1/23/06 - (1)

NOTE TO BOS -
Please see
Pages 14 & 47

ENTIRE BYLAW
Pp. 29-56

SEWER USE REGULATIONS

ACTON BOARD OF SEWER
COMMISSIONERS
TOWN OF ACTON, MASSACHUSETTS

SECTION 3D

INSTALLATION OF SEWER PIPE

PIPE HANDLING

The "Contractor" "shall" arrange for the delivery of the pipe sections at approved locations in the vicinity of that portion of the "sewer" line in which the pipe sections are to be laid. To this end, he "shall" do such work as is necessary for access and for delivery of the pipe. Pipes "shall" be stored in an approved, orderly manner so that there will be a minimum of re-handling from the storage area to the final position in the trench and so that there is a minimum of obstruction and inconvenience to any kind of traffic.

Deliveries "shall" be scheduled so that the progress of the work is at no time delayed and also so that large quantities of pipe "shall" not be stored for excessive lengths of time in crowded locations or in locations where large storage areas might be considered objectionable. Storage of pipe will be restricted to approved or permitted areas.

The spigot end of all pipes "shall" be stored on a block to prevent damage. The bell or groove end of each length of R.C. pipe "shall" be placed in storage on a block to prevent damage. Care "shall" be taken that the lengths do not roll together.

Each pipe section "shall" be handled into its position in the trench in such manner and by such means as the "Superintendent" approves as satisfactory, and these operations will be restricted to those considered safe for the workmen and such as to cause no injury to the pipe or to any property.

The "Contractor" will be required to furnish slings, straps and/or approved devices to provide satisfactory support of the pipe when it is lifted from delivery areas to the trench "shall" be restricted to operations which can cause no injury to the pipe units.

The pipe "shall" not be dropped from trucks or into the trench.

The "Contractor" "shall" have on the Job-site with each pipe-laying crew all the proper tools to handle and cut the pipe. The use of hammer and chisel, or any other method, which results in rough edges, chips and damaged pipe, "shall" be prohibited.

Damaged pipe coating and/or lining "shall" be restored before installation is approved or directed by the "Superintendent".

CONTROL OF ALIGNMENT AND GRADE

The location of the pipe, manholes, and other appurtenances "shall" be established in accordance with the contract drawings. Benchmarks "shall" be established along the route of the pipeline at convenient intervals for use in checking the pipe and manhole invert and other elevations throughout the project.

The "Contractor" "may" use a laser beam to assist in setting the pipe provided he can demonstrate satisfactory skill in its use.

The use of string levels, hand levels, carpenters levels or other relatively crude devices for transferring grade or setting pipe will not be permitted.

PREPARATION OF BED

As soon as excavation has been completed to proper depth, as shown on the Standard Trench Section ' a layer of bedding material "shall" be placed to the elevation necessary to bring the pipe to grade and compacted. It shall be the "Contractor's" responsibility to control any water in the trench below the pipe invert. If directed by the "Superintendent", the "Contractor" "shall" place concrete, clay or other impermeable material in the bedding at intervals to prevent horizontal movement of the groundwater which might induce settling of the bed, or make it difficult to handle water in the trench.

LAYING PIPE

Each pipe length "shall" be inspected for cracks, defects in coating or lining, and any other evidence of unsuitability.

Pipe "shall" be laid in the road and at no time shall water in the trench be permitted to flow into the "sewer".

The pipe "shall" then be laid on the trench bedding as shown on the Standard-Trench Section, and the spigot pushed home. Jointing "shall" be in accordance with the manufacturer's instructions and

appropriate ASTM Standards, and the "Contractor" "shall" have on hand for each pipe-laying crew, the necessary tools, gauges, pipe cutters, etc., necessary to install the pipe in a workmanlike manner. Pipe lying "shall" proceed upgrade with spigot ends pointing in the direction of flow, unless otherwise approved by the "Superintendent".

Blocking under the pipe will not be permitted except where a concrete cradle is proposed, in which case pre-cast concrete blocks "shall" be used.

After the pipe has been set to grade, additional bedding material "shall" be placed in 6-inch layers up to the spring line of the pipe. Tamping bars "shall" be carefully employed to assure compaction of the bedding under the lower quadrants of the pipe.

After this, the bedding material "shall" be carefully placed in 6-inch layers to a depth of 12 inches over the crown of the pipe. Each layer "shall" be thoroughly compacted with mechanical equipment. Care "shall" be taken that the equipment does not damage the pipe.

At this point, the pipe "shall" be checked for line and grade and any debris, tools, etc., "shall" be removed.

If inspection of the pipe is satisfactory, the "Contractor" "may" then refill or backfill the remainder of the trench in accordance with the Standard Trench Section.

At any time that work is not in progress, the end of the pipe "shall" be suitably closed to prevent the entry of animals, earth, etc.

At the end of each day's work or at intervals of no more than 200 feet of pipe, the "Superintendent", with the "Contractor", will inspect the pipe for alignment with lamps or mirrors. Unsatisfactory work "shall" be dug up and re-installed to the satisfaction of the "Superintendent".

SECTION 3E

SEWER SERVICE CONNECTIONS

MATERIALS

Materials for private house services, wye branches, and chimneys "shall" be of the same material and quality as that for the public "sewer". Concrete for encasement "shall" be Class A (3000 psi) concrete.

INSTALLATION

Installation "shall" be as shown on the "House Sewer Details." House services "shall" not be connected directly to manholes, unless otherwise approved by the "Superintendent". The opening of the house service, wye branch, or chimney "shall" be plugged with a suitable watertight cap or plug.

The minimum size for the "building sewer" "shall" be 6".

The minimum slope for the "building sewer" shall be 1/4" per foot, unless otherwise approved by the "Superintendent".

Before backfilling, the "Contractor" "shall" notify the "Inspector" so that he may make the necessary measurements to locate the opening later. In addition, an approved ferrous rod or pipe "shall" be placed over the plugged opening at the property line, extending to within 2 inches of the final ground surface.

SADDLE CONNECTIONS

On reinforced concrete, and cement lined ductile iron sewers, saddle connections "may" be installed in lieu of wye branches using cast iron branch connections conforming to ASTM A-48, Class 50. These connections "shall" be fastened by a stainless steel strap, stainless steel nuts and bolts, and watertight gasket between the main pipe and the fitting, and "shall" have a rubber gasket providing a watertight seal with the service pipe. Holes "shall" be made only in a manner recommended by the pipe manufacturer and approved by the "Superintendent". The hole in the main must be the full diameter of the inside of the fitting to prevent obstructing the flow. The entire connection must be watertight.

On P.V.C. sewer, saddles "may" be used in lieu of wye branches using injection-molded rubber-gasketed wye saddles conforming to ASTM D-3034 and 3212. Saddles "shall" be cut into the pipe according to manufacturer's details and procedures. Connections "shall" be fastened by (2) stainless steel clamps tightened to a minimum torque of 5 ft.-lbs. The use of solvent weld sewer saddle connections is prohibited. The entire connection must be watertight.

SECTION 3F

PROXIMITY TO WATER MAINS

The "Town" requires a 10-foot horizontal separation between water and sewers lines and an 18" vertical separation wherever water and sewer lines cross.

