and construction activities in assuring public health safety and welfare.

Type II IEPR is not applicable to Section 203 WA/WMPs prepared under the TPP Programmatic Review Plan. Any recommendations from the WA/WMP that are pursued under separate authority may require Type II IEPR during the design and implementation phase. The decision on whether Type II IEPR is required will be verified and documented in the review plan prepared for the design and implementation phase of that project.

a. Decision on Type I IEPR

At this time, the WA/WMP does not meet any of the criteria for triggering Type I IEPR. If the scope of the WA/WMP changes such that the non-Federal sponsor requests SPA to go to feasibility level design of any recommendations, the decision on whether Type I IEPR is warranted may change.

b. Products to Undergo Type I IEPR

Not applicable

c. Required Type I IEPR Panel Expertise

Not applicable

d. Documentation of Type I IEPR

Not applicable

e. Products to Undergo Type II IEPR, SAR

Not applicable

f. Required Type II IEPR Panel Expertise

Not applicable

g. Documentation of Type II IEPR, Safety Assurance Review

Not applicable

7. Policy and Legal Compliance Review

All WA / WMPs will be reviewed throughout the study process for their compliance with law and policy. Guidance for policy and legal compliance reviews is addressed in Appendix H, ER 1105-2-100. These reviews culminate in determinations that the recommendations in the reports and the supporting analyses and coordination comply with law and policy, and warrant approval or further recommendation to higher authority by the Commander, South Pacific Division. DQC and ATR augment and complement the policy review processes by addressing compliance with pertinent published Army policies, particularly policies on analytical methods and the presentation of findings in WA / WMPs.

8. Cost Engineering Directory of Expertise (MCX) Review and Certification

For Section 203 Tribal Partnership Program studies or WA/WMPs, ATR of the costs may be conducted by pre-certified district cost personnel within the region or by the Walla Walla Cost MCX. The list of pre-certified cost personnel has been established and is maintained by the Cost MCX at https://kme.usace.army.mil/EC/cost/CostAtr/default.aspx. The cost ATR member will coordinate with the Cost MCX for execution of cost ATR and cost certification. The Cost MCX will be responsible for final cost certification and may be delegated at the discretion of the Cost MCX.

9. Model Certification and Approval

The approval of planning models under EC 1105-2-412 is not required for Section 203 projects. MSC Commanders are responsible for assuring models for all planning activities are technically and theoretically sound, compliant with Corps policy, computationally accurate, and based on reasonable assumptions. ATR will be used to ensure that models and analyses are compliant with Corps policy, theoretically sound, computationally accurate, transparent, described to address any limitations of the model or its use, and documented in study reports. The use of existing certified/approved planning models is highly recommended should be used whenever appropriate; however, the use of a certified/approved planning model does not constitute

technical review of the planning product. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).
The responsible use of well-known and proven Corps developed and commercial engineering software will continue and the professional practice of documenting the application of the software and modeling results will be followed. As part of the Corps Scientific and Engineering Technology (SET) Initiative, many engineering models have been identified as preferred or acceptable for use on Corps studies and these models should be used whenever appropriate. The selection and application of the model and the input and output data is still the responsibility of the users and is subject to DQC, ATR, and IEPR (if required).

a. Planning Models. No planning models are anticipated to be used in the WA/WMP.

b. Engineering Models. The following engineering models are anticipated or could be used, if necessary, in the development of the WA/WMP.

Model Name/ Version	Brief Description of Model and how it will be Applied	Approval Status
HEC-HMS 3.5 (Hydrologic Modeling System)	Hydrologic model to analyze precipitation frequency events and the volume of runoff generated.	H H&C CoP Preferred Model
HEC-RAS 4.0 (River Analysis System)	HEC-RAS provides the capability to perform one-dimensional steady and unsteady flow river hydraulics calculations. The program will be used for steady flow analysis to evaluate the future without- and with-project conditions along the Rio Grande and its tributaries.	H H&C CoP Preferred Model
Flo-2D	Model used by the Corps Flood Plain Management Group and includes graphics and reporting. This model will be used for hydrologic routing for with and without project floodplains and flood stages.	Approved for flood routing and floodplain mapping.

