NEW UTILITY CROSSING OVER SANITARY SEWER

When clearance is 12" or less, backfill with CLSM conforming to CVSan Standard Specifications Section 3022. Clearance shall be 6" minimum.

NEW UTILITY CROSSING UNDER SANITARY SEWER

NOTES:
1. When clearance is 12" or less, replace existing VCP sewer with one length of Protecto 401 ceramic epoxy coated ductile iron pipe or HDPE SDR-17 to span trench as shown.
2. For potable water crossings, the sewer main shall not have joints 10' (ten feet) from the outside of the water pipe on each side.
NOTES:

1. Pipe embedment material shall be specified by design engineer and based on required load factor for sewer installation. For Class B and crushed stone encasement bedding requirements, the pipe embedment material is crushed rock. For Class C bedding requirements, the pipe embedment material is Class 2 aggregate base. Crushed stone pipe embedment shall be used in all cases where embedment material is not specified by design engineer.

2. Crushed rock shall be compacted with a minimum of four passes with a Vibrplate 220Y Wacker (or equivalent) with a 12 inch square shoe, or equal, on the material below the pipe and after material has been placed to a point 12 inches above the pipe. Class 2 AB shall have 90% relative compaction and shall be compacted in 6 inch lifts.

3. Foundation material shall be required where trench bottom is determined by CVSan to be unstable.

4. Where sewer is constructed under existing utilities, backfill around existing utilities shall meet controlling agency's requirements or requirements on CVSan Standard Drawing No. 5.

5. Minimum cover requirements are based on pipe material and surface loading.
   a) VCP and HDPE SDR-17 pipe material - four (4) feet minimum in traveled ways subject to vehicular traffic
   b) DIP (Protectco 401 Ceramic Epoxy Coated) and CIP pipe material - two (2) foot minimum in all areas

6. Trench backfill with selected material from excavated materials may be used in non-roadway areas with approval of CVSan.

7. Install detectable underground warning tape two feet above top of pipe, "Caution Buried Sewer Line Below".
Install two-way cleanout on private property and within 5' of property line, public right-of-way, pavement or easement. Cleanouts shall not be installed within County Right-of-way.

Install F8 Christy box with "SEWER" on lid or approved equivalent. In areas subject to vehicular traffic use solid cast iron lid.

Backfill as required by Alameda County Paving.

Grade

5'

Standard two-way cleanout on each building sewer

Min. cover of 12" of 3/4" type clean crushed rock

Minimum 1' separation from other lateral or utilities

Bends of more than 45 degrees require installation of a cleanout

See CVSan standards for cover and depth requirements

Minimum slope 2%

12"

6" Pipe bedding 6" of 3/4" type clean crushed rock

Backflow preventer may be PVC or ABS. It must be extendable if more than 18" deep.

See Drawing No. 24 for Backwater Prevention System (BPS) details

Sewer "popper" (or equivalent) overflow device

Existing interior plumbing, material varies

2' minimum

10' maximum

Joist

Approved pipe types for laterals

- Vitrified Clay Pipe
- Ductile Iron Pipe
- Cast Iron Pipe
- High Density Polyethylene (HDPE SDR-17)

Testing Requirements

1. Prior to backfilling
2. Air or water test performed to CVSan Standards

All sanitary sewer construction must comply with the Castro Valley Sanitary District Code, General Provisions and Specifications for Construction of Sanitary Sewers, and CA Uniform Plumbing Code.
NOTES:

1. Frame and cover to exceed H-20 wheel loading
2. Casting shall be dipped in bituminous paint prior to being installed
3. Frames and covers shall be by South Bay Foundry, SBF 1985, or equal
Cast iron frame and cover
See Standard Drawing No. 11

2" in roadway
Street surface or grade

12" maximum to top of cone section
Class 2 concrete collar
Concrete grade ring
Reinforcement (see Note 4)
Preformed joint sealant
For locations with ground water, apply external concrete joint tape wrap Rub'R Nek 6" wide by Henry Company

ALTERNATIVE BARREL SECTION
(By permission only)

For VCP or DIP only

NOTES:

1. Concentric cone to be used on all manholes.
2. If pipe is laid through manhole, the top half of pipe in the manhole is to be broken out. Trough may also be constructed by hand troweling. Both are to be finished in a workman like manner.
3. Manhole to have a 0.10' fall through base.
4. All reinforced concrete barrel and taper sections shall be manufactured and installed to comply with ASTM C478-09 Standard Specifications for Precast Reinforced Concrete Manhole Sections.
5. Interior and exterior to be coated with waterproofing sealant prior to backfilling.
6. All manholes located outside of roadways shall be installed with rim elevation six (6) inches higher than the ground surface. Concrete collar shall extend to top of frame.
7. Precast manhole base blocks shall only be used after prior approval by CVSan.
8. Manhole steps shall be installed only if specified or directed by the authorized District representative.

MANHOLE SECTION

Impression ring placed in wet concrete to form depression for precast sections
Class 2 concrete base
6" min.
12" min.
24" min.
4" min.
6" min.
8" min.

Seal joints with grout and trim smooth

18" (typ.)

Precast base block

Cast in place base block

crushed rock

In the presence of soft ground or water use crushed rock bedding on undisturbed foundation. Otherwise place base on firm undisturbed ground.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

STANDARD PRECAST MANHOLE WITH CONCENTRIC CONE

Drawn By: MRK
Date: 09/27/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 13
MANHOLE SECTION
FOR MINIMUM 1.5 FEET DROP

Banded rubber coupling with external adjustable stainless steel shear rings (Type 316)

Banded rubber coupling with no shear ring

Variable

Wye

45°

Banded rubber coupling with shear ring

SECTION FOR DROPS EXCEEDING 1.5 FEET

Banded rubber coupling with shear ring

90°

Class 2 concrete or CLSM

NOTES:

1. Drop manholes shall not be used in design unless authorized by CVSan. Drop manhole replacement or repair is allowed only with prior CVSan approval.