However, should construction operations reveal or expose a waterline main or service running approximately parallel and less than 10 feet horizontally from the proposed "sewer" installation and where it is not practicable to relocate the "sewer", the following methods of protection must be employed:

If the above separation cannot be achieved, the "sewer" "shall" be encased in concrete, as shown on these drawings; or else, ductile iron pipe of the same size "shall" be utilized. Appropriate manufactured fittings shall be employed to adapt the iron pipe to the contract "sewer" pipe.

Whenever the waterline crosses over the new "sewer" with less than 18 inches of separation, the "sewer" pipe for a distance of 9 feet on each side of the waterline "shall" be class 52 ductile iron pipe. Appropriate manufactured fittings "shall" be employed to adapt the iron pipe to the contract "sewer" pipe. As an alternative, the waterline "may "be raised, if feasible, to achieve the required separation.

Should the waterline in either situation be at or below the sewer elevation, the waterline or the "sewer" must be relocated to achieve 10-ft. separation or the waterline raised.

SECTION 3G

MANHOLES

GENERAL

The work covered by this section includes the furnishing of all plant, labor, equipment, appliances, and materials, and performing all operations in connection with the satisfactory installation of manholes, and all incidental work, complete, in strict accordance with the specifications and applicable drawings-and standard details.

The "Contractor" shall provide the "Superintendent" with shop drawings of all precast material and a description of all methods of jointing he proposes to use on this portion of the contract.

It is the intention of these specifications that the manhole, including all component parts, have adequate space, strength and leakproof qualities considered necessary for the intended service. Space requirements and configurations "shall" be as shown on the drawing. Manholes may be an assembly of pre-cast sections with or without steel reinforcement, with approved jointing, or concrete cast monolithically in place with or without reinforcement.

In any approved manhole, the complete structure "shall" be of such material and quality as to withstand loads of 8 tons without failure and prevent leakage in excess of one gallon per day per vertical foot of manhole, continuously for the life of the structure. A period generally in excess of 25 years is to be understood in both cases. It is further intended that any pointing of joints "shall" be accomplished after leakage tests have been satisfactorily completed.

DESCRIPTION

Manholes "shall" be constructed at the locations, to the elevations, and in accordance with notes and details show on the drawings as well as the standard details, Appendix A.

Manholes "shall" be as shown on the standard details and "shall" conform to the following:

1. Barrels and cone sections "shall" be pre-cast reinforced or nonreinforced concrete, or cast-in-place reinforced or non-reinforced concrete.

2. Base sections "shall" be monolithic to a point 6" above the crown of the incoming pipe, and "shall" be pre-cast reinforced concrete or precast non-reinforced concrete or cast-in-place concrete.
3. Horizontal Joints between sections of pre-cast concrete barrels "shall" be of an overlapping type and, "shall", in general, depend for watertightness upon an elastomeric or mastic-like sealant.
4. Pipe to manhole joints "shall" depend for water-tightness upon either an approved non-shrinking mortar, elastomeric sealant, or elastomeric, rubber, sleeve with watertight Joints at the manhole opening and pipe surfaces.
5. Cone sections "shall" be eccentric - see standard detail.
6. There "shall" be no manhole steps.
7. All pre-cast sections and bases "shall" have the date of manufacture and the name or trademark of the manufacturer impressed or indelibly marked on the inside wall.

MATERIALS

Pre-cast concrete barrel sections, cones, and bases "shall" conform to ASTM C-478 except as may be otherwise shown on the Standard Details.

Manhole frame and cover "shall" provide a 30" diameter clear opening. The cover "shall" have the letter "S" or the word "SEWER" in 3" letters cast into the top surface. Covers "shall" have two lift holes, 180 degrees apart, on the perimeter.

The castings "shall" be of good quality, strong, tough, even-grained cast iron, smooth, free from scale, lumps, blisters, sandholes, and defects of every nature, which would render them unfit for the service for which they are intended. Contact surfaces of covers and frame seats "shall" be machined at the foundry, before shipment to prevent rocking of covers in any orientation.

All castings "shall" be thoroughly cleaned and subject to a careful hammer inspection.

Castings "shall" be at least Class 30 conforming to the ASTM Standard Specification for Gray Iron Castings, Designation A48.

Before being shipped from the foundry, castings "shall" be sandblasted and given two coats of coal-tar-pitch varnish, applied in a satisfactory manner so as to make a smooth coating, tough, tenacious, and not brittle or with any tendency to scale off.

INSTALLATION OF MANHOLE BASES AND SECTION

Pre-cast bases "shall" be placed on a 6" layer of compacted bedding material as described below. The excavation "shall" be properly de-watered while placing bedding material and setting the base or pouring concrete. Waterstops "shall" be used at the horizontal Joint of cast-in-place manholes.

Inlet and outlet stubs "shall" be connected and sealed in accordance with the manufacturers recommended procedure, and as shown on the Standard Details, or cast integrally with the cast base.

Barrel sections and cones of the appropriate combination of heights "shall" then be placed, using manufacturers recommended procedure for sealing the horizontal Joints, and as shown on the Standard Details or the remaining barrel of the manhole "shall" be cast above the base.

A leakage test "shall" then be made.

Following satisfactory completion of the leakage test, the frame and cover "shall" be placed on the top or some other means of preventing accidental entry by unauthorized persons, children, animals, etc., until the "Contractor" is ready to make final adjustment to grade.

Bedding Material "shall" consist of crushed stone and/or natural stone graded to the following specifications:

100% passing	1"	screen
90-100% passing	3/4"	screen
20- 55% passing	3/8"	screen
0-10% passing	#4	sieve
0- 5% passing	#8	sieve

BRICK MASONRY

This section applies to brick masonry, for the shelf, invert, and grade' adjustment.

Brick: The brick "shall" be sound, hard, and uniformly burned brick, regular and uniform in shape and size, of compact texture, and satisfactory to the "Superintendant". Brick "shall" comply with the ASTM Standard Specifications for Sewer Brick (made from clay or shale), Designation C32, for Grade SS, hard brick.

Rejected brick "shall" be immediately removed from the work.

Mortar: The mortar "shall" be composed of Portland cement, hydrated lime, and sand, in the proportions of 1 part cement to 1/2 part lime to 4 1/2 parts sand, (by volume). The proportion of cement to lime may vary from 3-:1/4 for hard brick to 1:3/4 for softer brick, but in no case "shall" the volume of sand exceed three times the sum of the volume of cement and lime.

Cement "shall" be Type II Portland cement conforming to ASTM C-150, Standard specifications for Portland Cement.

Hydrated lime "shall" be Type S conforming to the ASTM Standard Specification for Hydrated Lime for Masonry Purposes, Designation C207.

Sand "shall" consist of inert natural sand conforming to the ASTM Standard Specifications for Concrete (Fine) Aggregates, Designation C33 as follows:

GRADING:

Sieve	Percent Passing
3/8	100 %
4	95-100%
8	80-100%
16	50-85%
50	10-30%
100	2 -10%
Fineness Modulus	2.3 -3.1

Laying Brick: Only clean bricks "shall" be used in brickwork for manholes. The brick "shall" be moistened by suitable means, as directed, until they are neither so dry as to absorb water from the mortar nor so wet as to be slippery when laid.

