

## Addendum No. 3 REBID TRUCKEE CANYON WATER SYSTEM EXPANSION

PWP Bid No. WA-2016-158 June 10, 2016

The following information, clarifications, changes and modifications are by reference incorporated into the bid documents for the above referenced project. Any work item or contract provision not changed or modified will remain in full force and effect. The bid date and time and construction schedule has not changed.

## QUESTIONS AND RESPONSES, TECHNICAL CLARIFICATION TO SPECIFICATIONS, DRAWINGS AND DETAILS

**Question No. 1:** Item #7 on sheet M101 is a 4" silent check valve. Please provide a spec for the silent check valve.

Response to Question No. 1: Please see attached specification section 15100 for the addition of silent check valve requirements

**Question No. 2:** Item #42 on the mechanical notes is a 4" wafer FCV. The mechanical abbreviations and symbols show this is a flow control valve. There is no spec section for a flow control valve as the spec book has a FCV listed as a flexible check valve.

Response to Question No. 2: No. 42 is a wafer butterfly valve equipped with an actuator with position indication.

**Question No. 3:** What type of pipe is the existing FW, RW, and DWR lines inside of the building? We may need to install flange insulating kits if the existing piping is different than the proposed piping.

Response to Question No. 3: The existing FW and RW is ductile iron. The existing DWR is plastic.

**Question No. 4:** Item #24 on sheet M103 is a 4 x 3 flange tee that branches the 3" line between the filters and connects to the existing 3" BWW line. Is it assumed that this 3" piping from item #24 to the connection to existing is considered a part of the filter face piping and will be supplied by the filter manufacturer?

Response to Question No. 4: The filter face piping supplied by the filter manufacturer includes the 4 inch by 3 inch flange tee; however, it does not include the 3" piping from the tee to the existing BWW connection.

**Question No. 5:** The 2" DWR line on sheet M101 connects to the existing 2" line on the left side of the building. There is no section view to represent how and where it connects to the existing. Is there any further information for this connection?

Response to Question No. 5: The existing 2" DWR penetrates the slab with a flanged connection just above the finished floor.

**Question No. 5:** The 3" PTW has two connections to existing on sheet M102. Since the PTW line is scheduled as ductile iron pipe it is unclear how the new line connects to the existing line after the 3" BFVs (item #37). Please clarify.

Response to Question No. 6: For clarification, please see the attached M101 sheet for new and existing pipe callouts. The flange coupling adapter (equipment tag no. 42) was changed to a restrained flange coupling adapter.

**Question No. 7**: Please verify that the bollards for the well, valve vault, electrical cabinet area on sheet M150 are to be 8" removable. Detail C801 is for a 4" removable.

Response to Question No. 7: Please see attached detail C801/Typ. The 4 inch bollard was replaced with an 8 inch bollard.

**Question No. 8:** Page 101 note 5 indicates "All filter face pipe to be fusion epoxy lined and coated steel". Due to the diameter of the pipe, manufactures are unable to provide this coating. Please consider allowing stainless steel materials as an acceptable substitution.

Response to Question No. 8: The filter face piping shown in the plans is representative of a typical system. It is the responsibility of the filter manufacturer to provide the exact filter face piping configuration and the filter face piping itself. Per local distributors, NSF 61 certified FEL&C steel pipe is available in 3 and 4 inch diameters, but maybe not from the same supplier; however, 4 inch FEL&C steel pipe may be used in lieu of 3 inch if it is more readily available. Additionally, 3 inch stainless steel pipe may be used if isolation is provided between dissimilar materials.

**Question No. 9:** I have asked Western Nevada to bid the pumps for the above project so we will have a comparison with other pump suppliers. They have a list of questions from the specification section 11317, Decant Pumps. They have also sent PDF of the Wilo model COR 2 MVI 30-03 as a substitute for the Goulds model shown on page 4 of the above section. Can you please address the questions in the attachments titled "Book1"? Is the Wilo pump an "approved equal" as defined in this section?

Response to Question No. 9: Specification section 11317 has been removed from the contract documents. Requirements for the vertical multistage decant pumps are now in specification section 11145. Wilo model COR 2 MVI 30-03 is not an approved pump because it lacks NSF 61 certification.



