



Contract Summary Form

Name of Project	Chimney Hollow Reservoir Project Construction
Project Description	General Contractor for construction of the Chimney Hollow Reservoir Project, including the main dam, saddle dam, inlet/outlet tunnel, spillway, conveyance piping and valve house. Work includes a 5-month preconstruction period followed by a 48-month construction period. An optional 6-month delay is provided in contractor pricing.
Entity or Enterprise	Windy Gap Firing Project Water Activity Enterprise - Fund 80
Agreement Number	TBD
Starting Date	12/5/2019
New or Amended	New contract
Final Completion Date	5/4/2024
Contract Expiration Date	4/15/2020
NW Project Manager	Joe Donnelly
Legal Approval by	Trout Raley and Beltzer Bangert & Gunnell
Legal Approval Date	6/18/2019
Vendor Name	Barnard Construction Company, Inc.
Vendor Key Contact	Scott Brady
Vendor Address	701 Gold Avenue, Bozeman, MT 59715
Vendor Phone	406.586.1995
Vendor Email	scott.brady@barnard-inc.com
Procurement Type	Request for Proposals
Contract Amount	\$ 485,365,000 (inclusive of pre-construction ANTP and Bid Alternates)
Insurance Requirements as per contract	See attached
Bond Requirements	Proposal bond (5% of contract value). Performance bond, labor and material bond (100% of contract value). As a condition of performance bond, Contractor shall furnish a two-year warranty bond in amount of 10% of contract value.
Other risks	Open NEPA litigation poses schedule and cost risk for this contract.

Contract Summary

Background

The Chimney Hollow Reservoir Project involves the construction of a new dam and appurtenances located in Larimer County, Colorado. Chimney Hollow Reservoir will impound approximately 90,000 acre-feet of water delivered via Colorado-Big Thompson (C-BT) Project facilities. The Chimney Hollow Reservoir is the primary component of the Windy Gap Firming Project. The Windy Gap Firming Project is an addition to the existing Windy Gap Project water system that will provide up to 30,000 acre-feet of firm yield to twelve Project participants.

Procurement Type

Procurement for General Contractor of the Chimney Hollow Reservoir Project was completed over approximately seven months using a multi-step process. The selection and evaluation committee consisted of representatives from Municipal Subdistrict staff, Project Participants, the Engineer of Record (Stantec), the 3rd Party Construction Manager (Black & Veatch) and several specialists consultants with experience in heavy civil construction and dams.

Procurement initiated with issuance of the Request for Qualifications on March 13, 2019. Prequalification criteria included review of the following:

- Mandatory requirements (two heavy-civil projects in last 5 years in the USA valued greater than \$200M, Bonding ability greater than \$500M, eligibility requirements)
- Project experience and references
- Financial information
- Safety information
- Quality information

Five companies were prequalified. The Request for Proposal (RFP) for the project was issued by invitation to the prequalified companies on June 18, 2019. The RFP outlined a three-step process which include evaluation of the following: technical proposal, interviews, and pricing proposal.

The technical proposal included the following information:

- Management structure and organization
- Key Staff
- Construction schedule
- Technical approach
- Risk management
- Quality management

Interviews were conducted over half-day sessions over the period from September 17 – 19, 2019. All key staff for each team attended the interview. Following each interview, an executive interview was held with project sponsors. Two companies were asked to submit price proposals following the combined evaluation of the technical proposals and interviews.

Pricing proposals were received on October 10, 2019. The selection and evaluation committee met on October 23, 2019 and made a final recommendation to select Barnard Construction Company, Inc based on Barnard demonstrating that their proposal represents the Best Value and lowest risk to the Enterprise.

The Notice of Intent to award was discussed with the Municipal Subdistrict Board or Directors at the November 7, 2019 Planning and Action.

Description of Work

Following contract execution, the Enterprise will issue Administrative Notice to Proceed (ANTP) to start Preconstruction. Preconstruction includes the following activities: obtain construction permits, obtain 3rd Party agreements, lead Project Risk Workshops, lead value engineering workshop, lead formal partnering sessions, attend meetings with SEO, Reclamation, Larimer County, and Project participants, attend Potential Failure Modes Analysis (PFMA) workshop, participate in document management training, test the "HP Waterline", and prepare and submittal select submittals. Additionally, the Contractor and Enterprise will work together during Preconstruction to complete mutually agreed upon activities that will help manage Project risks.

