

**SPECIFICATIONS - DETAILED PROVISIONS**

Section 02740 – Well Pump Foundation

TABLE OF CONTENTS

<b>1.0</b>	<b>GENERAL .....</b>	<b>1</b>
1.01	REQUIREMENT .....	1
1.02	RELATED SECTIONS AND DRAWINGS.....	1
1.03	SUBMITTALS.....	1
1.04.	MEASUREMENT AND PAYMENT .....	2
<b>2.0</b>	<b>MATERIALS .....</b>	<b>2</b>
2.01	STEEL REINFORCING BAR .....	2
2.02	PUMP BASE PLATE .....	2
2.03	ANCHOR J-BOLTS AND LEVELING NUTS.....	2
2.04	SOUNDING TUBE(S) AND CAPS .....	2
2.05	AIR VENT TUBE, FITTINGS AND SCREEN .....	3
2.06	GRAVEL FEED TUBE AND CAP .....	3
2.07	CONCRETE .....	3
2.08	BASE PLATE GROUT.....	3
2.09	TEMPORARY WELL CAP.....	4
<b>3.0</b>	<b>EXECUTION .....</b>	<b>4</b>
3.01	SITE WORK AND GRADING.....	4
3.02	SOUNDING TUBE(S) .....	4
3.03	AIR VENT TUBE .....	5
3.04	GRAVEL FEED TUBE .....	6
3.05	REINFORCING BAR .....	6
3.06	CONCRETE FOUNDATION .....	6
3.07	PUMP BASE PLATE AND ANCHOR BOLTS.....	6
3.08	BASE PLATE GROUT.....	7

[Page Left Intentionally Blank]

**SECTION 02740**  
**WELL PUMP FOUNDATION**

**PART 1 – GENERAL**

1.01 **REQUIREMENT**

Construct a reinforced concrete well pump foundation over the well in accordance with requirements specified in this section and:

- A. Drawing No. D-26735, Well Pump Foundation Details (Section P, Standard and Construction Drawings).
- B. Orientation specified in the Special Conditions, shown on the Construction Drawings, District's final well design (available upon request) or confirmed by the District in the field.

1.02 **RELATED SECTIONS AND DRAWINGS**

- A. Form Work for Cast-In-Place Concrete (Section 03150)
- B. Cast-In-Place Concrete (Section 03300)
- C. Painting and Protective Coatings (Section 09900)
- D. Well Pump Foundation Details (Section P)

1.03 **SUBMITTALS**

The Contractor shall prepare and submit complete and organized shop drawings as specified herein and by the General Conditions Section F, Special Conditions. Contractor shall submit complete information, manufacturer's materials data sheets, materials certifications, and technical data for all well foundation components and accessories, including, but not limited to the following:

- A. Daily activity log.
- B. Concrete mix design per Section 03300.
- C. Reinforcing steel submittals, including materials certifications, per Section 03200.

Well Pump Foundation  
02740-2

- D. Cement batch (weight) tickets.
- E. Air vent tubing manufacturer's materials data sheets, including materials certifications.
- F. Gravel access tubing manufacturer's materials data sheets, including materials certifications.
- G. Sounding tubing and appurtenances manufacturer's materials data sheets, including materials certifications.

1.04. MEASUREMENT AND PAYMENT

Payment for the well pump foundation will be at the lump sum price bid.

**PART 2 – MATERIALS**

2.01 STEEL REINFORCING BAR

- A. Steel reinforcing bars shall be ASTM A615, Grade 60, Type "S" deformed bars.
- B. Materials of construction of reinforcing bars shall be per Section 03200.
- C. Reinforcing bars shall be installed as shown on the Well Pump Foundation Details drawing (Section P).

2.02 PUMP BASE PLATE

- A. Pump base plate shall be constructed of ASTM A36 plate steel.
- B. Base plate dimensions and thickness shall be as shown on the Well Pump Foundation Details drawing (Section P).

2.03 ANCHOR J-BOLTS AND LEVELING NUTS

- A. Anchor bolts shall consist of Four (4) ASTM A307 anchor bolts (J-Bolts).
- B. Anchor bolts shall be cast in place during well foundation concrete placement. Anchor bolts shall be installed per dimensions shown on the Well Pump Foundation Details drawing (Section P).

