

TOWN OF BRAINTREE
MASSACHUSETTS
WATER AND SEWER DEPARTMENT

RULES, REGULATIONS
AND
GUIDELINES

October, 2020



Charles C. Kokoros, Mayor

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WATER USE
RULES AND REGULATIONS

GENERAL

An Ordinance regulating the use of public and private water and sewer facilities, the installation and connection of building water service connections, and the connections and interconnections on public and private property, and providing penalties for violations thereof; in the Town of Braintree, County of Norfolk, Commonwealth of Massachusetts.

The Braintree Water System was authorized under Chapter 217 of the Acts of 1885.

Be it ordained and enacted by the Mayor of the Town of Braintree, Commonwealth of Massachusetts as follows:

ARTICLE 1.0 AGREEMENT

These Regulations and all subsequent changes, amendments, or additions thereto shall be considered a part of the agreement and contract with every water taker. Violation of any of these Regulations or evidence of fraud or abuse of equipment shall be deemed sufficient cause for shutting off the water supply of the offender. Water takers shall not supply water to persons, or appurtenances not entitled to its use, without permission in writing from the Board of Selectmen, and such permission shall only be on a temporary basis.

The Regulations which follow apply within the boundaries of the Town of Braintree, Massachusetts. Any agreement for water service outside the limits of the town will require a special contract with the Town of Braintree.

ARTICLE 2.0 DEFINITIONS

See Appendix A for a detailed listing of definitions.

“BWSD” – Shall mean the Braintree Water and Sewer Department.

“Department” – Shall mean the Water and Sewer Department of the Town of Braintree.

“May” - is permissive.

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“MAYOR” – Shall mean the Mayor of Braintree, or his duly authorized deputy, agent or representative.

“Ordinance” - Shall mean the Water and Sewer use ordinance of the Town of Braintree.

“Permit” - Shall mean the written application for either residential, commercial or industrial water service from the BWSO.

“Property Owner” – Shall mean the owner of the property served. The Property Owner is also referred to as the User, Water Taker etc.

“SUPERINTENDENT” – Shall mean the Director of the Water and Sewer Department

“Town” - Shall mean the Town of Braintree in the County of Norfolk, Commonwealth of Massachusetts.

“Tri-Town” - Shall mean the Body overseeing the Reservoirs made up of the Chairmen of the Board of Selectmen of the Town of Braintree, Town of Randolph and the Town of Holbrook in the County of Norfolk, Commonwealth of Massachusetts.

“Water Main” - Shall mean a pipe or conduit for carrying water.

ARTICLE 3.0 RULES AND REGULATIONS

Section 1. **“General”** The following shall be considered a part of the contract with every person supplied with Water from the BWSO, and every such person taking water shall be considered as having expressed their consent to be bound thereby.

1. Application for the use of water must be made in writing at the Offices of the Water & Sewer Department by completing a BWSO application and providing the necessary supporting documentation. These regulations shall be considered as part of the contract with every water taker. An applicant for a new water service shall have a written BWSO approval before a building permit is issued and shall have the building foundation erected before the service will be installed. All services shall be in separate trenches from other utilities and ten (10) feet from and eighteen inches (18") above any sewer lines unless otherwise permitted by the Superintendent or Director.
2. All service taps on mains installed in new developments shall be made by the Water & Sewer Department, or by an approved **Licensed Utility Contractor**. The applicant will be charged for each tap performed. All tapping and inspection fees must be paid before the water is turned on.

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3. All work of tapping onto, cutting into and removal of existing asbestos cement (AC) pipe shall be conducted in conformance with the MassDEP Asbestos Cement Pipe Guidance Document, 2019, or Latest revision thereto. All persons participating in the work shall have completed a Massachusetts Department of Labor Standards (DLS) approved training course specific to AC pipe worker safety and maintain their Certification Card on site.
4. The sizes of service pipes and meters shall be proposed by a licensed architect or professional engineer with the BWSD having final approval.
5. Service tubing shall be 1" diameter, type "K" copper tubing, the same as that used by the Water & Sewer Department. Four (4) feet of copper tubing should be left inside the foundation for meter connections. The size of the service pipes, meters and the type and make of fittings and curb boxes shall be determined by the BWSD. All services shall have a minimum of four and a half (4-1/2) feet of cover.
6. All service connections longer than 100 feet shall be a minimum of 1 ½ inches in diameter. All service connections serving multiple houses shall be a minimum of 1 ½".
7. Water shall not be turned on to any building under construction until all charges for services are paid by the applicant for BWSD fees and charges and, in the case of cold weather, the building is heated.
8. No person, except an employee of the Water & Sewer Department, shall turn on or shut off water from any main or service pipe.
9. All persons taking water shall keep in working order the service pipe serving their property from the curb stop to the house and be liable for damage resulting from their failure to do so.
10. All water takers on a private way are responsible for all meters, backflow devices, services, distribution pipes and hydrants up to the public way.
11. It is a violation of these Rules & Regulations to allow a leak to continue. Should a leak be suspected, the owner shall notify the Water & Sewer Department to investigate. Upon confirming the existence of a leak in the service the owner will be notified and given ten (10) days to secure a contractor to make the necessary repairs. Should the violator fail to follow through within the given time period, a notice by Certified Mail shall be sent giving the violator a final ten (10) days to repair the leak. If the service is not repaired by the required date, the water will be shut off until the repair is made.

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12. No alterations or changes shall be made in any pipes, fittings or meters owned by the Town, except by persons authorized by the Water & Sewer Department, who shall have access, at proper hours to all buildings and premises supplied with water by the Town for the purpose of making repairs to any of the said pipes or fixtures and for reading, repairing, or changing water meters.
13. No person shall connect to any service pipe between the main and the water meter set by the Town unless authorized by the BWSD.
14. No cross connection between pipes connected to a public water supply and an independent source of supply will be permitted, (as per Town Ordinance and DEP regulations). **NO PRIVATE WATER SUPPLY CAN BE PIPED INTO A DWELLING THAT HAS PUBLIC WATER.**
15. All persons or firms having private fire connections for sprinklers and private hydrants on the premises or in buildings are forbidden to use the water for any purpose excepting fires. All such services shall include an approved backflow preventer. Said hydrants are to be maintained at all times by the private owner(s). Failure to do so will result in penalty fines to be levied in the amount indicated in the Appendices, for each day the offense continues.
16. Property owners, desiring to have a hydrant moved, shall file a request with the BWSD. If the request is approved, the hydrant shall be moved at the expense of the property owner.
17. No water shall be used by any water taker in any air conditioning system or cooling system requiring, when in operation, more than one hundred (100) gallons of water an hour unless such system is so constructed that water cannot flow there from into the source of supply, or the Town's pipes or mains and such system includes a device enabling the reuse of water supplied to such system and such reuse device is in operation whenever such system is in operation.
18. No reduction in the base water rate shall be allowed unless the water line is disconnected from the main.
19. Persons having a seasonal residence or business place shall pay a charge each time the water is turned on and off.
20. The property owner shall obtain necessary water/sewer easements for BWSD services. Easements shall be recorded in the Registry of Deeds or Land Court.
21. The curb shut off shall be located on the property line unless otherwise directed by the Superintendent, Director or their designee.
22. No owner will be allowed to install a separate meter (for billing purposes) for the purpose of metering water used for irrigation only.

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23. *All water and sewer bills shall be the responsibility of the “Property Owner” for payment.*
24. *All residential, commercial and industrial condominium units which are separately owned shall be separately metered. If individual shut offs for use by BWSD are not provided, the condo association or trust shall be responsible for the payment if delinquent past 90 days.*

ARTICLE 4.0 - METERS

Section 1. Supplying Meters - The Water Department will furnish one (1) 5/8 “ x 3/4” meter to each **Residential Private Water Taker**. If a meter larger than 5/8" x 3/4" is required, then the **Water Taker** shall be responsible for purchasing said meter which must conform to BWSD specifications. All residential subdivisions, condo developments and apartment complexes of more than three units shall provide the required meter which will then become the property of BWSD and be maintained, repaired, or replaced by the Town. Commercial and Industrial developments shall be required to purchase, maintain, repair or replace meters conforming to BWSD requirements. There shall be no meter bypass allowed unless a separate meter is installed. Turbine meters are not allowed. We are a Neptune community.

Section 2. Meter Connection - Plumbing for meter connection must be mechanical type.

- A. Provide an approved ball valve type shut-off before the meter influent tail piece.
- B. Provide a nipple of sufficient length with a coupling prior to and after the influent and effluent tailpieces to facilitate the placing of supports, Unistrut or other, for the meter. Meters shall not be supported by the surrounding piping.
- C. Backflow devices and pressure regulating equipment will not be allowed before the meter effluent valve.
- D. No sweated fittings are allowed, until after the primary meter effluent fitting.
- E. All meters shall be installed horizontally.
- F. The meter will be at least one foot (1’) off the floor but not more than four feet (4’). Clearance to the wall will be no less than four inches (4”).
- G. All meters must be physically assessable within the building and easily accessed for manual reading and inspection.
- H. Pit installations and garage installations will not be allowed.

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Section 3. Radio Read Meters - All builders of new homes shall have a new “**Radio Read Meter**” installed by the BWS. The cost of the installation shall be borne by the builder. All other water users must provide the required meter per BWS specifications, (Neptune R900 with integrated head in cubic feet).

Section 4. Damage to Meter - Whoever unlawfully and intentionally damages, or suffers to be damaged, a water meter belonging to the Town of Braintree engaged in supplying water, or prevents such meter from duly registering the quantity of water supplied through it, or hinders or interferes with its proper action, registration, or attaches a pipe to a main or pipe belonging to the Town or otherwise uses or causes to be used the water supplied of the Town, without the consent of the same, unless it passes through a meter set by the Town, shall for every such offense be punished by a fine of not more than the amount indicated in the Appendices for every day the violation continues or by other legal action.

If for any cause the meter of any Water Taker breaks or the indicator thereon fails to record the amount of water used for any quarter, the quantity used shall be determined by the Water & Sewer Department, by making reasonable reference to the quantity used in the corresponding quarter of the preceding year.

All meters installed by the contractor or the Department shall be sealed against tampering or alteration and the unauthorized breaking of the seal shall constitute a cause for action by the Water Department. All meters damaged by hot water, steam, frost or any other cause, shall be repaired or replaced by the Department at the expense of the owner at current prices for labor and materials.

Section 5. Shut-off Valves - No valves or devices of any sort shall be set in the service on the street side of the meter except a type that conforms to AWWA standards and is approved by the BWS.

Section 6. Testing of Meters - The BWS will test residential meters upon request of the customer. A fee at the prevailing rate will be charged.

- A. If meter is found to over-register by any amount exceeding two percent (2%), a new tested meter will be furnished and proper restitution made on customers' water bill for a period not exceeding six (6) months, and the meter test fee will be waived.
- B. If meter does not over-register by an amount exceeding two percent (2%), the meter will be returned to service, the current water bill must be paid, and the prevailing test meter charge must be paid.
- C. All two inch (2") meters shall be tested every two (2) years, per American Water Works Association (AWWA), and the test results shall be forwarded to the

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BWSD. Any meter larger than two inch must be tested annually in accordance with AWWA regulations. Should AWWA Regulations regarding meters change then these rules will be adjusted to conform to the revised AWWA Regulations.

Section 7. Notice of Meter Installation/Repair - Any customer who has a defective metering system or requires a new meter installation shall be so notified by U.S. Mail of the service required. Should such request not be responded to within thirty (30) days, a second request shall be sent by means of certified mail, return receipt requested, advising the customer that there will be a surcharge to be levied in the amount indicated in the Appendices for each day the water meter service remains out of service or for each month that a new meter is not installed. If the situation continues for a period exceeding 30 days then the water service will be subject to termination, liens or both. This shall apply to both residential and commercial customers.

ARTICLE 5.0 – HYDRANTS AND FIRE PROTECTION

Section 1. Operation of Hydrants - No person except BWSD employees and Fire Fighters in the discharge of their duty shall open any hydrant. Permit applications for use of fire hydrant(s) are available at the BWSD business office at 85 Quincy Avenue.

Section 2. Location of Hydrants - All hydrants installed shall be located between properties on back edge of sidewalk to the extent practicable. Property owners desiring to have a hydrant moved shall file a request with the BWSD. If the request is approved the hydrant will be moved at the expense of the property owner.

Section 3. Fire Supply Mains - All materials must conform to the BWSD “SPECIFICATIONS FOR WATER WORKS MATERIALS” as most recently amended. See Appendix B for a summary of common materials. Fire supply mains are subject to an annual fee based on the diameter of the main itself and not the device.

Buildings with sprinkler systems that obtain water for fire protection from BWSD distribution mains that are six inches (6") in diameter or less must have separate connections for the fire line and the domestic service. Wet taps are required for both connections. (**Note:** The minimum centerline to centerline dimension between the fire line and domestic service is five feet (5') to allow for proper spacing of tapping sleeves and/or saddles)

Buildings with sprinkler systems that obtain water for fire protection from BWSD distribution main that are larger than six inches (6") in diameter may make one wet tap connection to the main in the street and branch off the fire line and domestic service outside the building with these restrictions.

- A. Dual purpose (fire & domestic) water mains (for commercial buildings) to be connected to the BWSD distribution system must be a pipe size smaller than the existing street main because of limitations of tapping sleeve and valve installations. (Examples: eight inch (8") or smaller tap for ten inch

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(10") street main; Ten inch (10") or smaller tap for twelve inch (12") street main, etc.)

- B. In addition to the tapping valve in the street, the dual purpose (fire & domestic) water mains must have separate shutoff valves for both the branched-off fire line and the domestic service. These shutoff valves should be located as close to the property line as practical but in no case closer than 10 feet to the building.
- C. All materials on dual purpose (fire & domestic) systems must be ductile iron to prevent galvanic corrosion.
- D. Fire supply mains are not metered and consequently cannot be tapped inside a building for any purpose other than fire protection.
- E. Application for a permit to connect a fire supply main to the Braintree Water System is available at the BWSO business office at 85 Quincy Avenue.
- F. **Hydrant Use:** - Permits for Hydrant use can be obtained and the BWSO and a meter assembly will be installed. In addition to the quantity of water used, a charge will be assessed by the BWSO. There shall be a charge each time a hydrant is opened or closed for contractors or others between the hours of 8 AM and 4 PM on regular work days, within a 48 hour notice. At any other time, and on Saturdays/Sundays the charge will be an employee's time and one-half with a four hour minimum. Holidays will be charged at the rate of double time and a half with a four hour minimum. Colder weather will require a "dog house" to enclose the meter and it must be locked and a key given to the Fire Dept in the event of an emergency.
- G. Private fire service pipes shall be installed by a **licensed utility contractor** from the BWSO's list of approved licensed utility contractors, at the owner's expense, including the street connection. The layout of check valves, type and size of pipe, control valves, and meters shall be subject to the approval of the BWSO, Fire Department and the Fire Underwriters. The building owner is also responsible for maintaining the fire supply main and protecting it from frost.
- H. All persons or firms having private fire connections for sprinklers and private hydrants on the premises or in buildings are forbidden to use them for any purpose except extinguishing fires.

ARTICLE 6.0 – BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL

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Section 1. General - Backflow prevention and cross-connection control in the Commonwealth of Massachusetts are regulated by Section 22.22 of CMR 310 “**Drinking Water Regulation**”. This law delegates specific responsibilities for backflow prevention and cross-connection control to the MASS DEP, the BWSD and the owner of any permit for a cross-connection.

Section 2. Cross-Connection Control Ordinance - The Town of Braintree has a cross-connection control By-Law, Title 13, Chapter 13.12 of the Ordinances of the Town of Braintree. A copy of this Ordinance is included in the Appendix hereto.

Section 3. Policy Summary – Prior to the installation of new backflow preventers, the installer must have the design approved by the BWSD. The applicant must be a plumber licensed by the Commonwealth of Massachusetts. The installation must be approved upon completion of construction.

ARTICLE 7.0 – SUB DIVISION

Section 1. General - For the purpose of these Regulations, the word “**sub division**” shall, in addition to its usual meaning, also mean any installation of water supply mains on private property for the purpose of providing water for domestic and other uses to more than one dwelling, when such mains are to be connected to the Public Water Supply System of the Town.

Section 2. Application Required - Where water mains are to be extended to serve new developments or other private properties, the owner or owners of the property shall file an application with the BWSD. No water main shall be laid until the application has been accepted and approved by the Superintendent or Director. Such written applications shall provide the following information:

- A. Full name and address of the owner of the property involved.
- B. Names of proposed new roads.
- C. Length of pipe to be installed.
- D. Number of fire hydrants to be installed, and the distance between them.
Hydrants must conform to BWSD specifications.
- E. Size of pipe proposed for use.
- F. Name and address of the manufacturer of valves, fittings, etc. proposed for use.
- G. Name and address of the **licensed utility contractor** who will install ductile iron pipe and hydrants. The licensed utility contractor must be on the BWSD’s list of licensed utility contractors.

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- H. The application shall be accompanied by a stamped, signed and dated engineer's plan of the proposed sub division to a scale of forty feet (40') to the inch, showing the location of all new roads, the proposed location of the water mains, valves, and hydrants, points of junction with the public water supply system, and the maximum number of house lots to be served by the proposed new pipe line, and such other data as the BWSO may require. (**Note:** proper sewer specifications must also be included. See sewer Rules & Regulations).

Section 3. Requirements - The owner shall pay the whole cost of the installation including all charges incurred by the BWSO in connecting the proposed work to the existing water mains. Where the street is to extend beyond the present proposed development, the water main shall be extended to the existing main and "looped" to another main as directed by the BWSO. If the main extension cannot be "looped" a request for special exception shall be filed with the application. In general, no dead end water mains shall be permitted.

- A. All water mains to be installed by Developers shall conform to the requirements of Articles 12 and 13 of these regulations.
- B. No water supply mains in private sub-divisions shall be connected to the public water system of the Town unless their construction and installation shall first have been approved by the Superintendent or Director.
- C. The Superintendent or Director shall notify the applicant in writing of the decision of their thereon which may have conditional requirements subject to such reasonable conditions as deemed necessary to protect the interest of the Town. If such application is not approved, the Superintendent or Director shall inform the applicant of the reasons of the Superintendent or Director's disapproval, and specify what measures, if any, must be taken to obtain approval.
- D. If, in the opinion of the Superintendent or Director any of the pipe, valves, hydrants, or other material proposed to be installed in a sub-division are, for any reason, not suitable, the applicant shall be required to use such pipe, valves, hydrants, or other materials, shall specify as outlined in these regulations unless the situation requires the specification of a Registered Professional Engineer who will be hired by the BWSO and paid for by the applicant.
- E. All pipes shall be laid with a depth of covering four and a half feet (4.5') minimum below finished grade in the street. The laying and testing of the pipe shall conform to the current contract specifications of the BWSO.
- F. No supply main less than six inches (6") internal diameter shall be installed in the distribution system. The actual size of pipe to be used in any location shall in every case be determined by the Water & Sewer Department.
- G. No pipe shall be laid until street grades, street lines and property lines have been

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clearly laid out and permanently established.