Each brick "shall" be laid in a full bed and Joint of mortar without requiring subsequent grouting, flushing, or filling, and "shall" be thoroughly bonded as directed.

Curing: Brick masonry "shall" be protected from too rapid drying by the use of burlaps kept most or by other approved means, and "shall" be protected from the weather and frost, all as required.

SETTING MANHOLE FRAMES AND COVERS

Manhole frames "shall" be set with the tops conforming accurately to the grade of the pavement or finished ground surface or as indicated-on the drawings. Frames "shall" be set concentric with the

top of the masonry and in a full bed of mortar so that the space between the top of the manhole masonry and the bottom flange of the frame shall be completely filled and made watertight. A thick ring of mortar extending to the outer edge of the masonry "shall" be placed all around and on the top of the bottom flange. The mortar "shall" be smoothly finished and have a slight slope to shed water away from the frame.

A minimum of 8" and a maximum of 12" of brick and mortar "shall" be allowed for grade adjustment.

SECTION 3H

FINAL SEWER TESTS

GENERAL

A. Work Included:

1. Final "sewer" testing work includes the performance of testing and inspecting each and every length of "sewer" pipe and each Item of appurtenant construction.
2. Perform testing at a time approved by the "Superintendent", which "may" be during the construction operations, after completion of a substantial and convenient section of the work, or after the completion of all pipe-laying operations.
3. Provide all labor, pumps, pipe, connections, gauges, measuring devices and all other necessary apparatus to conduct tests.

PERFORMANCE

A. General

1. All "sewers", manholes, appurtenant work, in order to be eligible for approval by the "Superintendent", "shall" be subjected to tests that will determine the degree of watertightness, horizontal and vertical alignment, and deflection (P.V.C. sewers only).
2. Thoroughly clean and/or flush all "sewer" lines to be tested, in a manner and to the extent acceptable to the "Superintendent", prior to initiating test procedures.

3. Perform all tests and inspections only under the direct supervision of the "Superintendent".

4. Perform Testing by test patterns determined or approved by the "Superintendent".

5. Remedial Work:

   a. Perform all work necessary to correct deficiencies discovered as a result of testing and/or inspections.

   b. Completely re-test all portions of the original construction on which remedial work has been performed.

   c. Perform all remedial work and re-testing in a manner and at a time approved by the "Superintendent".

B. Leakage Tests (Gravity Sewers):

1. Test all gravity "sewer" lines for leakage by conducting low pressure air tests conforming to ASTM C828 after the installation of house service fittings and leads and after completely backfilling the "sewer" line trench.

2. Equipment:

   a. Pneumatic plugs "shall" have a sealing length equal to or greater than the diameter of the pipe to be inspected.

   b. Pneumatic plugs "shall" resist internal test pressures without requiring external bracing or blocking.

   c. All air used "shall" pass through a single central panel.

   d. Connect 3 individual hoses:

      (1) From the control panel to the pneumatic plugs for inflation.

      (2) From the control panel to the sealed sewer line for introducing the low pressure air.

      (3) From the sealed sewer line to the control panel for continually monitoring air pressure rise in the sealed line.

3. Groundwater Conditions:

   a. In areas where groundwater exists, and at the time of installing the sewer line, install a 1/2 inch diameter capped pipe nipple, approximately 10 inches

long, through the manhole wall on top of one of the "sewer" lines entering the manhole.

b. Immediately prior to performing the line acceptance test, determine the groundwater by removing the pipe cap, blowing air through the pipe nipple into the ground to clear it, and then connecting a clear plastic tube to the nipple.

c. Hold the tube vertically and measure the height in feet. Divide this height by 2.3 to establish the pounds of groundwater pressure to be added to the air pressure test readings. (Example: Height of water is 11 1/2 feet, added groundwater pressure is 5 psig, minimum air pressure is 2.5 psig; therefore, the total minimum acceptable pressure is 7.5 psig).

4. Testing Pneumatic Plugs:

a. Seal test all pneumatic plugs prior to using them in the actual test.

b. Lay one length of pipe on the ground and seal both ends with the pneumatic plugs to be tested.

c. Pressurize the sealed pipe to 5 psig.

d. The pneumatic plugs are acceptable if they remain in place without bracing.

5. Testing Sewer Pipeline:

a. After the trench has been backfilled, the sewer pipe cleaned and the pneumatic plugs checked, place the plugs in the sewer line at each manhole and inflate them.

b. Introduce low-pressure air into the sealed sewer pipeline until the air pressure reaches 4 psig greater than the average groundwater pressure.

c. Allow a minimum of 2 minutes for the air pressure to stabilize to a minimum of 3.-5 psig greater than the ground-water pressure.

d. After the stabilization period, disconnect the air hose from the control panel to the air supply.

e. The pipeline will be acceptable If the pressure decrease is not greater than 1/2 psig in the time stated in the following table:

Pipe Diameter (inches)	Time (minutes)
4	2.0
6	3.0
8	4.0
10	5.0
12	5.5
14	6.5
15	7.0
16	7.5
18	8.5
20	9.5
21	10.0
24	11.5
27	12.5
30	14.0
36	17.0

6. Testing Force Mains:
   a. Force mains "shall" be tested in accordance with Section 4 of American Water Works Association Standard C600 "Installation of Cast Iron Water Mains", at a pressure equal to 150% of the design operating total dynamic head.
7. Test Results:
   a. If the installation fails the low pressure air test, determine the source of leakage..
   b. Repair or replace all defective materials and/or workmanship and repeat low pressure air test.

C. Deflection Tests (P.V.C. Sewers Only)
1. Test all P.V.C. Sewer lines for deflection by conducting deflection tests using a rigid "Go-No Go" deflection gauge made as recommended by Johns-Manville or by an approved deflectometer.

2. The acceptance limit for deflection tests of installed PVC Pipe Designation D-3034 and F-789, 4"-15" diameters, shall be 7 1/2% of the average inside diameter of the pipe. A test shall be conducted after a minimum of 30 days following their installation.

3. Go-No Go Device

   a. Pull a line through the pipe with which to pull the Go-No Go device using one of the following methods.

      (1) Attach the pull line to the nozzle end of a hydro cleaner before the cleaning cycle starts. As the hose is pulled through the line, it will carry the pull line to the next manhole where it can be tied off.

      (2) A parachute device can be blown through the line with a lightweight string attached. The pull line can then be attached to the string and pulled manually through the line.

      (3) If water is available, a lightweight string can be floated through the pipe. The pull line can then be attached to the string and pulled manually through the line.

   b. Attach a pull line to each end of the device to facilitate removal if an obstruction is encountered.

   c. Pull the gauge through the line by hand using a smooth and easy motion.

   d. If an obstruction is encountered, pull lightly to see if the gauge will clear the obstruction.

   e. If the gauge will not clear the obstruction, record the distance from the manhole and pull the gauge back out.

4. Repair or replace all defective materials and/or workmanship and repeat the deflection test on the repaired line.

D. Alignment Tests (Gravity Sewers):

1. Perform tests for the correctness of horizontal and vertical alignment on each and every length of gravity sewer pipeline between manholes.