2.04 SOUNDING TUBE(S) AND CAPS

Sounding tubes shall be extended through the well pump foundation as shown on the Well Pump Foundation Details drawing (Section P). Materials of construction shall match sounding tube materials of construction installed during well construction. Unless otherwise specified, materials of construction shall be as follows:

- A. Schedule 40 mild steel tubing, fittings and appurtenances shall be installed when copper bearing and mild steel well casing and screen are specified.
- B. Schedule 40 Type 316L stainless steel tubing, fittings and appurtenances shall be installed when stainless steel well casing and screen are specified.

Well sounding tube materials shall be modified as required to meet project specific requirements as shown on the Plans.

2.05 AIR VENT TUBE, FITTINGS AND SCREEN

Air vent tube, fittings, and appurtenances shall be furnished and installed to extend through the well pump foundations as shown on the Well Pump Foundation Details drawing (Section P). Materials of construction shall be as follows:

- A. Schedule 40 mild steel tubing, fittings and appurtenances shall be installed when copper bearing and mild steel well casing is specified.
- B. Schedule 40 Type 316L stainless steel tubing, fittings and appurtenances shall be installed when stainless steel well casing is specified.

Air Vent tube, fittings and appurtenance materials shall be modified as required to meet project specific requirements as shown on the Plans.

2.06 GRAVEL FEED TUBE AND CAP

Gravel feed tube, flanged cap, and plug shall be furnished and installed to extend through the well pump foundations as shown on the Well Pump Foundation Details drawing (Section P). Materials of construction shall be as follows:

- A. Schedule 40 mild steel tubing, fittings and appurtenances shall be installed when copper bearing and mild steel well casing is specified.

Well Pump Foundation  
02740-4

- B. Schedule 40 Type 316L stainless steel tubing, flanges, plug and appurtenances shall be installed when stainless steel well casing is specified.

Gravel feed tube and appurtenance materials shall be modified as required to meet project specific requirements as shown on the Plans.

2.07 CONCRETE

- A. Well pump foundation concrete shall be oriented and constructed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings) and as specified under Section 03300.
- B. Unless specified otherwise foundation concrete shall be Class "A" concrete, 3,000 psi minimum.

2.08 BASE PLATE GROUT

The grout installed between the pump base plate and concrete foundation shall be a non-metallic, non-shrinking equipment grout (minimum flowable rating 6,200 psi). Grout shall be SikaGrout 212, as manufactured by Sika Corporation.

2.09 TEMPORARY WELL CAP

- A. Temporary well cap shall be constructed of ASTM A36 plate steel.
- B. Temporary well cap dimensions, thickness and configuration shall be as shown on the Well Pump Foundation Details drawing (Section P).

**PART 3 – EXECUTION**

3.01 SITE WORK AND GRADING

Unless specified otherwise, the area below and 5'-0" outside of the well pump foundation shall be over excavated 3' minimum below existing grade or 18" below bottom of disturbed soil (whichever is greater). Bottom of excavation shall then be scarified to a depth of at least 12" and compacted to a minimum relative compaction of 95%.

Selected fill material shall then be placed in layers which when compacted shall not exceed 8" in thickness. Each layer shall be spread, moistened, and compacted uniformly to ensure all fill is properly compacted. After each layer of fill has been placed, mixed and spread evenly, it shall be thoroughly compacted to a minimum relative compaction of 95%.

### 3.02 SOUNDING TUBE(S)

- A. Sounding tubes shall be positioned and constructed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings), in accordance with the orientation specified in the Special Conditions or shown on the Construction Drawings, and District's final well design (available upon request), and confirmed by the District in the field.
- B. The Contractor shall install the pre-bent, curved section of the sounding tube in accordance with configurations and dimensions shown on the Well Pump Foundation Details drawing.

The Contractor shall provide notches (slots) or holes in the conductor casing, as required, to allow for installation of the sounding tubes. The intent of these notches or holes is to permit the tubes to extend through the pump foundation to their required final heights and distance from the well centerline. Upon completion of installation, contractor shall replace the conductor casing slotted section above each tube and weld said section closed such that only a penetration hole at each tube is present. Additional requirements for copper bearing, mild steel and stainless steel well casings are as follows:

For copper bearing and mild steel well casing and screen, said tube penetrations shall be seal welded to each tube to provide complete closure of the conductor casing.

For stainless steel well casing and screen, said tube penetration shall have a minimum of ¼" gap and a maximum of ½" gap. Said gap shall be caulked with a two component, polyurethane-based sealant, meeting ASTM-C-920 and NSF standard for potable water contact. The sealant shall be Sikaflex-2c, NS or District approved equivalent and shall be applied per manufacturers instructions. Contractor shall thoroughly clean surface areas to be caulked prior to application of the caulking.

