APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 21 Dec 2012

B. DISTRICT OFFICE, FILE NAME, AND NUMBER:SPA-2012-00418-ABQ; Sandia Pueblo; Stormwater Management facilities; Bernalillo and Sandoval Counties

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State:New Mexico County/parish/borough: Bernalillo and Sandoval City: Sandia Pueblo
Center coordinates of site (lat/long in degree decimal format): Lat. 35.227493° **N**, Long. -106.558354° **E**.
Universal Transverse Mercator:
Name of nearest waterbody: Rio Grande
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: N/A
Name of watershed or Hydrologic Unit Code (HUC): 130202030107; Town of Corrales-Rio Grande
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☐ Office (Desk) Determination. Date:
☒ Field Determination. Date(s): 3 Oct 2012

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☐ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: linear feet: width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: **There are seven adjacent and ephemeral arroyos included in this determination. The drainages are located on**

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

the Sandia Pueblo and originate in the foothills of the Sandia Mountains (see attached maps). The drainage area is approximately 14.4 square miles. Channel lengths including tributaries vary between 15.86 miles to 0.16 mile. Average channel width is approximately 4 feet. The arroyos all discharge to uplands with the closest discharge to the Rio Grande being 0.82 mile to the east. The arroyos are determined to be isolated with no substantial nexus to interstate or foreign commerce. The attached information provides more detail.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW
Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW
Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:
Watershed size: **Pick List**
Drainage area: **Pick List**
Average annual rainfall: inches
Average annual snowfall: inches

(ii) Physical Characteristics:
(a) Relationship with TNW:
☐ Tributary flows directly into TNW.
☐ Tributary flows through **Pick List** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.
Project waters are **Pick List** river miles from RPW.
Project waters are **Pick List** aerial (straight) miles from TNW.
Project waters are **Pick List** aerial (straight) miles from RPW.
Project waters cross or serve as state boundaries. Explain: .

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.
[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

☐ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: **Pick List**
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: **Pick List**
Estimate average number of flow events in review area/year: **Pick List**
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: **Pick List.** Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is**: Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   - ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

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[8] See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☒ Non-wetland waters (i.e., rivers, streams): **144,566** linear feet **4** width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: JD submittal dated 10/25/12.
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name:Alameda, New Mexico 1:24K.
☐ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☐ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Drainage aerials provided by applicant dated 10/25/12.
or ☐ Other (Name & Date): .
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☒ Other information (please specify):Site visits conducted 10/2/12 and 10/12/12.

B. ADDITIONAL COMMENTS TO SUPPORT JD: .

Subject Arroyo – Jaral Canyon & Unnamed Arroyo Tributaries – Southern Border Area
The subject unnamed arroyos incorporate approximately 15.86 miles of tributary ephemeral semi-braided arroyos with a contributing drainage area of approximately 2,234 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The arroyos are primarily defined by landforms and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout many of the reaches. The subject arroyo flows through an alluvial fan zone, an incised pediment zone, and terminates in a depositional zone. Where an ordinary high water mark is visible, channel widths (braided channel widths) average approximately 3-6 feet. Headwaters consisting primarily of three contributory drainage sub-basins are located east of Interstate Highway 25 (I-25) collecting runoff from the foothills of the Sandia Mountains. The drainages flow west and runoff is routed through multiple culverts under I-25. The three drainages converge into a single arroyo just west of I-25. The arroyos are intersected in the upper watershed by several Bureau of Indian Affairs Non-Jurisdictional dams. These are typically large earthen berms with limited outlet structures (typically small-diameter corrugated metal pipes). The confluence of these three reaches is part of a general depositional zone below an escarpment. The elevation of the termination of this arroyo is approximately 5036 ft with the Rio Grande flooplain existing 0.84 miles to the west at an approximate elevation of 5015 ft. A man-made earthen berm exists at this confluence, and has formed a retention structure. Minor braided flowpaths meander to the northwest from this retention structure, and generally end as the arroyo terminates in dense desert vegetation. No clear indication of flow or flowpaths exist beyond this termination which is 0.84 miles from the Rio Grande River. The arroyo bed gradient is generally 1-3% in the lower depositional zone and 2-3% in the upper depositional zone. The arroyo above I-25 exhibits the characteristics of an ephemeral arroyo experiencing significant transmission loss, with flat bed topography and barely discernable channel bars. There is limited capacity in these areas, and generally, the arroyos above I-25 are significantly aggrading zones incapable of fine sediment transport. The Sandia Acequia is located to the west of the Tribal route 72, however there is a berm, approximately 3-4 feet high above the bottom of the roadside ditch that prevents flows from the arroyo entering the acequia. There is no channel entering the acequia. Sandia Acequia receives water from the Albuquerque Main Canal, which receives water from the Rio Grande upstream. Sandia Acequia discharges into the North Diversion Channel downstream. The subject Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.