## TECHNICAL SPECIFICATIONS

Section	Page(s)	Description of amendment
11145	Entire section	Requirements for the two vertical multistage decant pumps and
		NSF certification were added to specification section 11145.
		Please see attached spec section 11145 for revisions.
11317	Entire section	Specification section 11317 has been removed from the
		contract documents. For decant pump requirements, see
		specification section 11145.
15100	15100-9	Paragraph 2.8 Silent Check Valves was added to specification
		section 15100.
		"2.8 SILENT CHECK VALVES
		APCO series 600 globe style, full body, ductile iron,
		pressure class 150, with flanged ends, or approved equal.
		The valve plug shall be center guided at both ends with a
		through shaft and spring loaded. The seat and plug shall
		be hand replaceable in the field. The flow area through
		the body shall be equal to or greater than the cross-
		sectional area of the equivalent pipe size."
		• • • •

## **DRAWINGS**

<b>Sheet Number</b>	Page(s)	Description of amendment
M101	27	See M101 for new and existing pipe callouts. The flange coupling adapter (equipment tag no. 42) was changed to a restrained flange coupling adapter.

## **DETAILS**

<b>Sheet Number</b>	Page(s)	Description of amendment
C801/TYP	15	The 4 inch removable bollard was replaced with an 8 inch
		removable bollard.

## PLEASE NOTE: QUESTION CUT-OFF DATE WAS JUNE 09, 2016 AT 5 P.M.

SECTION	PARA		
11317	<u> </u>		DECANT PUMPS, FILTRATION ROOM DECANT PUMP #1, #2, TWO UNITS
			WEAR RINGS: THE CALLOUT PUMP, A VERTICAL STACK STAINLEESS TYPE, IF UNDERSTOOD CORRECTLY,
	C.1.B	3	WILL NOT BE FITTED WITH WEAR RINGS. THIS SPECIFICATION STATEMENT BRINGS CONFUSION TO THE
			UNDERSTANINIG OF THE TYPE OF PUMP DESIRED
		4	STUFFING BOXES; SAME. THESE PUMP ARE TYPICALLY FITTED WITH MECHANICAL SEALS
		6	SIZE + TYPE OF FLEXIBLE COUPLING; SAME, THIS TYPE OF PUMP IS FITTED WITH A RIGID COUPLING
	C.1.E		SEISMIC CACLULATIONS AND ANCHOR BOLT SELECTION BY OTHERS
			FACTORY CERTIFIED PERFORMANCE TEST NOT AVAILABLE . IS A 3RD PARTY PERFORMANCE TEST
	C.1.F		ACCEPTABLE?
	C.1.7		WARRANTY; STANDARD FACTORY WARRANTY ONLY IS OFFERED
			GOULDS DOES NOT MAKE A 'CRE' MODEL. GRUNDFOS MAKES A CRE MODEL. MIXING BRANDS AND
	C.2.1.A	1	MODELS AS THE PREFERRED SELECTION, OR EQUAL, COMPLICATES THE COMPARISONS WHEN 'OR EQUAL
			POSSIBLE SELECTIONS ARE CONSIDERED. WHICH IS IT, GOULDS OR GRUNDFOS?
			RESERVATIONS WITH RESPECT TO APPLICATION; NO DESCRIPTION OF THE DUTY CYCLE IS OFFERED.
		2	MANUFACTURER AND REPRESENTATIVE CAN ACCEPT NO LIABILITY FOR OPERATING CONDITIONS THAT
			ARE NOT DEFINED. A STATEMENT OF THE NUMBER OF STARTS PER HOUR IS NEEDED.
			PUMP DESIGN CRITERIA; PUMP ORIENTATION, HOHRIZONTAL. THIS CALLOUT INTRODUCES CONFUSION.
	2.4.0	_	'CRE' TYPE PUMPS CAN BE MOUNTED IN THE HORIZONTAL CONFIGURATION. THEY ARE BETTER SUITED
	2.1.B	1	FOR VERTIAL. PLEASE ADVISE THE CRITERIA FOR HORIZONTAL MOUNT THAT MAY NOT BE APPARENT IN
			THE SPECIFICATION PACKAGE, OR ALLOW VERTICAL MOUNT.
	2.1.C		PUMP DESIGN REQUIREMENTS DO NOT MATCH THE 'CRE' DEFINITION
		1	CASING SPECIFICATION IS FOR A CAST IRON SINGLE STAGE HORIZONTAL UNIT
		2	OPEN SINGLE SUCTION TYPE SAME
		3	PUMP BASE SAME
		4	SHAFT, SAME , DESCRIBES A STUFFING BOX
		7	COUPLING, SAME,
		8	FRAME, SAME
		9	BEARINGS, SAME, PRIMARY BEARINGS INCORPORATED INTO THE MOTOR
		4.3	DRIVE, DIRECT DRIVE VARIABLE SPEED MOTOR; INCONSISTENT, PREVIOUS SPECIFICATION CALLS FOR A
		12	FIXED SPEED PUMP. IS THE DESIRED PRODUCT FIXED OR VARIABLE SPEED?
	2.2	_	WINDING TEMPERATURE DETECTORS ; CERTAINLY CAN BE DONE. IS THERE A PROVISION TO PROCESS
	2.2	В	CONTROL INPUT TO ACCEPT AND RESPOND TO THIS INFORMATION?
	2.4	Α	CALLOUT FOR VARIABLE SPEED DRIVES. CONFLICT WITH TABLE IN 2.1.B
2.4			ALLEN BRADLEY ETHERNET INTERFACE. NEED MORE INFORMATION, CONTROL SCHEMATIC, NATURE OF
	2.4	В	THE SIGNAL PROVIDED BY THE SCADA SYSTEM. DOES THIS SPECIFICATION REQUIRE THAT AN ALLEN
			BRADLEY CONTROLLER BE INCLUDED IN THE PACKAGE?
	<u> </u>		PAINTING. IRON OR STEEL COMPONENTS WILL BE PAINTED. STAINLESS SURFACES WILL NOT BE PAINTED
	2.5	Α	OR COATED WITH OXIDATION PREVENTATIVE. THIS CALLOUT APPEARS TO BE WRITTEN FOR CAST IRON
			PUMPS.
	3.3		FIELD TESTING
	3.3.A	1	ALIGNMENT CHECK. REQUIREMENT IS INCONSISTENT WITH 'CRE' TYPE MACHINES
	3.4	Ι-	PROTECTIVE COATING. SEE 2.5.A ABOVE. STAINLESS IS NOT PAINTED
	J.⊤	1	I NOTECTIVE CONTINUED SEE 2.5.77 NOVE. STANGEDS IS NOT I ANY LE