2. Beam a source of light, acceptable to the "Superintendant", through the pipeline and directly observe the light in the manhole at the opposite end of each test section.

E. Inspection of Appurtenant Installations:

1. Completely inspect, at a time determined by the "Superintendant" all manholes and inlets to ascertain their compliance with the Drawings and Specifications.

2. Provide access to each manhole and inlet and check the following characteristics:

   a. Shape and finish of invert channels,

   b. Watertightness and finish of masonry structures,

   c. Location, type, and attachment of stops,

   d. Elevation and attachment of frames, covers, and openings

   e. Pattern and machining of covers, and

   f. Drop connection arrangements.

F. Manhole Leakage Tests

1. Observation:

   a. Test manholes prior to backfilling, mortaring joints, and installing the bench and inverts.

   b. When the groundwater is below the bottom of the manhole, perform an exfiltration test by plugging all pipes and-other openings and filling the manhole with water to the top of the cone section. After 15 minutes, if there is no visible leakage (no water visibly moving down the surface of the manhole) the manhole shall be considered watertight and backfilling may proceed.

   c. When the groundwater is above the bottom of the manhole, perform an infiltration test on that portion of the manhole below the groundwater level. After 15 minutes, if there is no visible leakage into ' the manhole, that portion of the manhole below the groundwater shall be considered watertight. After the infiltration test has been completed, fill the manhole with water and perform an exfiltration test on that portion of the manhole above the groundwater.

   d. Any visible leakage into and out of manholes shall be considered unsatisfactory.

2. Drop In Water Level:
   a. Under certain circumstances such as an area with a heavy flow of traffic, and with approval by the "Superintendant", a manhole may be tested by measuring the drop in water level after backfilling.
   b. Prior to mortaring Joints and installing the bench and invert, fill the manhole to the top of the cone and compute the leakage by measuring the drop in water level over a period of not less than 8 hours.
   c. Leakage shall not exceed 1 gallon per vertical foot for a 24-hour period.
3. As an alternative to the above tests, a vacuum pressure test may be carried out to the following criteria:
   1. Initial vacuum gage test pressure shall be 10" Hg. Test hold time for a 1" Hg. pressure drop to 9" Hg shall be:
      a. At least 2 minutes for 10 feet deep manholes;
      b. At least 2-1/2 minutes7for 10-15 feet deep manholes; and
      c. At least 3 minutes for 15-25 feet deep manholes.
   2. If the pressure drop exceeds the above limits the unit shall be repaired and re-tested and if a unit fails to meet a 1" pressure drop in 1 minute, the unit shall be water tested per (1) or (2) above.
   3. Correct all leakage by reconstruction using new materials. Using leadwool, expanding mortar and other repair methods shall not be permitted.

G. Re-testing Approved Lines
   1. Prior to the final acceptance of any sewer lines, the "Superintendant" may require re-testing of up to 10% of all lines installed when more than 30 days have lapsed from the time of initial testing or, if in the opinion of the "Superintendant", sufficient reason exists to suspect settling has occurred.
   2. If, during such re-testing, any lines are found to exceed the 7.5% maximum deflection, the "Superintendant" may require all lines to be re-tested.

DIVISION 4

STREETS

SECTION 4A

PAVEMENT

In General all work should be off the existing roadway. However, should a situation occur where a "sewer" service requires work within the paved public road then the Town of Acton Specifications for Regulating Construction Within a Public Way shall be followed. Enclosed in "Appendix B" is a copy of this specification.

RIPRAP

The stone used for riprap "shall" be sound, free from structural defects and "shall" consist of a durable field or quarry stone roughly as rectangular block. At least 50% of the stones "shall" weigh in excess of 150 lbs. each, and the remainder "shall" weigh from 50-150 lbs. each. One dimension of each exposed stone "shall" not be less than 12 inches.

Riprap "shall" be bedded in bank run gravel. The stones "shall" be placed by mechanical equipment immediately after preparation of the gravel bed, with the stones laid so that the 12-inch dimension is perpendicular to the prepared bed. Stones "shall" be placed so that the weight of the stone is carried by the underlying material and not-by the adjacent stones, with the larger stones placed at the bottom of the slope. Spaces between stones "shall" be filled with spalls of suitable size to construct a solid, stable slope, free from large voids that might not protect the earth slopes against erosion.

CUTTING AND REMOVING PAVEMENT

The "Contractor" "shall" remove only as much existing pavement as necessary to do the work. Where excavations are to be made in paved surfaces, he "shall" cut the pavement ahead of the excavation by sawing before breaking the pavement within the excavated limits for removal. All pavement "shall" be cut by sawing. Sawing and removal "shall" be done so as to produce clean, uniform, vertical edges without damage to the remaining pavement. Pavement removed "shall" not be mixed with other excavated material, but "shall" be disposed of away from the site of the work before the remainder of the excavation is made. The "contractor" is responsible for the removal and disposal of the old pavement.

GRAVEL SUB-BASE

Backfilling of trenches in streets "shall" be as specified in Section 2B. The top of the trench "shall" be backfilled with 1 ft. Of bank-run gravel as specified in Section 2D. The gravel "shall be thoroughly compacted to the satisfaction of the "Superintendent".

DIVISION 5

OPERATION OF LAW

PROTECT FROM DAMAGE

Prohibited Acts – No unauthorized person shall maliciously, willfully, or negligently break, damage, destroy, uncover, deface, or tamper with any structure, appurtenance, or equipment which is a part of the sewer works. Any person violating this provision shall be subject to charges of disorderly conduct.

Trespass – No unauthorized person shall enter or remain in or upon any land or structure of the sewer works. Any person violating this provision shall be subject to charges of trespass.

POWERS AND AUTHORITY OF INSPECTORS

Permission for Inspection – Duly authorized employees of the Town bearing proper credentials and identification shall be permitted to enter, at reasonable times, all properties for the purposes of inspection, observation, measurement, repair, maintenance, sampling, and testing in accordance with the provisions of this ordinance. Authorized representatives shall have no authority to inquire into any metallurgical, chemical, oil, refining, ceramic, paper or other industrial activity beyond that having direct bearing on the kind and source of discharge to the public/private sewers, watercourses, natural outlets or facilities for sewage treatment.

Requirements to Observe Safety Rules – While performing the necessary work on private properties referred to as under the powers and authority of inspectors in "Permission for Inspection", the duly authorized representatives shall observe all safety rules applicable to the premises established by the person , and the person shall be held harmless for injury or death to the Town employees, and the Town shall indemnify the person against loss or damage to its property by Town employees and against liability claims and demands for personal injury or property damage asserted against the person and growing out of the gauging and sampling operation, except as such may be caused by negligence or failure of the person to maintain safe conditions as required herein.

Authority in Easements Acquired by the Town – The members of the Board, the Superintendent and other duly authorized representatives of the Town bearing proper credentials and identification shall be permitted to enter upon all private properties through which the Town holds a duly acquired easement for the purposes of, but not limited to, inspection, observation, measurement, sampling, repair maintenance, and testing or any portion of the sewage works lying within said easement. All

entries and subsequent work, if any, on said easement, shall be done in full accordance with the terms of the duly acquired easement pertaining to the property involved.