Construction activities will start with Notice to Proceed (NTP) issuance. Primary elements of the construction work for the Chimney Hollow Reservoir Project are described as follows:

- The new Chimney Hollow Dam will be an approximately 355-feet tall, zoned, rockfill dam with a hydraulic asphalt concrete (HAC) core. The Chimney Hollow Dam will include transition zones which will be constructed upstream and downstream of the HAC core, with the downstream transition zone connected to a filter blanket and transition blanket under the downstream shell.
- The overburden beneath the rockfill shells will be removed, and a cutoff trench will be excavated below the HAC core, which will be founded on a concrete plinth. A two-row grout curtain will be constructed below the plinth and blanket grouting will be performed upstream and downstream.

Approximate quantities for the key features are summarized below:

- o Rockfill – 11,050,000 cubic yards
 - o Riprap – 83,000 cubic yards
 - o Transition zones, and filters – 1,325,000 cubic yards
 - o HAC – 76,000 cubic yards
 - o Common excavation – 2,010,000 cubic yards
 - o Rock excavation – 300,000 cubic yards
 - o Concrete plinth – 5,000 cubic yards
 - o Curtain grouting – 106,000 lineal feet (drilling)
 - o Blanket grouting – 40,500 lineal feet
- The rockfill, riprap transitions, filters, and aggregates for the Chimney Hollow Dam will be obtained from a new quarry on the west side of the reservoir. Selective quarrying will be required to obtain material suitable for processing transitions, filters and aggregates. Approximately 1,000,000 – 2,000,000 cubic yards of overburden and sedimentary rock will be removed to uncover the granitic material suitable for the main dam fills.
 - The combined reservoir inlet and outlet will be constructed in the east abutment of the dam and will consist of a 65-foot-tall reinforced concrete single-level inlet/outlet (I/O) structure, a 2,000-foot long concrete lined tunnel through sedimentary rock, and a 72-inch diameter steel conduit that extends from the I/O structure through the tunnel to the valve house. The approximately 1,200-foot-long upstream portion of the tunnel will have a 9-foot Roman arch shape in which the conduit will be concrete encased. A 30-foot diameter circular excavation section for an

approximately 50-foot-long valve chamber located near the axis of the dam which will house a 72-inch butterfly valve. The downstream portion of the tunnel will have a 25-ft diameter circular excavation section for about 250 feet followed by a 27-foot diameter horseshoe section through the downstream portal with the conduit supported on concrete saddles. The valve chamber and downstream tunnel will be reinforced concrete lined to provide permanent access to the valve chamber from the downstream portal.

