City of Camden Water & Sewer

Operated by

AMERICAN WATER
Contract Services

Guide to Municipal Utilities

Contents

Introduction

The City of Camden – Guide to Municipal Utilities has been prepared to offer Camden Property Owners a reference document for understanding City procedures for your water and sewer connections in order to properly address your needs and questions. The Guide details specific information associated with connecting, removing or upgrading your individual property services as well as related topics such as meters, hydrants and backflow preventers.

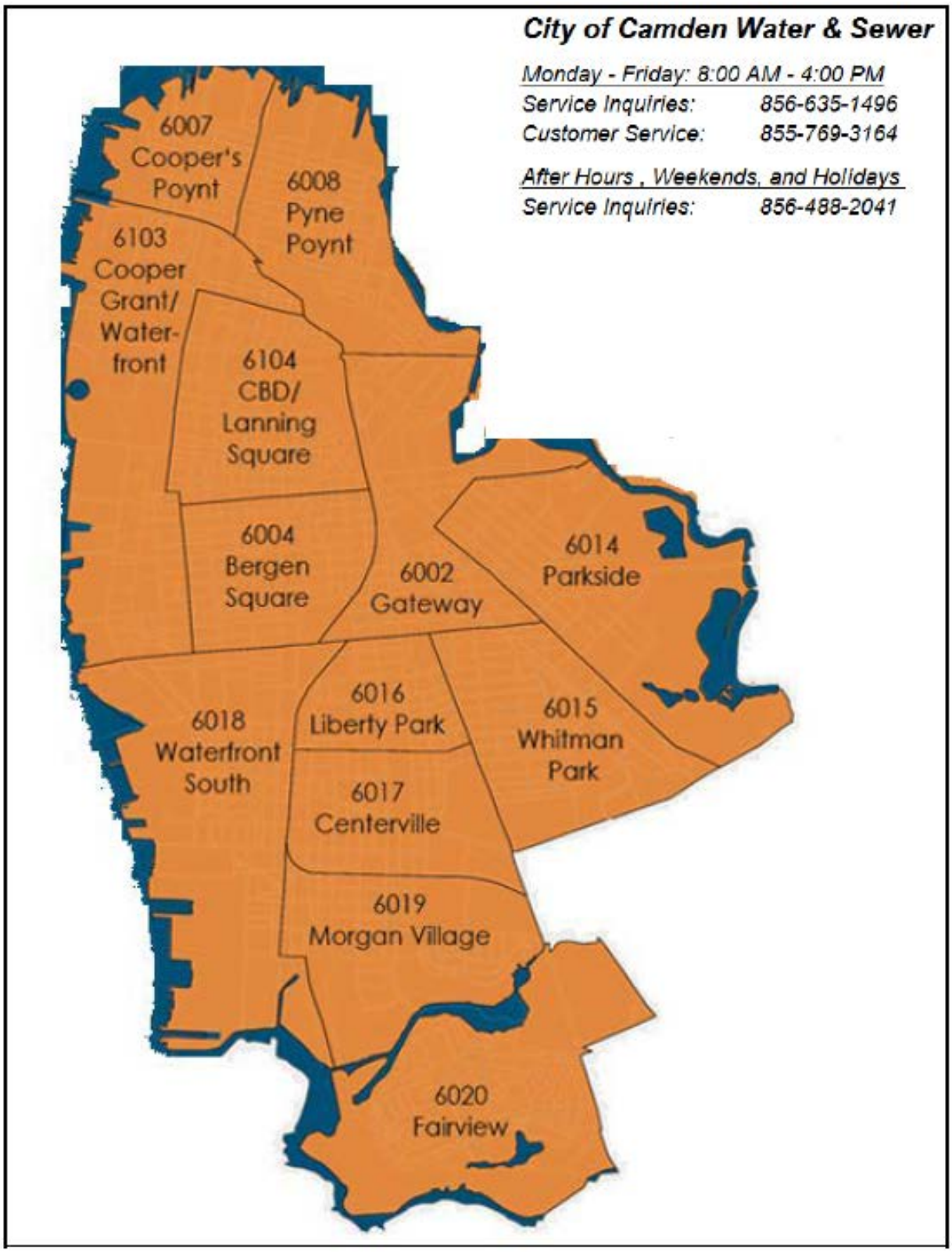
If you are a developer or a property owner looking to develop multiple uses, please contact the City of Camden Division of Capital Improvements & Project Management, Department of Planning and Development for the appropriate information which is not included in this Guide.

All property owners in the City of Camden are connected to City's sewer collection system. Your wastewater is then conveyed to the Camden County Municipal Utilities Authority (CCMUA) treatment facility. You are responsible for payment for fees for conveyance of your waste stream and are billed on a quarterly basis. Additionally CCMUA will bill you for treatment costs.

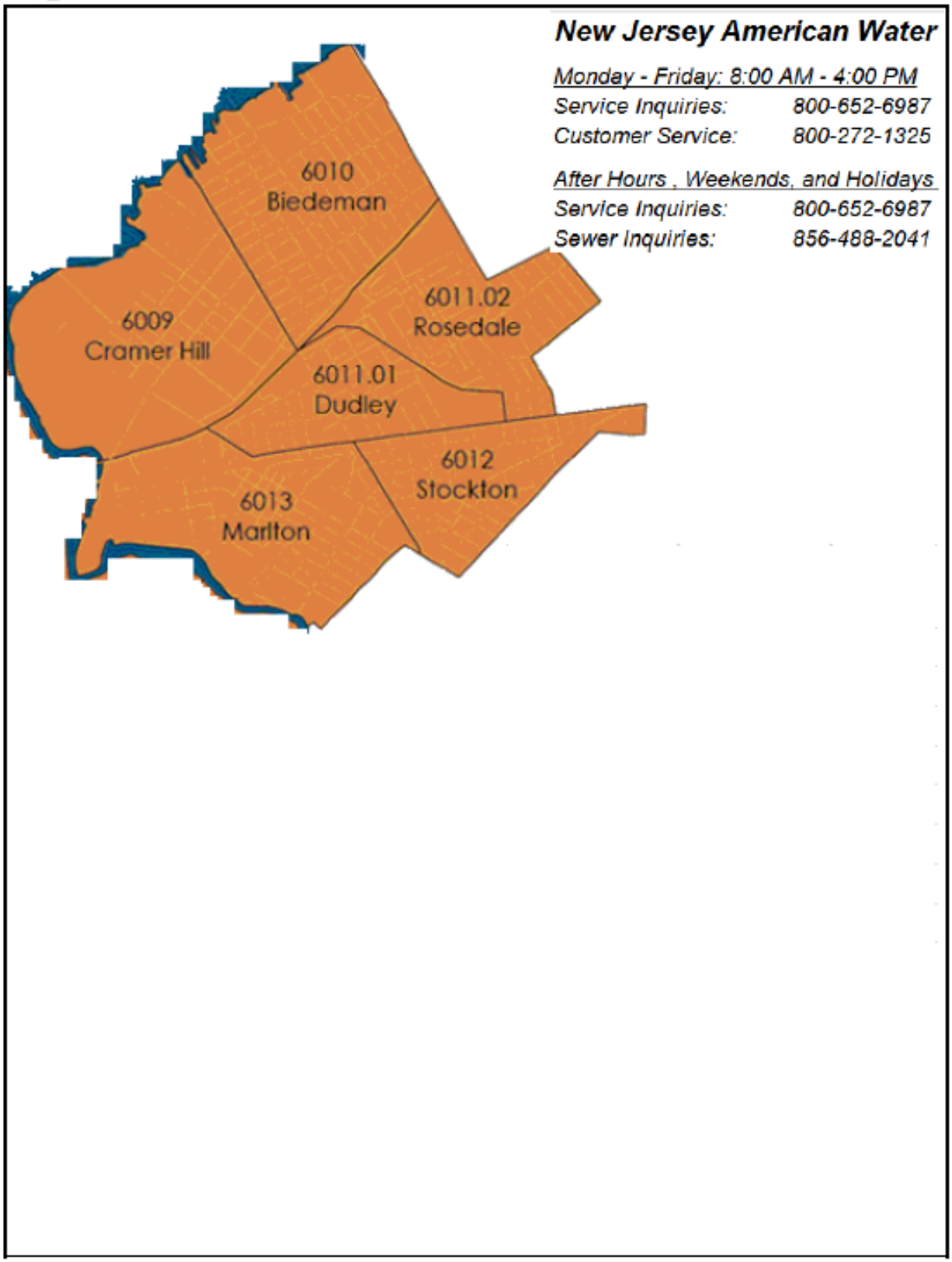
The majority of Camden properties also are connected to the City's water distribution system. Those not on City water are located in the City area north and east of the Cooper River where service is provided by either New Jersey American Water or Merchantville-Pennsauken Water Commission. This guide includes maps to further clarify these boundaries.

The City's water and sewer system are operated, maintained and managed under a long term contract with American Water Operations and Maintenance, LLC, a division of American Water, a Camden County based firm. Their contact information is contained herein.

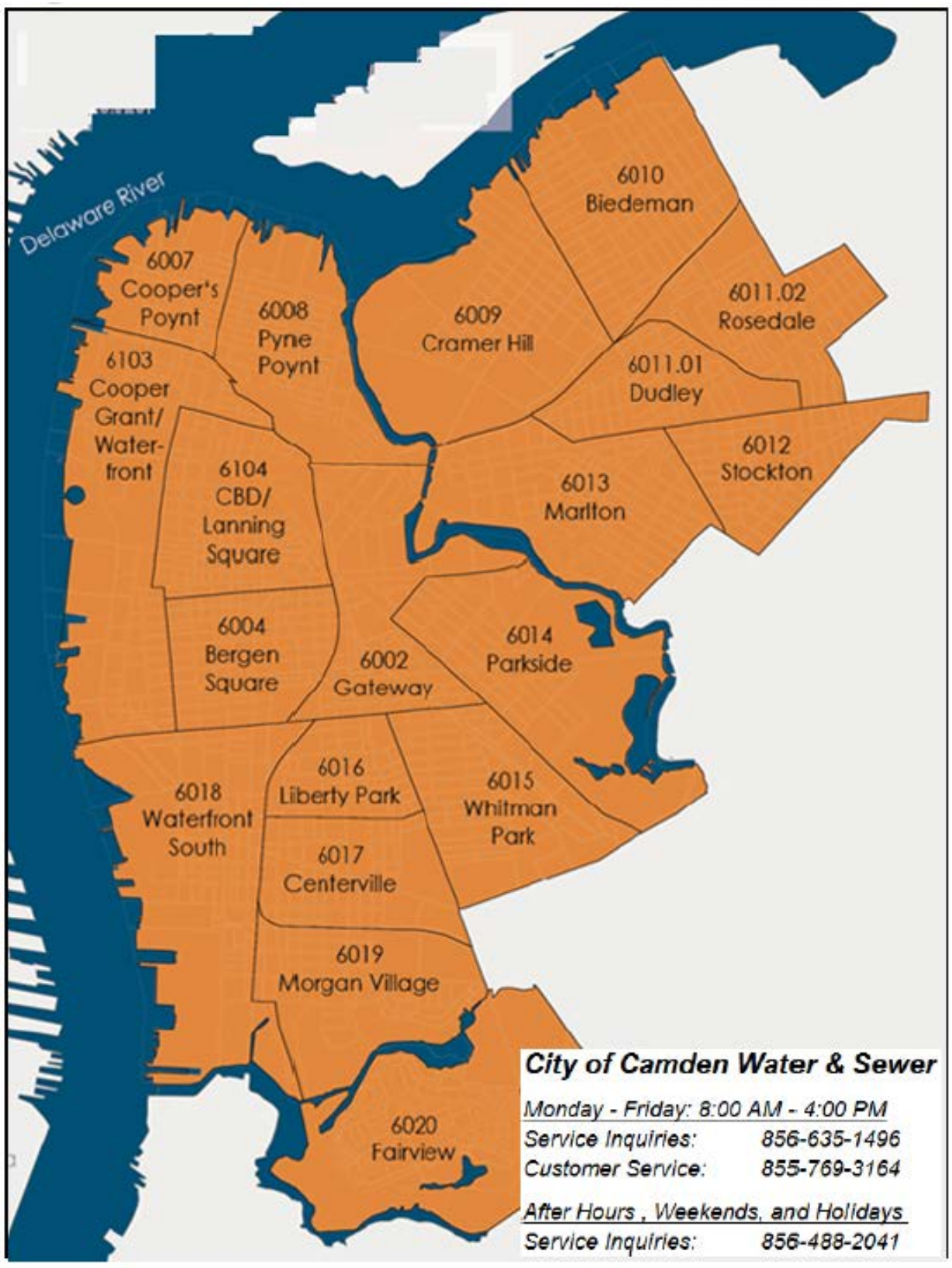
City of Camden - Water Service Territory



New Jersey American - Water Service Territory



City of Camden - Sewer Service Territory



Water Service

General Information

1. The City of Camden provides water service for two (2) customer classes:
   a. Residential
      Service to a residential structure through a meter size of 5/8 inch by 3/4 inch: or 3/4 inch by 3/4 inch; or 1 inch where water consumption is for domestic purposes and the sewage generated is the result of domestic activities.
   b. Commercial
      Service to a structure where the consumption of water and the sewage generated is related to other than domestic activities. Any service through a meter size in excess of 1-1 /2 inch or larger shall constitute commercial service.

2. Water connections (service lines) are subject to the existence of an adequately (capacity and pressure) sized City distribution main within a public right of way or an easement abutting the property to be served.

3. The property owner is responsible for the cost to install a water service Line (domestic water or fire protection) to any City water main.

4. No water service line shall be used to supply more than one building.

5. A separate curb stops or shut off valve is required for each type of water service line (domestic water or fire protection).

6. No person shall cut or disconnect a water service pipe connected a City water main without first obtaining a permit so to do.

Is water service available to my property?

Using the enclosed maps, verify that your property is in the City of Camden Water service territory.

1. Property has a Standing Structure
   a. Contact the City of Camden's Contract Operator for municipal utilities at **855-769-3164** with your site specifics, including block and lot information.
   b. The City of Camden's Contract Operator for municipal utilities will determine if there is an existing active water service line to the property in question.
   c. If there is an existing active water service line to the property, the City of Camden's Contract Operator for municipal utilities will establish a Utility Account for the property or premise.
   d. If there is no existing active connection to the property, the applicant must contact the **Division of Capital Improvements and Project Management** at **856-757-7680** to complete an "Application for Water Service ".

2. Property without a Standing Structure
   a. The applicant must contact the **Division of Capital Improvements and Project Management** at **856-757-7680** to complete an "Application for Water Service ".

What about changes in existing water service?

1. Any request for an increase in size of a service will be directed to **Division of Capital Improvements and Project Management** for processing. This request is subject to fees for the new water service line, and the abandonment of the existing water service line.

2. Any request for a relocation of an existing water service line will be directed to **Division of Capital Improvements and Project Management** for processing, and will be to fees for the new water service line and the abandonment of the existing water service line.

3. Customers requesting that the water service line be upsized and placed in a new location will be directed to the **Division of Capital Improvements and Project Management** for processing, and will be to fees for the new water service line and the abandonment of the existing water service line.

Will the existing mains support my proposed water needs?

1. Your water demands must be submitted to the **Division of Capital Improvements and Project Management** for analysis. The **Division of Capital Improvements and Project Management** will provide utility information regarding available water main(s) within a public right of way or an easement abutting the property to be served.

2. A larger water main may be required due to the proposed demand (fire & domestic) by the Developer. The property owner will be responsible for the fees for the installation of the new water main and the abandonment of the existing water main.

Who is responsible for installing a water service line?

1. The Customer is responsible for the installation cost of any water service line (domestic or fire protection).

2. For water service lines 1 inch or less in size for a single existing structure will be made by the City's Contractor Operator for municipal utilities. The property owner will be billed the cost for making the physical connection to the City water main, including all permitting, traffic control, and street restoration costs.

3. For water service lines greater than 1 inch in size for a single existing structure, the customer must secure the services of a licensed plumber or contractor for the installation of the water service tap and appurtenances. The customer's licensed plumber or contractor must schedule his/her work through the **Division of Capital Improvements and Project Management** so said work can be inspected and verified to be in compliance with all City Ordinances and specifications of the **Division of Capital Improvements and Project Management**.

Water Service Installation Requirements

1. All necessary piping, tubing, fittings, adapters, etc.. to make connection to new water service lines shall be "lead free" " as defined by Section 1417 of the Safe Drinking Water Act (SDWA).

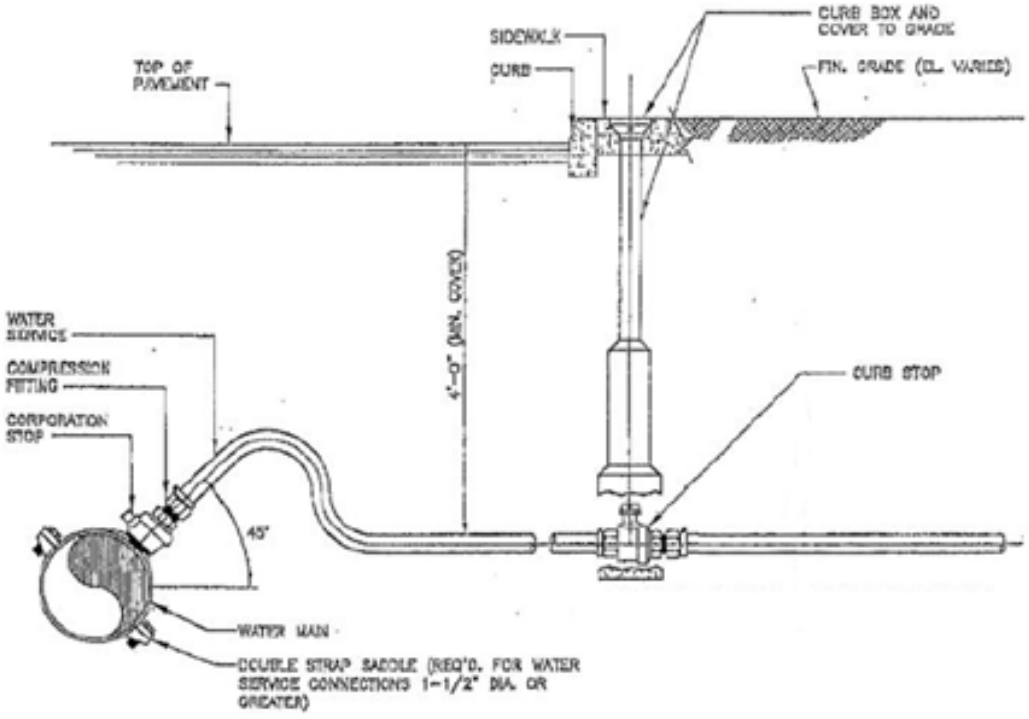
2. Should it be necessary to install a water main to provide water service to a property. The water main and all fittings/appurtenances shall be cement lined Class 56 ductile iron with mechanical joints.

3. Water service lines are to be run perpendicular from the main to the curb box or roadway valve box, and shall be located in front of the building to be served.

4. Water service lines shall be laid at least ten feet horizontally from any existing or proposed drain or sewer line. Should local conditions prevent a lateral separation of ten feet, a water service line may be laid closer than ten feet to a storm or sanitary sewer line, provided that the service line is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer line and at such an elevation that the bottom of the service line is at least eighteen inches above the top of the sewer line.

5. Water service lines shall have a cover of not less than four (4) feet or more than five (5) feet, unless obstructions require deeper excavation for clearance that is approved by the **Division of Capital Improvements and Project Management**.

Residential Water Service Lines

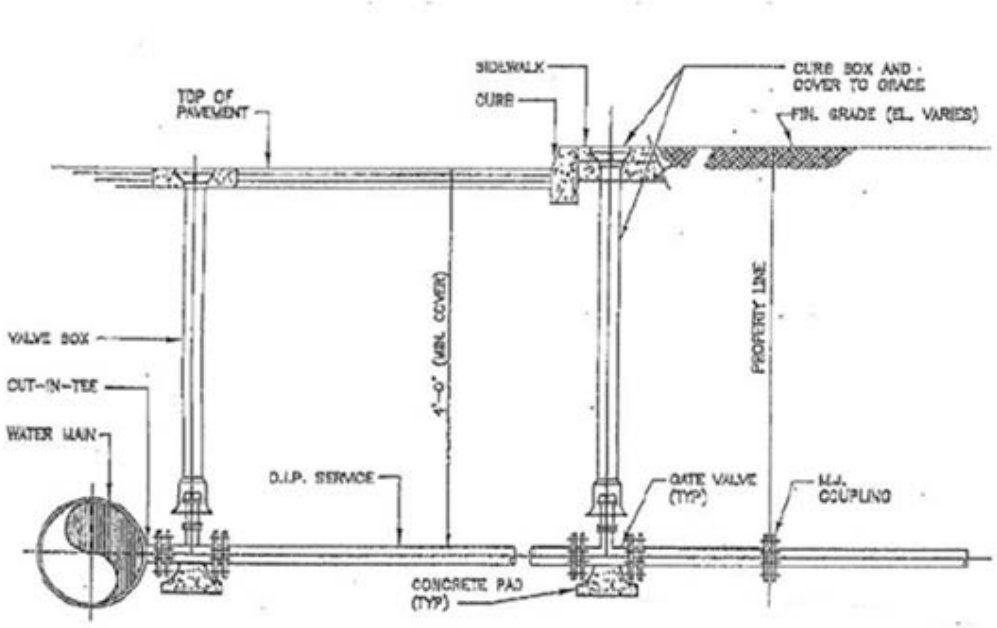


Typical Residential Water Service < 2”

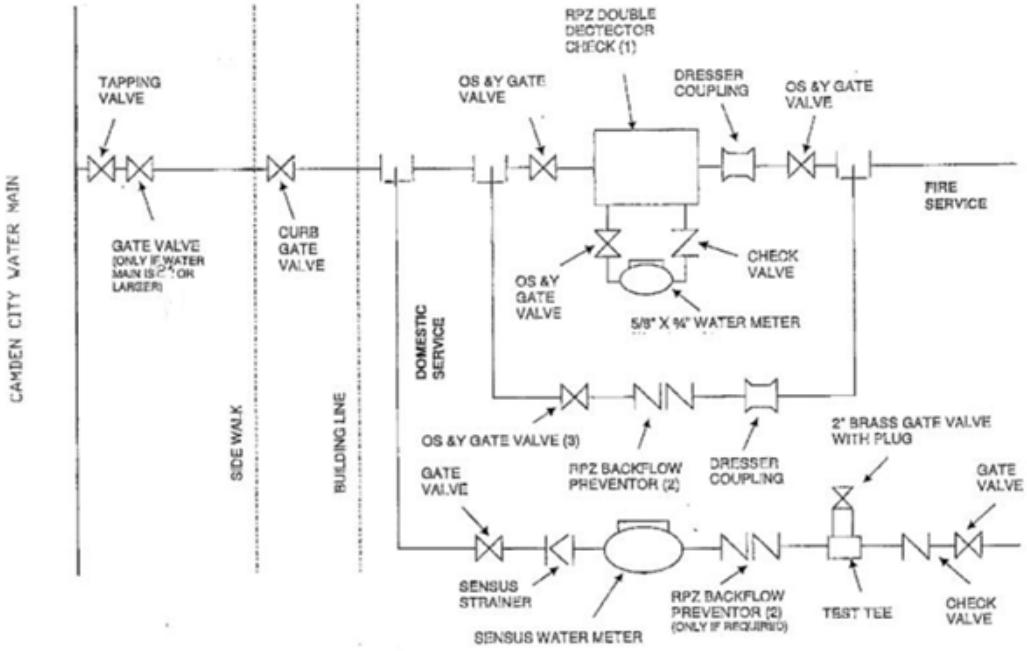
Notes:

1. Contractor shall provide all necessary piping, fittings, adapters, etc.. to make connection to new water service lines.
2. Water service lines 2” and smaller shall be Type L copper tubing.
3. Contractor shall provide double strap saddle for water service connections 1-1/2” in diameter or greater. For water service connections less than 1-1/2” in diameter, the corporation shall be tapped directly into the water main.
4. Existing water service lines to be abandoned in place shall be disconnected at the water main per City Ordinances.
5. Existing water service lines and corporation stops to be abandoned shall be free of leaks. If the corporation stop is leaking, it should be removed from the water main and the penetration in the water main repaired using an approved pipe repair clamp.

Commercial Water Service & Fire Service Lines



Typical Commercial Water Service – Domestic Service Only



Typical Commercial Water Service – Domestic Service & Fire Service

Notes:

1. Contractor shall provide all necessary piping, fittings, adapters, etc.. to make connection to new water service lines.
2. Water service lines > 2" shall be cement lined Class 53 ductile iron pipe with mechanical joints.
3. Existing water service lines to be abandoned in place shall be disconnected at the water main per City Ordinances.

Water Service Installation Records

1. A record drawing must be completed for water service lines, and must contain the following:
   a. Indicate street curb lines, driveways, sidewalks, building outlines, lot lines, and street names so that location of water service line(s) with respect to other facilities is clear.
   b. Provide distances in feet, accurate to 1/10 ft., from two control points to corporation or tapping valve. Control point can be a center of manhole, top of hydrant, or center of valve box cover. The type and location of the control point should also be shown on the drawing.
   c. Indicate distance from curb line to centerline of water main to which connection was made.
   d. Indicate size of water service pipe and its length between tapping valve, curb valve and exterior building wall.
   e. Show all abandoned in place water service lines including the method of abandonment.

2. The record drawing must be submitted to the **Division of Capital Improvements and Project Management**, and a copy supplied to the City of Camden's Contract Operator for municipal utilities at: **American Water Contract Services**
   100 South 17th Street
   Camden, NJ 08105

Residential Water Service Tap Record

City of Camden
Water and Sewer

Service Adderss: 1234 Any Street
(Physical address of structure)

Camden, New Jersey | 08105 (Zip Code) | Block: 1501 | Lot: 1

Date Installed: 01/01/16 | Installed by: Joe's Plumbing (Contractor/Plumber Name)

Main Size: 6 inch | Main Material: Cast Iron (CIP/DIP/etc...)

Depth of Main: 5.35 feet

Corporation Size: 3/4 inch | Service Line Material: Copper

Curb Stop Size: 3/4 inch | Service Length: (Main to Curb Stop) 8.55 feet

Curb Box Type: Buffalo City Standard | Depth of Service: (at Water Main) 5.35 feet

Depth of Service: (at Curb Stop) 5.35 feet

GPS Coordinates	Latitude	Longitude
Corporation	39.15984	-75.35982
Curb Box	39.15991	-75.35989

GPS coordinate must be in decimal degrees to five decimal places.

Physical description of Water Tap Location

North (N/E/S/W) side of the of the 6 inch City water main serving the structure

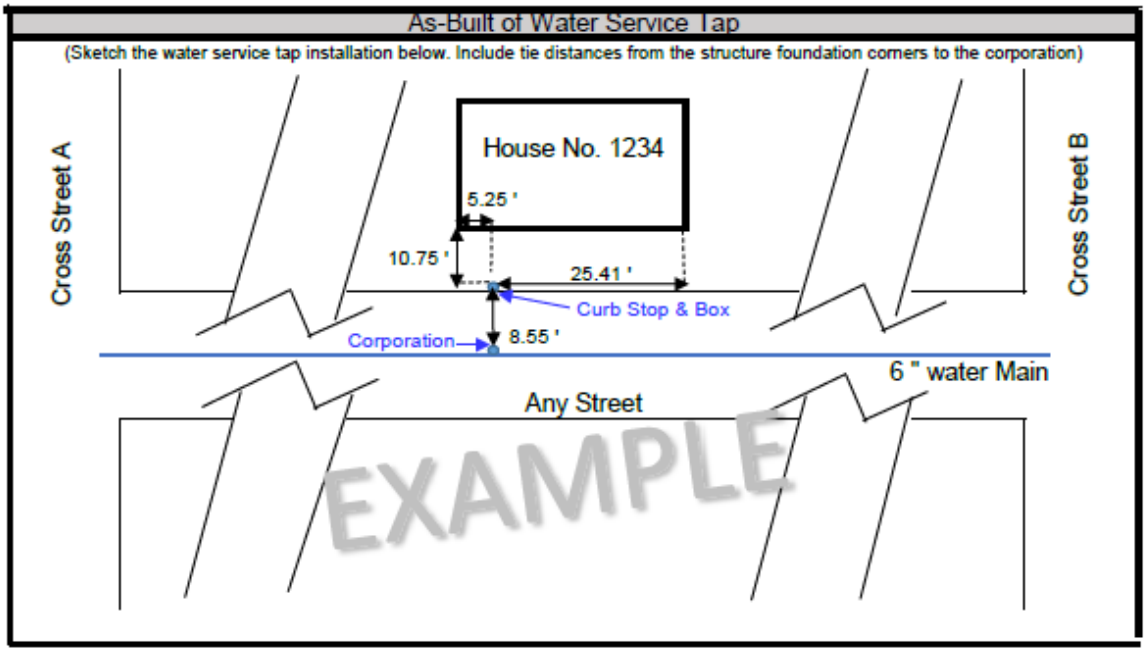
25.41 feet from the right (right/left) side of the structure looking from the street.

Comments:

EXAMPLE

As-Built of Water Service Tap

(Sketch the water service tap installation below. Include tie distances from the structure foundation corners to the corporation)



Commercial Water Service Tap Record

City of Camden
Water and Sewer

Service Adderss: 1234 Any Street
(Physical address of structure)

Camden, New Jersey | 08105 (Zip Code) | Block: 1502 | Lot: 6

Date Installed: 01/01/16 | Installed by: Root 24 Plumbing (Contractor/Plumber Name)

Main Size: 6 inch | Main Material: Cast Iron (CIP/DIP/etc...)