PENALTIES

Written Notice of Violation – Any person found to be violating any provision of this Ordinance shall be served by the Town with written notice stating the nature of the violation and providing time limits as stated herein for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

Penalty for Continued Violation – Any person who shall continue any violation beyond the time limit provided for penalties in the "Written Notice of Violation", shall be charged with a misdemeanor and on conviction thereof shall be fined in the amount specified under the _____ (typically this says Enabling Act it may have to be specified here). Each day in which any such violation shall continue shall be deemed a separate offense. If the violation continues, the Board shall direct Town Counsel to seek an injunction in the Superior Court of the Commonwealth of Massachusetts requiring the offender to cease all violations.

Liability – Any person violating any of the provisions of this ordinance shall become liable to the Town for any expense, loss or damage occasioned by the Town by reason of such offense.

Repeal of Conflicting Ordinances – All ordinances or parts of ordinances in conflict herewith are hereby repealed.

Invalidation of Section – The invalidity of any section, clause, sentence, or provision of this ordinance shall not affect the validity of any other part of this ordinance which can be given effect without such invalid part or parts.

Changes in Rules and Regulations – The Board may from time to time, add to, delete from, change or clarify any of these rules and regulations. Any request for amendment of these rules and regulations must be submitted in writing, with the reasons therefor, to the Board for its approval. Said amendment shall be in force only after its passage, approval, recording and publication as provided by the law.

Ordinance in Force – These rules and regulations shall be in full force and effect from and after its approval and recording with the Town Clerk.

PASSAGE

Passed and adopted by the Board of Sewer Commissioners of the Town of Acton, Commonwealth of Massachusetts on the day of _____, 2002 by the following vote:

Board of Sewer Commissioners

_____

_____

_____

_____

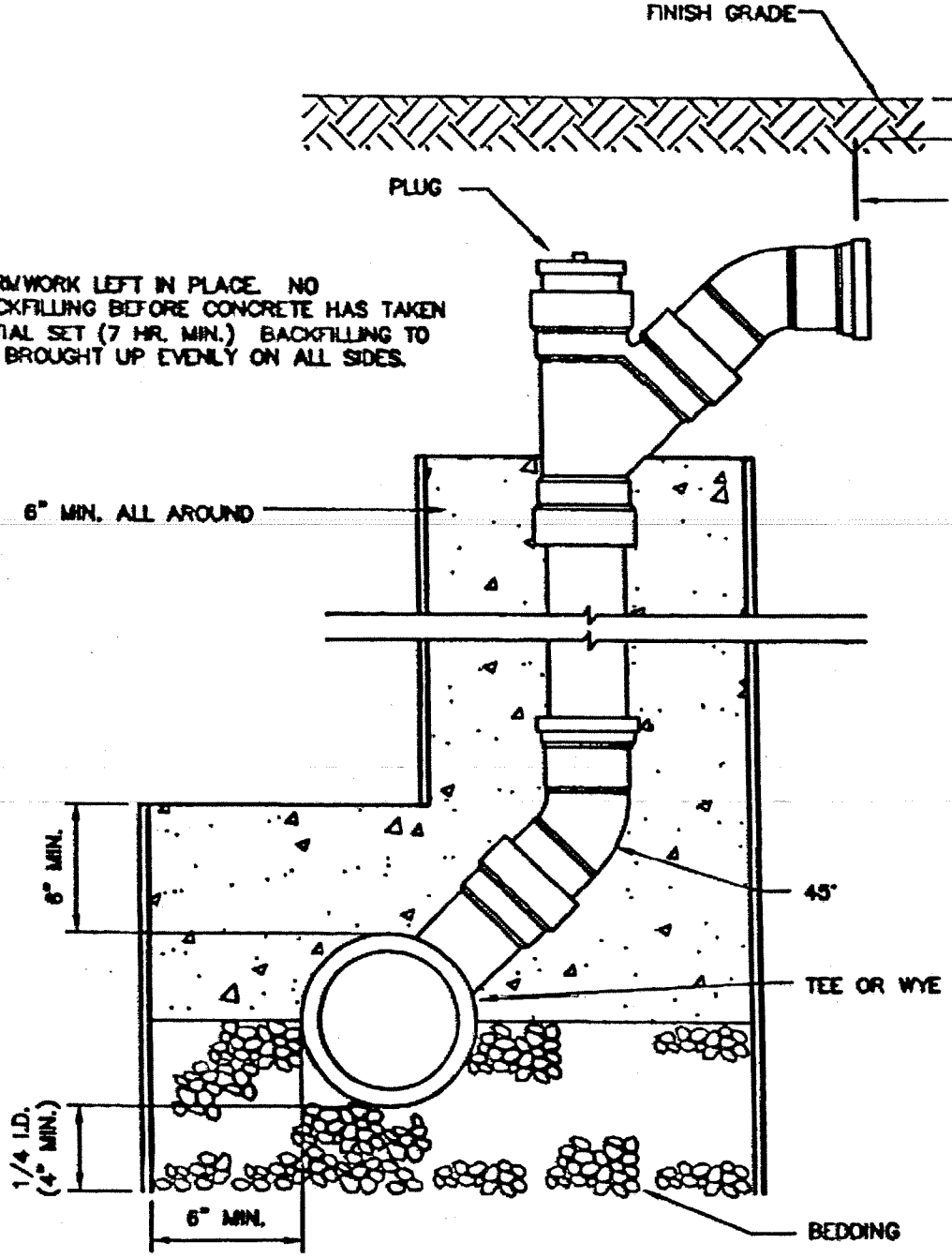
_____

(Duly advertised on _____, 2002, Legal Notice)