- Prior to tunnel completion, the stream diversion will be completed through storage in a cofferdam and pumping around the Chimney Hollow Dam excavation. The existing stream in the valley will be diverted through the tunnel once it is finished.
- The approximately 3,700-foot long spillway will be constructed on the west abutment and is designed to convey a peak discharge of about 850 cfs. The spillway will consist of a reinforced concrete crest structure, a 10-foot wide reinforced concrete chute, a reinforced concrete stilling basin, and a reinforced concrete lined rectangular channel ending in a riprap basin. The spillway will contain approximately 7,600 cubic yards of concrete.
- An approximately 40-foot-high saddle dam will be constructed on the southern end of the reservoir. It will be a zoned rockfill dam with a clay core. The rockfill, filters, and transitions will be obtained from the same quarry as for the Chimney Hollow Dam. The clay core will be obtained from the clay borrow within the reservoir near the saddle dam. The overburden beneath the rockfill shells will be removed and a cutoff trench will be excavated below the clay core. A two-row grout curtain will be constructed from a grout cap below the core. The saddle dam will contain approximately 74,000 cubic yards of rockfill, 5,500 cubic yards of riprap, 27,000 cubic yards of filter and transition, 40,000 cubic yards of clay core material.
- The Chimney Hollow Reservoir will be filled by water from the conduit above the Flatiron Powerplant Penstocks. The water conveyance facilities will include an interconnection to the existing conduit and a 5,600-foot long, 72-inch diameter, buried, heavy-wall steel pipeline to the valve house. The valve house will convey water to the Chimney Hollow Reservoir through the I/O works and to Carter Lake through a 550-foot long, 72-inch diameter, buried steel pipeline and interconnection to the existing Carter Lake Pressure Conduit, or to the Flatiron Reservoir through a reinforced concrete basin, and a rectangular concrete channel. Adjacent to the interconnection to the Carter Lake Pressure Conduit, construction will be a 96-inch butterfly valve for secondary isolation.
- The valve house construction will include a 75-foot by 122-foot pre-fabricated steel building, with a 46-foot by 44-foot room extension, founded on a thick reinforced concrete mat that also acts as a thrust block. The valve house will include a control room, 25-ton overhead crane, multiple valves and pipelines of various sizes, most of which are designed for a hydraulic head of approximately 1000-feet, and reinforced concrete thrust blocks. The larger valves will include two 72-inch butterfly valves, two 54-inch sleeve valves to dissipate energy, two 54-inch butterfly valves, one 60-inch plunger valve to dissipate energy, and one 60-inch butterfly valve. The system will also include multiple smaller valves, flow meters, and a pressure relief system.
- The new permanent public access, gravel road (3,700 ft by 24 ft wide) which will be constructed will extend from the existing Larimer County Road 18E (Pole Hill Road) to the left (west) abutment

of the Chimney Hollow Dam. The access road will include addition of a turning lane and deceleration lane on Pole Hill Road and a bridge over the existing Flatiron Penstocks.

- The new permanent maintenance gravel road (22,000 ft by 14 ft wide) which will be constructed will extend along the steep terrain on the west side of the reservoir to the saddle dam.

The major components of the Chimney Hollow Reservoir Project are shown on the Main Dam Construction Plan (Drawing No. G1.12).

Contract Pricing

The Chimney Hollow Construction Contract includes 275 separate lump sum and unit price pay items. A summary of the costs is included in Table 1.

Table 1 – Summary of Price Proposal provided by Barnard

BID ITEMS	BID CATEGORY	BARNARD PRICE PROPOSAL
01 - 11	General Bid Items	\$ 38,652,750
12 - 17A	Larimer County Access Road & Pole Hill Road Intersection Improvements	\$ 2,945,880
18 - 34	Larimer County and Pole Hill Culverts and Signage	\$ 1,260,231
35 - 35	Multiplate Arch Bridge	\$ 1,000,000
36 - 40	Saddle Dam Access Road	\$ 1,693,600
41 - 54	Saddle Dam Access Road Drainage	\$ 1,608,914
55 - 71	Internal Permanent Site Access Roads Drainage	\$ 7,291,145
72A - 80	Main Dam Foundation	\$ 28,594,105
81 - 87	Main Dam Curtain Grouting	\$ 13,231,000
88 - 93	Main Dam Blanket Grouting	\$ 5,065,500
094 - 101	Main Dam Embankment	\$ 196,331,250
119 - 126	Saddle Dam Curtain Grouting	\$ 1,535,750
127 - 137	Saddle Dam Embankment	\$ 6,160,625
138 - 140	Upstream Portal	\$ 1,847,783
141 - 146	Upstream Tunnel	\$ 9,517,100
147 - 152	Grout Chamber	\$ 461,675
153 - 162	Valve Chamber	\$ 2,088,335
182 - 185	Downstream Portal	\$ 4,320,700
186 - 192	I/O Works, I/O Structure	\$ 4,592,800
193 - 194	I/O Conduit- Valve Chamber to Tunnel Portal	\$ 3,250,000
195 - 197	I/O Works Mechanical & Electrical Systems	\$ 4,750,000
198 - 201	I/O Conduit From Downstream Tunnel Portal to Valve House	\$ 5,325,500
202 - 213	Spillway	\$ 23,266,330