Depth of Main: 5.35 feet

Example

Tap Valve Size: 6 inch | Service Line Material: Ductile Iron

Tap Valve Opens: Right | Service Length: (Main to Curb Valve) 8.55 feet

Turns: 21

Tap made using: Cut in Tee [X] | Tapping Sleeve [ ]

Depth of Service: (at Water Main) 5.35 feet

Depth of Service: (at Curb Valve) 5.35 feet

GPS Coordinates	Latitude	Longitude
Saddle/Tee	39.15984	-75.35982
Street/Tap Valve	39.15991	-75.35989
Curb Valve	39.15998	-75.35996

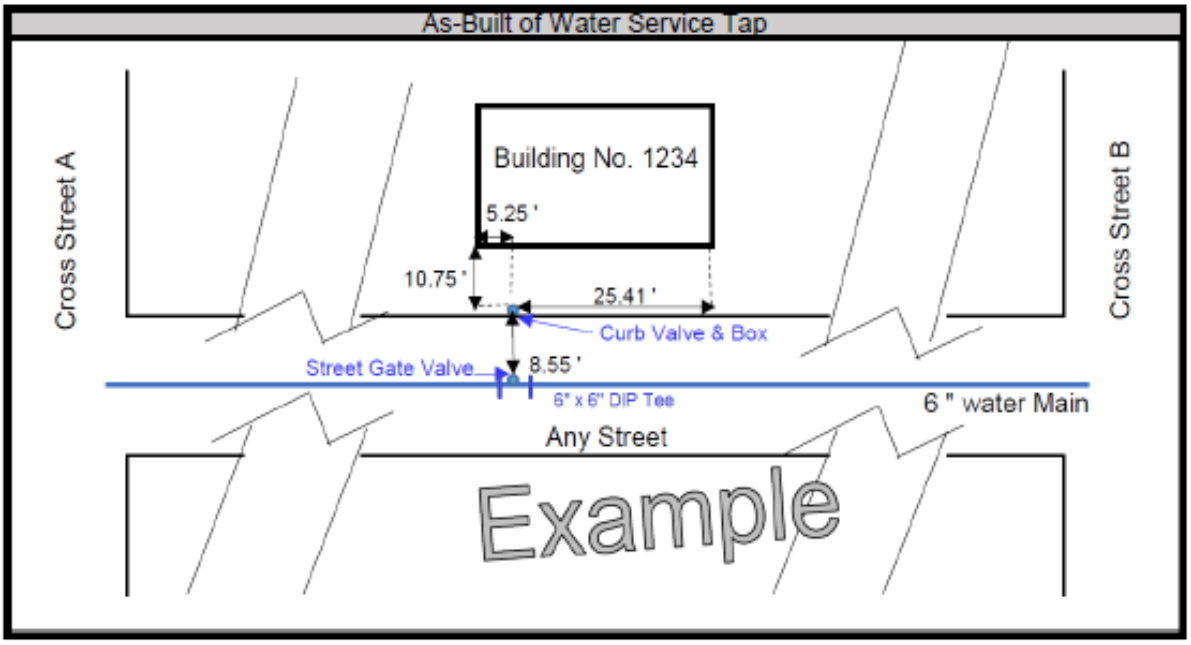
GPS coordinate must be in decimal degrees to five decimal places.

Physical description of Water Tap Location

North (N/E/S/W) side of the of the 6 inch City water main serving the structure

25.41 feet from the right (right/left) side of the structure looking from the street.

Notes: City of Camden standard is OPEN Right (Clockwise) Valves.



Backflow Devices

1. Backflow devices are a requirement by the NJDEP for all fire services and certain domestic services.

2. Backflow devices are supplied, owned, regularly inspected (tested) and maintained by the customer. The Property Owner shall obtain any required Physical Connection Permit.

   Excerpt from N.J.A.C. 7:10 Physical Connections and Cross Connection Control by Containment

   7:10-10.4 Installation

   (a) The approved physical connection installation shall be installed on the customer's side of the water meter on the pipe(s) conveying the water from the public community water system into a facility, shall be installed as close to the meter as is reasonably practicable, and shall be prior to any other connection, unless such other connection is also protected by means of an approved physical connection installation. For a fire service line, the approved physical connection installation shall be installed prior to the alarm check and siamese connection.

   (b) The approved physical connection installation shall be installed so as to allow easy access, with adequate space for maintenance, inspection, and testing. No part of the device shall be submerged or subjected to freezing temperatures unless such part is thermally protected

   (c) The approved physical connection installation shall not be installed in a pit or vault.

   1. *This subsection shall not apply to any physical connection installation operated under a current physical connection permit issued before November 18, 1996 until such time as the existing physical connection installation is replaced or modified.*

   (d) Unless specifically designed for installation in a vertical position, any device used as an approved physical connection installation shall be installed in the horizontal position. Devices specifically designed for vertical installation shall be installed in an up-feed position.

   (e) There shall be no bypass around any approved physical connection installation unless such bypass is also protected by an approved physical connection installation.

   (f) When a physical connection installation is proposed for a facility whose supply of water from the public community water system cannot be interrupted for testing and/or maintenance, a redundant backflow prevention device shall be provided at the facility.

3. Domestic service back flow devices are double check values for commercial accounts with low, standard hazard. High hazards, such as: Medical offices and facilities, veterinary facilities, per stores, funeral homes, businesses where water is mixed or used in the processing of chemicals, food stuffs, etc., will require RPZ, (Reduced Pressure Zone).

4. Domestic service back flow devices for residential accounts with gray water systems will require RPZ's.

5. All backflow devices need to be tested by a certified tester and reported to Water Company annually.

6. Fire line backflow device is determined by the type of fire service and its connections. If there are any chemical or foam additives, any anti-freeze loops, any tanks, etc., a RPZ is required. For standard wet or dry fire sprinkler service with no additives or cross connections, a double check valve assembly is acceptable.

7. Backflow devices cannot be placed in a vault, pit or confined space and per BOCA must be easily accessible. The backflow device with its inlet and outlet valves must be installed in an insulated above ground enclosure or building.

8. There can be no connections to the service line before the back flow device which is to be placed as close to the meter as possible.

9. Where the backflow device is in the building and hydrants are to be connected to the fire service they must be connected to the piping after the back flow device by running the piping back out of the building.

10. Adequate clearances from floors, ceilings and walls must be provided to access the test cocks and to allow the repair and/or removal of the relief valve and check valves; as follows:
    a. All assemblies shall be installed with a centerline height from 30 inches to 60 inches above the floor.
    b. Any installation at a greater height shall be provided with a fixed platform, a portable scaffold or a lift meeting OSHA standards.
    c. All RPZ devices must have an 18-inch minimum clearance between the bottom of the relief valve and the floor to prevent submersion and provide access for servicing and relief valve.
    d. A minimum of 12 inches of clear space shall be maintained above the assembly to allow for servicing check valves and for operation of shut-off valves.
    e. A minimum of 30 inches of clear space shall be maintained between the front side of the device and the nearest wall or obstruction.
    f. At least 8 inches' clearance should be maintained from the back side of the device to the nearest wall or obstruction. This clearance may need to be increased for models that have side mounted test cocks or relief valves that would be facing the back wall.

Private Fire Hydrants

1. Any request for a private fire hydrant will be directed to **Division of Capital Improvements and Project Management** for processing. Private fire hydrants shall be installed by the customer at the customer's expense, and are to be maintained and kept in good repair by the customer.

2. Fire Hydrants are to be installed perpendicular from the main to the valve box, and shall be located as specified by the City of Camden Fire Department.

Private Fire Hydrant Installation Records

1. A record drawing must be completed for private fire hydrants, and must contain the following:
    a. Indicate street curb lines, driveways, sidewalks, building outlines, lot lines, and street names so that location of water service line(s) with respect to other facilities is clear.
    b. Provide distances in feet, accurate to 1/10 ft., from two control points to corporation or tapping valve. Control point can be a center of manhole, top of hydrant, or center of valve box cover. The type and location of the control point should also be shown on the drawing.
    c. Indicate distance from curb line to centerline of water main to which connection was made.
    d. Indicate the length size of hydrant lateral between tapping valve/cut-in valve and the curb valve.

2. The record drawing must be submitted to the **Division of Capital Improvements and Project Management**, and a copy supplied to the City of Camden's Contract Operator for municipal utilities at: **American Water Contract Services**
100 South 17th Street
Camden, NJ 08105

City of Camden
Water and Sewer

Fire Hydrant Record

Hydrant ID: (CMMS) _____ Public Private X

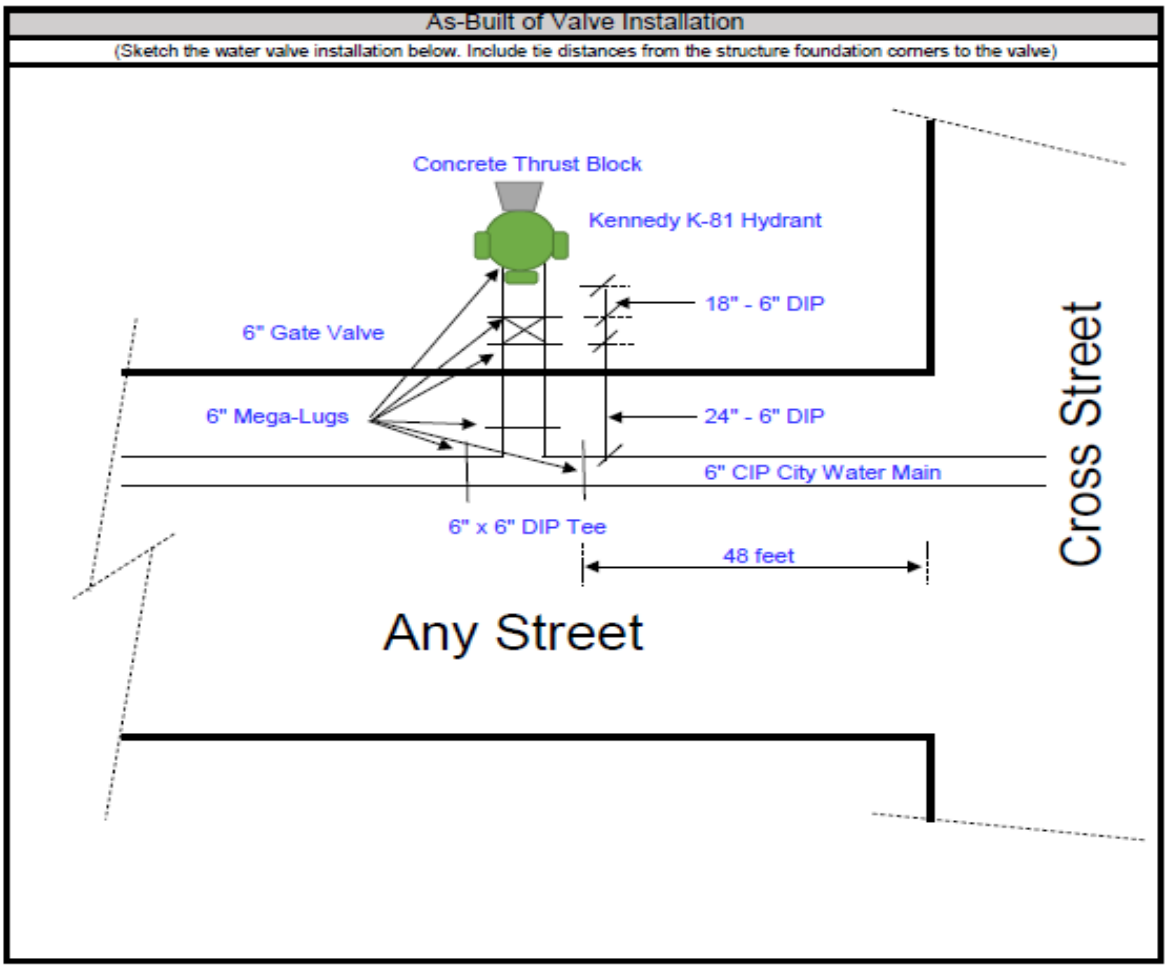
Hydrant Location: Any Street (48 feet west of Cross Street)
(Street intersection. If mid block use closest structure street address)

Hydrant Make:	Kennedy			Size of Water Main:	6	inch
Hydrant Model:	K-81			Hydrant Valve Size:	6	inch
Outlets Side:	2	Size:	2-1/2 inch	Valve Opens:	Right (CW)	
Steamer:	1	Size:	4-1/2 inch	Valve Type:	Vertical Gate	
Depth of Bury	4-1/2 feet			No. of Turns:	21	to open

GPS Coordinates GPS coordinate must be in decimal degrees to five decimal places.

Hydrant	Latitude	39.12345	Valve	Latitude	39.12687
	Longitude	-75.12345		Longitude	-75.12687

As-Built of Valve Installation
(Sketch the water valve installation below. Include tie distances from the structure foundation corners to the valve)



Who is responsible for the maintenance of the water service line?

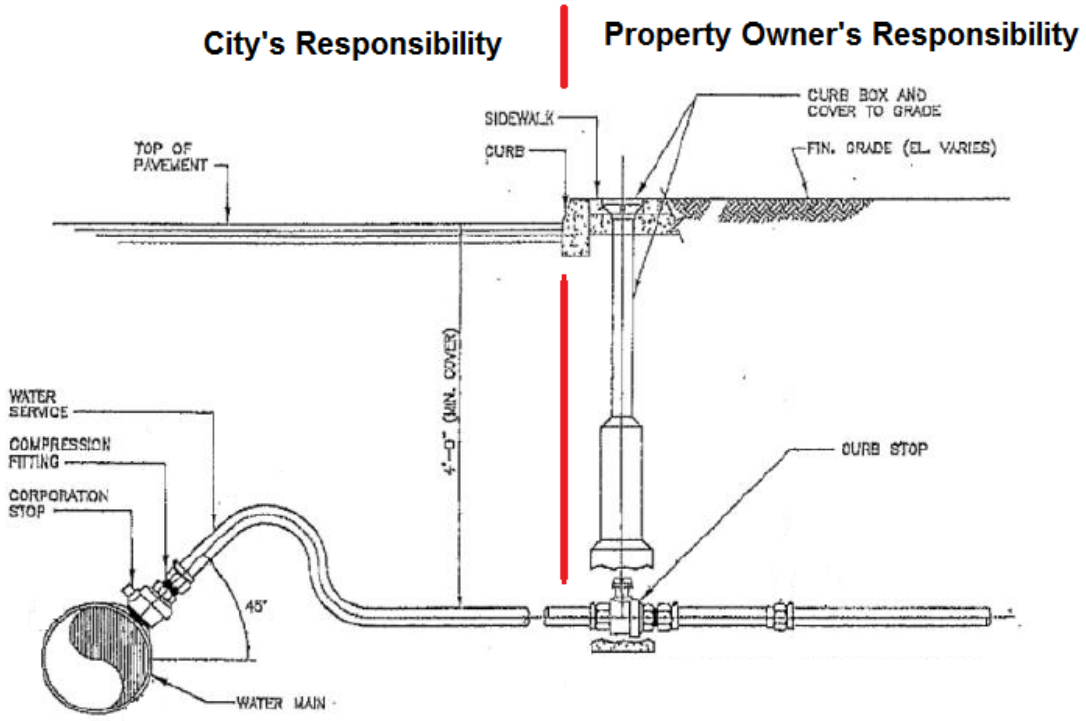
1. Once a water service line is installed, the City of Camden / City's Contract Operator

for municipal utilities will be responsible for the maintenance of the water service line from the water main to the street side of the curb line; and the property owner is responsible for the maintenance of the water service line from the curb line to the structure; including curb stops/curb valves, curb boxes, and valve boxes.

2. It is the property owner's responsibility to protect the curb stops/curb valves, curb boxes, and valve boxes for the water service line from damage and vandalism.

3. Stopcocks or valves on a City water main are only to be operated by employees of the City of Camden's Contract Operator for municipal utilities, or a duly licensed plumber authorized the City of Camden's Contract Operator for municipal utilities.

4. Curb stops or curb valves used on water service lines are only to be operated by employees of the City of Camden's Contract Operator for municipal utilities, or a duly licensed plumber authorized by the City of Camden's Contract Operator for municipal utilities.



Water Service Maintenance

Water Meters

1. All water supplied to consumers for consumption or for fire service use from the City's water supply shall be metered, except in extraordinary circumstances where, in the opinion of the **Division of Capital Improvements and Project Management**, metering would be impractical.

2. All water meters shall be installed by the consumer, at their own cost and expense, except commercial consumers.

3. The water meter MUST be installed before water to the structure is turned on at the curb stop / curb valve. If the water service is turned without a water meter being installed, the Director of Public Works may direct the City's contract operator to furnish and install the meter. Such installation authorized by the City shall be at the cost and expense of the consumer, including any additional piping or protection required, and may also result in a "theft of service" citation being issued by the City of Camden.

4. The meters in commercial establishments shall be installed, owned and controlled by the City of Camden.

5. All meters at all times are under the control of the City of Camden.

6. Any service through a meter size in excess of 3/4 inch shall constitute commercial service.

7. All meters shall be set as near as possible to the point where the water service line from the street main enters the consumer's structure. However, City may alter the location of the meter for the purpose of accessibility.

8. A shut off valve shall be provided ahead of the meter on all service lines.

9. The customer must provide a suitable electrical bonding connection around the meter that is in compliance with the National Electrical Code - 1978, Section 250-112, and local power company electric service installation regulations.

10. The City assumes no responsibility for continuity of electrical grounding systems by the installation or removal of water meters.

How do I obtain a water meter for my property?

1. There must be water service available at the property. See section entitled: *Is water service available to my property?*

2. If your property has water service but does not have a water meter, you must contact the **Division of Capital Improvements and Project Management.**
    a. The **Division of Capital Improvements and Project Management** will check to see that all applicable water service fees associated with the property have been paid.
    b. Once all applicable water service fees are paid, the **Division of Capital Improvements and Project Management** will notify the City's Contract Operator for municipal utilities that the property owner is authorized to purchase a water meter.

3. Contact the City of Camden's Contract Operator for municipal utilities at **856-541-3810**

with your site specifics, including block and lot information.

a. You will need to provide the type and size of the water meter you require for your property.
b. A Customer Service Representative will advise of the price of the water meter.

4. The City of Camden's Contract Operator for municipal utilities maintains a Customer Service Counter where you must go to pay for the water meter at:

   PNC Bank
   110 Broadway
   Camden, NJ 08102

5. In order to purchase a water meter, you must bring the following:
   a. A NJ issued photo ID.
   b. The original deed or a "certified true copy" of the deed.
      i. An original HUD-1 Form can be used in lieu of the original deed or "certified true copy" of the deed.
   c. Cash, a check, or a money order.

   Note:
   If the water meter is being purchased by a LLC or Corporation, the *Registered Agent*, *Manager*, or a *Member* must bring a copy of the Certificate of Formation issued by the **New Jersey Department of the Treasury, Division of Revenue**.

Meter Price Chart

Size	Meter Type	Meter	Coupl.	Total
5/8" x 3/4"	Positive Displacement Meter	$ 104	$ 13	$ 117
3/4" x 3/4"	Positive Displacement Meter	$ 143	$ 20	$ 163
1"	Positive Displacement Meter	$ 214	$ 26	$ 240
1-1/2"	Positive Displacement Meter	$ 382	$ 33	$ 415
2"	Positive Displacement Meter	$ 486	$ 46	$ 532
3"	Turbine Meter	$ 809	$ -	$ 809
4"	Turbine Meter	$ 1,683	$ -	$ 1,683
6"	Turbine Meter	$ 2,977	$ -	$ 2,977
8"	Turbine Meter	$ 4,725	$ -	$ 4,725
10"	Turbine Meter	$ 6,213	$ -	$ 6,213
3"	Compound Meter	$ 1,489	$ -	$ 1,489
4"	Compound Meter	$ 2,298	$ -	$ 2,298
6"	Compound Meter	$ 4,336	$ -	$ 4,336
8"	Compound Meter	$11,158	$ -	$11,158
10"	Compound Meter	Call for Pricing		
4"	UL& FM Fire Line Meter	$ 5,329	$ -	$ 5,329
6"	UL& FM Fire Line Meter	$ 6,981	$ -	$ 6,981
8"	UL& FM Fire Line Meter	$10,858	$ -	$10,858
10"	UL& FM Fire Line Meter	$15,319	$ -	$15,319
12"	UL& FM Fire Line Meter	Call for Pricing		
Call to verify meter price, as prices are subject to change by the supplier without notice.				

6. After paying for the water meter, contact City of Camden's Contract Operator for municipal utilities at **856-541-3810** to arrange to pick-up your meter at:

   American Water Contract Services
   100 South 17th Street
   Camden, NJ 08105

7. Remember to bring the receipt issued by the Contract Operator's Customer Service Counter in order to pick-up the meter.

Water Meter Installation Record

1. A record drawing must be completed for the water meter.:
   a. Indicate street curb lines, driveways, sidewalks, building outlines, lot lines, and street names so that location of water meter(s) with respect to other facilities is clear.
   b. Provide distances in feet, accurate to 1/10 ft., from two control points to the point where the water service enters the structure. Control point can be a center of manhole, top of hydrant, or center of valve box cover. The type and location of the control point should also be shown on the drawing.

2. The record drawing must be submitted to the **Division of Capital Improvements and Project Management**, and a copy supplied to the City of Camden's Contract Operator for municipal utilities at: **American Water Contract Services**
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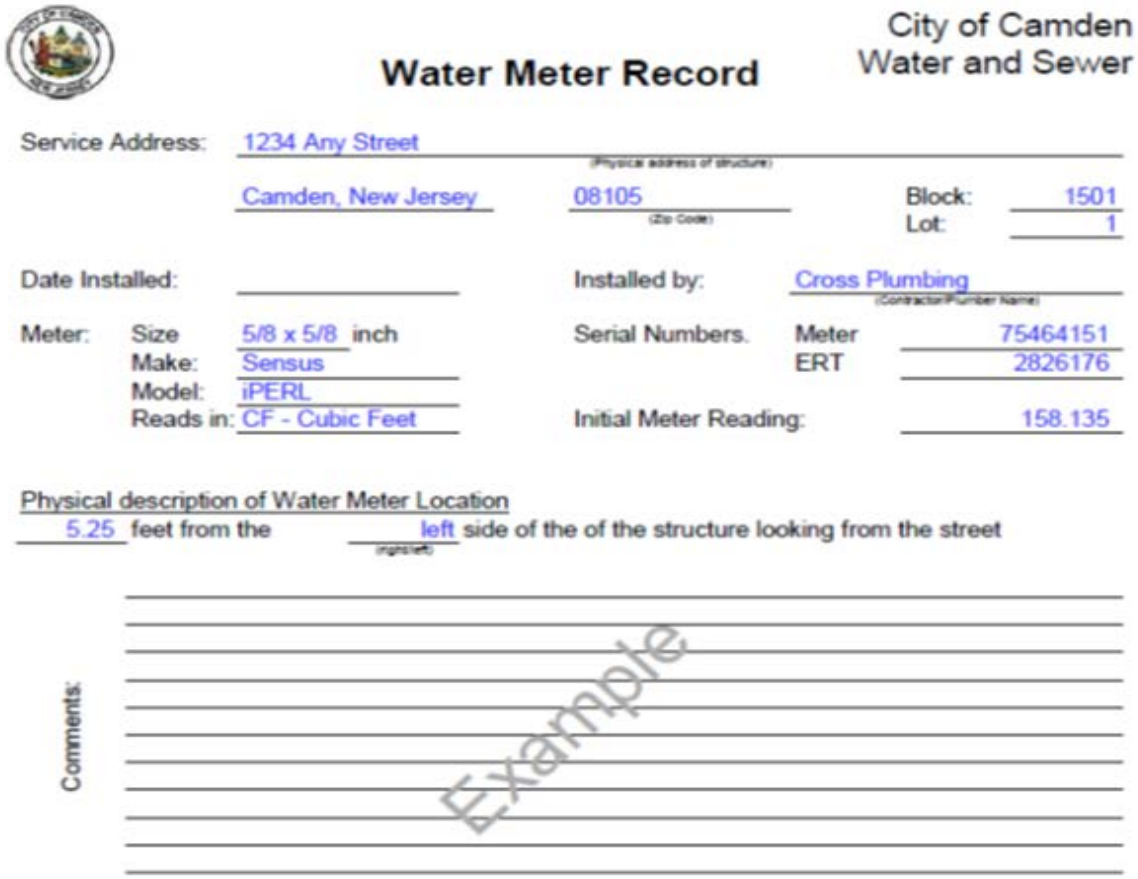


City of Camden
Water and Sewer

Water Meter Record

Service Address: 1234 Any Street (Physical address of structure)

Camden, New Jersey 08105 (Zip Code) Block: 1501 Lot: 1

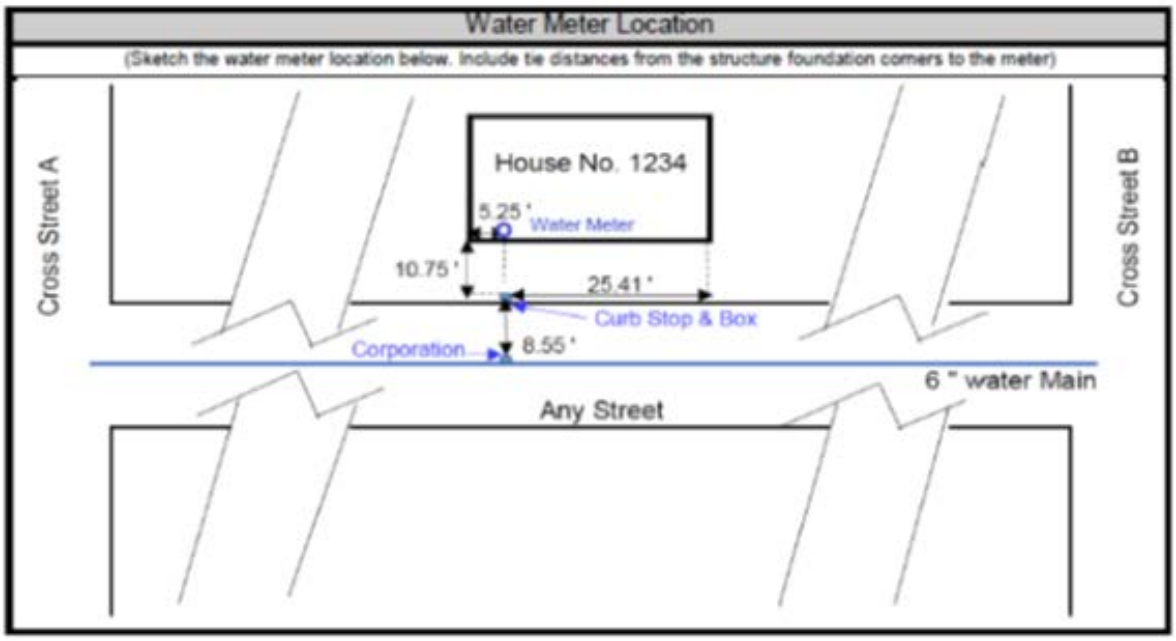
Date Installed: _____ Installed by: Cross Plumbing (Contractor/Plumber Name)

Meter: Size 5/8 x 5/8 inch Serial Numbers. Meter 75464151
Make: Sensus ERT 2826176
Model: iPERL
Reads in: CF - Cubic Feet Initial Meter Reading: 158.135

Physical description of Water Meter Location
5.25 feet from the left (right/left) side of the of the structure looking from the street

Comments:

Example



Failure to install a meter

1. If a meter is not installed within the time established by the Director of Public Works or if the consumer shall direct, the Department of Public Works shall furnish and install the meter. Such installation by the City shall be at the cost and expense of the consumer, including any additional piping or protection required.

2. The cost and expense shall be a lien upon the property upon and for which the water meter is installed and shall be collectible in the following manner:
   a. If a meter is not installed within a property, the City may furnish and install the meter, at the cost and expense of the consumer.
   b. The City will cause bills to be sent to all premises in or for which the City has installed a meter for the cost and expense thereof, including any additional piping or protection required, which bill may be paid without interest or penalty before the due date appearing thereon.
   c. The owner of such premises may exercise an option to pay such bill in three equal installments, the first installment thereof to be paid before the due date appearing on such bill, the second installment to be paid one year after the due date and the third installment to be paid two years after the due date.

3. Interest at the rate of 6% per annum shall be charged on all balances remaining unpaid after payment of the first installment.

4. The City may shut off the supply of water to any consumer who has failed to install a meter within the fixed time period after being noticed that the property has to be metered, and who has refused to permit the City to install a meter.

Maintenance of Meters

1. The City shall maintain, repair, and when deemed necessary, replace all inoperative meters up to one inch in size without additional cost to the consumer, except where damage to such meter is caused by the consumer's negligence or failure to provide adequate protection for such meter.

2. The cost and expense for repairing such damage or injury shall be paid by the owner of the premises. In case such payment is not made, the water may be shut off from said premises and shall not be turned on again until all such charges and the turn off and turn-on charges prescribed by § 564-28 of the City Code are paid.

3. The City assumes no responsibility for the maintenance, repair or replacement of supplemental or special meters. All such meters must be installed so that they receive water only after the water has passed through and has been measured by the main meter receiving water from the City's main pipe or supply.

Voluntary Discontinuance of Service

1. The owner of property or other consumer of water responsible for the payment of water charges or rents who intends to discontinue water service to the property must give written notice to the **Division of Capital Improvements and Project Management**, and copy the City of Camden's Contract Operator for municipal utilities at: **American Water Contract Services**
   100 South 17th Street
   Camden, NJ 08105

2. If the property is metered, the owner of property or other consumer of water responsible for the payment of water charges or rents who intends to discontinue water service to the property must make arrangements for the removal of the meter. The water service shall be deemed discontinued for billing purposes as of the end of the current quarter in which the meter is removed.

3. If the property is not metered, and is charged on an annual flat rate basis, the owner of property or other consumer of water responsible for the payment of water charges or rents who intends to discontinue water service to the property must provide the written notice on or before the 30th day of November in any year. Failure to give such notice on or before said date, the flat water rates in effect for the following year will be charged.

Turn-Off / Turn On of Service

1. The City of Camden charges a $40 fee when the water service is turned off at the curb on weekdays during normal City working hours, for any of the following reasons:
   a. Customer request to make repairs
   b. Failure to make repairs under § 564-8 F
   c. Non-payment of water charges or rents

2. If turn-off or turn on service must be performed at any other time, the charge for said services will be $60

3. In no event shall the water be turned on unless or until all water charges, rents, penalties and interests have been paid.

Water Service Abandonment

1. For water services < 2" in diameter; water main shut down:
   a. Coordinate shut down of the water main with the City's Contract Operator.
   b. Shut off the corporation.
   c. Remove and crimp the service line at the main.
   d. Remove of the service saddle or the corporation and install of a full circle stainless

steel repair clamp and stainless steel hardware.

e. Coat the repair clamp bolts with Carboline Bitumastic® 50 or equivalent approved by the City.
f. Excavate as necessary behind the curb or sidewalk.
g. Cut and crimp the service line behind the curb, remove the curb stop and the curb box.