-

APPENDIX A

STANDARD SEWER DETAILS

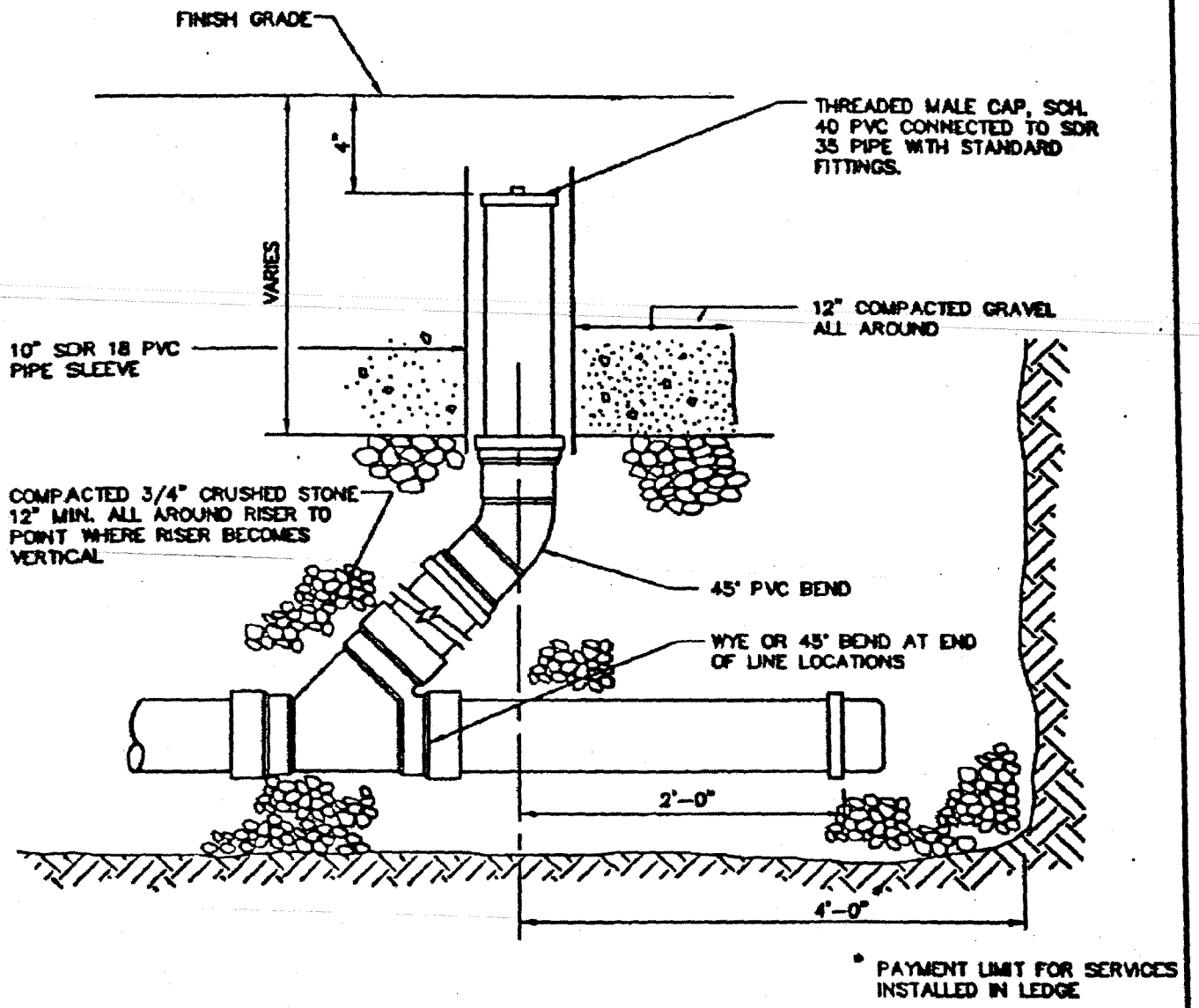


CHIMNEY DETAIL

N.T.S.

CHIMNEY DETAIL

JUNE 2001

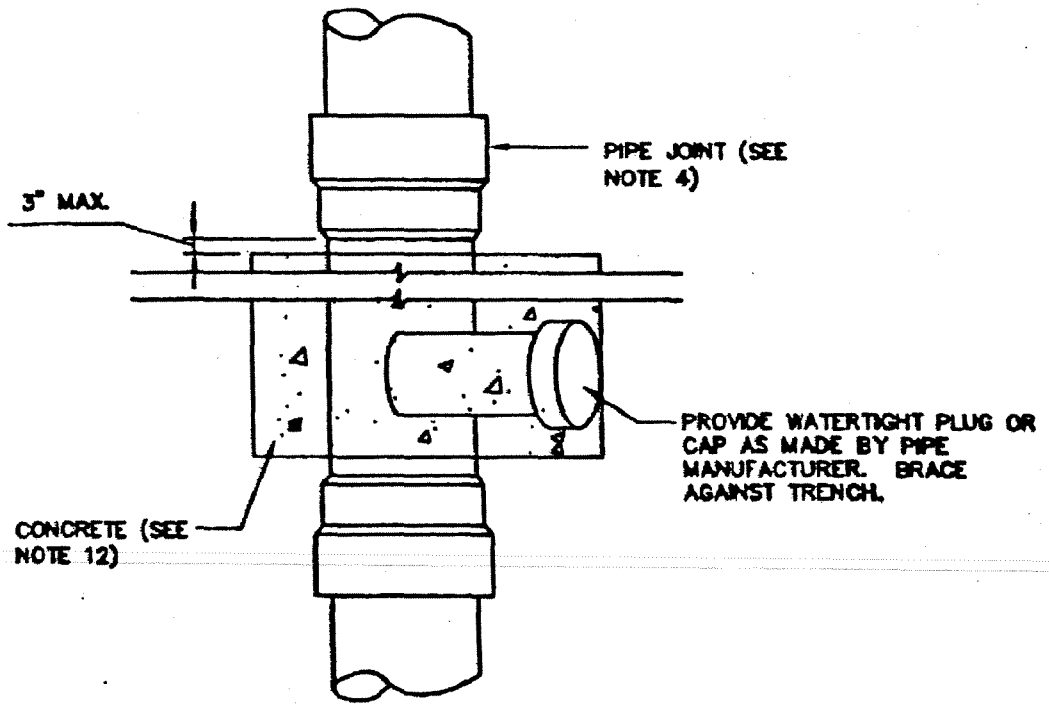


CLEANOUT DETAIL

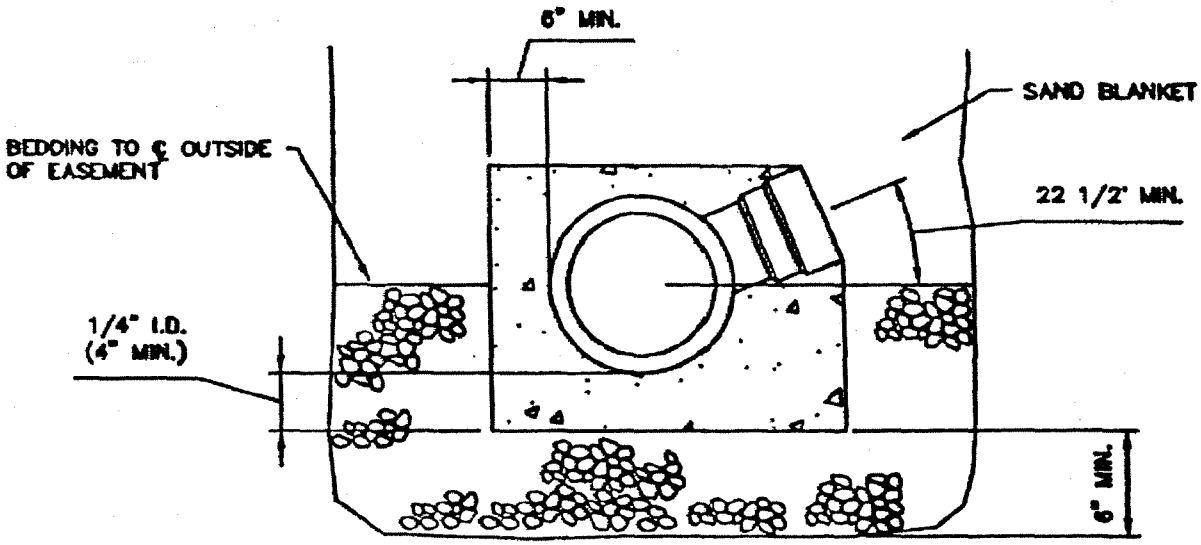
N.T.S.

