

Stormwater Quality A Matter of Sustainability

Water Quality Facilities in the North Diversion Channel
Watershed

WESTCAS 2010 WINTER CONFERENCE

Craig Hoover, PE

Senior Vice President

Bohannon Huston Inc.

BHI – Community Partner since 1959

Engineering
Spatial Data
Advanced Technologies

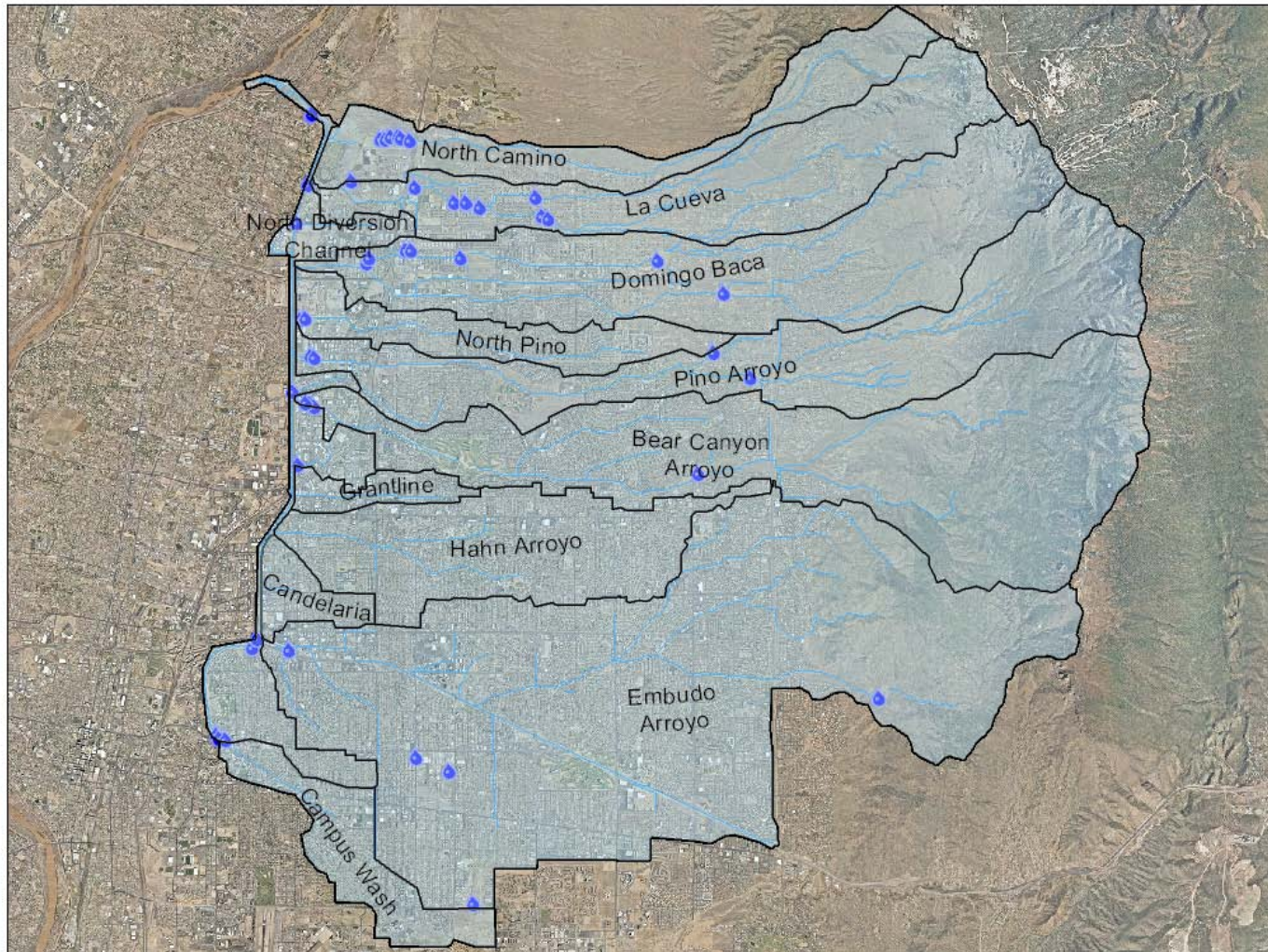
Visualize Optimize Realize

- ▲ Water Resources