- H. No pipe laid shall be covered unless an inspector has inspected the work at the site. No pipe shall be laid on Saturdays, Sundays or Holidays unless approved by the Superintendent or Director.
- I. Hydrants and gate valves shall be installed where designated and shall be of the size, make and type currently used by the Water & Sewer Department.
- J. The pipes shall be tested, sterilized and flushed out as directed by the Superintendent or Director before being put into use.
- K. No one, except authorized Water & Sewer Department employees, unless authorized by the Superintendent or Director, shall tap the main pipe for service connections. The owner shall pay all expenses incurred by the Water & Sewer Department.
- L. The service pipe, shut off and gate box shall be the kind, make, size and type currently used by the Water & Sewer Department.
- M. The curb shut off shall be located on the property line, unless otherwise ordered by the Superintendent or Director.
- N. If developers are permitted to install service pipes, the pipe shall be left exposed until it is inspected and approved by the Water & Sewer Department. No service pipe shall be laid before the building foundation has been completed.
- O. No one, except authorized Water & Sewer Department employees, shall turn on or off any main gate valves, service gate valves or hydrants.
- P. No water will be furnished until all Water Department charges have been paid. No water will be furnished unless the work is done in accordance with the above requirements.
- Q. Wherever the sub-division main connects with the Town system, connection shall be made by means of a tee and three valves, all three valves shall be located within the Town's street lines.
- R. Fire hydrants of the size and type, as specified in these regulations, shall be installed at intervals of not more than five hundred feet (500') in the public water supply system. On a dead end supply main a fire hydrant shall be installed at the dead end with proper off-set. All hydrants shall be connected to the mains by a six inch (6") pipe and shall have a shutoff gate valve.
- S. In deciding upon any proposed installation of water supply mains in a private sub-division, full consideration will be given to the possibility of future extensions of

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- such mains through adjacent property, and may require the initial installation to be sufficient size to be adequate for such future extension. Consideration shall be given to the size of pipe necessary to provide adequate fire protection, and shall take into consideration the pressure level of the proposed sub-division in relation to the hydraulic gradient of the Town in determining the size of the pipe to be required.
- T. The installation of all sub-division water supply mains intended to be connected to the Town public supply system shall at all times be subject to the supervision of the BWS&D. Before any such water supply mains are covered over, the inspector shall inspect them, and if in his opinion they are properly installed, he shall approve the same, subject to review by the Department. No trench shall be closed except with material and in a manner approved by these regulations.
- U. All costs of inspection, supervision, and for connection to the Town water mains shall be borne by the applicant and shall be consistent with the prevailing charges for such work.
- V. The approval of any private sub-division water supply system shall in no way make the Planning Board, the Water & Sewer Department, or their agents and employees or the Town of Braintree responsible or liable for the operation, maintenance or satisfactory performance of the installation until such time as utilities and easements are conveyed to the Town.
- W. In general, all supply mains and appurtenances and other water works facilities, for private sub-divisions, shall be installed or constructed strictly in conformity with the standards and specifications of the American Water Works Association.
- X. Penalty for violation of any of these rules and regulations shall be in the amount indicated in the Appendices, per day. Each day the violation continues shall be considered a separate offense.
- Y. Record drawings must be submitted at the completion of the project construction. Record drawings will show: all water gate boxes for mains, services and hydrants. A minimum of three ties to permanent structures will be provided to determine their location. All houses, lot numbers, property lines, roadways and any easements shall be shown. If in the opinion of the Superintendent or Director the record drawings are considered illegible, the applicant must resubmit the plans prior to any release of bonds and before the water is turned on. The Record Drawings shall also comply with the requirements outlined in the Appendix.
- Z. **A fee for updating the Water and Sewer Department's GIS system** will be imposed. The fee will be based on the size of the project. (See Department fee structure in the Appendices for an updated fee schedule.)

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ARTICLE 8.0 - GENERAL INFORMATION

Section 1. Unoccupied Property - Any property owner whose building is to be unoccupied for any time during the winter months, or for an extended period during the warm months shall notify the Water and Sewer Department to shut off the water service to said building, thus eliminating the possibility of water damage due to broken pipes, valves, fittings, etc. Whenever water is shut off, owner should open a faucet and leave it open until water is turned on. This is a protection against possible damage to the hot water tank.

Section 2. Leaks - In case of leaks in street mains or service pipes or any accident to the water supply system, the Superintendent, Director or some other official of the Water & Sewer Department should be notified. In case of a leak inside a building, water can be turned off at the valve which is located on the pipe where it first enters the building. Consumers are advised to see that this valve is always accessible and in working order.

Section 3. Pipes in Separate Trenches - Water and sewer pipes shall not be installed in the same trench and shall be ten feet (10') apart and the sewer pipe shall be eighteen inches (18") below the water pipe as provided by Title V, unless a special exception is allowed by the Director. Gas and water pipes shall not be installed in the same trench. Gas and water mains should be on opposite sides of the street.

Section 4. Electrical Grounds - The BWSD is not responsible for any damages which may be attributed to electrical ground wires attached to water pipes. Ground wire attachment or clamp must be of a metal compatible to the metal in the water service.

Section 5. Dirty Water Damage - The BWSD shall not be liable for damages to any user caused by dirty water due to the opening or closing of any valve, hydrant, the breaking of any pipe or fixture, or for any mechanical malfunction.

Section 6. Water Use Restrictions - The Tri-Town Board of Commissioners reserve the right to place whatever restrictions on the use of water they deem necessary to maintain the health of the community and adequate pressures for fire fighting purposes. The BWSD shall have the right at any time, without notice, to shut off the water when making repairs or extensions to its system or for any other purpose. The department will endeavor to notify all consumers affected, whenever possible.

Section 7. Excavation in Public Ways - Except in emergencies, no excavations may be made in public ways until forty-eight hours (48) advance notice has been given to the Public Utility per M.G.L.A. c 82 ss40. Digsafe must be called for all excavations and all permits must be pulled to perform the work.

Section 8. Rates - All persons taking water shall pay for the same in accordance with the rates currently effective, which rates will be set from time to time by the Mayor. Copies of the rates in effect may be secured at the office of the Water & Sewer

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Department.

Section 9. Inspections at time of Real Estate Transfers - All Owners shall provide at least three days notification to the BWSO prior to the sale of property on the BWSO system. The Owner must come in to the BWSO office, pay the prescribed fee and schedule a convenient time for a final reading and utility inspection. Final water & sewer bills shall be paid before the real estate closing.

Section 10. Condo Conversions – When a multi family house is being converted to Condo's, new separate and distinct service connections shall be extended from either the main to the house or an additional curbstoep installation from the property line to the house in order to provide a separate water bill for each condo unit.

Section 11. Amendment of the Regulations - The Braintree Water and Sewer Dept. reserves the right to change these regulations and to make such additional regulations as may from time to time be deemed necessary.

ARTICLE 9.0 - CONSERVATION

Section 1. General - The Tri-Town and the BWSO has developed a plan of supply management. The major programs of this plan are:

- A. Increasing capacity
- B. Conservation program

Section 2. Increasing Capacity - A program is being implemented which calls for the excavation of additional soil from the Richardi Reservoir and the upper Great Pond.

Section 3. Procedure - Applicants for Water/Sewer permits will be required to participate in the Town of Braintree Water Conservation Program by helping to reduce the amounts of water used through the installation of water saving devices. The following conservation devices are recommended.

- A. Water saving shower heads
- B. Flow restrictors in faucets
- C. Water closet dams
- D. Hot water pipe insulation
- E. Low flow water closet (1.6 gallons)
- F. Water pressure regulators

Section 4. Air Conditioning and Cooling Systems - No water shall be used by any water taker in any air conditioning system or cooling system requiring, when in operation, more than one hundred (100) gallons of water an hour unless:

- A. Such system is so constructed that water cannot flow there-from into the source of supply, or the Town pipes or mains.
- B. Such system includes a device enabling the reuse of water supplied to such system and
- C. Such re-use device is in operation whenever system is in operation.
Penalty for violation of the above regulation, after due notice, shall be the

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restriction of the flow of water to the premises in the amount necessary for sanitary purposes only.

ARTICLE 10.0 – UNDERGROUND STORAGE BY-LAW

Section 1. Authority - This By-law was adopted by the Town of Braintree under its home rule powers, its police powers to protect the public health and welfare, and its authorization under Massachusetts General Laws Chapter 40, Section 21.

Section 2. Purpose - The purpose of this by-law is to prohibit the installation of underground gasoline, fuel storage tanks, toxic or hazardous substance tanks (as defined under Ch. 470, Acts of 1981) to protect groundwater and surface water from contamination due to leakage. The provisions of this by-law are applicable only to underground tanks in the watershed area.

Section 3. Regulation(s) - Please refer to the Town's Watershed Protection By-Law.

ARTICLE 11.0 - Tri-Town Water Emergency and Conservation By-Law

Section 1. Purpose - This By-law is intended to preserve, maintain and increase the water supply of the Tri-Town Water System.

Section 2. Declaration of Emergency - Whenever a declaration of a state of water supply emergency or resulting order is legally declared and imposed on the Town of Braintree by an appropriate state or federal agency, or a water conservation emergency declared by the Tri-Town Board of Water Commissioners, the Town is authorized to promulgate such reasonable rules and regulations as are necessary to implement said declaration, order or water conservation emergency.

Section 3. Penalties for Violation - Any person who is found, to have violated any of said rules and regulations as promulgated by the Commissioner's attendant to a declaration of a state of water supply emergency or resulting order or water conservation emergency shall, for each offense, be punished by a civil penalty in the amount indicated in the Appendices. Each day such violation continues shall constitute a separate offense.

Section 4.0 Administration of Penalties – The Town of Braintree shall be the exclusive administrator for processing receipted violations to the water usage restriction order.

There shall be one warning issued and recorded on an approved appropriate Department Administrative form. Said warning shall be sent by certified mail to the site of the violation. Subsequent violations recorded shall be punished by civil penalties as stipulated in Section 3 of this By-law. Subsequent violations shall be recorded on an approved department administrative form which stipulates that a violation has been found and a civil penalty has been applied with mandatory payment of said civil penalty to be

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received by the appropriate department.

Section 5.0 Tri-Town Water Use Policy – The following policy has been adopted to provide a logical and uniform method of restricting water use during periods of water shortfall.

- A. **Phase One** The use of all automatic watering devices and soaker hoses is prohibited. Only the use of hand held hoses with shutoff nozzle shall be allowed. No organized car washes shall be allowed from June 1 to September 1 of the year. The filling of in-ground or above-ground swimming pools from the municipal water supply shall be prohibited after June 1 of the year. This phase is in effect at times when further restrictions not required.
- B. **Phase Two (including Phase One)** When reservoirs are below 80% full a further restriction shall be implemented as follows: OUTSIDE WATER USE IS RESTRICTED TO THE HOURS OF 7:00 A.M - 10:00 A.M. and 6:00 P.M. - 9:00 P.M.
- C. **Phase Three (including Phase Two)** When reservoirs are below 70% full (with incoming water) a further restriction shall be implemented as follows: OUTSIDE WATERING OF PHASE 2, THE HOURS WOULD BE REDUCED TO 6:00 P.M. - 9:00 P.M. ONLY.
- D. **Phase Four** When reservoirs are below 70% full (with no incoming water) a further restriction shall be implemented as follows: THERE SHALL BE NO OUTSIDE USE OF WATER.
- E. **Phase Five** When Reservoirs are between 50% and 40% full ALL OUTSIDE WATERING SHALL BE PROHIBITED AS IN PHASE 4 AND ALL USE OF NON ESSENTIAL WATER IS PROHIBITED.

ARTICLE 12.0 – ADDITIONAL REQUIREMENTS

Section 1.0 General - Any alterations to the Town’s water supply system of Braintree shall be done in accordance with the applicable provisions of the Town of Braintree Water & Sewer Department specifications.

- A. The contractor **shall** give sufficient notice, as specified or required by the Director of the BWSD and others involved in the water alterations before any work hereunder is undertaken.
- B. Operation of existing **valves** to off and/or on positions shall be by the BWSD, Personnel or their authorized representatives.

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- C. The contractor **shall** so perform his work as to keep shutdown type of mains or service connections to a minimum. Wherever relocation of water mains is required, the new pipe shall be laid up to the points of connections. All thrust blocks shall be poured and cured; pipes tested and trench backfilled before cutting the existing water main so as to require a shutdown only for the time necessary for the reconnection to the existing pipe.

- D. The contractor will cooperate fully with all utility companies, private or public, and will notify all such **companies** at least forty-eight (48) hours prior to excavating in the vicinity of any utility.

Section 2.0 Materials - All the materials used on the work covered in the application shall meet all quality requirements of the BWSO. Unless otherwise specified or designated, the contractor will furnish all new, first quality materials. Any materials within one classification must be supplied by one manufacturer, unless otherwise approved.

Section 3.0 Samples, Tests, Cited Specifications - All materials to be furnished by the applicant are subject to testing and/or inspection before acceptance by the BWSO and before incorporation into the work. Any work in which unacceptable materials are used without approval of the BWSO shall be performed at the contractor's risk and may be considered as unacceptable and unauthorized. Unless otherwise designated, tests will be made in accordance with the ASTM standard methods. All rejected and unacceptable materials shall be removed immediately from the work site at the applicant's expense unless corrective action is authorized by the Director and approved by the Board of Selectmen. All corrective action will be performed at the applicant's expense.

For all pipes, valves, fittings, and other items which are furnished by the applicant, the Director requires a Manufacturer's or Supplier's signed statement which will certify as to meeting the required specifications for the project.

The responsibility of incorporating satisfactory material in the work rests entirely with the applicant.

Section 4.0 Public Safety and Convenience - The applicant, as directed, shall at all times conduct the work so that the abutters shall have reasonable access to their property. The applicant shall be responsible for providing such reasonable safe means of access to the public way as the Director and Town Traffic Division deem essential. When it is necessary to leave materials and equipment on the highway, they shall be placed so as to cause the least possible obstruction to drainage, pedestrians, and other travel.

Section 5.0 Construction Methods – The following guidelines shall be adhered to:

- A. **Excavation** - Excavations must be made and made safe in accordance with "Jackie's Law", as codified in 520 CMR 14.00 and subsequent. The

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applicant shall excavate only a sufficient length of trench to allow for the orderly laying of the pipe and fittings. All excavation shall be filled in at the end of the work day unless otherwise directed by the Engineer.

- B. **Handling of the Pipe** - All pipe, fittings, valves, and other heavy accessories shall be carefully handled by the use of hoists or skid ways to avoid shock or damage. The applicant shall replace or repair, at his own expense, any materials that have been damaged due to his negligence.
- C. **Blocking of Pipe** - Blocking of pipe shall not be allowed.
- D. **Cleaning & Plugging** - The pipes and fittings shall be thoroughly cleaned before being laid and shall be kept clean until accepted in the finished work. The ends of all uncompleted lines shall be tightly closed with temporary plugs and no trench water or debris shall be permitted to enter the pipe.
- E. **Laying of Pipe** - Proper tools and equipment for the safe and convenient handling and laying of the pipes shall be used. The applicant shall exercise reasonable caution during his operations in order to avoid damaging the pipes or fittings; any of which, when damaged, shall be replaced by the applicant at his own expense.

The specified water pipe shall be laid in accordance with the Standard Construction Details provided in the Appendices.

The applicant shall furnish the necessary pumps and tools to handle any water encountered in the pipe trench, and shall maintain the trench in a satisfactory condition, free from water, during the laying of the pipe. The pipe, after being laid in place, shall not, under any circumstances, be used as a drain pipe for the trench.

- F. **Gate Valves** - All gate valves must turn left (counter clockwise) to open.
- G. **Setting Gates & Hydrants** - Gates and gate boxes shall be set in the pipeline as shown on the plans or as directed. Blocking or supports of a permanent nature shall be placed under each valve to ensure against settlement. Each gate shall be tightly closed before being placed in the line and shall remain so until the joints on each side are completely made. Gate boxes shall be set for all gates. They shall be carefully fitted together and to the gate and securely held during backfilling. The earth around them shall be thoroughly tamped in place and cover set finished grade.

New and existing gate and service boxes which are located in pavement areas shall have concrete collars constructed around them.

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Section 6.0 Jointing – The following guidelines will be adhered to:

- A. **Mechanical Joints** - The last eight (8") inches of the spigot and inside of the bell of the mechanical joint pipe shall be thoroughly cleaned to remove oil, grit, excess coating and all other foreign matter and then painted with a soapy water solution. The ductile iron gland shall then be slipped on the spigot end of the pipe with the lip extension of the gland toward the socket, or bell end. The rubber gasket shall be painted with the soap solution and placed on the spigot end with the thick edge toward the gland.

The entire section of the pipe shall be pushed forward to seat the spigot end in the pipes. The ductile iron gland shall be forced into position for bolting, tightened with a suitable wrench with the torque varying from seventy five (75) ft.-lbs. to ninety (90) ft.-lbs. for a 3/4 inch bolt. Nuts spaced 180 degrees apart shall be alternately tightened.

Fittings: All fittings shall be MJ DI Compact C153 AWWA. All fittings shall be marked with the pressure rating, the manufacturer's identification nominal diameter of openings, and the number of degrees of fraction of the circle on all bends. All fittings shall be mechanical joint with EPDM, or Nitrile (Buna-N), NSF 61 Certified rubber gaskets per manufacturer's requirement. Nitrile gaskets shall be used if petroleum contamination is encountered in the subsoil, in the process of pipe laying.

- B. **Thrust Blocks and Pipe Anchors** - Megalugs with reaction or thrust blocks of concrete shall be constructed at all fitting as directed by the Director. The blocks shall be poured against undisturbed original ground and shall be so placed that pipe joints will be accessible for any possible future repairs. Pipe anchors shall be used when and as directed. The concrete shall be Class "C" concrete masonry.
- C. **Testing** - The water pipes and connections with the existing mains shall be filled with water and given a preliminary test for leakage before the trenches are backfilled unless otherwise directed. The applicant shall provide a temporary test plug at the end of each section to be tested. The preliminary test shall be made under normal water pressure. A tap shall be provided at the top of the test plug in order that air shall be removed from the line.

Before final acceptance, the applicant shall make a leakage test subjecting the pipe to a hydrostatic pressure of 150 PSI or 50% above the normal above the normal operating pressure, whichever is greater, by slowly filling the test section with water by means of a pump connected to the pipe, but not before the pipe has been relieved of air through taps made where required. Pump, connections gauges and a measuring device shall be furnished by the applicant. The pressure test will be maintained for at least two hours.

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No pipe installation will be accepted until the leakage during a two hour test period measured by pumping at the specified test pressure from a calibrated container into the section of pipe being tested is less than that determined by the formula.

$$L = \frac{S \times D \times P^{0.5}}{133,200}$$

L = Allowable leakage, in gallons per hour
S = Length of pipe section, tested in feet
D = Nominal pipe diameter, in inches
P = Average test pressures in pounds per square inch (gauge).
0.5 = Square Root

Any leakage in excess of this limit shall be located and repaired by the applicant at the applicant's expense and the line shall then be re-tested until the work is satisfactory.

- D. Disinfection** - The applicant, after the testing has been successfully completed, shall disinfect the water mains in accordance with AWWA Standard Procedure C-651 and C-651a. The method used shall be that described in Section 5.2 of the AWWA Standard.

Section 7.0 Submittals - Two sets of shop drawings and/or catalog cuts of pipes, pipe fittings, gate valves, valves, valve boxes, service boxes, saddles, tapping sleeves and valve, water meters, hydrants and any other related water material shall be submitted to the Department for approval by the Director.

Section 8.0 Water Pipe - Ductile iron pipe, double-cement lined, asphaltic coated, eighteen – twenty (18' to 20') foot lengths, Class #52 (Push-On joint or mechanical joint) meeting AWWA standard specifications. ***Bronze wedges shall be used in all pipe installations.***

Where mechanical joint pipe is used, the fittings shall be double-cement and asphaltic coated, Class 350, UL approved. All MJ accessories shall include low alloy corrosion resistant Corten T-bolts. The above shall meet AWWA standard specifications.

Section 9.0 Tapping Valve Mechanical Joint - All tapping valves shall be flanged by mechanical joint. Tapping valves shall conform to the material specifications listed in Article 13 and shall match the tapping sleeve.

Section 10.0 "SST" Stainless Steel Tapping Sleeve – All SST tapping sleeves shall be flanged joint. SST Tapping sleeves shall conform to the material specifications listed in Article 13 and shall match the tapping valve.

Section 11.0 Tapping Sleeve Mechanical Joint - Will be ductile iron, shall be

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mechanical joint with outlet flange conforming to A.W.W.A. C-207, Class D, ANSI 150 lbs. and drilling recessed for tapping sleeve.

All tapping sleeves shall be hydrostatic tested after they are assembled in place and before tapping. Pressure test format same as WE-12 for a fifteen (15) minute period.

Section 12.0 Couplings – Used on ductile and cast iron piping, shall meet or exceed the requirements of AWWA C219 and NSF 61, center sleeve and end rings made from ductile iron. Hymax DI High Pressure, Smith Blair Quantum Long Sleeve, Romac Macro HP, or approved equal.

Exterior Coatings: Meet AWWA C213

Gaskets: EPDM, or Nitrile (Buna-N), NSF 61 Certified

Bolts and heavy hex nuts: Type 304 stainless

Section 13.0 Repair Clamps - Use 100% stainless steel single band full circle repair clamp with grid gasket, high-strength stainless steel bolts and nuts, 18-8 heavy gauge, type 304 stainless steel, for AC, Transite, Permastrand, Ford SSI repair clamp or approved equal.