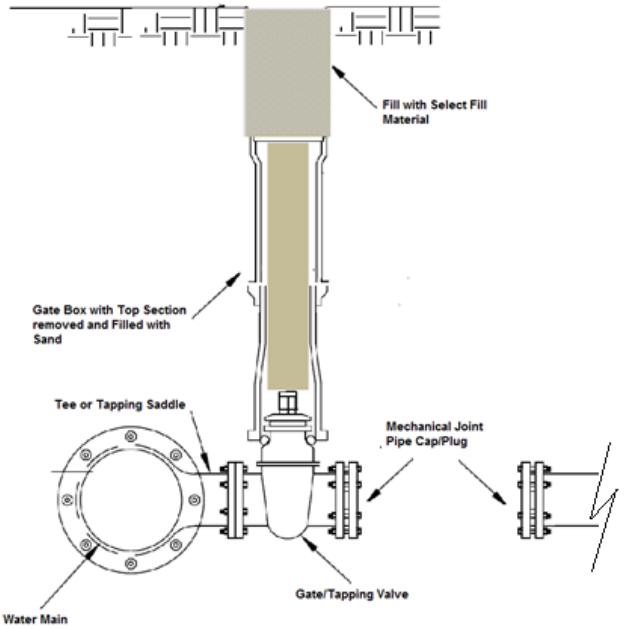
Full Circle Stainless Steel Repair Clamp

2. For water services < 2” in diameter; water main live
   a. Coordinate the service abandonment with the City’s Contract Operator.
   b. Shut off the corporation.
   c. Remove and crimp the service line at the main.
   d. Install a Ford Meter Box Company Abandoned Corporation Cap, or equivalent approved by AWO&M.
   e. Coat the abandoned corporation cap bolts with Carboline Bitumastic® 50 or equivalent approved by the City.
   f. Excavate as necessary behind the curb or sidewalk.
   g. Cut and crimp the service line behind the curb, remove the curb stop and the curb box.

Abandoned Corporation Cap

3. For water services > 2” in diameter; water main shut down
   a. Coordinate shut down of the water main with the City’s Contract Operator.
   b. If the abandonment takes place at a tee or tapping saddle, the tee/tapping saddle shall be removed from the main and straight pipe installed using mechanical joint sleeves.
   c. Coat all bolts with Carboline Bitumastic® 50 or equivalent approved by the City.
   d. All valve boxes and other appurtenances are to be removed.

4. For water services > 2” in diameter; water main live
   a. Coordinate the service abandonment with City’s Contract Operator
   b. Shut off the service line valve at the main (tapping valve or valve on tee).
   c. All open ends on the abandoned pipe shall be cut and plugged with the required fittings, rods, and concrete as close to the existing main in service as possible.
   d. Coat all bolts with Carboline Bitumastic® 50 or equivalent approved by the City.
   e. All valve boxes and other appurtenances are to be removed.



Abandoned Water Service > 2” in diameter; water main live

Water Main Abandonment

1. The abandonment shall be as directed by the City Engineer.

Sewer Service

General Information

1. All public sewers and underground drains, culverts or conduits forming part of the public sewer system shall be constructed and made under the direction of the City Engineer, who shall determine their depth, grade and mode of construction and shall make plans and specifications therefor and file the same in his office. The material to be used for the subject construction shall be of material approved by the City Engineer.

2. Every property owner or other person making sewer connections shall do so at his own cost and expense.

3. All the work and material used in making sewer connections shall comply with the provisions of the plumbing standards of the City.

4. No person shall cut or disconnect a sewer lateral connected a City sewer main without first obtaining a permit so to do.

Is sewer service available to my property?

Property has a Standing Structure

(a) Contact the City of Camden's Contract Operator for municipal utilities at **855-769-3164** with your site specifics, including block and lot information.

(b) the City of Camden's Contract Operator for municipal utilities will determine if there is an existing active sewer lateral to the property in question.
   a) If there is an existing active sewer lateral to the property, the City of Camden's Contract Operator for municipal utilities Customer Service Representative will establish a Utility Account for the property or premise.
   b) If there is no existing active sewer lateral to the property, the applicant must contact the **Division of Capital Improvements and Project Management** at **856-757-7680** to complete an "Application for Sewer Service ".

Property without a Standing Structure

4. The applicant must contact the **Division of Capital Improvements and Project Management** at **856-757-7680** to complete an "Application for Sewer Service ". This request is subject to fees for the new sewer service, and the abandonment of the existing sewer service.

Permits required for connections

1. No connection shall be made with any public sewer main or public sewer system or with any drain or culvert operated as part of such public sewer system without first obtaining:
   A. A permit therefor from the **Bureau of the Construction Code Official** in the **Department of Housing Services and Code Enforcement** pursuant to and in accordance with the provisions of the plumbing standards of the City. A duplicate copy of said permit shall also be filed with the Division of Finance in the Department of Administration and Finance.
   B. A street opening permit from the **Division of Capital Improvements and Project Management**, pursuant to and in accordance with the provisions of Chapter 491, Streets and Sidewalks.

CCMUA Connection Permits

1. "New connection" is defined as connection of any new structure generating sewage to the sewer system or, if the property in question is connected to the sewer collection system, any rehabilitation or renovation of a structure on which the Camden County Municipal Utilities Authority (CCMUA) sewer use account is not current or where as a result of the rehabilitation or renovation the size of the sewer connection must be increased to accommodate the additional sewage generated.

2. The Construction Code Official shall provide each applicant for a permit for construction, rehabilitation or renovation of a structure requiring a new connection with an application form issued by CCMUA for a sewer connection permit and shall not issue a final certificate of occupancy for said structure until such time as the applicant shall provide the Construction Code Official with a sewer connection permit issued by CCMUA or the determination of the CCMUA that no sewer connection fee is required for the construction, rehabilitation or renovation.

Who is responsible for installing a sewer connection?

1. The Customer is responsible for the installation cost of making sewer connections.

Sewer Lateral Installation Requirements

1. All the work and material used in making said sewer connections shall be in accordance with City Ordinance requirements, and approved by the City Engineer.

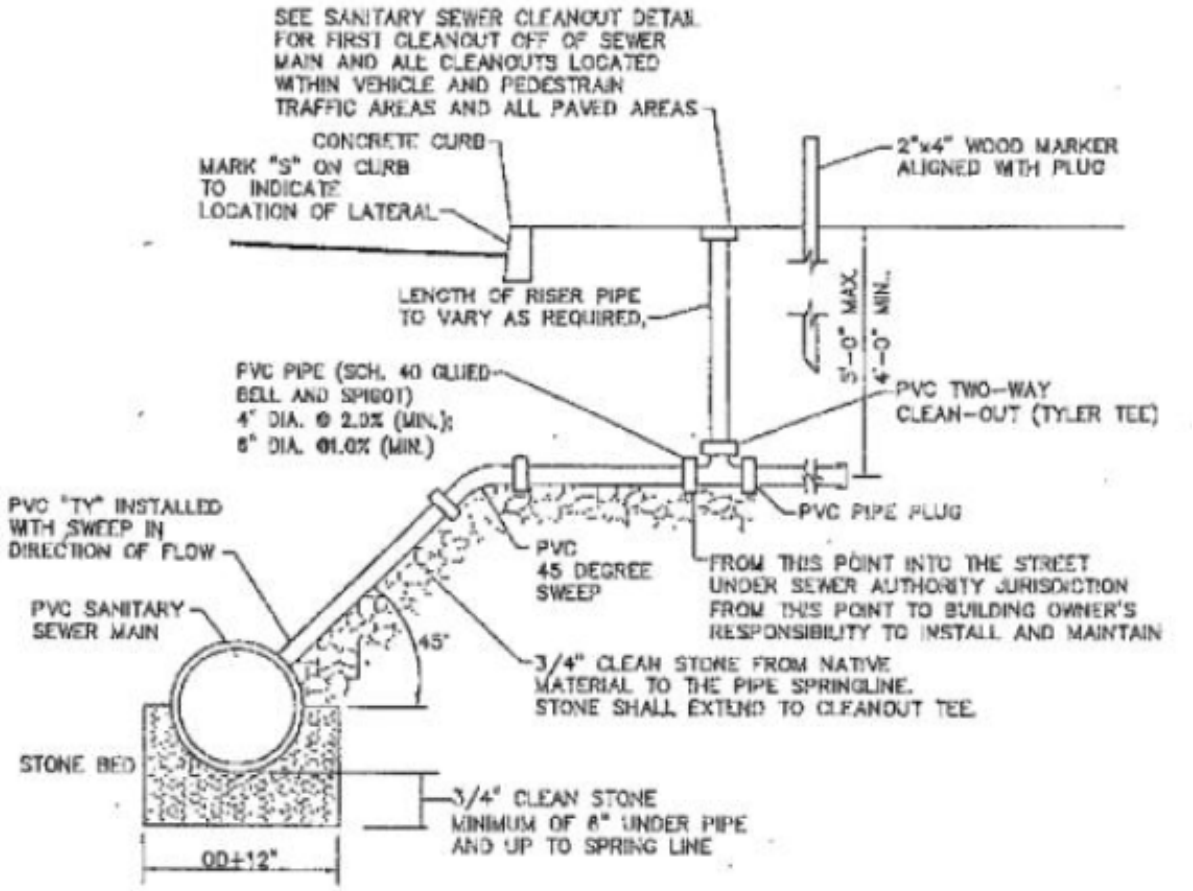
2. All such sewer connection work and material used shall be subject to the inspection and approval of the Division of Capital Improvements and Project Management.

3. All persons opening the streets for the purpose of making a sewer connection shall comply with the provisions of Chapter 491, Streets and Sidewalks, Article V and any other applicable provisions of this Code with respect to said street openings.

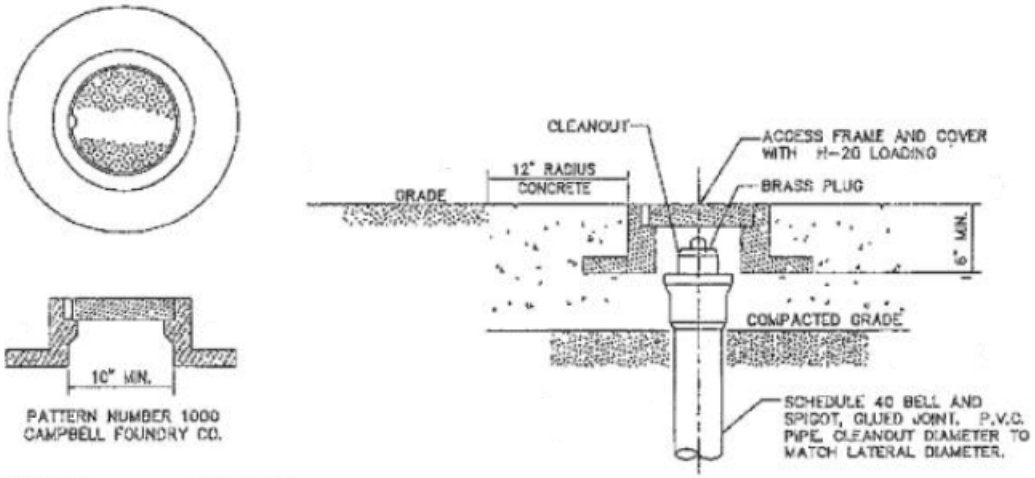
4. Sewer laterals are to be run perpendicular from the sewer main to clean-out, and shall be located in front of the building to be served.

5. Sewer laterals shall be laid at least ten feet horizontally from any existing or proposed water service line or water main. Should local conditions prevent a lateral separation of ten feet, a sewer line may be laid closer than ten feet to water service line, provided that the water service line is laid in a separate trench or on an undisturbed earth shelf located on one side of the sewer line and at such an elevation that the bottom of the water service line is at least eighteen inches above the top of the sewer line.

Sewer Laterals



Typical Sanitary Sewer Lateral

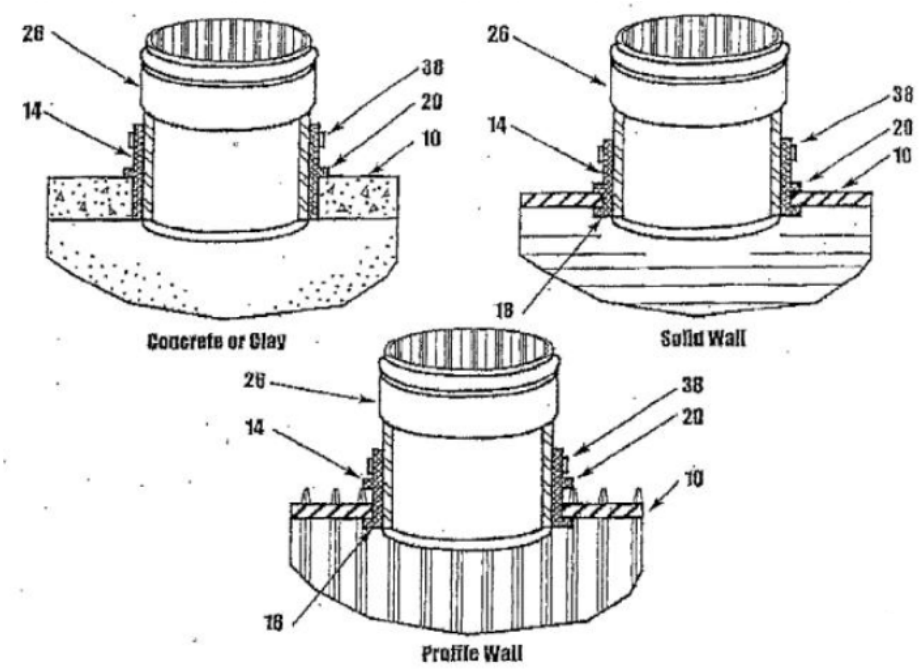


Typical Sanitary Sewer Cleanout

Notes:

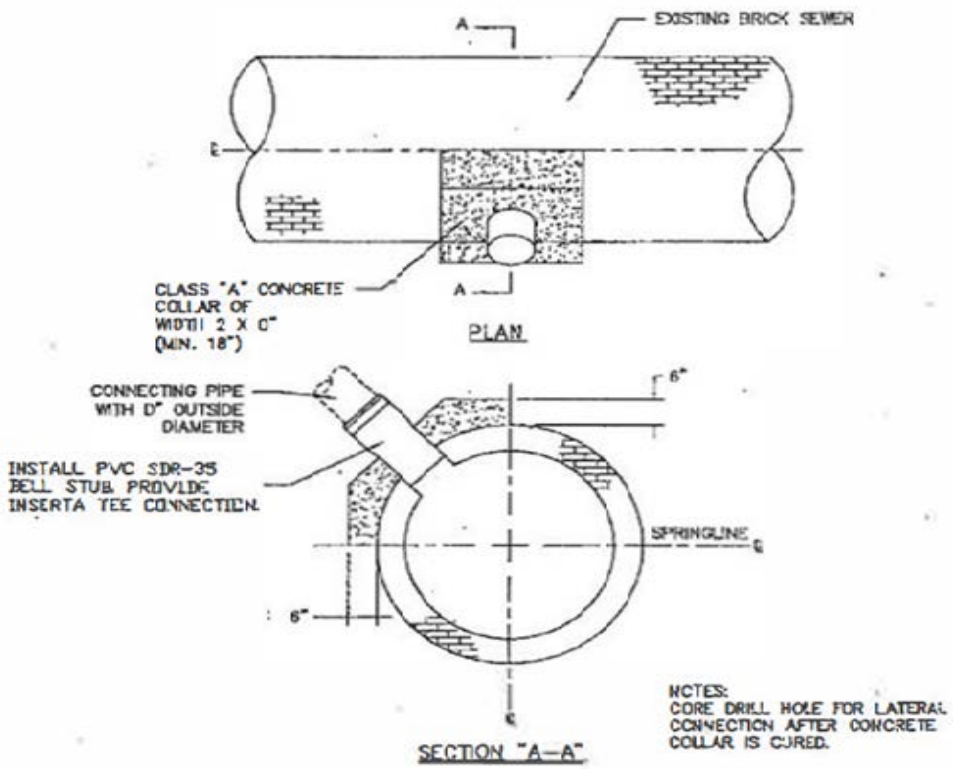
1. Insert-a-Tee used for sewer lateral connection to existing sewer main must be approved by the City prior to installation.
2. Connection to City sewer main must be made with a hole saw cut connection with a hammer and chisel. Any other means will not be permitted.
3. Sewer lateral cleanout shall be located between the curb and sidewalk, or a maximum of 2 feet behind the curb face.
4. Minimum residential sewer lateral shall be four (4) inches.

5. All sewer laterals shall be straight runs.
6. The elevation of the top of the sewer lateral cleanout shall be level with higher of the curb top or grade.
7. No sewr lateral cleanout shall be located in a paved area.
8. A minimum of three (3) feet of cover is required for sewer laterals.
9. All sewer laterals and cleanouts shall have brass plugs the same size as the sewer lateral.



Typical Sewer Lateral Connection to PVC Sewer Main

Item	Description
10	Sewer main pipe wall where sewer lateral is connected.
14	Complete rubber sleeve meeting C-433 specifications.
18	Rubber segment which is molded into rubber sleeve. This prevents snap out on the inside of the drilled hole and helps hold the fitting in place, not creating the seal.
20	Rubber segment which is molded into rubber sleeve. This prevents the rubber seal from going through the drilled hole when the PVC hub is being driven into the rubber sleeve.
26	SDR-35 PVC hub. (ASTM D-3035 sewer pipe) which is driven into the center of the rubber sleeve after the rubber sleeve is in the hole.
33	Stainless steel band, put on rubber segment (Figure Item 20) as an additional precaution.



Typical Sewer Lateral Connection to Brick Sewer Main

Sewer Lateral Installation Records

1. A record drawing must be completed for sewer laterals, and must contain the following:
   a Indicate street curb lines, driveways, sidewalks, building outlines, lot lines, and street names so that location of the sewer laterals with respect to other facilities is clear.
   b Provide distances in feet, accurate to 1/10 ft., from two control points to physical connection to the sewer main. Control point can be a center of manhole, top of hydrant, or center of valve box cover. The type and location of the control point should also be shown on the drawing.
   c Show sanitary and storm sewer cleanouts and curb valve and tapping valve on drawing.
   d Indicate distance from curb line to centerline of sewer main to which connection was made.
   e Indicate material, length, size and slope of sewer lateral(s) between connection point to main, cleanout and exterior building wall.
   f Show all abandoned in place sewer laterals including the extent and method of abandonment.

2. The record drawing must be submitted to the **Division of Capital Improvements and Project Management**, and a copy supplied to the City of Camden's Contract Operator for municipal utilities at: **American Water Contract Services**
   100 South 17th Street
   Camden, NJ 08105

Sanitary Sewer Lateral Record

City of Camden
Water and Sewer

Service Address: 1234 Any Street
(Physical address of structure)

Camden, New Jersey | 08105 (Zip Code) | Block: 1501 | Lot: 1

Date Installed: | Installed by: ABC Plumbing (Contractor/Plumber Name)

Sewer Main Size: 24 | Main Material: Brick (Brick/RCP/etc...)

Depth of Main: 6.00 feet

Lateral Size: 4 inch | Sewer Lateral Material: PVC

Cleanout Size: 4 inch | Lateral Length: (Main to Cleanout) 8.55 feet

Depth of Lateral: (at Sewer Main) 6.00 feet

Depth of Lateral: (at Cleanout) 5.85 feet

GPS Coordinates	Latitude	Longitude
Sewer Main Tap	39.15984	-75.[illegible]
Cleanout	39.15991	-75.35[illegible]

GPS coordinate must be in decimal degrees to five decimal places.

Physical description of Sewer Lateral Tap Location

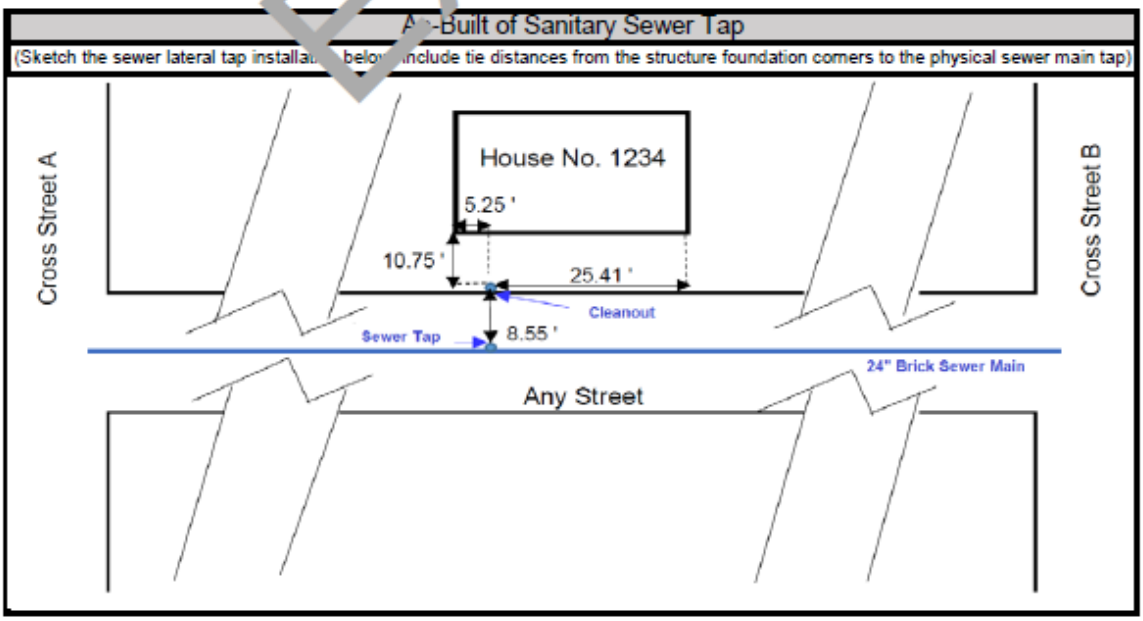
North (N/E/S/W) side of the of the 24 inch City sewer main serving the structure

25.41 feet from the right (right/left) side of the structure looking from the street.

Comments:

As-Built of Sanitary Sewer Tap

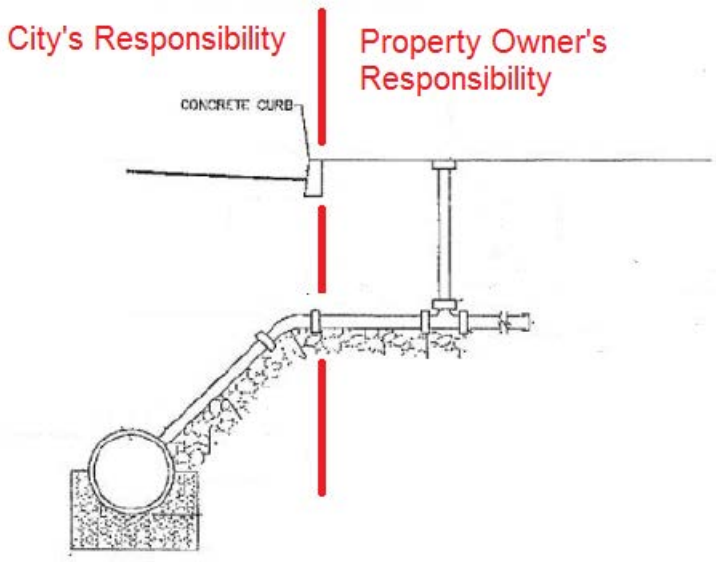
(Sketch the sewer lateral tap installation below. Include tie distances from the structure foundation corners to the physical sewer main tap)



Who is responsible for the maintenance of the sewer lateral?

1. Once a sewer lateral is installed, the property owner is responsible for the maintenance of the sewer lateral and other connected apparatus from the house connection to the curb

2. The City shall maintain responsibility for all sewer laterals from the street side of the curb line to the sewer main.



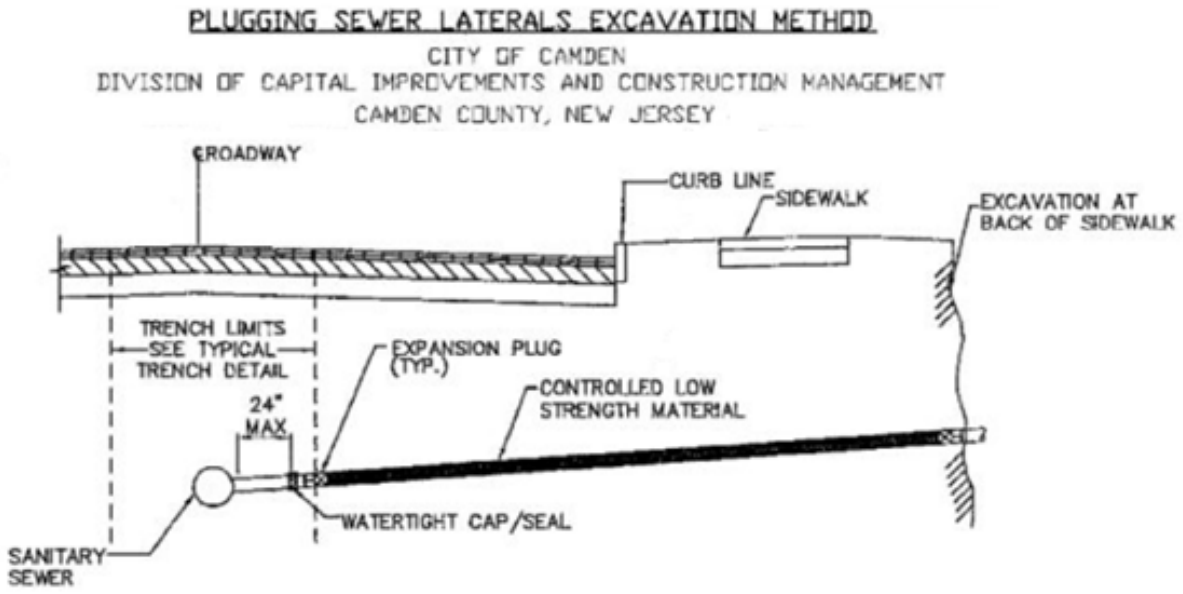
Sewer Lateral Abandonment

1. Existing sewer mains and sanitary laterals to be abandoned must be removed from the ground.
2. The curb trap or clean out tee must be removed and the sewer lateral shall be hermetically sealed using cement, or a cap/plug that is approved in the currently adopted New Jersey Plumbing Code.
3. Plug open lateral ends with 18" of NJDOT approved controlled low strength material (flow able fill).
4. Install concrete around cap and over pipe to ensure it is not penetrable by groundwater.
5. Grout Plugs must be cement-based dry-pack grout conforming to ASTM C 1107, Grade B or C.
6. The sewer lateral must be exposed at the main and severed within 24 inches of the main.
7. PVC laterals capped with an approved cap (i.e. cap is constructed of material identical to the pipe material) that is properly glued.
8. Non-plastic sewer laterals shall be plugged with non-shrink cement grout such as "Water plug" or approved equal.
9. The cement shall completely plug the pipe and fill the pipe in its entirety for approximately 18 inches in length. The cement shall not be allowed to enter or obstruct in any way the mainline sewer.

<u>Sewer Lateral Abandonment – Excavation Method</u>

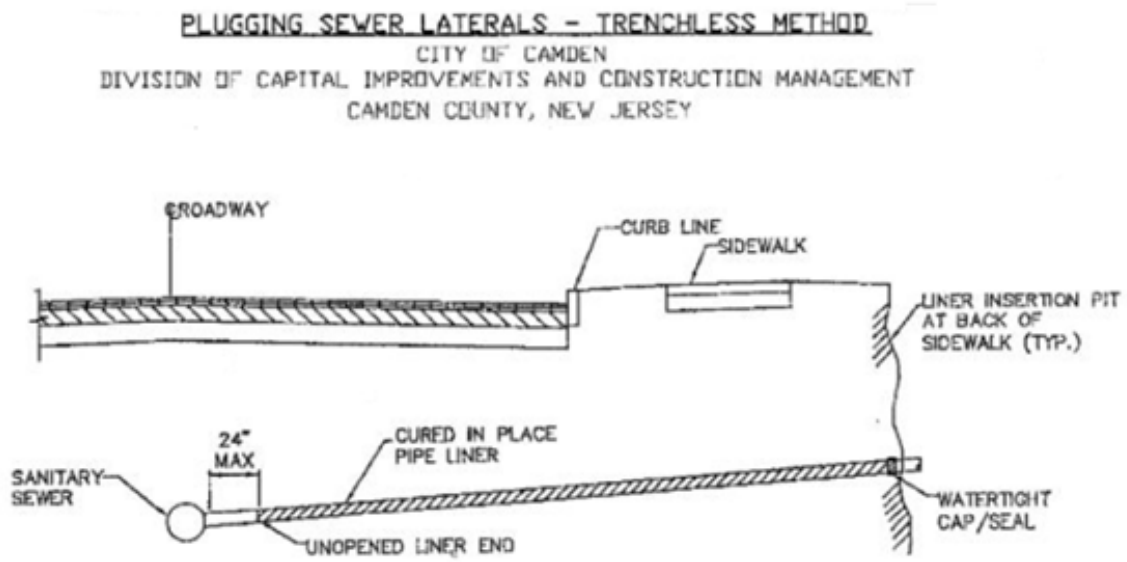
1. Excavate as necessary at the back of the sidewalk and at the sewer main, hand digging as required so as not to damage the sewer main or hub.
2. Cut and physically remove enough of the sewer lateral to allow for the installation of a properly sized expansion joint plug into the abandoned sewer lateral, no more than 24 inches from sewer main.
3. Fill the sewer lateral with controlled low strength material as indicated.
4. Seal the sewer hub with a male adapter and cap or a properly sized expansion joint plug.

5. Backfill as required.



Sewer Lateral Abandonment – Trenchless Method

1. Insert liner beginning at insertion pit or clean out, and ending no more than 24 inches from sewer main. The inserted end of the liner shall remain unopened to provide a water tight seal.
2. Seal the liner at insertion end with a male adapter and cap or a properly sized expansion joint plug.
3. Backfill as required



Sewer Main Abandonment

1. A sewer main that has been replaced shall be abandoned as directed by the City Engineer.
2. All man holes and other appurtenances are to be removed.