 - Hydrology & Hydraulics
 - Water & Wastewater
 - Reuse

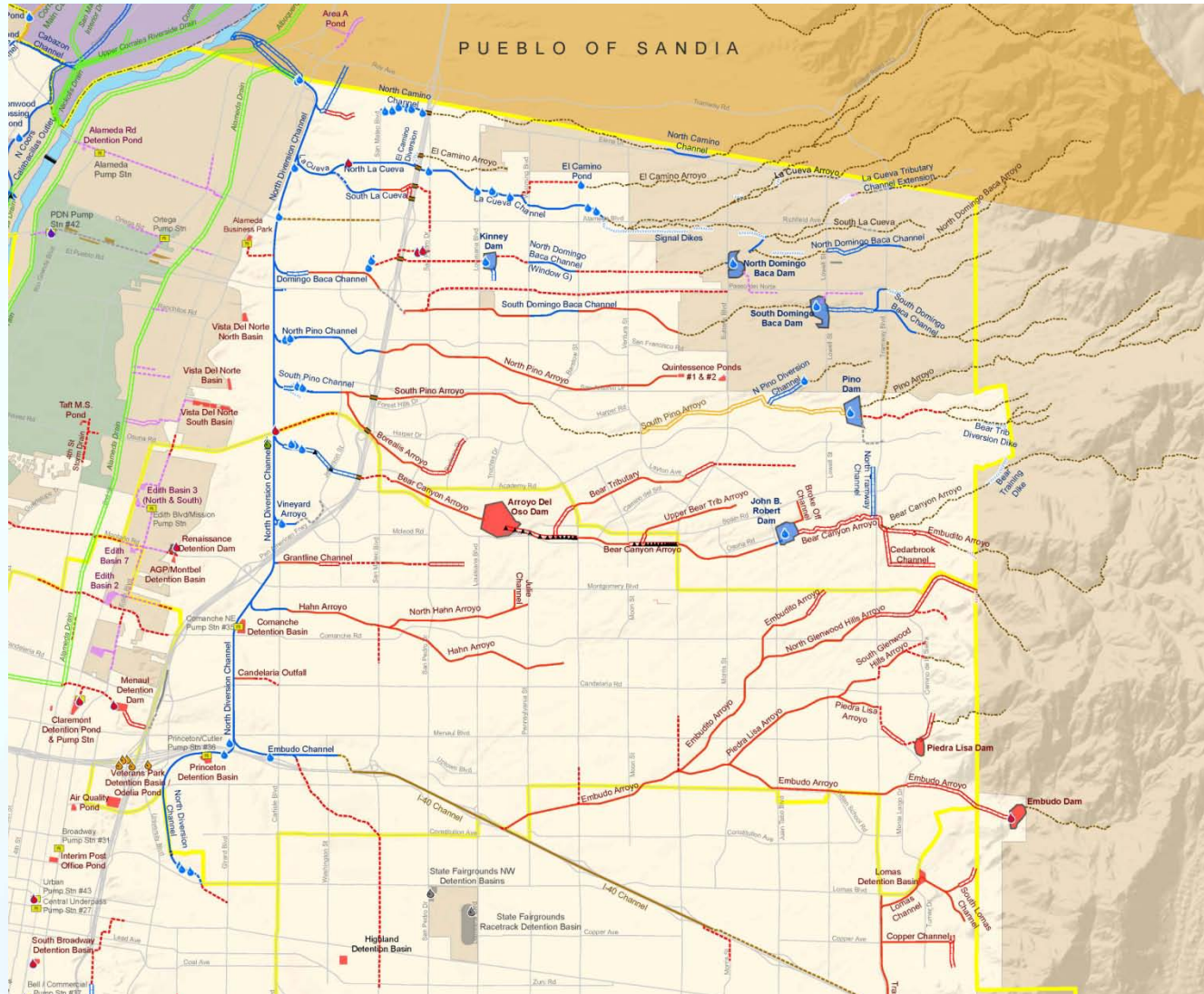
Water Quality Facilities in the North Diversion Channel Watershed

- ▲ NDC Watershed
- ▲ EPA Permit – MS4
- ▲ Four Generations of Water Quality Facilities
- ▲ Examples
 - South Pino
 - Alameda Storm Drain Outfall
 - North Domingo Baca
 - North Pino
- ▲ Current Water Quality Initiatives