## **SECTION 11145**

### VERTICAL MULTI-STAGE CENTRIFUGAL PUMPS

## PART 1 GENERAL

#### **SCOPE** 1.1

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- A. This section covers the vertical multi-stage centrifugal booster pumps used to pump water from the existing holding tank to the new distribution tank and two decant pumps used to pump water from the existing backwash tank to treatment. The pumps shall be of the vertical inline multi-stage type.
- B. The pump units shall be complete with a pump, electric motor, and all other appurtenances specified or required for proper operation. All parts in direct contact with the water shall be made of stainless steel.
- C. Equipment furnished and installed under this section shall be fabricated, assembled, erected, and placed in proper operating condition in full conformity with drawings, specifications, engineering data, instructions, and recommendations of the equipment manufacturer unless exceptions are noted by the Engineer.

Addendum 2

Pumps are required to have NSF 61, and when applicable, NSF 372 D. certification.

## **PART 2 MATERIALS**

- 2.1 GENERAL REQUIREMENTS:
  - A. Except as modified or supplemented herein, all vertical multi-stage centrifugal pumps shall conform to the applicable requirements of the Hydraulic Institute Standards. Wetted portions of pumps shall be made entirely of type 304 stainless steel.

#### 2.2 **POWER SUPPLY:**

A. Power supply to equipment will be 480 volts, 60 Hz, 3 phase, unless noted otherwise on the plans.

## 2.3 ELECTRIC MOTOR

A. The pump shall be furnished with a premium efficiency inverter-duty, fan-cooled, vertical motor rated 480 volts, 60 Hz, three phase as manufactured by General Electric or U.S. Motors, or equal. The motor shall have a 1.15 service factor and Class F insulation with a Class B temperature rise at full load amperage as specified by NEMA standards for class of insulation used. The motor shall be of the proper size to drive the pump continuously over the complete head-capacity range at an altitude of 4,400 feet above mean sea level (MSL) with a maximum operating temperature of 90° C.

