



Ridges Basin Dam

Durango, CO

PRIME CONTRACTOR:

WCA Construction

PERCENT SUBCONTRACTED:

10% - Electrical and SCADA controls, and hydraulic power units, instrumentation.

OWNER:

U.S. Bureau of Reclamation

ARCHITECT/ENGINEER:

U.S. Bureau of Reclamation

CONTRACT TYPE:

Negotiated

INITIAL CONTRACT VALUE:

\$183,264,431

FINAL CONTRACT VALUE:

\$203,018,671

START DATE:

June 2002

COMPLETION DATE:

Contract Still Active

DESCRIPTION OF WORK COMPLETED:

Construction of a dam crest haul road and surfacing of haul roads, excavation of the dam foundation, Total quantities: common excavation 2,388,880 Cy, Drill and Blast Rock 146,570 Cy, Embankment 140,930 Cy, Grout 160 Cy, Grouted Rip Rap 520 Cy. Additionally excavation of 264,675 CY for the outlet works tunnel inlet channel, excavation of 23,356 CY common excavation and 3,061 of rock excavation for the outlet works downstream consists of earthwork for constructing a compacted zoned earth fill.

Dam embankment approximately 1,600 feet long at the crest and with a maximum height of 275 feet and approximately 5,000,000 CY of material. Ancillary work includes but is not limited to: construction of a ravine channel, outlet works, concrete lining of 1400 foot outlet tunnel, and construction of inlet structure, upstream and downstream conduits with 84 inch steel pipe, gates, control house, downstream improvements including 11 check dams, roadwork, mechanical/electrical, miscellaneous metal installation and storm water management.



ACTIVITIES COMPLETED:

WCA self-performed all excavation and zoned embankment, filter material crushing and washing, pressure grouting, extensive foundation dewatering, blasting, and concrete formwork and placement, pipefitting, and stormwater management.

ISSUES ENCOUNTERED:

An expanded grouting program, required revisions to the tunnel gate chamber excavation. Archeological dwellings encountered in the Zone 1 borrow lead to a alternate Zone 1 borrow area and an increased prewet system





Steinaker Dam Modifications

Vernal, UT

PERCENT SUBCONTRACTED:

15% - Crushed aggregate trucking
10% - Shotcrete, soil nails, asphalt paving

OWNER:

U.S. Bureau of Reclamation

ARCHITECT/ENGINEER:

U.S. Bureau of Reclamation

CONTRACT TYPE:

Firm Fixed Price

INITIAL CONTRACT VALUE:

\$17,682,066

FINAL CONTRACT VALUE:

\$20,865,939

START DATE:

May, 2018

COMPLETION DATE:

October, 2019

DESCRIPTION OF WORK COMPLETED:

Construction work included rehabilitation of the outlet works gates and hydraulic system, extending the existing outlet works concrete conduit with a steel-lined, concrete-encased conduit upstream; constructing a new cast-in-place concrete intake structure; and reconstruction of the embankment, including flattening the adjacent upstream slope.



ACTIVITIES COMPLETED:

WCA self-performed all excavation and zoned embankment, filter material crushing and washing, pressure grouting, extensive foundation dewatering, blasting, and concrete formwork and placement, pipefitting, and stormwater management.

ISSUES ENCOUNTERED:

The outlet works was extended and realigned to during construction to account for unknown underwater conditions. The 70 year old outlet works gates were inspected and due to their deteriorated conditions they were removed and reconditioned. Additional clay core material was required due to existing dam core material not meeting project specifications.





Long Hollow Reservoir

Red Mesa, CO

PRIME CONTRACTOR:

Weeminuche Construction Authority

PERCENT SUBCONTRACTED:

10% - Electrical and SCADA controls, and hydraulic power units.