North Diversion Channel Watershed



NDC Drainage Facilities



EPA MS4 Permit – Early Mandates

▲ Four co-permittees

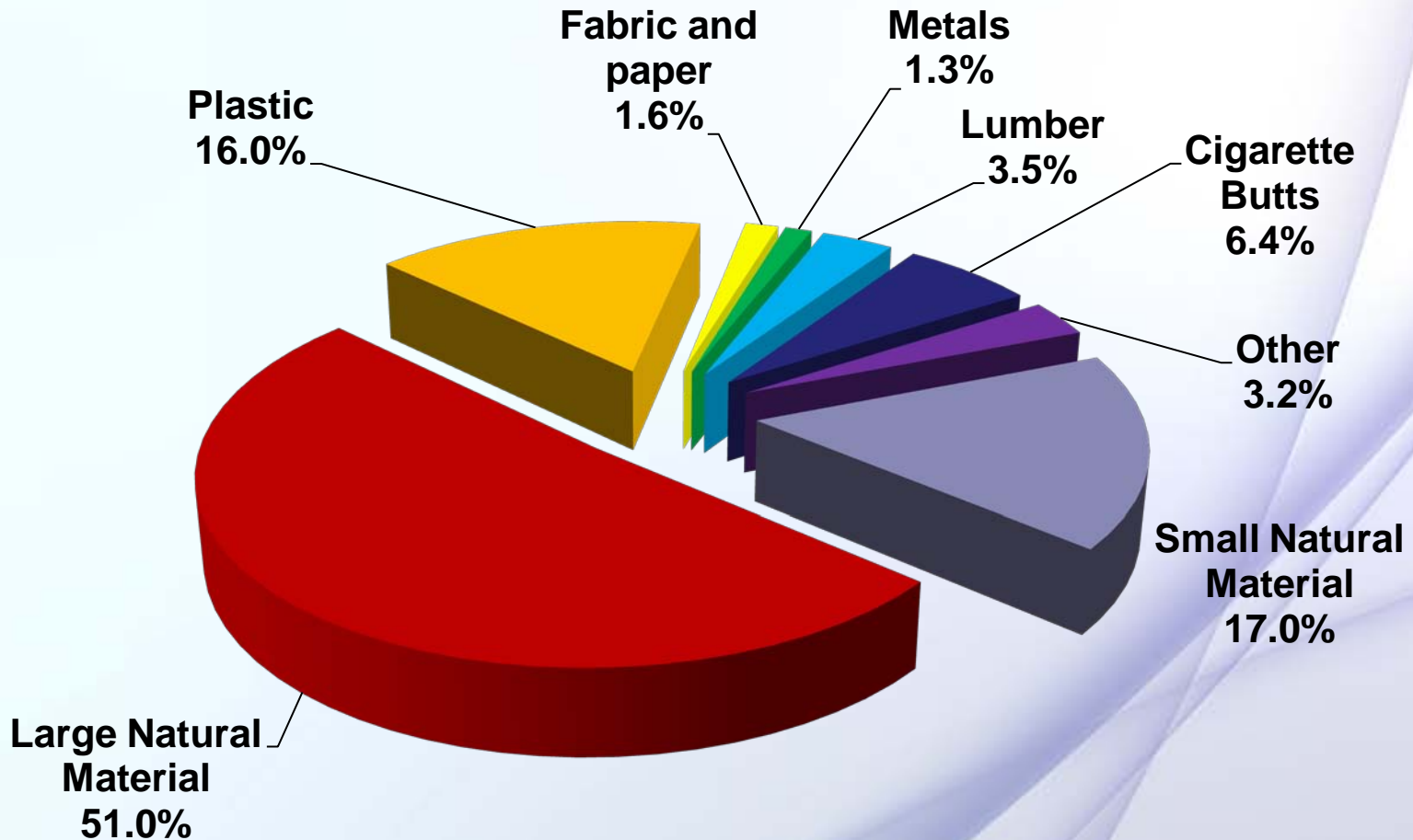
- AMAFCA
- City of Albuquerque
- NM Department of Transportation
- UNM

▲ Governs storm water quality in the North Diversion Channel

- Gross Debris/Pollutant Removal
- Bacteria Reduction

Gross Pollutant Study

Debris Characterization by Volume



South Pino Arroyo Water Quality Facility 2001 – 1st Generation Facility

- ▲ Safety concerns & maintenance issues
- ▲ Minimal treatment of bacteria



Alameda Storm Drain Outfall 2002 – 1st Generation Facility

- ▲ Traps floating debris
- ▲ Requires regular & frequent maintenance
- ▲ No treatment of bacteria



N. Domingo Baca Water Quality Facility 2001 – 2nd Generation Facility

▲ Project Issues

- Unlined channel
- Erosion & Sediment Transport
- Safety concerns
- Water Quality Improvements



N. Domingo Baca Water Quality Facility 2001 – 2nd Generation

▲ Project Accomplishments

- Replaced channel with buried storm drain
 - Eliminating erosion & sediment transport
 - Improving safety
- Water Quality Improvements
 - Innovative first flush capture
 - Sediment & Debris Removal
 - Floatable Capture
 - Secondary Bacterial Treatment via sand filter