Subject Arroyo – No Name 6 & Unnamed Tributaries – Village Area – Southern Border Area
The subject unnamed arroyos incorporate approximately 8.64 miles of tributary ephemeral semi-braided arroyos with a contributing drainage area of approximately 1,222 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The arroyos are primarily defined by landforms and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout many of the upper reaches. The subject arroyo flows through an alluvial fan zone, an incised pediment zone, and terminates in a depositional zone that is historically agricultural. Where an ordinary high water mark is visible, channel widths (braided channel widths) average approximately 4-8 feet. Headwaters consisting primarily of three contributory drainage sub-basins are located east of Interstate Highway 25 (I-25) collecting runoff from the foothills of the Sandia Mountains. The drainages flow north-west and runoff is routed through multiple culverts under I-25. The tributary drainages converge into a single arroyo just west of Interstate I-25 after flowing through culverts. The culverts are sized by NMDOT policy to pass the 100-year storm flows, but the design of culverts to inlet conditions typically mitigates flows at road crossings, and these culverts show signs of sediment deposition and reduction of flowrates. The confluence of these drainages occurs in a drainage channel downstream of I-25 constructed by the BLM. The channel ends in a wide-spread shallow floodplain with little or no incised channels. This location represents the end of a defined arroyo. Sheet flows continue across Santa Fe Trail, and flow down an arroyo which receives other local discharges from local impermeable surfaces and is a two-track road. This road/channel terminates thereafter. The elevation of the termination of this arroyo is approximately 5036 ft with the Rio Grande flooplain existing 1.22 miles to the west at an approximate elevation of 5015 ft. The termination occurs at a natural shallow depression, and the immediate upstream reach shows signs of significant transmission loss, with flat-bed topography and no discernable OHM. The Sandia Acequia is located to the west of the arroyo termination, however there is no historical record available or indicative flow patterns to indicate that these flows have historically entered the acequia. There is no channel entering the acequia.

Sandia Acequia receives water from the Albuquerque Main Canal, which receives water from the Rio Grande upstream. Sandia Acequia discharges into the North Diversion Channel downstream. The subject Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.

Subject Arroyo – No Name 7 – Village Area – Southern Border Area

The subject unnamed arroyos incorporate approximately 0.45 miles of ephemeral semi-braided arroyo with a contributing drainage area of approximately 51 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The arroyos are primarily defined by landforms and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout many of the reaches. The subject arroyo flows terminates in a depositional zone that is currently a residential area. Where an ordinary high water mark is visible, channel widths (braided channel widths) average approximately 2-4 feet. Headwaters consisting primarily of a minor localized sub basin immediately east of I-25, collecting runoff from the lower foothills of the Sandia Mountains. The drainages flow north-west and runoff is routed through a 30" CMP culvert under I-25. The arroyo is a localized arroyo with significant contribution from I-25 discharges. These discharges sheet flow through ill-defined drainages towards the center of the Pueblo Village area. The arroyo is routed through an existing detention pond facility with limited outflows. This outflow terminates amongst residential topography. No clear indication of flow or flowpaths exist beyond this termination. The termination of this arroyo is part of a general depositional zone. The elevation of the termination of this arroyo is approximately 5047 ft with the Rio Grande flooplain existing 1.05 miles to the west at an approximate elevation of 5030 ft. Representative cross-sections and photographs are shown in the attached exhibits. The subject Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.

