

**VALLECITOS WATER DISTRICT  
SECTION 03462– PRECAST CONCRETE VAULTS**

**PART 1 – GENERAL**

1.1 DESCRIPTION

- A. This section includes the materials, manufacture, and installation of precast concrete vaults.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. All related work specified elsewhere, or in other codes or standards, will be as last revised, unless a specific date of issuance is called out in opposition to later revision date(s).
- B. Other sections of the Standard Specifications, not referenced below, shall also apply to the extent required for proper performance of this Work.
  - 1. Section 02223 - Trenching, Backfilling, and Compacting
  - 2. Section 03300 - Concrete
  - 3. Section 09801 - Manhole Protective Lining

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. The following standards have been referenced in this Section:
  - 1. VWD Approved Material List

1.4 SUBMITTALS

- A. Submit manufacturer’s catalog and test data on precast concrete vaults, frames, and lids along with installation recommendations for inlet and outlet seals and watertight sealing. Show dimensions and materials of construction by ASTM reference and grade.

**PART 2 – PRODUCTS**

2.1 PRECAST CONCRETE VAULT

- A. Precast concrete vaults and covers shall be manufactured in a plant specifically designed for that purpose and shall conform to the shapes and dimensions indicated on the Approved Plans.
- B. Design loads shall consist of dead load, live load, impact, and in addition, loads due to water table and any other loads which may be imposed upon the structure. Live loads shall be for H-20 per AASHTO standard specifications for highway bridges. Design wheel load shall be 16 kips. The live load shall be that which produces the maximum shears and bending moments in the structure.
- C. Concrete shall be Class C per the Standard Specifications.
- D. Vault floor shall drain to a concrete sump hole with a minimum size of 12” x 12” x 18”.

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- E. All vaults greater than 3-feet deep shall have a ladder. Ladder shall be hot dipped galvanized, have pipe rail guides, locking mechanism for extended handrail, and 48” handrail extension above the top of the ladder. All mounting hardware shall be Type 316 stainless steel. Ladder shall be #VL-100 manufactured by Pipeline Products.

**2.2 VAULT LIDS**

- A. Vault frames and lids shall be fabricated aluminum with stainless steel hardware per VWD Approved Material List, latest edition.
- B. Lids shall be fabricated with supports to resist deflection.
- C. All lids shall be hinged. Lids shall have hydraulic assists. All lids shall be equipped a hold-open mechanism. All lids shall be equipped with recessed locking hasp and hinged reading lid (if applicable).
- D. All vaults that may be subject to equipment or vehicle loading shall have traffic rated lids. Vaults in all other locations shall have parkway lids unless specified otherwise by the District Engineer or their designee.

**2.3 JOINT SEALING COMPOUND**

- A. Joint sealing compound for manhole joints shall be a pre-formed, cold-applied, ready-to-use butyl sealant. Ez-Stik Premium, Pro-Stik, or approved equal.
- B. Where groundwater is present or possible under wet weather conditions, or as directed by the District Engineer or their designee, a hydrophilic waterstop shall be used for the joint sealing compound. Sika Swellstop Waterstop, or approved equal.

**2.4 GROUT AND MORTAR**

- A. Cement grout, non-shrink grout, and cement mortar for patching the vault interior per the Standard Specifications.

**2.5 PROTECTIVE LINING**

- A. Protective lining shall be a 100% solid, non-solvented hydrid polyurethane coating per the Standard Specifications.

**2.6 WATERPROOFING**

- A. Waterproofing applied to the exterior of precast vault sections prior to delivery to the jobsite shall be 16-24 mils of coal tar epoxy Tnemec 46H-413, Carboline Bitumastic No. 300M, or approved equal,
- B. Waterproofing applied to the exterior joints of precast vault sections in the field shall be a two-layer joint shrink wrap sleeve. The first layer shall be an elastic adhesive liquid sealant covered by a heat shrink sleeve. The heat shrink is a thick-walled high density polyethylene membrane. Riser-Wrap by Pipeline Seal and Insulator or equal.

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**PART 3 – EXECUTION**

**3.1 INSTALLATION**

- A. Structure excavation for precast concrete vaults shall be in accordance with the Standard Specifications, and the requirements herein. The Contractor shall prepare an excavation large enough to accommodate the structure and permit grouting of openings and backfilling operations.
- B. The bottom of the structure shall be placed on 12-inches of compacted, 3/4-inch crushed rock, graded level and to the proper elevation as shown on the Approved Plans.
- C. After the structure and all appurtenances are in place approved, backfill shall be placed to the original ground line or to the limits designated on the Approved Plans and in accordance with the Standard Specifications.
- D. Two passes of joint sealing compound will be required at each joint to make a watertight seal between precast vault units. Excess joint sealant shall be trimmed flush with the interior of the vault. Vault sections shall be set perfectly plumb. Minor defects, precast holes, and joint gaps shall be patched with grout or mortar for a smooth finish.
- E. Vault top with incorporated lids shall be built up so that it is flush with the surrounding surface unless otherwise specified on the Approved Plans or by the District Engineer or their designee in the field. The Contractor is responsible for placing the vault top and lid at the proper elevation where paving is to be installed and shall make all necessary adjustments so that it meets these requirements. In unimproved areas, top of the vault to be surveyed for proper elevation.
- F. Vault ladder shall be installed as shown on the Approved Plans or as directed by the District Engineer or their designee. Ladder shall provide access for entry into the vault with sufficient clearance from piping and other obstructions.
- G. When indicated on the Approved Plans or at the direction of the District Engineer or their designee, the interior of the vault shall be lined per the Standard Specifications. Vault surfaces shall be free of any seeping or surface moisture.
- H. Where groundwater is present or possible under wet weather conditions, or as directed by the District Engineer or their designee, all vault precast sections shall be waterproofed. Exterior joints shall be patched with grout and made smooth and waterproofing shall be applied to the exterior walls and joints of buried precast vault sections in accordance with the manufacturer's instructions. Protection shall be placed over the waterproofing to prevent damage. Repairs in the field shall be at the direction of the District Engineer or their designee.
- I. All field penetrations require core drilling. All opening for pipe penetrations shall be watertight with link seal assemblies in accordance with the Standard Specifications.

**\*\*END OF SECTION\*\***