BID ITEMS	BID CATEGORY	BARNARD PRICE PROPOSAL
214 - 216	Spillway Outlet Channel	\$ 5,828,850
217 - 229	Bald Mountain Tunnel Interconnection (Sta. 0 to end of thrust block at station 068.16)	\$ 5,639,500
230 - 235	Chimney Hollow Conduit (End of Thrust Block at Sta. 0+68.16 to 56+39.5)	\$ 24,496,000
236 - 240	Valve House Release Channel	\$ 2,124,800
241 - 250	Valve House	\$ 35,518,652
251 - 263	Carter Lake Interconnection	\$ 9,652,050
264 - 266	Additional Services	\$ 3,175,000
267 - 268	Testing and Startup	\$ 750,000
	Subtotal	\$ 479,465,000
269 - 275	Optional Items and Bid Alternates	\$ 5,900,000
	Total	\$ 485,365,000

(1) Includes deduct amount for Bid Item #208

Construction Schedule

Contract time is summarized as follows:

- Preconstruction Period will last from ANTP to May 4, 2020, or on such later date stipulated in the NTP Date. The Contract includes a bid option to extend Preconstruction by 6 months.
- Substantial Completion of the Work within 1,400 calendar days (~46 months) from NTP.
- Final Completion of the Work with 60 calendar days (~2 months) from Substantial Completion.

In addition, the Contractor shall perform interconnections with the CBT as follows:

- The Bald Mountain Interconnect within 70 calendar days.
- The Carter Lake Pressure Conduit Interconnection with 84 calendar days.

Liquidated damages apply as follows:

- Unscheduled outage – Bald Mountain Tunnel: \$75,000/day during first 30 days and \$100,000/day for each additional day.
- Unscheduled outage – Carter Lake Pressure Conduit: \$50,000/day during first 30 days and \$75,000/day for each additional day.
- Substantial Completion: \$60,000/day
- Final Completion: \$5,000/day

Liquidated damages are capped at 10% of the contract value and shall be Enterprise's sole and exclusive remedy for delay damages for unexcused failure to meet a milestone.

Barnard has provided the following construction schedule with their technical proposal to summarize their workplan. Assuming a May 4, 2020 start date, Substantial Completion is expected by December 28, 2023 and Final Completion by March 1, 2024.

	2020				2021				2022				2023			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Pre-Construction Services																
Main Dam (Critical)																
Excavation																
Foundation Prep/Plinth																
Drilling and Grouting																
Embankment																
Access Roads																
Larimar County Access Rd																
Saddle Dam Access Rd																
Saddle Dam																
I/O Works																
Portals																
Tunnel																
I/O Tower																
Piping and Mechanical																
Conduit																
Chimney Hollow Conduit																
Carter Lake Conduit																
I/O Conduit																
Interconnections																
Spillway																
Valve House																
Substantial Completion																

Major Subcontractors

The following major subcontractors are included on the Barnard's team:

- Walo US Holdings, Inc. – Hydraulic Asphalt Concrete Core
- Nicholson Construction Company – Grouting
- Garney Construction - Pipeline / Conveyance

Barnard has committed to self-performing other major elements of the work.

Insurance

- Worker's Compensation: Statutory Limits.
- Employer's Liability: \$1,000,000 per occurrence and in the aggregate.
- Commercial General Liability: \$2,000,000 per occurrence/ \$4,000,000 aggregate.
- Business or Commercial Automobile Liability: \$1,000,000 per accident.
- Excess/Umbrella Liability: \$100,000,000 per occurrence and in the aggregate.

- Pollution Liability: \$5,000,000 per occurrence and in the aggregate.
- Builder's Risk: total value of the Project on a replacement cost basis, provided flood and earthquake sublimit of not less than \$50,000,000 and including \$2,000,000 soft costs.
- Professional Liability: \$5,000,000 per occurrence and in the aggregate.

Bonds

- At the time of contract execution, the Contractor shall furnish an interim Security Bond in the amount of 5% of the Contract Sum.
- As a condition precedent to issuance of NTP, Contractor shall furnish a performance bond and a labor and material payment bond, each in amount of 100% of the Contract Sum.
- As a condition of release of the Payment and Performance bonds, Contractor shall furnish a two-year warranty bond in an amount equal to 10% of the Contract Sum.

Other Contract Requirements:

- Proposal Document Escrow
- Formal Partnering Agreement
- Dispute and Resolution Agreement