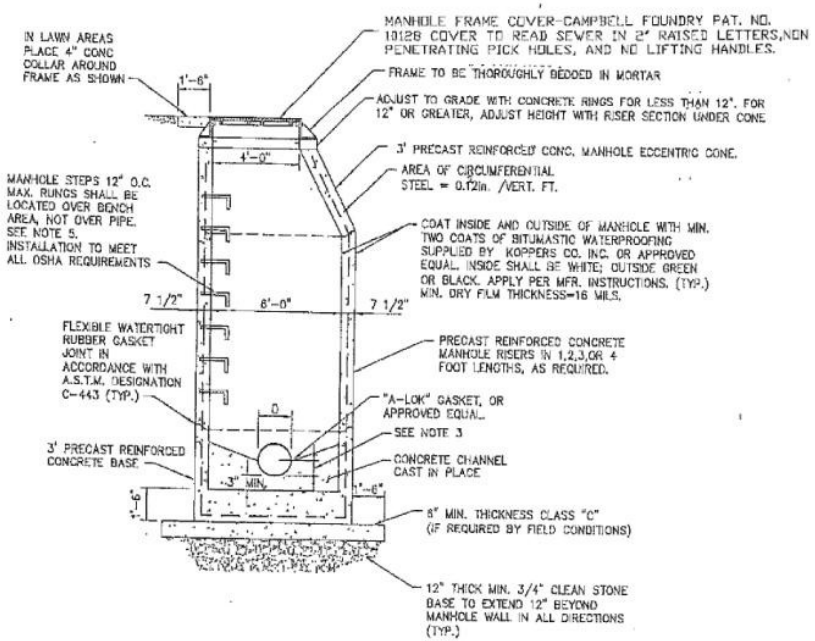
Appendices

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS & PROJECT MANAGEMENT

DESIGN MANUAL DRAWING LIST

SEWER

S-1 Standard 4'– 0" Diameter Precast Manhole	S-19 Building Section
S-2 Concrete Shallow Manhole Detail	S-20 Pump Station and Valve Chamber Drain Schematic
S-3 Sampling/Metering Manhole Detail	S-21 Pump Station and Valve Chamber Schematic Notes
S-4 Automatic Interior Grease Interceptor	S-22 Pump Station – Wet Well Portion
S-5 Oil Water Separator	S-23 Pump Station – Meter Chamber and Valve Chamber Portion
S-6 Grease Interceptor Detail	S-24 Pump Station Site Plan
S-7 Concrete Saddle Detail and Connection to Existing Manhole Detail	S-25 Sewer Lateral Connection to Brick Sewer
S-8 Typical Lateral Detail and Sanitary Sewer Cleanout Detail	S-26 "Inserta Tee" Details
S-9 Trench Detail and Concrete Encasement Detail for Pipe Crossings	S-27 Plugging Sewer Laterals
S-10 Drop Manhole Detail	S-28 Plugging Sewer Laterals
S-11 Brick Sewer/New Pipe Connection	S-29 Stormsewer Bedding Detail
S-12 Street Restoration Detail	S-30 Type "B" Bicycle Safe Grate & Type "N-ECO" Curb Piece
S-13 Buried Pipe Schedule Abbreviations	S-31 Storm Sewer Manhole Detail
S-14 Buried Pipe Schedule	S-32 Standard Cast Iron Trap
S-15 Design, Construction, Inspection and Testing Manual	S-33 Copolymer Polypropylene Plastic Steel Reinforced Manhole Step
S-16 Building Plan	S-34 Type "B" NJDOT Inlet Detail
S-17 Front Building Elevation and Placard Detail	S-35 DI Manhole Frame & Cover
S-18 Rear Building Elevation	S-36 1of 2 Clean-out Protection Box Detail
	S-36 2 of 2 Sanitary sewer cleanout detail-in pavement



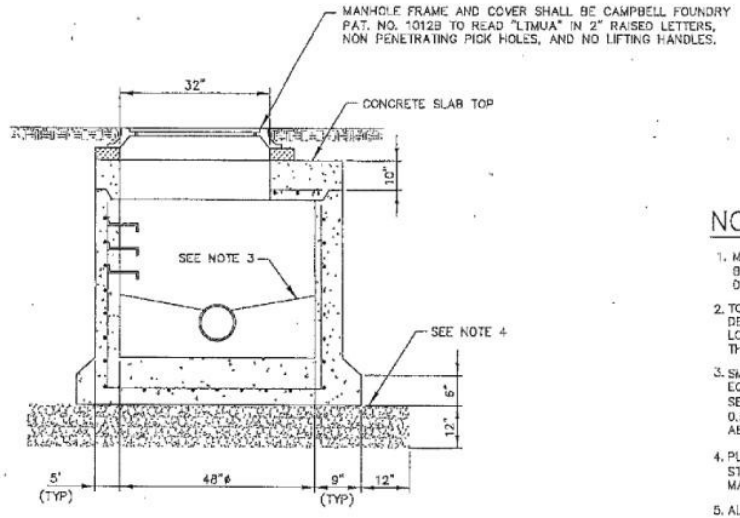
NOTES:

1. PRECAST MANHOLE IN ACCORDANCE WITH A.S.T.M. DESIGNATION C-478, MINIMUM COMPRESSIVE STRENGTH 4000 P.S.I. (TYP.), MANHOLE TO BE MANUFACTURED BY ATLANTIC CONCRETE, OR APPROVED EQUAL.
2. ALL MANHOLES NOT LOCATED IN CROWN OF ROAD SHALL BE CONSTRUCTED WATERTIGHT WITHOUT THE USE OF A RUBBER GASKET. WATER TIGHTNESS MAY BE ACHIEVED BY DISH SHAPED INSERTS, WATERTIGHT CASTING, OR APPROVED EQUAL. DISH SHAPED WATERTIGHT INSERT SHALL BE SUPPLIED, TWO PER MANHOLE.
3. SMOOTH CONCRETE CHANNEL WITH DEPTH EQUAL TO 0.80 TIMES THE DIA. OF THE MAIN SEWER FOR SIZES 8" TO 15" AND 0.50 TIMES THE DIA. FOR SIZES 18" AND ABOVE. (USE CLASS C CONCRETE).
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTING ADEQUATE BALLAST TO OFFSET FLOATATION FORCES ACTING ON MANHOLES INSTALLED IN WET AREAS.
5. POLYPROPYLENE RUNGS, WITH GRADE 60 STEEL REINFORCEMENT AND TEETH AND SIDE-CLEATS, AS MANUFACTURED BY MA INDUSTRIES. STEEL RUNGS NOT ALLOWED. FOR MANHOLES GREATER THAN 15'-0" DEEP, APPLICANT SHALL CONTACT LTMUA FOR SPECIFIC MANHOLE REQUIREMENTS. ALL OSHA REQUIREMENTS MUST BE MET.
6. ANY MANHOLE REQUIRING LINING SHALL HAVE MANHOLE RUNGS REMOVED AND HAVE A COMPOSITE LADDER INSTALLED.
7. PROVIDE WRAPIDSEAL MANHOLE ENCAPSULATION SYSTEM, AS MANUFACTURED BY CANUSA-CPS, AROUND FRAME AND GRADE RINGS FOR ALL MANHOLES AND AROUND ALL RISER JOINTS. INSTALLATION SHALL BE PROVIDED IN ACCORDANCE WITH ALL OF MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS.
8. MANHOLE FRAME SHALL BE LAID IN 1-INCH OF MORTAR AND HAVE 1-INCH MORTAR AROUND THE RIM.
9. THERE SHALL BE NO CHANGE IN FLOW DIRECTION GREATER THAN 90 DEGREES.

STANDARD 4'-0" ø PRECAST MANHOLE

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

S-1



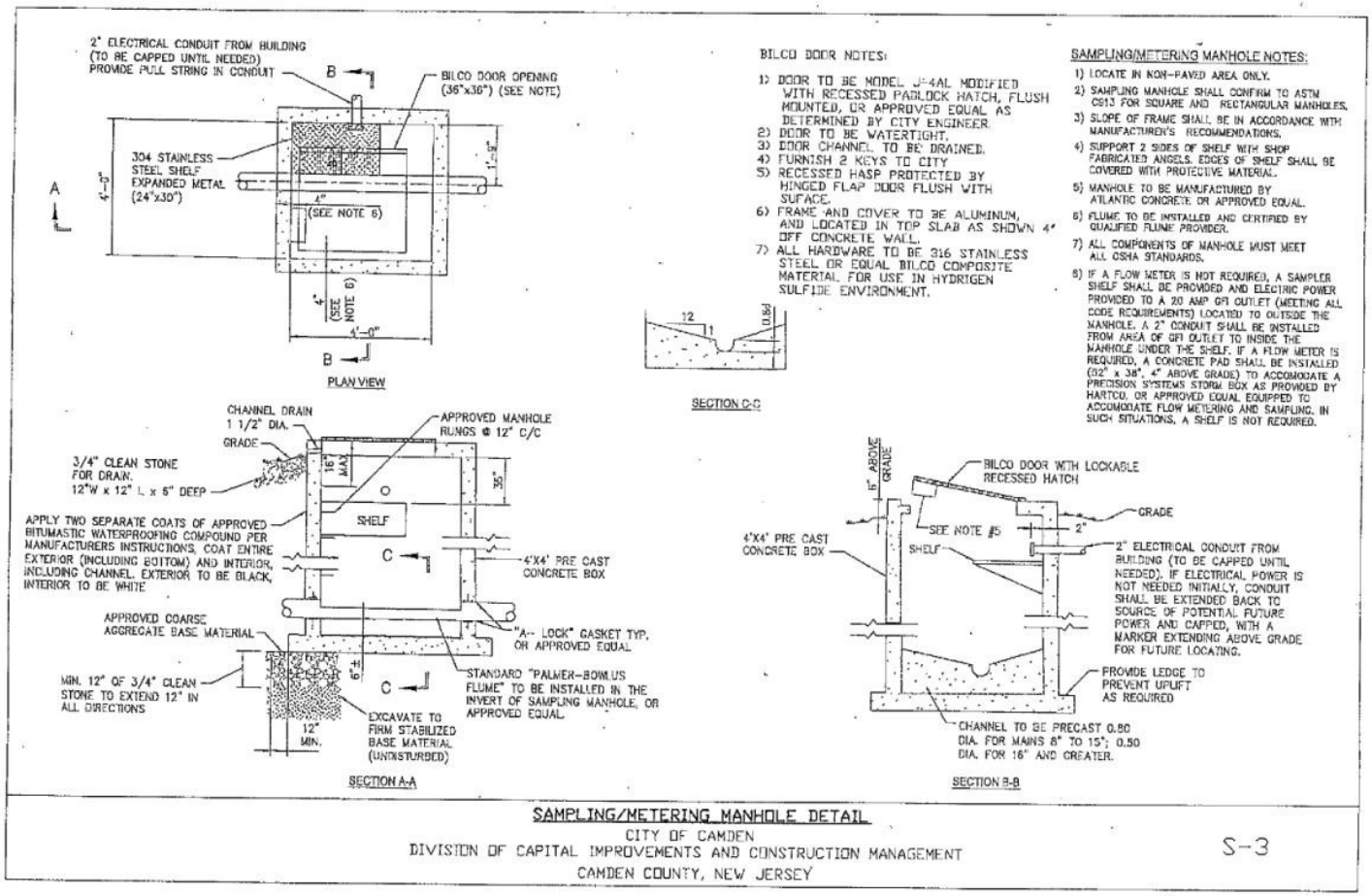
NOTES:

1. MANHOLE CONSRUCTION SHALL BE IN ACCORDANCE WITH 4'-0" DIAMETER PRECAST MANHOLE
2. TOP SLAB REINFORCING SHALL BE DESIGNED TO WITHSTAND H20 WHEEL LOADS. SIGNED AND BE PROVIDED BY THE PRECAST MANUFACTURER
3. SMOOTH CONCRETE CHANNEL WITH DEPTH EQUAL TO 0.80 TIMES THE DIA. OF THE SEWER MAIN FOR SIZES 8" TO 15" AND 0.50 TIMES THE DIA. FOR SIZES 18" AND ABOVE. USE CLASS C CONCRETE.
4. PLACE UPON 12" THICK 3/4" CLEAN STONE EXTENDED TO 12" BEYOND MANHOLE IN ALL DIRECTIONS.
5. ALL STANDARDS AND REQUIREMENTS FOR STANDARD 4'-0" DIAMETER PRECAST MANHOLE SHALL APPLY FOR CONCRETE SHALLOW MANHOLES. REFER TO LT-1 FOR REQUIREMENTS.
6. CONCRETE SHALLOW MANHOLE IS DEFINED AS ANY MANHOLE WITH LESS THAN 4" STRAIGHT WALL AROUND ENTIRE MANHOLE CIRCUMFERENCE.
7. FOLLOW ALL SPECIFICATIONS PROVIDED ON S-1

CONCRETE SHALLOW MANHOLE DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

S-2



SAMPLING/METERING MANHOLE DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

S-3

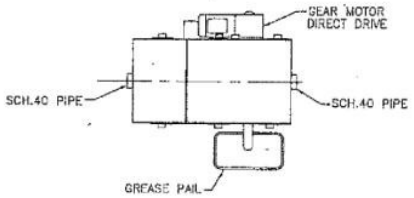
ELECTRICAL INFORMATION

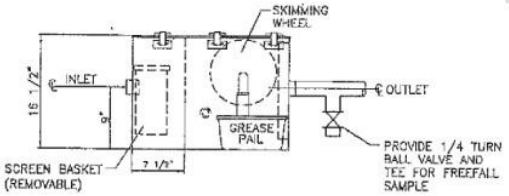
UNIT MUST BE PLUGGED INTO
A GFI(GROUND FAULT INTERUPT)RECEPTACLE.

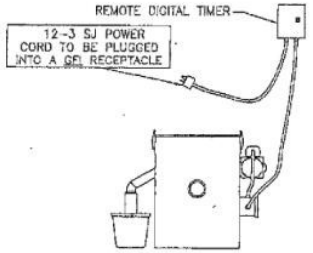
GEARMOTOR– .93 FLA. 115V, 60hz ELECTRIC

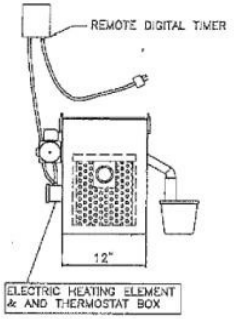
HEATING ELEMENT– 115 V, 1500 W

NOTE:
THE AUTOMATIC INTERIOR GREASE INTERCEPTOR IS NOT A TRAP FOR SEWER GAS. A TRAP SHALL BE PROVIDED DOWN STREAM FROM THE GREASE STOPPER.







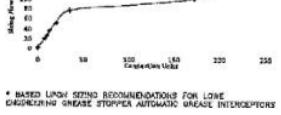


MODEL CAPACITY ***	PEAK ALLOWABLE FLOW (GPM) *	DIMENSIONS			STATIC WATER (GAL)	**GREASE HOLDING CAPACITY (GAL)	INLET/ OUTLET DIAMETER	INLET/ OUTLET HEIGHT
		LENGTH	WIDTH	HEIGHT				
GS-15	25	23"	12"	17"	9	50	2"/2"	9"/9"
GS-20	34	27"	14"	18"	13	69	2"/2"	9"/9"
GS-25	45	33"	16"	18"	17	91	3"/3"	9"/9"
GS-25L	41	40"	22"	16"	19	83	3"/3"	5"/5"
GS-30	62	36"	17"	19"	23	124	3"/3"	10"/10"
GS-35	126	36"	18"	28"	44	253	3"/3"	17"/17"
GS-50	146	40"	18"	33"	50	292	4"/4"	18"/18"
GS-75	229	48"	18"	36"	75	458	4"/4"	22"/22"
GS-100	318	60"	20"	36"	104	636	4"/4"	22"/22"

* – SEE CHART FOR STANDARD RELATIONSHIP BETWEEN CONNECTION UNITS AND SIZING FLOW. LTMUA MAY REQUIRE ALTERNATE CONNECTION UNIT VS. SIZING FLOW RELATIONSHIPS FOR SPECIFIC APPLICATIONS

** – NATIONAL PLUMBING CODE REQUIRES A MINIMUM 2 LBS. GREASE RETENTION FOR EACH GPM OF FLOW

*** – MODEL CAPACITY NUMBER BASED UPON "GREASE STOPPER" AS PROVIDED BY HIGHLAND TANK. GREASE INTERCEPTOR SHALL BE "GREASE STOPPER", THE "BIG DIPPER" OR APPROVED EQUAL. CONTACT LTMUA FOR MANUFACTURER CONTACTS.



* BASED UPON SIZING RECOMMENDATIONS FOR LOWE ENGINEERING GREASE STOPPER AUTOMATIC GREASE INTERCEPTORS

NOTE:

1. BASIS OF DESIGN SHOWN IS GREASE STOPPER BY LOWE ENGINEERING, WWW.GREASESTOPPER.COM.

AUTOMATIC INTERIOR GREASE INTERCEPTOR

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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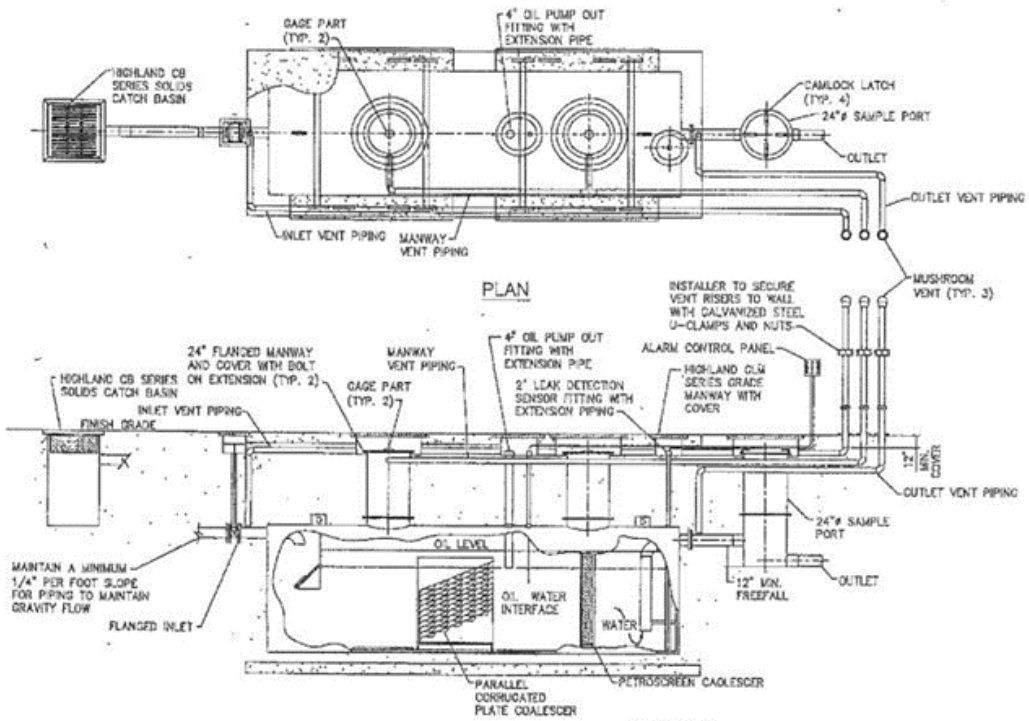

NOTES:

1. UNDERGROUND COATING SYSTEM OPTIONS ARE THE HIGHGUARD, ACT-100-U, AND S.T.I.P. 3.
2. MANHOLE AND PIPE EXTENSION LENGTHS VARY PER TANK SIZE AND DEPTH.
3. LEAK SENSOR, LEVEL SENSOR AND OIL PUMP-OUT PIPE EXTENSIONS ARE TO EXTEND TO THE SAME ELEVATION AS THE MANWAY EXTENSION.
4. ALL VENT PIPES SLOPED TO DRAIN BACK TO SEPARATOR.
5. WHERE AUTOMOBILES ARE SERVICED, GREASED, REPAIRED OR WASHED OR WHERE GASOLINE IS DISPENSED, OIL SEPARATORS SHALL HAVE A MINIMUM CAPACITY OF 6 CUBIC FEET FOR THE FIRST 100 SQUARE FEET OF AREA TO BE DRAINED PLUS 1 CUBIC FOOT FOR EACH ADDITIONAL 100 SQUARE FEET OF AREA TO BE DRAINED INTO THE SEPARATOR.
6. BASIS OF DESIGN SHOWN IS BY HIGHLAND TANK 2 MARNS COURT, MARLTON, NJ 08053 856-985-1214.
7. OIL WATER SEPARATOR MUST BE INSTALLED IN NON-TRAFFIC AREA.

OIL WATER SEPARTOR

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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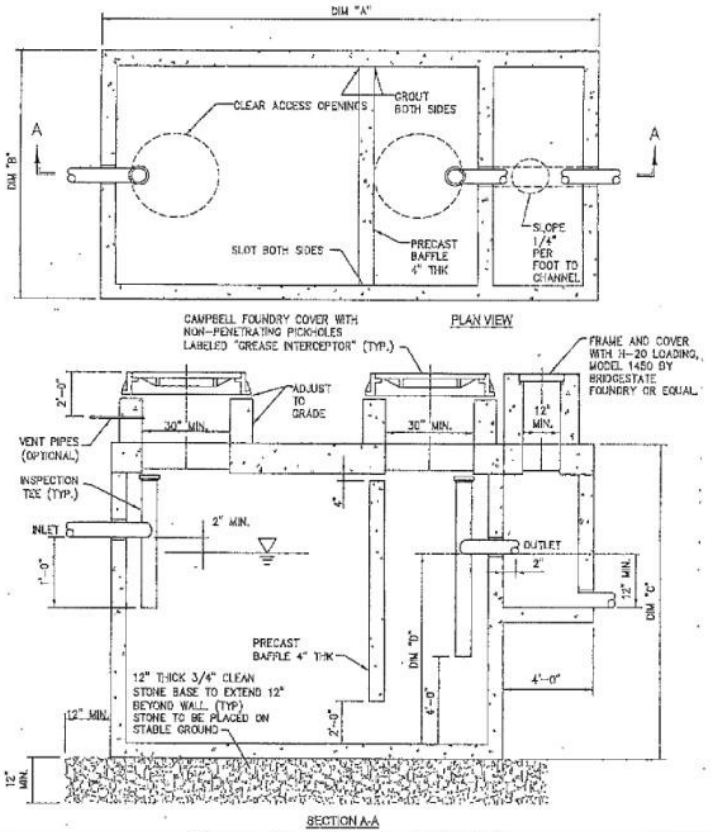
NOTES:

1. CONCRETE: 28 DAY f_c = 4000 PSI. STRUCTURE TO BE OF PRECAST CONSTRUCTION, AS MANUFACTURED BY ATLANTIC CONCRETE OR APPROVED EQUAL.
2. REBARS: ASTM A615 GRADE 60
3. MESH: ASTM A-185 GRADE 65
4. DESIGN: ACI318-83 BUILDING CODE ASTM C-857 MINIMUM STRUCTURAL DESIGN LOADING FOR UNDERGROUND PRECAST CONCRETE UTILITY STRUCTURES.
5. LOADS: H-20 TRUCK WHEEL W/30% IMPACT PER AASHTO.
6. FILL W/CLEAN WATER PRIOR TO START UP OF SYSTEM.
7. CONTRACTOR TO SUPPLY & INSTALL ALL PIPING AND SANITARY TEES, 4 CLEAN OUTS, FOR CLEANING TOWARD TRAP AND FOR CLEANING AWAY FROM TRAP ON BOTH THE INLET AND OUTLET/ALT. DUAL SWEEP CLEAN OUTS.
8. GRAY WATER ONLY, BLACK WATER SHALL BE CARRIED BY SEPARATE SEWER.
9. COAT OUTSIDE WITH TWO COATS (MIN DFT.= 25 MILS) OF BLACK BITUMASTIC WATER PROOFING SUPPLIED BY KOPPERS CO. INC. OR APPROVED EQUAL; INTERIOR TO BE COATED WITH TWO COATS WHITE EPOXY. APPLY PER MFR. INSTRUCTIONS.
10. SEPARATOR TO BE PLACED IN GRASS AREA, AS AVAILABLE. MUST BE IN A NON-TRAFFIC AREA.
11. EXTERIOR PENETARTIONS TO HAVE A-LOCK GASKET, OR APPROVED EQUAL.
12. FOR GREASE SEPARATOR SIZES LARGER THAN SHOWN IN THE TABLE ABOVE, CONSULT WITH LTMUA AND ITS ENGINEER.
13. NOTE THAT GREASE SEPARATOR IS DIFFERENT THAN OIL-WATER SEPARATOR.
14. MANUFACTURER'S ENGINEER SHALL CERTIFY SIZING SELECTION.
15. MANHOLE LIDS TO SAY "GREASE INTERCEPTOR" IN 2" RAISED LETTERS.

GALLON CAPACITY	DIM "A"	DIM "B"	DIM "C"	DIM "D"
600	7'-0"	4'-8"	7'-0"	3'-6"
750	7'-0"	4'-8"	7'-0"	4'-3"
1000	7'-0"	5'-0"	7'-2"	5'-6"
1250	9'-0"	5'-0"	7'-2"	5'-2"
1500	9'-0"	5'-8"	7'-2"	5'-4"
1750	11'-2"	5'-8"	7'-2"	4'-11"
2000	11'-2"	5'-8"	8'-0"	4'-7"
2500	12'-8"	5'-8"	8'-0"	5'-6"
3000	12'-8"	5'-8"	8'-0"	6'-0"



GREASE INTERCEPTOR DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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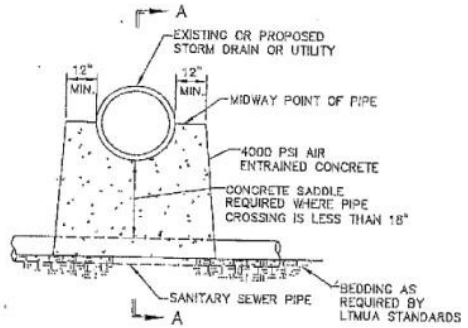
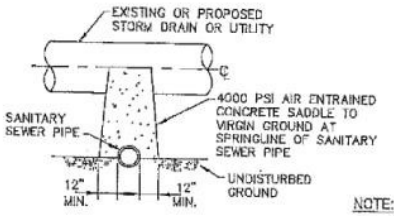


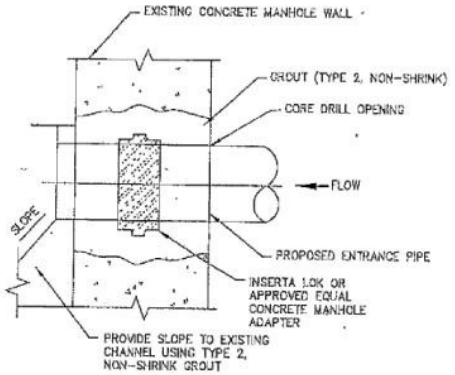


SECTION "A-A"

CONCRETE SADDLE

NOTE:

1. ALLOW CONCRETE TO CURE FOR 24 HOURS BEFORE BACKFILLING.



CONNECTION TO EXISTING MANHOLE

CONCRETE SADDLE DETAIL AND CONNECTION TO EXISTING MANHOLE DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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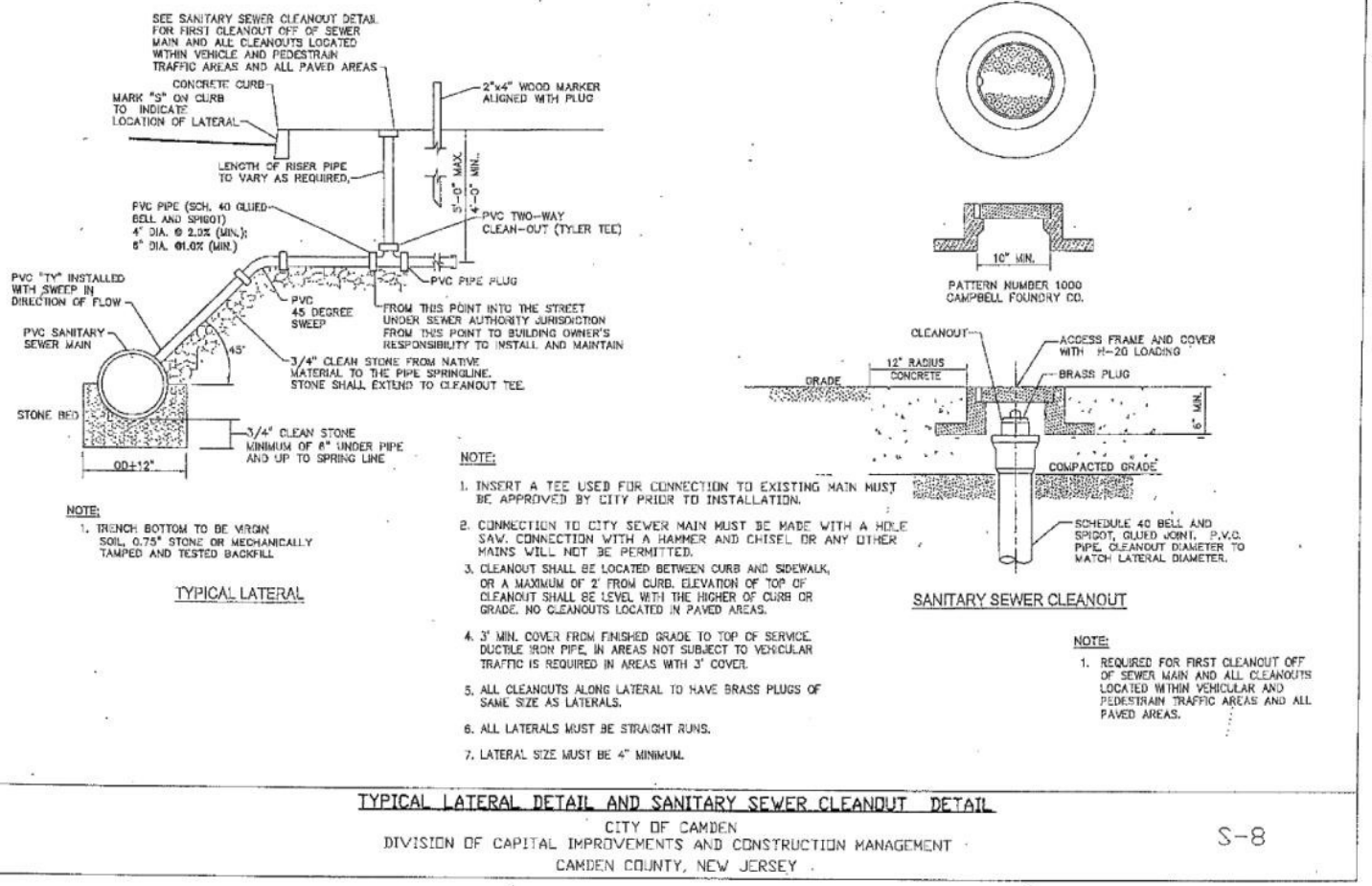

TYPICAL LATERAL DETAIL AND SANITARY SEWER CLEANOUT DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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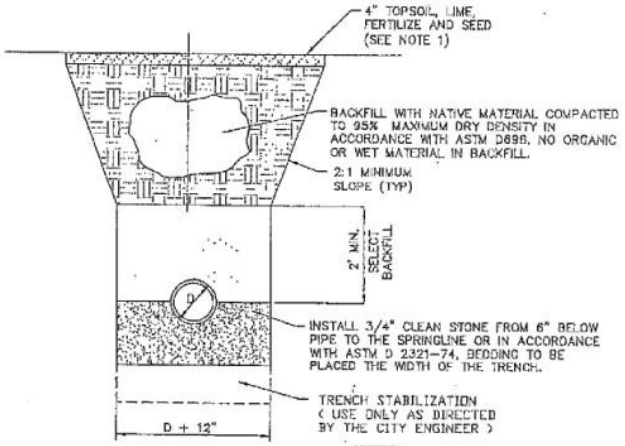
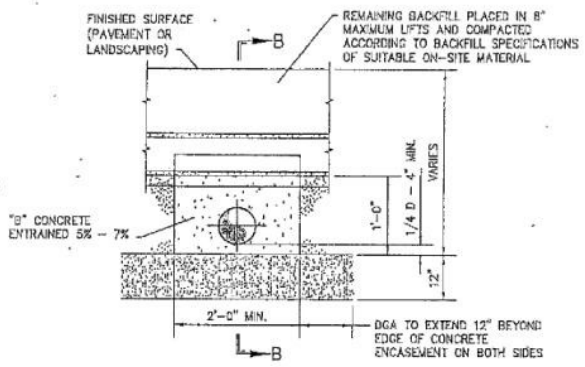


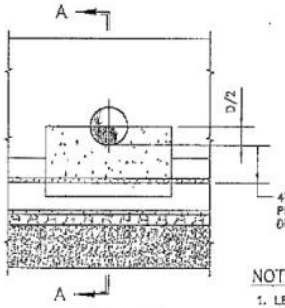
TRENCH DETAIL

NOTES:

1. PAVEMENT SHALL BE RESTORED TO EXISTING CONDITIONS FOR THE PIPE TRENCH IN ROADWAY.
2. SEWER PIPE MATERIAL SHALLBE IN ACCORDANCE WITH CITY REQUIREMENT AND CITY DESIGN, CONSTRUCTION, INSPECTION AND TESTING MANUAL.
3. A MINIMUM COVER OF 48" SHALL BE MAINTAINED.
4. PIPE SHALL BE INSTALLED ACCORDANCE WITH CITY REQUIREMENTS.
5. DETAIL AS SHOWN IS FOR ALL PIPE.
6. IF REQUIRED BY CITY ENGINEER, APPLICANT SHALL PROCURE THE SERVICES OF A LICENSED GEOTECHNICAL ENGINEER AT APPLICANT'S EXPENSE TO PERFORM COMPACTION OR OTHER REQUIRED TESTING FOR SUBMISSION AND APPROVAL BY CITY ENGINEER.
7. IF REQUIRED BY CITY ENGINEER, CONTRACTOR SHALL PROVIDE BACKFILL TO BE APPROVED BY CITY ENGINEER.
8. ALL FORCEMAINS MUST BE CONTINUOUSLY WELDED HDPE.