10. Review Schedules and Costs

a. ATR Schedule and Cost

SPA shall provide labor funding by cross charge labor codes. Funding for travel, if needed, will be provided through government order. The Project Manager will work with the ATR Team Leader to ensure that adequate funding is available and is commensurate with the level of review needed. Any funding shortages will be negotiated on a case by case basis and in advance of a negative charge occurring.

The ATR Team Leader shall provide organization codes for each team member and a responsible financial point of contact (CEFMS responsible employee) for creation of labor codes. Reviewers shall monitor individual labor code balances and alert the ATR Leader to any possible funding shortages.

Once actual ATR needs and costs are determined, this Review Plan will be revised. Current ATR review, assistance, and updates for a draft and final review are estimated to be $45,000. Costs should always be kept to a reasonable minimum as this is a cost shared WA/WMP for a sponsor with limited resources.

1) Draft and Final WA/WMP
2) Hydrologic, Hydraulic, Sediment and Risk Analyses
3) Existing or Future Sponsor or Contractor Provided Products

The WA / WMP schedule and estimated dates for DQC and ATR are shown below. Schedule dates are subject to change and are contingent upon funding and resource availability.

Review Milestone	Anticipated Date
DQC WMP	38 Sept – 2 Dec 2015
ATR WMP	15 Dec 2015 – 28 Jan 2016
SPD & HQ review WMP	10 Aug – 3 Nov 2015
Final WMP approval	18 Nov 2016

11. Public Participation

Public involvement is anticipated throughout the WA/WMP. The sponsor, as a dependent sovereign nation, has determined that Corps PDT presentations / workshops given at their tribal council meetings meet the requirements of public involvement. A public meeting to present the findings of the WA/WMP and solicit input will be held at the Pueblo prior to submittal of the final WA/WMP to SPD.

State and Federal resource agencies may be invited to participate in this WA/WMP as partner agencies, or as technical members of the PDT, as appropriate. Neighboring land managers such as Sandoval County may be asked to participate in all or part of the WA/WMP. The PDT will closely coordinate with other entities with technical expertise if they are not part of the WA/WMP team. These entities include the US Geological Service, the US Forest Service, Bureau of Reclamation, Bureau of Indian Affairs, Indian Health Services and the Environmental Protection Agency, Region 6, among others. The draft WA/WMP will be released to stakeholders and groups with permission from the Pueblo.

12. Review Plan Approval and Updates

The MSC Commander is responsible for approving this Review Plan. The Commander's approval reflects vertical team input as to the appropriate scope and level of review for the WA / WMP. Like the PMP, the Review Plan is a living document and may change as the study progresses. SPA is responsible for keeping the Review Plan up to date. Minor changes to the review plan since the last MSC Commander approval are documented in Attachment 3. Significant changes to the Review Plan (such as changes to the scope and/or level of review) should be re-approved by the MSC Commander following the process used for initially approving the plan. The latest version of the Review Plan, along with the Commanders' approval memorandum, should be posted on SPA's webpage. The latest Review Plan should also be provided to the RMO and home MSC.

13. Review Plan Points of Contact

Public questions and/or comments on this review plan can be directed to the following points of contact:

1) SPA Planning Chief, 505-342-3201
2) Review Management Organization: FRM PCX Deputy Director, 415-503-6852

3) Support Team Lead: 415-503-6556

14. Team Rosters

PDT Members

Name	Discipline	Phone Number
	Project Management	505-342-3187
	Plan Formulation	505-342-3204
	Hydrology, Hydraulics & Sedimentation	505-342-3348
	Economics	505-342-3366
	Environmental Resources	505-342-3378
	Cultural Resources	505-342-3671
	Geotechnical	505-342-3689
	Environmental Engineering	505-342-3331
	Civil Engineering	505-342-6283
	Cost Engineering	505-342-
	Geospatial	505-342-3664
	Tribal Liaison	505-342-3355