Section 14.0 Hydrants – The BWSO standard for the purpose of establishing a design type, function, strength, durability and material quality is the Mueller Super Centurion, Model A-423, color YELLOW. Or–Equal products with the following features described in Article 13 will be considered for approval. All hydrants will be painted OSHA yellow and pressure designation as follows after installation. Hydrant tees shall be anchor tees.

UNIFORM COLOR SCHEME FOR FIRE HYDRANTS

- A. Hydrants are classified as follows:
- Class A: Hydrants that on an individual test usually have a flow capacity of 1,000 gpm or greater.
 - Class B: Hydrants that on an individual test usually have a flow capacity of 500 to 1,000 gpm.
 - Class C: Hydrants that on an individual test usually have a flow capacity of less than 500 gpm.

Capacities are to be rated by flow measurements of individual hydrants at a period of ordinary demand. When initial pressures are over 40 psig at the hydrant under test, the rating is to be based on 20-psig residual pressure, observed at the nearest hydrant connected to the same main and when no water is being drawn. When initial pressures are less than 40 psig, residual pressures shall be at least half of the initial.

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- B. The following is the capacity-indicating color scheme:
Hydrants: All barrels are to be painted chrome yellow, except in cases where another color is desired. The tops and nozzle caps of hydrants in the classes outlined in number 1 are to be painted as follows:
- Class A - green
Class B – yellow
Class C - red
- These colors shall be as designated in Federal Standard 595A.
- C. The colors shall signify only the capacity of the individual hydrant as tested alone, and not its capacity when more than one hydrant in the vicinity is in use. The marking of the hydrant is not to be considered as in any way guaranteeing the capacity indicated by the color.
- D. When a hydrant is called out of service, to the Braintree Fire Department, they shall install a white pumper cap.

Section 15.0 Mechanical Joint Restraining Accessories - Rod clamps, tie bolts, duc lugs, threaded rod, rod couplings, rod clamp-washer, heavy hex nuts, eye-bolts (Corten-Mayari-R) rod clamp (cast iron), duc lugs (Malleable). All others standard high strength low alloy steel.

Section 16.0 Mechanical Joint Restraining Gland - Glands shall be manufactured of ductile iron conforming to ASTM A 536-80. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA A21.11 and ANSI/AWWA C153/A21.53 of latest revision. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.

Section 17.0 Service Tubing - Service Tubing (1”) shall be Type K copper, conforming to ASTM B-88, B-75 & B-68 and NSF-61. Service Tubing (1-1/2” and 2”) shall be Type K copper, conforming to ASTM B-88, B-75 & B-68 and NSF-6.

Section 18.0 Corporation - Corporation Stops shall be ball valve type, inlet AWWA taper with CC thread, outlet CTS O.D. Compression type. The parts of the Corporation Stop in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. The 1”, 1-1/2” and 2” Corporations shall be Mueller B-25008N or Ford FB1000-(4, 6, 7)-Q-NL or approved equal. Valve shall open left.

Section 19.0 Curb Stop - Curb Stops shall be ball valve type, with CTS O.D. Compression type inlet and outlet. The parts of the Curb Stop in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. The 1”, 1-1/2” and 2” Curb Stops shall be Mueller B-25209N or Ford B44-(444,

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666, 777)-Q-NL or approved equal. Valve shall open left. Curb stop shall be located at a depth between four and a half to five feet deep.

Section 20.0 IPS Curb Stop – For Connection to existing IPS services. Iron Pipe Size Curb Stops shall be ball valve type, with CTS O.D. Compression type inlet and IPS. The parts of the Curb Stop in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. Bronze stem and tee head substantial for operation of closing and opening at 90° with hand handle. The stem shall have double Buna-N O-rings and a bronze ring to lock stem to body of the valve. The molded Buna-N rubber seat supports the spherical fluorocarbon-coated brass ball. A packing joint connection on one side with a pack joint nut compressing a Buna-N beveled gasket around the pipe or tubing, plus a split locking clamp with stainless steel screw, the other side be threaded for iron pipe. The ball valve shall be Ford Ball Valve B41-333-HB-34-NL and B41-444-HB-34-NL or approved equal. Open left.

Section 21.0 Curb Boxes - Curb Boxes for service lines shall be made in two sections, sliding type arch pattern base. Curb boxes shaft shall have a minimum inside diameter of 2 ½". The cast iron curb boxes complete with valves marked “WATER” shall be Buffalo Style 95E or equal.

Section 22.0 Valve Boxes - Shall be furnished and installed for all valves and shall be Valve boxes, with cast iron covers marked “WATER”, shall be rough, even-grained cast-iron and of the adjustable, slip, heavy-pattern type. Valve boxes shall be designed and constructed so as to prevent the direct transmission of traffic loads to the pipe or valve. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and fit over the gate valve bonnet. The boxes shall be adjustable through at least 12-in. vertically without reduction of the lap between sections to less than 4-in. The inside diameter of the boxes shall be at least 5 ¼-in., and the lengths shall be as necessary for the depth of the valves with which the boxes are to be used. Covers shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. An arrow and the word open to indicate the direction of turning to open the valve shall be cast in the top of the cover.

Section 23.0 Water Meters - Neptune, ARB; see **METER SECTION, Article 4.**

Section 24.0 Ductile Iron Saddles – Ductile iron saddles with stainless steel straps for all service taps larger than 1” and/or all mains that are not ductile iron shall be of the double strap style and suitable for use on cast iron, ductile iron, C900 PVC and asbestos cement pipe. Outlet tapped with AWWA taper CC thread, ASTM A536 ductile iron body, with 10-12 mil protective coating, , 304L stainless steel straps, nitrile O-ring gasket, NSF 61 Certified and meeting all the applicable parts of AWWA C800. Saddles shall be Mueller DR1S or DR2S Series Service Saddles, or approved equal.

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Section 25.0 Couplings - Straight coupling-3 part, both ends pack joints for copper, iron or plastic pipe with a split locking clamp with stainless steel screw. The parts of the Coupling in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. The 3/4" and 1" couplings shall be Ford couplings C44-33-NL and C44-44-NL or approved equal.

Section 26.0 Pipe Execution - Pipes shall be carefully laid to the lines and grades as shown on the approved plans. The contractor shall provide laser beam alignment equipment for use in pipe laying. All pipe is to be laid bell end with the flow on a good foundation and first class construction method must be followed. Should material at grade prove unsatisfactory for a suitable foundation, additional depth must be excavated and refilled with acceptable material (Sub-Base Gravel or crushed stone) and compacted. The bottom of the trench shall be excavated in conformance with the Standard Details provided in the Appendices. When rock or ledge is encountered it shall be also removed to such widths as will give a clearance of at least 12" on each side of the pipe or other structure. The width of trenches shall be sufficient to allow thorough compacting of the refill adjacent to the lower quarters of the pipe. At pipe joints such additional width and depths shall be excavated as is necessary to give ample room for properly making and inspecting the pipe joints. The compaction process will be gravel placed in 12" layers and thoroughly compacted by mechanical rammers, vibrators or a jetting process. An alternate process of using CDF (excavatable flowable fill) may be required or used by the applicant as a backfill material. This may be required when deemed necessary by Town in conjunction with below grade excavation and refill, to provide a stable base for pipe installation. No pipe shall be laid in water and water shall not be permitted to rise in the trench until all pipes have been securely bedded, jointed and inspected and until backfilling has progressed to an elevation at least 1' above the top of the pipe. Temporary plugs shall be installed in open ends of pipes to prevent silt from entering into pipes during construction, and open ends of pipes, shall be closed with suitable plugs upon suspension of work for any reason. A metallic identification bronze wedge shall be located at 10:00 and 2:00 o'clock in each bell fitting for each section of pipe length.

Section 27.0 Gates - All three gates at water main gate intersection shall be rodded together *or constrained with Megalug retainer glands.*

Section 28.0 Thrust Restraints - Megalugs and thrust blocks shall be required on all bends, tees, etc. Rodding shall be to the first full length of pipe on each side of the fitting to be restrained unless conditions require additional restraints.

Section 29.0 Thrust Blocks - Shall be poured behind all bends and fittings (tees, hydrants, tapping sleeves and etc.) and not allowing concrete to touch mechanical joints, glands, nuts and bolts or any drain parts. Concrete thrust block must be set on undisturbed earth and back to virgin ground. The above shall meet ANSI/AWWA C600 standard.

Section 30.0 Mechanical Joint Restraint Glands - Mechanical joint restraint glands as

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per Section 16.0 may be used in place of rodding and thrust blocks on all tees, bends, gates, and hydrants. This type of mechanical joint restraint gland may only be used on ductile iron pipe Class #52 and up.

Section 31.0 Mechanical Joint Restraints - Restraining of mechanical joint on AC, PVC, or cast iron will be rodding and thrust combination. The rodding will be from the MJ back to the nearest full length of pipe or as required by the manufacturer's specs. A record shall be kept as to what was used at the bends, gates and tees for restraining method.

Section 32.0 Service Lateral - There shall be a written record kept of service lateral off of the main. It shall show a measurement from a fixed point, to the point the service lateral exits the main. A station point on the main may be used to locate the service lateral in lieu of a measurement from a fixed point to the service lateral point. The length of each service lateral from the main to the end of the service lateral at the edge of the road layout shall be kept also. All service lateral ends shall be marked with a suitable marker telling what it is. The depth and three ties to permanent features shall be taken and recorded of the service lateral end. All records shall be given to the BWSI Inspector upon request or at completion of project.

Section 33.0 House Water Service Laterals - House water service lateral shall come off the main as close to a 90° angle as possible and have a curb stop at the edge of the property line. The service line then will continue on the straightest line possible to the point of entrance into the house. The water service line will be buried in an envelope of sand and have no sharp objects within eight inches (8") of the buried water line. Three ties to permanent features shall be taken and recorded of the service lateral end. All records shall be given to the BWSI Inspector upon request or at completion of project.

The water service lateral must remain accessible and no house additions can be constructed within 4 feet of the lateral.

Section 34.0 Water Main and Lateral Buried Depth - The water main and water service laterals shall be buried with a minimum depth of four and a half feet (4 ½') of cover.

Section 35.0 Water Laterals for Fire Protection - Water laterals that are brought into a building for the purpose of fire protection shall not go more than a maximum of fifteen feet (15') beyond the inside of exterior walls of the building. In doing this there shall not be any mechanical joints other than those used to make up the 90° bend for the riser going through the floor.

Section 36.0 Water Main in Conjunction to Building - There shall not be a water main continued through a building for the purpose of locating a hydrant on the opposite side of a building from which the main enters it. There shall not be a water main run under a building for any reason.

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Section 37.0 Domestic Service Fire Protection - The domestic service being taken off of a lateral line going into the building for fire protection shall be taken off of the line between fifteen feet (15') and twenty feet (20') outside of the building. In the case of a PIV valve being installed on this fire protection line, the domestic service shall be taken off of the street side of the PIV valve. In no case will a domestic service be taken off of a line going into a building for fire protection if it is smaller than six inches (6").

Section 38.0 Domestic Tapping - All domestic water service laterals shall be a direct tap up to one inch (1") in size with CC threads and a corporation installed at the point for this purpose in the water main.

Section 39.0 Tapping Contractor - No tapping contractor shall make any tap for any contractor, company or persons on any water main or service line, public or private, without first notifying the BWSO office forty-eight (48) hours before scheduled time of tapping. No tapping will be done if the tapping contractor hasn't filed the proper forms that are required, showing insurance, bond, etc. with the Director.

Section 40.0 Utility Contractors - Shall not start any work on any project until all of the proper licenses, insurance and permits be filled out and filed for approval with the BWSO Inspector. A forty-eight (48) hour notice of time shall be allowed for this inspection.

Section 41.0 Testing - All new installed water main and fire protection lines up to the top of sprinkler riser will be hydrostatic tested. The pressure test shall be one and one half (1 ½) times the static pressure or 150 PSI, whichever is greater and be held for two hours. The allowable leakage will obtain from DIPRA recommended allowable leakage per 1000 feet (1000') of pipeline, as covered in ANSI/AWWA C600 standards. All testing shall be done by an independent qualified testing contractor approved by the Director.

Section 42.0 Blow Offs - There shall be blow offs provided at top of all water riser points for release of air in testing of the water line. The blow off shall be of type to be able to handle the required test pressures and shall be located at 3:00 and 9:00 o'clock.

Section 43.0 Disinfection - All newly installed tested mains shall be disinfected in accordance with ANSI/AWWA C651. Following chlorination, the main should be flushed as soon as possible after the twenty four hour (24) hold period has ended. Prolonged exposure to high concentrations of chlorine might damage the bituminous seal coat.

Section 44.0 Sampling - After flushing of the chlorinated line, samples for bacteriological analysis shall be collected in sterile bottles treated with sodium thiosulfate as required by standard methods for the examination of water and wastewater. A report of satisfactory results from a State approved test laboratory is needed before water main can

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be tied into the water system. This sampling shall be done by an independent qualified testing contractor.

Section 45.0 Test Witnessing - No test results of a water main shall be accepted and approved unless witnessed by an inspector of the BWSO at time of testing.

ARTICLE 13.0 – ADDITIONAL MATERIAL SPECIFICATIONS

Section 1.0 Gate Boxes - Gate boxes, with cast iron covers marked “WATER” shall be cast iron and of the adjustable, slip, heavy-pattern type. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve. The upper or sliding section of the box shall be provided with a flange not less than five inches (5") from the top, having sufficient bearing area to prevent undue settlement. The bell end of the lower section of the box shall have a minimum inside diameter of eight inches (8") and shall be designed to enclose the operating nut and stuffing box. The boxes shall be adjustable through at least twelve inches (12") vertically without reduction of the lap between sections to less than four inches (4").

The inside diameter of boxes shall be at least five and one quarter inches (5-1/4"). The length shall be suitable for use with valves set vertically in pipe lines six inches (6") to twelve inches (12") in diameter and at a depth of five feet (5'0") from the top of the pipe to the ground surface.

Castings for gate boxes shall be strong, tough, even grained and without defects. The gate boxes shall be thoroughly cleaned and tar coated inside and outside. Castings for gate boxes shall be **“NORTH AMERICAN MADE”** only.

Section 2.0 Hydrants - Fire hydrants shall conform to AWWA Standard C502 “Dry Barrel Hydrants” or its latest revision thereof. Fire hydrants shall meet the following specific requirements and exceptions to the above mentioned standard specifications without deviation. Also, must be **USA** manufacturer.

Hydrants shall open left, be suitable for 5'6" bury unless specified otherwise and have 5 1/4" opening in valve seat.

Hydrants shall be of full compression design, opening against, and closing with, the water pressure. The hydrants shall have “traffic type” breakaway ground line construction, and shall be designed to permit rotary movement of the upper barrel any number of degrees required to effect proper alignment without shutting down service or separating the ground line connection.

Hydrant base inlet shall be mechanical joint, with all accessories and shall accommodate 6" ductile iron pipe. All fasteners between shoe and lower barrel shall be type 304 stainless steel minimum. Hydrants shall be equipped with a minimum of two (2) 2 1/2" hose nozzles, 180° apart, and one (1) 4 1/2" pumper nozzle, all with National Standard

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Thread.

Hydrants shall have a non-corrosive drain-away of bronze or approved equal.

Hydrant barrel shall have a minimum inside diameter of 6" and be made in two sections held together with breakaway flanges.

The bonnet or dome shall have an arrow cast on top to indicate the opening of the hydrants.

The design and construction of the hydrant operating mechanism located at the top of the hydrant shall be such that no part of the operating threads will be in contact with water in the standpipe when the hydrant is in service. A hold down nut or plate shall be provided to resist upward thrust when opening or closing the hydrant. Hydrant to incorporate or include a travel top nut at the upper end of the upper rod.

Hydrant shall be of the dry top design with "O" ring seals to ensure that the operating threads will be protected from water entry. Dry top design is to include a factory lubricated operating mechanism which allows supplemental lubricant to be added in the field without removal of the top section. Standard lubricant shall be factory approved grease, or oil suitable for a temperature range of -60° to +150° Fahrenheit, and shall incorporate a system of forced lubrication of the thrust collar area each time the hydrant is operated. All hydrants shall have a Weather Shield.

Both the operating nut and nozzle cap nuts are to be pentagon in shape and measure one and one half inches (1 ½") from point to flat at the base of the nut and the overall height of the nut shall be not less than one inch (1"). Caps are to be provided with rubber gaskets and "non kinking" type chains.

The minimum distance allowable between the center line of the lowest nozzle and the ground line shall be eighteen inches (18").

Each hydrant shall have permanent markings cast into the upper barrel assembly, identifying the manufacturer, name and size of main valve opening and year of manufacture.

Hydrants shall have an automatic drain that is operated by the main valve rod. Drain valve is to open as the main valve is closed and close as the main valve is opened. The port and seat of the main valve is to be bronze.

The outside of the hydrants top section shall be painted a minimum of one coat of rust inhibitive primer and two finished coats of enamel to be safety chrome yellow in color.

The bronze valve seat shall be threaded into a bronze drain ring or shoe bushing to prevent electrolysis between these components. The drain channel shall be all bronze or epoxy coated.

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Hydrants shall be designed to permit the use of extension sections and allow all parts to be removable from ground level without requiring excavation of the hydrant.

Hydrants shall have a bronze seat ring, threaded to a bronze subseat. Subseat must be removable.

The main valve shall be solid rubber, and may be reinforced with steel. A bottom cap nut or plate section shall be provided to hold the valve assembly on its operating stem and should be manufactured out of ductile iron.

The stem shall be made of 1 1/4" steel consisting of two pieces with a one piece rod coupling.

The stem shall be bronze sheathed where it contacts the lower "O-Rings".

If the mating surfaces between the hold down nut and the operating nut are other than bronze to bronze, the hydrant shall be fitted with a thrust washer to ease in opening the hydrant.

Two "O-Rings" shall be used to seal the operating mechanism from water in the barrel.

Hydrant operating mechanism shall be housed in a compact seal plate assembly with an integral lubrication chamber. An "O-Ring" seal shall be used on the hold down nut or plate to prevent direct condensation or atmospheric contamination entering lubrication chamber from outside. Downward travel of main valve shall be controlled by a top stop nut or a bottom shaft cap nut to prevent compression of the operating stem. The hydrant operating mechanism shall be readily available for inspection without removing seal plate or lubrication chamber from barrel.

An "O-Ring" seal shall be provided in the valve assembly to insure that water cannot leak from the hydrant boot or shoe into the hydrant barrel or drain-away.

All "O-Ring" seals in the main valve area shall seal against bronze.

Hydrants to be considered for purchase and use shall ***be Mueller Super Centurion 5 1/4 valve, or approved equal (open left).***

Section 3.0 Fittings - Fittings Ductile iron Fittings shall be Compact Type conforming to ANSI/AWWA C153/A21.53. Interior shall be double cement-mortar lined with asphaltic coating in accordance with ANSI/AWWA C104/A21.4. Exterior Asphaltic Coating shall be in accordance with ANSI/AWWA C153/A21.53.

Mechanical Joint accessories shall include Anti-Rotation T-bolts (Corten), Low Alloy corrosion resistant high strength steel in accordance with ANSI/AWWA C111/A21.11.

Couplings Used on ductile and cast iron piping, shall meet or exceed the requirements of

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AWWA C219 and NSF 61, center sleeve and end rings made from ductile iron. Hymax DI High Pressure, Smith Blair Quantum Long Sleeve, Romac Macro HP, or approved equal.

Exterior Coatings: Meet AWWA C213

Gaskets: EPDM, or Nitrile (Buna-N), NSF 61 Certified

Bolts and heavy hex nuts: Type 304 stainless

Repair Clamps shall be 100% stainless steel single band full circle repair clamp with grid gasket, high-strength stainless steel bolts and nuts, 18-8 heavy gauge, type 304 stainless steel, for AC, Transite, and Permastrand: Ford FS Style repair clamp or approved equal.

Anchor Tees shall be mechanical joint, in accordance with ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11, with Bell Ends on the run and Plane End on the branch. The gate will be directly attached to the Tee Branch using the rotating split anchor gland.

Polyethylene encasement shall be in accordance with AWWA C105 (if directed).
Fittings shall be **“USA MADE”** only.