SECTION A-A



SECTION B-B

NOTES:

1. LENGTH OF ENCASEMENT SHALL BE 10 FEET FROM CENTERLINE OF INTERSECTION IN EACH DIRECTION.

CONCRETE ENCASEMENT FOR PIPE CROSSINGS

TRENCH DETAIL AND CONCRETE ENCASEMENT DETAIL FOR PIPE CROSSING

CITY OF CAMDEN

DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT

CAMDEN COUNTY, NEW JERSEY

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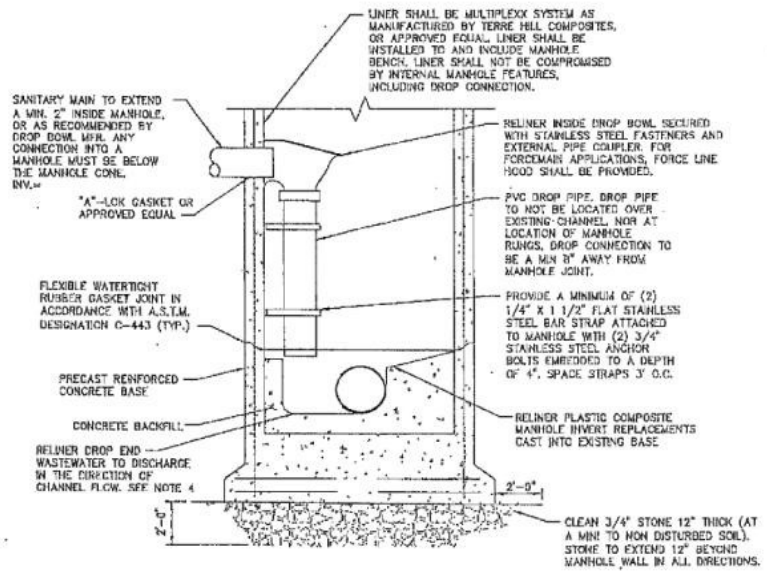
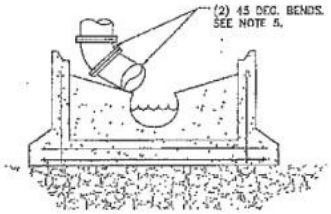


INTERNAL DROP MANHOLE



RETROFIT MANHOLE FOR DROP CONNECTION

NOTES:

1. MANHOLE TO BE MANUFACTURED BY ATLANTIC CONCRETE, OR APPROVED EQUAL. WHERE NOT SPECIFIED ON THIS DETAIL, MANHOLE SHALL CONFORM TO STANDARD CITY MANHOLE REQUIREMENTS. ALL CONCRETE TO BE N.J.D.O.T. CLASS "C".
2. FOR ALL DROP MANHOLES LADDERS SHALL BE PROVIDED BY LINER MANUFACTURER. RETROFITTING MANHOLES WITH A DROP SHALL REQUIRE THE REMOVAL OF STEPS OR LADDERS BEFORE THE LINER APPLICATION, AND NO REINSTALLATION.
3. WHERE FESSIBLE, AS DETERMINED BY LTMUA ENGINEER, ALL DISCHARGES SHALL DISCHARGE DIRECTLY IN THE DIRECTION OF EXISTING FLOW AND AT THE INVERT OF THE EXISTING CHANNEL, NOT ABOVE IT.
4. FOR NEW CONSTRUCTION OF DROP MANHOLE, MANHOLE SHALL BE A MIN. 60" ϕ AND VERTICAL PIPE SHALL EMPTY INTO RELINER DROP END, CAST INTO MANHOLE BASE. CHANNEL SHALL BE CONSTRUCTED TO PUSH EXISTING FLOW, AND NOT HINDER IT IN ANY WAY.
5. TO RETROFIT MANHOLE FOR GRAVITY DROP CONNECTION, CONTRACTOR SHALL FIELD ROUTE (1) 45 DEG. BEND AT BOTTOM OF VERTICAL PIPE AND A SECOND 45 DEG. BEND TO DISCHARGE FLOW IN THE SAME DIRECTION AS THE EXISTING MANHOLE FLOW. THE SECOND 45 DEG. BEND SHALL BE LOCATED SUCH THAT IT DISCHARGES FLOW AT THE EDGE OF BENCH, ABOVE CHANNEL (SEE BELOW).

DROP MANHOLE DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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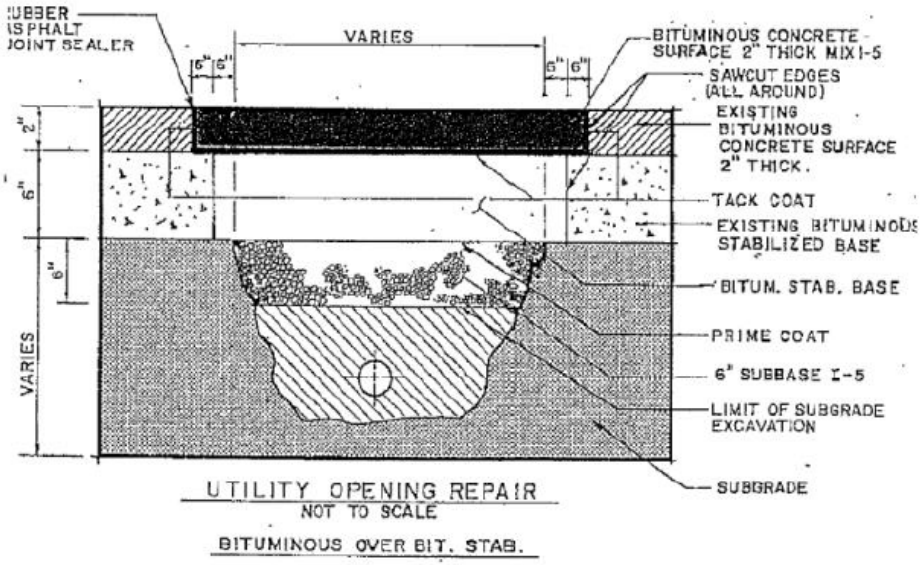
STREET RESTORATION DETAIL #1



UTILITY OPENING REPAIR
NOT TO SCALE

BITUMINOUS OVER BIT. STAB.

NOTES:

1. PROTECT SUBGRADES AND FOUNDATION SOILS FROM SOFTENING AND DAMAGE BY WATER, FREEZING TEMPERATURES OR FROST.
2. EXCAVATE TO SUBGRADE ELEVATIONS REGARDLESS OF CHARACTER OF MATERIALS AND OBSTRUCTIONS ENCOUNTERED. TAMP SUBGRADE PRIOR TO PLACEMENT OF RESTORATION MATERIALS.
3. BOX OUT EXISTING OPENINGS AS INDICATED ON DETAIL. SAW CUT EXISTING UTILITY STREET OPENING USING LONGITUDINAL AND TRAVERSE CUTS TO PROVIDE A NEAT EDGE AND SEAL JOINTS AS INDICATED.
4. PLACE EACH MATERIAL AT DEPTH AND THICKNESS INDICATED. COMPACT EACH LAYER BY MEANS OF TAMPING.
5. GRADE AREAS TO A SMOOTH SURFACE TO BLEND INTO EXISTING GRADES.
6. UNDER PAVEMENTS AND WALKWAYS, PLACE SUBBASE COURSE MATERIAL ON PREPARED SUBGRADES AS INDICATED OR DIRECTED BY ENGINEER AND COMPACT BY TAMPING TO REQUIRED THICKNESSES.
7. REMOVE SURPLUS SATISFACTORY SOIL AND WASTE MATERIAL INCLUDING UNSATISFACTORY SOIL, TRASH, AND DEBRIS AND LEGALLY DISPOSE OF IT.

STREET RESTORATION DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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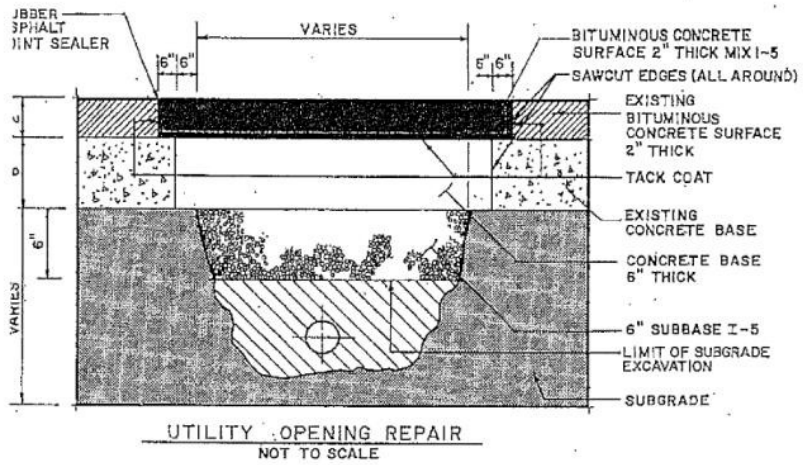
STREET RESTORATION DETAIL # 2



UTILITY OPENING REPAIR
NOT TO SCALE

BITUMINOUS OVER CONCRETE

NOTES:

1. PROTECT SUBGRADES AND FOUNDATION SOILS FROM SOFTENING AND DAMAGE BY WATER, FREEZING TEMPERATURES OR FROST.
2. EXCAVATE TO SUBGRADE ELEVATIONS REGARDLESS OF CHARACTER OF MATERIALS AND OBSTRUCTIONS ENCOUNTERED. TAMP SUBGRADE PRIOR TO PLACEMENT OF RESTORATION MATERIALS.
3. BOX OUT EXISTING OPENINGS AS INDICATED ON DETAIL. SAW CUT EXISTING UTILITY STREET OPENING USING LONGITUDINAL AND TRAVERSE CUTS TO PROVIDE A NEAT EDGE AND SEAL JOINTS AS INDICATED.
4. PLACE EACH MATERIAL AT DEPTH AND THICKNESS INDICATED. COMPACT EACH LAYER BY MEANS OF TAMPING.
5. GRADE AREAS TO A SMOOTH SURFACE TO BLEND INTO EXISTING GRADES.
6. UNDER PAVEMENTS AND WALKWAYS, PLACE SUBBASE COURSE MATERIAL ON PREPARED SUBGRADES AS INDICATED OR DIRECTED BY ENGINEER AND COMPACT BY TAMPING TO REQUIRED THICKNESSES.
7. REMOVE SURPLUS SATISFACTORY SOIL AND WASTE MATERIAL INCLUDING UNSATISFACTORY SOIL, TRASH, AND DEBRIS AND LEGALLY DISPOSE OF IT.

STREET RESTORATION DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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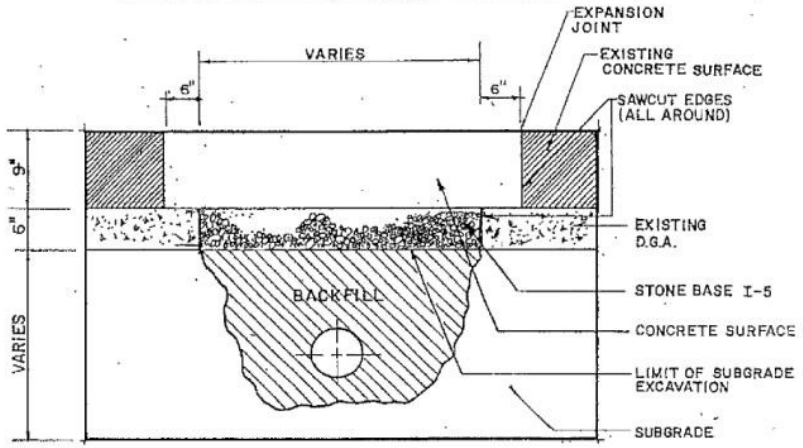
STREET RESTORATION DETAIL # 3



UTILITY OPENING REPAIR

NOT TO SCALE

CONCRETE SURFACE OVER STONE BASE

NOTES:

1. PROTECT SUBGRADES AND FOUNDATION SOILS FROM SOFTENING AND DAMAGE BY WATER, FREEZING TEMPERATURES OR FROST.
2. EXCAVATE TO SUBGRADE ELEVATIONS REGARDLESS OF CHARACTER OF MATERIALS AND OBSTRUCTIONS ENCOUNTERED. TAMP SUBGRADE PRIOR TO PLACEMENT OF RESTORATION MATERIALS.
3. BOX OUT EXISTING OPENINGS AS INDICATED ON DETAIL. SAW CUT EXISTING UTILITY STREET OPENING USING LONGITUDINAL AND TRAVERSE CUTS TO PROVIDE A NEAT EDGE AND SEAL JOINTS AS INDICATED.
4. PLACE EACH MATERIAL AT DEPTH AND THICKNESS INDICATED. COMPACT EACH LAYER BY MEANS OF TAMPING.
5. GRADE AREAS TO A SMOOTH SURFACE TO BLEND INTO EXISTING GRADES.
6. UNDER PAVEMENTS AND WALKWAYS, PLACE SUBBASE COURSE MATERIAL ON PREPARED SUBGRADES AS INDICATED OR DIRECTED BY ENGINEER AND COMPACT BY TAMPING TO REQUIRED THICKNESSES.
7. REMOVE SURPLUS SATISFACTORY SOIL AND WASTE MATERIAL INCLUDING UNSATISFACTORY SOIL, TRASH, AND DEBRIS AND LEGALLY DISPOSE OF IT.

STREET RESTORATION DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY.

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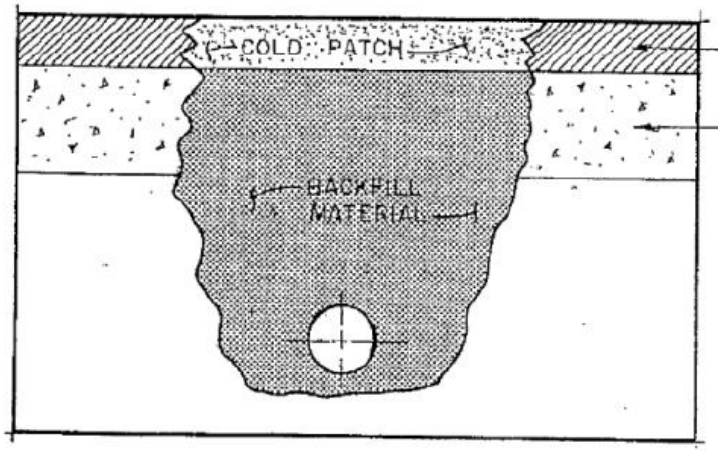
STREET RESTORATION DETAIL # 4



TYPICAL UTILITY OPENING (TEMPORARY)
NOT TO SCALE

NOTE:

1. Utility Trenches: excavate trenches to indicated slopes, lines depths and invert elevations. Maintain 12 inches (300 mm) of working clearance on each side of pipe or conduit.

2. Place, compact and shape bedding course to provide continuous support for pipes and conduits over rock and other unyielding bearing surfaces and to fill unauthorized excavations.

3. Place and compact initial backfill of satisfactory soil material or subbase material, free of particles larger than 1 inch (25 mm) to a height of 12 inches (300 mm) over the utility pipe or conduit. Place and compact final backfill of satisfactory soil material to final subgrade.

4. Provide temporary Bituminous patch

5.Check patched area routinely for any signs of settlement, repair as needed.

STREET RESTORATION DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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BURIED PIPING SCHEDULE
ABBREVIATIONS

The following abbreviations are used:

A. Material Abbreviations

Reinforced Concrete Pipe	RCP
Ductile Iron	DI
Thermoplastic-Polyvinyl Chloride	PVC
Copper Tubing	CT

B. Interior Lining Abbreviations

Cement Lined	CL
Bituminous Coated	BC

C. Exterior Coating Abbreviations

Bituminous Coated	BC
Polyethylene Sleeve	PS
Painted	P

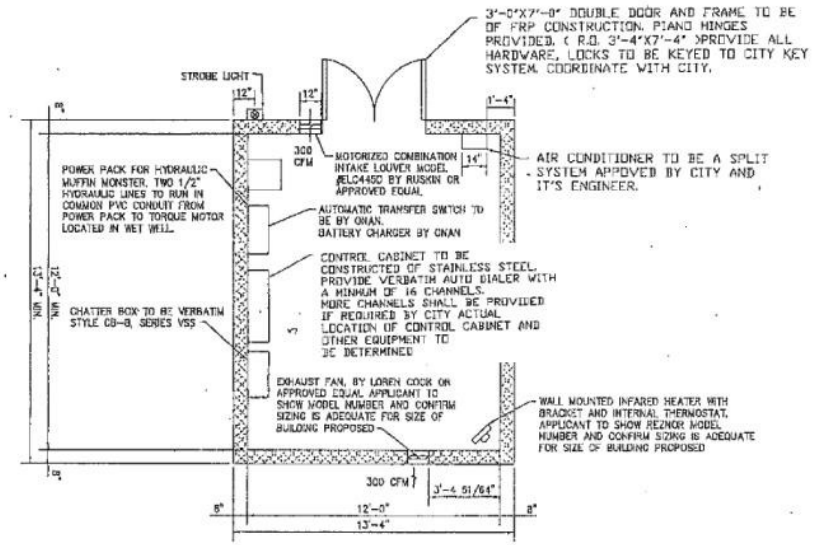
D. Joint Abbreviations

Bell and Spigot	B&S
Mechanical Joint	MJ
Flare	Flr.
Butt Welded	BW
Grooved	GR
Compression Fittings	C
Push-on Joint	PJ

BURIED PIPING SCHEDULE

SERVICE	MATERIAL	INFERIOR LININGS	EXTERIOR COATING	THICKNESS CLASS	JOINT	PRESSURE TEST (PSIG)
Water Main Offsets (1)	DI	CL, BC	BC, PS	56	MJ(2)	Normal operating Pressure (3)
Water Service Connections 2-inch and smaller	CT	-	-	Type L	C	Normal operating pressure (3)
Water Service Connections larger than 2-inch	DI	CL, BC	BC, PS	53	PJ	Normal operating pressure (3)
Gravity Sewers less Than or equal to 24" Diameter	PVC	-	-	SDR35	B&S	-
Gravity Sewers 24" Diameter or greater	RCP	BC	-	Class IV Wall b	B&S	-

(1) All new piping, fittings, appurtenances shall be disinfected prior to installation.
(2) With restrained joints (retainer glands and tie rods/lugs).
(3) No visual leakage.



NOTES:

1. BUILDING TO HOUSE GENERATOR, CONTROLS, TRANFER SWITCH, BREAKER, CHATTER BOX AND ALL OTHER ELECTRICAL COMPONENTS.
2. BUILDING SHOWN AS CONCRETE BLOCK, AND SHALL HAVE DECORATIVE OFF WHITE FACING.
3. THE NEED FOR A/C TO BE DETERMINED ON A STATION BY STATION BASIS BY THE CITY AND ITS ENGINEER.
4. BUILDING DIMENSIONS AND LAYOUT AS SHOWN SHALL BE CONSIDERED TYPICAL AND FINAL DESIGN MUST BE SUBMITTED TO CITY AND ITS ENGINEER FOR APPROVAL.
5. ALL SIGNAGE SHALL BE PROVIDED AND INSTALLED BY CONTRACTOR AS REQUIRED BY OSHA AND LOCAL, STATE AND FEDERAL REQUIREMENTS, INCLUDING 18" X 24" EMERGENCY CONTACT SIGN.
6. POLE MOUNTED LIGHT WITH CONTROL BY PHOTO CELL AND TIMER WITH MANUAL OVERRIDE SHALL BE PROVIDED AT LOCATION APPROVED BY CITY ENGINEER.
7. CONTACT CITY FOR CURRENT REQUIREMENTS FOR ELECTRICAL EQUIPMENT.

BUILDING PLAN

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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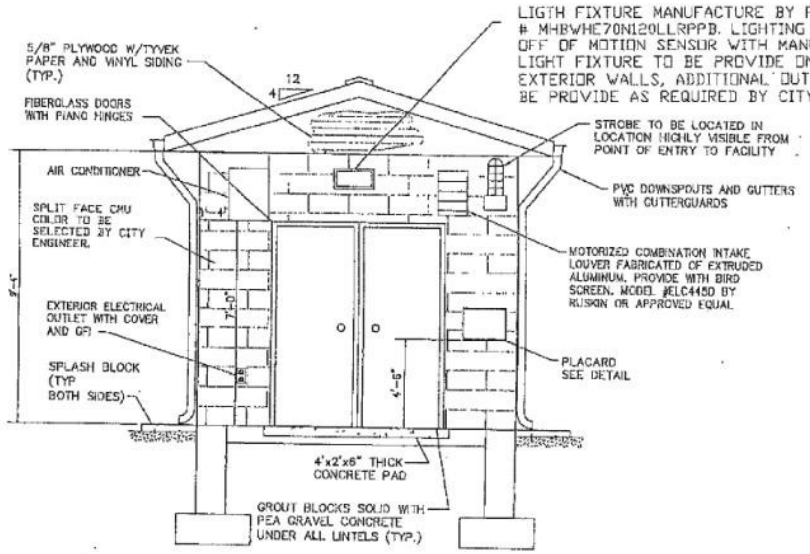

FRONT BUILDING ELEVATION AND PLACARD DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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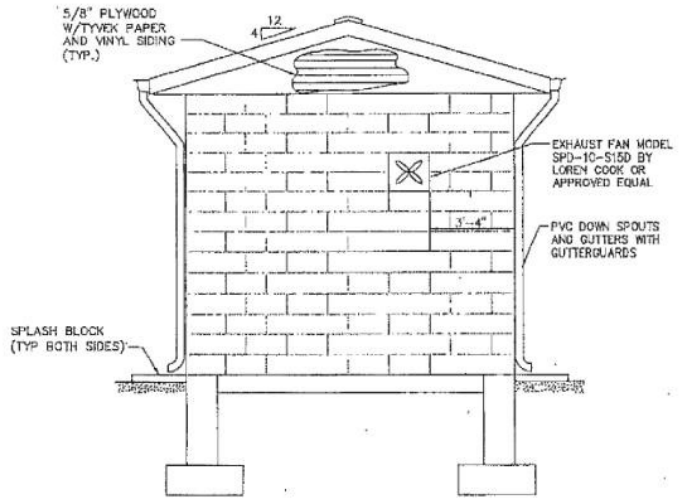
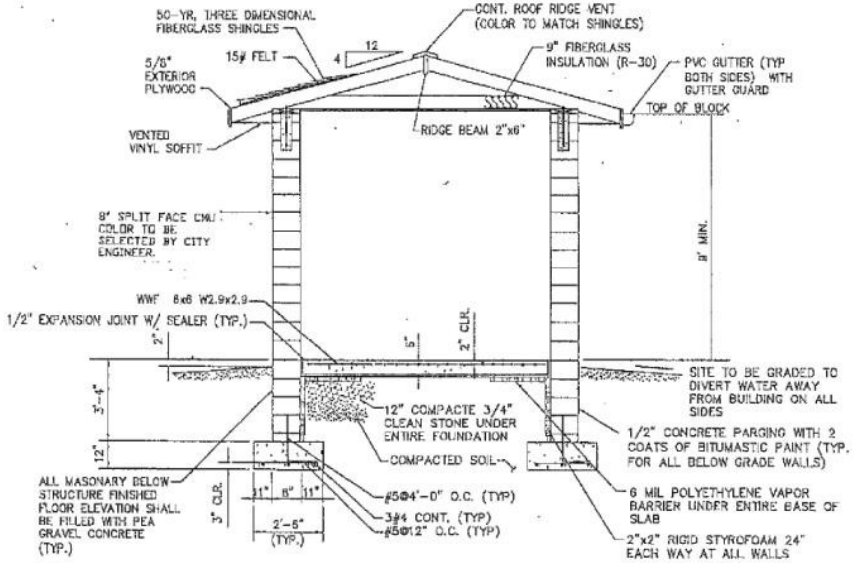


REAR BUILDING ELEVATION

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

S-18



NOTES:

1. BUILDING MUST MEET ALL APPLICABLE CODES AND STANDARDS.

BUILDING SECTION

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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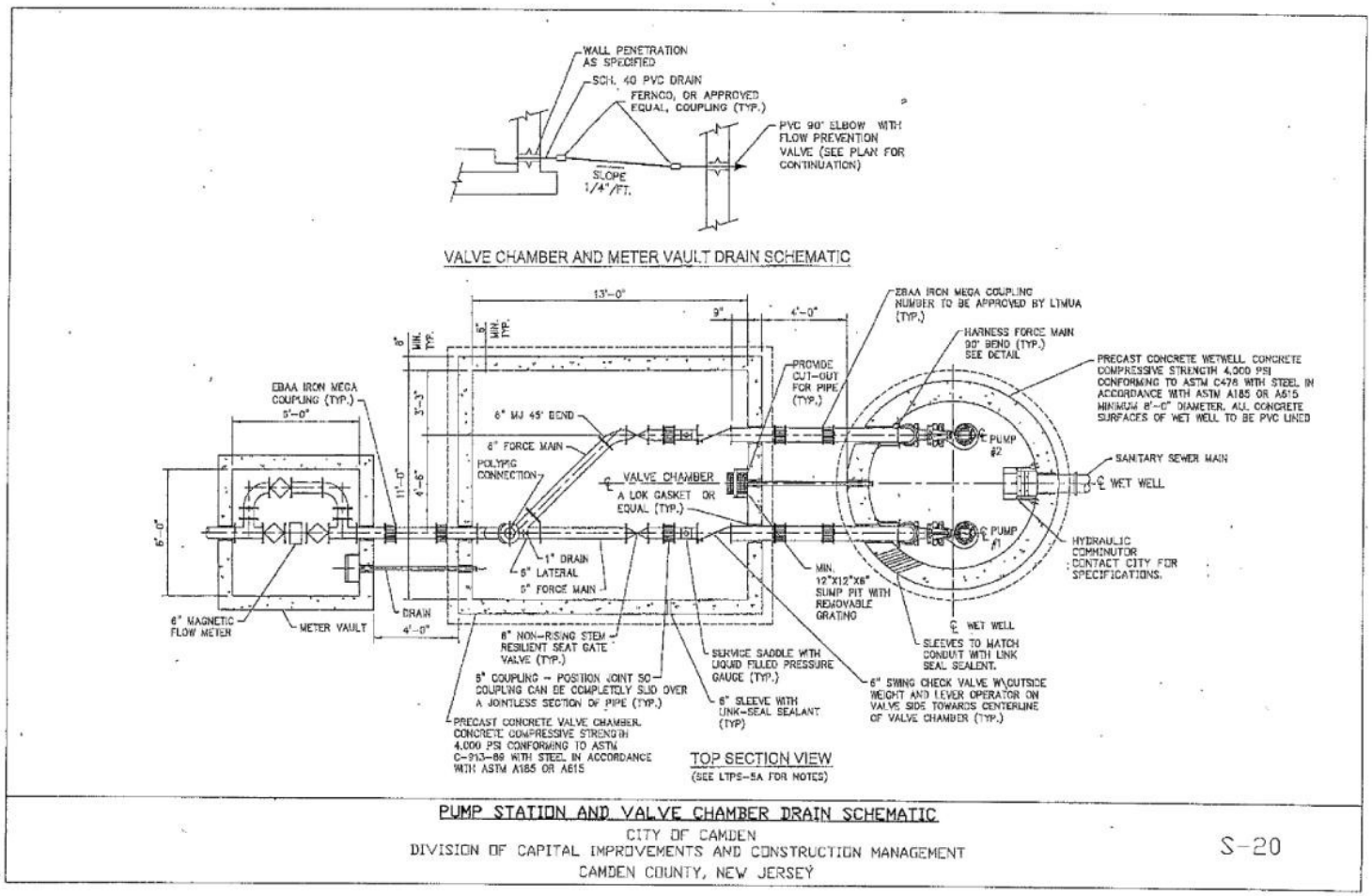
WALL PENETRATION AS SPECIFIED
SCH. 40 PVC DRAIN
FERNCO, OR APPROVED EQUAL, COUPLING (TYP.)
PVC 90° ELBOW WITH FLOW PREVENTION VALVE (SEE PLAN FOR CONTINUATION)
SLOPE 1/4"/FT.
VALVE CHAMBER AND METER VAULT DRAIN SCHEMATIC
13'-0"
9"
4'-0"
8" MIN. TYP.
EBAA IRON MEGA COUPLING (TYP.)
5'-0"
6" MJ 45° BEND
6" FORCE MAIN
POLYPIG CONNECTION
VALVE CHAMBER
A LOK GASKET OR EQUAL (TYP.)
PROVIDE CUT-OUT FOR PIPE (TYP.)
EBAA IRON MEGA COUPLING NUMBER TO BE APPROVED BY LTMUA (TYP.)
HARNESS FORCE MAIN 90° BEND (TYP.) SEE DETAIL
PRECAST CONCRETE WETWELL CONCRETE COMPRESSIVE STRENGTH 4,000 PSI CONFORMING TO ASTM C478 WITH STEEL IN ACCORDANCE WITH ASTM A185 OR A615 MINIMUM 8'-0" DIAMETER. ALL CONCRETE SURFACES OF WET WELL TO BE PVC LINED
PUMP #2
SANITARY SEWER MAIN
℄ WET WELL
PUMP #1
HYDRAULIC COMMINUTOR CONTACT CITY FOR SPECIFICATIONS.
3'-3"
11'-0"
4'-6"
6'-0"
1" DRAIN
6" LATERAL
6" FORCE MAIN
MIN. 12"X12"X8" SUMP PIT WITH REMOVABLE GRATING
6" MAGNETIC FLOW METER
METER VAULT
DRAIN
4'-0"
6" NON-RISING STEM RESILIENT SEAT GATE VALVE (TYP.)
SERVICE SADDLE WITH LIQUID FILLED PRESSURE GAUGE (TYP.)
SLEEVES TO MATCH CONDUIT WITH LINK SEAL SEALENT.
8" COUPLING - POSITION JOINT SO COUPLING CAN BE COMPLETELY SLID OVER A JOINTLESS SECTION OF PIPE (TYP.)
6" SLEEVE WITH LINK-SEAL SEALANT (TYP)
6" SWING CHECK VALVE W\OUTSIDE WEIGHT AND LEVER OPERATOR ON VALVE SIDE TOWARDS CENTERLINE OF VALVE CHAMBER (TYP.)
PRECAST CONCRETE VALVE CHAMBER. CONCRETE COMPRESSIVE STRENGTH 4,000 PSI CONFORMING TO ASTM C-913-89 WITH STEEL IN ACCORDANCE WITH ASTM A185 OR A615
TOP SECTION VIEW
(SEE LTPS-5A FOR NOTES)
PUMP STATION AND VALVE CHAMBER DRAIN SCHEMATIC
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
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NOTES:

1. LOCATION OF ACCESS HATCH AND HINGES, DAVIT BASE, COMMINUTOR, AND POWER/CONTROL WIRING, AT A MINIMUM, MUST BE SHOWN ON SUBMITTED STATION PLAN FOR APPROVAL. ELECTRIC HOIST MUST BE LOCATED TO REMOVE BOTH PUMPS AND COMMINATOR. ELECTRIC HOIST MUST BE AS PROVIDED BY THERN OR APPROVED EQUAL. CONTACT LTMUA FOR SPECIFIC REQUIREMENTS.