Well Pump Foundation  
02740-6

- C. In the presence of the District, the Contractor shall verify the curvature of the sounding tube by confirming a dummy measuring 1 inch diameter by 14.5 inches long will pass through the entire curved section of the tube without binding.
- D. The top of the sounding tube shall be fitted with a threaded cap.
- E. The sounding tube section and cap above the top of the concrete foundation shall be painted blue in accordance with Section 09900.

3.03 AIR VENT TUBE

- A. Air vent tube shall be positioned and constructed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings), in accordance with the orientation specified in the Special Conditions or shown on the Construction Drawings, and District's final well design (available upon request), and confirmed by the District in the field.
- B. The Contractor shall provide a notch (slot) or hole in the conductor casing, as required, to allow for installation of the air vent tube. The intent of this notch or hole is to permit the tube to extend through the pump foundation to their required final heights and distance from the well centerline. Upon completion of installation, contractor shall replace the conductor casing slotted section above the tube and weld said section closed such that only a penetration hole at the tube is present. Additional requirements for copper bearing, mild steel and stainless steel well casings are as follows:
- C. For copper bearing and mild steel well casing and screen, said tube penetration shall be seal welded to each tube to provide complete closure of the conductor casing.
- D. For stainless steel well casing and screen, said tube penetration shall have a minimum of ¼" gap and a maximum of ½" gap. Said gap shall be caulked with a two component, polyurethane-based sealant, meeting ASTM-C-920 and NSF standard for potable water contact. The sealant shall be Sikaflex-2c, NS or District approved equivalent and shall be applied per manufacturers instructions. Contractor shall thoroughly clean surface areas to be caulked prior to application of the caulking.
- E. The tubing and fittings above the top of the concrete foundation shall be painted white in accordance with Section 09900.

3.04 GRAVEL FEED TUBE

- A. Gravel feed tube shall be positioned and constructed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings), in accordance with the orientation specified in the Special Conditions or shown on the Construction Drawings, and District's final well design (available upon request), and confirmed by the District in the field.
- B. The Contractor shall provide a notch (slot) or hole in the conductor casing, as required, to allow for installation of the gravel tube. The intent of this notch or hole is to permit the tube to extend through the pump foundation to their required final heights and distance from the well centerline. Upon completion of installation, contractor shall replace the conductor casing slotted section above the tube and weld said section closed such that only a penetration hole at the tube is present. Additional requirements for copper bearing, mild steel and stainless steel well casings are as follows:
- C. For copper bearing and mild steel well casing and screen, said tube penetration shall be seal welded to each tube to provide complete closure of the conductor casing.
- D. For stainless steel well casing and screen, said tube penetration shall have a minimum of ¼" gap and a maximum of ½" gap. Said gap shall be caulked with a two component, polyurethane-based sealant, meeting ASTM-C-920 and NSF standard for potable water contact. The sealant shall be Sikaflex-2c, NS or District approved equivalent and shall be applied per manufacturers instructions. Contractor shall thoroughly clean surface areas to be caulked prior to application of the caulking.
- E. The tubing and cap extending above the top of the concrete foundation shall be painted brown in accordance with Section 09900.

3.05 REINFORCING BAR

Reinforcing bar shall be furnished and installed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings) and per requirements of Section 03200.

3.06 CONCRETE FOUNDATION

Concrete foundation shall be furnished and installed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings) and per requirements of Section 03300.

Well Pump Foundation  
02740-8

3.07 PUMP BASE PLATE AND ANCHOR BOLTS

Pump base plate and anchor bolts shall be furnished and installed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings). Contractor shall provide leveling nuts for base plate to ensure said plate is installed level. Additional requirements for copper bearing, mild steel and stainless steel well casings are as follows:

For copper bearing and mild steel well casings and screen installations, contractor shall weld top of casing to pump base plate subsequent to leveling and grouting said plate.

For stainless steel well casing and screen installations, contractor shall trim stainless steel well casing, as required, such that top of casing is 1/2 inch below bottom of pump base plate.

3.08 BASE PLATE GROUT

- A. Pump base plate grout shall be furnished and installed as shown on the Well Pump Foundation Details drawing (Section P, Standard and Contract Drawings). Contractor shall install grout in accordance with manufacturers recommendations after leveling pump base plate.

END OF SECTION