ATR Team Members (TBD)

Name	Discipline	District	Phone
TBD	Lead		
TBD	Planning / Economics		
TBD	Environmental / Cultural Resources		
TBD	Hydrology		
TBD	Hydraulic Engineering & Sediment		
TBD	Geotechnical Engineering		

Vertical Team Members

Name	Discipline	Location	Phone
	Ecological Resources	Eco-PCX	(206) 764-7205
	Ecological / Cultural Resources	SPD	(415) 503-6585
	Watershed Planning	SPD	(415)503-6591

Attachment 1: Sample Statement of Technical Review for Watershed Assessment / Watershed Management Plans

COMPLETION OF AGENCY TECHNICAL REVIEW

The Agency Technical Review (ATR) has been completed for the *<type of product>* for *<project name and location>*. The ATR was conducted as defined in the project's review plan to comply with the requirements of EC 1165-2-214 and Director of Civil Works' Policy Memorandum #1. During the ATR, compliance with established policy principles and procedures, utilizing justified and valid assumptions, was verified. This included review of: assumptions, methods, procedures, and material used in analyses, alternatives evaluated, the appropriateness of data used and level obtained, and reasonableness of the results, including whether the product meets the customer's needs consistent with law and existing US Army Corps of Engineers policy. The ATR also assessed the District Quality Control (DQC) documentation and made the determination that the DQC activities employed appear to be appropriate and effective. All comments resulting from the ATR have been resolved and the comments have been closed in DrChecks[sm].

SIGNATURE _____ _____

Name Date
ATR Team Leader
Office Symbol/Company

SIGNATURE _____ _____

Name Date
Project Manager
Office Symbol

SIGNATURE _____ _____

Name Date
Architect Engineer Project Manager1
Company, location

SIGNATURE _____ _____

Name Date
Review Management Office Representative
Office Symbol

CERTIFICATION OF AGENCY TECHNICAL REVIEW

Significant concerns and the explanation of the resolution are as follows: *Describe the major technical concerns and their resolution.*

As noted above, all concerns resulting from the ATR of the project have been fully resolved.

SIGNATURE _____ _____

Name Date
Chief, Engineering Division
Office Symbol

SIGNATURE _____ _____

Name Date
Chief, Planning Division
Office Symbol

[1] Only needed if some portion of the ATR was contracted

Review Plan
San Felipe, New Mexico, Sec 203 Watershed Assessment

Attachment 2: Review Plan Revisions

Revision Date	Description of Change	Page/Paragraph Number

Review Plan
San Felipe, New Mexico, Sec 203 Watershed Assessment

Attachment 3: Acronyms and Abbreviations

Term	Definition	Term	Definition
AFB	Alternative Formulation Briefing	NED	National Economic Development
ASA(CW)	Assistant Secretary of the Army for Civil Works	NER	National Ecosystem Restoration
ATR	Agency Technical Review	NEPA	National Environmental Policy Act
CAP	Continuing Authorities Program	O&M	Operation and maintenance
CoP	Community of Practice	OMB	Office and Management and Budget
CSDR	Coastal Storm Damage Reduction	OMRR&R	Operation, Maintenance, Repair, Replacement and Rehabilitation
DPR	Detailed Project Report	OEO	Outside Eligible Organization
DQC	District Quality Control/Quality Assurance	OSE	Other Social Effects
		PCX	Planning Center of Expertise
EA	Environmental Assessment	PDT	Project Delivery Team
EC	Engineer Circular	PAC	Post Authorization Change
EIS	Environmental Impact Statement	PMP	Project Management Plan
EO	Executive Order	PL	Public Law
ER	Ecosystem Restoration	QMP	Quality Management Plan
FDR	Flood Damage Reduction	QA	Quality Assurance
FEMA	Federal Emergency Management Agency	QC	Quality Control
FRM	Flood Risk Management	RED	Regional Economic Development
FSM	Feasibility Scoping Meeting	RMC	Risk Management Center
GRR	General Reevaluation Report	RMO	Review Management Organization
Home District/MSC	The District or MSC responsible for the preparation of the Watershed Assessment /	RTS	Regional Technical Specialist