CLEANOUT DETAIL

JUNE 2001



PLAN



SECTION

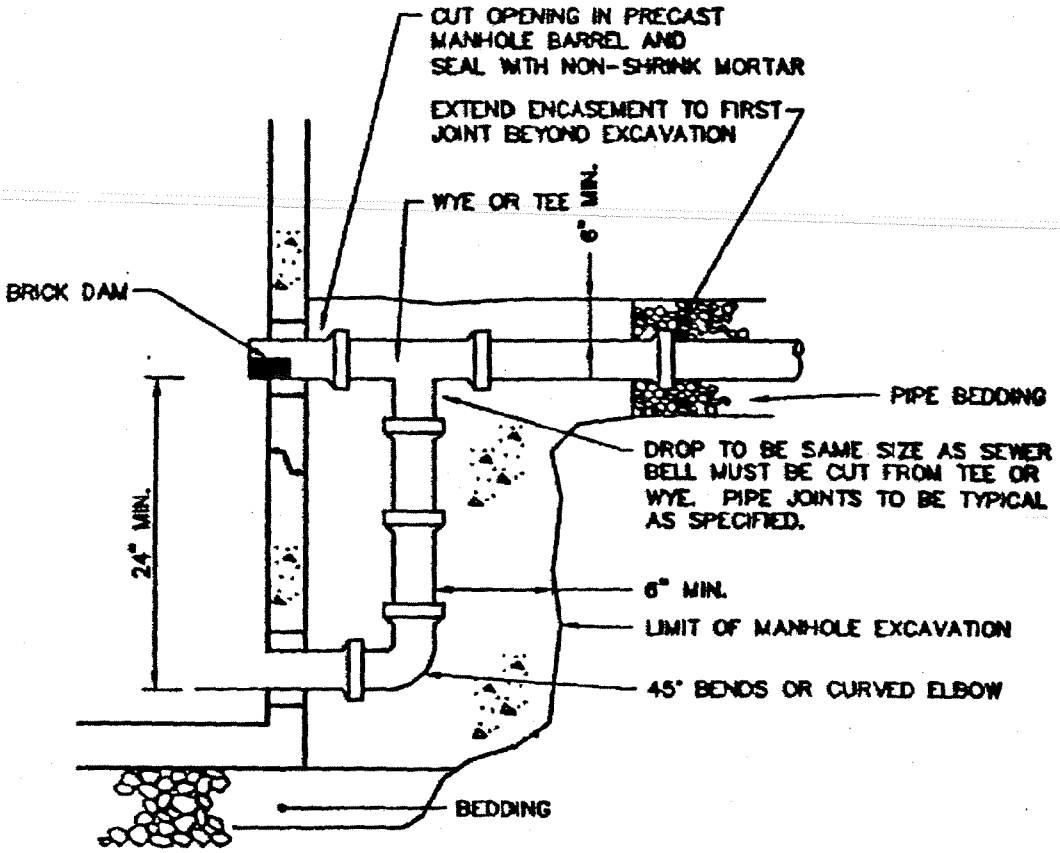
CONCRETE FULL ENCASEMENT DETAILS

N.T.S.

CONCRETE FULL ENCASEMENT DETAILS

JUNE 2001

NOTE:
DIMENSIONS AND CONSTRUCTION OF DROP MANHOLE TO BE SIMILAR TO TYPICAL MANHOLE EXCEPT AS SHOWN.

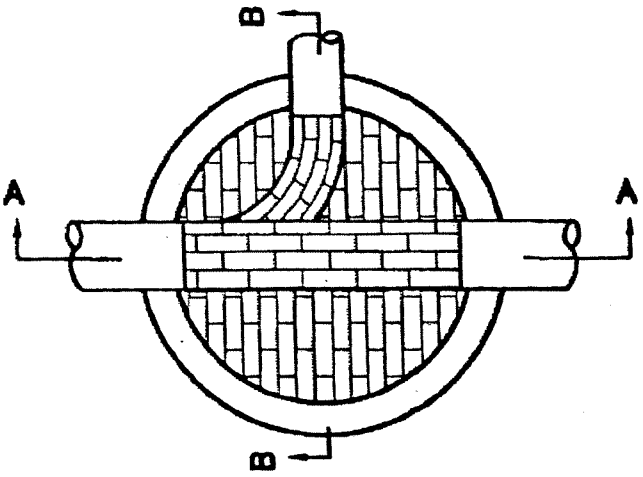


DROP MANHOLE DETAIL

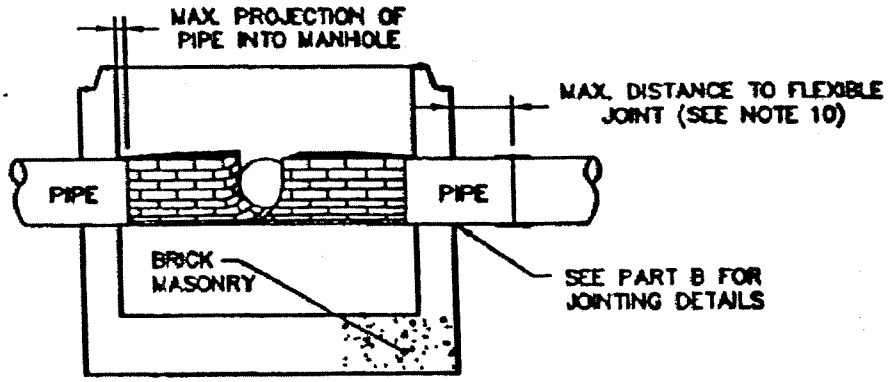
N.T.S.