2. PROVIDE TWO FLYGT PUMPS WITH "N" TYPE IMPELLERS. ONE PUMP SHALL BE SUPPLIED WITH A MIX-TYPE FLUSH VALVE. PROVIDE CERTIFIED COPY OF PUMP CURVE AND 5 O&M MANUALS FOR EACH PUMP STATION.

3. TYPE MU-AL BILCO DOOR OR APPROVED EQUAL WITH RECESSED PADLOCK HASP. DOOR MUST BE LOCKABLE AND HAVE H20 LOADING IF IN A PAVED AREA. PROVIDE TWO KEYS PER DOOR. OPENING OF DOOR SHALL BE SIZED TO PROVIDE ACCESS TO ALL PUMPS, VALVES, AND OTHER MOVEABLE PARTS FROM GROUND SURFACE, AT A MINIMUM 36"x36". SAFETY GRATING MUST BE PROVIDED UNDER BILCO DOOR.

4. ENTIRE WET WELL MUST BE PVC LINED, EPOXY LINING WILL NOT BE ACCEPTED. ALL ELECTRICAL CONTROLS TO BE LOCATED IN BUILDING.

5. ALL PIPING SHAL BE PAINTED WITH EPOXIY PAINT APPROVED BY CITY ENGINEER. ALL BRACES PUMP GUIDE RAILS, AND HARDWARE SHALL BE OF 316 STAINLESS STEEL.

6. PUMP STATION LAYOUT MUST SHOW YARD HYDRANT WITH ANTISYPHON/BACKFLOW PREVENTER, FENCING IN ACCORDANCE WITH CITY STANDARDS, LIGHTING, PAVED AND STONE SURFACE TO 2' BEYONG FENCING, CONTROL BUILDING, AND GENERATOR. FINAL PUMP STATION LAYOUT MUST BE APPROVED BY CITY ENGINEER.

7. PUMP TO OPRATE ON LATEST MYRIAD OR FLYGHT PRESSURE TRANSDUCERS, (CITY APPROVAL REQUIRED) WITH BACKUP FLOATS. CONTROLS SHALL BE IN LOW LEVEL (PUMP OFF), HIGH LEVEL (LEAD PUMP ON), AND HIGH LEVEL (LAG PUMP ON ALARM TO CHATTERBOX). ALL ELECTRICAL PARTS TO BE SQUARED.

8. PUMP STATION SHALL BE PROVIDED WITH A ONAN NATURAL GAS POWERED GENERATOR IF NATURAL GAS IS AVAILABLE. IF NATURAL GAS IS NOT AVAILABLE PROVIDEA DIESEL POWERED ONAN GENERATOR WITH A KIM HOT-START SMALL TANK BLOCK HEATER. GENERATOR SIZING SHALL BE SUBMITTED TO THE CITY ENGINEER FOR REVIEW. THE GENERATOR SHALL AT A MINIMUM HAVE AN AUTOMATIC TRANSFER SWITCH, 3 DAY OR 200 GALLON CAPACITY FUEL TANK, AND BE ABLE TO RUN BOTH PUMPS AND THE BALANCE OF THE PUMP STATION AT THE SAME TIME. GENERATOR MUST HAVE A 5 YEAR MAINTENANCE CONTRACT.

9. FENCING SHALL BE A MINIMUM 6' HIGH MADE OF NO-CLIMB CONSTRUCTION. OPENING FOR GATE SHALL BE 16' MINIMUM, SWING TYPE OR PREFERRED SLIDE GATE, IF SPACE PERMITS. VINYL FENCE MUST BE GREEN EPOXY EMPREGNATED WITH BARBWIRE AT THE TOP.

10. VALVE BOXES MUST BE SUPPLIED WITH VALVES IN VALVE CHAMBER. TWO VALVE KEYS TO BE PROVIDED PER EACH STATION.

11. LAYOUT AS SHOWN BELOW MAY NOT REFLECT ACTUAL SITE CONDITIONS.

12. ACCESS TO ALL MOVABLE PARTS AND PIPE OPENINGS IN VALVE CHAMBER, METER CHAMBER AND WET WELL SHALL BE PROVIDED THROUGH VALVE COVERS IN CONCRETE SLAB. OPENINGS MUST FACILITATE OPERATING ALL VALVES, (INCLUDING CHECK VALVES) FROM TOP OF VALVE CHAMBER WITHOUT ENTRY REQUIRED.

13. CONTROLS FOR COMMINUTOR TO BE LOCATED IN BUILDING WITH EMERGENCY SHUT OFF SWITCH PROVIDED BY WET WELL.

14. CONDUIT MUST BE PROVIDED FROM THE FLOW METER INTO THE BUILDING. A CHART RECORDER OR REMOTE READOUT MUST BE PROVIDED IN BUILDING. CONTACT LTMUA FOR REQUIREMENTS.

15. METER VAULT AND VALVE CHAMBER TO SLOPE TO DRAIN.

16. ALL CONTROLS TO BE SCADA COMPATIBLE.

17. PIPE SIZING TO BE APPROVED BY LTMUA.

18. MINIMUM OF 18" CLEARANCE REQUIRED BETWEEN EDGE OF PIPE AND WELL IN ALL VAULTS AND CHAMBERS.

PUMP STATION AND VALVE CHAMBER DRAIN SCHEMATIC NOTES

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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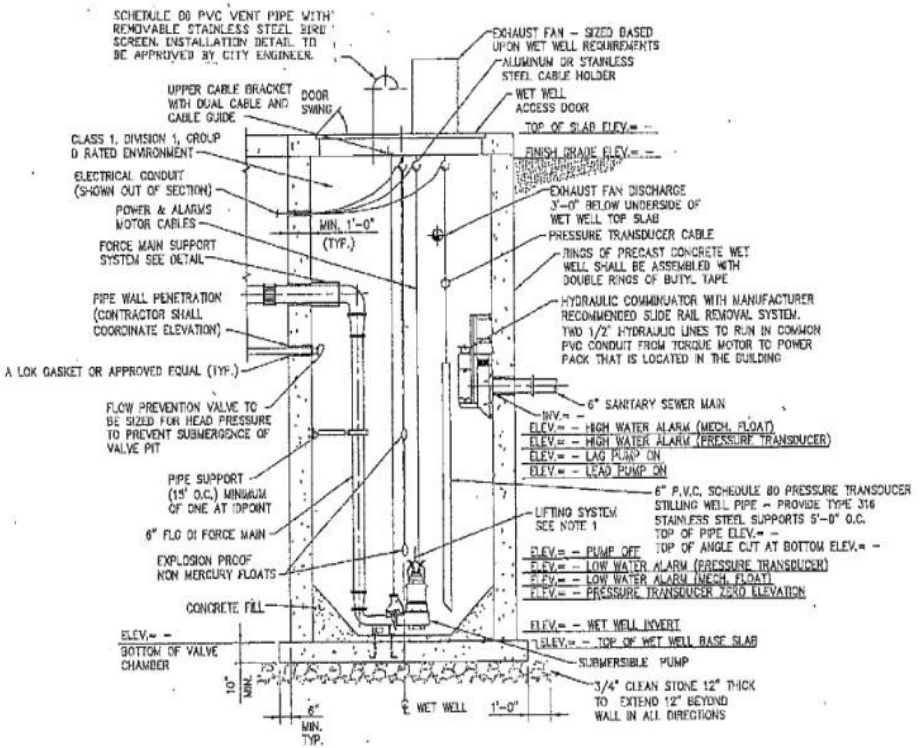

SECTION

SEE LTDS-6A FOR METER CHAMBER AND VALVE CHAMBER PORTION

NOTES:

1. VALVE PIT SHALL BE SIZED A MIN. 7'-0" FROM BOTTOM SLAB TO UNDERSIDE OF UPPER SLAB.
2. BASE SLAB THICKNESS AND EXTENSION TO BE DESIGNED BY APPLICANT'S ENGINEER TO PREVENT FLOATATION.
3. ACCESS TO ALL MOVEABLE PARTS AND PIPE OPENINGS IN VALVE CHAMBER, METER CHAMBER AND WET WELL SHALL BE PROVIDED THROUGH VALVE COVERS IN CONCRETE SLAB. OPENINGS MUST FACILITATE OPERATING ALL VALVES, (INCLUDING CHECK VALVES), FROM TOP OF VALVE CHAMBER WITHOUT ENTRY REQUIRED.
4. FOR INFORMATION ON POLY PIG SYSTEM, CONTACT FLO-KLEEN AT 716--778--7042.

PUMP STATION - WET WELL PORTION

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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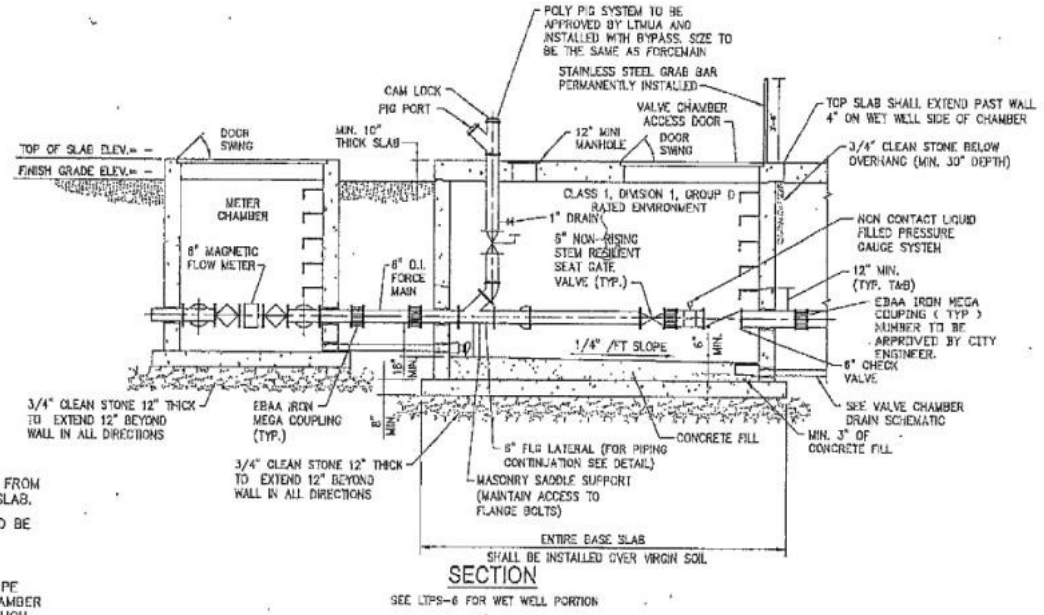

SECTION

SEE LTPS-6 FOR WET WELL PORTION

NOTES:

1. VALVE PIT SHALL BE SIZED A MIN. 7'–0" FROM BOTTOM SLAB TO UNDERSIDE OF UPPER SLAB.
2. BASE SLAB THICKNESS AND EXTENSION TO BE DESIGNED BY APPLICANT'S ENGINEER TO PREVENT FLOATATION.
3. ACCESS TO ALL MOVEABLE PARTS AND PIPE OPENINGS IN VALVE CHAMBER, METER CHAMBER AND WET WELL SHALL BE PROVIDED THROUGH VALVE COVERS IN CONCRETE SLAB. OPENINGS MUST FACILITATE OPERATING ALL VALVES, (INCLUDING CHECK VALVES), FROM TOP OF VALVE CHAMBER WITHOUT ENTRY REQUIRED.
4. FOR INFORMATION ON POLY PIG SYSTEM, CONTACT FLO-KLEEN AT 716-778-7042.

PUMP STATION – METER CHAMBER AND VALVE CHAMBER PORTION

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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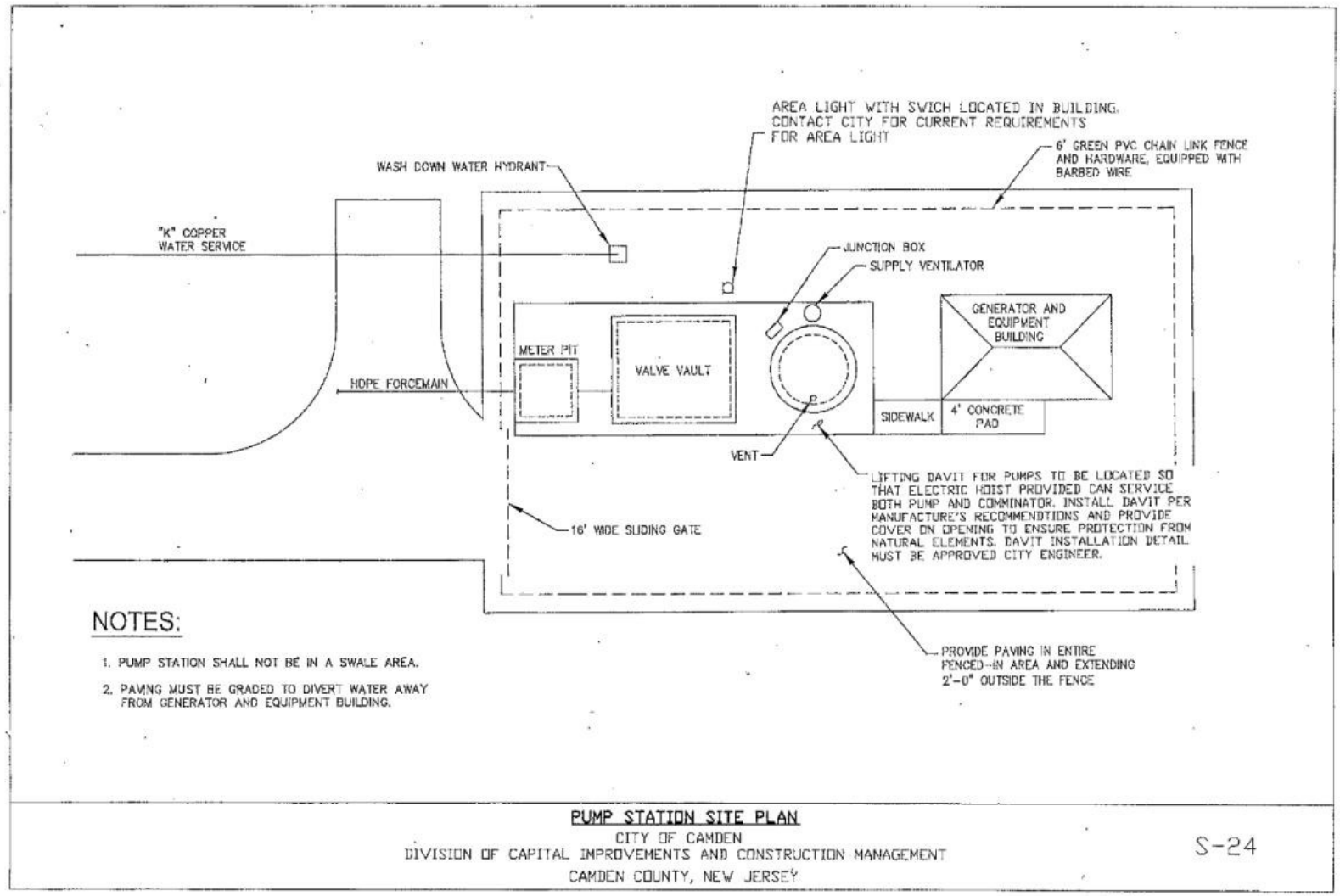

PUMP STATION SITE PLAN

CITY OF CAMDEN

DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT

CAMDEN COUNTY, NEW JERSEY

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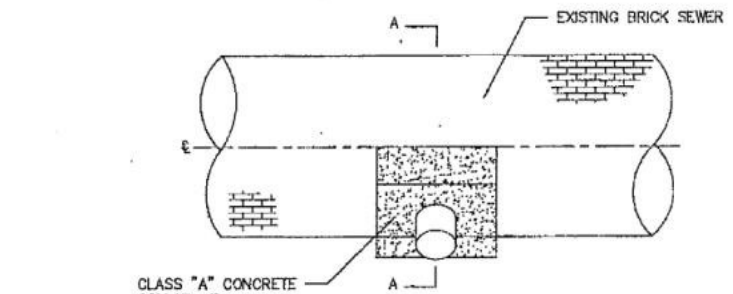
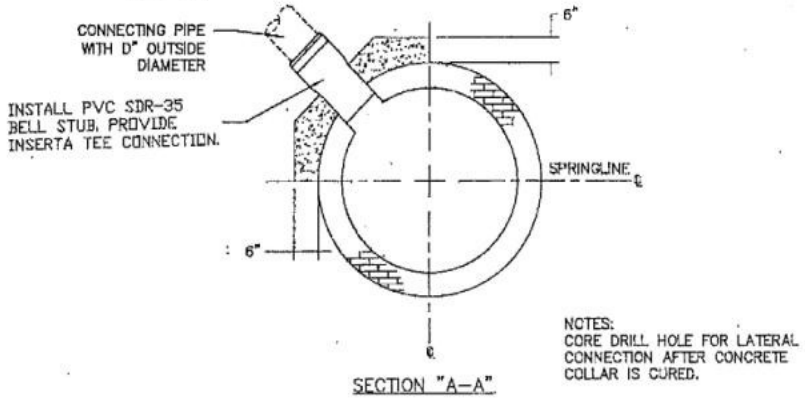


PLAN



SECTION "A-A"

NOTES:
CORE DRILL HOLE FOR LATERAL CONNECTION AFTER CONCRETE COLLAR IS CURED.

CONNECTION TO BRICK SEWERS

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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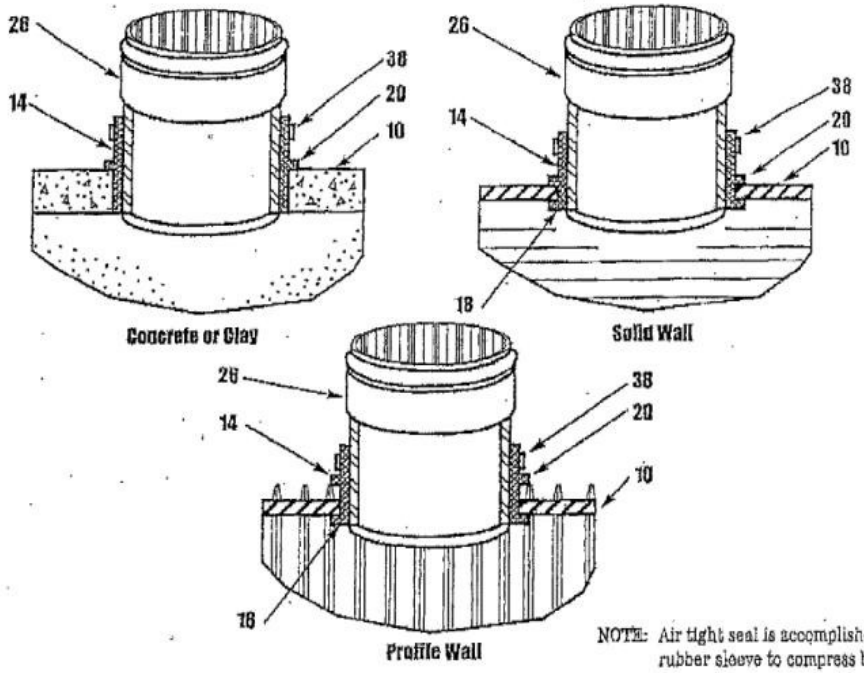

NOTE: Air tight seal is accomplished when PVC hub (No. 26) is driven into rubber sleeve (No. 14) causing the rubber sleeve to compress between pipe wall (No. 10) and PVC hub (No. 26).

Fig. 10	Mainline pipe wall where branch line is connected.
Fig. 14	Complete rubber sleeve consisting of C-443 specifications.
Fig. 18	Rubber segment which is molded into the rubber sleeve. This prevents snap out on the inside of the drilled hole (plastic pipe only) and helps hold the fitting in place, not creating the seal.
Fig. 20	Rubber segment which is molded into the rubber sleeve. This prevents the rubber sleeve from going through the drilled hole when PVC hub is being driven into the rubber sleeve.
Fig. 26	SDR-35 PVC hub (ASTM D-3034 sewer pipe) which is driven into the center of the rubber sleeve after the rubber sleeve is in the hole.
Fig. 38	Stainless steel band, put on above Fig. 20 is an added precaution.

INSERTA TEE CONNECTION DETAILS

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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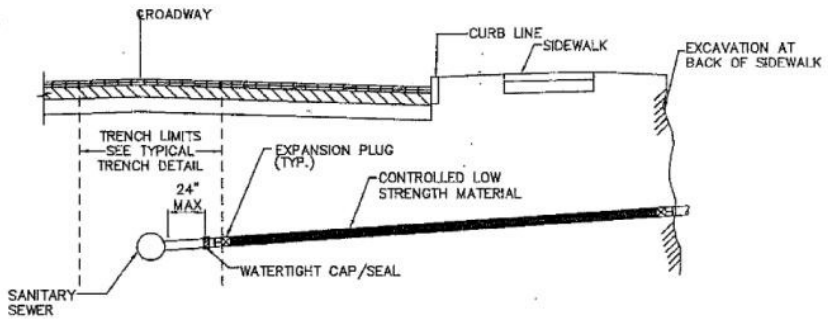

NOTE:

1. EXCAVATE AS NECESSARY AT BACK OF SIDEWALK AND AT SEWER MAIN.

2. INSTALL PROPERLY SIZED EXPANSION JOINT PLUGS INTO ABANDONED SEWER LATERAL AS INDICATED -24 INCHES FROM SANITARY SEWER.

3. FILL SEWER LATERAL WITH CONTROLLED LOW STRENCH MATERIAL AS INDICATED.

4. SEAL SEWER HUB WITH MALE ADAPTER AND CAP OR WITH SECOND EXPANSION JOINT OR AS APPROVED BY THE CITY IN THE FIELD.

5. BACKFILL AS REQUIRED.

PLUGGING SEWER LATERALS EXCAVATION METHOD

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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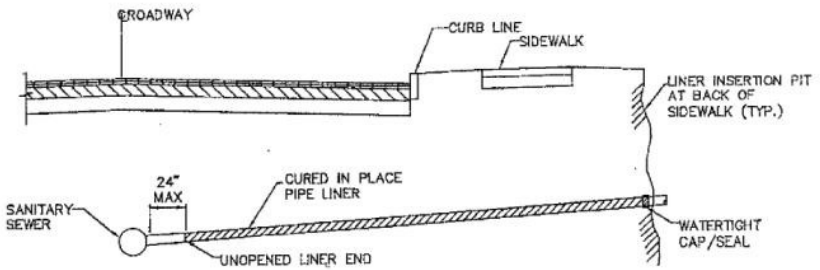

NOTES:
1. INSERT LINER BEGINNING AT INSERTION PIT OR CLEANOUT, AND ENDING 24" FROM SANITARY SEWER MAIN OR CLOSER. LINER END SHALL REMAIN UNOPENED TO PROVIDE A WATERTIGHT SEAL.
2. SEAL LINER AT INSERTION END WITH MALE ADAPTER AND CAP OR AS APPROVED BY THE GNHWPCA IN THE FIELD.
3. BACKFILL AS REQUIRED.