OWNER:

La Plata Water Conservancy District

ARCHITECT/ENGINEER:

GEI Consultants, Inc.,

CONTRACT TYPE:

Fixed Price

INITIAL CONTRACT VALUE:

\$17,012,731

FINAL CONTRACT VALUE:

\$19,528,541

START DATE:

May 2012

COMPLETION DATE:

November 2014

DESCRIPTION OF WORK COMPLETED:

Multi-zone earth embanked dam approximately 135 ft high by 800 ft across the crest. Approximately 225,000 CY foundation excavations and 175,000 CY excavations for the spillway including 90,000 CY drilled and blasted.

Zoned earth fill dam equals 900,000 CY including 36,000 CY crushed and washed filter drain material. Dam embankment foundation preparation; including over 32,000 sy of foundation cleaning, and 10,000 lf of pressure grouted drill holes.

Includes concrete inlet and outlet structures with 1000 lf of 42" steel outlet works pipe with valves. Measurement structures, dam instrumentation, discharge channel and 48" RCP discharge pipe. Clearing, demolition of structures and reclamation of borrow areas. Concrete work (cold and hot weather) included cast in place intake structure, metering vault, and discharge stilling basins, miscellaneous metal installation and full site stormwater management.



ACTIVITIES COMPLETED:

WCA self-performed all excavation and zoned material production and placement, filter material crushing and washing, pressure grouting, extensive foundation dewatering, blasting, pipefitting, and concrete formwork and placement, and storm water management.

ISSUES ENCOUNTERED:

WCA worked with the owner and design team to reduce the original contract value by over four million dollars by submitting several value engineering proposals. The accepted proposals included manufacturing the filter materials on site, changing the zone 1 borrow source location, redesigning the foundation grouting program, and changing the riprap borrow source to produce the required amount of material.





Tsaile Dam

Tsaile, AZ

PERCENT SUBCONTRACTED:

5% - Electrical and SCADA controls, and hydraulic power units in the outlet works tower, guard rail installation.

OWNER:

U.S. Department of the Interior
Bureau of Indian Affairs
Navajo Regional Office

ARCHITECT/ENGINEER:

Kleinfelder

CONTRACT TYPE:

Fixed Price

INITIAL CONTRACT VALUE:

\$8,269,353

FINAL CONTRACT VALUE:

\$10,039,875

START DATE:

May 2014

COMPLETION DATE:

December 2015

DESCRIPTION OF WORK COMPLETED:

Consists of earthwork for complete excavation of the existing Tsaile Dam (175,000 CY), and the construction of a replacement compacted zoned earth fill dam embankment approximately 1,400 feet long at the crest and with a maximum height of 60 feet and approximately 180,000 CY of zoned dam embankment. Construction of 300 foot long 36 inch concrete encased outlet works. Ancillary work includes but is not limited to: construction of box culvert crossing, a 50 foot tall concrete outlet works tower, a 110 foot access bridge, and foundation dewatering. Concrete work (cold and hot weather) included cast in place 58ft intake structure tower, and discharge basins, miscellaneous metal installation and full site stormwater management.



ACTIVITIES COMPLETED:

WCA self-performed all excavation, zoned material embankment, foundation grouting, dewatering, concrete formwork and placement, pipe fitting, stormwater, misc. metal fab and installation.

ISSUES ENCOUNTERED:

Extensive rock overhangs were encountered which increased the rock excavation quantity from 5,000 cubic yards to 26,000 cubic yards. The additional rock excavation caused delays in foundation cleaning and zoned embankment activities. A winter shutdown was required to complete the zoned embankment of the dam.





Red Lake Dam

Navajo, NM

PERCENT SUBCONTRACTED:

10% - Electrical and SCADA controls, and hydraulic power units, instrumentation.