Subject Arroyo – No Name 7.5 – Village Area – Southern Border Area

The subject unnamed arroyos incorporate approximately 0.67 miles of ephemeral semi-braided arroyo with a contributing drainage area of approximately 56 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The arroyos are primarily defined by landforms and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout many of the reaches. The subject arroyo flows terminates in a depositional zone that is currently a residential area. Where an ordinary high water mark is visible, channel widths (braided channel widths) average approximately 3-6 feet. Headwaters consisting primarily of a minor localized sub basin immediately east of I-25, collecting runoff from the lower foothills of the Sandia Mountains. The drainages flow north-west and runoff is routed through 2- 24" CMP culverts under I-25. The arroyo is a localized drainage with small sub-basins immediately adjacent to I-25. After flows are conveyed through the I-25 culverts the arroyo flows through village neighborhoods in shallow braided channels. This flow crosses under Sandia Loop and crosses under Sandia Acequia through existing CMP culverts. The arroyo terminates in road side shallow swales adjacent to agricultural fields. There is no clear indication of any additional flowpaths nor any culverts under State Road 313 through which this arroyo can continue. The termination of this arroyo is part of a general depositional zone. The elevation of the termination of this arroyo is approximately 5032 ft with the Rio Grande flooplain existing 0.81 miles to the west at an approximate elevation of 5027 ft. The subject Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.

Subject Arroyo – No Name 8 – Village Area – Southern Border Area

The subject unnamed arroyos incorporate approximately 0.94 miles of ephemeral semi-braided arroyo with a contributing drainage area of approximately 400 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The arroyos are primarily defined by landforms and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout many of the reaches. The subject arroyo flows terminates in a depositional zone that is currently a residential area. Where an ordinary high water mark is visible, channel widths (braided channel widths) average approximately 3-4 feet in the upper portions of the contributing watershed. Headwaters consisting of sub