## 2.4 PUMP END ASSEMBLY

- A. The pump shaft shall be of AISI Type 410 or 416 stainless steel, turned and ground.
- B. The inlet diffusers, impellers, and outer sleeve shall be made of stainless steel. Non-wetted portions of the pump casing and motor shall be made of either stainless steel or cast or ductile iron.
- C. The pump shall be provided with a balanced mechanical seal which can be replaced without removing the motor from the pump.
- D. The seal housing chamber shall be designed to prevent the accumulation of air in critical areas near the mechanical sea.
- E. The pump shall be easily disassembled and not require any special tools or assembly or disassembly.

## 2.5 PUMP SERVICE CONDITIONS

A. The pump shall be suitable for pumping potable well water.

## 2.6 PERFORMANCE AND DESIGN REQUIREMENTS

- A. The pumping unit shall be designed for the following operating conditions when operated at maximum speed, unless otherwise noted. For design and rating purposes, the water to be pumped shall be assumed, to have a temperature less than of 80 F.
- B. Performance of the pump shall be stable and free from damaging cavitation, vibration, and noise in the operating head range.

Addendum 2

#### Pumping Design Criteria for the two booster pumps is summarized as follows: C.

<b>Booster Pump Operating Condition</b>	Pump Requirements
Normal Operating System Discharge (±5 gpm) (each)	100 gpm
At TDH of	286 feet
Minimum Shutoff Head	360 feet
Minimum Runout	100 gpm
Pump Efficiency (Normal operating point, minimum)	72%
Nominal Pump Speed	3,600
Minimum Fluid Temperature Rating	80° F
Motor Horsepower (minimum)	15 hp
Motor Duty	Inverter
Motor Drive Type	Constant Speed
Power	480V, 3ø, 60 Hz
Pump Manufacturer (or approved equal)	Grundfos, Paco, Goulds

#### **TABLE 11140-II Pump Material Requirements**

Booster Pump Assembly	Material Specification
Impellers	Stainless Steel, AISI 316
Pump Shaft	Martensitic stainless steel
Motor Stool	Ductile or Cast Iron
Pump Chamber	Stainless Steel, AISI 316
Shaft Seal	Balanced Mechanical

## Addendum 3

#### D. Pumping Design Criteria for the two decant pumps is summarized as follows:

Pump Requirements
35 gpm
75 feet
95 feet
65 gpm
65%
3,600
80° F
1.5 hp
Inverter
VFD
480V, 3ø, 60 Hz
Grundfos, Paco, Goulds

#### **TABLE 11140-II Pump Material Requirements**

Decant Pump Assembly	Material Specification
Impellers	Stainless Steel, AISI 316
Pump Shaft	Martensitic stainless steel
Motor Stool	Ductile or Cast Iron
Pump Chamber	Stainless Steel, AISI 316
Shaft Seal	Balanced Mechanical

#### 2.7 PUMP AND MOTOR SUBMITTALS

Complete assembly, foundation, and installation drawings, together with detailed specifications and data covering materials used, parts, devices, and other accessories forming a part of the

equipment furnished, shall be submitted in accordance with the submittals section. The data and specifications for each pumping unit shall include, but shall not be limited to, the following:

#### A. **Pump Submittals**

- 1. Name of manufacturer
- 2. Type and model
- 3. Complete performance curves showing capacity versus head, NPSH required, pump efficiency, and BHP plotted to scales consistent with performance requirements. Include variable speed curves for the range of 70% to 100% speed.
- 4. Contractor / Manufacturer shall provide the owner with certified curves (factory,nonwitnessed).
- Design rotational speed 5.
- 6. Number of stages
- 7. Type of seal and materials
- 8. Size of inlet and discharge outlet
- 9. Weight

#### B. **Motor Submittals**

- 1. Name of manufacturer.
- 2. Type and model.
- 3. Type of bearing and lubrication.
- 4. Rated size of motor, hp.
- 5. Insulation rating.
- 6. Duty – inverter or premium efficiency.
- 7. Full load rotational speed.
- 8. Net weight.
- 9. Efficiency at full load and rated pump condition.
- 10. Full load current.
- 11. Locked rotor current.
- C. **Complete Pumping Unit Submittals**
- D. Maximum overall dimensions.
- E. Total weight.