PLUGGING SEWER LATERALS - TRENCHLESS METHOD

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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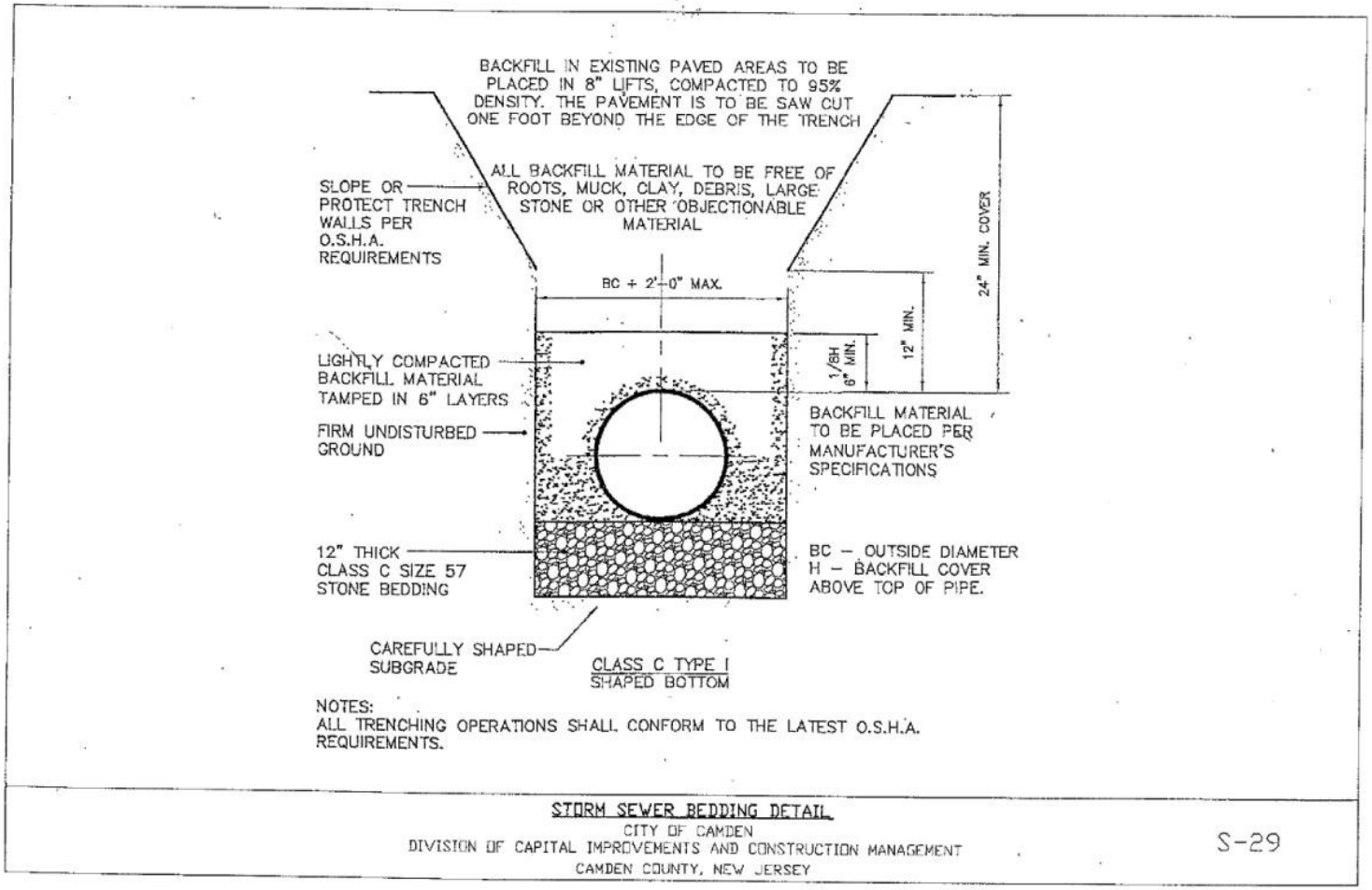
BACKFILL IN EXISTING PAVED AREAS TO BE PLACED IN 8" LIFTS, COMPACTED TO 95% DENSITY. THE PAVEMENT IS TO BE SAW CUT ONE FOOT BEYOND THE EDGE OF THE TRENCH
ALL BACKFILL MATERIAL TO BE FREE OF ROOTS, MUCK, CLAY, DEBRIS, LARGE STONE OR OTHER OBJECTIONABLE MATERIAL
SLOPE OR PROTECT TRENCH WALLS PER O.S.H.A. REQUIREMENTS
BC + 2'-0" MAX.
24" MIN. COVER
12" MIN.
1/8H 8" MIN.
LIGHTLY COMPACTED BACKFILL MATERIAL TAMPED IN 6" LAYERS
FIRM UNDISTURBED GROUND
BACKFILL MATERIAL TO BE PLACED PER MANUFACTURER'S SPECIFICATIONS
12" THICK CLASS C SIZE 57 STONE BEDDING
BC – OUTSIDE DIAMETER
H – BACKFILL COVER ABOVE TOP OF PIPE.
CAREFULLY SHAPED SUBGRADE
CLASS C TYPE I
SHAPED BOTTOM
NOTES:
ALL TRENCHING OPERATIONS SHALL CONFORM TO THE LATEST O.S.H.A. REQUIREMENTS.
STORM SEWER BEDDING DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
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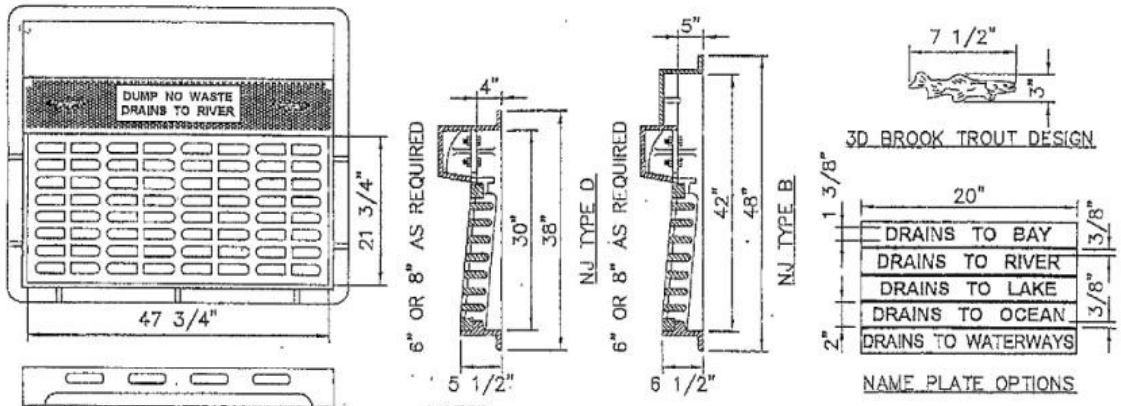

NOTES:
1. MATERIAL: GRAY CAST IRON ASTM A48-83, CLASS 30B.
2. AASHTO HS20-44 HIGHWAY LOADING.
3. SUPPLIED WITHOUT SURFACE COATING.
4. GRATE TO BE BRIDGESTATE FOUNDRY CORPORATION #2618 OR APPROVED EQUAL.

TYPE 'B' BICYCLE SAFE GRATE & TYPE 'N-ECO' CURB PIECE

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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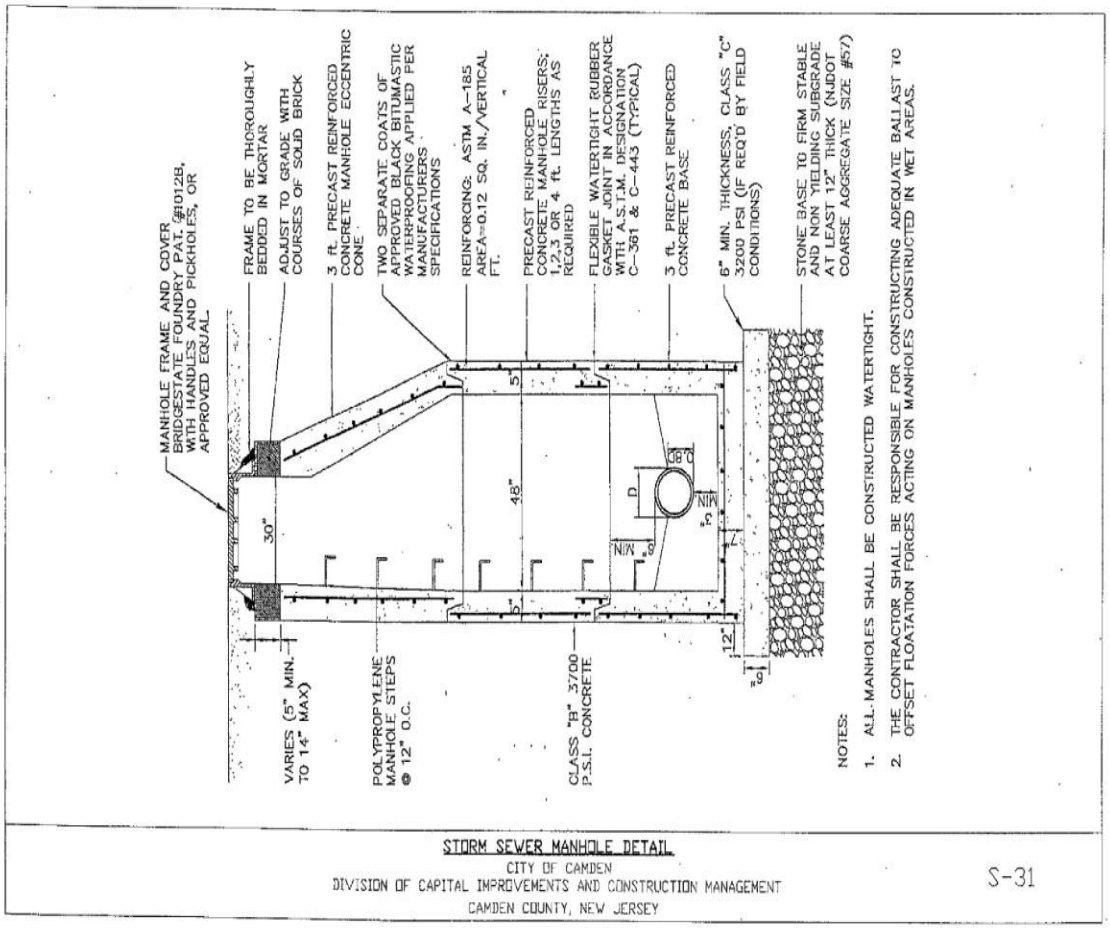

STORM SEWER MANHOLE DETAIL

CITY OF CAMDEN

DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT

CAMDEN COUNTY, NEW JERSEY

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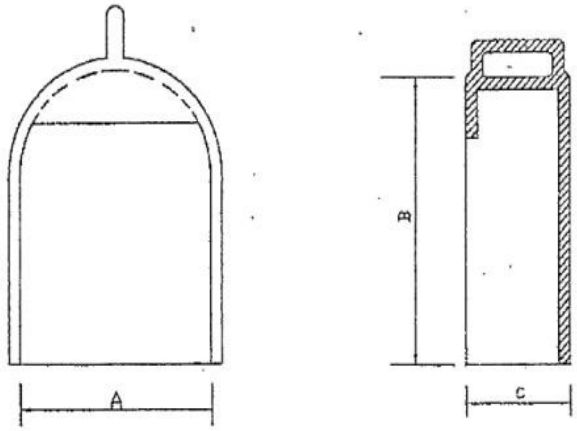

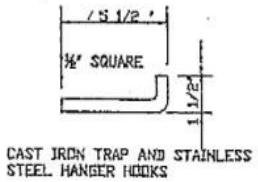

CAST IRON TRAP AND STAINLESS STEEL HANGER HOOKS

PATTERN NUMBER	DIMENSIONS IN INCHES			PIPE SIZE
	A	B	C	
2560	9 1/2	16	4 3/4	6
2561	11 1/2	20 1/2	5 1/2	8
2562	13 3/4	23 1/2	6 1/2	10
2563	15 3/4	26	7 1/2	12
2564	18	27	9	15
2565	20	27	10	18
2566	25 1/4	30	11 1/4	21

STANDARD CAST IRON TRAP

CITY OF CAMDEN

DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT

CAMDEN COUNTY, NEW JERSEY

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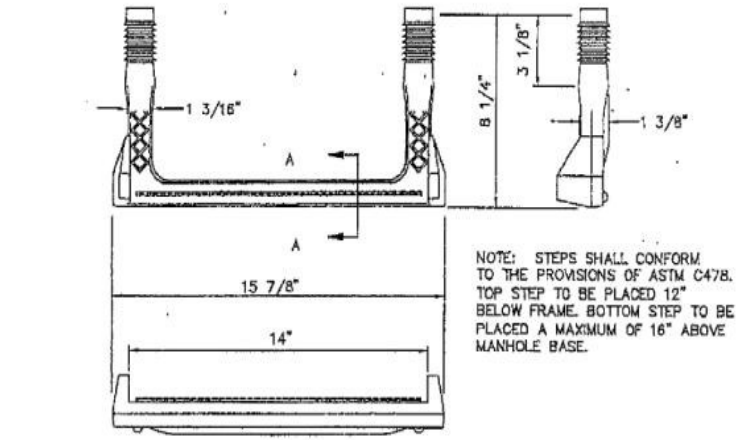

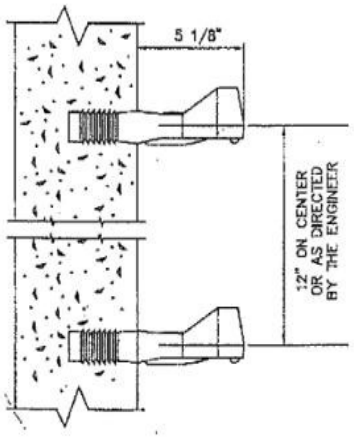

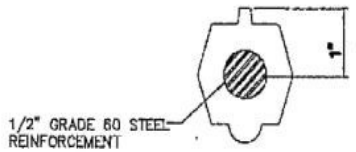

SECTION A–A

COPOLYMER POLYPROPYLENE PLASTIC STEEL REINFORCED MANHOLE STEP

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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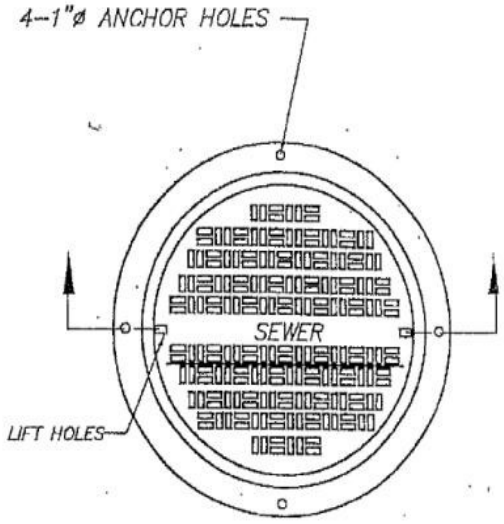
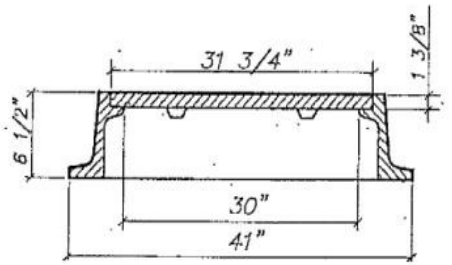
TYPE 'B' NJDOT INLET DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
SECTION A-A
SECTION B-B
FRAME, CURB PIECE, BACK AND GRATE
SHOULDER/PAVEMENT
LADDER RUNGS
CLASS "B" 3,700 PSI CONCRETE @ 28 DAYS
CLASS "C" 3,200 PSI CONCRETE @ 28 DAYS
STONE BASE TO FIRM STABLE AND NON YIELDING SUBGRADE AT LEAST 12" THICK (NJDOT COARSE AGGREGATE SIZE #57)
DEPTH OF INVERT TO BE 0.80 OF DIAMETER OF THE MAIN PIPE THROUGH THE INLET.
STAGE 1
STAGE 2
VARIABLE
4'-0"
3'-6"



SOLID COVER FOR
SANITARY AND
COMBINED SEWERS



SECTION OF FRAME

D.I. MANHOLE FRAME AND COVER
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

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RAISED LETTERS
PLAN
PROTECTION BOX SHALL BE BRIDGESTATE PATTERN #4155 OR APPROVED EQUAL AND SHALL BE MADE IN THE USA.
PAVEMENT
CLASS "C" CONCRETE
4" DIAMETER P.V.C.
UNDISTURBED SOIL
6" (TYP.)
6" (MIN. TYP.)
8" DIA.
1'-8" DIA.
FINISHED GRADE
7 1/2"
8"
COARSE AGGREGATE N.J.D.O.T. NO. 67, 6" THICK (MIN.) OR AS DIRECTED BY ENGINEER
SECTION
NOTE:
TO BE USED ONLY WHERE CLEAN-OUT IS PLACED IN A PAVED AREA OR SUBJECT TO VEHICULAR TRAFFIC.
CLEAN-OUT PROTECTION BOX DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
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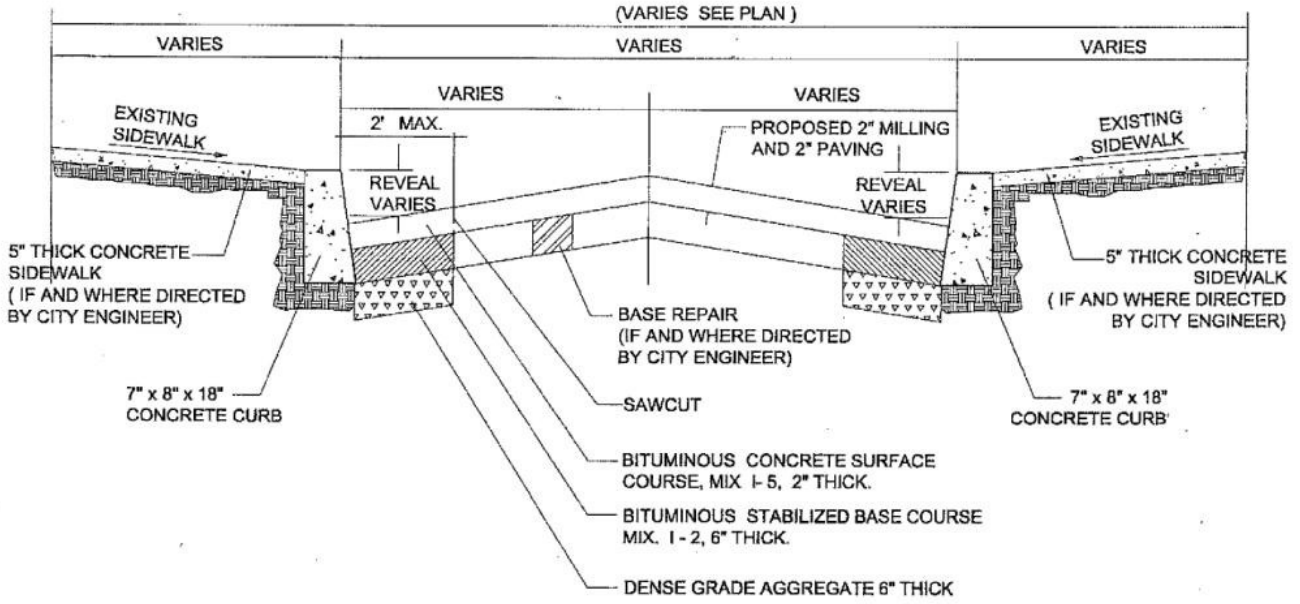
1/2

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS & PROJECT MANAGEMENT

DESIGN MANUAL DRAWING LIST

SITE IMPROVEMENT DETAILS

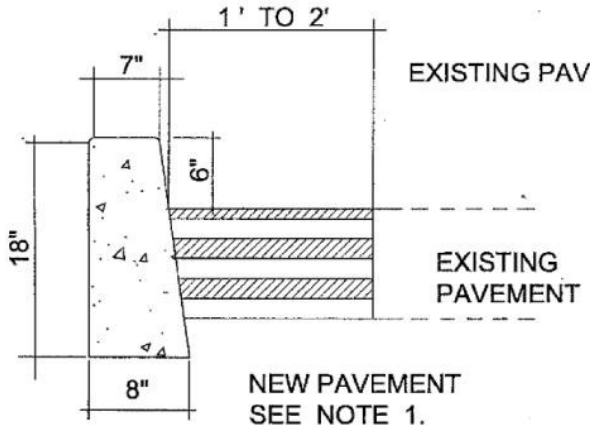
R-1 Typical Mill and Overlay Section	R-6 Watermain Trench Installation Detail
R-2 7"x8"x18' Vertical Concrete Curb	R-7 Concrete Sidewalk
R-3 Side Walk and Vertical Concrete Curb	R-8 Concrete Sidewalk Section
R-4 Curb Taper	R-9 Driveway Apron
R-5 Depressed Curb at Driveway	



TYPICAL MILL AND OVERLAY SECTION

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-1



4,000 PSI. CONCRETE
EXCEPT 4,500 PSI.CONCRETE
FOR

NOTE:

1. WHEN NEW CURB IS CONSTRUCTED ALONG AN EXISTING PAVED AREA, THE EXISTING PAVEMENT SHALL BE CUT IN A STRAIGHT LINE PARALLEL TO FACE OF NEW CURB WITH A SHARP TOOL AND THE NEW PAVEMENT SHALL BE TACKED AND BUTTED TO EXISTING PAVEMENT.

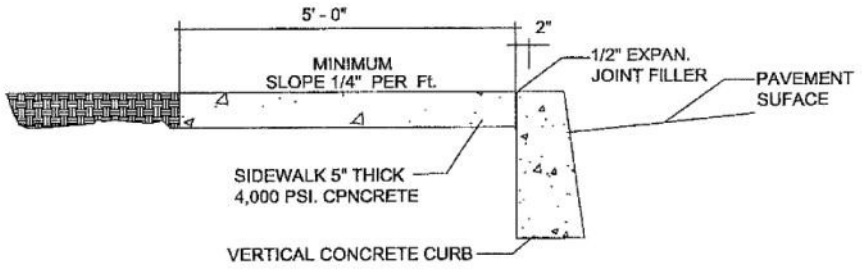
2. EXPANSION JOINTS 1/2" WIDE SHALL BE INSTALLED IN THE CURB 20' APART AND FILLED WITH CELLULAR COMPRESSION MATERIAL AS SPECIFIED AND RECESSED 1/4 " FROM FACE AND TOP OF CURB. EXPANSION JOINTS TO BE INCLUDED IN PRICE BID FOR CURB.
CONSTRUCTION JOINT SHALL BE CUT MID-POINT BETWEEN EXP. JOINTS.

* WHERE NO ELEVATION ARE GIVEN ON THE PLAN, MATCH THE PROJECTED TOP OF EXISTING CURB. THE PROJECTED TOP OF CURB SHALL BE DETERMINED BY A STRING LINE.

7'X8"X18" VERTICAL CONCRETE CURB

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-2



SIDE WALK AND VERTICAL CONCRETE CURB

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-3

CURB TAPER

CITY OF CAMDEN

DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT

CAMDEN COUNTY, NEW JERSEY

R-4

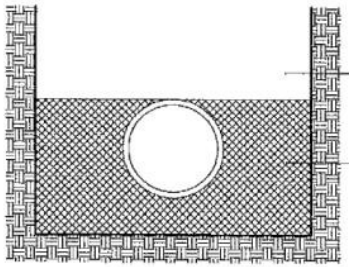
ELEVATION

* WHERE NO ELEVATION ARE GIVEN ON THE PLAN, MATCH THE PROJECTED TOP OF EXISTING CURB. THE PROJECTED TOP OF CURB SHALL BE THAT DETERMINED BY A STRING LINE.

DEPRESSED CURB AT DRIVEWAY

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-5



NOTE:

1. SELECT FILL: DENSE GRADE AGGREGATE (DGA), OR QUARRY PROCESS STONE NO. 1-5, IN ACCORDANCE WITH SPECIFICATION SUBSECTION 901.08 OF THE NJDOT STANDARD SPECIFICATIONS AND CONFORMED TO THE FOLLOWING TABLE.

SIEVE SIZE	PERCENT PASSING
2"	100
3/4"	55-90
No. 4	25-60
No. 50	5-60
No. 200	3-12

2.- GRANULAR EMBEDMENT: WASHED COARSE AGGREGATE OF SIZE No. 57 AS SPECIFIED AS SPECIFIED IN NJDOT STANDARD SPECICATOINS.
SCREENED GRAVEL SHALL BE CAPABLE OF BEING COMPACTED TO 95 % RELATIVE COMPACTION AND SHALL CONSIST OF HARD, DURABLE, ROUNDED OR SUBANGULAR PARTICULATES OF PROPER SIZE AND GRADATION AND SHAL BE FREE FROM SAND, LOAM, CLAY, EXCESS FINES AND DELETERIOUS MATERIALS. THE GRAVEL SHALL BE GRADED IN ACCORDANCE WITH ANSI/ASTM C136 WITHIN THEFOLLLOWING LIMTS:

SIEVE SIZE	PERCENT PASSING
1-1/2 INCH	100
1- INCH	95-100
1/2 - INCH	25-60
No. 4	1-10
No. 8	0-5

WATERMAIN TRENCH INSTALLATION DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R - 6

CONCRETE SIDEWALK

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-7

CONCRETE SIDEWALK SECTION

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-8

DRIVEWAY APRON
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

R-9

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS & PROJECT MANAGEMENT

DESIGN MANUAL DRAWING LIST

WATER

W-1 Water Pipe Crossing Detail	W-6 Thrust Block Detail
W-2 Water Pipe Crossing Detail	W-7 Camden City Requirements for Fire and Domestic Water Line and Meter Installations
W-3 Typical Water Service Connection	W-8 Camden City Requirements for Fire and Domestic Water Line and Meter Installations (Limited Fire Suppression System - Connection Size 1 ½ 002)
W-4 Typical Water Service Connection 2-inch and smaller	W-9 Camden City Requirements for Domestic Water Line and Meter Installations
W-5 Fire Hydrant Assembly Detail	W-10 Single Structure/Lot Site Plan Review Form for Building Renovations, Alterations and Additions

WATER PIPE CROSSING DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

W-1

(4)-3/4" DIA. TIE RODS. EXTEND RODS BACK TO NEAREST JOINT.
LINE STOP
EXIST WATER MAIN (TYP.)
45° ELBOW (TYP.)
(4)-3/4" DIA. STL TIE RODS (TYP.)
FIN. GRADE (EL. VARIES)
1'-0" (MIN.)
EQUAL
EQUAL
1 PIPE LENGTH
Sewer
Concrete encasement
To match existing
LINE STOP
to match existing (typ)
WATER PIPE CROSSING DETAIL
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
W-2

NOTES:

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY PIPING, FITTINGS, ADAPTERS, ETC. TO MAKE CONNECTION TO NEW WATER SERVICE LINES.
2. CONTRACTOR SHALL PROVIDE CUT-IN-TEE AND GATE VALVES FOR WATER SERVICE CONNECTION.
3. ALL PIPE AND FITTINGS ABOVE GRADE SHALL BE FLANGE ENDS.
4. EXISTING WATER SERVICES TO BE ABANDONED IN PLACE SHALL BE CUT, PLUGGED AS CLOSE TO THE WATER MAIN AS POSSIBLE AND FREE OF LEAKS.

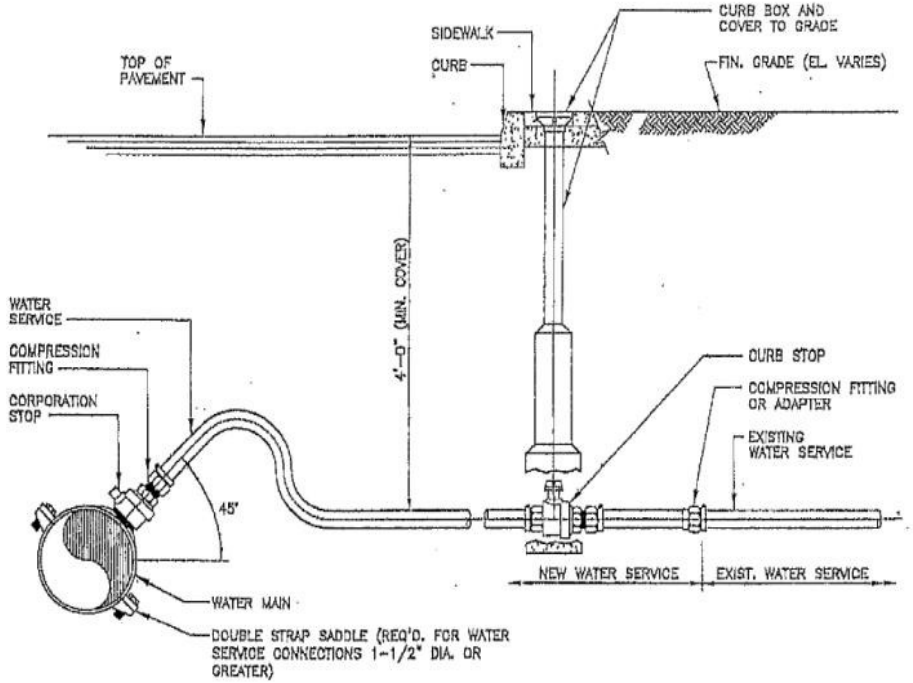
TYPICAL WATER SERVICE CONNECTION LARGER THAN 2-INCH DIAMETER

CITY OF CAMDEN

DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT

CAMDEN COUNTY, NEW JERSEY

W-3



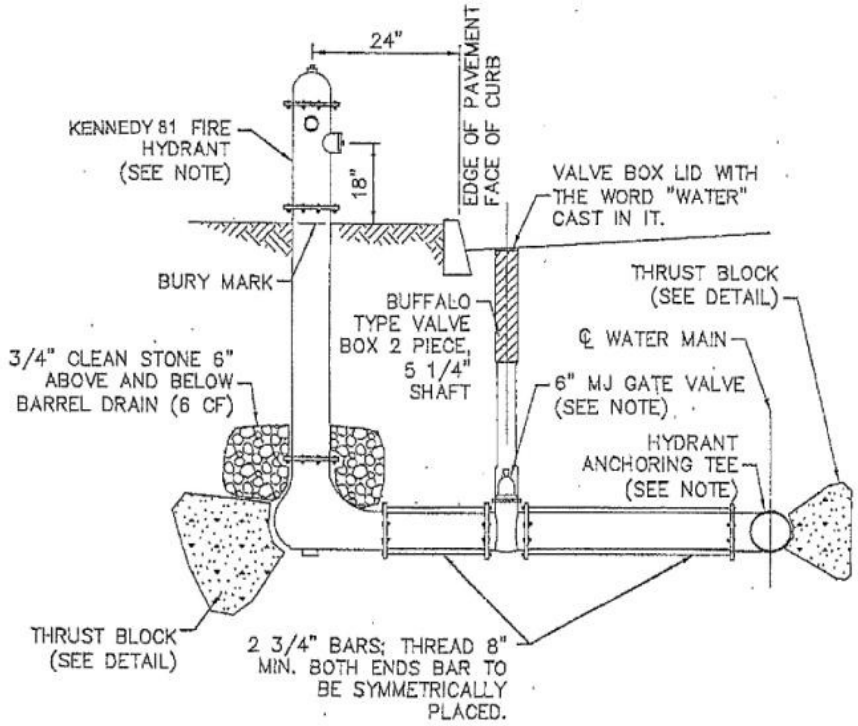
NOTES:

1. CONTRACTOR SHALL PROVIDE ALL NECESSARY PIPING, FITTINGS, ADAPTERS, ETC.TO MAKE CONNECTION TO NEW WATER SERVICE LINES.
2. CONTRACTOR SHALL PROVIDE DOUBLE STRAP SADDLE FOR WATER SERVICE CONNECTIONS 1-1/2" DIA. OR GREATER. FOR WATER SERVICE CONNECTIONS LESS THAN 1-1/2" DIA., CORPORATION STOP SHALL BE TAPPED DIRECTLY TO WATER MAIN.
3. EXISTING WATER SERVICES TO BE ABANDONED IN PLACE SHALL BE CRIMPED AS CLOSE TO THE WATER MAIN AS POSSIBLE.
4. EXISTING WATER SERVICES AND CORPORATION STOPS TO BE ABANDONED IN PLACE SHALL BE FREE OF LEAKS. IF CORPORATION STOP IS LEAKING, IT SHOULD BE REMOVED FROM THE WATER MAIN AND PENETRATION IN WATER MAIN FIXED USING REPAIR CLAMPS.

TYPICAL WATER CONNECTION 2-INCH AND SMALLER

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

W-4



FIRE HYDRANT NOTES

1. THE INLET HUB, GATE VALVE AND HYDRANT TEE SHALL BE RODDED TOGETHER WITH CONTINUOUS THREADED RODS (ALL THREAD), SOCKET CLAMPS, WASHERS, AND CORPORATION EYE BOLTS TO PREVENT HYDRANT FROM BLOWING OFF.
2. CONTRACTOR SHALL INSURE THAT THE FIRE HYDRANT THREADS CONFORM TO LOCAL FIRE COMPANY'S STANDARDS.