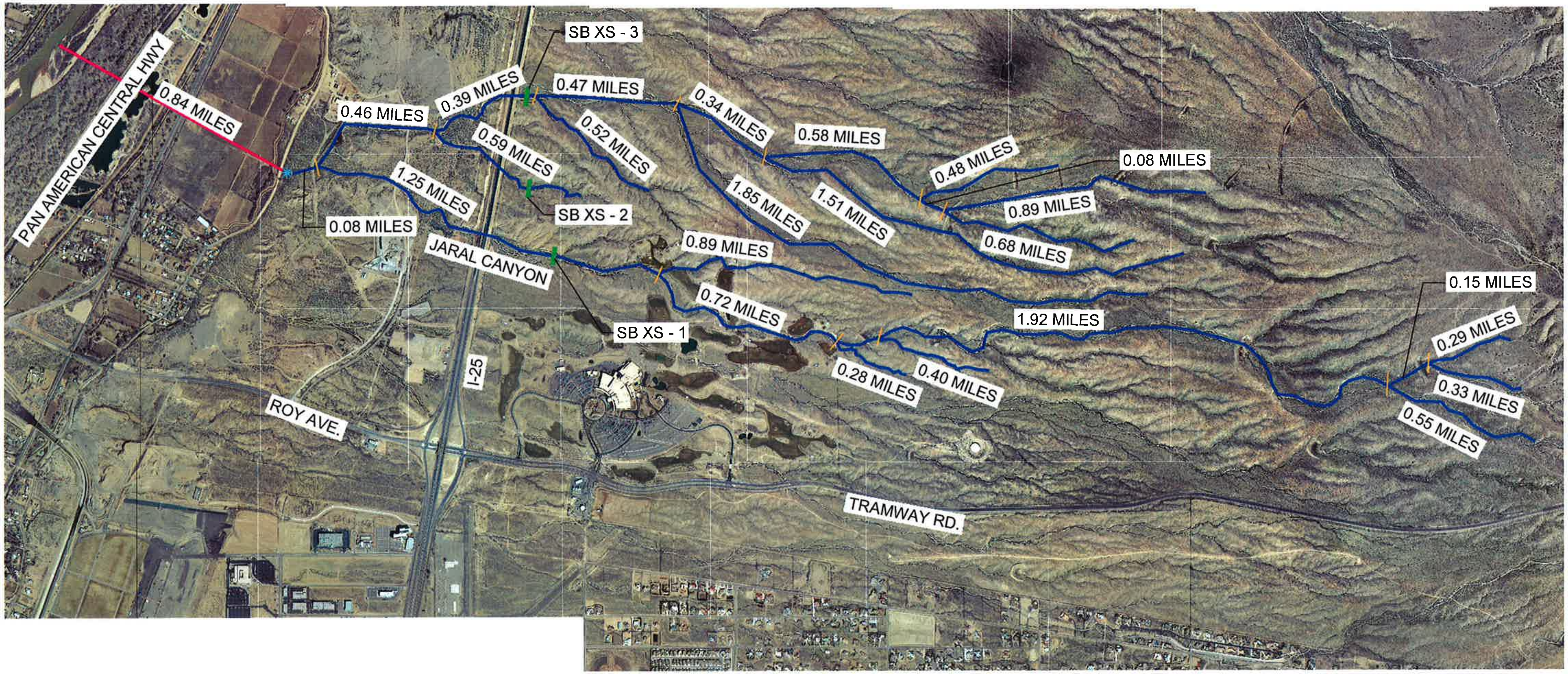
basins immediately east of I-25 collect runoff from the lower foothills of the Sandia Mountains. The drainages flow north-west and runoff is routed through culverts under I-25. The arroyo is routed through an existing detention facility east of I-25 which has limited discharges. The arroyo is a shallow braided system through the village center, and terminates in a bermed depression with no clear discharge or flowpaths. The termination of this arroyo is part of a general depositional zone. The elevation of the termination of this arroyo is approximately 5066 ft with the Rio Grande flooplain existing 0.92 miles to the west at an approximate elevation of 5026 ft. Representative cross-sections and photographs are shown in the attached exhibits. The subject Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.

Subject Arroyo – No Name 8.5 – Village Area – Southern Border Area

The subject unnamed arroyo is an approximately 0.19 linear mile ephemeral semi-braided channel with a drainage area of approximately 23 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The channel is primarily undefined and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout the reach. Where an ordinary high water mark is visible, channel width averages approximately 1-2 feet. Headwaters consisting primarily of three small drainages are located just east of Interstate Highway 25 (I-25) collecting runoff from the western-most foothills of the Sandia Mountains adjacent to the interstate. The drainages flow northwest and runoff is collected in multiple culverts under I-25 and and Tribal Route 72. The three drainages converge into a single arroyo just west of Tribal Route 72. Many vehicles (on and off road) routinely travel within the arroyo and its drainage area as evidenced by well formed two-tracks, tire markings, and destruction of vegetation. This activity makes it difficult to determine if some of the channel braiding is natural or induced by human activates. A detention berm/dam was constructed on-channel (date unknown) to capture stormwater runoff from the drainage. The drainage gradient change from I-25 to the detention berm/dam is approximately 50 feet within approximately 0.36 mile. There is an approximately 12" diameter standpipe at the lowest point of the detention basin to drain flows out of the basin coming from the arroyo. An approximately 24" diameter corrugated outlet pipe is located on the downstream side (north) of the detention berm/dam and there is evidence of flows leaving the pipe. Evidence of flows can be seen in a small channel with an ordinary high water mark approximately 1 foot-wide thru an approximately 24" diameter culvert under Santa Fe Trail Road at the White Cloud Loop/Sandia Loop intersection located approximately 0.07 miles northwest of the detention berm/dam outlet. There is evidence of flows traveling thru the 24" diameter culvert to the west side of Santa Fe Trail Road, however there is no channel and flows spread out into sheetflow within a wide and shallow roadside drainage ditch along the west side of Santa Fe Trail Road. The Sandia Acequia is located to the west of the roadside drainage ditch, however there is a berm, approximately 3-4 feet high above the bottom of the roadside ditch that prevents flows from the arroyo entering the acequia. There is no channel entering the acequia. Sandia Acequia receives water from the Albuquerque Main Canal, which receives water from the Rio Grande upstream. Sandia Acequia discharges into the North Diversion Channel downstream. The subject unnamed Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.