Section 4.0 Ductile-Iron Pipe, Bell & Plain End Push-On Type Joint - Ductile iron water pipe shall be Class 52 conforming to ANSI/AWWA C151/A21.5, eighteen or twenty (18' to 20') foot lengths, (Push-On joint or mechanical joint).

Ductile Iron Push-On Joints shall be fitted with manufacturer furnished rubber gaskets, in accordance with ANSI/AWWA C111/A21.11. Bronze wedges shall be used in all pipe installations.

Interior shall be double cement-mortar lined with asphaltic coating in accordance with ANSI/AWWA C104/A21.4

Exterior Asphaltic Coating shall be in accordance with ANSI/AWWA C151/A21.51.

Pipe conductance shall be by way of 2 bronze wedges at every joint (10:00 & 2:00 +/-).

Polyethylene encasement shall be in accordance with AWWA C105 (if directed).

For pipe detection use magnetic detectable tape, blue, 3-in. wide, imprinted with “CAUTION – BURIED WATER LINES BELOW” in black. Pipe and fittings shall be **“USA MADE”** type only.

Section 5.0 Gate Valve Specifications - Gate valves shall be resilient seated gate valves 8" through 16" inclusive. GATE BOXES SHALL BE FURNISHED WITH TAPPING VALVES, **“USA MADE” TYPE ONLY.**

Resilient seated Buried gate valves shall have 350 psig working pressure, non-rising stem (NRS), with ductile iron body, bonnet, stuffing box and 2” square operating nut. Valves shall conform to the requirements of AWWA C509 (3”) and AWWA C515 (4” – 12”).

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Buried gate valves shall have mechanical joint ends (MJ x MJ), with T-Bolt retention to prevent rotation during pipe installation.

Valve stems shall be made of bronze ASTM B138 alloy C67600 H04 hard bar stock material. The bronze stem collar is to be hot forge upset; collars not integral with the stem are not acceptable. The stem material shall provide a minimum 73,000 psi tensile strength, yield strength of 48,000psi and 8% minimum elongation.

Valves shall have Type 316 stainless steel bolts and nuts for the stuffing box and bonnet.

Triple O-Ring gate valve construction shall be such that the two upper O-rings and dirt seal can be replaced when the valve is in the full-open position and under pressure.

All interior and exterior ferrous metals shall have an epoxy coating of 10-mils nominal thickness and conform to AWWA C550.

Gate valves shall have an arrow cast on the operating nut showing opening direction: open left. (counter-clockwise)

Gate valves shall be Mueller A-2361 Resilient Wedge Gate, or approved equal. The interior of the waterway in the body of a tapping valve shall be full opening and capable of passing a full sized shell cutter, “USA MADE” type only.

Section 6.0 Corporation Valves and Curb Valves – Curb valves shall be installed at the property line.

A. SERVICE LINE VALVES

1. This specification covers service line valves in sizes 1" through 2". Service line valves shall be of the ball valve type with a round flow port passing through a spherical shaped brass ball which seals against a circular rubber seal and shall open left.
2. All service line valves shall meet or exceed the requirements of the ANSI/AWWA Standard C800 and the requirements of this specification. This specification recognizes that AWWA C800 is a standard for underground service line valves, however, it is the intent of this specification that both buried and non-buried service line valves conform to all requirements of AWWA C800. All valves and fittings covered by this standard shall be adequate for the purpose intended and shall be convenient to install, use and operate. Valves, fittings and parts thereof shall be machined to definite sizes and tolerances as defined by the appropriate standards.
3. Whenever the requirements of this specification exceed those of AWWA C800, this specification shall prevail.

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4. BWSO reserves the right to require an affidavit of compliance indicating that all stops and fittings furnished under this contract comply with all provisions of this specification.

B. MATERIALS

1. All service brass, whether buried or non-buried shall be manufactured with so that the parts of the valve or fitting in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800.
2. Corporation Stops shall be Mueller 300 Ball Valve, or Ford FB1000-(4, 6, 7)-Q-NL or approved equal (1” to 2”):
 - a. 300 psig working pressure
 - b. Body, Stem and Ball: no lead brass meeting AWWA and ASTM Standards.
 - c. Ball Coating: PTFE
 - d. Stem O-Ring: EPDM rubber.
 - e. Molded Rubber Seats: Nitrile (Buna-N)
 - f. Pin: Stainless Steel
 - g. AWWA Taper Thread inlet, with CTS O.D Compression outlet
 - h. Open Left (counter-clockwise)
3. Curb Stops shall be Mueller 300 Curb Ball Valve, or Ford B44-(444, 666, 777)-Q-NL or approved equal (1” to 2”):
 - a. 300 psig working pressure
 - b. Body, Stem and Ball: no lead brass meeting AWWA and ASTM Standards.
 - c. Ball Coating: PTFE
 - d. Stem O-Ring: EPDM rubber.
 - e. Molded Rubber Seats: Nitrile (Buna-N)
 - f. Pin: Stainless Steel
 - g. CTS O.D Compression inlet & outlet
 - h. Open Left (counter-clockwise)

Section 7.0 Valve Construction - All ball valves must provide a full round port flow path which passes completely through the valve with a minimum inside diameter of the nominal valve size. It will not be acceptable for ports to have any straight sides or protrusions which infringe on this full round flow path.

General Construction Details - All valves shall be of the ball valve type and shall have a “two O-Ring” top seal. At all times this seal shall prevent ground water and contaminates from entering the valve body and in addition act as a pressure seal when the valve is in the open position.

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Valve operating stems shall be of true “blow-out proof” stem design retained by an integral shoulder on the inside end of the stem. The stem shall be assembled into the valve by inserting the stem from the inside of the valve body.

The wrench flats of the operating mechanism of all service line valves shall be parallel to the flow-way of the valve when the valve is opened and perpendicular to the flow-way of the valve when the valve is closed.

Corporation valves shall not have operating mechanism rotation stops and shall be free to rotate a full 360°. The dimensions of corporation stop is to be the type used for insertion into water mains under pressure.

The minimum inside diameter of the waterway through corporation stops shall be large enough to accommodate the drill size shown in Table 1 of AWWA C800 Standard. Corporation stops shall be MUELLER or FORD series or approved equal.

Curb valves shall be equipped with 90° rotational stops, which shall limit them to a 1/4 turn operation. The structure of the valve and operating mechanism and rotational stops shall be such that when the rotational stops are damaged by over torquing at either stop, the damage will not cause a water leak to occur. Curb valve operating head shall be provided with 1/4" diameter drilled hole for retaining a stationary shut off rod. Curb valves shall be MUELLER or FORD series or approved equal.

If the valve body is constructed of more than one piece, such as a body and end piece or a body and two end pieces, the end pieces must be strongly engaged with the body by means of a threaded connection. And the threaded connection must be locked and sealed by an aerobic thread locking and sealing compound.

Section 8.0 Inlet & Outlet End Connections - Corporation valve inlet threads shall comply with AWWA C800.

Compression type connections shall be designed and constructed to provide a positive metal - to - metal stop to prevent over-tightening and to show an obvious indication of inadequate tightening. Compression connections shall have a hardened stainless steel overlapping band bearing on the tubing, such that tightening of the connection nut compresses the gasket material which squeezes the band around the tubing, to provide high pullout resistance at full rated working pressure.

Adequate wrench grip surfaces shall be provided on the pipe connecting ends of all valves to aid in connecting the valve to the pipe.

Section 9.0 Valve Ratings - All ball valves shall be normally rated in the manufacturer’s catalog for at least a 180° F temperature rating, a 300 psig pressure rating, two-way and sealing capability.

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Section 10.0 Testing - All ball valves must be tested at the factory in accordance with AWWA C800 with the exception that the test pressures shall be based on a 300 psig rated pressure, which exceeds that of AWWA C800. All ball valves shall be subjected to a production line test by the manufacturer at 300 psig air pressure while submerged in water in both open and closed positions of the key and shall show no leakage.

The valve shall be suitable for field testing up to 300 psig. All ball valves including Angle Meter Ball Valves shall be designed and rated for two-way flow and sealing capabilities in both directions, and this will be demonstrated by a drip tight seal when field tested in either direction.

Section 11.0 Rejection - Any service line valve that the purchaser or his inspector rejects as not conforming to this specification shall be returned to the manufacturer. If the valves are found defective, they shall be replaced with valves which do conform.

Items will be “shop-inspected” upon delivery for condition of threads, quality of workmanship, and compliance with these specifications.

Individual defective pieces shall be replaced at no cost to the purchaser.

If the number of defective pieces in any random sample of ten (10) or more pieces from any lot exceeds 10%, the purchaser may reject the entire lot, which shall be replaced without undue delay at no cost to the purchaser.

Section 12.0 Butterfly Valves - Butterfly valves for sizes four inch (4") through twenty-four inch (24") open left. All butterfly valves shall be of rubber-seated tight-closing types. Valves shall meet or exceed AWWA standard C504. Valve ends shall be mechanical joint per AWWA standard C111 with stainless steel hardware. All valves must comply with full AWWA standard C504 Class 150B shaft diameter and Full Class 150B underground service operation torque rating throughout the entire travel to provide for emergency service capability (or the latest revisions as applicable).

Applicant shall provide equipment specification data sheet for approval with their application.

Approved for the Town of Braintree Water and Sewer Department by its duly elected Mayor

Mayor Charles C. Kokoros

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WASTEWATER USE
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GENERAL

An ordinance regulating the use of public and private sewers, the installation and connection of building sewers, and the discharge of waters and wastes into the public/private sewer system, and providing penalties for violations thereof: In the Town of Braintree, County of Norfolk, Commonwealth of Massachusetts.

Be it ordained and enacted by the Mayor of the Town of Braintree, Commonwealth of Massachusetts as follows:

ARTICLE 1.0 - AGREEMENT

The Applicant agrees to pay to the Town of Braintree, as provided in Chapter 45 of the Acts of 1936, and Rehabilitation Fund Acts of 1989, all costs, past and present, to connect with the common sewer in said street including all labor and materials and any other expense incurred necessary for the proper sewer connections. The Applicant further agrees for him/her self, his/her heirs, devisees and assignees that the said Braintree Water and Sewer Department (BWSD) shall have access at all reasonable hours to the said premises to see that all laws, ordinances, rules and regulations relating to the sewer are complied with. The Applicant further agrees to strictly conform to the laws and ordinances relating to sewers and the rules and regulations that are now in force or may be adopted in relation thereto and also to the plumbing laws and ordinances so far as they relate thereto.

All wastewater customers are responsible for the service lateral from their property line to their building that fronts on a public way. All customers on a private way are responsible for all service laterals, collector pipes, manholes, vaults, low pressure systems, pump stations and force mains up to the public way. It is a violation of the Rules and Regulations to allow Inflow/infiltration to exist. Should any infiltration/inflow be suspected, the owner shall notify the Water and Sewer Department to investigate. Upon confirming the existence of a problem in the system, the owner will be notified and given (10) days to secure a contractor to make the necessary repairs. Should the violator fail to follow through within the given time period, a notice by Certified mail shall be sent giving the violator a final ten (10) days to repair the failure, after which a fine may be levied for each day thereafter.

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ARTICLE 2.0 - DEFINITIONS

See Appendix A for a detailed listing of definitions.

“Authority” – Shall mean the Massachusetts Water Resources Authority, Commonwealth of Massachusetts, or its duly authorized representative(s).

“Building Drain” - Sanitary – Shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge of plumbing fixtures, sanitary or approved waste to a point ten feet outside the inner surface of a building foundation wall and conveys it to the building sewer.

“Building Sewer” – Shall mean the extension from the building drain that begins ten feet outside the inner surface of a building foundation wall and extends to the public/private sewer or other place of disposal.

“BWS” – Shall mean the Braintree Water and Sewer Department.

“Director” – Shall mean the Director of the Water and Sewer Department.

“Department” – Shall mean the Water and Sewer Department of the Town of Braintree.

“Indirect Discharger or Industrial User” - the entity that introduces pollutants into a municipal sewer system from any non-domestic source.

“Industrial Waste” - any liquid, gaseous, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovery of any natural resources.

“Industrial Wastewater” - waste in liquid form resulting from any process of industry, trade, or business, regardless of volume or pollutant content. Waste in liquid form consisting of only sewage is not considered industrial wastewater.

“Industrial Wastewater Pretreatment” - the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in industrial wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a collection system for a POTW.

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“Industrial Wastewater Pretreatment System or IWPS” - a treatment works for Industrial Wastewater Pretreatment prior to discharge into a collection system for a POTW. A treatment works consisting solely of one or more of the following is not considered an IWPS:

- (a) Grease traps;
- (b) Oil-and-water separators such as Metropolitan District Commission (MDC)-designed traps;
- (c) Neutralization units which process less than 100 gallons per day;
- (d) Small Scale silver recovery units;
- (e) Limestone chip neutralization units; or
- (f) Closed loop systems.

“Infiltration” - water other than wastewater that enters a sewer system (including sewer connections and foundation drains) from the ground through means which include, but are not limited to, defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

“Infiltration/Inflow” - the quantity of water from both infiltration and inflow without distinguishing the source.

“Inflow” - water other than sanitary flow that enters a sewer system (including sewer connections) from sources that include, but are not limited to, sump pumps, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include, and is distinguished from, infiltration.

“IPP-POTW” - Means a POTW that has an industrial pretreatment program approved by US.EPA under 40 CFR 403.

“Massachusetts Water Quality Standards” - 314 CMR 4.00: Massachusetts Surface Water Quality Standards and 314 CMR 5.00: Ground Water Discharge Permit Program.

“Massachusetts Water Resources Authority (MWRA)” - Shall mean all the cities, towns and sewer districts served by the Authority in accordance with legislation.

“May” - is permissive.

“Non-IPP-POTW” - Means a POTW that does not have an industrial pretreatment program approved by US EPA under 40 CFR 403.

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“Permit” - Shall mean the written application for either residential, commercial or industrial waste sewerage service from the BWSO or Authority.

“pH” - Shall mean any logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

“Publicly Owned Treatment Works or POTW” - Means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a public entity. A POTW includes any sewers, pipes, or other conveyances which convey wastewater to a POTW providing treatment.

“Pretreatment” - Shall mean any treatment of sewage to make it suitable for discharge to a public/private sewer.

“Private Sewer” - Shall mean a sewer which the public authority has not accepted control or ownership rights, or maintenance responsibilities.

“Public Sewer” - Shall mean a sewer in which all owners of abutting properties have equal rights and is controlled by public authority.

“Sewer” - Shall mean a pipe or conduit for carrying sewage.

“Slug” - Shall mean any discharge of water, sewage or industrial wastes which, in concentration of any given constituent or in quantity of flow, exceeds for any period of duration longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration of flows during normal operation

“Sanitary Sewer Overflow”(Denoted “SSO”) - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. The discharge of sewage into a building is not considered an SSO provided that the discharge was not the direct result of problems in the public sewer system.

“Town” - Shall mean the Town of Braintree in the County of Norfolk, Commonwealth of Massachusetts.

“TR-16” - Means the Guides for Design of Wastewater Treatment Works, prepared by the Technical Advisory Board of the New England Interstate Water Pollution Control Commission.

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ARTICLE 3.0 - RULES AND REGULATIONS

Section 1. “General” – In accordance with Massachusetts Water Resources Authority (MWRA) Sewer Use Regulations, 360 CMR §§ 10.007, 10.052, 10.072 and 10.092, every Industrial User must complete and file a Sewer Use Discharge Permit Application with the Authority as well as with the Town. The Application must be filed with the MWRA and the Municipality in which the discharge is located. The following supplemental conditions shall apply to any person/persons, companies or other entities who wish to construct any additions alterations or connections to the Town Sewerage System as well as those who wish to make changes in either quantity or quality of what is being discharged to the system.

1. Application to connect to sewer system shall be made in writing and filed at the Town of Braintree Water & Sewer Department (BWSD), with the completed application form and all required support documentation.
2. All work and materials provided within ten feet of the building shall be conform to the Massachusetts Uniform State Plumbing Code (248 CMR 10.00) and shall be under the jurisdiction of Town of Braintree Inspector of Plumbing & Gas.
3. All work relating to the construction of additions or alterations to the sewerage system shall be done by an agent approved by the BWSD.
4. All particular sewer or building connections shall be of such type and size, laid at such depth and gradient, and in such location as provided by a Massachusetts Registered Professional Engineer and approved by the BWSD. No particular sewer shall serve more than one (1) building without approval of the BWSD.
5. All sewer connections shall be installed in separate trenches from other utilities, ten (10) feet apart and eighteen (18) inches below water pipe(s) as provided by Title V, unless submitted and approved by the BWSD.
6. All sewer connections shall be surrounded by six (6) inches or more of crushed stone, one (1) inch maximum diameter.
7. No trench and pipe shall be backfilled until the Water & Sewer Department has been notified, and has inspected and approved said installation. Furthermore, only suitable backfill material shall be used in trench as approved by BWSD.
8. All individual sewer connections shall have a Town Standard clean out at the property line.
9. Any sewer connection over one hundred (100) feet in total length shall require a clean out for individual dwellings and a manhole for multiple connections. All

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clean outs or manholes must meet Town of Braintree specifications. When clean outs are installed, the cover, which will be brought to finished grade, will have the appropriate lettering and be installed according to specifications. The maximum allowable distance between cleanouts is 100 feet. Cleanouts shall have a tee at the bottom to facilitate two way inspection capability.

10. In accordance with 360 CMR 10.017 (in addition to 310 CMR 15.230 & 248 CMR 10.00), a Person who is required by Massachusetts law or regulation to have a grease trap or grease interceptor, shall have grease traps and/grease interceptors of appropriate size, type, construction and location as required and reviewed by the MWRA. Such Person shall assure that it's grease traps/grease interceptors are appropriately cleaned and maintained to ensure that fats, wax, oil, or grease are not discharged to the sewer system.
11. The local jurisdiction of grease traps and grease interceptors is under the Town of Braintree Board of Health and inspected and approved by the Town of Braintree Inspector of Plumbing and Gas.
12. In every case where any restaurant, hotel or business of a similar nature is carried on, a suitable grease trap or grease interceptor **MUST** be installed as approved by the Inspector of Plumbing and Gas.
13. Garages and other establishments, where petroleum-based products are used and stored, including petroleum-based grease, oily and/or flammable wastes, sand, or other harmful materials are produced or stored, and which are connected with the common sewer, shall be supplied with a suitable separator in accordance with 360 CMR 10.016 and subject to the approval of the Authority and the Braintree Inspector of Plumbing and Gas. All traps or separators shall be kept in good condition and cleaned frequently. All grease, oil, or any other substance cleaned from such traps or separators shall be disposed of in a safe manner and not into the sanitary sewerage system or drainage system.
14. No surface water, ground water, cellar floor drainage, cellar sump pump discharge, roof drainage, gasoline, oil, solvents, explosive fluids or any substance which may be liable to injure the sewers, interfere with any of its uses, or obstruct its flow shall be discharged into the Town sewer system.
15. All necessary easements for sewer connections/extensions shall be obtained by the property owner and recorded in the Registry of Deeds or Land Court.
16. The cost of cleaning, maintaining, repairing or replacing any particular sewers or dwelling connections shall be paid by the property owners connected to said sewer system, up to the property line in a public way. The Town assumes the liability when located in the public way.

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17. Whoever violates any of the provisions of these rules and regulations shall be punished according to existing Town By-Laws, State and/or Federal Laws for each offense.
18. These rules (not including State Regulations) may be rescinded or modified or added to by the Department at any time when, in their opinion, such action is for the best interest of the town of Braintree.

ARTICLE 4.0 - BUILDING SEWERS AND CONNECTIONS

Section 1. “Prohibitions” - No unauthorized person shall uncover, make any connections with or opening into, use, alter or disturb any public or private sewer or appurtenance thereof without first obtaining a written permit from the BWSD. Any person proposing a new discharge into the sewage works or a substantial change in the volume or character of pollutants that are being discharged into the sewage works shall notify the BWSD at least forty-five days (45) prior to the proposed change or connection in order to obtain approval.

All approvals are subject to the requirements of the BWSD’s Sewer Bank Program implemented April 1, 1999.

No person shall break, cut or remove any pipe of the public/private sanitary sewer or make or cause to be made any connection to said sewer except through the connection branches provided for that purpose unless, in another manner, approved by the BWSD.

Building sewers shall only be installed during the normal working hours of the Water and Sewer Department. Emergency working hours may be approved in writing by the BWSD.