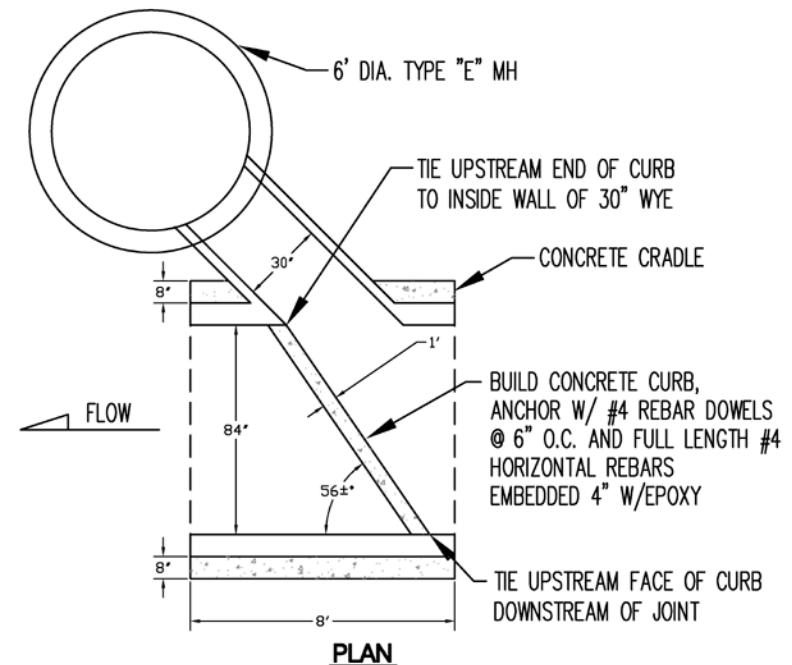
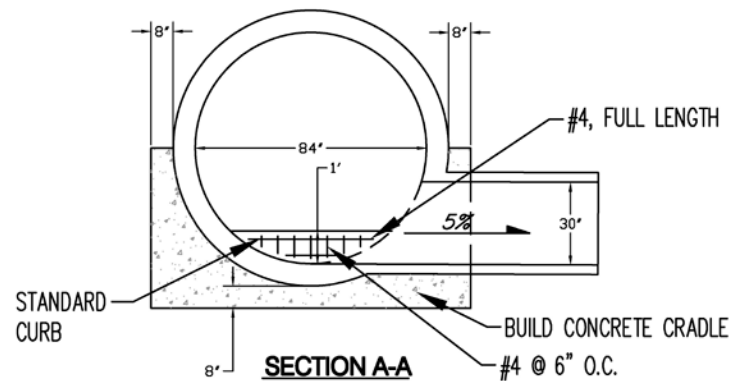
N. Domingo Baca Water Quality Facility 2001 – 2nd Generation Facility



N. Domingo Baca Water Quality Facility 2001 – 2nd Generation

▲ Project Overview

- Innovative first flush capture



N. Domingo Baca Water Quality Facility 2001 – 2nd Generation

▲ Sediment & Debris Pond



N. Domingo Baca Water Quality Facility 2001 – 2nd Generation

- ▲ AMAFCA
Standard
Ported
Riser
traps
floatables



N. Domingo Baca Water Quality Facility 2001 – 2nd Generation

- ▲ Sand Filter Basin
 - Secondary Bacterial Treatment
 - Extended detention



N. Pino Water Quality Facility 2003 – 3rd Generation

▲ Project

Accomplishments

– Debris Intake Structure

- Modifications to existing channel
- HEC-RAS modeling
- Physical Model by UNM Hydraulics Lab

– Debris Removal Structure

- Hanging baffle & weir wall
- Easy maintenance access

– Extended Wet Detention Pond

- Permanent Pool
- Extended detention allows sunlight to breakdown fecal coliform
- Controlled release back to N. Pino Channel

N. Pino Baca Water Quality Facility 2003 – 3rd Generation



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N. Pino Baca Water Quality Facility 2003 – 3rd Generation

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N. Pino Baca Water Quality Facility 2008 – 4th Generation Retrofits

▲ Coanda Screen Installation Over New Clean Water Gallery



N. Pino Baca Water Quality Facility 2008 – 4th Generation Retrofits

▲ Coanda Screen in Operation



N. Pino Baca Water Quality Facility 2008 – 4th Generation Retrofits

- ▲ Discharge from Debris Removal Structure



AMAFCA NDC Water Quality Project 2009-2010

- ▲ Daniel B. Stephens & Associates with Tetrattech and BHI
 - Task 1: Hydraulic Modeling of NDC Outfall
 - Task 2: Dissolved Oxygen/Water Quality Study
 - Task 3: NDC Tributary's Gross Pollutant BMPs
 - Task 4: NDC Gross Pollutant BMPs

NDC Water Quality Project 2010

▲ Task 3 (ongoing): NDC Tributaries Gross Pollutant BMPs

- Candelaria Outfall
- Hahn Arroyo
- Grantline Channel



NDC Water Quality Project 2010

- ▲ Task 4 (pending): NDC Gross Pollutant BMPs
 - Balloon Fiesta Park
 - Outfall to Rio Grande



A Final Thought:

**The ABCWUA Drinking Water
Project Diversion Dam is
2 ¼ miles downstream from the
North Diversion Channel Outfall**