DROP MANHOLE DETAIL

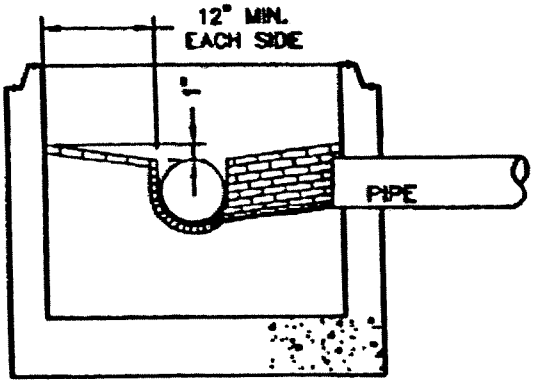
JUNE 2001



PLAN



SECTION A–A



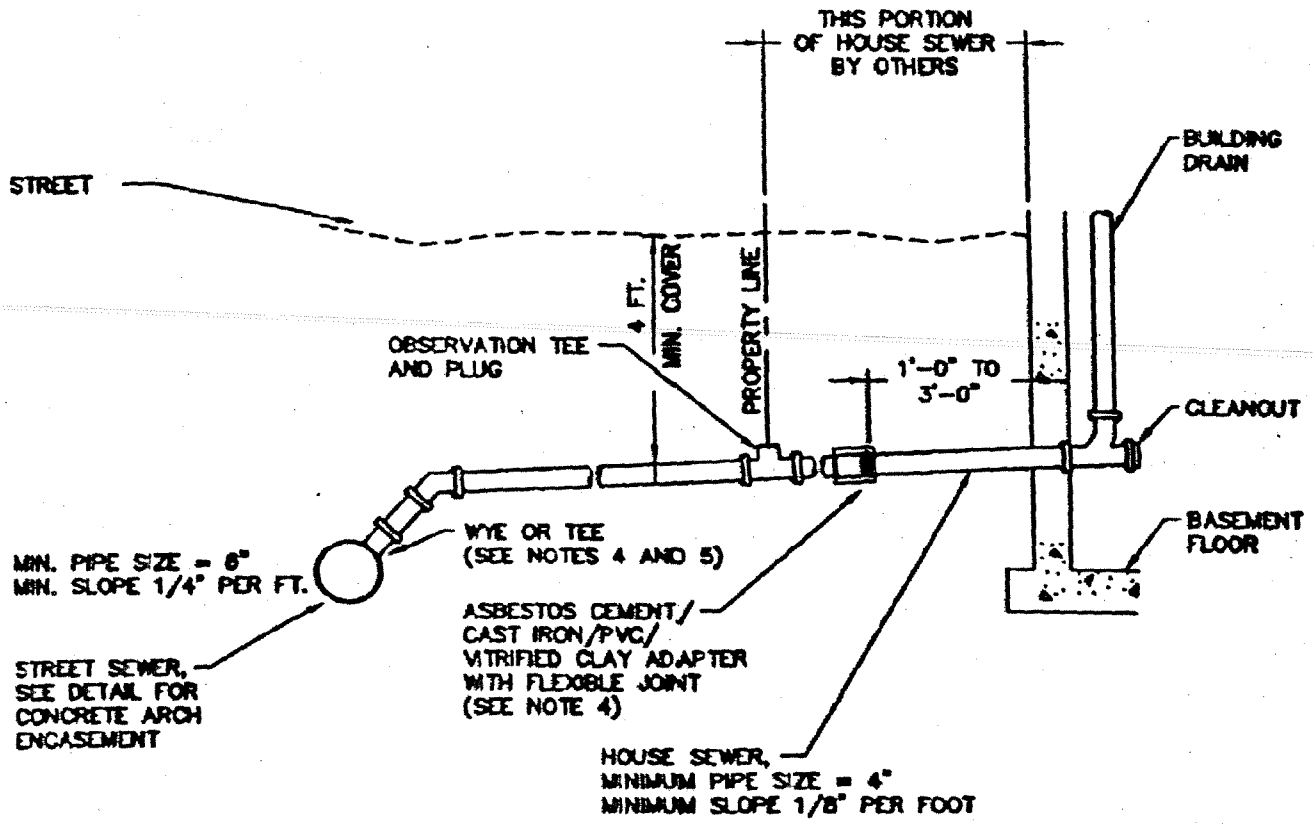
SECTION B–B

NOTES:

- TOP OF SHELF SHALL BE 1" ABOVE CROWN OF HIGHEST PIPE
- CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.
- INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST.

STANDARD MANHOLE INVERT

JUNE 2001



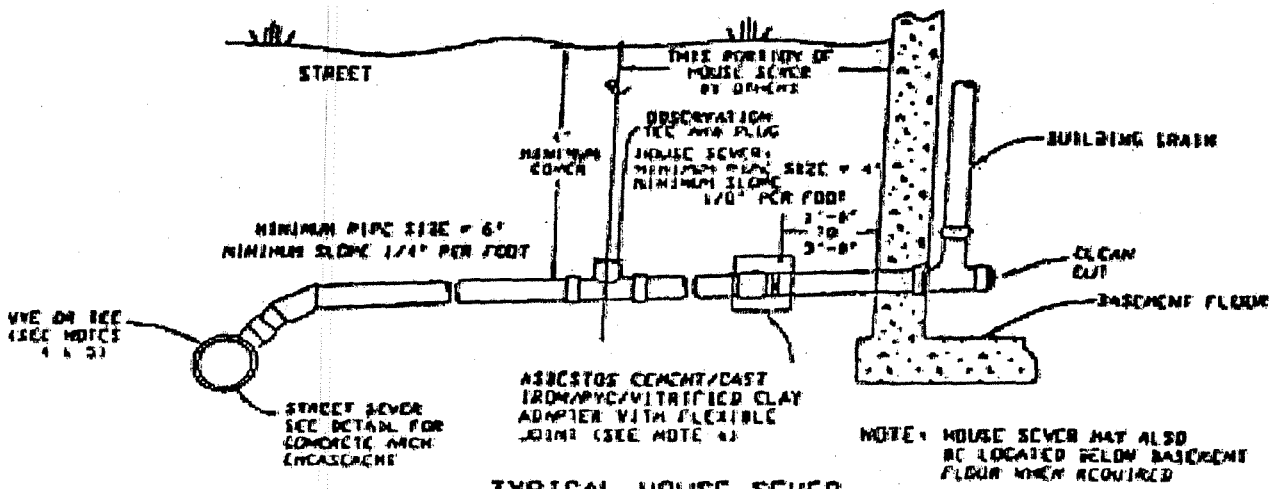
NOTE:
HOUSE SEWER MAY ALSO BE LOCATED
BELOW BASEMENT FLOOR WHEN REQUIRED.

TYPICAL HOUSE SERVICE DETAIL

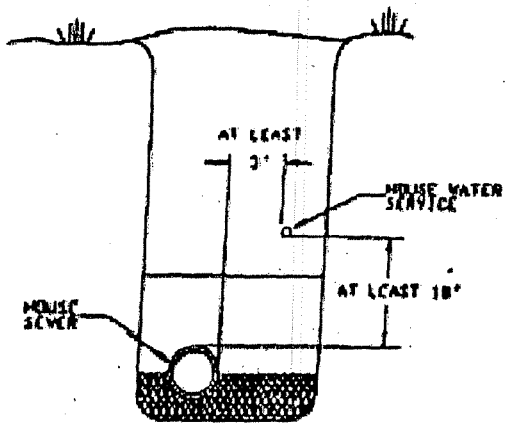
N.T.S.

TYPICAL HOUSE SEWER DETAIL

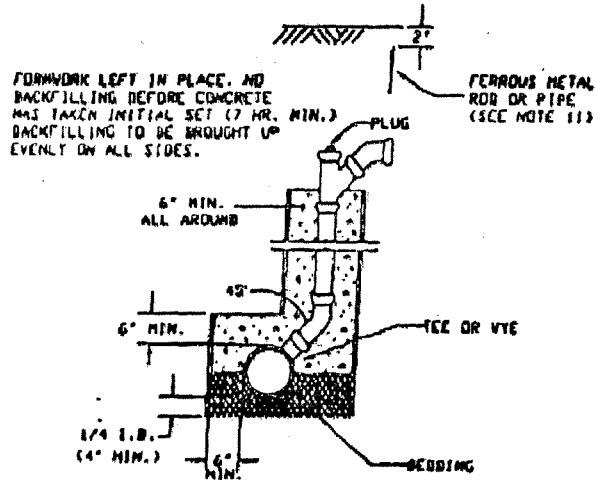
JUNE 2001



TYPICAL HOUSE SEWER



WATER AND SEWER IN SAME TRENCH
(SEE NOTE 9)



CHIMNEY

HOUSE SEWER DETAILS