Section 2. “Permits” - There shall be four (4) categories of building sewer permits:

SB-1 Residential

SB-2 Institutional – Public – Including Title V Conversions

SB-3 Institutional – Private

SB-4 Business Uses

In either case the applicant or his agent shall make an application on a special form furnished by the Town. A permit and inspection fee, as determined by the BWSD, shall be paid to the Department at the time the application is filed. The entire fee shall be due at the time of permit approval. The permit application may be supplemented by any plans, specifications or other information pertinent in the judgment of the BWSD.

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Permit Time Limit: Permit time limits are as follows:

For all Building Sewer Permits, construction on the project must be started within 1 1/2 years of the approval date or the applicant shall forfeit the permit and fee and a new application with fee will be required before any sewer construction will be approved.

Permit Time Limit Waivers: Waivers of these time limits may be approved by the BWSO based on acts of God or other hardships. These waivers will be based on a case by case basis.

Sewer Bank of 1980's: The BWSO maintained a sewer bank in the 1980's. Due to the Administrative Consent Order of 1999 the balance in this old sewer bank has been resolved.

In accordance with the Massachusetts Water Resources Authority (MWRA) Sewer Use Rules and Regulations 360 CMR §§ 10.007, 10.052, 10.072 and 10.092, every Industrial User must complete and file a Sewer Use Discharge Permit Application. The Application must be filed with the MWRA and the municipality in which the sewer user's discharge is located. Please contact the Toxic Reduction and Control Department, Permit Section at the below address for your MWRA application.

Massachusetts Water Resources Authority
Chelsea Facility
2 Griffin Way
Chelsea, MA 02150
Attn: TRAC

Section 3. "Installation Cost Borne by Owner" - All costs and expenses incidental to the installation of the building sewer connection, all inspection fees for inspection by a BWSO duly authorized representative(s), and connection of the building sewer to the public/private sewer shall be born by the owner. The owner shall indemnify the Town of Braintree from any loss or damage that may directly or indirectly be occasioned by the installation and connection of the building sewer.

Section 4. "Separate Building Sewers Required" - A separate and independent building sewer shall be provided for every building; except where one building stands at the rear of another or on an interior lot and no private building sewer is available or can be constructed to the rear building and the whole is considered as one building sewer with the written approval of the BWSO. A manhole shall be constructed where the rear building sewer is connected to the front building sewer.

Section 5. "Existing Building Sewers" - Old building sewers may be used in connection with new buildings only when they are found, on examination and test

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reviewed by a duly authorized representative of the BWSD, to meet all requirements of this ordinance.

Section 6. “Method of Construction” - The size, slope, alignment, materials of construction of a building sewer and the methods to be used in excavating, placing of the pipe, jointing, testing and backfilling the trench, shall all conform to the requirements of the Building and Plumbing Code or other applicable rules and regulations of the Town of Braintree. In the absence of code provisions or in amplification thereof, the materials and procedures set forth in appropriate specifications of the American Society of Testing Materials (ASTM), American Society of Civil Engineers (ASCE)/ Water Environment Federation (WEF) MOP FD-5 and New England Interstate Water Pollution Control Commission (NEIWPCC) TR-16 shall apply, except that only the following pipe may be used.

- A. Extra heavy cast-iron soil pipe
- B. Cast-iron pipe (Class 150)
- C. Ductile Iron pipe
- D. Polyvinyl chloride (PVC) sewer pipe SDR-35

Notes: “No Bell” cast iron pipe is prohibited.
Pipe and fittings of same type, but different manufacturers shall not be used together.

All joints shall be tight and waterproof. Pipes installed on filled or unstable ground shall be cast-iron or ductile iron pipe except that nonmetallic material may be accepted if laid on a suitable concrete bed or cradle as approved by a BWSD duly authorized representative. *All main sewer lines shall be laid using a pipe laser. (Sewers 8 inches or larger or laterals in excess of 100 feet in length.)*

Section 7. “Connection to the Building Drain” - Whenever possible the building sewer shall be brought to the building at an elevation below the basement floor. In all buildings in which any building drain is too low to permit gravity flow to the public/private sewer, sewage carried by such building drain shall be lifted by a means approved by the BWSD and discharged to the building sewer. The design of such lifting devices shall be approved by the BWSD and installed and maintained by the owner with no liability assumed by the Town.

All changes in direction shall be made with clean outs or manholes subject to approval by the BWSD. No building sewer shall be laid parallel to and within five (5) feet of any bearing wall.

All construction for new buildings which shall commence after the effective date of this ordinance shall have the building drain exit the building through the basement floor and connect with the building sewer at an elevation below the basement floor whenever possible. There shall be a clean out located on the street line for rodding the service lateral.

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Section 8. “Prohibited Connections” - No person shall make connection of exhaust from steam engines, blow-off from boilers, roof down spouts, exterior foundation drains, areaway drains, sump pumps, cellar floor drainage or other sources of surface runoff or groundwater to a building sewer which in turn is connected directly or indirectly to a sanitary sewer.

Section 9. “Method of Pipe Installation and Backfilling” - The connection of the building sewer into the sanitary sewer shall conform to the requirements of the Building and Plumbing Code or other applicable rules and regulations of the Town of Braintree and/or the design procedures set forth in the appropriate specifications listed in Section 6.

All pipes shall be made gas tight, watertight and laid according to the instructions given under the paragraph on Sewer Mains. No blocks or stones shall be used to support the pipe. In instances where ground water may back up into the basement, a well compacted backfill seal may be placed around the building drain at the building. In areas where the sanitary sewer surcharges, a backflow prevention device may be installed on the building drain to prevent building backups with no liability assumed by the Town. The backflow preventer shall be maintained by the owner.

When water is present in a trench a sump of crushed stone shall be constructed and water shall be pumped at all times. The trench shall be kept dry at all times during construction. At all times when pipe installation is not in progress, the open ends of the pipe shall be closed with temporary watertight plugs or by other approved means.

All joints between pipes of different materials shall be made with approved pre-molded gasket joints.

The connection of the building sewer into public/private sewer shall be made at the “Y” or “T” branch if available at a suitable location. If no branch is available, a connection may be made by tapping the existing sanitary sewer by an approved method as approved by the Department. Cutting the “connection” in the pipe by hand is prohibited. ***Ductile iron sewer saddles using stainless steel bands and rubber seals are acceptable.***

Backfill shall be only with a suitable material placed in two (2) foot layers and each layer shall be compacted. Minimum cover for building sewers shall be subject to approval of the BWSD.

Section 10. “Notification to the Director” - The applicant or agent shall notify the Director (or his agent) when the building sewer is ready for inspection and connection to the public/private sewer. The connection shall be made under the supervision of the Director or duly authorized representative. No building sewer or building drain shall be backfilled without inspection.

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Section 11. “Protection of Public and Property” - All excavations for building sewer installations shall be adequately guarded, as determined by the BWSD or its duly authorized representative, with barricades and lights so as to protect the public from hazard. Streets, sidewalks, parkways and other public property disturbed in the course of the work shall be restored in a manner satisfactory to the Town.

Section 12. “Notification for Commencement of Works” - The Department shall be properly notified prior to the beginning of any work on a sewer or building drain. The applicant or agent shall provide to the BWSD a copy of a street opening permit from the Town at least forty-eight (48) hours prior to commencement of any work. When it is necessary to close off a street, the applicant or agent shall notify the Fire Department and the Police Department at least forty-eight (48) hours in advance.

Section 13. “Notification for Completion of Work” - Notification of the completion of the work shall be furnished to the BWSD with certification that all conditions have been complied with for the work covered in each permit. Record drawings shall be provided as described in these Rules and Regulations.

Section 14. “Reporting of Prohibited Substances Found in Sewer” - All agents shall give a full written report to the Director within twenty-four (24) hours in the event that prohibited substances, as defined in Article 360 CMR 10.021 – 10.023, are found in the sewer during the course of any work.

Section 15. “Proper Venting Required” - No building shall be connected to public/private sewer system unless said building has a vent line extended to a point above the roof, properly vented according to building and plumbing codes.

Section 16. “Performances Standard for Agent” - All agents shall agree to perform work according to all rules, regulations and conditions of the Department prior to any work done in the Town. The agent shall be fully insured and shall indemnify the Town against any and all claims, liabilities, or actions for damages incurred in, or in any way connected with, the performance of the work on the building drain or building sewer, or by reason of any acts of omission in the performance of his work. The Department reserves the right to authorize and allow only approved agents to perform work on building drains and sewers.

Section 17. “Variations From Rules and Regulations” - Any variation from these rules of the Town shall receive the approval of the Director before implementation.

Section 18. “Inspection Powers of the Department, the Director, and the MWRA” - The Department, the Director, the MWRA and any duly authorized representatives bearing proper identification, shall be permitted to enter, at reasonable times, all properties connected with the public/private sewers for the purposes of inspection, observation, measurement, sampling and testing, all in accordance with the provisions of these regulations. They may inquire into any processes, including metallurgical,

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chemical, oil refining, ceramic, paper, plating, or other industrial activity, that contribute waters or wastes to the public/private sewers but shall not order or demand information concerning any patented process or trade secret beyond that necessary to determine the kind, source and amount of sewage discharge from an industrial or commercial plant to the public/private sewer.

ARTICLE 5.0 - USE OF PUBLIC/PRIVATE SEWER

Section 1. “Connection to Public/Private Sewer - Required” - The owners of all houses, buildings or properties used for human occupancy, employment, recreation or other purposes, situated within the Town and abutting any street, easement, or right of way in which there is now located or may, in the future, be located and available (as defined in Article II), Public/Private Sewer of the Town, may hereby be required at his/her expense to connect such sanitary facilities as exist with the proper public/private sewer in accordance with the provisions of this ordinance, plumbing rules and regulations, or any other applicable rules and regulations of the Town of Braintree, within two (2) years after the date of acceptance of the sewer by the Department.

Additionally, persons with failed cesspools or septic systems shall be required to connect to the proper public/private sewer within a shorter time period as determined reasonable by the Board of Health.

All applicants, his heirs, devisees and assigns agree to abide by all rules and regulations, present and proposed, as set forth in this ordinance and those of the BWSD

Section 2. “Activities Requiring a State Permit” - No person shall construct, effect, maintain, modify or use any sewer system extension or connection without a currently valid permit from the MassDEP pursuant to M.G.L. c. 21, § 43, and 314 CMR 7.00, unless such activity meets all the applicable conditions in 314 CMR 7.05, as determined by the MassDEP. Notwithstanding the provisions in 314 CMR 7.05, the MassDEP may, pursuant to its authority under M.G.L. c. 21, § 43, and 314 CMR 7.00, require any person constructing, effecting, maintaining, modifying, or using any sewer system extension or connection to obtain a permit from the MassDEP. Any person who proposes to construct, effect, maintain, modify or use a sewer system extension or connection may obtain a permit by filing an application form in accordance with 314 CMR 7.00 and 2.00: Permit Procedures. The MassDEP may also require any person to provide information as the MassDEP may reasonably require to determine whether that person is subject to or in violation of M.G.L. c. 21, §§ 26 through 53, 314 CMR 7.00 and 314 CMR 12.00: Operation and Maintenance and Pretreatment Standards for Wastewater Treatment Works and Indirect Dischargers, including the conditions applicable to the activities not requiring a permit in 314 CMR 7.05.

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Discharges from an industrial user that have a Standard Industrial Classification (SIC) Code listed in Section 3 and discharge greater than 25,000 gallons per day to a Non-IPP-POTW, unless exempted in accordance with 314 CMR 7.05(1)(h).

Notwithstanding the provisions in 314 CMR 7.05, discharges, as determined by the MassDEP, that will or potentially could cause harm to the treatment works, pass through the treatment works, cause water quality violations in the receiving waters or cause wastewater to bypass part or all of the treatment works.

Section 3. “Standard Industrial Classification (SIC) Codes” - An Industrial User with a discharge to a sewer system and which the Department determines is classified by the following Standard Industrial Classification (SIC) Codes, or the corresponding North America Industry Classification System (NAICS) codes, is subject to 314 CMR 7.03(2) and 314 CMR 7.05(1)(h):

1000-1399	Metal Mining, Coal Mining, Oil and Gas Exploration;
1474-1499	Chemical/Fertilizer Mining, Nonmetallic Minerals;
2000-3999	Manufacturing;
4231	Maintenance Facilities for Motor Freight Transport;
4581	Airports, Flying Fields and Airport Terminal Service;
4911-4939	Electric and Gas Production;
4953	Refuse Systems;
7216	Dry-cleaning (except rug cleaning);
7217	Carpet and Upholstery Cleaning;
7218	Industrial Laundries;
7384	Photofinishing Laboratories;
7532-7539	Automotive Repair Shops and Paint Shops;
7549	Automotive Services;
7819	Motion Picture Developing/Printing/Film Processing;
8062-8069	Hospitals;
8071	Medical Laboratories;
8072	Dental Laboratories;
8731	Commercial Physical and Biological Research; and

Remedial discharges under M.G.L. c. 21E at any active or inactive facility falling in one or more of the above SIC Code categories.

Section 4. “Approval of Discharges” - No person shall discharge or cause to be discharged any wastes, sewage, or industrial wastes in any manner or method without proper treatment subject to approval by the BWSD or their designee and the MWRA.

Section 5. “Disposal of Unpolluted Waters Prohibited” - No person shall discharge, or cause to be discharged, any storm water, surface water, groundwater, cellar floor drainage, cellar sump pump discharge, roof runoff, subsurface drainage, uncontaminated cooling water, unpolluted process waters, exhaust from steam engines, or blow-off from boilers to the sanitary sewer.

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Section 6. “Discharge Method Specified” - Storm water and all other unpolluted drainage shall be discharged to such drains as are specifically designated storm drain systems, or to a natural outlet approved by the Town. Industrial cooling water or unpolluted process waters may be discharged, on approval of the Town, to a storm drain system or natural outlet.

Section 7. “Prohibited Wastes” - No person shall discharge or cause to be discharged any Prohibited Wastes as described in 360 CMR 10.021 – 10.023 and as supplemented by the following described wastes, to any public/private sewers:

- A. Any gasoline, benzene, naphtha, fuel oil, crude oil, lubricating oils, flammable or explosive liquids, solids, or gasses, or any other oils or gasses of hydrocarbon or petroleum origin.
- B. Any waters or wastes containing toxic or poisonous solids, liquids, or gasses in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance, or create any hazard in the receiving waters of the sewage treatment plant.
- C. Any waters or wastes having a pH lower than 5.5, or higher than 12.0, having any other corrosive property capable of causing damage or hazard to structures, equipment, and personnel of the sewage works.
- D. Solid or viscous substances in quantities or of such a size capable of causing obstruction of the flow in public/private sewers, or other interference with the proper operation of the sewage works such as, but not limited to, ash, ashes, cinders, sand, mud, straw, shavings, metal, glass, rags, feathers, tar, plastics, wood, rubber, latex, underground garbage, whole blood, paunch manure, hair and fleshings, entrails, paper dishes, cups, and milk containers, abrasive materials, etc., either whole or properly shredded by garbage grinders.

Section 8. “Controlled”/Limited Wastes - No person shall discharge, or cause to be discharged, any “Controlled”/Limited Wastes as described in 360 CMR 10.024 – 10.025 and as supplemented by the following substances, materials, waters, or wastes if, in the opinion of the BWSO, MWRA or Director, such wastes can harm either the public/private sewers, sewage treatment process, or equipment; have an adverse effect on the receiving stream; or can otherwise endanger life, limb, public property, or constitute a nuisance. In forming an opinion as to the acceptability of these wastes, the BWSO and the Authority will give consideration to such factors as the quantities of subject wastes in relation to flow and velocities in the public/private sewers, materials of construction of the public/private sewers, nature of the sewage treatment process, capacity of the sewage treatment plant, degree of treatability of wastes in the sewage treatment plant, and other pertinent factors. The controlled/limited substances are:

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- A. Any liquid or vapor having a temperature higher than one hundred fifty degrees(150°F), (65°C).
- B. Any water or waste containing fats, wax, grease, or oils of vegetable or animal origin, whether emulsified or not, in excess of one hundred (100) mg/1 or containing other substances which may solidify or become viscous at temperatures between thirty-two degrees (32°F), and one hundred fifty degrees (150°F), (0°C and 65°C). The use of chemical or physical means (such as temperature variation, emulsifying agents, or mechanical mixers) to bypass or release fats, oils, and greases into the public/private sewer system is prohibited.
- C. Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric), or greater, shall be subject to the prior review and approval of the Department or their designee.
- D. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
- E. Any waters or wastes containing iron, chromium, copper, zinc, any similar objectionable or toxic substances, or wastes exerting an excessive chlorine requirement, to such degree that any such material received in the composite sewage at the sewage treatment plant exceeds the limits established by the Authority for such materials.
- F. Any waters or wastes containing phenols or other taste or odor producing substances, in such concentrations exceeding limits which may be established by the Authority, as necessary, after treatment of the composite sewage to meet the requirements of the State, Federal, or other public agencies or jurisdiction for such discharge to the receiving waters.
- G. Any radioactive wastes or isotopes of such half-life or concentration as may exceed limits which may be established by the Department of the Authority in compliance with applicable State or Federal regulations.
- H. Any waters or wastes having a pH in excess of 12.0.
- I. Materials which exert or cause:
 - 1. Unusual concentrations of inert suspended solids (such as, but not limited to, fullers earth, lime slurries, and, lime residues) or of dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate).

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2. Excessive discoloration (such as, but not limited to, dye wastes and vegetable tanning solutions).
 3. Unusual BOD, chemical oxygen demand, or chlorine requirements in such quantities as to constitute a significant load on the sewage treatment plant.
 - 4, Unusual volume of flow or concentration of wastes constituting slugs, as defined in Article 2.
- J. Waters or wastes containing substances which are not amenable to treatment or reduction by the sewage treatment process employed, or are amenable to treatment only to such degree that the sewage treatment plant effluent cannot meet the requirements of other agencies having jurisdiction over discharge to the receiving waters.

Section 9. “Decisions of Department and/or MWRA” - If any waters or wastes are discharged, or are proposed to be discharged, to the public/private sewers, which contain the substances or possess the characteristics enumerated in Section 6 of this Article and which, in the judgment of the Department or the MWRA, may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the authority may:

- A. Reject the wastes.
- B. Require pretreatment as an acceptable condition for discharge to the public/private sewers.
- C. Require control over the quantities and rates of discharge, and/or treatment of said fluids.
- D. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges.

If the MWRA permits the pretreatment or equalization of waste flow, the design and installation of the plants and equipment shall be subject to the review and approval of the Department and the MWRA and subject to the requirements of all applicable codes, ordinances and by-laws.

Section 10. “Special Temporary Permits” - Notwithstanding the limitations set forth in Article III, above, a special temporary permit or amendment to an existing permit between the MWRA and the Town and the user may be issued. Under the special temporary permit a waste of unusual character or strength may be accepted on an interim

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basis. Such a permit would only be issued under unusual or extraordinary circumstances, which compel special terms and/or conditions of temporary durations.

Such permits or amendments will be issued only when they would not cause any interference with or disruption in the treatment works, would not violate the NPDES permit or Commonwealth water quality standards, and would not force additional controls on other discharges to achieve compliance with effluent limitations.

Section 11. “Maintenance of Pretreatment Facilities” - When preliminary treatment of flow-equalizing facilities are provided for any waters or wastes, where approved by the Authority, they shall be maintained continuously in satisfactory and effective operation by the owner at his expense.

Section 12. “Control Manholes” - When required by the BWSO or MWRA, the Owner of any property serviced by a building sewer carrying industrial wastes shall install a suitable control manhole, together with such necessary meters and other appurtenances, in the building sewer to facilitate observation, sampling, and measurement of the wastes. Such manhole, when required, shall be accessible and safely located, and shall be constructed in accordance with plans approved by the BWSO and/or MWRA. The manhole shall be installed by the Owner at his expense, and shall be maintained by him so as to be safe and accessible at all times. The manhole shall be installed as close as possible to the street line and shall include a 6” sewer drop to facilitate sampling.