2. All dimensions and standards for manholes are specified on Drawing No. 13.
County Right of Way

One way clean out with sewer popper

Existing Grade

Gravity building sewer (lateral)
See Drawing No. 9

Private force main

Private Pump System
Sanitary sewers and appurtenances thereto shall be constructed in accordance with the provisions of the Castro Valley Sanitary District (CVSan) Code at the time of acceptance and the general provisions and specifications therein set forth which are incorporated herein by reference.

Sanitary facilities as shown on these plans were approved by the Sanitary Board of the Castro Valley Sanitary District on the ____ day of _____________, 20____, by Resolution No.______.

Castro Valley Sanitary District

By __________________________
Authorized Officer of CVSan

Approved by Castro Valley Sanitary District (CVSan) Resolution No: __________

See Sheet ______________ for approval signature and construction requirements.

Notes:
1. Cover sheet block shall be approximately 3.5” x 8” in size on 24” x 36” sheet.
2. Interior sheet block shall be approximately 1” x 3” in size on 24” x 36” sheet.
3. Blocks shall be located in lower right corner of sheet when possible.
New pipe (see Note 2) or smooth channel surface with 1/2" cement mortar

NOTES:

1. Contractor shall install the new sewer by cutting a trench through the existing concrete base of the manhole. The width of the trench shall be wide enough to permit placement of three (3) inches of Class 2 concrete on both sides of the pipe.

2. Where possible, the pipe will be laid through the manhole and the top broken out to springline after the concrete in the base has set. Work is to be finished in a workman like manner.

3. Where removal of concrete extends to bottom of manhole base, the material below the pipe cutout shall be over excavated to provide a minimum concrete thickness of six (6) inches below the bottom of the new sewer installation.

New sewer line added
See Note 1

Protect existing barrel of manhole

Remove existing concrete as required

A

B

B'

A'

Flow

Protect existing barrel and base concrete at pipe crossing location

Existing pipe

New pipe

New base

6" min.

4"
Frame, cover and AC lip to be within 1/8 inch of the elevation of surrounding pavement to be determined with straight edge as shown.

Existing AC  6" min.  AC pavement per Alameda County, see Note 4

Class 2 concrete collar

Compact subgrade to 95% RC

NOTES:

1. If new grade is to be higher than existing grade, manhole throat depth shall not exceed twelve (12) inches. Add same diameter barrel sections as necessary.

2. If new grade is to be lower than existing grade, remove grade rings or sections of the barrel and install combination of barrel section and grade rings as necessary.

3. If an existing eccentric cone is to be removed, it must be replaced with the concentric type.

4. AC paving is to conform to the standards of Alameda County. Place temporary AC (cutback) around utility frame until permanent paving is placed.

Castro Valley Sanitary District
21040 Marshall Street
Castro Valley, CA 94546

MANHOLE FRAME MODIFICATIONS

Drawn By: MRK
Date: 09/28/2017
Checked By: LML
Approved By: RPW
Scale: NTS

Drawing No. 21
NOTES:

1. False bottom is to be constructed of 1" marine grade plywood. The plywood is to be cut to a 4' diameter circle and then cut in half. The false bottom must be placed in the manhole with the seam perpendicular to direction of flow, or in such a manner as to protect the pipe inlet from any debris.

2. False bottom is to be placed on blocks with a minimum clearance of 4" above all wastewater inlets of the manhole. False bottom shall be connected to the blocks by nail or screw to prevent the blocks from falling into the flow. Blocks shall not obstruct the flow of wastewater.

3. Debris shall be removed from the manhole each time work in manhole is performed.

4. Installation of false bottom must be approved by CVSan and a notification given 24 hours prior to commencement of work.

5. Any overflows, blockages and/or damages to sewer pipe associated with the failure of false bottoms shall be the full responsibility of the agency/contractor that installed the false bottom.

6. Agency/contractor installing false bottoms is to confirm with CVSan all drop manholes prior to commencing the work.
NOTES:

1. Backwater prevention system (BPS) shall include a check valve, a two-way cleanout (CO), and an overflow device installed on the CO. Other types of backwater prevention devices may be approved by CVSan.

2. A backwater prevention system is required as follows:
   A. On all new building sewers
   B. On all existing building sewers requiring repair or replacement of more than 50 percent of the building sewer.
   C. Other conditions identified in CVSan Code Section 3807.

3. Approved boxes are: Christy concrete products F08 concrete box with F08 R lid or N36 concrete box with B36 lid. N36 box is allowed upon approval of CVSan inspector.

4. All box lids shall be marked with the word "SEWER".

5. In areas subject to vehicular traffic, use solid cast iron lid.

6. Refer to CVSan Code Section 3807 for approved backwater valves, and Section 3810 for approved cleanout devices.

7. Backflow preventer may be ABS or PVC. It must be extendable if more than 18" deep.
NOTE:
Existing manholes to be abandoned shall have the castings, grade rings, and manhole body removed to the bottom of the cone section with the removal of the manhole rings to a minimum of four (4) feet below street grade or existing ground elevation. After plugging of existing pipelines at the manhole, the remainder of the manhole barrel shall then be filled and compacted with Class 2 AB material. The manhole frame and cover shall be salvaged and provided to CVSan. The removed concrete shall be disposed of by the contractor in accordance with state regulations.