OWNER:

U.S. Department of the Interior
Bureau of Indian Affairs
Navajo Regional Office

ARCHITECT/ENGINEER:

GEI Consultants, Inc.,

REFERENCE:

Chad Masching, P.E., GEI

CONTRACT TYPE:

Fixed Firm Price

INITIAL CONTRACT VALUE:

\$7,750,000

FINAL CONTRACT VALUE:

\$7,838,972

START DATE:

March 2016

COMPLETION DATE:

October 2017

DESCRIPTION OF WORK COMPLETED:

Rehabilitation of the 2,700 foot line Red Lake Dam which provides flood protection and irrigation water supply to the local area. A new downstream filter and toe drain system and a 1,700 foot long, 2 foot wide twelve foot deep compacted sand trench was constructed in saturated ground conditions. An outlet works consisting of three HDPE pipes (36", 30", and 24") placed at diverging grades were encased in concrete. The HDPE pipe quantities included:

- 365 LF of 36" diameter pipe
- 260 LF of 30" diameter pipe
- 767 LF of 24" diameter pipe
- 1800 LF of 6" diameter pipe



ACTIVITIES COMPLETED:

WCA self-performed all excavation and zoned embankment, filter material crushing and washing, foundation dewatering, and concrete formwork and placement, pipefitting, and stormwater management.

ISSUES ENCOUNTERED:

Excavation revealed a unknown sand seam. A foundation key trench was added to the scope of work, but the project was still completed ahead of schedule.





Ashurst-Hayden Dam

Florence, AZ

PERCENT SUBCONTRACTED:

15% - Electrical and SCADA controls for slide gates, micropile sheetpile.

OWNER:

San Carlos Irrigation and Drainage District

ARCHITECT/ENGINEER:

GEI Consultants, Inc.,

CONTRACT TYPE:

Fixed Price

INITIAL CONTRACT VALUE:

\$9,079,905.10

FINAL CONTRACT VALUE:

\$9,084,105.10

START DATE:

January 2012

COMPLETION DATE:

February 2013

DESCRIPTION OF WORK COMPLETED:

Work consists of demolition of existing gates and operators, structural concrete, forming and placing of reinforced concrete walls, corbels, and reinforced concrete overlays, furnishing and installing seven heavy-duty hydraulic sluice gates with actuators, trash removal system including removable trash racks with monorail gripper rake system. 300,000 CY of Excavation and trimming for concrete lining of new setting basin and canal tie-ins. Remote operations of all gates at the Diversion Dam Head Works, monitoring system and alarms to enable operators to remotely monitor system status and security features to protect structures.



ACTIVITIES COMPLETED:

WCA self-performed all demolition, excavation, dewatering, concrete formwork and placement.

ISSUES ENCOUNTERED:

Unanticipated ground water encountered during micropile installation and flash flooding. Hot weather concrete placements required a modified concrete placement plan including starting placements at 2am. Owner's use of canal system during construction required condensed and fragmented construction schedule.





Southside Canal

Coolidge, AZ

PRIME CONTRACTOR:

Weeminuche Construction Authority

PERCENT SUBCONTRACTED:

5% - Corrosion, electrical

OWNER:

Pima Maricopa
Irrigation Project

ARCHITECT/ENGINEER:

George Cairo Engineering, Inc.

CONTRACT TYPE:

Fixed Price

INITIAL CONTRACT VALUE:

\$5,197,373

FINAL CONTRACT VALUE:

\$5,811,063

START DATE:

October, 2011

COMPLETION DATE:

September, 2014

DESCRIPTION OF WORK COMPLETED:

The Southside Canal completion includes construction of approximately 2.81 miles of concrete lined canal in scheduled dry-ups

The scope of work included the removal and replacement of concrete field ditches and pipelines, canal excavation and embankment, drainage excavation, riprap, sediment pipe excavation and embankment, reinforced concrete structures, canal trimming, canal concrete lining, mechanical, electrical, utility work, and instrumentation.

The earthwork included site clearing, excavation and embankment, trimming of the canal prism and on-site material management and disposal. Excavated materials will be used to construct the compacted embankments. Earthwork involves the canal, sediment piles, and drainage.



ACTIVITIES COMPLETED:

WCA self-performed all excavation and material placement, canal lining, pipe fitting, irrigation gate installation, grouted riprap, and concrete form work and placement outside of the canal lining, and storm water management.