Section 13. “Wastewater Sampling” - All measurements, tests, and analysis of the characteristics of water and wastewater, to which reference is made in this Ordinance, shall be determined in accordance with the approval of the Authority the latest edition of “Standard Methods for the Examination of Water and Wastewater”, published by the American Public Health Association, and shall be determined at the control manhole provided, and/or as required by the Authority upon suitable samples taken at said control manhole and analyzed by a State Certified Laboratory. In the event that there is no special manhole, the next downstream manhole from the point at which the building sewer is connected, shall be used for the sampling. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb and property. The BWSO shall be copied with all measurement and test results submitted to the Authority.

Section 14. “Monitoring of Accidental Discharge Required” - All industries discharging into a public/private sewer shall perform such monitoring of their discharges as the Authority, BWSO, and/or other duly authorized employees of the Town may reasonably require, including installation and use of maintenance monitoring equipment as well as keeping records and reporting the results of such monitoring to the Authority and BWSO. Such records shall be made available to the Authority and BWSO upon request by the BWSO and/or MWRA and to other agencies having jurisdiction over discharges to the receiving waters.

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Section 15. “Notice of Accidental Discharge Required” - Any person responsible for, or becoming aware of the discharge to a public/private sewer, accidental or otherwise, of any prohibited substance or of any sludge as defined herein, shall report same immediately by telephone to the Authority and BWSO or their duly authorized representative so that necessary precautions can be taken to minimize any harmful impact to the system. The event shall be followed by a detailed written statement to the Authority and the BWSO describing the causes for the accidental discharge and the measures being taken to prevent future occurrence, as required by the Authority. Such notification will not relieve users of liability for any expense, loss or damage to the MWRA Sewerage System and the Town’s sewage works, or for any fines imposed by the Authority or the Town.

Users shall inform their employees of the existence of these regulations and at least one copy shall be permanently posted on the user’s bulletin board. Each user shall permanently post a notice advising employees who, in their organization, has been designated as the responsible individual for compliance with these regulations and who should be notified of any accidental discharges in violation of these regulations.

Section 16. “Infiltration and Inflow Removal” - All Private sewer system authorities, who propose to connect to the Braintree municipal sewer system, shall develop and implement an ongoing plan to control infiltration and inflow (I/I) to the sewer system in compliance with MassDEP requirements.

For those Private sewer system authorities with NPDES discharge permits for combined sewer overflows, and for all sewer systems tributary to such sewer systems, and for other sewer systems which the MassDEP specifically determines are at risk of wet weather sanitary sewer overflows (SSOs), the infiltration and inflow plan shall also include a program to address impacts from new sewer connections and extensions to the sewer system. All sewer system authorities shall include provisions in their I/I plan for mitigating impacts from any new connections or extensions where proposed flows exceed 15,000 gallons per day. Such mitigation shall require that four gallons of infiltration and/or inflow be removed for each gallon of new flow to be generated by the new sewer connection or extension, unless otherwise approved by the Department. The sewer system authority or the Department may require a higher removal rate per gallon of new flow in sensitive areas such as where overflows have the potential to impact drinking water supplies or nitrogen sensitive areas.

If the Department determines that there will be negative impacts due to the proposed flow and that infiltration/inflow reduction is required, the Private Sewer System Authority shall, at their expense, perform all testing analysis and work required by the Department, under supervision of a qualified consulting firm approved by the Department.

The Department shall approve all such testing, analysis and work.

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ARTICLE 6.0 - SEWER DESIGN CRITERIA

Section 1. “General” – All sewer extension designs shall be constructed in accordance with standard design procedures and shall consider increased wet weather flow due to infiltration and inflow (I/I). The designer shall provide evidence that excessive I/I is not present in the area to be served.

Ductile Iron Pipe shall be used in cuts over twenty (20) feet and shall extend from manhole to manhole. The minimum pipe diameter in sewer mains shall be 8 inches.

Manholes: Manholes shall be provided at all changes in direction, grade, alignment and pipe size and at pipe intersections and at end of each line. The maximum distance between manholes shall not be greater than four hundred feet (400’) for sewers fifteen inches (15”) in diameter, or less, and five hundred feet (500’) for sewers fifteen inches (15”) to thirty (30”) in diameter.

Buoyancy: In locations where there is potential for high groundwater, buoyancy of sewer pipe and structures shall be considered with proper construction techniques provided to prevent flotation. In problematic areas, engineering plans shall be submitted demonstrating that the potential for floatation has been prevented.

Relation to Water Mains:

Horizontal Separation: Wherever possible sewer mains shall maintain a horizontal distance of ten feet (10’) from any existing or proposed water main.

Vertical Separation: Where local conditions prevent this ten foot (10’) horizontal separation an exception may be granted by the BWSD to allow the sewer to be installed closer to the water main, provided it is installed in a separate trench and the top of the sewer is a minimum of eighteen inches (18”) below the bottom of the water main.

Crossing Water Mains: Where a sewer main must cross a water main, the top of the sewer main shall be a minimum of eighteen inches (18”) below the bottom of the water main and a full length of sewer pipe shall be centered on the crossing point to ensure the joints are as far as possible from the water main.

Where local conditions prove impossible to achieve horizontal/vertical separation as stipulated above an exception may be granted by the BWSD, provided both the water main and sewer main shall be constructed/re-constructed of mechanical joint, double-cement lined ductile iron pipe. Both mains shall be tested by an approved method to ensure they are watertight and then encased in excavatable controlled density fill to subgrade and to ten feet (10’) each side of the crossing.

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Section 2. “Gravity Sewer Pipe for Mains” - (Poly Vinyl Chloride) Pipe shall be type PSM, PVC SDR35 with full diameter dimensions and shall conform to ASTM D-3034, or ASTM F679, modified to include the most advanced technical achievements concerning “flexible conduct concept” and Ring-Tite gasket jointing systems. PVC pipe shall be SDR 35 integral bell gasket joint, spigot end to be tapered with memory ring. Bell joints shall meet ASTM D3212, having an elastomeric gasket set in a groove for a fluid tight joint. The elastomeric gasket shall conform to ASTM F477. Each pipe shall be marked with the proper color/markings by the manufacturer. Nitrile/Oil resistant gaskets shall be used when laying pipe in contaminated soils.

Fittings for PVC Mains shall meet the requirements of ASTM D3034 and D3212 and be from the same manufacturer as the pipe.

Section 3. “Ductile Iron Tyton Joint” - Pipe shall be Class 53, double cement lined, and have asphaltic coating inside and out in eighteen to twenty (18 - 20) foot lengths. Pipe shall be in full conformance with ANSI specifications (A21.51 and A21.11 for mechanical joint or push-on, or push-on joint ductile iron pipe with cement lining conform to ANSI A21.4. Joints shall be pushed or mechanical joints conforming to AWWA C111. Nitrile/Oil resistant gaskets shall be used when laying pipe in contaminated soils.

Section 4. “Service Wyes” House service wyes for new PVC sewer main shall be 45° wyes, or Tee-wyes, placed in such a location to allow the straightest line as possible to the building, preferably laid out perpendicular to the sewer main. They wye will be of size to fit the main and on the lateral side it will be six (6) inches. Services with a vertical difference of 4’ to 12’ between building sewer and sewer main invert shall have 22° or 45° bends where necessary, to permit snakes and rods to be used for cleaning. Chimney drop service connections are only allowed where the vertical drop from ground surface to the crown of the sewer main is 12’, unless approved otherwise by the BWS.

Section 5. “Cleanouts” Cleanouts on sewer service laterals shall be provided on all service connections located at the street/property line and at every one hundred (100) linear feet of service line thereafter. They shall have an access cover just below the finished grade. They shall also be installed at any sharp bends. Cleanouts shall be modified to have a Tee at the bottom for b-directional Television Inspection, rather than a typical Tee-Wye. Clean outs shall have an East Jordan Iron Works 1573Z A Set “top hat” cover, or approved equal, will be used. The cover, which will be brought to finished grade, will have lettering indicating “Sewer” and be installed according to specifications.

Section 6. “Sewer Manholes”
Manholes shall be four feet (4’) and five feet (5’) in diameter, as applicable. The manholes shall conform to ASTM Standard Specifications for Precast reinforced Concrete Manhole Sections, Designation C478. The manhole barrel wall shall be at least 5 in. thick for 48” diameter sections and 6” thick for 60” diameter sections and shall be

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tar coated on the outside. The manhole cone shall be of the eccentric type, with minimum wall thickness of 5” at the bottom and 8” at the top, tapering from a minimum of 48” diameter at the bottom to 24” or 30” diameter at the top, as applicable, and all joints shall be sealed with butyl rubber joint sealant. Concrete shall have a minimum compressive strength of 4000 PSI Type II cement and a live load design base for all sewer manholes shall be H-20 loading. The trademark or name of the manufacturer and date of manufacture shall be clearly marked on the inside of each section.

Section 7. “Manhole Steps” Shall be steel reinforced copolymer polypropylene plastic. Rungs shall be fourteen (14) inches wide. Copolymer polypropylene shall be Type II, grade 16906 meeting ASTM specifications D2146. Steel reinforcing shall be 3/8 inch diameter, grade 60 conforming to ASTM specification A615 and shall be continuous throughout the rung. The portion of the legs to be embedded in the precast section shall have fins and be tapered to insure a secure bond.

All steps shall start a foot off of the shelf of the manhole floor and continue twelve (12) inches on center spacing up through the complete height of the unit. The steps shall finish no lower than twenty-four (24) inches below the finish rim elevation.

Section 8. “Pipe Connections” Pre-molded elastomeric sealed joints shall be used at the joints between the pipe and sewer manhole sections. For new manholes, pre-molded elastomeric sealed joints shall be CAST-N-SEAL joint sleeve, or approved equal. For existing manholes, pre-molded elastomeric sealed joints shall be KOR-N-SEAL joint sleeve, or approved equal

Section 9. “Drop Sewer Manholes” Drop manholes should be used only when it is not economically feasible to steepen the incoming sewer. Provide drop manholes for a sewer pipe with an invert entering a manhole more than 24” above the manhole invert. Drop connection for sewer manholes shall be constructed utilizing polyvinyl chloride pipe conforming to ASTM D3034 and shall be SDR35, elastomeric sealed joints core bored in sewer manholes, with the drop on the outside of the sewer manhole encased in concrete. Outside drop manholes shall be standard, with inside drop manholes an accepted option, after review and approval of the BWSO. Inside drop manholes shall have a diameter of five feet (5’) minimum, with the drop secured to the interior wall.

Section 10. “Tables and Inverts” Sewer manhole tables and inverts shall be constructed of a hard red sewer brick, conforming to ASTM C32, for Grade SS, set in concrete mortar using no lime. The size and shape of the invert shall accurately conform to the adjoining sewer pipes. The tables shall pitch a minimum of one (1) inch per foot from the outside diameter to the center of the invert. The filler material under the table brick shall be a semi-dry mixture of sand, 3/4 stone and Portland cement, no lime.

Section 11. “Bedding Material” Bedding material and limits under and around sewer manholes shall conform to the requirements of pipe bedding material and limits specified for adjacent sewer work.

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Section 12. “Frames and Covers” Sewer manhole frames and covers shall be of Town Standard: Standard frame and cover shall be cast iron ASTM A48, H-20 loading and the frame will have a clear opening of twenty-three & a half inches (23-1/2”). They shall be East Jordan Iron works Model 1258Z Frame with 1258A1GS cover. Cover shall have two Epic pick bars and be marked with “S” in 3-14” flat faced gothic, and shall be installed in accordance with the manufacturer’s instructions. The frames shall rest on a minimum of two rows of bricks and a maximum of five rows.

Section 13. “Manholes in Easements” The rim elevation of the manhole frame is to be six (6) inches above ground elevation in easements. In wetland areas, swales, or areas subject to flooding the rim elevation shall be located at an acceptable level above the estimated flood or high water elevation. The ground around the manhole is to be raised at a 2:1 slope to provide satisfactory cover for the manhole. In areas where this is unacceptable to the Town or considered impractical by the Town, a watertight frame and cover shall be used. The watertight frame and cover shall be East Jordan Iron works Model 1258Z Frame with 1258A1GS cover, as described above.

Section 14. “Sewer Main Construction” Pipes shall be carefully laid to the lines and grades as shown on the approved plans. The contractor shall provide laser beam alignment equipment for use in pipe laying. Standard sewer construction procedures shall be utilized, incorporating additional guidelines prescribed in NEIWPC TR-16. The Contractor shall request from the BWSD a set of detailed specifications if there is any doubt as to acceptable practices.

Gravity sewer mains will be installed by method of a laser only and using proper target for laser. The minimum and maximum grades shall be in conformance with BWSD standard slopes for gravity sewers provided in the Appendices, for a minimum flow velocity of two (2) feet per second and a maximum flow velocity of ten (10) feet per second.

Section 15. “Leakage Testing of Gravity Sewer Lines” Upon completion of a section of the gravity sewer, the Contractor shall employ one or more of the following test methods.

Were the groundwater level is more than 1 foot above the top of the pipe at its upper end, the Contractor shall conduct a satisfactory test to measure the infiltration for at least 24 hours. The amount of infiltration, excluding manholes, shall be less than 100 gallons per inch diameter per mile of sewer per 24 hours. The Contractor shall be responsible for the satisfactory water tightness of the entire section of sewer, and shall satisfactorily repair all joints or other locations that are not sufficiently watertight. As required, suitable bulkheads shall be installed to permit the test of the sewer.

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Where the ground water level is less than one foot above the top of the pipe at the upper end of the sewer reach, the sewer shall be subjected to an internal pressure by plugging the pipe at the lower end of the sewer reach and then filling the pipelines and manholes with clean water to a height of 2 ft. above the top of the sewer at the upper end of the sewer reach.

The rate of leakage from the sewers shall be determined by measuring the amount of water required to maintain the level of 2 ft. above the top of the pipe. Leakage from the sewers under test shall not exceed the requirements for leakage into sewers as hereinbefore specified.

An approved method of air testing may be substituted for the above-mentioned methods of testing for exfiltration, upon approval by the Town, for each section of main laid, from manhole to manhole, before existing building services are tied into the main. The test shall be made under the observation of a Town inspector. The Testing Equipment shall meet the following requirements.

- 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 control panel.
- D. Three individual hoses shall be used for the following connections.
 - 1. From panel to pneumatic plugs for inflation.
 - 2. From panel to sealed line for introducing the low air pressure.
 - 3. From sealed line to panel for continually monitoring the air.

Other types of air testing equipment will be permitted subject to approval by the Town, and upon demonstration by the Contractor that such method can be employed safely and without damage to pipe or fittings.

Pipe shall be tested between manholes by installing pneumatic plugs in each end and inflating plugs to twenty-five (25) PSIG. Low air pressure shall be introduced into this sealed line until the internal air pressure reaches four (4) PSIG greater than the average back pressure of the groundwater that may be present. A period of two (2) minutes shall be required for stabilization (3.5 PSIG minimum pressure in the pipe), at which time the air supply shall be disconnected. The portion of line being tested shall be termed acceptable if the time required, in minutes, for the pressure to decrease from 3.5 PSIG to 2.5 PSIG greater than the average back pressure of any groundwater that may be over the pipe shall not be less than times listed on the following Table.

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Pipe Size	Minimum Time	Length For Minimum Time	Adjustment For Longer Length (Ft)
Inches	Minutes : Seconds	Feet	Seconds
8	3:47	300	0.76
10	4:43	240	1.187
12	5:40	200	1.709

Adapted from IPEX Sewer Piping Design, Municipal Manual.

The Contractor and the Town’s representative shall determine the average height of the ground water above the invert of the main pipe at the time of testing. The ground water height dimension shall then be divided by 2.3 to establish the pounds of pressure that must be added to all readings.

Example using 8” pipe:

Height of groundwater over bottom of pipe is 11.5 Ft; $H = 11.5 \text{ Ft} / 2.3 = 5 \text{ PSIG}$. This increases the 3.5 PSIG reading to 8.5 PSIG and the 2.5 PSIG reading to 7.5 PSIG.

(*5 PSIG is Max applied in the use of this this method, so 5 PSIG will be used)

Length of segment is 400 Ft. Time applied will be; $L = 400 \text{ Ft} * 0.76 / 60 = 5.06 = 5:04$].

The Contractor shall block all end caps to withstand an internal pressure of 5 PSIG (for example given). If the installation fails to meet this requirement, the Contractor shall determine the source of leakage and repair or replace all defective materials or workmanship and retest until a satisfactory test has been completed.

Section 16. “Leakage Testing of Manholes” When the ground water table is below the bottom of the manhole, it shall be filled to the top of the cone and leakage shall be computed by measuring the drop in water level over a period of not less than four hours. The test shall be performed prior to mortaring the joints and installation of the bench and invert. Leakage shall not exceed 3 gallon per vertical foot per day.

When the ground water is above the bottom of the manhole, the Contractor shall perform an infiltration test on that portion of the manhole below water level. However, the Town may direct him to fill the manhole above the water level and make observations for an exfiltration test for the portion of the manhole above ground water level.

Any visible leakage, into or out of the manhole, shall be considered unsatisfactory. The leakage shall be corrected by reconstruction and/or replacement of the O-ring gasket. The use of lead wool, expanding mortar, or other repair methods shall not be permitted. The Contractor may also conduct vacuum tests on all manholes, in accordance with ASTM C1244, but only after installation and before backfilling. Pipe connection(s) should be of the flexible type and lift holes filled with non-shrinking grout. The manholes shall be sealed, with all stubs plugged, at an initial test vacuum of 10 inches of mercury. The vacuum drop should not exceed 1 inch of mercury as follows:

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Diameter (Feet)			
Depth (Feet)	4	5	6
Times (Seconds)			
0 – 12	30	39	49
12 – 16	40	52	67
16 – 20	50	65	81
20 -24	59	78	97

Section 17. “PVC Sewer Line Deflection” All PVC pipe shall be designed to provide a maximum short term (less than 2 weeks following installation) deflection of 5% and maximum long term (greater than 6 months after installation) deflection of 7.5%, in conformance with ASTM D3034 . Both tests shall be required unless initial testing is done after more than two weeks following installation and maximum deflections less than 5% are found. Testing shall be done by the “Go-No-Go” Mandrel Method, pulled by hand, in accordance with manufacturer’s standards. The pipe shall be checked for deflection after backfilling and compaction is completed. The pipe line to be checked shall be thoroughly cleaned. A mandrel shall be pulled through the pipe to check overall deflection, and any pipe through which a mandrel can not be pulled without extreme force, shall be considered unacceptable.

Section 18. “Sewer Service Laterals” There shall be a written record kept of service laterals off the main. It shall show a measurement from manhole to wye to the point the service lateral exits the main. The length of each service lateral from the main to the end of the service lateral shall be recorded. When service laterals do not enter an existing building, the stubbed end shall be marked with a suitable marker telling what it is. The depth and three ties to permanent features shall be taken and recorded of the service lateral cleanout/property line and the depth and entry point to building clearly indicated. All records shall be given to the Braintree Water & Sewer Department inspector upon request or completion of project.

Sewer lateral line used to service multi-unit buildings shall have sewer manhole at the upstream point at which the multi-branch sewer service starts.

The minimum grade for the service laterals shall be 2% or 1/4" per linear foot. The minimum cover shall be 4 feet. Service connection from the main line to the street line of all lots shall be installed whether or not there is a building thereon. Tie cards shall be furnished to the Town, showing “As Built” measurements of the existing sewer service and a distance from a street manhole to the house service wye.

Prior to acceptance by the Town, testing of service connections may be required.

Section 19. “Sewer Line Cleaning” After laying of the pipe is completed, the interior of the sewer pipe line shall be thoroughly cleaned from construction debris. Pipe line shall be flushed to remove any foreign matter, with bulkheads placed at strategic locations to prevent wash of undesirable material through completed sections of the

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system. When deemed necessary by the Town, a T.V. inspection may be required of the sewer line.

Section 20. “Inspections” All steps in the construction process shall be inspected and approved by the BWSO before the next process shall begin. No pipe is to be backfilled without the Town’s approval. Before any fittings or manholes are covered, ties from three (3) different and permanent points, trees, poles, house corners etc. shall be recorded and filed with the Town’s representative.

Section 21. “Acceptance of Sewer Lines” Tests shall be made in accordance with Town specifications before the pipe line will be acceptable.

Section 22. “Record Drawings” Plan and Profile view Record Drawings must be submitted at the completion of the project construction. Record drawings will show: center of all sewer manhole covers, rims and inverts, sizes of sewer pipes and distances from the center of the manholes to any wyes, tees, etc. A minimum of three ties to permanent structures will be provided to determine their location. All house, lot numbers, property lines, roadways and any easements shall be shown. If in the opinion of the BWSO the record drawings are considered illegible, the applicant must resubmit the plans prior to any release of bonds.