## 2.8 WORKMANSHIP

## A. Shop Painting

All other surfaces shall be shop painted in accordance with the General Equipment Stipulations. Spare parts shall be suitably packaged in accordance with the General Equipment Stipulations, with labels indicating the contents of each package. Spare parts shall be delivered to the Owner as directed.

## B. Balance

All rotating parts shall be accurately machined and shall be in as nearly perfect rotational balance as practicable. Excessive vibration shall be sufficient cause for rejection of the equipment. The mass of the unit and its distribution shall be such that resonance at normal operating speeds is avoided.

## PART 3 INSTALLATION AND FIELD TESTING

## 3.1 INSTALLATION

The booster pump shall be installed as shown on the Plans, and may be provided as part of the scrubber package or installed separately. The pump shall be aligned and connected to the discharge piping.

## 3.2 FIELD TESTS

- A. After initial startup, a preliminary running-in period will be provided for the Contractor to make field tests and necessary adjustments. The Owner will then operate the pump for a period of 30 consecutive calendar days.
- B. At the end of the specified period of operation, the pump will be accepted if, in the opinion of the Engineer, the pump has operated satisfactorily without excessive power input, vibration, wear, lubrication, or undue attention required for this operation, and if all rotating parts operate without excessive vibration or noise at any operating head, including shutoff.

### END OF SECTION

## 2.7 CHECK VALVES (CV), (PCV), AND (SCV)

- A. <u>Swing Check Valves (CV) 2½-inch and smaller</u>: bronze, screwed cap, bronze disc, Y-pattern, 200 psi working pressure, screwed ends. Crane Co. No. 37; Stockham B-319, or equal.
- B. <u>Swing Check Valves (CV)</u> 3-inch and larger: cast iron body, bronze faced disc, stainless steel hinge pin, outside lever and weight, 150-175 psi water working pressure, flanged or grooved ends. Valves shall have outside lever on side of valve to suit installation and/or be reversible in the field. M & H 159-02; Victaulic Series 317; Clow List 114 or 115, or equal. Valves for septage service shall be provided with rubber lining for abrasive applications.
- C. <u>Plastic Check Valves (PCV)</u> Ball check, PVC Type 1, Grade 1, Viton seals, 150 psi at 73°F water, flanged, socket, or threaded ends. Chemtrol BC series; Hills-McCanna "McCannaplast", or equal.

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## 2.8 SILENT CHECK VALVES

APCO series 600 globe style, full body, ductile iron, pressure class 150, with flanged ends, or approved equal. The valve plug shall be center guided at both ends with a through shaft and spring loaded. The seat and plug shall be hand replaceable in the field. The flow area through the body shall be equal to or greater than the cross-sectional area of the equivalent pipe size.