FIRE HYDRANT ASSEMBLY DETAIL

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

W-5

THRUST BLOCK DETAILS
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY

W-6

NOTES:

1. ALL CONCRETE TO BE CLASS "C" (3,200 PSI @ 28 DAYS).

MINIMUM SIZE OF CONCRETE THRUST BLOCKS				
d	6"	8"	10"	12"
TEES & CROSSES				
A	2'-0"	2'-6"	3'-0"	3'-6"
B	8"	8"	10"	10"
C	1'-3"	1'-6"	2'-0"	2'-6"
90° BENDS				
A	2'-6"	3'-0"	3'-6"	3'-9"
B	8"	8"	10"	10"
C	1'-3"	1'-6"	2'-0"	2'-9"
45° BENDS				
A	1'-6"	1'-6"	2'-3"	2'-3"
B	8"	8"	10"	10"
C	1'-3"	1'-9"	2'-0"	2'-6"
22.5° & 11.25° BENDS				
A	1'-6"	1'-6"	1'-6"	1'-6"
B	8"	8"	10"	10"
C	1'-3"	1'-9"	2'-0"	2'-6"
REDUCERS				
dxd	6"x4"	8"x4"	10"x6"	10"x8"
A	1'-6"	2'-0"	2'-4"	2'-6"
B	1'-0"	1'-0"	1'-3"	1'-6"

CAMDEN CITY REQUIREMENTS FOR FIRE AND DOMESTIC WATER LINE AND METER INSTALLATIONS
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
W-7
CAMDEN CITY WATER MAIN
TAPPING VALVE
GATE VALVE (ONLY IF WATER MAIN IS 2" OR LARGER)
CURB GATE VALVE
SIDE WALK
BUILDING LINE
DOMESTIC SERVICE
RPZ DOUBLE DEOTECTOR CHECK (1)
DRESSER COUPLING
OS &Y GATE VALVE
FIRE SERVICE
OS &Y GATE VALVE
CHECK VALVE
5/8" X ¾" WATER METER
OS &Y GATE VALVE
OS &Y GATE VALVE (3)
2" BRASS GATE VALVE WITH PLUG
DRESSER COUPLING
RPZ BACKFLOW PREVENTOR (2)
GATE VALVE
SENSUS STRAINER
SENSUS WATER METER
RPZ BACKFLOW PREVENTOR (2) (ONLY IF REQUIRED)
TEST TEE
GATE VALVE
CHECK VALVE
(1) Ames 5000 SS, Ames 5000 RPDA or Watts 909 RPDA, (2) Ames 4000 SS or Watts 909, Must use model # specified or approved equal

CAMDEN CITY REQUIREMENTS FOR FIRE AND DOMESTIC WATER LINE AND METER INSTALLATIONS
LIMITED FIRE SUPPRESSION SYSTEM-CONNECTION SIZE 1½" OR 2"
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
W-8
CAMDEN CITY WATER MAIN
TAPPING VALVE
GATE VALVE (ONLY IF WATER MAIN IS 2" OR LARGER)
SIDE WALK
CURB GATE VALVE
BUILDING LINE
FIRE LINE DETECTOR CHECK (WITH SINGLE CHECK) (1)
OS &Y GATE OR BALL VALVE (3)
DRESSER COUPLING
OS &Y GATE OR BALL VALVE (3)
RPZ BACKFLOW PREVENTOR (2)
FIRE SERVICE
CHECK VALVE
5/8" X ¾" WATER METER
OS &Y GATE OR BALL VALVE (3)
DOMESTIC SERVICE
OS &Y GATE VALVE (4)
2" BRASS GATE VALVE WITH PLUG
DRESSER COUPLING
SENSUS WATER METER
GATE VALVE
SENSUS STRAINER
GATE VALVE
CHECK VALVE
TEST TEE
RPZ BACKFLOW PREVENTOR (2) (AS NEEDED)
(1) Ames 1000 DCV, (2) Ames 4000 SS or Watts 909, (3) Victaulic Series 728 Firelock Ball Valve, Must use model # specified or approved equal

CAMDEN CITY REQUIREMENTS FOR DOMESTIC WATER LINE AND METER INSTALLATIONS
CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND CONSTRUCTION MANAGEMENT
CAMDEN COUNTY, NEW JERSEY
W-9
CAMDEN CITY WATER MAIN
CORPORATATION STOP
SIDE WALK
CURB GATE VALVE
BUILDING LINE
GATE VALVE
SENSUS WATER METER
SENSUS STRAINER
RPZ BACKFLOW PREVENTOR (ONLY IF REQUIRED)
TEST TEE
2" BRASS GATE VALVE WITH PLUG
CHECK VALVE (ONLY IF NO RPZ)
GATE VALVE

CAMDEN CITY PROJECT NO._____ (To be filled in by CIP)

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND PROJECT MANAGEMENT (CIP)
1056 WRIGHT AVE., 3RD FLOOR, CAMDEN, N.J. 08103
TEL NO: (856) 757-7680 FAX NO: (856) 757-7620

SINGLE STRUCTURE/LOT SITE PLAN REVIEW FORM
FOR BUILDING RENOVATIONS, ALTERATIONS, AND ADDITIONS
THE SITE PLANS WILL NOT BE REVIEWED UNTIL THIS FORM HAS BEEN COMPLETED

THIS FORM IS TO BE COMPLETED BY THE APPLICANT'S ARCHITECT OR ENGINEER PRIOR TO SUBMITTING PLANS

1. PROJECT INFORMATION:

   1. Project Name: _____
   2. Site Address: _____
   3. Property Information: Block:_____ Lot: _____
   4. Owner/Applicant:

      Name:_____

      Mailing Address: _____

      Mailing Address: _____

      Phone No: _____

      Fax No: _____

      E-Mail Address: _____

   5. Architect:

      Name:_____

      Mailing Address: _____

      Mailing Address: _____

      Phone No: _____

      Fax No: _____

      E-Mail Address: _____

CITY OF CAMDEN
DIVISION OF CAPITAL IMPROVEMENTS AND PROJECT MANAGEMENT (CIP)

WATERMAIN STANDARDS

1. MATERIALS

A. General: Joints shall be as specified in the piping schedule in "Buried Pipe Schedule". If not specified, use flanged joints for exposed piping and mechanical joints for buried piping.

B. Ductile Iron Pipe and Fittings:

1. Pipe:

a. All watermains shall be at least 8" in diameter.
b. Flanged Pipe: Fabricate in accordance with requirements of AWWA C115.

1) Thickness: Ductile iron pipe and fittings shall be minimum Class 56, unless otherwise specified.

c. Non-Flanged Pipe: Conform to AWWA C150 and C151 for material, thickness, dimensions, tolerances, tests, markings and other requirements. All non-flanged pipe joints shall be restrained

1) Thickness Class 53 for 2" to 6" pipe used for water service connections.
2) Thickness Class 54 for 6" to 20" pipe.
3) Thickness Class 56 for 4" to 30" pipe in all railroad right-of-way, on private property, and all sewer crossings.

2. Joints:

a. Flanged Joints: Conform to AWWA C110 capable of meeting working and required test pressure.

1) Gaskets: Neoprene C 5400 Klingersil, 1/8-inch thick, full face. Gaskets shall be suitable for the service intended.

2) Bolts and Nuts: Conform to ANSI B18.2.1 and ANSI B18.2.2, respectively. Exposed bolts and nuts shall be ASTM A 307, Grade B. Buried or submerged bolts and nuts shall be Type 304 stainless steel.

b. Mechanical Joints: Conform to AWWA C111.

1) Gaskets: Plain tip made of SBR rubber.

2) Bolts and Nuts: High strength, low alloy steel, corrosion resistant, T-head bolt and hex nuts.

3) Glands: Ductile Iron Retainer Gland.

c. Push-On Joints: Conform to AWWA C111.

1) Gaskets: Molded rubber.

2) Stripes: Each plain end shall be painted with a circular stripe such that it provides a guide for visual check to determine when the joint is properly assembled.

d. Grooved Joints: Conform to AWWA C606. Joints shall be of the rigid type as manufactured by Victaulic Style 31, or equal.

e. Restrained Joints:

1) Restrained joints for mechanical joint piping shall be:

a) Locked mechanical joint style F-127-D as manufactured by Clow Cast Iron Pipe and Foundry Division of the Clow Corporation.

b) Lok-Fast Joint as manufactured by American Cast Iron Pipe Company.

c) TR Flex or Lok Type as manufactured by U.S. Pipe.

d) Or equal.

2) Restrained joints for push-on joint piping shall be:

a) Clow Super-Lock Joint Pipe Style P-128 by Clow Cast Iron Pipe and Foundry Division of the Clow Corporation.

b) Lok-Ring Joint by American Cast Iron Pipe Company.

c) Or equal.

3. Fittings: Conform to AWWA C110.

   a. Pressure Rating: 150 psi

   b. Material: Ductile iron.

   c. Gaskets: As specified above for joints.

   d. Bolts and Nuts: As specified above for joints.

4. Coatings and Linings:

   a. Pipe and fittings shall be lined with a cement-mortar lining in accordance with AWWA C104. This lining shall be twice the standard thickness specified in AWWA C104.

   b. Buried pipe and fittings shall be coasted on the outside with a bituminous coating, approximately 1-mil thick. Exposed pipe shall be prime coated.

C. Couplings:

1. Sleeve Type, Flexible Couplings:

   a. Pressure and Service: Same as connected piping.

   b. Materials: Steel.

   c. Gaskets: Suitable for service intended.

   d. Bolts and Nuts: alloy steel, corrosion-resistant, prime coated. Buried couplings shall have Type 304 stainless steel bolts and nuts.

   e. Harnessing:

      1) Harness couplings as shown, specified or otherwise required to restrain all pressure piping.

      2) Dimensions, sizes, spacing and materials for lugs, tie bolts, washers, and nuts shall conform to the standards of the manufacturer for the pipe size, wall thickness and working pressure required.

3) No less than two (2) bolts shall be furnished for each coupling.

4) Adjacent flanges shall be tied with tie bolts. The bolts, washers and nuts shall conform to the standards of the manufacturer for pipe size and test pressure of the pipe.

5) Lugs and tie bolts shall be designed for 150 percent of the piping system test pressure specified herein.

6) Tie bolts, nuts and washers shall be ASTM A 193, Grade B7 steel or better.

f. Product and Manufacturer: Provide couplings as manufactured by one of the following:

1) Dresser Industries.

2) Rockwell International Corp.

3) Or equal.

2. Flanged Adapters:

a. All flanged adapters, except as shown on the Drawings or directed by the Engineer, shall be as follows:

b. Pressure and Service: Same as connected piping.

c. Materials:

1) Cast iron for pipes up to 12-inch diameter.

2) Steel for pipes larger than 12-inch diameter.

d. Bolts and Nuts: Alloy steel, corrosion-resistant, prime coated.

e. Harnessing:

1) Harness flanged adapters to restrain all pressure piping.

2) Flanged coupling adapters for all pipe sizes shall be harnessed by tying the adapter to the nearest pipe joint flange using tie bolts as specified for flexible couplings.

f. Product and Manufacturer: Provide flanged adapters as manufactured by one of the following:

1) Dresser Industries.

2) Rockwell International Corporation.

3) Or equal.

3. Grooved Couplings:

a. Split type grooved or shouldered end couplings where shown or approved by Engineer shall be as follows:

1) Pressure and Service: Same as connected piping. Use shouldered end where required by pressure rating.

2) Material: Malleable iron, conforming to ASTM A 47.

3) Gaskets:

a) Water Service: Halogenated Butyl.

b) Sewage Applications: Nitrile.

4) Bolts and Nuts: Heat treated carbon steel track bolts, plated. Bolts and nuts shall conform to ASTM A 183.

5) Product and Manufacturer: Provide couplings as manufactured by one of the following:

a) Victaulic Company, Style 31.

b) Gustin-Bacon, Gruvajoint No. 500 Series.

c) Or equal.

D. Specials:

1. Taps: Provide taps for service connections for small pipe connections. Where pipe or fitting wall thickness is too small to provide required number of threads, a boss or pipe saddle shall be installed. Teflon tape or a commercial thread compound which is suitable to the service shall be used on threads.

2. Pipe Adapters: Where necessary to join pipe of different types, provide necessary adapters. Ends shall conform to Specifications for the appropriate type joint.

E. Water Service

1. Pipe

a. Material:

1) Pipe 2" diameter and smaller shall be Copper tubing and shall comply with the latest Standard Specifications for seamless Copper Tube, ASTM Designation: 88 Soft Temper, Type K.

2) Pipe larger than 2" diameter shall be Ductile Iron Pipe and shall comply with standards for Ductile Iron Pipe listed previously in this section.

2. Unions, Couplings, Fittings

a. Union, couplings and other fittings for copper tubing shall be of the compression joint type as manufactured by the Mueller Company or approved equal, unless otherwise shown or directed.

b. Two-part unions shall be Mueller Company's No. H-15405 or approved equal.

c. Union, couplings and other fittings for ductile iron pipe shall be as defined previously in this section.

3. Corporation Stops, Curb Stops, Curb Boxes, House Shut-Off Valves for 2-inch house service and smaller.

a. Unless otherwise shown or directed, corporation stops shall be ball type brass valves with O-ring seal and suitable for compression connection with type "K" copper piping. Corporation stops shall be Mueller Company's No. H-15000, or approved equal.

b. Curb stops shall be ball type brass valves with o-ring seal and suitable for compression connection with type "K" copper piping. Curb stops shall be Mueller Company's No. H-15200, or approved equal.

c. Curb boxes shall be Mueller Company's No. H-10316, Buffalo Type Box, improved extension type with arch pattern base, or approved equal. The curb box shall extend to the grade level and have cast iron lid with plug. Contractor shall provide two (2) curb box shut-off rods of sufficient length to operate the deepest curb stop.

d. House shut-off valves shall be ball type, brass with O-ring seals and 300-psig working pressure rating and suitable for compression connection with type "K" copper pipe. House shut-off valves shall be Mueller Company's 300 ball meter valve or equal.

4. Valves and Valve Boxes for House Connections Larger Than 2-inch

a. The valves for use on house connections larger than 2-inch diameter shall be cast iron bottom wedging gate valve as per AWWA C509, double disc parallel seat type with non-rising stems, opening by turning and provided with 2" square operating nuts. Stems shall be in full conformance with AWWA Specifications. The valve stem seals shall be "O" ring. The valves shall be designed for 200 psi water working pressure. The valves shall be suitable for mechanical connection with ductile iron pipe as per AWWA C111. Valves shall be as manufactured by Clow, or approved equal.

b. Concrete piers or supports of the appropriate size shall be provided under all valves.

c. If the top of the operating nut is more than 36 inches below the finished grade an extension stem shall be provided to place the operating wrench nut between 24 inches and 36 inches of the finished grade. The extension stem shall be pinned to the valve operating nut in a manner approved by the Engineer.

d. Valve boxes shall be two piece slip or sliding type with shaft extension as manufactured by Clow, Type F - 2450 or approved equal. The valve box shall have a drop lid with "Water" marking and design to remain seated when subjected to mobile traffic conditions. The valve box lid shall be as manufactured by Clow, Type F - 2493, or approved equal. Bases for regular duty valve boxes shall be Clow F-2480 No. 4 or equal. All boxes shall be installed to finished grade.

2. DISINFECTION OF WATER SERVICES

A. All pipes, fittings and valves shall be disinfected. Disinfection shall be performed in an approved manner in accordance with the American Water Works Association's Standards for Disinfecting Water Mains designation C-651. All surfaces shall be swabbed prior to assembly of the offset piping and again immediately prior to insertion of the offset into the existing water main piping.

B. Disinfection of water services shall be performed by the Contractor as specified and directed, without additional payment thereof. The Contractor shall provide all labor, materials, and equipment and shall perform the disinfecting operations complete, to the satisfaction of Camden City.

1. Disinfecting of water services may be performed by either of the following methods:

    a. By introducing a chlorine gas-water mixture by means of a solution-feed chlorinating device.

    b. By introducing a mixture of calcium hypochlorite (comparable to commercial products known as HTH or Perchloron) and water.

2. Prior to the beginning of disinfecting operations, the Contractor shall submit to the City Engineer for approval a schedule listing details of the disinfecting procedure to be followed.

3. Before beginning disinfection, dirt and foreign matter shall be removed from the mains by a thorough flushing with clear water.

4. To complete the disinfection of the water service the contractor shall disconnect the water service at the water meter and thoroughly flush the entire water service with clean water removing all dirt and foreign matter. The contractor shall reconnect the water meter to the water service and the connection shall be checked for leaks.

3. DISINFECTION OF WATERMAIN

A. The Contractor shall disinfect all water mains in accordance with A.W.W.A. Standard for "Disinfecting Water Mains" designation C-601. Commercial products such as "HTH", "Perchlaron", and "Maxoxhlor" may be used in flake or crystal form, but in no instance will tablets be permitted to be used in the disinfection of water mains.

B. The chlorine dosage shall initially produce 50 ppm residual to the water and maintain a minimum residual of 25 ppm after 24 hours. After satisfactory disinfection of the test section, the line shall be continuously flushed until he resultant chlorine residual equals one ppm or the residual of the system, whichever is greater. After final flushing and before the water main is placed in service samples shall be collected from each end of the main and tested for bacteriologic quality. If the initial disinfection fails to produce satisfactory samples, disinfection shall be repeated until satisfactory samples have been obtained.

4. WATER SERVICE AND WATERMAIN ABANDONMENT

A. Water service that has been replaced shall be abandoned.

1. The corporation stop shall be turned off and service line removed and the ends crumbed.

2. If the existing corporation stop is leaking, or if directed by the City Engineer, remove the existing corporation stop from water main and repair water main using pipe repair clamp. The pipe repair clamp shall be Mueller Full-Seal; or approved equal.

3. If the abandonment takes place at a tee, the tee shall be removed from the main and straight pipe installed.

4. All open ends on abandoned pipe to be cut and plugged with required fittings, rods and concrete as close to the existing main in service as possible.

5. All valve boxes and other appurtenances are to be removed.

5. WATERMAIN PRESSURE TESTING

A. After the Engineer has inspected the completed installation of valves, and water main, and before backfilling the excavations, the contractor shall furnish all labor, materials and equipment required to pressure test the pipe. The pipe shall be pressurized to 1.5 x the working pressure for a period of two (2) hours. Pressure shall not vary more than five (5) psi. The valved section of pipe shall be filled with water slowly, and the test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the engineer. Before applying the test pressure, air shall be expelled completely from the pipe by installing corporation cocks at such points so that

the air can be expelled as the line is filled with water. If the joints leak, repairs or replacements shall be made. Testing shall be in conformance with A.W.W.A. Standard C600-77.

6. VALVE OPERATIONS

A. All valves shall be operated by Utility Operators. The contractor shall not be permitted to operate any valves. The Contractor shall notify the City Engineer in writing, five (5) days in advance of valve operating requirements.

7. HYDRANTS

A. Hydrants shall be "Kennedy 81" hydrants as manufactured by Kennedy Valve Company. Hydrant spacing shall be a maximum 300 feet measured center to center.

B. For either new construction or relocation the following shall be required:

1. Hydrants shall be located no closer than 20 feet from the point fo tangency or curvature at intersections.

2. All hydrants that are not Kennedy K-81 that are to be relocated shall be removed and delivered to Untied Water Camden Yard.

3. Hydrants shall be no closer than ten (10') feet from the edge of a residential driveway or (20') feet from the edge of commercial driveway. In the case where driveways are expanded or newly constructed, the owner shall be responsible for the relocation of an existing hydrant if above requirements are violated.

4. All hydrants on (16") inch or larger mains shall require a new valve at the base of the relocated hydrant.

C. Hydrants shall conform to the following:

1. All fire hydrants shall conform to the requirements of the latest ANSI/AWWA Standard Specification C 502 for Dry-Barrel Fire Hydrants. They shall be the compression type opening against the pressure, dry barrel dry top construction with "O" ring seal plate, designed so that the stem operating threads are out of the water way at all times. Hydrants shall be suitable for 150 psi water working pressure; and shall be hydrostatically tested at the factory to 300 psi. Hydrants shall be so designed to facilitate removal of the main valve and moveable parts of the drain valve, or extension of the hydrant, without excavating once it is in place.

2. Hydrants shall have a 5 ¼ inch minimum valve opening with 6 inch standardized mechanical joint inlet connection. They shall be furnished with two 2 ½ hose nozzles and one 4 ½ inch steamer nozzle, with threads conforming to national standards.

3. All component parts of fire hydrants shall be interchangeable with and replaceable by the component parts of The Kennedy K - 81A Bronze Lined, as manufactured by Kennedy Valve Manufacturing Co,, Inc.

4. All fire hydrants shall open by turning to the left (counterclockwise). The operating nut and outlet nozzle cap nuts shall be Pentagon, measuring 1 ½ inch from point to flat at base. Hydrants shall be prime coated and painted in accordance with ANSI/SWWA Standard Specifications, finish painted conforming to the Standards of the City of Camden..

5. Material for fire hydrant connections shall be as specified in these specifications under Ductile Iron Pipe, Fittings, and Appurtenances.

6. Material for valves and valve boxes shall be as specified in these specifications under Gate Valves and Valve Boxes.

D. Fire Hydrant shall be firmly set in a bed of screened gravel (NJDOT Type 57) which shall extend down 1' foot below the bottom of the hydrant and surround the lower barrel. The total amount of gravel used shall be a minimum of one-third of a Cubic Yard of the volume of the hydrant barrel, whichever is greater. The hydrant shall be firmly braced at the back, opposite of the inlet pipe with a concrete thrust block.

E. Fire Hydrant Connections of six (6") inch Ductile Iron Pipe shall be laid and shall be extended to watermain. Hydrants shall be thoroughly cleaned of dirt and foreign matter before setting.

8. AIR RELEASE VALVES

A. Air relief valves shall be furnished and placed where required or where designated by the Engineer, and shall be affixed to the top of the water main by means of a tap.

B. Shall conform to the following:

1. All air relief valves shall conform to the requirements of the latest ANSI/AWWA Standard Specification C 512 for Air Release, Air/Vacuum and Combination Air Valves for Waterworks Service. They shall be the air release valve type that automatically release to the atmosphere small pockets of air as they accumulate at local high points along the new pipeline when the pipeline is full and operating under pressure and seal tightly when air is removed.

2. The air release shall maintain a closed position to prevent the loss of water by the positive seating of a non-corrosive float against a smoothly ground contact surface of the exhaust orifice. It shall automatically provide for escape of air to atmosphere without the loss of water when the special seat moves away from the orifice seat.

3. The float shall be free floating within the valve body. Linkages or levers attached to the float are unacceptable.

4. The air release valve shall be an AR series as manufactured by GA Industries Inc. or approved equal.

5. Unless otherwise specified on the plans, the air release valve shall have a 1" inlet and a ½" outlet and a 3/16" orifice.

6. The body of the air release valve shall be brass.

C. The air release valve shall be connected to the water main by means of a 1 inch corporation connection with brass piping, fittings and a curb stop as shown on the plans. Hardwood blocks shall securely hold the piping and support the air release valve.

9. BUTTERFLY VALVES

A. Butterfly valves shall be short body, conforming to the American Water Works Association Standard for Rubber Seated Butterfly Valves AWWA C504, latest edition.

B. Operators shall be worm gear with operating nut for extension stem.

C. Valves shall be designed for use with water and shall comply with the following items listed in the Foreword of AWWA C504 as follows:

1. Short body flanged joint or mechanical joint except where monoflange is specifically required.

2. Class - 150B

3. Valve bodies - 20" and smaller, cast iron ASTM A126 Class B Valve disc - 20" and Smaller.

a. Cast Iron ASTM A126, Class B with Ni-Chrome disc edge

a. Cast Iron ASTM A126, Class B with Ni-Chrome disc edge

b. Ductile Iron ASTM A536 with 304 stainless steel disc edge

c. Cast Iron ASTM A48 with 304 stainless steel disc edge.

D. Rubber seats on disc are not acceptable. Rubber seats shall be in accordance with AWWA C504, Sec. 3.5.2.

E. Adjustable mechanical stops shall be incorporated in the valve operator to limit travel of the disc at the opened and closed position.

F. Valves shall be for buried service.

G. Each valve shall be provided with position indicator.

H. Valves shall turn clockwise to close.

10. GATE VALVES

A. Gate valves (^"6and larger) shall conform to the AWWA Standard for "Gate Valves for Ordinary Water Works Service" AWWA C500. Gate valves shall be iron body, bronze mounted, double disc type with end connections as shown on plans. Valves shall be furnished with operating nut, as required.

B. Gate valves 16" and larger shall be provided with Bypass valve.

C. The gates shall be such that in closing, travel of the discs shall cease before they begin to seat, and that the discs are fully released from their seats before the travel commences for opening. The seats, the disc ring, and the spindle of valve shall be of solid bronze and bearing parts of such devices shall be bronze or bronze faced.

D. The design of the stuffing box shall be such that the valve can be packed under pressure when in the full open position. O-Ring packing shall be used.

E. Castings shall be true to pattern, free from blow holes, sand holes, scale and other defects. No plugging or stopping of holes will be allowed.

F. Furnish gears on all valves 16" and larger. Gears shall be cut-tooth steel housed in an enclosed extended gear case. Gears for valves in horizontal positions shall be bevel geared.

Residential Water Service Tap Record

City of Camden
Water and Sewer

Service Adderss: _____ (Physical address of structure)

Camden, New Jersey _____ (Zip Code) Block: _____ Lot: _____

Date Installed: _____ Installed by: _____ (Contractor/Plumber Name)

Main Size: _____ inch Main Material: _____ (CIP/DIP/etc...)

Depth of Main: _____ feet

Corporation Size: _____ inch Service Line Material: _____

Curb Stop Size: _____ inch Service Length: (Main to Curb Stop) _____ feet

Curb Box Type: Buffalo City Standard Depth of Service: (at Water Main) _____ feet

Depth of Service: (at Curb Stop) _____ feet

GPS Coordinates	Latitude	Longitude
Corporation		
Curb Box		

GPS coordinate must be in decimal degrees to five decimal places.

Physical description of Water Tap Location

_____ (N/E/S/W) side of the of the _____ inch City water main serving the structure

_____ feet from the _____ (right/left) side of the structure looking from the street.

Comments: _____

As-Built of Water Service Tap
(Sketch the water service tap installation below. Include tie distances from the structure foundation corners to the corporation)

Commercial Water Service Tap Record

City of Camden
Water and Sewer

Service Adderss: _____ (Physical address of structure)

Camden, New Jersey _____ (Zip Code) Block: _____ Lot: _____

Date Installed: _____ Installed by: _____ (Contractor/Plumber Name)

Main Size: _____ inch Main Material: _____ (CIP/DI/Plstc...)

Depth of Main: _____ feet

Tap Valve Size: _____ inch Service Line Material: _____

Tap Valve Opens: Right Service Length: (Main to Curb Valve) _____ feet

Turns: _____

Tap made using: Cut in Tee ☐ Depth of Service: (at Water Main) _____ feet

Tapping Sleeve ☐ Depth of Service: (at Curb Valve) _____ feet

GPS Coordinates	Latitude	Longitude
Saddle/Tee		
Street/Tap Valve		
Curb Valve		

GPS coordinate must be in decimal degrees to five decimal places.

Physical description of Water Tap Location

_____ (N/E/S/W) side of the of the _____ inch City water main serving the structure

_____ feet from the _____ (right/left) side of the structure looking from the street.

Notes: City of Camden standard is OPEN Right (Clockwise) Valves.

As-Built of Water Service Tap
(Sketch the water service tap installation below. Include tie distances from the structure foundation corners to the corporation)

Water Distribution Valve Record

City of Camden
Water and Sewer

Valve ID: (CMMSID) _____

Valve Location: _____
(Street intersection. If mid block use closest structure street address)

GPS Coordinates GPS coordinate must be in decimal degrees to five decimal places.
Latitude _____
Longitude _____

Valve Size: _____ inch
Valve Type: _____

Valve Opens: Right (CW) City Standard
No. of Turns: _____ to open

As-Built of Valve Installation
(Sketch the water valve installation below. Include tie distances from the structure foundation corners to the valve)

1 of 2

Water Distribution Valve Record

City of Camden
Water and Sewer

Comments

Date	Direction to Open	No. Turns	Report Condition of				Valve Position	Checked by
			Valve Stem	Packing / O-Ring	Valve Nut	Valve Box / MH		

City of Camden
Water and Sewer

Fire Hydrant Record

Hydrant ID: (CMMS) _____ Public ☐ Private ☐

Hydrant Location: _____
(Street intersection. If mid block use closest structure street address)

Hydrant Make: _____ Size of Water Main _____
Hydrant Model: _____ Street Valve Size: _____ inch
Outlets Side: 2 Size: 2-1/2 inch Valve Opens: _____
Steamer: 1 Size: 4-1/2 inch Valve Type: Vertical Gate
Depth of Bury _____ feet No. of Turns: _____ to open

GPS Coordinates GPS coordinate must be in decimal degrees to five decimal places.
Hydrant Latitude _____ Valve Latitude _____
Longitude _____ Longitude _____

As-Built of Valve Installation
(Sketch the water valve installation below. Include tie distances from the structure foundation corners to the valve)

1 of 2

City of Camden
Water and Sewer

Fire Hydrant Record

Comments

Date	Flushed	Lubed	Report Condition of				Checked by (Initials)	Remarks
			Operat. Nut	Caps	Nozzles	Valve Box		

2 of 2

Water Meter Record

City of Camden
Water and Sewer

Service Address: _____
(Physical address of structure)

Camden, New Jersey _____ (Zip Code)

Block: _____
Lot: _____

Date Installed: _____

Installed by: _____
(Contractor/Plumber Name)

Meter: Size _____ inch
Make: _____
Model: _____
Reads in: _____

Serial Numbers. Meter _____
ERT _____

Initial Meter Reading: _____

Physical description of Water Meter Location

_____ feet from the _____ side of the of the structure looking from the street
(right/left)

Comments: _____

Water Meter Location
(Sketch the water meter location below. Include tie distances from the structure foundation corners to the meter)

Sanitary Sewer Lateral Record

City of Camden
Water and Sewer

Service Address: _____ (Physical address of structure)

Camden, New Jersey _____ (Zip Code) Block: _____ Lot: _____

Date Installed: _____ Installed by: _____ (Contractor/Plumber Name)

Sewer Main Size: _____ Main Material: _____ (Brick/RCP/etc...)

Depth of Main: _____ feet

Lateral Size: _____ inch Sewer Lateral Material: _____

Cleanout Size: _____ inch Lateral Length: (Main to Cleanout) _____ feet

Depth of Lateral: (at Sewer Main) _____ feet

Depth of Lateral: (at Cleanout) _____ feet

GPS Coordinates	Latitude	Longitude
Sewer Main Tap		
Cleanout		

GPS coordinate must be in decimal degrees to five decimal places.

Physical description of Sewer Lateral Tap Location

_____ (N/E/S/W) side of the of the _____ inch City sewer main serving the structure

_____ feet from the _____ (right/left) side of the structure looking from the street.

Comments: _____

As-Built of Sanitary Sewer Tap
(Sketch the sewer lateral tap installation below. Include tie distances from the structure foundation corners to the physical sewer main tap)