A fee for updating the Water and Sewer Department’s GIS system will be imposed. The fee will be based on the size of the project (See Fee Table in the Appendices).

ARTICLE 7.0 - INDUSTRIAL WASTE

Section 1. “Industrial User Permits” - Every user discharging industrial wastes to the public/private sewers or directly into the MWRA sewerage system shall obtain a joint permit from the MWRA and a permit from the Town. Industrial users proposing new discharges shall obtain such permits prior to constructing a building sewer. The MWRA and the Town may change the conditions of a permit from time to time as circumstances, including regulations enacted or promulgated by the Federal or State government or its agencies, may require. No user may increase the daily volume, strength or rate of his permitted discharge without first securing an amendment to his permit. A permit shall not be reassigned or transferred.

Section 2. “Requirements for Obtaining Industrial User Permits” - Every industrial user shall be required to obtain a permit application form from the MWRA.

The MWRA and the Town shall evaluate the adequacy of data furnished in the application form. If insufficient data has been furnished, the Authority will notify the industrial user to provide additional data within a specified time. After acceptance of data, the MWRA will issue the permit. The MWRA and the Town may stipulate special conditions and terms upon which the permit may be issued.

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If an industrial user discharges pollutants in violation of these regulations, the Authority or the Department may revoke the existing permit in accordance with Section 1 of this Article. If an industrial user shows that changes in the industrial discharge represent a reduction in the quantity and/or the strength of pollutants, the permit may be modified upon application by the industrial user to the MWRA and the Department or their duly Authorized representative.

Section 3. “Conditions of Permit” - Permits may contain the following conditions:

- A. Limits on rate, time and characteristics of discharge or requirements for flow regulation and equalization.
- B. Installation of inspection, flow measurement and sampling facilities including access to such facilities.
- C. Specifications for monitoring programs which may include flow measurement, sampling, chemical and biological tests, recording of data, and reporting schedule.
- D. Pretreatment requirements and schedules for implementation, including schedules for reporting progress towards meeting these requirements.
- E. Submission of discharge reports.
- F. Schedules for the payment of industrial cost recoveries as required under Section 204 of the Act, 40 CFR 403 National Pollutant Discharge Elimination System.
- G. Special service charges or fees.
- H. Other conditions as deemed appropriate by the MWRA, the Department or their duly Authorized representative, to ensure compliance with these regulations and with applicable requirements of Federal or State law.

Section 4. “Reporting” - When required by the permit, each industrial permittee shall submit a duly signed report to the Authority and the Department containing all information requested by the Authority, the Department or their duly Authorized representative. Such reports will be submitted at the specified intervals in a form acceptable to the Authority and the Department.

Section 5. “Industrial Wastes Measurements” - Measurement and analyses of industrial wastes may include many physical, chemical and biological parameters. Contact the MWRA for a more specific listing.

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Section 6. - “Flow Measurement” - For all industries with an average sewage flow of less than 3,000 gallons per day, flow shall be measured with a sealed water meter on the water supply line. For all industries with an average sewage flow of 3,000 gallons per day or more, a sewage flow measuring device of a type approved by the Department and/or the Authority or their duly appointed representative may be installed and maintained by the owner at his expense for the purpose of sewage flow measurement.

Section 7. - “Use of Information” - The MWRA and the Town may use the information provided in the permit applications, permits and reports as the basis for determining user charges and industrial cost recovery payments.

ARTICLE 8.0 - OPERATION OF LAW

Section 1. - “Protection from Damage”

Section 1.1 “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 Water and Sewer works. Any person violating this provision shall be subject to charges of disorderly conduct.

Section 1.2 “Trespass” - No unauthorized person shall enter or remain in or upon any land or structure of the Water and Sewer works. Any person violating this provision shall be subject to charges of trespass.

Section 2. - “Powers and Authority of Inspectors”

Section 2.1 “Permission for Inspection” - Duly authorized employees of the Water and Sewer Department, the Town, or the MWRA, 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.

Section 2.2 “Requirement to Observe Safety Rules” - While performing the necessary work on private properties referred to as under the powers and authority of inspectors in Section 2.1, 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 or MWRA employees, and the Town and MWRA shall indemnify the person against loss or damage to its

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property by Town or MWRA 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 in Article III, Section II.

Section 2.3 **“Authority in Easements Acquired by the Town”** - The members of the Department, the Director and other duly authorized representatives of the Town or the MWRA bearing proper credentials and identification shall be permitted to enter upon all private properties through which the Town or the MWRA 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.

Section 3. - “Penalties”

Section 3.1 **“Written Notice of Violation”** - Any person found to be violating any provision of this Ordinance, except those as may be administered by The State, shall be served by the Town with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof. The offender shall, within the period of time stated in such notice, permanently cease all violations.

Section 3.2 **“Penalty for Continued Violation”** - Any person who shall continue any violation beyond the time limit provided for penalties in Section 3.1, shall be charged with a misdemeanor and on conviction thereof shall be fined in the amount specified under the Enabling Act (H5189) passed April 3, 1984 for each violation. Each day in which any such violation shall continue shall be deemed a separate offense. If the violation continues, the Department shall direct Town Counsel to seek an injunction in the Superior Court of the Commonwealth of Massachusetts requiring the offender to cease all violations.

Section 3.3 **“Grease Treatment”** – All food establishments shall install and maintain in good working order a device which complies with the regulations of the Braintree Board of Health, BWSO and the approval of the Authority for the treatment of grease. Failure to comply with the BWSO regulations for treatment of grease shall be punishable by a fine for each offense. Each day that non-compliance continues shall be deemed a separate offense. This by-law may also be enforced, through non-criminal dispositions under Chapter 1.08 .

Section 3.4 **“Liability”** - Any person violating any of the provisions of this ordinance shall become liable to the Town and/or the MWRA for any expense, loss, or damage occasioned by the Town or the MWRA by reason of such offense.

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Section 3.5 ***“Repeal of Conflicting Ordinances”*** - All Ordinances or parts of ordinances in conflict herewith are hereby repealed.

Section 3.6 ***“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.

Section 3.7 ***“Changes in Rules and Regulations”*** - The Department 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 Department for its approval. Said amendment shall be in force only after its passage, approval, recording and publication as provided by the law.

Section 3.8 ***“Massachusetts Water Resources Authority”*** - In addition to the rules and regulations set forth in this ordinance, all persons shall comply, in full, with the Sewer Use Ordinance of the Massachusetts Water Resources Authority.

Section 3.9 ***“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.

Approved for the Town of Braintree Water and Sewer Department by its duly elected Mayor

Mayor Charles C. Kokoros

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APPENDIX A

DEFINITIONS

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DEFINITIONS

Unless the context specifically indicates otherwise, the meaning of terms used in this ordinance shall be as follows:

“Act” – Shall mean Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), as amended..

“Applicant” or “Owner” – Shall mean any person(s) requesting permission to discharge industrial wastes or sanitary sewage into the sewage works of the Town of Braintree or any person connected to the water system of the Town of Braintree.

“Agent” – Shall mean any individual, firm or corporation hired by the applicant or owner to install a building drain or building sewer.

“Available” - A public/private sewer shall be considered available when the property upon which a building is situated abuts a street, easement, or right of way in which a public/private sewer is located. If said building is more than one hundred fifty feet (150’) from the nearest public sewer, application may be made in writing requesting a declaration that public sewer “is not available”.

“Authority” – Shall mean the Massachusetts Water Resources Authority, Commonwealth of Massachusetts, or its duly authorized representative(s).

“Biochemical Oxygen Demand” (Denoted “BOD”) - Shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures in five days at 20° C, expressed in milligrams per liter.

“Building Drain” - Sanitary – Shall mean that part of the lowest horizontal piping of a drainage system which receives the discharge of plumbing fixtures, sanitary or approved waste to a point ten feet outside the inner surface of a building foundation wall and conveys it to the building sewer.

“Building Sewer” – Shall mean the extension from the building drain that begins ten feet outside the inner surface of a building foundation wall and extends to the public/private sewer or other place of disposal.

“BWSD” – Shall mean the Braintree Water and Sewer Department.

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“Chemical Oxygen Demand” (Denoted COD) – Shall mean the quantity of oxygen utilized in the chemical oxidation of organic matter with a strong chemical oxidant, expressed in milligrams per liter.

“Combined Sewer” – Shall mean a public/private sewer receiving both surface water and sewage.

“Compatible Pollutant” – Shall mean a substance that is amenable to removal in substantial amounts by a sewage treatment plant. Compatible pollutants include, but are not limited to, coliform bacteria, suspended solids, and those substances that exert BOD.

“Controlled Wastes” – Shall mean solid, liquid or gaseous materials or substances discharged into the public/private sewer within certain limitations as described in the MWRA Sewer Application Form.

“Director” – Shall mean the Director of the Water and Sewer Department.

“Department” – Shall mean the Water and Sewer Department of the Town of Braintree.

“Easement” – Shall mean a certain area of land designated by the Department for maintenance of the wastewater system. The owner is required to keep this “Easement” accessible and free and clear to the BWSD.

“Enabling Act” – Shall mean the Act, House Bill 5189, passed into law by the State of Massachusetts on April 3, 1984, which increases the penalties for unauthorized connections or alterations to the Town sanitary sewer system. The fines for a sump pump, clean-out cap removal, or any other alteration of the sewerage system and for storm water drainage and/or roof leader(s) shall be as listed in Appendix D.

“Equalization of Waste Flows” – Shall mean an average of variations in flow and composition of sewage from particular sources, by an equalizing basin or other means, to provide a flow of reasonably uniform volume and composition prior to discharge into a public/private sewer may be required.

“Excessive” – Shall mean an amounts or concentrations of a constituent of sewage which, in the judgment of the Director or his designee, will cause damage to any sewage works, which will be harmful to a sewage treatment plant to the degree required to meet the limits set forth in the plant’s discharge permit, and/or which can constitute a nuisance.

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“Floatable Oil” – Shall mean oil, fat or grease in a physical state such that, it will separate by gravity from sewage by treatment in an approved pretreatment facility.

“Garage” – Shall mean any building wherein is kept or stored one or more motor vehicles including armory, a public or private garage, carport, motor vehicle repair or paint shop, service station, lubritorium, car wash or any building used for similar purposes.

“Garbage” - Shall mean solid wastes from the domestic and commercial preparation, cooking and dispensing of food and from the handling, storage and sale of produce.

“Incompatible Pollutant” - Shall mean a substance that is not amenable to removal in substantial amounts by a sewage treatment plant. Incompatible pollutants include, but are not limited to, toxic metals and persistent organics.

“Indirect Discharger or Industrial User” - the entity that introduces pollutants into a municipal sewer system from any non-domestic source.

“Industrial Waste” - any liquid, gaseous, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovery of any natural resources.

“Industrial Wastewater” - waste in liquid form resulting from any process of industry, trade, or business, regardless of volume or pollutant content. Waste in liquid form consisting of only sewage is not considered industrial wastewater.

“Industrial Wastewater Pretreatment” - the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in industrial wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a collection system for a POTW.

“Industrial Wastewater Pretreatment System or IWPS” - a treatment works for Industrial Wastewater Pretreatment prior to discharge into a collection system for a POTW. A treatment works consisting solely of one or more of the following is not considered an IWPS:

- (a) Grease traps;
- (b) Oil-and-water separators such as Metropolitan District Commission (MDC)-designed traps;
- (c) Neutralization units which process less than 100 gallons per day;
- (d) Small Scale silver recovery units;
- (e) Limestone chip neutralization units; or
- (f) Closed loop systems.

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“Infiltration” - water other than wastewater that enters a sewer system (including sewer connections and foundation drains) from the ground through means which include, but are not limited to, defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

“Infiltration/Inflow” - the quantity of water from both infiltration and inflow without distinguishing the source.

“Inflow” - water other than sanitary flow that enters a sewer system (including sewer connections) from sources that include, but are not limited to, sump pumps, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, storm waters, surface runoff, street wash waters, drainage, or sump pumps. Inflow does not include, and is distinguished from, infiltration.

“IPP-POTW” - Means a POTW that has an industrial pretreatment program approved by US.EPA under 40 CFR 403.

“Massachusetts Water Quality Standards” - 314 CMR 4.00: Massachusetts Surface Water Quality Standards and 314 CMR 5.00: Ground Water Discharge Permit Program.

“Massachusetts Water Resources Authority (MWRA)” - Shall mean all the cities, towns and sewer districts served by the Authority in accordance with legislation.

“May” - is permissive.

“Mayor” – Shall mean the Mayor of Braintree, or his duly authorized deputy, agent or representative.

“Metropolitan Sewerage System” - Shall mean the sewage works under the control of the Authority.

“Milligrams per Liter” - (mpl) - Shall mean a unit of the concentration of water or sewage constituent. It is 0.001 gram of the constituent in one (1) liter of water.

“Municipality” - Shall mean any city, town or sewer district that discharges sewage or septage into the Metropolitan Sewerage System whether the city, town or district is a member of the MWRA

“Natural Outlet” - Shall mean any outlet into a watercourse, pond, ditch, lake or other body of surface or ground water.

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“Non-IPP-POTW” - Means a POTW that does not have an industrial pretreatment program approved by US EPA under 40 CFR 403.

“Ordinance” - Shall mean the Water and Sewer use ordinance of the Town of Braintree.

“Permit” - Shall mean the written application for either residential, commercial or industrial water service from the BWSO.

OR

“Permit” - Shall mean the written application for either residential, commercial or industrial waste sewerage service from the BWSO or Authority.

“Person” - Shall mean any agent, applicant, association, company, corporation, firm, group, individual, owner or society.

“pH” - Shall mean any logarithm of the reciprocal of the weight of hydrogen ions in grams per liter of solution.

“Pretreatment” - Shall mean any treatment of sewage to make it suitable for discharge to a public/private sewer.

“Private Sewer” - Shall mean a sewer which the public authority has not accepted control or ownership rights, or maintenance responsibilities.

“Prohibited Wastes” - Shall mean solid, liquid or gaseous materials or substances forbidden from discharge into the public/private sewer as described in Article V, of the Wastewater Rules and Regulations of this ordinance.

“Properly Shredded Garbage” - Shall mean the wastes from the preparation, cooking and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers with no particle greater than one-half inch (1/2"), (1.27 centimeters) in any dimension.

“Property Owner” – Shall mean the owner of the property served. The Property Owner is also referred to as the User, Water Taker etc.

“Publicly Owned Treatment Works or POTW” - Means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a public entity. A POTW includes any sewers, pipes, or other conveyances which convey wastewater to a POTW providing treatment.

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“Public Sewer” - Shall mean a sewer in which all owners of abutting properties have equal rights and is controlled by public authority.

“Receiving Waters” - Shall mean any watercourse, river, pond, ditch, lake, aquifer, ocean or other body of surface or groundwater receiving discharge of sewage or effluent.

“Representative” - Shall mean a duly authorized employee or person from the Authority or the town investigating or enforcing provisions of this ordinance or any other applicable Town, Federal or State rule, regulation or law.

“Sanitary Sewage” - Shall mean liquid and water-carried human and domestic wastes from residences, commercial buildings, industrial plants and institutions, exclusive of ground, storm and surface water and exclusive of industrial wastes.

“Sanitary Sewer” - Shall mean a public/private sewer which carries sewage and to which storm, surface and ground waters are not intentionally admitted.

“Septage” - Shall mean the liquid and solid wastes of sanitary sewage origin that are removed from a cesspool, septic tank or similar receptacle.

“Sanitary Sewer Overflow”(Denoted “SSO”) - Any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. The discharge of sewage into a building is not considered an SSO provided that the discharge was not the direct result of problems in the public sewer system.

“Sewage” - Shall mean a combination of the liquid and water-carried wastes from residences, commercial buildings, industrial plants, and institution, together with any groundwater, surface water and storm water that may be present.

“Sewage Treatment Plant” - Shall mean any arrangement of devices and structures used for treating sewage.

“Sewage Works” - Shall mean all facilities for collecting, pumping, treating and disposing of sewage.

“Sewer” - Shall mean a pipe or conduit for carrying sewage.

“Shall” - is mandatory. (“May” is permissive.)

“Sludge” - Shall mean waste containing varying amounts of solid contaminants removed from water, sanitary sewage or industrial wastes by physical, chemical and biological treatment.

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“Slug” - Shall mean any discharge of water, sewage or industrial wastes which, in concentration of any given constituent or in quantity of flow, exceeds for any period of duration longer than fifteen (15) minutes, more than five (5) times the average twenty-four (24) hour concentration of flows during normal operation.

“Storm Drain”(sometimes termed **“Storm Sewer”**) - Shall mean a sewer which carries storm and surface waters and drainage but excludes sewage and industrial wastes other than unpolluted cooling water.

“SUPERINTENDENT” – Shall mean the Director of the Water and Sewer Department

“Suspended Solids”(Denoted **“SS”**) - Shall mean solids that either float on the surface of or are in suspension in water, sewage, industrial wastes, or other liquids and which are removable by laboratory filtration.

“Town” - Shall mean the Town of Braintree in the County of Norfolk, Commonwealth of Massachusetts.

“Toxic Wastes” - Shall mean wastes containing toxic or poisonous solids, liquids or gases in sufficient quantity, either singly or by interaction with other wastes, to injure or interfere with any sewage treatment process, constitute a hazard to humans or animals, create a public nuisance or create any hazard in the receiving waters of a sewage treatment plant and those wastes so specified in this ordinance and in the Act.

“Tri-Town” - Shall mean the Body overseeing the Reservoirs made up of the Chairmen of the Board of Selectmen of the Town of Braintree, Town of Randolph and the Town of Holbrook in the County of Norfolk, Commonwealth of Massachusetts.

“TR-16” - Means the Guides for Design of Wastewater Treatment Works, prepared by the Technical Advisory Board of the New England Interstate Water Pollution Control Commission.

“Watercourse” - Shall mean a channel in which a flow of water occurs either continuously or intermittently.

“Water Main” - Shall mean a pipe or conduit for carrying water.

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APPENDIX B

MATERIAL SPECIFICATIONS

WATER MATERIAL SPECIFICATIONS SUMMARY

SEWER MATERIAL SPECIFICATIONS SUMMARY

STANDARDIZED SLOPES FOR GRAVITY SEWER

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WATER MATERIAL SPECIFICATION SHEET

GENERAL

1. All water main sewer extension designs shall be constructed in accordance with standard design procedures. This summary is not a substitution for the full body of the Rules and Regulations and does not exempt the reader from conforming to the design requirements therein.
2. The following is a summary of key water material specifications.

WATER PIPES

1. Minimum main size is 8 inch with bronze wedges.
2. Class #52 (Push-On joint or mechanical joint) meeting AWWA standard specifications.
3. Where mechanical joint pipe is used, the fittings shall be double-cement and asphaltic coated, Class 350, UL approved. All MJ accessories shall include low alloy corrosion resistant Corten T-bolts. The above shall meet AWWA standard specifications.
4. Where petroleum contamination plumes are encountered, Nitrile gaskets shall be used.

Ductile-Iron Pipe, Bell & Plain End Push-On Type Joint - Ductile iron water pipe shall be Class 52 conforming to ANSI/AWWA C151/A21.5, eighteen or twenty (18' to 20') foot lengths, (Push-On joint or mechanical joint).

Ductile Iron Push-On Joints shall be fitted with manufacturer furnished rubber gaskets, in accordance with ANSI/AWWA C111/A21.11. Bronze wedges shall be used in all pipe installations.

Interior shall be double cement-mortar lined with asphaltic coating in accordance with ANSI/AWWA C104/A21.4

Exterior Asphaltic Coating shall be in accordance with ANSI/AWWA C151/A21.51.

Pipe conductance shall be by way of 2 bronze wedges at every joint (10:00 & 2:00 +/-)

Polyethylene encasement shall be in accordance with AWWA C105 (if directed).

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For pipe detection use magnetic detectable tape, blue, 3-in. wide, imprinted with “CAUTION – BURIED WATER LINES BELOW” in black. Pipe and fittings shall be **“USA MADE”** type only.