ISSUES ENCOUNTERED:

High ambient air temperatures required concrete placements to start and 3am to achieve specified concrete temperature and workability. An accelerated construction schedule was required to compete project phases around irrigation dry up schedules.





Burnham Canal-Reach 1

Bloomfield, NM

PERCENT SUBCONTRACTED:

100% self performed by WCA

OWNER:

U.S. Bureau of Reclamation

ARCHITECT/ENGINEER:

U.S. Bureau of Reclamation

CONTRACT TYPE:

Fixed Price

INITIAL CONTRACT VALUE:

\$6,299,670

FINAL CONTRACT VALUE:

\$7,275,105

START DATE:

September, 2008

COMPLETION DATE:

October, 2010

DESCRIPTION OF WORK COMPLETED:

Replace concrete lined canal along Burnham Lateral from station 79+00 to station 111+00. Work includes:

1. Removing existing unreinforced concrete canal lining.
 - Remove canal lining - 27,000 SY
2. Removing existing reinforced concrete turnout structure.
3. Construct new reinforced concrete turnout structure, including furnishing and installing slide gate, and modifying existing trashrack.
4. Earthwork for canal.
 - Excavation for Canal - 51,000 CY
 - Compact Bedding for Lining - 51,000 CY
 - Trimming for Canal Lining - 26,000 CY
5. Canal under drain system.
 - Geocomposite under drain - 36,000 SY
6. Reinforced concrete canal lining.
 - Canal Rebar - 430,000 lbs.
 - Concrete in Canal Lining - 26,000 SY/3,600 CY
 - Contraction Joints - 16,500 LF



ACTIVITIES COMPLETED:

WCA self-performed all excavation form work, rebar tying, concrete placement, and under drain system

ISSUES ENCOUNTERED:

An expanded under drain system was required due to unknown ground water issue and sub surface utilities.





Goodyear Canal

Sacaton, AZ

PRIME CONTRACTOR:

Weeminuche Construction Authority

PERCENT SUBCONTRACTED:

18% - Canal Trimming and Lining

OWNER:

Pima Maricopa
Irrigation Project

ARCHITECT/ENGINEER:

Parsons

CONTRACT TYPE:

Fixed Price

INITIAL CONTRACT VALUE:

\$2,641,656

FINAL CONTRACT VALUE:

\$2,863,898

START DATE:

May, 2011

COMPLETION DATE:

September 2013

DESCRIPTION OF WORK COMPLETED:

Goodyear Lateral is new concrete lined canal lateral, 1.25 miles in length. Work includes site clearing and excavation for canals and drainage channels, embankment construction, trimming of canal prism, concrete canal lining, stilling wells, guard posts, loose rip rap, filter fabric, grouted rip rap, project signs and safety signs. Reinforced concrete structures include 1 check/drop structure with slide gate, fiberglass deck and handrail; 1 long throated flume structure; and 3 inverted siphon transition structures with siphon piping.

Consolidated Canal is a new concrete lined canal extension of the existing Consolidated Canal, 0.56 miles in length. Work includes site clearing and excavation for canals and drainage channels, embankment construction, trimming of canal prism, concrete canal lining, stilling wells, guard posts and grouted rip rap. Reinforced concrete structures include 1 check structure with Rubicon gate, ADOT standard retaining walls, fiberglass deck and handrail; 1 stop log check structure; and 2 inverted siphon transition structures with siphon piping. Drainage channel along the Consolidated Canal alignment.



ACTIVITIES COMPLETED:

WCA self-performed all excavation and material placement, pipe fitting, irrigation gate installation, grouted riprap, and concrete form work and placement outside of the canal lining, and storm water management.

ISSUES ENCOUNTERED:

High ambient air temperatures required concrete placements to start and 3am to achieve specified concrete temperature and workability. An accelerated construction schedule was required to complete project phases around irrigation dry up schedules.

