

## 1. Background

The Town of Bernalillo is plagued with arroyo flood problems, but it has not always been so.

Prior to the 20<sup>th</sup> century, occasional arroyo flows were conveyed from the Sandia Mountains westward through the town to the Rio Grande by a considerable system of small ditches, called *desaguas*, which also served to irrigate many farms. The traces of these *desaguas* can still be seen in the many rows of ancient cottonwoods which grace the town with shade and shelter.

In the 1890s, the railroad was built, followed by highways and houses. In the 1920s, the Middle Rio Grande Conservancy District system was built, including the Bernalillo Acequia.

In the 1960s, Interstate 25 was completed. It provided major and minor drainage structures on the many arroyos; however, all the other aforementioned impediments had eliminated the *desaguas*. Now, stormwaters overwhelm the Bernalillo Acequia, often breaching it, and flooding homes, businesses, churches, and roads with water and sediment.

## 2. Situation

Most stormwater that floods Bernalillo emanates from the Sandia Mountains, and flows across US Forest Service and Pueblo lands. Those lands are outside the jurisdiction of ESCAFCA, so ESCAFCA is forced to seek solutions along I-25 and within the Town of Bernalillo. Thus, opportunities are extremely limited.

Accordingly, in March 2014 the Board adopted Resolution 2014-3-18 STANDARD OF FLOOD PROTECTION [Reference\_\_\_\_\_].

This Resolution states that 100-year protection will be provided if possible, but because of limited money and land, lesser protection may be constructed, on the premise that “some level of protection is better than none at all”. It also calls for donation of land; continued seeking of outfalls to the Rio Grande; and cooperation among agencies.

Based on this policy and the realities of very limited land, ESCAFCA has focused its efforts in building flood control facilities on land donated by Sandoval County, the Town of Bernalillo, and private parties. It also is focusing on detention facilities along the I-25 corridor, to provide maximum protection for the Bernalillo Acequia, town infrastructure, and homes, businesses, schools, and churches

However, there are two major challenges: where to find available land along I-25; and how to discharge to the Rio Grande.

A profile survey was done by BHI in spring 2016 along the preferred and alternative routes. It revealed that it appears possible to construct an outfall that will work.

Proposed solution:

- A. Acquire and build ponding areas along I-25, the Bernalillo Acequia, and South Hill Road. This can be done by expanding and improving existing NMDOT ponds and some private properties. They would meter out stormwater flows into the Bernalillo Acequia.
  
- B. Utilize the Bernalillo Acequia from its crossing under the railroad, south to Avenida Bernalillo [or farther]. It then becomes a storage and conveyance facility. Temporary discharges would be to the Athena Pond/Park, until a

conveyance to the Rio Grande is built. A study by Wilson & Company states that the Bernalillo Acequia currently carries 35 cfs irrigation flows, but that it could carry up to 100 cfs, depending on improvements to the acequia [Reference \_\_\_\_]

C. Investigate options to convey stormwater flows from the Bernalillo Acequia and Athena Pond to the Rio Grande or the Riverside Drain.

The first leg would be along Avenida Bernalillo to the railroad. The second leg could be 1] south along the railroad to the old wasteway which turns west under Hiway 313, thence west along Del Bosque to the open space at San Lorenzo, then south in the Bernalillo Drain; or 2] continue west along Avenida Bernalillo and through Rotary Park area to the Rio Grande. This would be the shortest distance from the Bernalillo Acequia to the river.

3. Actions required

A. ESCAFCA

1. Act as lead agency in formulating and executing a plan
2. Complete planning and preliminary design for the options described above.
3. Identify right of way needed, and ownership
4. Develop a phased construction plan
5. Develop a multi-agency agreement
6. Hold public meetings.
7. Design and construct as much as possible
8. Take the lead in applying for outside funding

## B. MRGCD

1. Participate in public meetings
2. Permit modifications to the Bernalillo Acequia from the RR crossing south to Avenida Bernalillo, as outlined in the Design Analysis Report for Bernalillo.
3. Allow cleaning and restoration of the Bernalillo Interior Drain.

## C. NMDOT

1. Participate in public meetings
2. Allow expansion of Pond as a surge pond to Bernalillo Acequia
3. Assist in obtaining permit from Access Control committee.
4. Allow up-sizing of culvert underneath Avenida Bernalillo in RR ROW .
5. Remove unused poles along east side off RR ROW south of Avenida Bernalillo
6. Allow construction of open ditch or installation of 48-inch pipe in east RR ROW
7. Allow installation of 48-inch culvert under RR

## D. Town of Bernalillo

1. Participate in public meetings
2. Allow realignment of South Hill Road to eliminate offset intersection
3. Allow construction of open channel or pipe with inlets along south side of Avenida Bernalillo
4. Acquire necessary private lands
5. Allow expansion of old ditch, or a storm drain, along Avenida Bernalillo.
6. Cooperate in creating a pond/park at the intersection of Camino del Bosque and the Bernalillo Interior Drain

## E. State Historic Preservation Office

1. Approve alteration of the Bernalillo Acequia
- F. Federal Highway Administration
1. Approve encroachment on I-25 ROW
- G. Bureau of Reclamation
- H. Army Corps of Engineers-discharge permit
- I. EPA Discharge Permit
- J. Pueblo of Sandia

References:

1. Storm Drainage Plan and Program for the Town of Bernalillo, Town of Bernalillo and Middle Rio Grande Council of Governments, and Molzen-Corbin and Associates, Inc., Consulting Engineers, July 14, 1975.
2. Interim Preliminary Needs Assessment, ESCAFCA, by HDR, July 25, 2007.
3. Drainage Master Plan and Needs Assessment, ESCAFCA, by Wilson & Company, Inc. June 27, 2008.
4. ESCAFCA RESOLUTION 2014-3-18 STANDARD OF FLOOD PROTECTION.
5. Design Analysis Report for Bernalillo Acequia Overflow Notch, ESCAFCA, by Wilson & Company, Engineers and Architects, February 2016
6. Survey Profile, BHI



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