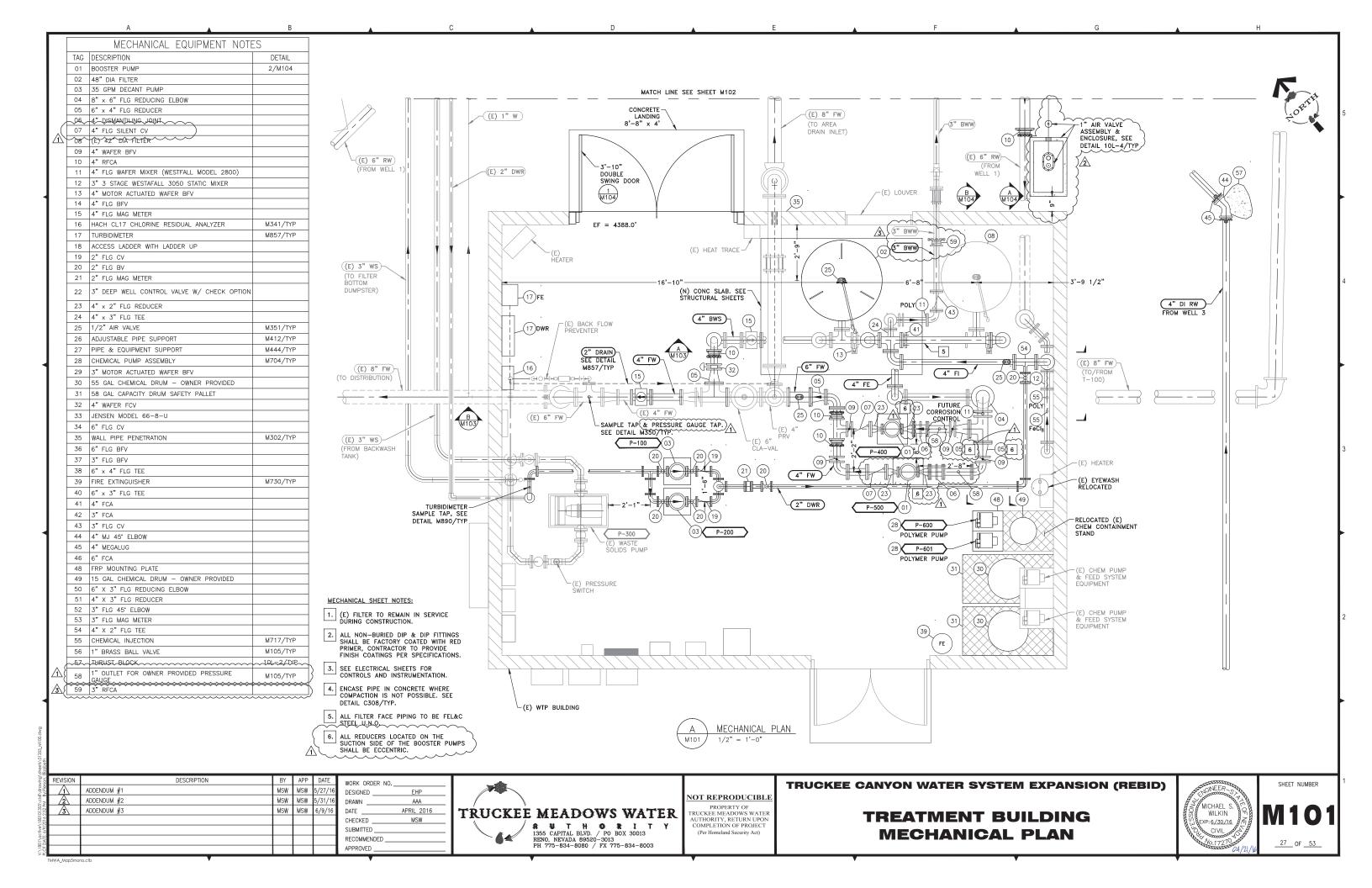
## 2.9 FLEXIBLE CHECK VALVES (FCV), (FSCV)

## A. <u>Flexible Check Valve:</u>

- 1. All rubber, flow operated with integral elastomer flange. Inlet port area 100% of mating pipe port size. Port area shall contour down to a duckbill which shall allow passage of flow in one direction while preventing reverse flow. The flexible duckbill sleeve shall be one piece rubber construction with fabric reinforcement and have a protective EPDM exterior wrapping for protection against sunlight.
- 2. Red Valve Co. series 35 (similar to "Tide-Flex"), or equal.

## B. Flexible Swing Check Valve:

- 1. The check valve shall be of the flexible type, <u>full</u> body flanged type, with a domed access cover and only one moving part, the valve disc.
- 2. The valve body shall have full flow equal to nominal pipe diameter at any point, through the valve. The seating surface shall be on a 45 degree angle to minimize disc travel. The top access port shall be full size, allowing removal of the disc without removing the valve from the pipeline. The access cover shall be domed in shape, to allow the disc to be fully operational in lines containing a high solids content.
- 3. The disc shall be of one-piece construction; precision molded with an integral O-ring type-sealing surface and contain steel and nylon reinforcements in both the arm and central disc areas. The flex portion of the disc shall be warranted for twenty-five years. Non-slam closing characteristic shall be provided through a short 35 degree disc stroke and a flexible disc return action.
- 4. The valve body and cover shall be ASTM A126, Class B cast iron. The disc shall be Buna-N (NBR), ASTM D2000-BG.



# TRUCKEE CANYON WATER SYSTEM EXPANSION (REBID) ADDENDUM #3 06/09/2016