Subject Arroyo – No Name 8.75 – Village Area – Southern Border Area

The subject unnamed arroyos incorporate approximately 0.63 miles of ephemeral semi-braided arroyo with a contributing drainage area of approximately 46 acres. The arroyo is located in an area that receives approximately 8.86 inches average annual rainfall and approximately 6.9 inches average annual snowfall. The arroyos are primarily defined by landforms and flows are discrete in many areas; however, there is evidence of flow and an ordinary high water mark throughout many of the reaches. The subject arroyo is a minor basin with contributing drainage areas immediately adjacent to I-25. The subject arroyo is intersected by an existing detention facility upstream of I-25 and has limited discharges. Downstream of this detention facility the arroyo is a braided shallow flooplain adjacent to village housing, and received significant contributory flows from rooftops and road surfaces. The arroyo terminates in a natural depression, with dense desert vegetation. There is no indication of additional downstream flowpaths or continued discharge beyond the termination point. The termination of this arroyo is part of a general depositional zone. The elevation of the termination of this arroyo is approximately 5045 ft with the Rio Grande flooplain existing 0.82 miles to the west at an approximate elevation of 5025 ft. The subject Arroyo is located entirely within the Pueblo of Sandia and is an intrastate water with no nexus to interstate or foreign commerce.



JARAL CANYON ARROYO

TOTAL LENGTH OF ARROYOS = 15.86 MILES

MINIMUM DISTANCE FROM RIVER = 0.84 MILES

N

800 400 0 800 1600

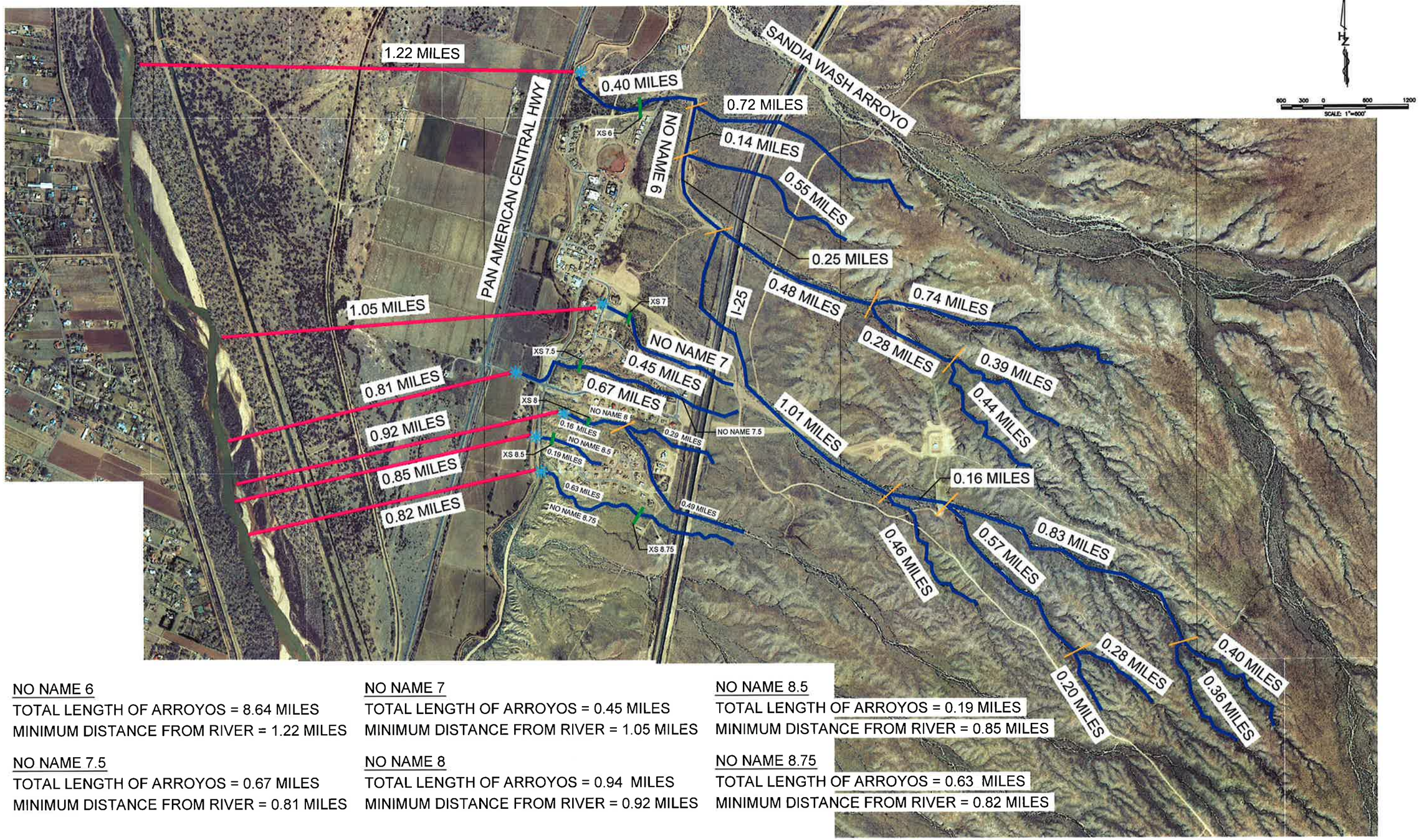
SCALE: 1"=800'

Pueblo of Sandia

SOUTHERN BORDER AREA

USACE 404 - EXHIBIT 1
SANDIA PUEBLO, NEW MEXICO

HUITT-ZOLLARS
Huitt-Zollars, Inc. Rio Rancho
Rio Rancho, New Mexico



NO NAME 6
TOTAL LENGTH OF ARROYOS = 8.64 MILES
MINIMUM DISTANCE FROM RIVER = 1.22 MILES

NO NAME 7
TOTAL LENGTH OF ARROYOS = 0.45 MILES
MINIMUM DISTANCE FROM RIVER = 1.05 MILES

NO NAME 8.5
TOTAL LENGTH OF ARROYOS = 0.19 MILES
MINIMUM DISTANCE FROM RIVER = 0.85 MILES

NO NAME 7.5
TOTAL LENGTH OF ARROYOS = 0.67 MILES
MINIMUM DISTANCE FROM RIVER = 0.81 MILES

NO NAME 8
TOTAL LENGTH OF ARROYOS = 0.94 MILES
MINIMUM DISTANCE FROM RIVER = 0.92 MILES

NO NAME 8.75
TOTAL LENGTH OF ARROYOS = 0.63 MILES
MINIMUM DISTANCE FROM RIVER = 0.82 MILES

Designed For: Pueblo of Sandia

VILLAGE AREA

USACE 404 - EXHIBIT 2
SANDIA PUEBLO, NEW MEXICO

Designed By: HUITT-ZOLLARS
Huitt-Zollars, Inc.
333 Rio Rancho Drive NE, Suite 101
Rio Rancho, New Mexico 87124
Phone (505) 892-5141 Fax (505) 892-3359

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