Term	Definition	Term	Definition
	Watershed Management Plan		
HQUSACE	Headquarters, U.S. Army Corps of Engineers	SAR	Safety Assurance Review
IEPR	Independent External Peer Review	SPA	USACE Albuquerque District
ITR	Independent Technical Review	SPD	USACE South Pacific Division
LRR	Limited Reevaluation Report	USACE	U.S. Army Corps of Engineers
MSC	Major Subordinate Command	WRDA	Water Resources Development Act

ATTACHMENT 4: Chief of Engineering and Construction Division's Assessment

As Chief of the Engineering and Construction Division for the Albuquerque District, South Pacific Division, it is my assessment that the San Felipe, New Mexico, Section 203 Watershed Assessment and Watershed Management Plan does not warrant a Type I review per Engineering Circular (EC) 1165-2-214, Civil Works Review, 15 Dec 2012.

The WA will lead to recommendations in a WMP for implementation under a different authority. It is not anticipated that any recommendations will be designed to more than a 10% level of detail for rough cost estimates. If in the future the non-Federal sponsor requests feasibility level designs, cost estimates and economic analysis, this assessment will be updated.

Type II IEPR is not applicable to Section 203 WMPs prepared under the TPP Programmatic Review Plan. It is my assessment that the Pueblo San Felipe, New Mexico, Section 203 Watershed Assessment and Watershed Management Plan does not warrant a Type II (Safety Assurance) review per Engineering Circular (EC) 1165-2-214.

John D. Moreno. P.E. Date

Chief, Engineering and Construction Division

ATTACHMENT 5: FLO-2D Justification for Use

Justification for Use of the FLO-2D model for sediment transport and floodplain determination, San Felipe, Section 203 Watershed Assessment

August 2014

SPA has over 10 years of experience with this software package and a FLO-2D model was developed for Tonqué Arroyo with cross sections near the casino for a previous effort. SPA requests that the FLO-2D application be approved for use in the San Felipe 203 watershed assessment for determination of sediment transport (aggradation/degradation potential) and development of floodplains and design required flood data (e.g., surface water depths).

Justification for the FLO-2D application

Per ES 08-101, FLO-2D is an approved hydraulics application (see list at: https://cops.usace.army.mil/sites/HHC/Lists/HHC%20Software%20Lists/Approved.aspx?&&&PageFirstRow=1&&View={47605DB0-B4E7-4E15-9412-89C48F1A262B}.

The FLO-2D model was and will be used to model the floodplain within the Tonqué and San Francisco Arroyos to their confluences with the Rio Grande. The model will combine all the source flood waters, and then route the combined flow through the study area.

The advantages of the FLO-2D application for the San Felipe 203 WA is two-fold: first, there is already a model previously developed in the study area that is locally accepted by the San Felipe Pueblo (the Sponsor); and second, SPA has had good success with this 2-D model for routing multiple flow paths within the Rio Grande and to attenuate tributary peak flow hydrographs delivered to the Rio Grande floodplain for over 10 years.

A large alluvial fan spreads flood waters across the floodplain upstream from the San Felipe Pueblo on the San Francisco where flows and sediment deposition threaten to flood a residential area. Flo-2D provides a method for sediment transport and debris flow through this complex system.

Until HEC-RAS 2D is ready and designated as a CoP-Preferred application there are limited CoP-Preferred options for 2D modeling -- principally either RMA-2 or ADH. Both of these CoP-Preferred applications are fairly complicated and not well suited for situations where wetting and drying is an issue.