Fittings - Fittings Ductile iron Fittings shall be Compact Type conforming to ANSI/AWWA C153/A21.53. Interior shall be double cement-mortar lined with asphaltic coating in accordance with ANSI/AWWA C104/A21.4. Exterior Asphaltic Coating shall be in accordance with ANSI/AWWA C153/A21.53.

Mechanical Joint accessories shall include Anti-Rotation T-bolts (Corten), Low Alloy corrosion resistant high strength steel in accordance with ANSI/AWWA C111/A21.11.

Couplings Used on ductile and cast iron piping, shall meet or exceed the requirements of AWWA C219 and NSF 61, center sleeve and end rings made from ductile iron. Hymax DI High Pressure, Smith Blair Quantum Long Sleeve, Romac Macro HP, or approved equal.

Exterior Coatings: Meet AWWA C213

Gaskets: EPDM, or Nitrile (Buna-N), NSF 61 Certified

Bolts and heavy hex nuts: Type 304 stainless

Repair Clamps shall be 100% stainless steel single band full circle repair clamp with grid gasket, high-strength stainless steel bolts and nuts, 18-8 heavy gauge, type 304 stainless steel, for AC, Transite, and Permastrand: Ford FS Style repair clamp or approved equal.

Anchor Tees shall be mechanical joint, in accordance with ANSI/AWWA C153/A21.53 and ANSI/AWWA C111/A21.11, with Bell Ends on the run and Plane End on the branch. The gate will be directly attached to the Tee Branch using the rotating split anchor gland.

Polyethylene encasement shall be in accordance with AWWA C105 (if directed). Fittings shall be **“USA MADE”** only.

Mechanical Joint Restraining Accessories - Rod clamps, tie bolts, duc lugs, threaded rod, rod couplings, rod clamp-washer, heavy hex nuts, eye-bolts (Corten-Mayari-R) rod clamp (cast iron), duc lugs (Malleable). All others standard high strength low alloy steel.

Mechanical Joint Retainer Glands - Glands shall be manufactured of ductile iron conforming to ASTM A 536. Restraining devices shall be of ductile iron heat treated to a minimum hardness of 370 BHN. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to ANSI/AWWA C111/A21.11 and ANSI/AWWA C153/A21.53 of latest revision. The mechanical joint restraint device shall have a working pressure of at least 250 psi with a minimum safety factor of 2:1.

1. Retainer glands shall be cast of high strength ductile iron and fitted with ductile iron wedging devices with twist-off pressure nuts; 3 each for 6” pipe, 4 each for 8” pipe, 6 each for 10” pipe 8 each for 12” pipe.

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2. Retainer glands shall be used on all hydrant branches on the 6-inch hydrant connection at (a) the joint opposite the tee on the 6-inch gate valve and (b) on the base of the hydrant at the 6- inch joint.
3. Retainer glands shall also be utilized on all main line bends.
4. All retainer glands shall be of the "snap-off" cap screw type as manufactured by Mega-Lug or approved equal.

Tapping Valve Mechanical Joint - All tapping valves shall be flanged by mechanical joint. Tapping valves shall conform to the material specifications and shall match the tapping sleeve.

1. Gate valves shall have 350 psig working pressure, non-rising stem (NRS), with ductile iron body, bonnet, stuffing box and 2" square operating nut, and shall conform to the requirements of AWWA C509 (3") and AWWA C515 (4" – 12").
2. Tapping Gate valves shall have an ANSI B16.1 inlet flange for attachment to a tapping sleeve or cross. The inlet flange shall have a machined projection or lip conforming to MSS SP-60 for accurate alignment to the mating recess of the tapping sleeve flange. The seat opening of the tapping valve shall be at least 0.30" than nominal pipe size, to permit full size shell cutters.
3. Valve stems shall be made of bronze ASTM B138 alloy C67600 H04 hard bar stock material. The bronze stem collar is to be hot forge upset; collars not integral with the stem are not acceptable. The stem material shall provide a minimum 73,000psi tensile strength, yield strength of 48,000psi and 8% minimum elongation.
4. Valves shall have Type 316 stainless steel bolts and nuts for the stuffing box and bonnet.
5. Triple O-Ring gate valve construction shall be such that the two upper O-rings and dirt seal can be replaced when the valve is in the full-open position and under pressure.
6. All interior and exterior ferrous metals shall have an epoxy coating of 10-mils nominal thickness and conform to AWWA C550.
7. Gate valves shall have an arrow cast on the operating nut showing opening direction: open left. (counter-clockwise)
8. Gate valves shall be Mueller T-2361 Resilient Wedge Gate, or approved equal.

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“SST” Stainless Steel Tapping Sleeve – All SST tapping sleeves shall be flanged joint. SST Tapping sleeves shall conform to the material specifications listed and shall match the tapping valve.

1. Tapping sleeves shall be NSF 61 certified and comply with ANSI B16.1 Class 125 drilling, with a machined centering recess for tapping valve in accordance with MSS-SP 60. Sleeves to consist of a fully passivated Type 304 stainless steel shell providing a full 360° seal with waffle design sealing gasket. Shell shall have heavy gauge stainless steel side bars with stainless steel nuts, bolt & washers. Maximum working pressure of 250 psig. Provide MJ outlet option on the branch. Provide Mueller H-304 Series, or approved equal.

Tapping Sleeve Mechanical Joint - Will be ductile iron, shall be mechanical joint with outlet flange conforming to A.W.W.A. C-207, Class D, ANSI 150 lbs. and drilling recessed for tapping sleeve.

1. All tapping sleeves shall be hydrostatic tested after they are assembled in place and before tapping. Pressure test format same as WE-12 for a fifteen (15) minute period.

Gate Valve Specifications - Gate valves shall be resilient seated gate valves 8" through 16" inclusive. GATE BOXES SHALL BE FURNISHED WITH TAPPING VALVES, **“USA MADE” TYPE ONLY.**

1. Resilient seated Buried gate valves shall have 350 psig working pressure, non-rising stem (NRS), with ductile iron body, bonnet, stuffing box and 2” square operating nut. Valves shall conform to the requirements of AWWA C509 (3”) and AWWA C515 (4” – 12”).
2. Buried gate valves shall have mechanical joint ends (MJ x MJ), with T-Bolt retention to prevent rotation during pipe installation.
3. Valve stems shall be made of bronze ASTM B138 alloy C67600 H04 hard bar stock material. The bronze stem collar is to be hot forge upset; collars not integral with the stem are not acceptable. The stem material shall provide a minimum 73,000 psi tensile strength, yield strength of 48,000psi and 8% minimum elongation.
4. Valves shall have Type 316 stainless steel bolts and nuts for the stuffing box and bonnet.
5. Triple O-Ring gate valve construction shall be such that the two upper O-rings and dirt seal can be replaced when the valve is in the full-open position and under pressure.

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6. All interior and exterior ferrous metals shall have an epoxy coating of 10-mils nominal thickness and conform to AWWA C550.
7. Gate valves shall have an arrow cast on the operating nut showing opening direction: open left. (counter-clockwise)
8. Gate valves shall be Mueller A-2361 Resilient Wedge Gate, or approved equal. The interior of the waterway in the body of a tapping valve shall be full opening and capable of passing a full sized shell cutter, “**USA MADE**” type only.

Section 12.0 Butterfly Valves - Butterfly valves for sizes four inch (4") through twenty-four inch (24") open left. All butterfly valves shall be of rubber-seated tight-closing types. Valves shall meet or exceed AWWA standard C504. Valve ends shall be mechanical joint per AWWA standard C111 with stainless steel hardware. All valves must comply with full AWWA standard C504 Class 150B shaft diameter and Full Class 150B underground service operation torque rating throughout the entire travel to provide for emergency service capability (or the latest revisions as applicable).

Applicant shall provide equipment specification data sheet for approval with their application.

Gate Boxes - Shall be furnished and installed for all valves and shall be Gate boxes, with cast iron covers marked “WATER”, shall be rough, even-grained cast-iron and of the adjustable, slip, heavy-pattern type. Gate boxes shall be designed and constructed so as to prevent the direct transmission of traffic loads to the pipe or valve. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve and fit over the gate valve bonnet. The boxes shall be adjustable through at least 12-in. vertically without reduction of the lap between sections to less than 4-in. The inside diameter of the boxes shall be at least 5 ¼-in., and the lengths shall be as necessary for the depth of the valves with which the boxes are to be used. Covers shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. An arrow and the word open to indicate the direction of turning to open the valve shall be cast in the top of the cover. **North American made only.**

WATER SERVICES

Service Tubing - Service Tubing (1”) shall be Type K copper, conforming to ASTM B-88, B-75 & B-68 and NSF-61. Service Tubing (1-1/2” and 2”) shall be Type K copper, conforming to ASTM B-88, B-75 & B-68 and NSF-6.

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Corporation - Corporation Stops shall be ball valve type, inlet AWWA taper with CC thread, outlet CTS O.D. Compression type. The parts of the Corporation Stop in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. The 1", 1-1/2" and 2" Corporations shall be Mueller B-25008N or Ford FB1000-(4, 6, 7)-Q-NL or approved equal.

1. 300 psig working pressure
2. Ball Coating: PTFE
3. Stem O-Ring: EPDM rubber
4. Molded Rubber Seats: Nitrile (Buna-N)
5. Pin: Stainless Steel
6. AWWA Taper Thread inlet, with CTS O.D Compression outlet
7. Open Left (counter-clockwise)

Ductile Iron Saddles – Ductile iron saddles with stainless steel straps for all service taps larger than 1” and/or all mains that are not ductile iron shall be of the double strap style and suitable for use on cast iron, ductile iron, C900 PVC and asbestos cement pipe.

1. Outlet tapped with AWWA taper CC thread
2. ASTM A536 ductile iron body, with 10-12 mil protective coating
3. Type 304L stainless steel straps
4. Nitrile O-ring gasket
5. NSF 61 Certified and meeting all the applicable parts of AWWA C800.
6. Saddles shall be Mueller DR1S or DR2S Series Service Saddles, or approved equal.

Curb Stop - Curb Stops shall be ball valve type, with CTS O.D. Compression type inlet and outlet. The parts of the Curb Stop in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. The 1", 1-1/2" and 2" Curb Stops shall be Mueller B-25209N or Ford B44-(444, 666, 777)-Q-NL or approved equal.

1. 300 psig working pressure
2. Ball Coating: PTFE
3. Stem O-Ring: EPDM rubber.
4. Molded Rubber Seats: Nitrile (Buna-N)
5. Pin: Stainless Steel
6. CTS O.D Compression inlet & outlet
7. Open Left (counter-clockwise)

Curb stop shall be located at a depth between four and a half to five feet deep.

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Couplings - Straight coupling-3 part, both ends pack joints for copper, iron or plastic pipe with a split locking clamp with stainless steel screw. The parts of the Coupling in contact with water shall be cast “no lead”, ASTM B584 Alloy C89833, brass conforming to AWWA standard C800. The 1", 1-1/2" & 2" couplings shall be Ford couplings C44-33-NL and C44-44-NL or approved equal.

Curb Boxes - Curb Boxes for service lines shall be made in two sections, sliding type arch pattern base. Curb boxes shaft shall have a minimum inside diameter of 2 ½". The cast iron curb boxes complete with valves marked “WATER” shall be Buffalo Style 95E or equal. **“NORTH AMERICAN MADE”** only.

METERS

1. Residential meters are shall be furnished by the Water Department.
2. Meters shall be Neptune Radio Read Meter– R900.

Hydrants – The BWSO standard for the purpose of establishing a design type, function, strength, durability and material quality is the Mueller Super Centurion, Model A-423, color YELLOW. Or–Equal products with the following features will be considered for approval:

Manufacturers:

1. Mueller Co., Decatur, IL. or approved equal.
2. Reference to a specific Model No., or a specific manufacturer is for the purpose of establishing a design type, function, strength, and durability and material quality and shall not be considered proprietary. Products of comparable design, material quality, strength, durability and function will be considered for approval.
3. Hydrants shall conform to the AWWA C502.
4. Hydrants shall be of the antifreeze type and shall have a depth of bury as indicated on the Drawings.
5. Hydrants shall be the “quick-fix” type. Hydrants shall have 5-1/4-in. valve with one 4-1/2-in. pumper and two 2-1/2-in. hose nozzles.
6. Hydrants shall open left (counter-clockwise).
7. The connection shall be 6-in. and of the mechanical-joint type.
8. Ductile iron retaining glands shall be provided.

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SEWER MATERIAL SPECIFICATION SHEET

GENERAL

1. All sewer extension designs shall be constructed in accordance with standard design procedures. This summary is not a substitution for the full body of the Rules and Regulations and does not exempt the reader from conforming to the design requirements therein.
2. No gravity sewer main shall be less than 8" in diameter.
3. Ductile Iron Pipe shall be used in cuts over twenty (20) feet and shall extend from manhole to manhole
4. The following is a summary of key sewer related material specifications.

PIPES

Gravity Sewer Pipe for Mains - (Poly Vinyl Chloride) Pipe shall be type PSM, PVC SDR35 with full diameter dimensions and shall conform to ASTM D-3034, or ASTM F679, modified to include the most advanced technical achievements concerning "flexible conduct concept" and Ring-Tite gasket jointing systems.

1. PVC pipe shall be SDR 35 integral bell gasket joint, spigot end to be tapered with memory ring. Bell joints shall meet ASTM D3212, having an elastomeric gasket set in a groove for a fluid tight joint.
2. The elastomeric gasket shall conform to ASTM F477. Each pipe shall be marked with the proper color/markings by the manufacturer.

Ductile Iron Tyton Joint - Pipe shall be Class 53, double cement lined, and have asphaltic coating inside and out in eighteen to twenty (18 - 20) foot lengths. Pipe shall be in full conformance with ANSI specifications (A21.51 and A21.11 for mechanical joint or push-on, or push-on joint ductile iron pipe with cement lining conform to ANSI A21.4. Joints shall be pushed or mechanical joints conforming to AWWA C111.

Fittings - (Poly Vinyl Chloride) Fittings shall meet the requirements of ASTM D3034 and D3212

Service Wyes - House service wye's for new PVC sewer main shall be 45⁰ wyes, or Tee-wyes.

1. They wye will be of size to fit the main and on the lateral side it will be six (6) inches.

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2. Services with a vertical difference of 4' to 12' between building sewer and sewer main invert shall have 22° or 45° bends where necessary, to permit snakes and rods to be used for cleaning.
3. Chimney drop service connections are only allowed where the vertical drop from ground surface to the crown of the sewer main is 12', unless approved otherwise by the BWS.

Cleanouts - Cleanouts on sewer service laterals shall be provided on all service connections located at the street/property line and at every one hundred (100) linear feet of service line thereafter and any sharp bends. They shall have an access cover just below the finished grade.

1. Cleanouts shall be modified to have a Tee at the bottom for bi-directional Television Inspection, rather than a typical Tee-Wye.
2. Cleanouts shall have an East Jordan Iron Works 1573Z A Set "top hat" cover, or approved equal.
3. The cover, which will be brought to finished grade, will have lettering indicating "Sewer" and be installed according to specifications.

MANHOLES

Sewer Manholes - Manholes shall be four feet (4') and five feet (5') in diameter, as applicable.

1. The manholes shall conform to ASTM Standard Specifications for Precast reinforced Concrete Manhole Sections, Designation C478.
2. The manhole barrel wall shall be at least 5 in. thick for 48" diameter sections and 6" thick for 60" diameter sections and shall be tar coated on the outside.
3. The manhole cone shall be of the eccentric type, with minimum wall thickness of 5" at the bottom and 8" at the top, tapering from a minimum of 48" diameter at the bottom to 24" or 30" diameter at the top, as applicable, and all joints shall be sealed with butyl rubber joint sealant.
4. Concrete shall have a minimum compressive strength of 4000 PSI Type II cement and a live load design base for all sewer manholes shall be H-20 loading.
5. The trademark or name of the manufacturer and date of manufacture shall be clearly marked on the inside of each section.

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Manhole Steps - Shall be steel reinforced copolymer polypropylene plastic.

1. Rungs shall be fourteen (14) inches wide.
2. Copolymer polypropylene shall be Type II, grade 16906 meeting ASTM specifications D2146.
3. Steel reinforcing shall be 3/8 inch diameter, grade 60 conforming to ASTM specification A615 and shall be continuous throughout the rung.
4. The portion of the legs to be embedded in the precast section shall have fins and be tapered to insure a secure bond.
5. All steps shall start a foot off of the shelf of the manhole floor and continue twelve (12) inches on center spacing up through the complete height of the unit. The steps shall finish no lower than twenty-four (24) inches below the finish rim elevation.

Pipe Connections - Pre-molded elastomeric sealed joints shall be used at the joints between the pipe and sewer manhole sections.

1. For new manholes, pre-molded elastomeric sealed joints shall be CAST-N-SEAL joint sleeve, or approved equal.
2. For existing manholes, pre-molded elastomeric sealed joints shall be KOR-N-SEAL joint sleeve, or approved equal

Drop Sewer Manholes - Drop manholes should be used only when it is not economically feasible to steepen the incoming sewer. Provide drop manholes for a sewer pipe with an invert entering a manhole more than 24" above the manhole invert.

1. Drop connection shall be constructed utilizing polyvinyl chloride pipe conforming to ASTM D3034 and shall be SDR35, with elastomeric sealed joints core bored in sewer manholes, with the drop on the outside of the sewer manhole encased in concrete.
2. Outside drop manholes shall be standard.
3. Inside drop manholes shall only be accepted after review and approval of the BWSD.
4. Inside drop manholes shall have a diameter of five feet (5') minimum, with the drop secured to the interior wall.

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Tables and Inverts - Sewer manhole tables and inverts shall be constructed of a hard red sewer brick, conforming to ASTM C32, for Grade SS, set in concrete mortar using no lime.

1. The size and shape of the invert shall accurately conform to the adjoining sewer pipes.
2. The tables shall pitch a minimum of one (1) inch per foot from the outside diameter to the center of the invert.
3. The filler material under the table brick shall be a semi-dry mixture of sand, 3/4 stone and Portland cement, no lime.

Bedding Material - Bedding material and limits under and around sewer manholes shall conform to the requirements of pipe bedding material and limits specified for adjacent sewer work.

Frames and Covers - Sewer manhole frames and covers shall be of Town Standard:

1. Cast iron ASTM A48, with H-20 loading
2. Clear opening of twenty-three & a half inches (23-1/2”).
3. East Jordan Iron works Model 1258Z Frame with 1258A1GS cover.
4. Cover shall have two Epic pick bars and be marked with “S” in 3-14” flat faced gothic.
5. The frames shall rest on a minimum of two rows of bricks and a maximum of five rows.

Manholes in Easements - The rim elevation of the manhole frame is to be six (6) inches above ground elevation in easements.

1. In areas subject to flooding the rim shall be above the estimated flood or high water elevation.
2. The ground around the manhole is to be raised at a 2:1 slope to provide satisfactory cover for the manhole.
3. In areas where this is unacceptable to the Town or considered impractical by the Town, a watertight frame and cover shall be used. The watertight frame and cover shall be East Jordan Iron works Model 1258Z Frame with 1258A1GS cover, as described above.

Braintree Standardized Slopes for Gravity Sewers

Sewers shall be designed and constructed to provide a minimum full pipe flow velocity of 2 Ft/s and a maximum flow velocity of 10 Ft/s, based on Manning's formula using an 'n' value of 0.013. Other "n" values may be considered, based on research or field data provided. If velocities are to exceed 10 Ft/s by necessity, design drawings indicating special provisions and hydraulic calculations stamped by a Massachusetts licensed engineer shall be provided.

	Pipe Dia. Inches		Slope Ft/Ft
Service Laterals	6	Min	0.0200
	6	Max	0.0600
Sewer Mains	8	Min	0.0040
	8	Max	0.0600
	10	Min	0.0028
	10	Max	0.0550
	12	Min	0.0022
	12	Max	0.0450
	14	Min	0.0017
	14	Max	0.0350
	15	Min	0.0015
	15	Max	0.0350
	16	Min	0.0014
	16	Max	0.0320
	18	Min	0.0012
	18	Max	0.0260
	21	Min	0.0010
	21	Max	0.0220
24	Min	0.0008	
24	Max	0.0180	
27	Min	0.00067	
27	Max	0.01600	
30	Min	0.00058	
30	Max	0.01400	
36	Min	0.00046	
36	Max	0.01100	

Minimum based on TR-16 Tabled data